Solar System Observations:

Hipparcos Observations: Astrometric Catalogue

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
1	80.602 287 7	27.582 745 1	7 920.560 732 1	0.04	351.716	4.91	1
1	80.601 327 9	27.583 210 0	7 920.575 071 5	0.03	351.734	11.34	2
1	80.601 322 6	27.583 205 2	7 920.575 077 6	0.03	351.716	5.06	1
1	80.596 335 4	27.585 586 2	7 920.649 620 4	0.00	351.716	6.02	1
1	80.596 339 4	27.585 584 2	7 920.649 663 7	0.00	351.734	15.02	2
1	80.595 387 4	27.586 045 8	7 920.663 960 0	0.00	351.734	14.04	2
1	80.595 380 6	27.586 045 7	7 920.663 966 0	0.00	351.716	4.72	1
1	80.590 450 4	27.588 439 4	7 920.738 527 4	−0.04	351.734	13.73	2
1	80.590 443 9	27.588 433 2	7 920.738 533 3	−0.04	351.716	3.95	1
1	80.589 508 8	27.588 890 3	7 920.752 848 3	−0.04	351.734	11.99	2
1	80.589 501 3	27.588 890 9	7 920.752 854 3	−0.04	351.716	3.90	1
1	80.584 628 7	27.591 261 4	7 920.827 415 8	−0.06	351.734	10.36	2
1	80.584 619 8	27.591 267 6	7 920.827 421 9	−0.06	351.716	3.52	1
1	80.583 695 2	27.591 729 8	7 920.841 724 4	−0.06	351.734	12.61	2
1	80.583 688 0	27.591 725 1	7 920.841 730 5	−0.06	351.716	3.47	1
1	80.322 341 2	27.833 598 0	7 928.738 167 7	−0.04	27.105	4.39	1
1	80.322 346 7	27.833 595 4	7 928.738 167 8	−0.04	27.136	10.12	2
1	80.322 323 4	27.834 022 3	7 928.752 513 2	−0.05	27.105	4.53	1
1	80.322 328 3	27.834 018 7	7 928.752 513 3	−0.05	27.136	8.96	2
1	80.322 255 6	27.836 223 6	7 928.827 056 1	−0.07	27.106	4.63	1
1	80.322 247 4	27.836 646 4	7 928.841 389 4	−0.07	27.106	4.44	1
1	80.322 250 4	27.836 639 1	7 928.841 389 4	−0.07	27.136	7.11	2
1	84.703 053 4	28.742 356 8	7 963.654 007 3	0.02	315.466	4.02	1
1	84.706 434 3	28.742 661 1	7 963.668 291 2	0.01	315.466	3.83	1
1	84.706 429 3	28.742 655 8	7 963.668 296 7	0.01	315.469	5.97	2
1	84.724 099 9	28.744 247 5	7 963.742 846 2	−0.03	315.470	5.04	1
1	84.724 092 7	28.744 243 7	7 963.742 851 8	−0.03	315.473	7.46	2
1	84.727 497 3	28.744 551 2	7 963.757 166 9	−0.04	315.471	4.36	1
1	84.727 491 3	28.744 546 4	7 963.757 172 6	−0.04	315.473	3.61	2
1	94.110 687 3	29.111 784 4	7 994.306 595 7	0.00	38.246	5.68	2
1	94.110 689 4	29.111 780 7	7 994.306 598 1	0.00	38.360	5.34	1
1	94.115 909 5	29.111 782 1	7 994.320 892 0	0.00	38.247	5.56	2
1	94.115 914 1	29.111 781 4	7 994.320 894 4	0.00	38.360	5.10	1
1	94.143 182 6	29.111 778 9	7 994.395 486 5	−0.04	38.365	4.37	1
1	101.487 436 2	28.925 931 8	8 013.147 201 6	−0.08	329.565	3.80	2
1	101.487 441 9	28.925 932 5	8 013.147 203 7	−0.08	329.710	4.67	1
1	101.493 373 7	28.925 633 4	8 013.161 522 6	−0.08	329.566	11.13	2
1	101.493 375 3	28.925 640 2	8 013.161 524 7	−0.08	329.711	6.03	1
1	210.496 385 9	−0.571 259 7	8 275.907 551 7	−0.06	157.364	3.10	1
1	210.499 821 0	−0.571 798 9	8 275.921 848 0	−0.06	157.364	7.75	1
1	210.499 845 7	−0.571 791 7	8 275.921 888 1	−0.06	157.379	3.88	2
1	214.818 494 2	−0.895 848 7	8 298.832 572 4	0.01	234.846	2.95	1
1	214.818 504 0	−0.895 856 0	8 298.832 578 7	0.01	234.871	10.02	2
1	214.820 358 0	−0.895 709 2	8 298.846 918 0	0.00	234.846	3.04	1
1	214.820 370 2	−0.895 714 9	8 298.846 924 1	0.00	234.871	10.36	2
1	214.830 041 2	−0.894 968 9	8 298.921 497 7	−0.04	234.846	2.90	1
1	214.830 051 2	−0.894 976 1	8 298.921 503 8	−0.04	234.871	6.27	2
1	214.831 893 8	−0.894 827 7	8 298.935 818 7	−0.04	234.846	2.75	1
1	214.831 902 4	−0.894 835 8	8 298.935 824 7	−0.05	234.871	14.00	2
1	202.869 055 5	−0.376 693 0	8 426.659 681 4	−0.10	348.397	10.80	2
1	202.869 015 6	−0.376 702 5	8 426.659 696 3	−0.10	348.377	3.14	1
1	211.136 687 6	−7.442 895 8	8 476.760 632 7	−0.07	337.392	6.03	2
1	211.136 668 0	−7.442 904 5	8 476.760 634 0	−0.07	337.359	6.18	1
1	211.140 385 0	−7.445 108 6	8 476.774 978 2	−0.09	337.392	13.53	2
1	223.324 904 6	−13.469 776 6	8 516.399 667 6	−0.13	35.752	6.09	1
1	223.351 034 4	−13.480 645 9	8 516.474 235 4	−0.12	35.751	7.21	1
1	223.356 077 3	−13.482 748 8	8 516.488 577 5	−0.11	35.660	9.60	2
1	223.356 063 6	−13.482 735 3	8 516.488 581 1	−0.11	35.751	5.85	1
1	223.382 211 1	−13.493 610 3	8 516.563 121 1	−0.06	35.659	9.67	2
1	223.382 196 1	−13.493 598 8	8 516.563 124 8	−0.06	35.750	7.40	1
1	223.387 221 8	−13.495 687 7	8 516.577 458 3	−0.04	35.750	5.55	1
1	223.387 240 0	−13.495 702 6	8 516.577 466 9	−0.04	35.659	28.29	2
1	223.538 233 8	−13.558 298 4	8 517.007 590 5	−0.06	33.335	4.77	1
1	225.502 393 9	−14.351 472 7	8 522.518 514 7	−0.11	8.375	4.45	2
1	225.502 364 9	−14.351 468 8	8 522.518 520 8	−0.11	8.318	4.77	1
1	225.507 576 3	−14.353 516 0	8 522.532 860 2	−0.12	8.375	6.39	2
1	225.507 547 3	−14.353 511 7	8 522.532 866 4	−0.12	8.318	4.53	1
1	225.534 491 8	−14.364 123 3	8 522.607 434 0	−0.13	8.319	4.92	1
1	225.539 654 6	−14.366 154 3	8 522.621 717 9	−0.13	8.319	4.34	1
1	225.539 688 1	−14.366 159 5	8 522.621 724 1	−0.13	8.375	6.90	2
1	225.566 644 3	−14.376 764 9	8 522.696 291 9	−0.11	8.376	9.94	2
1	225.566 615 1	−14.376 761 7	8 522.696 298 2	−0.11	8.319	4.43	1
1	225.571 830 8	−14.378 808 5	8 522.710 637 5	−0.11	8.376	8.61	2
1	225.571 801 7	−14.378 804 9	8 522.710 643 8	−0.11	8.319	3.46	1
1	225.598 760 5	−14.389 402 6	8 522.785 187 6	−0.05	8.319	4.48	1
1	225.598 798 5	−14.389 409 9	8 522.785 205 9	−0.05	8.376	9.54	2
1	225.603 970 0	−14.391 441 3	8 522.799 502 5	−0.03	8.376	11.52	2
1	225.663 130 9	−14.414 675 4	8 522.962 984 6	−0.11	6.377	4.33	2
1	225.663 100 7	−14.414 672 5	8 522.962 989 8	−0.11	6.394	4.00	1
1	225.668 306 8	−14.416 704 2	8 522.977 280 7	−0.12	6.377	9.84	2
1	225.668 281 2	−14.416 702 6	8 522.977 298 3	−0.12	6.394	3.61	1
1	225.695 282 7	−14.427 295 0	8 523.051 865 9	−0.13	6.394	4.09	1
1	225.700 465 2	−14.429 325 5	8 523.066 174 5	−0.13	6.395	3.65	1
1	225.727 473 8	−14.439 910 6	8 523.140 730 1	−0.11	6.395	5.16	1
1	225.727 508 4	−14.439 915 8	8 523.140 737 1	−0.11	6.377	14.45	2
1	225.732 671 8	−14.441 947 6	8 523.155 075 8	−0.11	6.395	4.43	1
1	225.732 706 3	−14.441 953 1	8 523.155 082 7	−0.11	6.377	8.14	2
1	225.759 721 9	−14.452 532 0	8 523.229 626 4	−0.05	6.378	4.65	2
1	225.759 692 0	−14.452 527 0	8 523.229 631 9	−0.05	6.395	5.12	1
1	225.764 912 9	−14.454 566 2	8 523.243 947 7	−0.03	6.378	7.46	2
1	225.764 882 6	−14.454 564 6	8 523.243 953 1	−0.03	6.395	5.16	1
1	302.124 541 7	−23.612 843 3	8 709.264 512 9	−0.09	203.968	6.04	1
1	302.124 571 0	−23.612 856 9	8 709.264 514 9	−0.09	203.950	10.72	2
1	302.129 123 0	−23.612 601 7	8 709.278 858 3	−0.10	203.968	5.51	1
1	302.129 153 2	−23.612 613 4	8 709.278 860 4	−0.10	203.950	6.93	2
1	302.152 931 1	−23.611 338 0	8 709.353 425 8	−0.13	203.966	6.14	1
1	302.152 961 7	−23.611 349 4	8 709.353 427 9	−0.13	203.948	5.99	2
1	302.157 501 5	−23.611 095 9	8 709.367 746 8	−0.13	203.965	5.90	1
1	302.157 532 2	−23.611 107 3	8 709.367 748 9	−0.13	203.948	11.92	2
1	308.685 329 0	−23.379 847 9	8 732.368 649 4	−0.12	122.378	10.66	2

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	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
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1	308.685 311 8	−23.379 875 3	8 732.368 658 3	−0.12	122.395	5.45	1
1	308.688 814 2	−23.379 866 4	8 732.382 966 9	−0.12	122.394	5.94	1
1	308.688 838 9	−23.379 839 8	8 732.382 982 8	−0.12	122.377	9.39	2
1	308.088 295 3	−28.428 864 0	8 933.227 704 8	−0.06	305.261	8.73	1
1	308.088 306 1	−28.428 848 2	8 933.227 706 2	−0.06	305.249	20.19	2
1	308.091 996 6	−28.427 636 5	8 933.242 025 8	−0.06	305.260	7.90	1
1	308.092 007 6	−28.427 620 8	8 933.242 027 2	−0.06	305.248	15.30	2
1	319.515 455 5	−24.619 892 2	8 970.651 872 5	0.01	11.900	9.23	2
1	319.515 430 2	−24.619 888 1	8 970.651 876 9	0.01	11.909	7.33	1
1	319.520 341 5	−24.618 214 8	8 970.666 218 2	0.02	11.900	7.11	2
1	319.520 317 3	−24.618 206 4	8 970.666 222 7	0.02	11.909	5.18	1
1	319.545 744 7	−24.609 486 4	8 970.740 786 1	0.04	11.899	9.00	2
1	319.550 615 8	−24.607 813 1	8 970.755 082 5	0.05	11.898	5.93	2
1	319.550 591 2	−24.607 807 6	8 970.755 087 2	0.05	11.907	5.08	1
1	319.605 638 8	−24.588 900 0	8 970.916 508 7	−0.06	10.673	6.31	2
1	319.605 615 2	−24.588 894 5	8 970.916 516 5	−0.06	10.721	4.88	1
1	319.610 521 2	−24.587 224 0	8 970.930 829 7	−0.06	10.673	3.03	2
1	319.610 497 5	−24.587 219 5	8 970.930 837 5	−0.06	10.721	4.64	1
1	321.787 990 6	−23.831 989 7	8 977.242 708 6	−0.02	341.424	10.16	2
1	321.787 966 3	−23.831 996 7	8 977.242 710 4	−0.02	341.443	6.84	1
1	321.814 000 9	−23.822 887 9	8 977.317 276 7	0.02	341.424	9.02	2
1	321.813 978 0	−23.822 898 0	8 977.317 278 6	0.02	341.444	7.91	1
1	321.819 014 4	−23.821 133 8	8 977.331 647 0	0.02	341.424	10.52	2
1	321.818 989 7	−23.821 139 0	8 977.331 649 0	0.02	341.444	7.96	1
1	321.845 024 2	−23.812 031 6	8 977.406 190 5	0.05	341.424	10.97	2
1	321.844 999 6	−23.812 036 5	8 977.406 192 5	0.05	341.444	8.16	1
1	321.850 022 4	−23.810 284 1	8 977.420 511 5	0.05	341.424	16.49	2
1	321.849 999 4	−23.810 293 1	8 977.420 513 5	0.05	341.444	8.30	1
1	321.935 989 0	−23.780 173 3	8 977.666 759 6	−0.03	339.324	10.51	2
1	321.940 928 4	−23.778 444 4	8 977.680 967 6	−0.02	339.208	23.20	1
1	321.940 979 9	−23.778 418 9	8 977.681 056 0	−0.02	339.324	9.08	2
1	321.967 037 6	−23.769 294 4	8 977.755 648 9	0.01	339.324	13.25	2
1	321.967 021 6	−23.769 298 8	8 977.755 671 6	0.01	339.208	8.99	1
1	321.972 016 1	−23.767 548 5	8 977.769 968 0	0.02	339.208	7.42	1
1	321.972 040 6	−23.767 541 1	8 977.769 970 0	0.02	339.324	8.37	2
1	322.003 074 2	−23.756 661 3	8 977.858 857 2	0.05	339.209	7.47	1
1	322.003 099 7	−23.756 656 4	8 977.858 858 8	0.05	339.324	10.87	2
2	6.945 142 8	−18.834 613 2	7 875.598 575 7	−0.05	15.693	5.08	1
2	11.355 216 9	−17.103 131 6	7 900.033 586 9	−0.04	299.841	5.48	1
2	127.974 181 7	−7.211 308 9	8 154.103 473 4	−0.02	188.567	6.01	2
2	127.974 157 8	−7.211 306 5	8 154.103 474 5	−0.02	188.627	5.89	1
2	127.981 213 3	−7.213 193 2	8 154.117 818 9	−0.03	188.567	9.58	2
2	127.981 189 2	−7.213 192 5	8 154.117 820 0	−0.03	188.627	7.50	1
2	128.017 759 4	−7.222 983 8	8 154.192 385 9	−0.09	188.567	5.04	2
2	128.017 735 6	−7.222 982 2	8 154.192 387 1	−0.09	188.627	4.67	1
2	128.024 777 0	−7.224 866 0	8 154.206 706 9	−0.09	188.567	13.99	2
2	128.024 753 8	−7.224 860 8	8 154.206 708 1	−0.09	188.627	8.76	1
2	128.061 313 2	−7.234 663 1	8 154.281 274 2	−0.12	188.567	8.00	2
2	128.061 289 9	−7.234 659 4	8 154.281 275 5	−0.12	188.627	4.38	1
2	128.068 348 0	−7.236 545 3	8 154.295 632 2	−0.12	188.567	6.83	2
2	128.068 324 6	−7.236 542 5	8 154.295 633 5	−0.12	188.627	6.13	1
2	128.191 907 5	−7.269 726 9	8 154.547 942 0	−0.02	186.751	9.54	2
2	128.191 884 4	−7.269 727 4	8 154.547 947 4	−0.02	186.807	4.28	1
2	128.198 923 4	−7.271 617 7	8 154.562 275 1	−0.03	186.751	5.47	2
2	128.198 900 5	−7.271 616 3	8 154.562 280 6	−0.03	186.807	5.60	1
2	132.059 428 5	−8.344 357 0	8 162.547 967 9	−0.03	152.668	6.57	1
2	132.059 435 7	−8.344 353 8	8 162.547 976 9	−0.03	152.627	6.65	2
2	132.066 273 3	−8.346 318 3	8 162.562 313 4	−0.04	152.667	7.59	1
2	132.066 280 4	−8.346 315 2	8 162.562 322 3	−0.04	152.627	14.51	2
2	132.101 835 9	−8.356 513 9	8 162.636 856 0	−0.09	152.666	6.72	1
2	132.101 842 7	−8.356 509 9	8 162.636 864 8	−0.09	152.625	4.81	2
2	132.108 661 6	−8.358 472 3	8 162.651 164 4	−0.10	152.665	8.86	1
2	132.108 669 8	−8.358 470 9	8 162.651 173 3	−0.10	152.624	7.34	2
2	132.144 236 2	−8.368 676 3	8 162.725 756 7	−0.12	152.664	4.14	1
2	132.144 242 7	−8.368 671 7	8 162.725 765 6	−0.12	152.623	2.89	2
2	132.151 064 3	−8.370 634 2	8 162.740 077 7	−0.12	152.663	6.72	1
2	132.151 071 1	−8.370 630 0	8 162.740 086 6	−0.12	152.622	7.10	2
2	157.308 910 9	−16.417 839 6	8 223.851 772 5	−0.06	157.462	4.22	1
2	157.308 938 0	−16.417 832 7	8 223.851 791 0	−0.06	157.484	14.19	2
2	157.313 555 8	−16.419 279 8	8 223.866 068 7	−0.07	157.462	4.95	1
2	157.313 590 7	−16.419 275 4	8 223.866 111 8	−0.07	157.483	5.40	2
2	157.337 788 0	−16.426 802 4	8 223.940 673 2	−0.10	157.460	4.85	1
2	157.337 810 6	−16.426 793 8	8 223.940 679 5	−0.10	157.481	5.77	2
2	157.342 436 1	−16.428 242 6	8 223.954 994 1	−0.11	157.460	3.98	1
2	157.342 459 0	−16.428 234 8	8 223.955 000 4	−0.11	157.481	5.08	2
2	164.688 341 2	−18.189 005 4	8 251.838 796 4	−0.08	250.988	6.28	2
2	164.688 317 0	−18.188 943 1	8 251.838 800 1	−0.08	251.004	5.85	1
2	164.691 094 0	−18.189 213 3	8 251.853 092 6	−0.09	250.987	6.23	2
2	164.691 068 1	−18.189 151 4	8 251.853 096 3	−0.09	251.004	3.87	1
2	162.545 115 7	15.923 621 7	8 389.064 436 3	−0.12	65.073	4.85	1
2	162.545 134 4	15.923 580 2	8 389.064 441 1	−0.12	65.068	6.72	2
2	162.547 888 3	15.924 884 3	8 389.078 794 3	−0.12	65.074	3.44	1
2	162.547 905 2	15.924 842 1	8 389.078 799 0	−0.12	65.068	5.77	2
2	170.501 745 8	16.715 373 5	8 420.518 318 7	−0.12	339.655	7.99	1
2	170.506 095 4	16.715 016 2	8 420.532 658 8	−0.12	339.627	10.56	2
2	170.528 497 2	16.713 071 7	8 420.607 219 9	−0.11	339.656	6.24	1
2	170.528 534 7	16.713 084 8	8 420.607 226 7	−0.11	339.628	7.67	2
2	170.532 807 6	16.712 700 8	8 420.621 541 0	−0.10	339.656	5.31	1
2	170.532 845 0	16.712 714 3	8 420.621 547 7	−0.10	339.628	3.91	2
2	258.920 465 9	4.978 937 9	8 650.081 093 7	−0.07	234.783	4.89	1
2	258.920 486 9	4.978 912 0	8 650.081 103 3	−0.07	234.810	5.89	2
2	258.925 361 0	4.980 278 7	8 650.095 439 6	−0.05	234.783	8.84	1
2	258.925 382 7	4.980 253 2	8 650.095 449 2	−0.05	234.810	10.77	2
2	264.483 008 7	6.897 260 0	8 667.410 651 8	−0.04	161.567	14.47	2
2	264.482 936 5	6.897 233 3	8 667.410 653 7	−0.04	161.549	9.93	1
2	264.487 291 4	6.899 077 6	8 667.424 973 2	−0.02	161.567	11.34	2
2	264.487 218 0	6.899 054 3	8 667.424 974 9	−0.02	161.549	11.81	1
2	272.204 185 4	11.679 180 2	8 698.417 535 6	−0.06	225.173	7.96	2
2	272.204 148 7	11.679 212 4	8 698.417 537 6	−0.06	225.167	6.51	1

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	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
2	272.206 931 1	11.681 720 4	8 698.431 856 7	−0.05	225.173	13.91	2
2	272.206 893 9	11.681 752 2	8 698.431 858 7	−0.05	225.167	6.71	1
2	275.886 838 9	17.448 897 8	8 728.978 606 2	−0.08	122.995	5.85	1
2	275.886 879 4	17.448 955 9	8 728.978 611 8	−0.08	122.989	12.13	2
2	275.890 594 0	17.465 931 8	8 729.067 495 8	−0.01	122.993	6.98	1
2	275.890 634 0	17.465 990 4	8 729.067 501 5	−0.01	122.987	2.94	2
2	275.891 198 7	17.468 678 9	8 729.081 841 6	0.01	122.992	6.93	1
2	275.891 239 9	17.468 736 9	8 729.081 847 5	0.01	122.987	9.59	2
2	275.748 517 7	20.737 693 1	8 746.943 500 8	−0.09	185.747	14.72	1
2	275.744 271 8	20.750 314 5	8 747.018 063 5	−0.11	185.710	9.25	2
2	275.744 143 7	20.750 326 6	8 747.018 068 3	−0.11	185.747	6.62	1
2	275.743 428 9	20.752 745 4	8 747.032 384 5	−0.11	185.710	25.47	2
2	275.743 300 4	20.752 754 0	8 747.032 389 3	−0.11	185.747	13.49	1
2	269.348 842 4	24.876 057 7	8 788.676 133 0	−0.08	83.214	6.24	2
2	269.348 844 4	24.876 029 4	8 788.676 137 4	−0.08	83.158	5.58	1
2	269.345 802 8	24.876 148 6	8 788.690 429 3	−0.08	83.213	5.98	2
2	269.345 806 2	24.876 120 5	8 788.690 433 7	−0.08	83.157	4.94	1
2	269.329 949 0	24.876 606 1	8 788.764 997 5	−0.06	83.206	5.81	2
2	269.329 953 6	24.876 578 0	8 788.765 001 7	−0.06	83.151	4.21	1
2	269.326 908 4	24.876 691 3	8 788.779 318 6	−0.05	83.205	10.37	2
2	269.326 909 5	24.876 662 7	8 788.779 322 8	−0.05	83.149	7.53	1
2	269.311 050 2	24.877 115 0	8 788.853 886 7	−0.02	83.198	11.05	2
2	269.311 047 9	24.877 086 0	8 788.853 891 0	−0.02	83.143	8.76	1
2	269.308 010 7	24.877 164 0	8 788.868 175 0	−0.01	83.141	14.04	1
2	269.307 998 2	24.877 192 4	8 788.868 207 7	−0.01	83.197	11.30	2
2	269.292 138 8	24.877 582 7	8 788.942 776 1	0.03	83.191	9.62	2
2	269.292 140 9	24.877 554 1	8 788.942 780 3	0.03	83.134	8.51	1
2	269.289 097 7	24.877 654 9	8 788.957 097 3	0.03	83.189	6.91	2
2	269.289 104 5	24.877 626 9	8 788.957 101 2	0.03	83.132	7.00	1
2	269.273 256 8	24.877 983 4	8 789.031 580 7	−0.06	84.993	36.84	1
2	269.273 232 9	24.878 016 4	8 789.031 665 1	−0.06	85.029	12.54	2
2	269.270 188 1	24.878 081 7	8 789.045 985 8	−0.07	85.028	4.55	2
2	269.270 190 1	24.878 048 8	8 789.045 988 0	−0.07	84.992	5.23	1
2	269.254 326 7	24.878 371 5	8 789.120 543 4	−0.08	84.987	17.42	1
2	269.254 320 7	24.878 404 4	8 789.120 553 5	−0.08	85.022	20.21	2
2	269.251 273 5	24.878 463 2	8 789.134 874 5	−0.08	85.020	6.47	2
2	269.251 275 1	24.878 430 2	8 789.134 876 7	−0.08	84.986	4.31	1
2	269.235 406 1	24.878 751 9	8 789.209 418 0	−0.06	85.014	23.76	2
2	269.235 407 9	24.878 718 9	8 789.209 420 0	−0.06	84.980	18.98	1
2	269.232 350 6	24.878 804 6	8 789.223 788 5	−0.05	85.012	6.82	2
2	269.232 355 0	24.878 771 8	8 789.223 790 4	−0.05	84.979	5.48	1
2	269.216 488 5	24.879 060 5	8 789.298 344 3	−0.01	85.006	28.39	2
2	269.216 486 2	24.879 027 2	8 789.298 346 4	−0.01	84.972	17.32	1
2	269.213 462 2	24.879 073 5	8 789.312 593 3	−0.01	84.971	39.48	1
2	269.197 562 9	24.879 327 0	8 789.387 196 5	0.03	84.998	9.10	2
2	269.197 564 2	24.879 294 0	8 789.387 198 5	0.03	84.963	5.63	1
2	268.401 536 4	24.854 297 2	8 793.120 276 3	−0.07	101.653	14.96	2
2	268.401 531 3	24.854 234 4	8 793.120 279 1	−0.07	101.635	13.16	1
2	268.382 592 1	24.852 835 8	8 793.209 165 4	−0.05	101.645	10.96	2
2	268.382 576 8	24.852 775 0	8 793.209 168 1	−0.05	101.628	9.54	1
2	268.363 658 1	24.851 332 7	8 793.298 054 7	−0.01	101.638	18.67	2
2	268.363 641 8	24.851 272 2	8 793.298 057 3	−0.01	101.620	15.56	1
2	268.360 592 6	24.851 089 6	8 793.312 375 8	0.00	101.637	19.30	2
2	268.360 585 8	24.851 027 3	8 793.312 378 4	0.00	101.619	8.76	1
2	268.344 710 7	24.849 791 7	8 793.386 956 2	0.03	101.630	15.52	2
2	268.344 699 8	24.849 730 3	8 793.386 958 9	0.03	101.611	14.48	1
2	276.160 467 4	3.961 155 8	8 934.657 954 6	0.04	308.847	8.87	1
2	276.160 517 3	3.961 216 5	8 934.657 954 7	0.04	308.852	6.88	2
2	276.164 661 0	3.959 787 8	8 934.672 275 6	0.05	308.847	8.67	1
2	276.164 713 1	3.959 846 7	8 934.672 275 8	0.05	308.852	10.31	2
2	276.186 481 8	3.952 683 2	8 934.746 819 0	0.07	308.849	10.72	1
2	276.186 534 6	3.952 741 5	8 934.746 819 1	0.07	308.853	13.18	2
2	276.190 680 5	3.951 318 4	8 934.761 164 7	0.08	308.849	6.28	1
2	276.190 732 2	3.951 377 7	8 934.761 164 8	0.08	308.853	4.68	2
2	276.212 559 5	3.944 285 3	8 934.835 683 0	0.07	308.855	15.39	2
2	276.212 507 9	3.944 226 0	8 934.835 683 1	0.07	308.850	11.37	1
2	276.216 759 4	3.942 923 7	8 934.850 028 6	0.06	308.855	7.56	2
3	228.048 215 8	−9.481 169 2	7 909.228 613 7	0.11	237.047	15.08	1
3	228.048 233 2	−9.481 191 3	7 909.228 614 5	0.11	237.037	18.74	2
3	228.051 638 0	−9.481 282 5	7 909.242 934 7	0.11	237.047	10.35	1
3	228.051 652 8	−9.481 306 3	7 909.242 935 5	0.11	237.036	7.18	2
3	232.826 046 7	−9.210 736 7	7 932.686 591 1	0.09	151.353	9.97	1
3	232.828 384 7	−9.210 291 3	7 932.700 936 9	0.10	151.353	9.42	1
3	232.840 531 4	−9.207 980 2	7 932.775 479 9	0.11	151.359	9.02	2
3	232.840 526 1	−9.207 981 1	7 932.775 480 1	0.11	151.352	9.57	1
3	232.842 862 8	−9.207 529 6	7 932.789 825 6	0.11	151.359	9.56	2
3	232.842 858 3	−9.207 532 1	7 932.789 825 7	0.11	151.352	13.06	1
3	235.453 930 5	−8.046 444 5	7 955.892 271 4	0.12	228.260	10.52	1
3	235.453 956 8	−8.046 468 7	7 955.892 273 3	0.12	228.292	17.06	2
3	235.458 298 0	−8.041 299 8	7 955.966 814 0	0.08	228.259	9.52	1
3	235.459 131 7	−8.040 312 2	7 955.981 159 5	0.07	228.259	10.57	1
3	235.459 156 9	−8.040 337 1	7 955.981 161 2	0.07	228.291	12.70	2
3	221.609 182 3	−1.493 321 0	8 084.927 238 3	0.13	343.467	12.66	2
3	221.609 164 1	−1.493 327 5	8 084.927 246 2	0.13	343.474	12.00	1
3	221.609 501 8	−1.494 179 5	8 084.941 583 9	0.13	343.467	12.19	2
3	221.609 483 6	−1.494 186 1	8 084.941 591 8	0.13	343.474	10.39	1
3	221.611 179 5	−1.498 653 2	8 085.016 127 0	0.12	343.467	14.20	2
3	221.611 161 6	−1.498 660 8	8 085.016 134 9	0.12	343.474	13.06	1
3	221.611 505 7	−1.499 516 5	8 085.030 472 6	0.12	343.467	14.01	2
3	221.611 486 5	−1.499 519 8	8 085.030 480 6	0.12	343.474	13.37	1
3	221.613 213 4	−1.503 998 5	8 085.105 015 1	0.08	343.466	8.91	2
3	221.613 193 6	−1.504 000 0	8 085.105 023 2	0.08	343.474	12.81	1
3	223.461 382 1	−3.322 989 4	8 109.452 120 6	0.11	59.909	9.66	1
3	223.461 393 0	−3.323 015 9	8 109.452 123 2	0.11	59.904	7.81	2
3	223.463 167 0	−3.324 223 6	8 109.466 441 5	0.10	59.909	8.64	1
3	223.463 180 9	−3.324 248 5	8 109.466 444 0	0.10	59.904	12.34	2
3	227.673 940 3	−5.636 057 9	8 134.614 057 8	0.11	332.901	14.10	1
3	284.338 782 8	−11.693 131 5	8 312.243 796 8	0.10	206.033	10.23	2
3	284.338 766 9	−11.693 126 3	8 312.243 800 4	0.10	206.050	10.52	1
3	284.343 170 7	−11.692 301 9	8 312.258 142 3	0.09	206.033	10.97	2
3	284.343 156 4	−11.692 293 3	8 312.258 145 8	0.09	206.050	10.88	1
3	284.365 986 2	−11.687 945 6	8 312.332 685 2	0.06	206.031	12.61	2
3	284.365 969 2	−11.687 942 2	8 312.332 688 7	0.06	206.049	9.55	1
3	284.370 366 2	−11.687 112 4	8 312.347 006 1	0.05	206.031	14.16	2
3	284.370 349 0	−11.687 109 6	8 312.347 009 6	0.05	206.048	12.10	1
3	284.393 163 2	−11.682 757 7	8 312.421 536 4	0.00	206.030	18.40	2
3	284.393 146 6	−11.682 753 3	8 312.421 539 8	0.00	206.047	15.27	1
3	284.397 552 9	−11.681 920 1	8 312.435 894 4	−0.01	206.030	13.95	2
3	284.397 537 2	−11.681 913 9	8 312.435 897 7	−0.01	206.047	13.79	1
3	284.447 503 6	−11.672 329 0	8 312.599 351 2	0.10	204.189	10.11	1
3	284.447 518 8	−11.672 335 4	8 312.599 352 1	0.10	204.201	9.61	2
3	284.451 885 5	−11.671 488 9	8 312.613 696 8	0.10	204.189	9.04	1
3	284.451 899 4	−11.671 498 3	8 312.613 697 7	0.10	204.201	7.45	2
3	288.583 015 3	−10.758 475 2	8 326.745 117 9	0.07	143.794	8.76	2
3	288.583 012 5	−10.758 474 0	8 326.745 123 8	0.07	143.803	8.75	1
3	288.603 744 3	−10.753 244 2	8 326.819 686 2	0.10	143.793	12.45	2
3	288.603 742 8	−10.753 244 6	8 326.819 692 0	0.10	143.802	9.92	1
3	296.337 074 7	−8.158 715 9	8 359.781 278 7	0.07	213.368	11.85	1
3	296.337 103 9	−8.158 725 0	8 359.781 336 9	0.07	213.357	7.61	2
3	296.339 711 5	−8.157 519 3	8 359.795 624 2	0.06	213.367	10.94	1
3	296.339 729 3	−8.157 536 2	8 359.795 633 1	0.06	213.356	13.88	2
3	296.353 418 5	−8.151 280 0	8 359.870 191 6	0.02	213.366	7.86	1
3	296.353 437 6	−8.151 295 2	8 359.870 200 3	0.02	213.355	14.46	2
3	296.356 049 9	−8.150 079 8	8 359.884 512 4	0.01	213.366	11.14	1
3	296.356 069 1	−8.150 094 8	8 359.884 521 1	0.01	213.355	18.80	2
3	300.131 715 6	−5.619 125 2	8 391.765 342 4	0.04	123.828	5.79	1
3	300.131 721 4	−5.619 115 2	8 391.765 342 7	0.04	123.854	5.46	2
3	300.132 358 9	−5.618 126 6	8 391.779 712 6	0.03	123.828	9.33	1
3	300.132 367 0	−5.618 118 0	8 391.779 712 8	0.03	123.854	13.63	2
3	300.135 681 0	−5.612 953 6	8 391.854 230 6	−0.01	123.828	5.79	1
3	300.135 685 6	−5.612 942 6	8 391.854 230 8	−0.01	123.854	10.15	2
3	300.136 310 9	−5.611 954 1	8 391.868 576 2	−0.02	123.828	8.33	1
3	300.136 318 0	−5.611 944 8	8 391.868 576 4	−0.02	123.855	10.23	2
3	300.208 655 2	−4.714 484 8	8 406.785 067 6	0.06	181.827	5.68	2
3	300.208 630 9	−4.714 487 0	8 406.785 074 7	0.06	181.838	6.30	1
3	300.205 478 0	−4.710 098 0	8 406.873 980 4	0.01	181.827	5.51	2
3	300.205 453 6	−4.710 097 3	8 406.873 987 6	0.01	181.838	6.06	1
3	300.204 962 0	−4.709 398 6	8 406.888 301 3	0.01	181.827	12.92	2
3	300.204 937 8	−4.709 393 2	8 406.888 308 5	0.01	181.838	7.99	1
3	300.202 259 1	−4.705 726 8	8 406.962 843 9	−0.03	181.827	6.81	2
3	300.202 234 4	−4.705 727 5	8 406.962 851 2	−0.03	181.838	5.46	1
3	300.201 736 0	−4.705 029 3	8 406.977 164 7	−0.04	181.827	6.79	2
3	300.201 711 4	−4.705 026 0	8 406.977 172 0	−0.04	181.838	7.49	1
3	300.198 465 1	−4.700 664 5	8 407.066 085 8	0.07	182.963	9.70	2
3	300.198 440 8	−4.700 663 4	8 407.066 088 5	0.07	182.971	7.89	1
3	286.198 574 4	−8.845 873 3	8 494.989 378 1	0.00	354.447	4.38	1
3	286.198 602 0	−8.845 868 5	8 494.989 379 1	0.00	354.415	6.95	2
3	286.193 226 8	−8.854 160 3	8 495.063 970 1	−0.04	354.447	4.53	1
3	286.193 254 7	−8.854 156 3	8 495.063 971 0	−0.04	354.415	3.77	2
3	286.192 205 9	−8.855 748 4	8 495.078 266 4	−0.04	354.447	5.27	1
3	286.192 233 8	−8.855 744 7	8 495.078 267 3	−0.04	354.415	7.77	2
3	286.186 901 1	−8.864 028 8	8 495.152 833 8	−0.07	354.447	5.07	1
3	286.186 929 4	−8.864 026 9	8 495.152 834 7	−0.07	354.415	3.69	2
3	286.168 244 1	−8.893 638 9	8 495.419 505 9	0.01	356.285	6.41	2
3	286.168 214 9	−8.893 638 3	8 495.419 508 1	0.01	356.307	5.47	1
3	286.167 253 9	−8.895 224 9	8 495.433 814 4	0.00	356.285	3.13	2
3	286.167 224 7	−8.895 225 8	8 495.433 816 6	0.00	356.307	4.63	1
3	285.814 278 7	−9.790 215 8	8 503.596 562 3	−0.08	30.017	8.58	1
3	285.814 303 8	−9.790 231 5	8 503.596 569 2	−0.08	29.923	11.98	2
3	285.814 034 2	−9.791 764 2	8 503.610 920 3	−0.08	30.017	5.87	1
3	285.814 059 5	−9.791 779 5	8 503.610 927 2	−0.08	29.923	8.25	2
3	285.812 789 7	−9.799 797 7	8 503.685 488 1	−0.08	30.018	7.35	1
3	285.812 813 1	−9.799 816 1	8 503.685 494 8	−0.08	29.924	8.23	2
3	285.812 554 6	−9.801 340 7	8 503.699 809 1	−0.08	30.018	5.43	1
3	289.111 660 0	−12.967 939 8	8 538.987 420 2	−0.06	309.922	10.07	2
3	289.111 655 4	−12.967 947 4	8 538.987 430 5	−0.06	309.945	6.21	1
3	289.114 451 1	−12.968 895 4	8 539.001 765 9	−0.06	309.922	5.77	2
3	289.114 446 1	−12.968 902 6	8 539.001 776 1	−0.06	309.945	5.66	1
3	296.852 789 9	−14.217 502 4	8 568.661 990 8	−0.03	26.418	8.79	2
3	296.852 776 7	−14.217 493 8	8 568.661 993 6	−0.03	26.436	6.48	1
3	296.857 359 3	−14.217 736 6	8 568.676 311 6	−0.04	26.418	4.58	2
3	296.857 345 6	−14.217 728 8	8 568.676 314 4	−0.04	26.436	7.03	1
3	296.881 153 6	−14.218 968 1	8 568.750 879 1	−0.08	26.417	8.45	2
3	296.881 140 6	−14.218 958 7	8 568.750 881 9	−0.08	26.435	6.93	1
3	296.885 735 5	−14.219 199 6	8 568.765 224 7	−0.08	26.417	10.30	2
3	296.885 722 1	−14.219 191 2	8 568.765 227 6	−0.08	26.435	6.73	1
3	303.069 863 2	−14.226 172 7	8 586.613 519 5	−0.10	313.484	8.13	1
3	303.069 870 0	−14.226 163 4	8 586.613 522 4	−0.10	313.385	8.60	2
3	303.075 196 4	−14.225 949 7	8 586.627 889 8	−0.10	313.483	15.87	1
3	303.075 205 2	−14.225 942 1	8 586.627 892 8	−0.10	313.384	7.16	2
3	61.448 349 3	12.606 510 8	8 828.815 043 5	−0.07	198.280	4.74	2
3	61.448 342 3	12.606 513 0	8 828.815 044 7	−0.07	198.269	8.35	1
3	101.643 067 4	2.824 463 6	8 934.079 778 4	0.04	229.480	5.43	1
3	101.644 266 3	2.822 438 1	8 934.094 111 5	0.03	229.480	4.21	1
3	101.650 468 0	2.811 906 6	8 934.168 664 2	−0.01	229.481	4.74	2
3	101.650 470 0	2.811 903 1	8 934.168 666 5	−0.01	229.479	4.26	1
3	101.651 653 7	2.809 883 5	8 934.182 985 2	−0.01	229.481	2.25	2
3	101.651 655 4	2.809 879 8	8 934.182 987 5	−0.01	229.479	3.29	1
3	101.657 800 7	2.799 350 5	8 934.257 577 1	−0.05	229.481	7.02	2
3	101.657 803 4	2.799 347 3	8 934.257 579 5	−0.05	229.479	4.12	1
3	101.658 975 5	2.797 329 3	8 934.271 898 0	−0.05	229.481	4.55	2
3	101.658 977 0	2.797 324 9	8 934.271 900 5	−0.05	229.479	3.44	1
3	92.192 864 0	8.018 771 9	9 038.858 368 6	−0.12	318.950	6.86	2
3	92.194 699 5	8.021 100 3	9 038.872 689 5	−0.12	318.950	7.83	2
3	92.194 684 4	8.021 088 4	9 038.872 692 2	−0.12	319.052	6.13	1
4	44.609 022 6	10.266 469 9	8 084.983 716 7	−0.13	196.808	5.47	2
4	44.609 050 1	10.266 458 9	8 084.983 724 6	−0.13	196.800	4.26	1
4	44.634 898 2	10.272 295 9	8 085.058 272 3	−0.11	196.809	5.51	2

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
4	44.634 925 8	10.272 285 1	8 085.058 280 3	−0.11	196.801	4.93	1
4	44.639 875 0	10.273 413 3	8 085.072 617 9	−0.11	196.809	5.34	2
4	44.639 902 5	10.273 402 1	8 085.072 626 0	−0.11	196.801	5.37	1
4	44.665 728 5	10.279 226 3	8 085.147 149 2	−0.06	196.810	9.32	2
4	44.665 756 6	10.279 216 5	8 085.147 157 4	−0.06	196.802	3.38	1
4	44.670 704 6	10.280 347 8	8 085.161 495 0	−0.04	196.810	4.99	2
4	44.670 732 6	10.280 337 2	8 085.161 503 3	−0.04	196.802	3.77	1
4	51.613 926 2	11.615 670 9	8 106.755 999 0	−0.13	122.511	5.80	2
4	51.613 943 3	11.615 695 7	8 106.756 001 2	−0.13	122.477	2.95	1
4	51.635 710 3	11.619 067 2	8 106.830 567 1	−0.10	122.514	4.30	2
4	51.635 725 5	11.619 093 1	8 106.830 569 2	−0.10	122.480	2.90	1
4	51.639 891 3	11.619 718 9	8 106.844 888 2	−0.09	122.515	7.77	2
4	51.639 906 7	11.619 744 7	8 106.844 890 4	−0.09	122.481	2.95	1
4	51.661 658 1	11.623 106 1	8 106.919 469 1	−0.03	122.517	3.73	2
4	51.661 673 9	11.623 131 5	8 106.919 471 2	−0.03	122.484	2.61	1
4	51.665 835 0	11.623 756 1	8 106.933 790 2	−0.02	122.518	2.83	2
4	51.665 850 5	11.623 781 6	8 106.933 792 3	−0.02	122.484	2.75	1
4	58.576 903 1	12.308 957 1	8 136.152 545 1	−0.08	211.051	5.60	2
4	58.576 915 4	12.308 949 5	8 136.152 547 2	−0.08	211.076	3.32	1
4	58.579 345 1	12.308 988 4	8 136.166 866 2	−0.07	211.051	5.77	2
4	58.579 371 2	12.308 982 9	8 136.166 942 4	−0.07	211.077	6.94	1
4	58.592 036 1	12.309 135 9	8 136.241 435 0	0.00	211.052	6.97	2
4	58.592 046 6	12.309 125 2	8 136.241 436 9	0.00	211.077	3.42	1
4	45.092 799 7	10.440 389 5	8 257.114 165 3	−0.06	313.483	5.03	2
4	45.092 826 8	10.440 418 4	8 257.114 165 5	−0.06	313.410	3.22	1
4	45.092 324 5	10.441 254 4	8 257.128 486 3	−0.05	313.483	4.48	2
4	45.092 351 8	10.441 283 0	8 257.128 486 6	−0.05	313.410	3.80	1
4	45.089 868 2	10.445 769 8	8 257.203 067 0	−0.02	313.482	3.73	2
4	45.089 894 3	10.445 799 5	8 257.203 067 3	−0.02	313.409	2.74	1
4	45.089 401 5	10.446 637 7	8 257.217 388 1	−0.02	313.482	4.39	2
4	45.089 428 2	10.446 666 7	8 257.217 388 2	−0.02	313.409	3.32	1
4	50.352 296 6	14.622 667 3	8 303.320 179 6	−0.01	302.841	7.25	2
4	50.352 322 4	14.622 703 3	8 303.320 180 0	−0.01	302.841	3.72	1
4	50.355 694 6	14.624 211 7	8 303.334 500 7	0.00	302.841	3.37	2
4	50.373 399 7	14.632 258 8	8 303.409 081 3	0.03	302.843	5.54	2
4	50.373 426 4	14.632 294 2	8 303.409 081 6	0.03	302.844	3.48	1
4	50.376 803 8	14.633 806 4	8 303.423 414 9	0.04	302.844	5.73	2
4	50.376 830 3	14.633 841 9	8 303.423 415 1	0.04	302.845	3.62	1
4	60.569 962 5	18.257 822 8	8 337.436 390 2	−0.03	23.172	4.60	1
4	60.569 937 6	18.257 833 4	8 337.436 397 9	−0.03	23.174	8.94	2
4	60.575 006 9	18.259 260 2	8 337.450 698 9	−0.02	23.172	4.65	1
4	60.574 982 3	18.259 271 5	8 337.450 706 6	−0.02	23.174	5.42	2
4	60.601 314 3	18.266 755 7	8 337.525 291 7	0.01	23.174	4.55	1
4	60.601 289 5	18.266 765 8	8 337.525 299 6	0.01	23.176	8.87	2
4	60.606 357 2	18.268 190 0	8 337.539 588 1	0.02	23.175	5.38	1
4	60.606 332 9	18.268 201 3	8 337.539 596 0	0.02	23.177	4.78	2
4	60.632 681 8	18.275 672 8	8 337.614 193 4	0.05	23.177	5.38	1
4	60.632 656 8	18.275 682 2	8 337.614 201 2	0.05	23.179	9.37	2
4	65.560 031 9	19.552 359 4	8 350.960 477 7	0.06	329.590	6.59	1
4	65.559 988 9	19.552 338 5	8 350.960 481 5	0.06	329.602	9.48	2
4	65.588 698 9	19.559 100 4	8 351.035 033 3	0.07	329.591	6.88	1
4	65.588 657 6	19.559 076 7	8 351.035 037 1	0.07	329.603	10.64	2
4	65.594 202 1	19.560 393 5	8 351.049 341 8	0.06	329.591	6.88	1
4	65.594 160 7	19.560 370 0	8 351.049 345 7	0.06	329.604	9.84	2
4	65.657 063 2	19.575 130 3	8 351.212 812 1	−0.02	328.411	7.18	2
4	65.657 104 7	19.575 153 9	8 351.212 815 6	−0.02	328.413	5.96	1
4	65.662 575 0	19.576 424 8	8 351.227 133 2	−0.01	328.411	8.60	2
4	65.662 616 6	19.576 448 4	8 351.227 136 7	−0.01	328.414	6.30	1
4	65.691 280 3	19.583 147 3	8 351.301 676 7	0.02	328.413	5.03	2
4	65.691 322 6	19.583 169 9	8 351.301 680 1	0.02	328.415	4.26	1
4	65.696 802 0	19.584 438 1	8 351.316 010 1	0.03	328.413	9.68	2
4	65.696 843 6	19.584 461 7	8 351.316 013 6	0.03	328.416	4.41	1
4	152.682 902 6	14.147 736 8	8 545.601 368 3	−0.05	226.563	7.77	2
4	152.682 933 5	14.147 705 8	8 545.601 369 7	−0.05	226.539	4.40	1
4	152.688 627 5	14.146 141 6	8 545.615 701 7	−0.04	226.564	4.53	2
4	152.688 656 7	14.146 109 0	8 545.615 703 1	−0.04	226.540	4.69	1
4	152.718 364 5	14.137 828 6	8 545.690 220 3	−0.01	226.566	8.10	2
4	152.718 395 2	14.137 797 4	8 545.690 221 9	−0.01	226.543	4.93	1
4	152.724 097 9	14.136 231 3	8 545.704 578 3	−0.01	226.567	3.25	2
4	152.724 127 7	14.136 199 2	8 545.704 579 9	−0.01	226.543	4.40	1
4	158.104 898 7	12.618 201 6	8 559.555 202 2	0.03	170.729	5.52	2
4	158.104 950 5	12.618 208 9	8 559.555 205 6	0.03	170.732	2.56	1
4	158.110 302 8	12.616 672 8	8 559.569 523 3	0.04	170.730	2.91	2
4	158.110 354 7	12.616 679 6	8 559.569 526 8	0.04	170.732	2.51	1
4	158.171 959 8	12.599 219 2	8 559.732 970 8	−0.06	168.971	3.94	2
4	158.172 009 2	12.599 229 1	8 559.732 973 0	−0.06	168.936	2.61	1
4	158.177 364 3	12.597 690 0	8 559.747 304 2	−0.06	168.971	3.83	2
4	158.177 413 8	12.597 699 4	8 559.747 306 3	−0.06	168.936	2.56	1
4	169.601 383 2	9.539 594 6	8 593.137 776 8	−0.02	246.244	5.37	2
4	169.601 400 5	9.539 554 6	8 593.137 778 0	−0.02	246.268	3.18	1
4	169.605 681 6	9.538 591 9	8 593.152 085 5	−0.02	246.245	14.01	2
4	169.605 696 7	9.538 551 0	8 593.152 086 6	−0.02	246.268	4.39	1
4	169.628 060 0	9.533 369 8	8 593.226 641 4	0.02	246.247	3.22	2
4	169.628 077 2	9.533 329 7	8 593.226 642 6	0.02	246.271	2.99	1
4	169.632 355 0	9.532 367 1	8 593.240 962 3	0.02	246.248	4.55	2
4	169.632 370 6	9.532 326 4	8 593.240 963 6	0.02	246.271	4.82	1
4	176.723 535 7	8.388 427 7	8 621.835 047 4	−0.06	161.425	2.26	1
4	176.723 482 1	8.388 408 1	8 621.835 049 0	−0.06	161.430	2.35	2
4	176.726 210 1	8.388 361 4	8 621.849 393 0	−0.06	161.425	3.42	1
4	176.726 156 4	8.388 341 9	8 621.849 394 7	−0.06	161.430	3.58	2
4	179.120 066 0	8.775 677 2	8 639.267 369 9	−0.01	230.199	1.76	2
4	179.120 123 6	8.775 607 4	8 639.267 375 5	−0.01	230.186	2.35	1
4	179.126 340 1	8.779 424 0	8 639.341 938 3	0.03	230.200	2.47	2
4	179.126 397 8	8.779 354 2	8 639.341 943 8	0.03	230.187	2.26	1
4	179.127 542 2	8.780 146 3	8 639.356 284 2	0.04	230.200	2.97	2
4	179.127 599 6	8.780 076 3	8 639.356 289 7	0.04	230.187	2.31	1
4	179.133 769 9	8.783 913 2	8 639.430 815 0	0.06	230.201	4.56	2
4	179.133 828 1	8.783 843 9	8 639.430 820 8	0.06	230.188	1.54	1
4	179.134 964 1	8.784 639 9	8 639.445 173 1	0.06	230.201	5.52	2
4	179.135 021 5	8.784 569 8	8 639.445 178 8	0.06	230.188	1.63	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
4	169.168 202 3	14.291 723 6	8 765.642 588 9	0.10	343.497	2.55	1
4	169.168 137 8	14.291 705 5	8 765.642 592 9	0.10	343.510	4.41	2
4	169.170 618 1	14.289 899 1	8 765.656 910 0	0.11	343.497	1.83	1
4	169.170 553 5	14.289 881 3	8 765.656 914 1	0.11	343.510	2.61	2
4	169.198 266 3	14.269 045 6	8 765.820 341 9	0.11	343.499	3.51	1
4	169.198 201 8	14.269 027 3	8 765.820 346 1	0.11	343.512	5.32	2
4	169.200 700 4	14.267 211 6	8 765.834 687 5	0.10	343.499	2.60	1
4	169.200 636 1	14.267 192 4	8 765.834 691 7	0.10	343.512	8.01	2
4	183.341 748 9	5.684 621 2	8 817.142 392 6	0.13	342.648	6.83	2
4	183.346 818 9	5.681 834 0	8 817.156 688 9	0.13	342.648	3.84	2
5	71.839 643 1	18.044 143 9	8 094.655 470 4	−0.10	171.148	16.75	1
5	71.839 701 5	18.044 147 9	8 094.655 478 0	−0.10	171.113	13.52	2
5	71.846 182 1	18.044 774 9	8 094.669 816 0	−0.11	171.148	15.66	1
5	71.846 239 9	18.044 782 3	8 094.669 823 5	−0.11	171.113	9.08	2
5	71.961 210 4	18.055 663 5	8 094.922 137 1	−0.07	171.148	21.11	1
5	71.961 267 3	18.055 675 1	8 094.922 144 5	−0.07	171.114	23.27	2
5	71.967 751 2	18.056 270 7	8 094.936 482 9	−0.06	171.148	14.73	1
5	71.967 808 6	18.056 279 2	8 094.936 490 3	−0.06	171.114	16.93	2
5	72.042 245 1	18.063 271 6	8 095.099 917 7	−0.10	169.462	15.04	1
5	72.042 303 9	18.063 277 0	8 095.099 923 0	−0.10	169.433	19.16	2
5	72.048 839 8	18.063 903 0	8 095.114 268 6	−0.11	169.433	24.33	2
5	72.048 787 8	18.063 892 7	8 095.114 275 6	−0.11	169.462	16.65	1
5	72.163 834 7	18.074 620 8	8 095.366 589 8	−0.07	169.433	38.99	2
5	72.163 782 6	18.074 611 2	8 095.366 596 8	−0.07	169.463	19.03	1
5	72.170 301 8	18.075 281 7	8 095.380 930 2	−0.06	169.463	21.52	1
5	72.244 785 2	18.082 111 7	8 095.544 358 6	−0.10	167.737	18.31	1
5	72.244 841 8	18.082 121 2	8 095.544 363 8	−0.10	167.701	24.64	2
5	72.251 309 6	18.082 717 2	8 095.558 679 5	−0.11	167.737	19.86	1
5	72.251 366 7	18.082 724 7	8 095.558 684 7	−0.11	167.701	25.59	2
5	72.366 279 3	18.093 273 3	8 095.811 025 3	−0.07	167.738	17.32	1
5	72.366 334 4	18.093 289 4	8 095.811 030 2	−0.07	167.702	26.16	2
5	72.372 803 4	18.093 869 4	8 095.825 346 4	−0.06	167.738	16.34	1
5	72.413 296 8	18.097 558 5	8 095.914 236 3	−0.02	165.975	15.56	1
5	72.447 321 6	18.100 669 3	8 095.988 815 4	−0.10	165.939	21.20	2
5	72.447 267 9	18.100 654 9	8 095.988 815 5	−0.10	165.975	19.14	1
5	72.453 844 3	18.101 263 7	8 096.003 136 2	−0.11	165.939	14.17	2
5	72.453 790 4	18.101 250 0	8 096.003 136 3	−0.11	165.975	15.82	1
5	72.568 771 0	18.111 654 0	8 096.255 469 5	−0.07	165.941	13.84	2
5	72.568 716 5	18.111 641 7	8 096.255 469 8	−0.07	165.976	14.31	1
5	72.575 304 6	18.112 240 2	8 096.269 815 3	−0.06	165.941	21.86	2
5	72.575 250 4	18.112 227 0	8 096.269 815 6	−0.06	165.977	16.91	1
5	72.771 152 6	18.129 736 6	8 096.699 941 9	−0.07	163.920	17.43	2
5	72.771 097 0	18.129 718 7	8 096.699 947 7	−0.07	163.880	19.34	1
5	72.852 024 4	18.136 868 9	8 096.877 714 7	−0.10	162.197	15.82	1
5	72.852 081 1	18.136 884 6	8 096.877 718 8	−0.10	162.321	9.11	2
5	72.858 542 7	18.137 444 1	8 096.892 035 6	−0.11	162.198	17.63	1
5	72.858 599 3	18.137 460 0	8 096.892 039 6	−0.11	162.322	15.39	2
5	72.973 454 0	18.147 515 8	8 097.144 385 1	−0.07	162.324	6.64	2
5	72.973 407 9	18.147 501 5	8 097.144 406 1	−0.07	162.200	19.91	1
5	72.979 947 6	18.148 103 2	8 097.158 669 2	−0.06	162.324	48.95	2
5	72.979 895 5	18.148 089 0	8 097.158 677 8	−0.06	162.200	19.65	1
5	73.054 295 9	18.154 532 4	8 097.322 159 9	−0.10	160.623	20.54	1
5	73.054 352 5	18.154 553 3	8 097.322 163 9	−0.10	160.567	13.92	2
5	73.060 821 8	18.155 102 2	8 097.336 505 5	−0.11	160.623	16.28	1
5	73.060 880 8	18.155 116 9	8 097.336 509 5	−0.11	160.567	22.45	2
5	73.377 844 0	18.182 219 1	8 098.033 303 1	−0.07	158.588	21.40	2
5	73.377 786 1	18.182 194 1	8 098.033 304 3	−0.07	158.614	18.20	1
5	73.384 300 5	18.182 738 9	8 098.047 625 3	−0.06	158.614	20.43	1
5	73.458 645 1	18.188 946 8	8 098.211 081 3	−0.10	156.737	16.65	1
5	73.465 162 7	18.189 504 6	8 098.225 426 8	−0.11	156.738	13.12	1
5	73.586 440 0	18.199 665 3	8 098.492 089 7	−0.05	156.678	20.58	2
5	73.586 380 3	18.199 643 6	8 098.492 093 8	−0.05	156.742	19.71	1
5	73.660 675 5	18.205 789 9	8 098.655 544 1	−0.10	154.774	15.19	1
5	73.660 736 2	18.205 814 8	8 098.655 550 5	−0.10	154.745	18.90	2
5	73.667 245 4	18.206 350 4	8 098.669 871 4	−0.11	154.745	13.36	2
5	101.582 946 7	17.649 452 9	8 165.916 294 1	−0.10	141.576	11.47	1
5	101.587 833 7	17.648 814 9	8 165.930 590 6	−0.09	141.577	13.04	1
5	101.587 895 7	17.648 865 4	8 165.930 595 5	−0.09	141.564	15.71	2
5	101.058 768 6	20.453 475 3	8 312.646 089 7	−0.09	334.672	6.97	1
5	101.058 865 7	20.453 516 8	8 312.646 090 6	−0.09	334.658	9.63	2
5	101.059 940 0	20.454 326 5	8 312.660 398 3	−0.09	334.672	7.17	1
5	101.060 036 9	20.454 368 5	8 312.660 399 3	−0.09	334.658	10.07	2
5	101.066 078 4	20.458 753 7	8 312.734 978 7	−0.07	334.672	8.55	1
5	101.066 175 0	20.458 795 7	8 312.734 979 8	−0.07	334.658	16.25	2
5	101.067 263 2	20.459 602 3	8 312.749 299 8	−0.06	334.672	7.81	1
5	101.067 359 1	20.459 645 5	8 312.749 300 9	−0.06	334.658	9.93	2
5	101.073 458 5	20.464 020 3	8 312.823 855 8	−0.02	334.672	10.24	1
5	101.073 555 8	20.464 060 8	8 312.823 857 0	−0.02	334.658	21.42	2
5	101.074 654 4	20.464 870 8	8 312.838 189 3	−0.01	334.671	8.26	1
5	101.074 750 7	20.464 913 1	8 312.838 190 4	−0.01	334.658	10.71	2
5	103.724 125 9	21.280 161 7	8 329.887 551 4	−0.08	44.232	10.89	1
5	103.724 192 0	21.280 107 0	8 329.887 579 1	−0.08	44.252	8.41	2
5	103.727 381 5	21.280 617 3	8 329.901 899 9	−0.09	44.252	10.02	2
5	103.727 321 0	21.280 670 6	8 329.901 909 3	−0.09	44.233	8.50	1
5	103.744 000 5	21.283 256 7	8 329.976 467 9	−0.08	44.256	9.42	2
5	103.743 941 6	21.283 310 8	8 329.976 477 3	−0.08	44.237	9.30	1
5	103.747 191 9	21.283 757 8	8 329.990 788 9	−0.08	44.257	12.84	2
5	103.747 135 5	21.283 814 3	8 329.990 798 2	−0.08	44.238	11.34	1
5	113.561 450 6	21.549 785 9	8 360.984 436 6	−0.08	326.302	7.93	1
5	113.561 492 5	21.549 811 7	8 360.984 436 6	−0.08	326.292	7.81	2
5	113.567 067 1	21.549 494 2	8 360.998 757 6	−0.08	326.303	10.70	1
5	113.567 109 7	21.549 518 9	8 360.998 757 6	−0.08	326.293	11.10	2
5	113.596 355 8	21.548 009 1	8 361.073 325 4	−0.07	326.296	14.64	2
5	113.596 315 5	21.547 981 5	8 361.073 325 5	−0.07	326.307	9.54	1
5	113.601 936 0	21.547 688 5	8 361.087 646 5	−0.06	326.308	10.90	1
5	113.601 976 8	21.547 715 3	8 361.087 646 5	−0.06	326.297	21.85	2
5	127.963 035 1	19.822 136 7	8 393.783 231 8	−0.08	52.161	13.57	1
5	127.963 059 7	19.822 101 2	8 393.783 234 5	−0.08	52.123	15.64	2
5	127.998 319 9	19.815 794 4	8 393.857 799 5	−0.09	52.168	15.14	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
5	127.998 338 8	19.815 754 3	8 393.857 802 2	−0.09	52.129	20.24	2
5	128.005 101 4	19.814 567 5	8 393.872 145 2	−0.09	52.170	14.43	1
5	128.005 131 9	19.814 535 8	8 393.872 147 9	−0.09	52.130	19.38	2
5	128.040 395 0	19.808 217 6	8 393.946 700 9	−0.06	52.176	10.58	1
5	128.040 424 8	19.808 184 9	8 393.946 703 7	−0.06	52.137	17.19	2
5	128.047 171 8	19.806 994 1	8 393.961 021 9	−0.06	52.178	12.96	1
5	128.047 197 4	19.806 958 2	8 393.961 024 7	−0.06	52.138	8.33	2
5	137.099 736 2	17.884 418 2	8 412.698 689 6	−0.01	344.317	21.84	2
5	137.099 695 7	17.884 402 6	8 412.698 689 7	−0.01	344.307	11.88	1
5	137.106 747 9	17.882 710 4	8 412.712 986 0	0.00	344.318	11.63	2
5	137.106 706 8	17.882 696 2	8 412.712 986 1	0.00	344.307	13.46	1
5	137.186 870 9	17.863 182 3	8 412.876 446 2	−0.09	343.681	11.37	1
5	137.193 936 3	17.861 483 5	8 412.890 762 2	−0.09	343.695	14.72	2
5	137.193 895 4	17.861 469 3	8 412.890 767 1	−0.09	343.681	13.26	1
5	250.835 737 9	−17.508 292 0	8 653.908 557 2	−0.12	222.245	21.73	1
5	250.841 239 6	−17.508 698 5	8 653.922 873 3	−0.12	222.262	25.17	2
5	250.841 237 5	−17.508 702 7	8 653.922 878 2	−0.12	222.245	21.78	1
5	265.381 512 9	−17.492 199 7	8 701.890 537 4	−0.10	224.225	25.86	1
5	265.381 528 7	−17.492 185 3	8 701.890 547 8	−0.10	224.237	38.79	2
5	265.384 394 1	−17.491 859 7	8 701.904 868 9	−0.09	224.236	9.63	2
5	265.384 390 9	−17.491 863 7	8 701.904 871 0	−0.09	224.224	18.87	1
5	265.399 266 9	−17.490 187 2	8 701.979 412 4	−0.04	224.234	19.78	2
5	265.399 274 8	−17.490 180 2	8 701.979 414 6	−0.04	224.222	26.07	1
5	265.402 117 1	−17.489 864 9	8 701.993 708 9	−0.03	224.233	13.63	2
5	265.402 115 4	−17.489 867 4	8 701.993 711 1	−0.03	224.221	17.26	1
5	268.605 907 4	−16.473 839 4	8 738.671 856 0	−0.10	151.331	20.75	1
5	268.605 908 3	−16.473 845 4	8 738.671 868 7	−0.10	151.360	27.96	2
5	268.605 402 3	−16.473 451 1	8 738.686 201 9	−0.09	151.331	14.80	1
5	268.605 400 3	−16.473 451 6	8 738.686 202 2	−0.09	151.360	16.21	2
5	268.602 732 2	−16.471 395 0	8 738.760 733 0	−0.05	151.331	18.31	1
5	268.602 732 2	−16.471 400 0	8 738.760 745 8	−0.05	151.360	19.65	2
5	268.602 213 1	−16.470 999 1	8 738.775 103 5	−0.04	151.331	13.17	1
5	268.602 209 5	−16.470 997 5	8 738.775 103 9	−0.04	151.360	18.14	2
5	268.592 851 6	−16.464 053 4	8 739.027 454 1	−0.11	153.145	20.59	2
5	268.592 854 1	−16.464 050 9	8 739.027 459 5	−0.11	153.180	19.17	1
5	268.592 309 8	−16.463 664 0	8 739.041 750 4	−0.11	153.145	15.35	2
5	268.592 309 8	−16.463 656 4	8 739.041 755 8	−0.11	153.180	17.14	1
5	268.589 448 0	−16.461 608 3	8 739.116 294 0	−0.09	153.146	21.25	2
5	268.589 451 7	−16.461 607 1	8 739.116 299 2	−0.09	153.180	15.20	1
5	268.588 896 3	−16.461 218 5	8 739.130 615 0	−0.09	153.146	14.28	2
5	268.588 898 8	−16.461 214 6	8 739.130 620 2	−0.09	153.180	11.03	1
5	268.585 983 4	−16.459 159 1	8 739.205 207 7	−0.05	153.146	16.97	2
5	268.585 987 3	−16.459 157 0	8 739.205 213 0	−0.05	153.181	12.41	1
5	268.585 424 8	−16.458 773 5	8 739.219 528 8	−0.04	153.146	16.32	2
5	268.585 427 7	−16.458 770 0	8 739.219 546 5	−0.04	153.181	11.59	1
5	268.322 944 5	−16.333 544 1	8 743.916 139 9	−0.11	174.290	15.21	1
5	268.322 936 1	−16.333 545 8	8 743.916 146 6	−0.11	174.345	27.62	2
5	268.321 906 3	−16.333 180 2	8 743.930 485 5	−0.11	174.290	15.87	1
5	268.321 897 7	−16.333 179 6	8 743.930 492 3	−0.11	174.345	25.24	2
5	268.316 480 3	−16.331 247 5	8 744.005 078 3	−0.09	174.290	13.44	1
5	268.316 472 5	−16.331 249 4	8 744.005 085 2	−0.09	174.345	17.23	2
5	268.315 438 8	−16.330 888 2	8 744.019 350 0	−0.08	174.290	14.60	1
5	268.315 431 0	−16.330 889 1	8 744.019 356 9	−0.08	174.345	16.14	2
5	268.309 967 0	−16.328 962 3	8 744.093 942 9	−0.04	174.290	16.02	1
5	268.309 959 4	−16.328 959 2	8 744.093 949 8	−0.04	174.345	13.45	2
5	268.308 913 8	−16.328 592 4	8 744.108 239 4	−0.03	174.290	14.55	1
5	268.308 906 8	−16.328 594 8	8 744.108 246 3	−0.03	174.345	13.97	2
5	268.290 087 8	−16.322 106 7	8 744.360 558 2	−0.11	176.088	14.84	2
5	268.290 093 2	−16.322 109 3	8 744.360 560 9	−0.11	176.119	15.67	1
5	268.289 005 5	−16.321 750 5	8 744.374 903 9	−0.11	176.088	16.34	2
5	268.289 010 2	−16.321 745 7	8 744.374 906 6	−0.11	176.119	16.43	1
5	268.283 350 3	−16.319 840 9	8 744.449 496 7	−0.09	176.088	10.58	2
5	268.283 354 7	−16.319 837 5	8 744.449 499 3	−0.09	176.119	9.23	1
5	268.282 261 7	−16.319 469 7	8 744.463 793 1	−0.08	176.088	5.78	2
5	268.282 266 0	−16.319 467 5	8 744.463 795 7	−0.08	176.119	8.42	1
5	268.276 560 7	−16.317 566 4	8 744.538 385 8	−0.04	176.088	25.96	2
5	268.276 564 5	−16.317 563 1	8 744.538 388 6	−0.04	176.119	14.90	1
5	268.275 466 3	−16.317 196 9	8 744.552 697 4	−0.03	176.119	16.73	1
5	268.275 461 3	−16.317 194 9	8 744.552 707 0	−0.03	176.088	13.49	2
5	253.289 622 3	−16.840 508 0	8 832.127 047 1	−0.04	348.957	15.00	1
5	253.289 623 9	−16.840 505 9	8 832.127 068 4	−0.04	348.961	20.16	2
5	253.289 223 2	−16.841 108 3	8 832.141 380 6	−0.03	348.957	11.49	1
5	253.289 225 1	−16.841 105 5	8 832.141 389 6	−0.03	348.961	15.42	2
5	253.287 173 2	−16.844 253 8	8 832.215 924 0	0.00	348.956	13.14	1
5	253.287 174 4	−16.844 248 7	8 832.215 933 1	0.00	348.961	15.48	2
5	253.286 781 1	−16.844 851 3	8 832.230 269 7	0.00	348.956	12.63	1
5	253.286 783 3	−16.844 851 1	8 832.230 278 7	0.00	348.961	9.97	2
5	253.284 773 1	−16.847 997 4	8 832.304 800 9	0.04	348.956	13.66	1
5	253.284 774 0	−16.847 994 2	8 832.304 822 4	0.04	348.961	17.03	2
5	253.284 391 3	−16.848 604 4	8 832.319 134 2	0.04	348.956	12.53	1
5	253.284 393 6	−16.848 606 4	8 832.319 143 3	0.04	348.961	25.48	2
6	203.210 363 6	0.211 537 8	7 861.604 556 0	0.09	221.925	10.31	1
6	203.239 757 2	0.205 016 8	7 861.693 457 6	0.12	221.925	10.52	1
6	203.239 741 6	0.205 037 4	7 861.693 459 4	0.12	222.097	14.74	2
6	203.244 489 6	0.203 971 0	7 861.707 766 2	0.12	221.925	10.05	1
6	203.244 473 5	0.203 991 0	7 861.707 768 0	0.12	222.097	3.58	2
6	203.269 139 8	0.198 516 2	7 861.782 333 8	0.10	221.925	13.80	1
6	203.269 122 7	0.198 535 1	7 861.782 335 7	0.10	222.097	10.03	2
6	203.273 873 5	0.197 469 8	7 861.796 654 6	0.09	221.925	9.80	1
6	203.273 857 1	0.197 489 6	7 861.796 656 5	0.09	222.097	15.62	2
6	206.071 089 6	−0.378 736 6	7 870.403 986 3	0.04	182.706	10.76	1
6	206.075 628 5	−0.379 605 5	7 870.418 281 1	0.05	182.591	18.05	2
6	206.075 652 0	−0.379 604 0	7 870.418 282 6	0.05	182.706	11.27	1
6	206.099 428 4	−0.384 122 4	7 870.492 874 1	0.09	182.591	13.03	2
6	206.099 452 2	−0.384 122 2	7 870.492 875 6	0.09	182.706	12.25	1
6	206.103 997 1	−0.384 981 7	7 870.507 195 3	0.10	182.591	21.83	2
6	206.104 020 9	−0.384 984 3	7 870.507 196 8	0.10	182.706	11.89	1
6	206.127 779 7	−0.389 488 1	7 870.581 763 4	0.12	182.591	14.74	2
6	206.127 803 9	−0.389 486 2	7 870.581 764 8	0.12	182.706	9.89	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
6	206.132 342 3	−0.390 351 2	7 870.596 072 1	0.12	182.591	9.44	2
6	206.132 370 3	−0.390 356 5	7 870.596 085 8	0.12	182.706	13.68	1
6	206.156 119 6	−0.394 841 0	7 870.670 652 0	0.10	182.591	11.29	2
6	206.156 144 0	−0.394 843 8	7 870.670 653 4	0.10	182.706	10.50	1
6	206.160 684 1	−0.395 708 1	7 870.684 972 9	0.09	182.591	15.10	2
6	206.160 708 8	−0.395 705 6	7 870.684 974 2	0.09	182.706	15.37	1
6	223.214 971 4	1.225 405 5	7 952.145 132 0	0.08	221.342	9.46	1
6	223.215 492 3	1.226 976 5	7 952.159 465 4	0.09	221.342	8.76	1
6	223.218 707 1	1.236 740 8	7 952.248 354 6	0.13	221.342	8.51	1
6	223.218 691 7	1.236 755 8	7 952.248 361 6	0.13	221.510	9.08	2
6	210.379 839 3	9.382 379 8	8 040.604 498 5	0.13	44.995	17.34	1
6	210.377 974 2	9.381 944 0	8 040.618 794 8	0.13	44.995	19.63	1
6	210.356 773 7	9.376 966 7	8 040.782 349 0	0.03	44.993	8.30	1
6	210.356 756 3	9.376 987 1	8 040.782 357 6	0.03	44.911	10.28	2
6	210.322 499 2	9.368 639 0	8 041.048 989 1	0.13	46.924	7.06	1
6	210.322 480 9	9.368 656 6	8 041.048 996 5	0.13	46.966	11.07	2
6	210.320 669 8	9.368 185 3	8 041.063 310 1	0.13	46.924	8.35	1
6	210.311 152 3	9.365 805 7	8 041.137 902 4	0.10	46.923	7.75	1
6	210.311 135 5	9.365 824 9	8 041.137 909 7	0.10	46.965	10.05	2
6	210.309 336 2	9.365 351 7	8 041.152 198 5	0.09	46.922	9.04	1
6	210.309 320 1	9.365 371 6	8 041.152 205 7	0.09	46.965	9.96	2
6	210.299 860 1	9.362 952 5	8 041.226 765 6	0.03	46.921	8.10	1
6	210.299 841 5	9.362 970 3	8 041.226 772 7	0.03	46.964	9.51	2
6	210.298 042 6	9.362 488 6	8 041.241 086 4	0.01	46.921	8.80	1
6	210.298 023 4	9.362 505 9	8 041.241 093 6	0.01	46.964	8.41	2
6	210.277 379 8	9.357 150 8	8 041.404 574 1	0.12	48.790	7.65	1
6	210.277 360 9	9.357 167 1	8 041.404 575 4	0.12	48.758	12.65	2
6	210.275 579 8	9.356 679 8	8 041.418 870 4	0.12	48.789	7.90	1
6	210.275 563 6	9.356 698 4	8 041.418 871 8	0.12	48.758	7.08	2
6	210.266 191 3	9.354 229 0	8 041.493 439 9	0.13	48.757	10.12	2
6	210.266 201 9	9.354 208 4	8 041.493 475 4	0.13	48.788	9.39	1
6	210.264 411 8	9.353 734 8	8 041.507 759 3	0.13	48.788	8.65	1
6	210.264 397 5	9.353 755 0	8 041.507 760 8	0.13	48.756	10.47	2
6	210.255 072 9	9.351 241 0	8 041.582 326 9	0.10	48.787	7.31	1
6	210.255 055 2	9.351 258 1	8 041.582 328 2	0.10	48.755	7.22	2
6	210.253 286 2	9.350 760 9	8 041.596 623 0	0.09	48.787	10.19	1
6	210.253 270 1	9.350 779 5	8 041.596 624 3	0.09	48.755	7.31	2
6	210.243 979 2	9.348 243 2	8 041.671 214 8	0.03	48.785	7.36	1
6	210.243 962 3	9.348 261 1	8 041.671 216 2	0.03	48.754	6.78	2
6	210.242 198 3	9.347 757 9	8 041.685 510 9	0.01	48.785	10.59	1
6	210.242 182 9	9.347 777 2	8 041.685 512 5	0.01	48.754	11.91	2
6	210.221 923 2	9.342 168 5	8 041.848 965 2	0.12	50.752	7.65	1
6	210.221 909 6	9.342 187 8	8 041.848 972 6	0.12	50.695	9.69	2
6	210.220 153 4	9.341 675 0	8 041.863 298 5	0.12	50.752	7.31	1
6	210.220 139 3	9.341 693 9	8 041.863 305 7	0.12	50.695	9.65	2
6	210.210 956 3	9.339 089 5	8 041.937 854 1	0.13	50.751	7.65	1
6	210.210 942 5	9.339 108 5	8 041.937 860 0	0.13	50.694	6.83	2
6	210.209 196 0	9.338 593 0	8 041.952 175 1	0.13	50.751	8.95	1
6	210.209 181 5	9.338 611 4	8 041.952 180 8	0.13	50.693	8.78	2
6	210.200 032 6	9.335 984 1	8 042.026 742 7	0.10	50.749	7.51	1
6	210.200 016 4	9.336 001 1	8 042.026 748 1	0.10	50.692	8.34	2
6	210.198 276 3	9.335 479 4	8 042.041 038 8	0.09	50.749	8.20	1
6	210.198 263 4	9.335 499 1	8 042.041 044 2	0.09	50.692	9.44	2
6	210.189 146 6	9.332 849 3	8 042.115 655 2	0.02	50.748	7.66	1
6	210.189 133 0	9.332 868 7	8 042.115 660 6	0.02	50.691	8.47	2
6	210.167 499 1	9.326 520 6	8 042.293 409 3	0.12	52.581	9.85	2
6	210.167 504 6	9.326 499 7	8 042.293 465 9	0.12	52.603	8.95	1
6	210.165 761 3	9.326 002 9	8 042.307 730 3	0.12	52.581	8.15	2
6	210.165 776 8	9.325 986 9	8 042.307 737 5	0.12	52.603	9.30	1
6	210.156 739 5	9.323 302 9	8 042.382 298 2	0.13	52.580	11.90	2
6	210.156 752 8	9.323 285 3	8 042.382 305 5	0.13	52.601	7.66	1
6	210.155 007 0	9.322 779 8	8 042.396 619 2	0.13	52.580	10.86	2
6	210.155 021 9	9.322 763 4	8 042.396 626 5	0.13	52.601	8.70	1
6	210.146 026 3	9.320 061 4	8 042.471 186 6	0.10	52.579	11.27	2
6	210.146 039 3	9.320 043 6	8 042.471 194 1	0.10	52.600	7.71	1
6	210.144 296 6	9.319 530 8	8 042.485 507 4	0.09	52.579	16.81	2
6	210.144 307 8	9.319 511 8	8 042.485 514 8	0.09	52.600	8.45	1
6	210.135 351 1	9.316 789 5	8 042.560 074 4	0.02	52.577	7.80	2
6	210.135 363 4	9.316 771 5	8 042.560 081 9	0.02	52.599	7.36	1
6	210.133 638 3	9.316 260 9	8 042.574 370 6	0.01	52.577	11.17	2
6	210.133 652 8	9.316 244 5	8 042.574 378 1	0.01	52.598	8.10	1
6	210.112 434 8	9.309 630 8	8 042.752 152 6	0.12	54.601	7.48	2
6	210.112 447 4	9.309 614 1	8 042.752 156 0	0.12	54.548	7.11	1
6	210.103 590 7	9.306 817 6	8 042.826 720 5	0.13	54.600	5.43	2
6	210.103 601 6	9.306 799 9	8 042.826 724 0	0.13	54.547	5.77	1
6	210.101 896 9	9.306 276 1	8 042.841 041 5	0.13	54.600	5.41	2
6	210.101 908 5	9.306 258 9	8 042.841 044 9	0.13	54.546	7.51	1
6	210.093 085 8	9.303 439 7	8 042.915 633 6	0.10	54.598	8.07	2
6	210.093 097 4	9.303 422 5	8 042.915 637 2	0.10	54.545	5.62	1
6	210.091 397 0	9.302 891 5	8 042.929 929 7	0.09	54.598	7.34	2
6	210.091 409 9	9.302 875 2	8 042.929 933 3	0.09	54.545	6.26	1
6	210.082 625 6	9.300 035 2	8 043.004 521 4	0.02	54.597	10.10	2
6	210.082 635 3	9.300 017 0	8 043.004 525 0	0.02	54.544	6.22	1
6	210.080 946 5	9.299 484 7	8 043.018 817 6	0.01	54.597	5.25	2
6	210.080 959 3	9.299 468 6	8 043.018 821 2	0.01	54.543	6.51	1
6	209.772 826 0	5.684 896 1	8 082.707 584 8	0.12	340.868	12.62	1
6	209.772 800 5	5.684 888 4	8 082.707 587 2	0.12	340.848	15.28	2
6	209.781 464 8	5.673 417 0	8 082.796 473 5	0.11	340.869	12.32	1
6	209.790 140 6	5.661 925 5	8 082.885 337 1	0.06	340.869	13.58	1
6	209.790 116 8	5.661 913 2	8 082.885 339 3	0.06	340.849	18.28	2
6	209.791 523 2	5.660 052 4	8 082.899 697 2	0.05	340.849	7.06	2
6	209.791 550 6	5.660 058 2	8 082.899 719 7	0.05	340.869	7.34	1
6	214.363 639 9	1.574 733 0	8 111.584 142 5	0.11	57.494	7.99	1
6	214.363 630 4	1.574 743 9	8 111.584 147 1	0.11	57.474	9.25	2
6	214.366 711 4	1.572 572 9	8 111.598 463 5	0.11	57.494	7.89	1
6	214.366 702 2	1.572 584 0	8 111.598 468 0	0.11	57.474	6.89	2
6	214.382 696 0	1.561 329 1	8 111.673 035 5	0.09	57.474	12.23	2
6	214.385 773 6	1.559 169 7	8 111.687 356 3	0.08	57.474	11.46	2
6	214.401 798 1	1.547 901 1	8 111.761 919 2	0.04	57.494	9.10	1
6	214.401 789 7	1.547 912 5	8 111.761 923 6	0.04	57.474	5.60	2

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
6	219.704 207 2	−1.708 853 2	8 133.090 349 0	0.02	337.542	17.46	2
6	219.704 228 5	−1.708 844 6	8 133.090 355 2	0.02	337.551	11.25	1
6	219.708 211 3	−1.711 046 6	8 133.104 645 2	0.01	337.542	4.68	2
6	219.708 232 1	−1.711 036 8	8 133.104 651 4	0.01	337.551	7.55	1
6	219.758 016 6	−1.738 182 4	8 133.282 426 0	0.11	336.357	8.31	1
6	219.757 996 8	−1.738 191 8	8 133.282 430 0	0.11	336.348	5.88	2
6	317.143 695 2	−9.673 695 4	8 364.223 597 0	0.10	204.671	6.18	1
6	317.143 670 1	−9.673 682 9	8 364.223 600 3	0.10	204.627	6.72	2
6	317.149 352 4	−9.672 455 4	8 364.237 856 0	0.09	204.671	10.16	1
6	317.149 350 5	−9.672 440 3	8 364.237 921 1	0.09	204.627	9.65	2
6	317.178 911 3	−9.665 974 1	8 364.312 463 8	0.05	204.626	14.33	2
6	317.178 965 2	−9.665 982 0	8 364.312 534 5	0.05	204.670	23.81	1
6	317.184 613 8	−9.664 746 4	8 364.326 781 3	0.04	204.670	8.17	1
6	317.184 588 3	−9.664 734 1	8 364.326 784 7	0.04	204.625	7.32	2
6	326.393 619 7	−7.653 545 5	8 389.015 612 0	0.12	118.200	8.71	1
6	326.393 607 5	−7.653 566 0	8 389.015 616 9	0.12	118.211	12.51	2
6	326.398 591 5	−7.652 513 5	8 389.029 945 3	0.12	118.199	6.34	1
6	326.398 579 4	−7.652 534 0	8 389.029 950 2	0.12	118.210	6.53	2
6	326.424 437 0	−7.647 139 3	8 389.104 525 0	0.09	118.197	11.14	1
6	326.424 428 3	−7.647 161 2	8 389.104 529 8	0.09	118.208	12.43	2
6	334.062 381 5	−24.727 772 5	8 542.977 254 3	0.04	303.651	5.43	2
6	334.062 395 5	−24.727 754 6	8 542.977 262 7	0.04	303.654	3.54	1
6	334.063 437 5	−24.728 117 3	8 542.991 562 7	0.03	303.650	7.60	2
6	334.063 451 4	−24.728 099 4	8 542.991 571 3	0.04	303.654	5.10	1
6	334.068 973 0	−24.729 897 3	8 543.066 167 1	0.00	303.649	2.46	2
6	334.068 986 8	−24.729 879 4	8 543.066 175 6	0.00	303.653	2.91	1
6	334.070 040 3	−24.730 235 7	8 543.080 463 3	0.00	303.648	5.97	2
6	334.075 630 6	−24.731 979 0	8 543.155 043 1	−0.03	303.646	6.74	2
6	334.075 645 9	−24.731 962 0	8 543.155 051 7	−0.03	303.650	2.72	1
6	334.076 722 9	−24.732 292 5	8 543.169 360 1	−0.04	303.649	2.62	1
6	336.364 710 1	−24.439 207 4	8 559.418 918 5	0.02	9.942	8.00	2
6	336.364 769 7	−24.439 214 1	8 559.418 921 6	0.02	9.940	4.92	1
6	336.367 605 5	−24.438 405 3	8 559.433 239 5	0.02	9.942	6.25	2
6	336.367 664 5	−24.438 415 0	8 559.433 242 6	0.02	9.940	4.97	1
6	336.382 700 2	−24.434 225 2	8 559.507 794 5	−0.01	9.942	4.79	2
6	336.382 759 1	−24.434 234 2	8 559.507 797 8	−0.01	9.939	5.16	1
6	336.385 606 1	−24.433 421 6	8 559.522 127 7	−0.02	9.942	9.33	2
6	336.385 665 2	−24.433 428 8	8 559.522 131 0	−0.02	9.939	4.92	1
6	336.400 749 1	−24.429 215 5	8 559.596 695 2	−0.04	9.941	5.30	2
6	336.400 807 9	−24.429 223 6	8 559.596 698 6	−0.04	9.938	3.60	1
6	345.497 922 0	−20.949 814 3	8 590.515 293 0	0.00	293.422	3.57	2
6	345.497 931 1	−20.949 796 8	8 590.515 294 4	0.00	293.406	4.45	1
6	345.503 196 1	−20.947 523 9	8 590.529 663 2	−0.01	293.421	3.99	2
6	345.503 205 7	−20.947 506 7	8 590.529 664 7	−0.01	293.405	4.40	1
6	345.530 576 6	−20.935 650 5	8 590.604 168 9	−0.04	293.414	5.85	2
6	345.530 585 8	−20.935 632 9	8 590.604 170 5	−0.04	293.398	4.85	1
6	345.535 837 1	−20.933 354 9	8 590.618 454 4	−0.04	293.396	8.81	1
6	345.535 855 5	−20.933 360 8	8 590.618 526 9	−0.04	293.413	7.65	2
6	358.063 794 7	−15.133 905 1	8 620.989 143 7	0.05	20.060	9.48	2
6	358.063 833 9	−15.133 917 4	8 620.989 146 5	0.05	20.082	6.64	1
6	358.070 210 1	−15.130 809 4	8 621.003 489 4	0.05	20.060	9.67	2
6	358.070 249 4	−15.130 821 4	8 621.003 492 2	0.05	20.081	10.23	1
6	6.898 591 2	−10.814 791 7	8 640.095 717 4	0.05	306.112	11.11	2
6	6.898 603 0	−10.814 776 4	8 640.095 718 5	0.05	306.172	6.71	1
6	6.905 384 2	−10.811 449 2	8 640.110 013 6	0.04	306.112	7.01	2
6	6.905 394 7	−10.811 432 9	8 640.110 014 7	0.04	306.171	6.85	1
6	6.940 846 5	−10.794 018 5	8 640.184 605 7	0.01	306.109	5.97	2
6	6.940 857 3	−10.794 002 1	8 640.184 606 9	0.01	306.169	6.90	1
6	6.947 646 1	−10.790 679 0	8 640.198 901 9	0.00	306.108	5.53	2
6	6.947 657 9	−10.790 663 2	8 640.198 903 1	0.00	306.168	6.51	1
6	6.983 103 8	−10.773 249 8	8 640.273 469 5	−0.03	306.106	10.00	2
6	6.983 113 3	−10.773 232 2	8 640.273 470 7	−0.03	306.165	8.38	1
6	6.989 909 6	−10.769 898 8	8 640.287 790 3	−0.04	306.105	8.92	2
6	6.989 923 8	−10.769 884 5	8 640.287 791 5	−0.04	306.165	6.56	1
6	7.025 376 0	−10.752 466 7	8 640.362 358 3	−0.05	306.102	9.18	2
6	7.025 389 8	−10.752 451 9	8 640.362 359 3	−0.05	306.162	6.71	1
6	151.052 612 6	8.479 714 9	8 938.248 392 0	0.06	241.873	10.96	2
6	151.052 622 4	8.479 696 6	8 938.248 395 5	0.06	241.819	12.85	1
6	151.056 420 1	8.478 985 7	8 938.262 713 0	0.06	241.873	13.90	2
6	151.056 429 6	8.478 967 2	8 938.262 716 5	0.06	241.820	11.65	1
6	151.076 227 0	8.475 195 6	8 938.337 255 4	0.01	241.875	12.16	2
6	151.076 235 7	8.475 176 7	8 938.337 259 0	0.01	241.822	10.55	1
6	151.080 028 6	8.474 467 8	8 938.351 576 3	0.00	241.876	10.84	2
6	151.080 036 8	8.474 448 6	8 938.351 579 9	0.00	241.822	8.00	1
6	156.898 990 7	7.838 220 3	8 967.063 304 2	0.06	160.619	12.93	2
6	156.899 026 3	7.838 233 0	8 967.063 309 2	0.06	160.632	7.71	1
6	156.900 869 0	7.838 397 1	8 967.077 600 4	0.05	160.619	7.60	2
7	228.165 902 8	−21.785 923 3	7 911.555 773 5	0.08	232.803	14.65	2
7	228.165 914 9	−21.785 935 4	7 911.555 775 7	0.08	232.873	10.37	1
7	237.349 428 7	−24.227 156 7	7 959.257 898 6	0.05	233.643	8.07	2
7	237.349 450 2	−24.227 180 8	7 959.257 900 1	0.05	233.646	10.79	1
7	237.350 566 3	−24.227 489 2	7 959.272 219 6	0.06	233.643	10.62	2
7	237.350 583 1	−24.227 516 5	7 959.272 221 2	0.06	233.646	11.14	1
7	237.356 456 0	−24.229 226 0	7 959.346 788 0	0.10	233.641	14.11	2
7	237.356 473 1	−24.229 253 1	7 959.346 789 4	0.10	233.645	10.39	1
7	237.357 583 9	−24.229 556 5	7 959.361 084 3	0.10	233.641	7.80	2
7	237.357 605 8	−24.229 580 3	7 959.361 085 7	0.10	233.645	10.04	1
7	221.590 746 7	−18.186 242 9	8 083.515 422 9	0.08	340.798	8.05	2
7	221.590 773 2	−18.186 234 6	8 083.515 433 4	0.08	340.805	8.94	1
7	221.592 994 5	−18.184 443 6	8 083.589 927 6	0.12	340.805	11.49	1
7	221.592 968 9	−18.184 446 1	8 083.589 991 3	0.12	340.798	5.43	2
7	221.593 427 9	−18.184 099 8	8 083.604 322 7	0.12	340.805	6.85	1
7	221.593 401 4	−18.184 106 7	8 083.604 324 6	0.12	340.798	10.12	2
7	221.595 689 0	−18.182 318 3	8 083.678 878 2	0.12	340.805	7.30	1
7	221.595 663 0	−18.182 325 8	8 083.678 880 2	0.12	340.798	2.92	2
7	221.596 127 9	−18.181 978 4	8 083.693 211 5	0.12	340.805	6.80	1
7	221.596 102 0	−18.181 986 1	8 083.693 213 4	0.12	340.798	4.42	2
7	221.598 428 1	−18.180 210 6	8 083.767 766 6	0.09	340.805	6.60	1
7	221.598 403 1	−18.180 220 5	8 083.767 768 3	0.09	340.798	6.57	2

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
7	223.713 321 3	−18.114 652 0	8 106.428 129 4	0.06	58.999	9.61	1
7	223.713 303 7	−18.114 625 9	8 106.428 131 2	0.06	59.016	9.25	2
7	223.715 489 7	−18.114 876 3	8 106.442 450 3	0.05	58.999	8.05	1
7	223.715 470 5	−18.114 851 1	8 106.442 452 1	0.05	59.015	7.33	2
7	229.384 289 2	−18.988 786 4	8 133.707 683 3	0.10	333.856	29.00	2
7	229.384 322 5	−18.988 766 7	8 133.707 686 2	0.10	333.632	14.27	1
7	325.589 702 6	−10.230 620 7	8 366.356 277 6	0.12	198.412	10.45	1
7	325.589 656 0	−10.230 592 8	8 366.356 309 2	0.12	198.447	7.67	2
7	325.595 015 9	−10.228 298 2	8 366.370 531 4	0.12	198.447	0.50	2
7	325.595 076 9	−10.228 319 1	8 366.370 536 8	0.12	198.411	18.05	1
7	325.623 148 6	−10.216 229 9	8 366.445 173 4	0.11	198.446	10.95	2
7	325.623 209 5	−10.216 251 7	8 366.445 178 6	0.11	198.410	8.90	1
7	325.628 545 0	−10.213 914 4	8 366.459 494 2	0.10	198.446	9.40	2
7	325.628 606 7	−10.213 934 0	8 366.459 499 5	0.10	198.410	9.85	1
7	333.335 397 5	−6.641 246 7	8 388.039 226 7	0.11	118.298	6.87	1
7	333.340 146 0	−6.638 930 5	8 388.053 521 6	0.11	118.307	5.21	2
7	333.340 192 4	−6.638 843 4	8 388.053 523 0	0.11	118.297	6.62	1
7	333.365 163 0	−6.626 402 4	8 388.128 089 7	0.13	118.305	7.65	2
7	333.365 208 8	−6.626 315 3	8 388.128 091 0	0.13	118.296	7.02	1
7	333.369 972 7	−6.623 991 2	8 388.142 435 3	0.12	118.305	6.64	2
7	333.370 020 4	−6.623 905 1	8 388.142 436 6	0.12	118.296	6.87	1
7	342.091 822 3	−1.759 927 8	8 417.448 908 7	0.12	199.747	4.93	1
7	342.091 759 3	−1.759 900 9	8 417.448 911 8	0.12	199.729	9.24	2
7	342.095 456 7	−1.757 625 4	8 417.463 229 7	0.12	199.747	6.02	1
7	342.095 393 8	−1.757 598 5	8 417.463 232 8	0.12	199.729	11.77	2
7	342.114 359 7	−1.745 664 6	8 417.537 797 0	0.08	199.746	4.93	1
7	342.114 296 6	−1.745 639 3	8 417.537 800 0	0.08	199.729	2.07	2
7	342.136 863 5	−1.731 408 6	8 417.626 660 2	0.00	199.746	5.38	1
7	342.136 800 7	−1.731 383 7	8 417.626 663 2	0.00	199.729	6.83	2
7	337.504 745 1	0.551 930 5	8 550.892 422 6	0.06	332.754	2.62	1
7	337.509 310 1	0.545 632 4	8 550.995 570 3	0.03	332.754	3.92	1
7	337.509 188 1	0.545 565 7	8 550.995 620 8	0.03	332.851	3.60	2
7	337.512 672 6	0.541 096 2	8 551.070 187 2	−0.01	332.754	2.23	1
7	337.512 548 6	0.541 033 2	8 551.070 188 2	−0.01	332.851	1.78	2
7	337.513 322 9	0.540 228 6	8 551.084 495 8	−0.01	332.754	2.18	1
7	337.513 199 8	0.540 164 2	8 551.084 496 8	−0.01	332.851	8.52	2
7	337.516 741 4	0.535 718 4	8 551.159 063 2	−0.04	332.754	2.32	1
7	337.516 619 2	0.535 653 6	8 551.159 064 2	−0.04	332.851	3.07	2
7	337.517 406 1	0.534 850 4	8 551.173 408 8	−0.05	332.754	3.00	1
7	337.517 283 4	0.534 786 7	8 551.173 409 8	−0.05	332.851	3.20	2
7	338.322 713 1	0.110 641 9	8 560.402 722 2	−0.02	12.609	4.66	1
7	338.322 639 9	0.110 657 0	8 560.402 727 9	−0.02	12.649	3.20	2
7	338.324 536 6	0.110 196 2	8 560.417 043 1	−0.03	12.609	3.98	1
7	338.324 463 3	0.110 210 9	8 560.417 048 7	−0.03	12.649	5.76	2
7	338.334 058 6	0.107 891 0	8 560.491 598 3	−0.05	12.609	4.03	1
7	338.333 985 7	0.107 906 4	8 560.491 603 9	−0.05	12.649	5.53	2
7	338.335 896 4	0.107 450 6	8 560.505 943 9	−0.05	12.609	4.37	1
7	338.335 823 9	0.107 467 7	8 560.505 949 6	−0.05	12.649	9.86	2
7	338.356 881 2	0.102 488 0	8 560.669 371 3	0.05	14.180	4.37	2
7	338.356 963 0	0.102 467 0	8 560.669 467 5	0.05	14.180	14.80	1
7	338.358 811 8	0.102 040 1	8 560.683 726 7	0.05	14.180	3.93	1
7	338.358 742 5	0.102 056 3	8 560.683 729 3	0.05	14.180	6.66	2
7	358.437 569 3	4.095 364 2	8 622.327 019 9	0.05	17.727	8.82	1
7	358.444 175 1	4.097 377 7	8 622.341 316 1	0.04	17.728	3.63	1
7	358.444 152 1	4.097 385 3	8 622.341 317 1	0.04	17.703	3.63	2
7	358.478 651 3	4.107 890 5	8 622.415 908 3	0.01	17.728	7.20	1
7	358.478 627 9	4.107 896 9	8 622.415 909 3	0.01	17.703	7.86	2
7	9.213 900 4	7.523 161 3	8 644.289 686 2	−0.04	297.410	8.81	2
7	9.213 915 7	7.523 190 5	8 644.289 691 0	−0.04	297.410	6.34	1
7	9.252 366 0	7.535 671 5	8 644.364 254 2	−0.05	297.413	5.52	2
7	9.252 381 0	7.535 700 5	8 644.364 258 8	−0.05	297.414	5.94	1
7	30.897 032 1	14.288 407 8	8 683.632 006 3	0.03	1.122	5.67	1
7	30.897 054 9	14.288 406 8	8 683.632 006 7	0.03	1.108	5.00	2
7	30.905 336 5	14.290 774 0	8 683.646 277 9	0.03	1.122	5.22	1
7	30.905 359 4	14.290 773 5	8 683.646 278 3	0.03	1.108	5.99	2
7	30.948 745 7	14.303 133 2	8 683.720 869 9	−0.01	1.122	5.37	1
7	30.948 768 8	14.303 133 3	8 683.720 870 3	−0.01	1.108	7.66	2
7	30.957 080 6	14.305 505 4	8 683.735 190 9	−0.01	1.122	5.57	1
7	30.957 103 8	14.305 506 4	8 683.735 191 3	−0.01	1.108	5.95	2
7	31.000 484 7	14.317 857 8	8 683.809 758 3	−0.04	1.122	6.75	1
7	31.000 508 1	14.317 856 6	8 683.809 758 8	−0.04	1.109	9.33	2
7	31.008 807 2	14.320 224 9	8 683.824 054 6	−0.04	1.122	4.43	1
7	31.008 830 6	14.320 222 8	8 683.824 055 1	−0.04	1.109	4.51	2
7	31.060 574 0	14.334 946 4	8 683.912 972 9	0.05	359.081	7.05	1
7	31.104 021 9	14.347 290 4	8 683.987 540 5	0.06	359.002	8.08	2
7	31.103 996 4	14.347 288 9	8 683.987 540 8	0.06	359.081	7.00	1
7	31.112 362 2	14.349 661 4	8 684.001 861 4	0.06	359.002	10.83	2
7	31.112 336 6	14.349 661 7	8 684.001 861 7	0.06	359.081	7.05	1
7	31.155 794 3	14.361 990 1	8 684.076 428 9	0.03	359.002	7.13	2
7	31.155 768 4	14.361 992 3	8 684.076 429 1	0.03	359.081	7.49	1
7	31.164 143 5	14.364 366 5	8 684.090 762 2	0.03	359.002	12.15	2
7	31.164 117 7	14.364 361 2	8 684.090 762 4	0.03	359.081	7.19	1
7	31.207 620 9	14.376 696 8	8 684.165 391 3	−0.01	359.002	14.85	2
7	31.207 594 7	14.376 696 8	8 684.165 391 5	−0.01	359.081	14.73	1
7	35.542 513 5	15.571 043 8	8 691.542 771 6	0.06	327.391	5.80	2
7	35.550 989 8	15.573 297 7	8 691.557 102 7	0.06	327.371	5.96	1
7	35.551 004 5	15.573 310 1	8 691.557 104 9	0.06	327.391	3.72	2
7	35.595 180 7	15.585 090 0	8 691.631 694 8	0.03	327.373	6.01	1
7	35.595 196 5	15.585 100 8	8 691.631 697 0	0.03	327.393	12.64	2
7	35.603 657 8	15.587 352 1	8 691.646 003 3	0.02	327.374	7.29	1
7	35.603 680 5	15.587 365 5	8 691.646 017 8	0.02	327.393	6.65	2
7	35.647 838 3	15.599 126 4	8 691.720 558 5	−0.01	327.376	6.51	1
7	35.647 853 2	15.599 138 6	8 691.720 560 6	−0.01	327.395	4.00	2
7	35.656 336 9	15.601 396 2	8 691.734 904 0	−0.02	327.376	5.96	1
7	35.656 352 1	15.601 407 7	8 691.734 906 2	−0.02	327.396	6.08	2
7	35.753 191 6	15.627 185 9	8 691.898 320 2	0.05	325.844	5.91	1
7	35.761 721 0	15.629 462 1	8 691.912 676 2	0.06	325.815	9.16	2
7	35.761 703 5	15.629 450 4	8 691.912 678 3	0.06	325.844	5.13	1
7	175.325 591 8	−3.713 575 3	8 963.027 753 5	0.11	160.666	9.09	2
7	175.325 507 4	−3.713 605 4	8 963.027 760 4	0.11	160.679	11.28	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
7	175.351 515 5	−3.728 707 2	8 963.130 987 6	0.07	160.666	6.31	2
7	175.351 431 0	−3.728 737 6	8 963.130 994 4	0.07	160.678	9.84	1
7	181.836 198 0	−8.822 132 0	9 013.573 269 8	0.09	176.200	7.40	2
7	181.836 085 0	−8.822 139 0	9 013.573 270 2	0.09	176.194	7.50	1
7	181.835 886 8	−8.822 696 3	9 013.587 566 2	0.09	176.200	2.55	2
7	181.835 773 7	−8.822 704 5	9 013.587 566 4	0.09	176.194	7.50	1
7	181.834 242 1	−8.825 662 1	9 013.662 158 4	0.05	176.200	4.79	2
7	181.834 128 8	−8.825 671 8	9 013.662 158 6	0.05	176.194	6.81	1
7	181.833 924 1	−8.826 228 6	9 013.676 392 9	0.05	176.200	12.90	2
7	181.833 807 9	−8.826 237 7	9 013.676 504 2	0.05	176.194	13.23	1
7	181.832 232 7	−8.829 175 3	9 013.751 046 4	0.00	176.200	4.71	2
7	181.832 118 8	−8.829 185 5	9 013.751 046 8	0.00	176.194	6.42	1
7	181.831 903 8	−8.829 738 5	9 013.765 367 3	−0.01	176.200	13.08	2
7	181.831 789 9	−8.829 748 3	9 013.765 367 7	−0.01	176.194	6.66	1
7	181.246 545 8	−9.063 903 2	9 023.917 821 8	0.01	220.846	5.66	2
7	181.219 735 8	−9.065 519 1	9 024.205 627 7	0.09	222.753	6.64	1
7	181.219 799 1	−9.065 573 9	9 024.205 640 0	0.09	222.724	9.18	2
7	181.212 712 7	−9.065 905 7	9 024.280 244 7	0.06	222.754	6.89	1
7	181.212 775 9	−9.065 962 0	9 024.280 245 1	0.06	222.724	10.67	2
7	181.211 366 0	−9.065 974 3	9 024.294 540 8	0.05	222.754	10.04	1
7	181.211 429 6	−9.066 030 3	9 024.294 541 4	0.05	222.725	11.48	2
7	181.203 005 2	−9.066 463 6	9 024.383 429 3	0.00	222.725	10.14	2
8	256.215 739 1	−19.021 681 5	7 917.314 527 1	0.07	204.496	13.87	1
8	256.215 719 5	−19.021 678 8	7 917.314 538 2	0.07	204.485	19.41	2
8	256.221 816 5	−19.022 223 6	7 917.328 908 6	0.07	204.485	10.30	2
8	256.291 156 3	−19.028 422 0	7 917.492 334 3	−0.02	202.801	13.40	1
8	256.291 133 2	−19.028 412 1	7 917.492 334 4	−0.02	202.820	14.43	2
8	260.196 359 7	−19.324 569 3	7 926.825 136 5	−0.02	160.344	18.66	2
8	260.196 375 2	−19.324 560 6	7 926.825 140 0	−0.02	160.354	14.10	1
8	260.232 994 1	−19.326 844 4	7 926.913 967 5	0.03	160.353	22.32	1
8	260.233 005 8	−19.326 859 6	7 926.914 025 8	0.03	160.343	21.36	2
8	260.238 892 8	−19.327 211 6	7 926.928 322 1	0.03	160.343	25.91	2
8	260.238 914 0	−19.327 217 6	7 926.928 325 5	0.03	160.352	15.08	1
8	260.269 645 8	−19.329 127 4	7 927.002 939 6	0.06	160.341	20.74	2
8	260.269 664 4	−19.329 126 4	7 927.002 943 1	0.06	160.351	14.88	1
8	260.275 538 0	−19.329 496 3	7 927.017 236 0	0.07	160.341	19.81	2
8	260.275 554 7	−19.329 490 0	7 927.017 239 5	0.07	160.351	14.26	1
8	260.306 259 5	−19.331 398 0	7 927.091 803 6	0.07	160.340	22.21	2
8	260.306 277 8	−19.331 395 7	7 927.091 807 2	0.07	160.350	15.34	1
8	260.312 178 4	−19.331 763 5	7 927.106 128 2	0.07	160.349	16.17	1
8	274.104 983 2	−19.539 359 0	7 963.695 315 6	−0.01	220.640	12.23	1
8	274.134 455 3	−19.538 432 0	7 963.784 204 7	0.03	220.636	10.81	1
8	274.134 413 4	−19.538 397 9	7 963.784 210 4	0.03	220.637	8.46	2
8	285.320 173 4	−18.852 225 5	8 012.581 154 7	0.03	207.468	10.39	1
8	285.320 077 7	−18.852 180 8	8 012.581 156 4	0.03	207.414	17.37	2
8	277.571 065 2	−24.794 433 3	8 165.617 555 2	0.03	40.357	8.75	1
8	306.029 049 5	−22.110 401 7	8 229.218 126 2	0.12	9.538	10.07	1
8	306.028 924 5	−22.110 375 5	8 229.218 126 6	0.12	9.499	11.90	2
8	306.036 553 5	−22.108 928 0	8 229.232 447 2	0.13	9.538	8.06	1
8	306.036 428 3	−22.108 902 9	8 229.232 447 7	0.13	9.499	10.29	2
8	309.596 447 7	−21.369 873 0	8 235.973 560 8	0.13	338.631	19.03	2
8	309.596 566 3	−21.369 828 6	8 235.973 562 9	0.13	338.733	9.62	1
8	309.604 066 7	−21.368 205 3	8 235.987 881 7	0.12	338.631	7.28	2
8	309.604 186 6	−21.368 163 9	8 235.987 883 8	0.12	338.733	8.31	1
8	309.643 742 4	−21.359 517 8	8 236.062 448 9	0.08	338.631	14.77	2
8	309.643 860 5	−21.359 472 9	8 236.062 451 2	0.08	338.732	11.13	1
8	309.651 361 2	−21.357 843 6	8 236.076 769 9	0.07	338.630	6.70	2
8	309.651 479 7	−21.357 800 3	8 236.076 772 1	0.07	338.732	9.21	1
8	94.578 088 2	20.147 715 6	8 489.165 186 8	−0.02	203.381	10.12	1
8	94.578 090 9	20.147 718 6	8 489.165 195 2	−0.02	203.349	9.05	2
8	94.620 335 1	20.147 443 5	8 489.239 755 1	0.03	203.383	9.32	1
8	94.620 336 5	20.147 442 4	8 489.239 763 6	0.03	203.351	14.32	2
8	94.628 457 6	20.147 381 2	8 489.254 100 8	0.03	203.384	11.57	1
8	94.628 460 3	20.147 382 7	8 489.254 109 3	0.03	203.352	5.29	2
8	94.670 675 0	20.147 102 3	8 489.328 632 1	0.07	203.386	11.92	1
8	94.670 678 1	20.147 104 0	8 489.328 640 6	0.07	203.354	19.10	2
8	94.678 799 3	20.147 046 1	8 489.342 977 7	0.07	203.387	9.57	1
8	94.678 802 8	20.147 048 5	8 489.342 986 3	0.07	203.354	16.43	2
8	94.721 030 1	20.146 747 3	8 489.417 558 0	0.09	203.389	11.32	1
8	94.721 032 9	20.146 747 8	8 489.417 566 4	0.09	203.357	16.19	2
8	94.729 124 2	20.146 688 6	8 489.431 854 3	0.09	203.389	9.17	1
8	94.729 123 5	20.146 681 5	8 489.431 862 7	0.09	203.357	19.58	2
8	94.771 321 5	20.146 374 9	8 489.506 397 2	0.07	203.391	9.67	1
8	94.771 325 3	20.146 376 9	8 489.506 405 5	0.07	203.359	12.03	2
8	94.779 430 4	20.146 320 2	8 489.520 718 1	0.06	203.392	12.62	1
8	94.779 433 6	20.146 321 1	8 489.520 726 3	0.06	203.360	11.52	2
8	102.104 601 2	19.934 574 1	8 502.749 567 7	0.09	152.435	7.54	2
8	102.104 611 4	19.934 579 7	8 502.749 572 4	0.09	152.464	7.11	1
8	102.112 334 7	19.934 195 3	8 502.763 868 6	0.08	152.464	7.06	1
8	102.152 623 3	19.932 162 3	8 502.838 456 1	0.05	152.439	11.23	2
8	102.152 632 5	19.932 169 9	8 502.838 460 7	0.05	152.467	8.16	1
8	102.256 322 3	19.926 922 9	8 503.030 529 6	0.04	150.374	5.85	2
8	102.256 331 6	19.926 930 7	8 503.030 534 5	0.04	150.422	7.01	1
8	120.050 975 5	18.197 801 5	8 539.398 907 0	0.02	232.575	11.67	2
8	120.050 946 5	18.197 838 2	8 539.398 909 2	0.02	232.543	8.82	1
8	120.082 955 8	18.193 407 2	8 539.473 499 9	0.05	232.581	4.88	2
8	120.082 958 1	18.193 439 1	8 539.473 576 1	0.05	232.549	15.85	1
8	120.089 069 6	18.192 564 7	8 539.487 771 6	0.06	232.582	12.64	2
8	120.089 042 0	18.192 602 2	8 539.487 773 7	0.06	232.550	8.72	1
8	120.121 031 0	18.188 175 6	8 539.562 364 0	0.08	232.588	15.14	2
8	120.120 999 8	18.188 210 3	8 539.562 366 3	0.08	232.555	9.02	1
8	120.127 158 7	18.187 328 5	8 539.576 685 0	0.08	232.589	10.19	2
8	120.127 133 1	18.187 367 2	8 539.576 687 3	0.08	232.556	9.07	1
8	129.778 473 7	16.780 579 5	8 565.685 078 3	0.06	152.146	7.58	1
8	134.957 591 8	16.298 952 7	8 588.180 873 3	0.01	234.554	4.98	1
8	134.957 643 8	16.298 883 4	8 588.180 877 5	0.01	234.626	9.08	2
8	134.968 703 6	16.299 310 2	8 588.255 441 7	0.05	234.556	8.28	1
8	134.968 756 2	16.299 240 3	8 588.255 445 8	0.05	234.628	7.42	2
8	134.970 834 2	16.299 381 7	8 588.269 762 8	0.06	234.556	5.72	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
8	134.970 886 8	16.299 311 7	8 588.269 766 9	0.06	234.628	12.31	2
8	134.981 889 4	16.299 756 5	8 588.344 318 5	0.08	234.558	7.83	1
8	134.981 946 2	16.299 688 4	8 588.344 322 5	0.08	234.630	16.61	2
8	134.984 013 7	16.299 833 1	8 588.358 651 9	0.08	234.558	6.11	1
8	134.984 067 1	16.299 762 4	8 588.358 655 9	0.08	234.631	10.50	2
8	122.959 096 5	24.395 054 8	8 709.397 972 0	0.13	335.958	7.26	1
8	122.959 165 4	24.395 084 6	8 709.397 974 1	0.13	335.976	7.84	2
8	122.961 228 7	24.394 667 1	8 709.412 292 9	0.13	335.958	7.01	1
8	122.961 297 6	24.394 696 5	8 709.412 295 1	0.13	335.977	11.18	2
8	122.972 335 0	24.392 665 8	8 709.486 811 0	0.10	335.959	7.90	1
8	122.972 404 1	24.392 693 9	8 709.486 813 2	0.10	335.978	12.88	2
8	122.974 486 1	24.392 275 2	8 709.501 206 1	0.10	335.959	6.41	1
8	122.974 555 1	24.392 303 4	8 709.501 208 3	0.10	335.978	8.83	2
8	122.985 640 1	24.390 262 4	8 709.575 748 2	0.02	335.961	6.56	1
8	151.450 028 9	16.122 049 9	8 798.872 171 7	0.11	42.146	14.34	2
8	151.449 990 0	16.122 082 9	8 798.872 177 4	0.11	42.209	11.92	1
8	151.455 718 1	16.119 971 8	8 798.886 517 4	0.12	42.146	11.79	2
8	151.455 678 6	16.120 004 3	8 798.886 523 1	0.12	42.210	11.66	1
8	151.485 290 9	16.109 166 0	8 798.961 085 4	0.14	42.149	21.87	2
8	151.485 253 2	16.109 201 0	8 798.961 091 1	0.14	42.212	14.49	1
8	151.490 963 6	16.107 096 6	8 798.975 381 7	0.14	42.149	11.85	2
8	151.490 923 8	16.107 129 4	8 798.975 387 4	0.14	42.212	11.87	1
8	151.520 549 6	16.096 281 0	8 799.049 974 1	0.12	42.151	26.04	2
8	151.520 511 3	16.096 316 2	8 799.049 979 7	0.12	42.214	18.04	1
8	151.526 235 4	16.094 209 6	8 799.064 295 0	0.11	42.152	18.26	2
8	151.555 797 8	16.083 387 4	8 799.138 837 3	0.04	42.154	11.72	2
8	151.561 500 3	16.081 317 8	8 799.153 182 7	0.03	42.154	10.14	2
8	155.173 002 2	14.733 416 2	8 808.205 124 8	0.12	4.713	15.56	2
8	155.172 947 8	14.733 416 5	8 808.205 127 1	0.12	4.673	12.46	1
8	155.178 743 5	14.731 226 0	8 808.219 445 9	0.13	4.713	13.99	2
8	155.178 689 4	14.731 230 0	8 808.219 448 2	0.13	4.673	13.95	1
8	155.208 627 4	14.719 861 4	8 808.293 976 9	0.14	4.713	11.76	2
8	155.208 572 5	14.719 859 4	8 808.293 979 0	0.14	4.673	13.34	1
8	155.214 384 6	14.717 671 6	8 808.308 335 0	0.14	4.713	21.18	2
8	155.214 329 9	14.717 672 9	8 808.308 337 0	0.14	4.672	14.62	1
8	244.600 387 6	−15.665 171 7	9 035.373 939 7	0.13	233.355	15.21	2
8	244.600 437 7	−15.665 208 1	9 035.374 019 4	0.13	233.255	32.87	1
9	335.458 327 6	−15.330 041 5	7 882.708 092 5	−0.02	15.619	11.39	1
9	340.870 393 7	−12.862 523 9	7 896.395 542 6	−0.09	316.386	9.87	1
9	103.860 135 8	23.547 720 6	8 142.721 687 7	−0.13	220.726	8.36	1
9	103.860 169 9	23.547 693 2	8 142.721 690 2	−0.13	220.720	12.11	2
9	113.575 523 1	23.124 869 8	8 162.983 468 0	−0.05	148.708	13.36	1
9	113.575 586 8	23.124 907 9	8 162.983 468 0	−0.05	148.644	11.42	2
9	113.582 079 5	23.124 501 1	8 162.997 788 8	−0.06	148.645	14.88	2
9	113.615 787 0	23.122 382 9	8 163.072 356 0	−0.11	148.712	13.11	1
9	113.615 849 6	23.122 423 2	8 163.072 356 0	−0.11	148.648	19.92	2
9	113.622 331 9	23.122 026 0	8 163.086 676 8	−0.12	148.649	17.88	2
9	113.622 267 4	23.121 988 4	8 163.086 676 9	−0.12	148.713	12.46	1
9	125.578 533 1	22.281 649 5	8 192.939 039 6	−0.12	236.068	7.98	1
9	125.603 735 6	22.280 081 0	8 193.013 607 8	−0.09	236.075	6.83	1
9	125.603 779 5	22.280 020 2	8 193.013 611 6	−0.09	236.062	8.58	2
9	125.608 562 0	22.279 779 4	8 193.027 904 2	−0.08	236.077	7.18	1
9	125.608 603 6	22.279 717 2	8 193.027 908 0	−0.08	236.064	8.71	2
9	133.492 783 0	22.434 995 4	8 225.707 410 4	−0.13	159.209	6.64	2
9	133.492 650 3	22.434 948 6	8 225.707 411 0	−0.13	159.168	5.58	1
9	133.494 460 0	22.435 507 3	8 225.721 682 6	−0.13	159.168	13.27	1
9	133.494 600 8	22.435 559 9	8 225.721 756 1	−0.13	159.209	8.09	2
9	133.505 683 3	22.439 033 7	8 225.810 596 3	−0.11	159.168	8.44	1
9	133.515 179 0	22.442 058 9	8 225.885 188 9	−0.06	159.209	4.50	2
9	133.515 047 4	22.442 012 5	8 225.885 189 5	−0.06	159.168	6.02	1
9	133.516 839 8	22.442 586 5	8 225.899 510 7	−0.04	159.168	8.14	1
9	134.397 105 3	23.085 735 8	8 237.528 225 4	−0.03	210.508	4.03	1
9	134.397 588 5	23.086 676 3	8 237.542 543 3	−0.05	210.491	6.07	2
9	134.397 448 5	23.086 751 0	8 237.542 546 1	−0.05	210.508	6.83	1
9	134.399 343 7	23.091 969 9	8 237.617 135 2	−0.10	210.493	4.39	2
9	134.399 536 0	23.093 063 8	8 237.631 458 9	−0.11	210.509	8.94	1
9	134.401 369 9	23.098 299 0	8 237.705 998 9	−0.13	210.494	4.89	2
9	134.401 231 4	23.098 374 7	8 237.706 001 9	−0.13	210.511	4.76	1
9	134.401 686 2	23.099 315 5	8 237.720 319 9	−0.13	210.494	9.38	2
9	134.401 546 9	23.099 390 0	8 237.720 322 9	−0.13	210.511	8.99	1
9	134.403 323 1	23.104 649 8	8 237.794 887 9	−0.11	210.495	7.94	2
9	134.403 185 0	23.104 725 4	8 237.794 891 0	−0.11	210.512	6.48	1
9	120.496 892 7	28.642 519 3	8 320.558 503 8	−0.08	13.264	7.58	1
9	120.557 706 9	28.385 101 0	8 327.669 235 3	−0.09	43.919	8.36	2
9	120.557 622 5	28.385 173 5	8 327.669 244 0	−0.09	43.902	7.06	1
9	120.558 276 1	28.384 475 8	8 327.683 581 0	−0.09	43.919	4.24	2
9	120.558 189 9	28.384 546 7	8 327.683 589 6	−0.09	43.902	5.78	1
9	120.561 274 6	28.381 234 3	8 327.758 099 4	−0.10	43.919	5.85	2
9	120.561 189 0	28.381 305 6	8 327.758 107 9	−0.10	43.902	6.27	1
9	120.561 857 0	28.380 606 8	8 327.772 469 8	−0.10	43.919	5.37	2
9	120.561 771 2	28.380 677 9	8 327.772 478 3	−0.10	43.902	5.78	1
9	120.564 913 6	28.377 349 4	8 327.847 037 9	−0.08	43.918	11.26	2
9	120.564 826 7	28.377 419 3	8 327.847 046 4	−0.08	43.903	6.67	1
9	120.565 502 9	28.376 721 7	8 327.861 334 3	−0.07	43.918	6.90	2
9	120.565 416 5	28.376 792 0	8 327.861 342 8	−0.07	43.903	6.52	1
9	120.568 614 4	28.373 449 7	8 327.935 902 6	−0.03	43.918	7.88	2
9	120.568 530 4	28.373 521 8	8 327.935 911 1	−0.03	43.903	6.32	1
9	120.569 221 2	28.372 823 4	8 327.950 223 7	−0.02	43.918	4.18	2
9	120.569 135 1	28.372 893 7	8 327.950 232 2	−0.02	43.903	5.48	1
9	126.735 095 1	25.793 081 1	8 363.828 210 4	−0.05	331.534	6.52	1
9	126.735 201 4	25.793 133 6	8 363.828 210 7	−0.05	331.525	4.19	2
9	126.739 041 8	25.791 705 7	8 363.842 556 2	−0.04	331.535	6.57	1
9	126.739 148 8	25.791 757 2	8 363.842 556 4	−0.04	331.526	4.32	2
9	126.759 567 2	25.784 553 9	8 363.917 112 2	0.01	331.538	6.27	1
9	126.759 673 4	25.784 607 4	8 363.917 112 6	0.01	331.529	6.86	2
9	136.268 972 3	22.482 686 2	8 393.162 948 7	−0.02	57.209	10.68	2
9	136.268 948 2	22.482 721 6	8 393.162 956 9	−0.02	57.243	8.35	1
9	136.328 364 2	22.461 559 9	8 393.326 424 0	−0.07	56.117	10.42	1
9	136.328 394 0	22.461 522 5	8 393.326 426 3	−0.08	56.080	12.74	2

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
9	240.149 693 0	−18.133 346 2	8 652.043 838 3	−0.10	230.177	19.78	2
9	240.149 712 0	−18.133 373 9	8 652.043 839 9	−0.10	230.192	20.87	1
9	240.154 386 7	−18.134 341 0	8 652.058 134 5	−0.10	230.176	13.37	2
9	240.154 405 1	−18.134 369 3	8 652.058 136 2	−0.10	230.191	15.69	1
9	240.183 534 2	−18.140 540 8	8 652.147 023 4	−0.11	230.171	9.90	2
9	240.183 557 3	−18.140 565 5	8 652.147 025 0	−0.11	230.186	14.24	1
9	246.811 592 9	−19.439 911 2	8 674.717 450 4	−0.11	146.478	11.56	1
9	246.811 567 5	−19.439 928 8	8 674.717 455 1	−0.11	146.469	4.86	2
9	246.830 550 7	−19.443 362 3	8 674.792 018 2	−0.10	146.475	11.25	1
9	246.834 171 6	−19.444 046 3	8 674.806 368 9	−0.09	146.467	8.59	2
9	246.834 204 6	−19.444 027 3	8 674.806 401 1	−0.09	146.475	13.62	1
9	246.853 121 6	−19.447 471 4	8 674.880 907 5	−0.06	146.472	10.84	1
9	246.853 093 6	−19.447 486 3	8 674.880 912 3	−0.06	146.464	15.65	2
9	246.856 753 7	−19.448 130 7	8 674.895 228 5	−0.05	146.471	13.77	1
9	246.856 728 7	−19.448 150 0	8 674.895 233 4	−0.05	146.464	8.44	2
9	251.815 263 2	−20.365 660 1	8 700.471 065 2	−0.10	227.194	9.93	1
9	251.815 217 3	−20.365 614 7	8 700.471 070 2	−0.10	227.211	11.53	2
9	236.342 156 8	−21.059 820 6	8 826.631 790 2	0.06	337.823	10.49	2
9	236.347 768 6	−21.064 443 6	8 826.802 311 3	−0.01	338.329	11.13	2
9	236.348 251 0	−21.064 840 0	8 826.816 607 6	−0.01	338.329	9.10	2
9	236.350 771 2	−21.066 869 5	8 826.891 151 2	0.03	338.329	17.35	2
10	344.053 066 8	−4.204 346 8	8 023.668 705 8	−0.09	196.358	12.40	1
10	344.053 024 9	−4.204 330 8	8 023.668 708 1	−0.09	196.336	19.51	2
10	344.056 582 1	−4.202 619 7	8 023.683 026 8	−0.09	196.357	13.67	1
10	344.056 539 3	−4.202 607 0	8 023.683 029 1	−0.09	196.336	14.99	2
10	344.074 872 2	−4.193 632 3	8 023.757 570 3	−0.06	196.357	12.71	1
10	344.074 829 6	−4.193 618 9	8 023.757 572 5	−0.06	196.335	9.64	2
10	344.078 392 7	−4.191 895 8	8 023.771 915 9	−0.06	196.357	11.34	1
10	344.078 349 5	−4.191 884 1	8 023.771 918 1	−0.06	196.335	14.00	2
10	344.096 673 2	−4.182 906 1	8 023.846 484 4	−0.01	196.357	10.98	1
10	344.096 630 4	−4.182 893 1	8 023.846 486 4	−0.01	196.335	11.97	2
10	344.100 182 9	−4.181 178 6	8 023.860 805 4	−0.01	196.357	10.93	1
10	344.100 140 1	−4.181 165 1	8 023.860 807 4	−0.01	196.335	19.90	2
10	349.088 755 6	−1.588 142 6	8 047.394 655 6	0.00	114.625	13.57	1
10	349.088 722 1	−1.588 213 6	8 047.394 661 8	0.00	114.626	20.26	2
10	349.091 271 7	−1.586 739 1	8 047.408 989 1	0.01	114.625	11.86	1
10	349.091 240 9	−1.586 811 3	8 047.408 995 2	0.01	114.626	11.30	2
10	349.122 385 4	−1.569 421 3	8 047.586 766 7	−0.09	114.346	14.73	2
10	349.122 417 9	−1.569 349 1	8 047.586 772 3	−0.09	114.343	11.15	1
10	352.417 105 5	0.517 426 3	8 073.879 072 8	−0.06	196.072	9.95	2
10	352.417 156 0	0.517 411 7	8 073.879 078 0	−0.06	196.077	9.68	1
10	352.422 357 1	0.521 773 4	8 073.953 640 8	−0.02	196.072	5.95	2
10	352.422 407 7	0.521 759 0	8 073.953 646 4	−0.02	196.077	9.98	1
10	352.423 362 1	0.522 604 4	8 073.967 961 8	−0.02	196.072	3.80	2
10	352.423 411 3	0.522 585 5	8 073.967 967 4	−0.02	196.077	9.43	1
10	352.428 581 1	0.526 929 9	8 074.042 530 0	0.02	196.072	9.41	2
10	352.428 630 9	0.526 913 5	8 074.042 535 6	0.02	196.077	8.98	1
10	352.429 580 5	0.527 759 4	8 074.056 851 0	0.03	196.072	5.87	2
10	352.429 630 5	0.527 743 6	8 074.056 856 7	0.03	196.077	9.28	1
10	340.797 006 2	−3.293 420 8	8 200.978 788 9	0.10	305.452	10.60	2
10	340.797 062 6	−3.293 342 5	8 200.978 794 3	0.10	305.412	11.09	1
10	340.799 348 0	−3.293 912 7	8 201.053 331 6	0.05	305.452	10.57	2
10	340.799 405 9	−3.293 835 5	8 201.053 336 9	0.05	305.412	8.83	1
10	340.805 027 7	−3.295 033 1	8 201.231 132 5	0.05	306.480	29.26	2
10	340.805 086 4	−3.294 956 5	8 201.231 135 5	0.05	306.453	13.95	1
10	346.821 211 9	−1.636 906 8	8 247.791 998 3	0.04	294.760	7.75	2
10	346.821 244 4	−1.636 833 6	8 247.792 001 0	0.04	294.750	9.44	1
10	346.824 185 7	−1.635 866 4	8 247.806 319 5	0.06	294.760	12.72	2
10	346.824 218 2	−1.635 793 3	8 247.806 322 2	0.06	294.750	12.35	1
10	41.080 137 2	19.169 684 8	8 432.032 375 1	0.11	178.153	16.18	1
10	41.101 002 0	19.176 333 1	8 432.106 918 4	0.13	178.153	13.02	1
10	41.105 016 8	19.177 606 4	8 432.121 264 1	0.13	178.153	16.34	1
10	41.125 872 7	19.184 256 2	8 432.195 807 0	0.11	178.153	15.51	1
10	41.129 895 7	19.185 543 7	8 432.210 189 5	0.10	178.153	17.48	1
10	41.200 429 4	19.207 992 3	8 432.462 491 2	0.10	176.637	16.08	1
10	41.204 429 8	19.209 273 5	8 432.476 812 2	0.11	176.637	17.94	1
10	41.225 257 8	19.215 902 0	8 432.551 380 2	0.13	176.637	17.58	1
10	41.229 250 5	19.217 167 5	8 432.565 676 5	0.13	176.637	19.29	1
10	41.250 069 6	19.223 794 0	8 432.640 244 1	0.11	176.637	16.80	1
10	43.746 606 2	20.005 941 4	8 441.795 383 1	0.11	138.725	21.51	1
10	43.770 166 4	20.013 184 9	8 441.884 259 2	0.13	138.423	30.58	2
10	43.770 226 1	20.013 225 3	8 441.884 259 7	0.13	138.727	20.63	1
10	43.773 968 7	20.014 360 5	8 441.898 580 1	0.13	138.423	7.47	2
10	43.793 784 2	20.020 473 7	8 441.973 197 0	0.10	138.425	15.47	2
10	43.793 835 8	20.020 523 2	8 441.973 197 6	0.10	138.729	16.07	1
10	52.250 479 7	22.531 879 7	8 479.466 270 8	0.08	208.849	18.40	1
10	52.250 442 0	22.531 892 2	8 479.466 271 4	0.08	208.832	25.79	2
10	52.252 979 4	22.532 614 5	8 479.480 542 5	0.09	208.849	22.26	1
10	52.252 949 3	22.532 639 8	8 479.480 543 1	0.09	208.832	22.92	2
10	52.266 029 1	22.536 450 9	8 479.555 110 7	0.12	208.851	13.36	1
10	52.265 998 8	22.536 473 0	8 479.555 123 7	0.12	208.834	11.52	2
10	52.268 536 8	22.537 187 3	8 479.569 456 4	0.12	208.852	14.39	1
10	52.268 504 3	22.537 208 6	8 479.569 457 0	0.12	208.834	18.71	2
10	52.281 564 3	22.541 018 0	8 479.644 024 1	0.12	208.853	13.62	1
10	52.281 527 5	22.541 032 4	8 479.644 024 8	0.12	208.836	19.16	2
10	55.800 380 9	23.680 245 5	8 510.119 132 7	0.10	126.298	15.76	1
10	55.800 324 5	23.680 188 6	8 510.119 138 5	0.11	126.352	16.51	2
10	55.801 072 9	23.680 564 0	8 510.133 503 1	0.11	126.298	11.35	1
10	55.801 024 5	23.680 501 7	8 510.133 508 8	0.11	126.352	19.02	2
10	55.804 611 9	23.682 234 4	8 510.208 021 6	0.12	126.298	15.51	1
10	55.804 563 9	23.682 171 6	8 510.208 027 5	0.12	126.353	14.01	2
10	55.805 299 0	23.682 548 6	8 510.222 354 9	0.12	126.298	16.52	1
10	55.805 248 0	23.682 488 5	8 510.222 373 1	0.12	126.353	13.49	2
10	55.878 848 2	23.896 434 0	8 526.916 046 1	0.07	191.662	13.81	1
10	55.878 213 6	23.896 495 1	8 526.930 388 3	0.08	191.821	19.86	2
10	55.878 281 0	23.896 481 4	8 526.930 416 5	0.08	191.662	15.98	1
10	55.875 244 0	23.896 690 3	8 527.004 907 1	0.12	191.821	21.68	2
10	55.875 312 0	23.896 674 8	8 527.004 910 7	0.12	191.662	16.64	1
10	55.874 667 2	23.896 724 0	8 527.019 277 5	0.12	191.821	22.23	2
10	55.874 735 5	23.896 710 0	8 527.019 281 0	0.12	191.662	19.96	1
10	55.871 663 9	23.896 925 5	8 527.093 832 7	0.12	191.821	27.90	2
10	55.871 732 1	23.896 911 4	8 527.093 836 4	0.12	191.662	22.08	1
10	43.375 059 3	19.450 135 3	8 650.136 081 9	−0.02	300.919	13.57	1
10	43.375 025 6	19.450 077 9	8 650.136 091 8	−0.02	300.910	22.96	2
10	43.384 417 2	19.450 865 3	8 650.224 972 8	0.07	301.625	12.99	2
10	43.384 456 2	19.450 920 4	8 650.224 981 5	0.07	301.619	14.85	1
10	43.385 931 8	19.450 994 2	8 650.239 293 7	0.08	301.625	16.65	2
10	43.385 971 1	19.451 049 3	8 650.239 302 6	0.08	301.620	18.37	1
10	47.900 555 9	20.149 072 9	8 678.301 080 8	0.07	24.597	14.10	2
10	47.900 594 8	20.149 056 4	8 678.301 081 6	0.07	24.622	13.89	1
10	47.903 563 7	20.149 622 9	8 678.315 426 5	0.07	24.598	15.16	2
10	47.903 603 4	20.149 607 7	8 678.315 427 3	0.07	24.622	13.11	1
10	47.919 179 8	20.152 435 6	8 678.389 969 3	0.04	24.599	16.81	2
10	47.919 217 7	20.152 414 9	8 678.389 970 0	0.04	24.623	13.53	1
10	47.922 188 7	20.152 981 0	8 678.404 314 7	0.03	24.599	16.11	2
10	47.922 226 8	20.152 960 2	8 678.404 315 5	0.03	24.623	11.93	1
10	47.937 828 6	20.155 796 3	8 678.478 882 1	−0.01	24.601	13.47	2
10	47.937 867 7	20.155 775 4	8 678.478 882 9	−0.01	24.625	15.23	1
10	47.940 871 7	20.156 317 6	8 678.493 191 4	−0.02	24.625	14.25	1
10	47.940 833 8	20.156 336 4	8 678.493 203 0	−0.02	24.601	20.90	2
10	52.409 015 3	20.970 668 4	8 697.407 810 2	0.06	312.388	15.41	2
10	52.409 053 3	20.970 704 8	8 697.407 813 7	0.06	312.436	13.02	1
10	52.412 755 5	20.971 333 0	8 697.422 155 7	0.05	312.389	14.31	2
10	52.412 792 0	20.971 370 7	8 697.422 159 2	0.05	312.436	17.58	1
10	122.277 183 1	20.142 224 9	8 933.894 806 9	−0.03	232.628	17.49	1
10	122.277 164 7	20.142 245 6	8 933.894 815 3	−0.03	232.632	15.78	2
10	122.278 277 1	20.141 855 8	8 933.909 160 8	−0.04	232.632	15.44	2
10	122.278 292 3	20.141 831 8	8 933.909 164 7	−0.04	232.628	14.92	1
10	108.717 256 1	20.853 935 5	9 045.603 693 6	−0.11	346.041	13.91	2
10	108.717 278 6	20.853 946 0	9 045.603 696 2	−0.11	346.061	12.95	1
10	108.716 435 9	20.853 938 0	9 045.618 002 2	−0.11	346.041	6.12	2
10	108.716 459 2	20.853 945 4	9 045.618 004 8	−0.11	346.061	8.40	1
10	108.494 846 2	20.796 644 5	9 059.701 499 5	−0.11	43.237	12.36	1
10	108.494 817 2	20.796 677 4	9 059.701 505 3	−0.11	43.348	14.90	2
11	107.877 511 9	19.855 886 3	8 144.232 933 7	−0.04	218.726	16.13	1
11	107.947 742 3	19.848 261 9	8 144.425 020 9	−0.11	217.872	17.83	2
11	107.947 738 4	19.848 265 5	8 144.425 021 6	−0.11	217.880	14.00	1
11	114.396 670 9	19.015 876 4	8 163.428 804 3	−0.05	148.031	41.59	1
11	114.401 156 1	19.015 227 1	8 163.443 194 4	−0.06	147.970	14.33	2
11	114.401 139 4	19.015 216 0	8 163.443 199 2	−0.06	148.032	13.85	1
11	121.991 639 6	17.735 972 0	8 193.459 355 5	−0.09	235.011	11.09	1
11	121.991 646 1	17.735 961 2	8 193.459 357 9	−0.09	235.004	9.16	2
11	124.739 836 3	17.420 482 2	8 230.522 448 4	−0.12	175.981	10.47	2
11	124.739 790 2	17.420 481 4	8 230.522 450 3	−0.12	176.117	15.54	1
11	124.731 256 2	17.424 318 7	8 230.685 931 7	−0.12	176.117	7.41	1
11	124.716 965 7	17.430 707 4	8 230.952 599 9	−0.11	178.136	6.84	2
11	124.716 916 6	17.430 704 1	8 230.952 601 8	−0.11	178.048	7.36	1
11	124.716 182 2	17.431 056 5	8 230.966 896 1	−0.12	178.136	15.28	2
11	124.716 133 0	17.431 053 4	8 230.966 898 0	−0.12	178.048	11.20	1
11	124.702 058 4	17.437 230 6	8 231.219 244 3	−0.05	178.048	10.84	1
11	124.701 246 2	17.437 574 0	8 231.233 565 6	−0.03	178.048	13.26	1
11	124.681 436 7	17.446 152 2	8 231.574 814 5	−0.12	180.043	7.11	1
11	124.681 489 8	17.446 152 0	8 231.574 822 5	−0.12	180.078	9.72	2
11	124.680 588 2	17.446 514 3	8 231.589 110 9	−0.11	180.043	12.05	1
11	124.680 641 4	17.446 517 2	8 231.589 118 8	−0.11	180.078	13.77	2
11	124.676 138 4	17.448 412 4	8 231.663 679 6	−0.04	180.043	7.46	1
11	124.676 192 2	17.448 413 0	8 231.663 687 7	−0.04	180.078	9.71	2
11	124.675 279 1	17.448 785 0	8 231.678 000 8	−0.03	180.043	14.52	1
11	124.665 366 5	17.452 994 6	8 231.841 456 4	−0.11	181.975	7.21	1
11	124.665 421 2	17.452 992 8	8 231.841 460 5	−0.11	182.131	6.10	2
11	124.664 488 6	17.453 364 6	8 231.855 777 3	−0.12	181.975	14.92	1
11	124.664 543 4	17.453 363 9	8 231.855 781 4	−0.12	182.131	13.46	2
11	124.654 362 1	17.457 635 4	8 232.019 246 3	−0.12	181.975	7.61	1
11	124.654 417 5	17.457 631 1	8 232.019 250 7	−0.12	182.131	7.40	2
11	124.653 466 6	17.458 019 3	8 232.033 555 1	−0.11	181.975	12.05	1
11	124.653 522 3	17.458 018 7	8 232.033 559 4	−0.11	182.131	14.61	2
11	124.648 774 3	17.459 983 0	8 232.108 123 7	−0.04	181.975	7.61	1
11	124.648 830 4	17.459 981 5	8 232.108 128 3	−0.04	182.131	7.61	2
11	124.647 866 9	17.460 363 1	8 232.122 469 7	−0.02	181.975	14.92	1
11	124.642 215 0	17.462 720 1	8 232.211 314 6	−0.05	184.035	10.89	1
11	124.637 481 2	17.464 712 3	8 232.285 901 1	−0.11	184.037	11.30	2
11	124.637 424 4	17.464 714 3	8 232.285 906 4	−0.11	184.035	8.06	1
11	124.636 556 6	17.465 093 5	8 232.300 222 0	−0.12	184.037	13.73	2
11	124.636 500 1	17.465 099 6	8 232.300 227 3	−0.12	184.035	12.95	1
11	124.625 900 2	17.469 508 6	8 232.463 678 7	−0.11	184.038	7.24	2
11	124.625 843 0	17.469 513 8	8 232.463 684 1	−0.11	184.035	7.86	1
11	124.624 956 5	17.469 888 0	8 232.477 999 7	−0.11	184.038	16.29	2
11	124.624 898 6	17.469 884 2	8 232.478 005 1	−0.11	184.035	14.51	1
11	124.620 021 4	17.471 931 3	8 232.552 593 3	−0.04	184.038	7.88	2
11	124.619 964 0	17.471 936 5	8 232.552 598 4	−0.04	184.036	8.67	1
11	124.619 013 0	17.472 323 6	8 232.566 895 0	−0.02	184.036	10.73	1
11	124.614 025 3	17.474 368 3	8 232.641 532 4	−0.03	186.015	12.95	1
11	124.613 068 9	17.474 762 4	8 232.655 779 0	−0.05	186.015	9.98	1
11	124.613 126 1	17.474 759 4	8 232.655 784 2	−0.05	186.060	13.92	2
11	124.608 035 9	17.476 821 2	8 232.730 370 9	−0.11	186.015	6.90	1
11	124.608 092 7	17.476 814 9	8 232.730 376 1	−0.11	186.060	4.67	2
11	124.607 066 9	17.477 220 2	8 232.744 667 0	−0.12	186.015	10.13	1
11	124.607 123 7	17.477 212 3	8 232.744 672 3	−0.12	186.060	7.61	2
11	124.595 876 0	17.481 753 9	8 232.908 123 9	−0.11	186.015	8.72	1
11	124.594 888 4	17.482 173 2	8 232.922 444 8	−0.11	186.015	9.47	1
11	124.594 945 9	17.482 169 9	8 232.922 450 1	−0.11	186.060	13.97	2
11	124.589 710 1	17.484 267 6	8 232.997 025 8	−0.04	186.015	6.20	1
11	124.589 767 3	17.484 259 9	8 232.997 031 2	−0.04	186.060	9.71	2
11	124.588 706 4	17.484 669 6	8 233.011 408 9	−0.02	186.015	21.77	1
11	124.577 203 9	17.489 307 9	8 233.174 809 7	−0.11	188.167	7.71	1
11	124.577 260 8	17.489 301 7	8 233.174 809 9	−0.11	188.158	10.69	2
11	124.576 186 9	17.489 714 5	8 233.189 118 2	−0.12	188.167	10.03	1
11	124.576 243 9	17.489 708 6	8 233.189 118 5	−0.12	188.158	10.29	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
11	124.564 466 5	17.494 408 6	8 233.352 575 0	−0.11	188.167	7.86	1
11	124.564 523 7	17.494 404 6	8 233.352 575 3	−0.11	188.158	13.46	2
11	124.563 431 2	17.494 828 7	8 233.366 896 0	−0.11	188.167	8.87	1
11	124.563 488 5	17.494 824 9	8 233.366 896 3	−0.11	188.158	14.38	2
11	124.558 011 2	17.496 985 7	8 233.441 464 7	−0.04	188.167	6.50	1
11	124.558 067 9	17.496 978 7	8 233.441 465 1	−0.04	188.158	7.68	2
11	124.551 498 7	17.499 577 4	8 233.530 349 5	−0.03	190.152	8.71	1
11	124.544 984 4	17.502 178 1	8 233.619 233 9	−0.11	190.207	16.34	2
11	124.544 927 5	17.502 183 7	8 233.619 237 4	−0.11	190.152	8.87	1
11	124.543 919 6	17.502 595 4	8 233.633 554 8	−0.12	190.207	6.45	2
11	124.543 863 6	17.502 606 0	8 233.633 558 2	−0.12	190.152	9.82	1
11	109.417 255 1	22.111 672 7	8 315.312 517 7	−0.10	347.002	7.53	1
11	109.417 276 6	22.111 676 2	8 315.312 520 2	−0.10	346.984	12.97	2
11	109.413 354 1	22.114 330 8	8 315.401 394 5	−0.08	347.001	7.07	1
11	109.413 374 8	22.114 337 3	8 315.401 397 1	−0.08	346.983	8.50	2
11	109.412 760 7	22.114 641 6	8 315.415 690 9	−0.07	347.001	19.00	1
11	109.409 510 8	22.116 981 9	8 315.490 284 0	−0.03	347.001	7.28	1
11	109.409 531 6	22.116 988 0	8 315.490 286 6	−0.03	346.983	7.77	2
11	109.408 897 6	22.117 411 3	8 315.504 568 0	−0.02	347.001	7.73	1
11	109.408 918 6	22.117 414 7	8 315.504 583 0	−0.02	346.983	8.88	2
11	109.401 405 8	22.122 679 1	8 315.682 384 9	−0.09	348.921	10.92	1
11	109.401 426 5	22.122 684 2	8 315.682 386 2	−0.09	348.872	9.16	2
11	109.494 917 9	22.413 471 8	8 328.999 801 1	−0.09	43.955	8.92	2
11	109.494 915 7	22.413 477 1	8 328.999 804 4	−0.09	43.969	10.10	1
11	109.495 698 0	22.413 677 1	8 329.014 123 8	−0.09	43.956	11.98	2
11	109.495 695 2	22.413 681 8	8 329.014 125 3	−0.09	43.969	9.59	1
11	109.499 774 7	22.414 734 7	8 329.088 690 4	−0.09	43.957	8.41	2
11	109.499 769 4	22.414 737 0	8 329.088 693 2	−0.09	43.971	7.91	1
11	109.500 561 2	22.414 936 5	8 329.103 010 1	−0.09	43.957	11.35	2
11	109.500 556 5	22.414 939 2	8 329.103 014 2	−0.09	43.971	8.52	1
11	114.339 758 7	22.297 958 4	8 361.162 239 3	−0.03	326.243	18.31	2
11	114.339 750 8	22.297 950 2	8 361.162 239 4	−0.03	326.253	14.47	1
11	114.360 405 1	22.296 030 9	8 361.251 128 7	0.02	326.255	15.71	1
11	114.360 413 5	22.296 038 2	8 361.251 128 7	0.02	326.245	17.41	2
11	114.363 736 9	22.295 726 7	8 361.265 474 4	0.02	326.255	16.54	1
11	114.363 744 9	22.295 734 6	8 361.265 474 4	0.02	326.246	22.86	2
11	129.558 573 0	19.814 522 9	8 410.669 503 5	−0.08	347.536	24.94	1
11	129.585 365 0	19.808 635 5	8 410.744 034 2	−0.08	347.537	29.20	1
11	129.585 370 2	19.808 640 7	8 410.744 036 4	−0.08	347.557	17.32	2
11	129.590 520 2	19.807 494 2	8 410.758 367 6	−0.07	347.537	18.31	1
11	129.590 526 7	19.807 494 5	8 410.758 369 8	−0.07	347.557	24.71	2
11	129.617 324 5	19.801 620 0	8 410.832 923 4	−0.04	347.538	17.89	1
11	129.617 331 0	19.801 621 2	8 410.832 925 6	−0.04	347.558	27.84	2
11	129.622 476 8	19.800 479 6	8 410.847 244 4	−0.04	347.538	23.85	1
11	129.622 486 5	19.800 466 9	8 410.847 246 6	−0.04	347.558	30.79	2
11	129.649 286 9	19.794 575 0	8 410.921 775 6	0.00	347.539	23.91	1
11	129.649 295 7	19.794 566 8	8 410.921 777 7	0.00	347.559	33.48	2
11	129.654 453 1	19.793 435 1	8 410.936 133 7	0.01	347.539	25.51	1
11	129.654 459 5	19.793 437 1	8 410.936 135 8	0.01	347.559	25.73	2
11	203.271 024 1	−6.041 802 2	8 601.043 465 9	−0.09	228.793	13.98	2
11	203.271 031 1	−6.041 807 9	8 601.043 469 1	−0.09	228.818	14.00	1
11	203.276 175 4	−6.043 513 3	8 601.057 786 9	−0.09	228.792	24.76	2
11	203.276 181 8	−6.043 519 6	8 601.057 790 1	−0.09	228.818	13.74	1
11	208.412 904 3	−7.665 883 0	8 615.707 935 9	−0.09	166.961	13.38	1
11	208.412 909 4	−7.665 885 9	8 615.707 942 0	−0.09	166.949	13.70	2
11	208.417 778 4	−7.667 340 0	8 615.722 256 9	−0.09	166.961	14.99	1
11	208.417 782 6	−7.667 339 0	8 615.722 263 0	−0.09	166.948	7.78	2
11	208.443 159 2	−7.674 919 0	8 615.796 849 7	−0.07	166.960	17.99	1
11	208.443 162 8	−7.674 915 8	8 615.796 855 6	−0.07	166.948	28.47	2
11	208.448 019 2	−7.676 372 8	8 615.811 133 6	−0.07	166.960	18.51	1
11	208.448 023 9	−7.676 374 2	8 615.811 139 5	−0.07	166.948	12.73	2
11	218.244 576 3	−10.167 666 0	8 647.780 476 6	−0.05	241.521	13.27	2
11	218.244 578 1	−10.167 678 4	8 647.780 479 1	−0.05	241.526	13.29	1
11	218.248 343 0	−10.168 411 1	8 647.794 773 0	−0.04	241.521	11.06	2
11	218.248 348 6	−10.168 421 4	8 647.794 775 5	−0.04	241.526	13.14	1
11	218.267 978 5	−10.172 291 7	8 647.869 341 4	0.00	241.519	17.60	2
11	218.267 984 1	−10.172 301 5	8 647.869 343 9	0.00	241.524	14.22	1
11	218.271 744 5	−10.173 037 4	8 647.883 662 5	0.01	241.518	16.97	2
11	218.271 754 3	−10.173 044 8	8 647.883 665 0	0.01	241.523	14.43	1
11	224.354 147 2	−10.890 254 8	8 678.254 190 4	−0.08	156.524	12.37	2
11	224.354 143 9	−10.890 257 0	8 678.254 191 1	−0.08	156.499	9.72	1
11	224.355 932 0	−10.890 172 6	8 678.268 487 4	−0.08	156.499	19.39	1
11	224.355 938 8	−10.890 163 6	8 678.268 536 0	−0.08	156.524	17.62	2
11	224.365 248 0	−10.889 718 1	8 678.343 104 0	−0.06	156.523	14.55	2
11	224.365 243 1	−10.889 721 0	8 678.343 104 7	−0.06	156.499	10.63	1
11	224.367 031 7	−10.889 630 2	8 678.357 425 0	−0.05	156.523	22.66	2
11	224.367 032 8	−10.889 647 4	8 678.357 425 8	−0.05	156.499	15.95	1
11	225.539 630 0	−10.565 514 6	8 693.540 400 7	0.01	217.153	11.06	1
11	225.539 632 6	−10.565 509 8	8 693.540 412 1	0.01	217.195	9.53	2
11	225.540 022 0	−10.564 991 0	8 693.554 708 5	0.02	217.195	9.93	2
11	225.540 022 8	−10.564 991 7	8 693.554 709 4	0.02	217.153	10.66	1
11	225.544 391 6	−10.559 014 4	8 693.718 137 2	−0.08	218.396	12.16	1
11	225.544 388 9	−10.559 015 1	8 693.718 139 4	−0.08	218.398	9.16	2
11	225.544 760 2	−10.558 494 8	8 693.732 482 9	−0.08	218.396	13.62	1
11	225.544 759 9	−10.558 492 5	8 693.732 485 1	−0.08	218.398	8.12	2
11	214.887 137 8	−8.672 365 4	8 823.003 667 7	0.10	337.480	13.19	2
11	214.887 138 0	−8.672 365 8	8 823.003 674 2	0.10	337.495	11.44	1
12	350.345 860 9	1.616 443 2	7 880.402 042 7	−0.11	18.997	13.05	1
12	350.345 924 7	1.616 416 2	7 880.402 050 3	−0.11	18.979	15.82	2
12	350.351 608 6	1.617 763 9	7 880.416 363 8	−0.10	18.997	8.75	1
12	350.351 672 9	1.617 738 1	7 880.416 371 3	−0.10	18.979	11.24	2
12	359.886 595 0	4.138 153 1	7 903.252 850 2	−0.07	295.807	17.58	1
12	359.886 598 7	4.138 161 3	7 903.252 859 4	−0.07	295.789	20.63	2
12	102.180 254 1	13.049 007 0	8 311.755 483 3	−0.10	331.949	17.83	2
12	102.180 359 9	13.049 063 0	8 311.755 494 5	−0.10	331.947	18.36	1
12	102.176 077 3	13.052 601 5	8 311.844 321 9	−0.08	331.947	12.60	1
12	102.175 971 7	13.052 544 8	8 311.844 323 3	−0.08	331.948	16.62	2
12	102.175 388 2	13.053 178 3	8 311.858 655 3	−0.07	331.947	16.23	1
12	102.175 281 5	13.053 123 5	8 311.858 656 7	−0.07	331.948	23.16	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
12	102.171 841 6	13.056 149 6	8 311.933 211 3	−0.03	331.946	15.25	1
12	102.171 732 1	13.056 099 6	8 311.933 225 0	−0.03	331.948	19.62	2
12	102.171 167 3	13.056 716 2	8 311.947 520 1	−0.02	331.946	15.35	1
12	102.171 058 4	13.056 665 6	8 311.947 521 4	−0.02	331.948	15.18	2
12	203.321 878 8	−17.780 134 2	8 647.873 391 1	0.03	245.025	10.89	2
12	203.321 902 7	−17.780 175 4	8 647.873 393 6	0.03	245.040	15.40	1
12	203.324 711 2	−17.781 530 9	8 647.887 712 1	0.03	245.025	19.74	2
12	203.324 732 9	−17.781 573 0	8 647.887 714 6	0.03	245.040	13.12	1
12	193.834 249 2	−10.265 763 8	8 771.502 207 0	0.09	358.990	11.30	1
12	193.834 225 2	−10.265 768 8	8 771.502 213 4	0.09	359.007	19.61	2
12	193.834 280 2	−10.264 403 5	8 771.516 528 2	0.10	358.990	6.35	1
12	193.834 256 2	−10.264 407 2	8 771.516 534 5	0.10	359.007	5.81	2
12	193.834 467 5	−10.257 334 3	8 771.591 096 0	0.10	358.990	11.75	1
12	193.834 443 9	−10.257 340 3	8 771.591 102 4	0.10	359.007	22.13	2
12	193.834 508 6	−10.255 987 8	8 771.605 416 7	0.09	358.990	7.60	1
12	193.834 485 0	−10.255 989 6	8 771.605 423 2	0.09	359.007	12.18	2
12	194.699 329 7	−9.266 968 2	8 786.256 213 3	0.09	56.746	9.35	1
12	194.699 302 1	−9.266 939 6	8 786.256 218 2	0.09	56.800	15.44	2
12	194.700 952 6	−9.266 384 0	8 786.270 558 9	0.08	56.745	10.56	1
12	194.700 930 3	−9.266 351 9	8 786.270 563 8	0.08	56.800	9.91	2
12	194.719 517 4	−9.259 751 8	8 786.434 039 3	0.03	58.316	9.30	2
12	194.719 538 9	−9.259 785 4	8 786.434 039 3	0.03	58.294	8.80	1
12	194.721 179 8	−9.259 209 6	8 786.448 360 4	0.04	58.294	10.41	1
12	194.721 157 1	−9.259 176 6	8 786.448 360 5	0.04	58.316	10.50	2
12	202.071 490 1	−9.691 330 0	8 820.151 083 5	0.05	338.627	17.39	2
12	202.071 490 1	−9.691 330 8	8 820.151 086 6	0.05	338.639	12.05	1
12	202.075 911 2	−9.692 151 3	8 820.165 429 2	0.06	338.626	10.51	2
12	202.075 910 5	−9.692 150 4	8 820.165 432 4	0.06	338.639	11.28	1
12	202.098 889 4	−9.696 418 4	8 820.239 948 3	0.10	338.626	13.22	2
12	202.098 888 7	−9.696 418 4	8 820.239 951 3	0.10	338.638	11.64	1
12	202.103 309 1	−9.697 241 9	8 820.254 269 3	0.10	338.625	7.39	2
12	202.103 308 1	−9.697 241 1	8 820.254 272 3	0.10	338.638	12.25	1
12	202.126 343 4	−9.701 534 9	8 820.328 861 8	0.11	338.625	21.51	2
12	202.126 343 4	−9.701 537 2	8 820.328 864 8	0.11	338.637	13.88	1
12	202.130 766 0	−9.702 362 6	8 820.343 170 5	0.11	338.625	16.88	2
12	202.130 764 7	−9.702 361 8	8 820.343 173 5	0.11	338.637	13.12	1
13	346.955 468 7	−26.526 319 5	8 052.996 797 7	−0.06	117.980	22.51	1
13	346.958 166 3	−26.526 802 1	8 053.011 150 6	−0.05	118.044	12.34	2
13	346.958 157 7	−26.526 823 0	8 053.011 155 8	−0.05	117.979	11.51	1
13	346.971 931 6	−26.529 337 8	8 053.085 706 5	−0.02	118.038	18.68	2
13	346.971 922 9	−26.529 358 6	8 053.085 711 7	−0.02	117.974	13.85	1
13	346.974 575 9	−26.529 827 9	8 053.100 027 4	−0.02	118.037	12.76	2
13	346.974 565 5	−26.529 847 8	8 053.100 032 7	−0.02	117.973	11.10	1
13	346.988 319 3	−26.532 382 6	8 053.174 595 5	0.02	118.032	15.86	2
13	346.988 307 8	−26.532 401 8	8 053.174 601 0	0.02	117.968	15.56	1
13	346.990 951 1	−26.532 871 1	8 053.188 941 2	0.03	118.031	15.91	2
13	346.990 939 6	−26.532 890 3	8 053.188 946 7	0.03	117.967	15.61	1
13	349.806 194 5	−27.899 169 1	8 075.649 392 6	−0.04	200.781	13.79	1
13	349.806 192 3	−27.899 168 9	8 075.649 399 7	−0.04	200.773	15.71	2
13	349.807 058 3	−27.900 418 9	8 075.663 738 5	−0.03	200.781	14.31	1
13	349.807 057 2	−27.900 416 2	8 075.663 745 6	−0.03	200.773	27.32	2
13	349.811 544 2	−27.906 877 8	8 075.738 281 9	0.00	200.782	12.66	1
13	349.811 540 8	−27.906 880 8	8 075.738 288 9	0.00	200.774	9.82	2
13	349.812 401 3	−27.908 124 3	8 075.752 615 3	0.00	200.782	12.86	1
13	349.812 399 8	−27.908 125 9	8 075.752 634 5	0.00	200.774	13.12	2
13	349.816 838 4	−27.914 616 6	8 075.827 171 0	0.03	200.783	14.41	1
13	349.816 840 1	−27.914 608 8	8 075.827 177 8	0.03	200.775	11.59	2
13	349.817 696 7	−27.915 852 7	8 075.841 541 6	0.04	200.784	12.76	1
13	349.817 695 2	−27.915 852 6	8 075.841 548 4	0.04	200.775	16.31	2
13	333.634 441 1	−29.246 064 9	8 194.296 201 3	0.10	292.484	22.69	2
13	333.634 433 7	−29.246 070 2	8 194.296 202 3	0.10	292.491	14.10	1
13	333.635 127 7	−29.243 747 6	8 194.310 534 6	0.10	292.484	19.74	2
13	333.635 120 9	−29.243 753 1	8 194.310 535 6	0.10	292.491	17.52	1
13	333.638 751 7	−29.231 700 6	8 194.385 089 8	0.06	292.485	26.67	2
13	333.638 742 4	−29.231 705 3	8 194.385 090 6	0.06	292.494	15.29	1
13	333.639 446 1	−29.229 387 2	8 194.399 436 1	0.04	292.494	13.68	1
13	336.824 916 5	−24.607 167 3	8 220.508 996 0	0.10	21.170	16.49	1
13	336.824 923 1	−24.607 168 2	8 220.509 003 9	0.10	21.172	12.69	2
13	336.827 571 2	−24.604 476 4	8 220.523 304 4	0.09	21.169	20.69	1
13	336.827 579 2	−24.604 477 1	8 220.523 324 7	0.09	21.171	16.91	2
13	70.889 894 0	24.216 335 8	8 483.019 322 9	0.06	211.469	18.05	1
13	70.889 872 8	24.216 351 3	8 483.019 330 3	0.06	211.462	20.50	2
13	70.895 100 5	24.218 038 6	8 483.033 594 6	0.07	211.470	17.84	1
13	78.836 119 1	26.949 135 5	8 506.389 319 3	0.04	133.811	14.52	1
13	78.836 121 4	26.949 128 8	8 506.389 319 6	0.04	133.805	21.64	2
13	70.085 509 1	40.451 188 5	8 657.424 261 1	0.09	326.789	11.80	2
13	70.085 516 0	40.451 196 8	8 657.424 265 8	0.09	326.763	11.37	1
13	70.086 683 9	40.450 658 7	8 657.438 557 5	0.09	326.789	22.06	2
13	70.086 693 4	40.450 663 8	8 657.438 562 1	0.09	326.763	16.20	1
13	70.092 844 8	40.447 895 7	8 657.513 150 1	0.08	326.791	9.53	2
13	70.092 854 3	40.447 900 9	8 657.513 154 6	0.08	326.765	10.77	1
13	70.094 047 0	40.447 350 1	8 657.527 471 0	0.08	326.792	24.04	2
13	70.094 051 2	40.447 361 5	8 657.527 475 6	0.08	326.766	15.75	1
13	70.100 273 3	40.444 584 8	8 657.602 013 9	0.05	326.794	6.88	2
13	70.100 283 3	40.444 589 3	8 657.602 018 5	0.05	326.768	10.06	1
13	73.294 068 7	39.796 419 1	8 676.530 241 1	0.09	38.263	13.60	1
13	73.294 036 5	39.796 441 2	8 676.530 247 0	0.09	38.247	22.07	2
13	73.297 592 2	39.795 975 3	8 676.544 586 8	0.09	38.263	9.64	1
13	73.297 561 5	39.795 998 9	8 676.544 592 6	0.09	38.248	9.33	2
13	73.315 915 4	39.793 667 9	8 676.619 105 0	0.07	38.266	13.66	1
13	73.315 884 6	39.793 690 3	8 676.619 110 6	0.07	38.251	10.17	2
13	82.834 054 9	38.947 996 2	8 705.050 195 6	0.05	312.078	14.50	1
13	82.834 051 5	38.947 994 0	8 705.050 198 6	0.05	312.075	14.01	2
13	82.839 901 8	38.947 536 3	8 705.064 516 6	0.05	312.080	18.47	1
13	82.839 897 5	38.947 534 8	8 705.064 519 6	0.05	312.077	18.15	2
13	98.967 890 5	37.359 797 5	8 739.699 652 6	0.02	30.195	20.54	1
13	98.967 865 6	37.359 810 2	8 739.699 676 5	0.02	30.177	30.09	2
13	98.975 149 8	37.358 887 7	8 739.714 022 1	0.01	30.178	22.92	2
13	98.975 188 8	37.358 866 3	8 739.714 035 2	0.01	30.196	21.52	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
13	99.020 297 4	37.353 149 0	8 739.802 939 9	0.04	27.927	11.88	2
13	99.020 332 3	37.353 135 6	8 739.802 942 2	0.04	27.928	17.58	1
13	99.058 162 5	37.348 340 4	8 739.877 483 3	0.09	27.931	14.21	2
13	99.058 200 4	37.348 331 9	8 739.877 485 8	0.09	27.932	16.65	1
13	99.065 435 9	37.347 412 6	8 739.891 804 5	0.10	27.932	11.60	2
13	99.065 471 3	37.347 400 4	8 739.891 807 0	0.10	27.932	15.09	1
13	99.103 360 2	37.342 582 3	8 739.966 374 8	0.10	27.936	16.39	1
13	99.103 333 9	37.342 597 1	8 739.966 384 7	0.10	27.935	25.59	2
14	328.503 703 3	−20.573 288 6	7 885.639 843 1	−0.12	5.322	23.61	2
14	328.503 712 9	−20.573 290 2	7 885.639 845 8	−0.12	5.322	14.73	1
14	328.508 401 3	−20.571 455 3	7 885.654 164 1	−0.12	5.322	27.91	2
14	328.508 411 0	−20.571 455 2	7 885.654 166 8	−0.12	5.322	16.59	1
14	328.532 858 6	−20.561 910 6	7 885.728 707 7	−0.09	5.321	32.43	2
14	328.532 871 4	−20.561 919 5	7 885.728 722 7	−0.09	5.322	18.05	1
14	328.537 572 8	−20.560 066 0	7 885.743 043 7	−0.08	5.322	19.45	1
14	328.537 566 4	−20.560 070 0	7 885.743 053 5	−0.08	5.321	26.98	2
14	328.562 045 5	−20.550 517 6	7 885.817 612 4	−0.01	5.321	18.57	1
14	330.120 673 0	−19.939 302 1	7 890.528 728 3	−0.12	342.851	19.65	1
14	330.120 668 4	−19.939 302 8	7 890.528 741 5	−0.12	342.855	20.11	2
14	330.125 460 8	−19.937 423 9	7 890.543 086 4	−0.12	342.851	18.93	1
14	330.125 455 2	−19.937 421 9	7 890.543 099 5	−0.12	342.856	19.27	2
14	330.150 313 7	−19.927 634 5	7 890.617 642 3	−0.08	342.851	15.09	1
14	330.150 305 6	−19.927 638 8	7 890.617 643 3	−0.08	342.856	18.39	2
14	330.155 093 1	−19.925 740 7	7 890.631 988 1	−0.07	342.851	16.75	1
14	330.155 083 1	−19.925 738 8	7 890.631 989 1	−0.07	342.856	24.84	2
14	330.179 959 5	−19.915 954 1	7 890.706 556 7	0.00	342.852	17.53	1
14	33.141 866 6	4.304 522 6	8 082.763 767 2	−0.12	199.089	21.21	1
14	33.141 853 4	4.304 528 6	8 082.763 769 6	−0.12	199.110	18.95	2
14	33.159 377 1	4.308 466 5	8 082.838 349 9	−0.10	199.110	28.00	2
14	33.159 392 5	4.308 458 8	8 082.838 359 9	−0.10	199.089	19.24	1
14	33.162 751 1	4.309 208 2	8 082.852 668 7	−0.09	199.089	17.63	1
14	33.162 740 2	4.309 221 0	8 082.852 671 0	−0.09	199.110	27.43	2
14	40.621 112 0	4.962 368 1	8 132.956 150 5	−0.10	202.538	25.22	2
14	40.621 131 9	4.962 361 6	8 132.956 156 5	−0.10	202.529	14.73	1
14	40.624 407 3	4.959 836 9	8 133.045 039 7	−0.05	202.538	13.35	2
14	40.624 426 2	4.959 828 5	8 133.045 045 9	−0.05	202.529	14.57	1
14	40.624 935 9	4.959 429 4	8 133.059 385 4	−0.04	202.538	18.71	2
14	40.624 952 3	4.959 414 6	8 133.059 391 6	−0.04	202.529	12.63	1
14	25.704 277 8	2.558 735 1	8 252.228 139 7	−0.03	297.279	10.76	1
14	25.704 279 3	2.558 735 5	8 252.228 140 1	−0.03	297.297	18.82	2
14	25.704 772 8	2.559 976 4	8 252.242 460 8	−0.02	297.279	11.37	1
14	25.704 772 9	2.559 977 5	8 252.242 461 2	−0.02	297.297	13.20	2
14	25.707 393 0	2.566 433 5	8 252.317 029 1	0.02	297.279	11.67	1
14	25.707 393 5	2.566 434 3	8 252.317 029 4	0.02	297.297	21.91	2
14	25.707 896 6	2.567 678 9	8 252.331 374 7	0.02	297.279	10.09	1
14	25.707 897 8	2.567 679 4	8 252.331 375 1	0.02	297.297	10.89	2
14	32.912 749 9	8.137 747 1	8 299.945 136 2	0.09	303.398	15.92	1
14	32.912 752 0	8.137 744 0	8 299.945 136 4	0.09	303.415	13.95	2
14	32.916 282 4	8.139 691 4	8 299.959 432 5	0.09	303.398	14.26	1
14	32.916 279 7	8.139 691 4	8 299.959 432 7	0.09	303.415	9.52	2
14	32.934 714 9	8.149 835 9	8 300.034 000 0	0.05	303.399	13.85	1
14	133.589 199 9	20.566 333 0	8 540.803 915 1	0.02	234.802	16.13	2
14	133.589 214 6	20.566 307 9	8 540.803 918 0	0.02	234.809	13.84	1
14	133.595 063 2	20.565 511 1	8 540.818 260 9	0.03	234.804	18.56	2
14	133.595 081 1	20.565 488 1	8 540.818 263 8	0.03	234.810	11.92	1
14	133.625 537 6	20.561 249 8	8 540.892 804 1	0.05	234.810	17.10	2
14	133.625 557 0	20.561 227 7	8 540.892 807 1	0.05	234.817	12.52	1
14	133.631 392 6	20.560 432 3	8 540.907 125 1	0.06	234.811	25.85	2
14	133.631 409 0	20.560 408 1	8 540.907 128 2	0.06	234.818	14.25	1
14	142.152 775 0	19.389 479 9	8 563.019 127 0	0.03	156.920	13.18	2
14	142.152 790 2	19.389 486 7	8 563.019 130 7	0.03	157.010	12.29	1
14	142.157 923 2	19.388 826 8	8 563.033 472 9	0.04	156.921	13.71	2
14	142.157 937 4	19.388 836 0	8 563.033 476 5	0.04	157.010	15.92	1
14	142.184 667 3	19.385 431 9	8 563.108 016 1	0.06	156.923	16.49	2
14	142.184 680 4	19.385 443 6	8 563.108 019 9	0.06	157.012	11.64	1
14	142.189 803 8	19.384 779 9	8 563.122 337 1	0.06	156.923	10.07	2
14	142.189 818 1	19.384 788 7	8 563.122 340 9	0.06	157.012	15.32	1
14	150.522 166 1	18.673 015 9	8 589.510 792 5	−0.02	241.205	12.14	2
14	150.522 186 5	18.672 989 2	8 589.510 799 0	−0.02	241.228	8.89	1
14	150.541 986 0	18.672 785 7	8 589.585 342 6	0.01	241.234	9.64	1
14	150.541 969 4	18.672 812 3	8 589.585 348 2	0.01	241.210	10.84	2
14	150.545 784 5	18.672 750 3	8 589.599 638 9	0.02	241.235	8.39	1
14	150.545 766 9	18.672 776 3	8 589.599 644 6	0.02	241.210	7.43	2
14	145.165 969 8	27.851 672 2	8 715.100 873 0	0.10	0.965	16.96	1
14	145.165 932 3	27.851 668 8	8 715.100 960 7	0.10	0.967	6.41	2
14	145.168 089 1	27.846 336 8	8 715.175 515 1	0.12	0.965	8.06	1
14	145.168 049 5	27.846 338 9	8 715.175 516 3	0.12	0.967	6.13	2
14	145.168 501 0	27.845 312 5	8 715.189 836 1	0.12	0.965	7.23	1
14	145.168 461 5	27.845 310 4	8 715.189 837 3	0.12	0.967	8.14	2
14	146.619 000 9	26.332 342 3	8 731.009 076 8	0.08	63.208	7.75	2
14	146.619 015 8	26.332 322 6	8 731.009 078 6	0.08	63.171	6.77	1
14	146.630 219 4	26.323 617 9	8 731.083 645 3	0.12	63.210	28.20	2
14	146.630 238 3	26.323 599 8	8 731.083 646 9	0.12	63.172	10.32	1
14	146.632 389 5	26.321 945 9	8 731.097 966 3	0.12	63.211	8.88	2
14	146.632 402 9	26.321 925 3	8 731.097 967 9	0.12	63.173	7.11	1
14	146.643 654 8	26.313 211 1	8 731.172 509 4	0.12	63.213	10.23	2
14	146.643 668 8	26.313 190 6	8 731.172 511 0	0.12	63.174	7.46	1
14	146.645 829 7	26.311 529 8	8 731.186 855 1	0.12	63.214	8.83	2
14	146.645 841 8	26.311 508 4	8 731.186 856 7	0.12	63.174	7.76	1
14	154.340 001 1	21.556 445 5	8 763.067 614 4	0.13	337.939	24.74	2
14	154.340 040 0	21.556 455 5	8 763.067 624 6	0.13	338.028	12.06	1
14	154.344 527 1	21.553 931 9	8 763.081 945 5	0.13	338.029	16.50	1
14	154.344 488 4	21.553 928 1	8 763.081 947 7	0.13	337.939	20.54	2
14	154.367 882 2	21.540 833 2	8 763.156 513 2	0.11	338.032	7.67	1
14	154.367 847 6	21.540 820 5	8 763.156 515 2	0.11	337.942	19.82	2
14	154.372 379 0	21.538 309 3	8 763.170 858 7	0.10	338.032	8.77	1
14	154.372 344 9	21.538 295 2	8 763.170 860 8	0.10	337.943	10.17	2
14	165.790 204 2	15.297 451 0	8 795.141 416 3	0.07	59.823	13.65	1
14	165.795 791 5	15.294 443 9	8 795.155 729 9	0.05	59.828	17.23	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
14	165.795 806 5	15.294 427 3	8 795.155 737 1	0.05	59.824	10.64	1
14	165.859 691 2	15.259 846 1	8 795.319 211 7	0.10	58.576	10.24	1
14	165.865 286 7	15.256 825 0	8 795.333 508 1	0.11	58.577	11.39	1
14	165.865 277 7	15.256 843 7	8 795.333 515 0	0.11	58.560	19.97	2
14	283.541 620 6	−22.373 243 6	9 044.154 605 1	0.10	200.912	21.70	1
15	341.717 010 8	4.461 708 3	7 882.624 313 8	−0.10	15.078	7.11	1
15	341.716 965 4	4.461 718 2	7 882.624 322 3	−0.10	15.056	15.33	2
15	341.722 616 0	4.463 376 7	7 882.638 585 6	−0.09	15.078	10.47	1
15	341.722 590 8	4.463 395 1	7 882.638 643 5	−0.09	15.056	9.34	2
15	118.950 524 2	23.730 166 4	8 146.097 265 2	−0.02	216.302	5.68	1
15	118.956 701 9	23.728 543 0	8 146.111 610 7	−0.03	216.303	6.08	1
15	118.956 658 2	23.728 573 8	8 146.111 615 9	−0.03	216.276	6.81	2
15	118.988 801 3	23.720 098 4	8 146.186 177 8	−0.09	216.305	8.13	1
15	118.988 757 3	23.720 128 5	8 146.186 182 7	−0.09	216.279	9.76	2
15	118.994 965 3	23.718 477 4	8 146.200 498 6	−0.10	216.306	6.93	1
15	118.994 920 9	23.718 506 8	8 146.200 503 5	−0.10	216.279	6.23	2
15	119.027 034 1	23.710 028 5	8 146.275 041 5	−0.12	216.308	8.62	1
15	119.026 989 6	23.710 057 4	8 146.275 046 4	−0.12	216.282	9.22	2
15	119.033 206 8	23.708 405 6	8 146.289 387 1	−0.12	216.309	7.48	1
15	119.033 163 0	23.708 435 4	8 146.289 392 0	−0.12	216.283	11.62	2
15	119.103 442 8	23.689 865 8	8 146.452 795 1	−0.05	216.316	5.03	1
15	119.103 399 9	23.689 895 5	8 146.452 800 1	−0.05	216.289	2.71	2
15	135.952 556 9	17.686 001 4	8 194.967 728 3	−0.06	239.350	8.00	2
15	135.952 588 6	17.685 954 5	8 194.967 733 0	−0.06	239.325	4.97	1
15	135.974 732 4	17.675 031 4	8 195.056 616 3	−0.11	239.353	4.28	2
15	135.974 761 9	17.674 983 2	8 195.056 621 2	−0.11	239.328	6.80	1
15	135.978 327 8	17.673 220 8	8 195.070 917 4	−0.12	239.329	7.00	1
15	135.996 896 6	17.664 015 0	8 195.145 509 9	−0.12	239.332	6.36	1
15	136.000 461 2	17.662 252 7	8 195.159 818 6	−0.12	239.332	6.06	1
15	140.980 935 0	14.359 201 3	8 224.657 615 4	−0.02	158.669	5.13	1
15	140.986 844 7	14.352 055 5	8 224.732 116 2	−0.09	158.715	6.83	2
15	140.986 807 1	14.352 043 8	8 224.732 120 7	−0.09	158.670	5.58	1
15	140.987 970 5	14.350 680 5	8 224.746 474 0	−0.10	158.715	7.70	2
15	140.987 934 0	14.350 666 4	8 224.746 478 5	−0.10	158.670	5.13	1
15	140.993 799 9	14.343 530 5	8 224.821 017 0	−0.13	158.716	3.88	2
15	140.993 764 5	14.343 514 3	8 224.821 021 4	−0.13	158.671	5.58	1
15	140.994 921 6	14.342 147 6	8 224.835 387 3	−0.13	158.716	6.05	2
15	140.994 885 9	14.342 132 3	8 224.835 391 8	−0.13	158.671	6.56	1
15	141.311 012 0	12.945 233 8	8 241.618 022 8	−0.11	226.905	5.42	2
15	141.311 051 1	12.945 188 6	8 241.618 023 1	−0.11	226.877	4.96	1
15	141.310 402 5	12.944 240 4	8 241.632 368 5	−0.11	226.904	5.27	2
15	141.310 442 9	12.944 196 5	8 241.632 368 8	−0.11	226.877	4.67	1
15	126.913 330 5	11.288 845 7	8 362.313 941 1	−0.10	330.841	10.93	1
15	126.926 136 5	11.285 959 4	8 362.402 829 9	−0.10	330.842	9.53	1
15	126.926 156 9	11.285 971 7	8 362.402 836 3	−0.10	330.930	8.43	2
15	126.928 203 8	11.285 495 2	8 362.417 163 2	−0.10	330.842	6.29	1
15	126.928 223 8	11.285 508 1	8 362.417 169 7	−0.10	330.931	9.75	2
15	132.689 240 4	9.894 383 4	8 391.116 176 0	−0.09	58.735	6.69	1
15	138.468 844 4	8.264 798 8	8 412.429 726 2	−0.09	344.898	19.25	1
15	138.473 008 4	8.263 549 9	8 412.443 972 8	−0.10	344.909	8.71	2
15	138.472 994 4	8.263 545 1	8 412.443 972 9	−0.10	344.898	8.79	1
15	138.494 706 4	8.256 985 3	8 412.518 491 3	−0.10	344.899	19.50	1
15	138.494 744 4	8.256 975 5	8 412.518 565 4	−0.10	344.909	9.01	2
15	138.498 887 9	8.255 719 1	8 412.532 837 2	−0.09	344.899	9.14	1
15	138.498 902 8	8.255 721 7	8 412.532 837 2	−0.09	344.909	8.86	2
15	200.519 013 8	−19.400 873 0	8 603.357 347 2	−0.07	222.045	11.43	1
15	200.518 987 2	−19.400 849 3	8 603.357 350 4	−0.07	221.990	10.49	2
15	200.522 988 1	−19.403 024 7	8 603.371 693 0	−0.06	222.045	14.09	1
15	200.522 960 9	−19.403 001 6	8 603.371 696 2	−0.06	221.990	18.20	2
15	200.543 635 8	−19.414 200 8	8 603.446 236 6	−0.03	222.044	14.96	1
15	200.543 607 0	−19.414 179 5	8 603.446 239 7	−0.03	221.988	14.91	2
15	200.547 606 3	−19.416 353 4	8 603.460 582 4	−0.02	222.044	15.72	1
15	200.547 579 9	−19.416 329 6	8 603.460 585 4	−0.02	221.988	14.89	2
15	200.568 218 9	−19.427 499 4	8 603.535 129 0	0.02	221.987	15.09	2
15	200.568 264 7	−19.427 535 4	8 603.535 200 0	0.02	222.043	27.11	1
15	200.572 212 9	−19.429 675 8	8 603.549 471 7	0.03	222.043	16.08	1
15	200.572 190 7	−19.429 647 6	8 603.549 474 8	0.03	221.987	19.21	2
15	204.376 775 3	−21.543 318 8	8 618.036 352 3	−0.05	160.462	8.66	1
15	204.376 771 4	−21.543 323 5	8 618.036 355 8	−0.05	160.506	8.70	2
15	204.395 191 9	−21.553 885 4	8 618.110 920 7	−0.01	160.460	13.45	1
15	204.395 188 0	−21.553 889 3	8 618.110 924 0	−0.01	160.504	6.94	2
15	204.398 735 1	−21.555 915 6	8 618.125 278 8	0.00	160.459	11.11	1
15	204.398 730 2	−21.555 916 9	8 618.125 282 1	0.00	160.504	13.36	2
15	204.417 137 1	−21.566 481 9	8 618.199 847 0	0.03	160.457	13.35	1
15	204.417 133 0	−21.566 483 6	8 618.199 850 4	0.03	160.502	24.09	2
15	210.755 844 2	−25.700 593 2	8 650.094 921 8	0.02	243.730	11.02	1
15	210.755 823 9	−25.700 554 3	8 650.094 931 5	0.02	243.732	13.37	2
15	210.757 854 7	−25.702 242 5	8 650.109 218 2	0.03	243.730	7.03	1
15	210.757 835 2	−25.702 203 3	8 650.109 227 9	0.03	243.731	6.95	2
15	212.612 606 1	−28.771 640 4	8 683.160 993 2	−0.04	176.778	14.75	2
15	212.612 640 6	−28.771 637 2	8 683.160 996 5	−0.04	176.624	10.81	1
15	212.609 722 8	−28.776 417 4	8 683.235 561 2	−0.02	176.778	19.97	2
15	212.609 757 6	−28.776 414 0	8 683.235 564 6	−0.02	176.624	13.41	1
15	212.609 165 3	−28.777 336 4	8 683.249 882 3	−0.01	176.778	18.77	2
15	212.609 200 6	−28.777 339 5	8 683.249 885 6	−0.01	176.623	13.81	1
15	212.606 239 7	−28.782 102 7	8 683.324 487 3	0.02	176.778	16.49	2
15	212.606 274 9	−28.782 101 4	8 683.324 490 8	0.02	176.623	12.76	1
15	212.605 675 8	−28.783 017 3	8 683.338 771 3	0.02	176.778	10.38	2
15	212.605 711 0	−28.783 014 1	8 683.338 774 7	0.02	176.623	12.61	1
15	211.758 668 1	−29.353 056 6	8 694.701 517 9	−0.03	226.866	6.25	2
15	211.758 710 9	−29.353 097 6	8 694.701 525 9	−0.03	226.853	7.83	1
15	211.757 110 9	−29.353 563 0	8 694.715 814 3	−0.02	226.866	8.58	2
15	211.757 153 7	−29.353 604 0	8 694.715 822 3	−0.02	226.854	9.47	1
15	211.748 956 3	−29.356 206 0	8 694.790 382 4	0.00	226.869	20.17	2
15	211.748 996 3	−29.356 248 3	8 694.790 414 9	0.00	226.857	10.62	1
15	211.747 391 5	−29.356 706 3	8 694.804 728 1	0.01	226.870	14.11	2
15	211.747 428 5	−29.356 752 5	8 694.804 736 0	0.01	226.857	13.76	1
15	211.739 204 2	−29.359 327 1	8 694.879 271 5	0.03	226.872	13.91	2
15	211.739 245 1	−29.359 370 7	8 694.879 279 3	0.03	226.861	11.27	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
15	211.737 625 5	−29.359 829 1	8 694.893 617 3	0.04	226.873	20.06	2
15	211.737 664 4	−29.359 874 4	8 694.893 625 2	0.04	226.862	14.71	1
15	211.719 589 4	−29.365 558 7	8 695.057 059 2	−0.05	228.389	20.74	1
15	211.719 537 2	−29.365 519 9	8 695.057 125 9	−0.05	228.373	27.35	2
15	211.717 990 5	−29.366 058 4	8 695.071 392 5	−0.05	228.390	10.12	1
15	211.717 949 2	−29.366 014 3	8 695.071 397 5	−0.05	228.374	10.92	2
15	197.712 982 9	−23.992 698 0	8 773.809 969 6	0.08	6.394	13.38	2
15	197.713 024 0	−23.992 695 6	8 773.809 977 2	0.08	6.445	13.40	1
15	197.712 133 0	−23.991 211 2	8 773.824 303 0	0.08	6.394	9.09	2
15	197.712 173 5	−23.991 214 5	8 773.824 310 5	0.08	6.445	7.77	1
15	197.702 561 8	−23.974 323 2	8 773.987 783 4	0.00	8.053	12.00	1
15	197.702 520 0	−23.974 318 1	8 773.987 790 1	0.00	8.110	10.80	2
15	197.701 727 7	−23.972 854 4	8 774.002 079 8	0.01	8.053	11.80	1
15	197.701 685 8	−23.972 849 8	8 774.002 086 4	0.01	8.110	15.33	2
15	197.697 403 9	−23.965 164 4	8 774.076 623 4	0.05	8.053	7.37	1
15	197.697 362 1	−23.965 159 0	8 774.076 630 1	0.05	8.110	8.39	2
15	197.696 575 1	−23.963 688 4	8 774.090 969 0	0.05	8.053	10.61	1
15	197.696 533 3	−23.963 682 9	8 774.090 975 8	0.05	8.110	11.61	2
15	197.692 288 4	−23.956 011 0	8 774.165 537 1	0.08	8.052	7.67	1
15	197.692 246 8	−23.956 003 8	8 774.165 544 0	0.08	8.109	8.49	2
15	197.691 469 1	−23.954 536 4	8 774.179 858 1	0.08	8.052	7.77	1
15	197.691 427 3	−23.954 530 3	8 774.179 864 9	0.08	8.109	6.23	2
15	197.687 220 6	−23.946 864 6	8 774.254 450 6	0.08	8.052	10.16	1
15	197.687 178 8	−23.946 858 6	8 774.254 457 3	0.08	8.109	16.51	2
15	197.686 408 1	−23.945 390 7	8 774.268 783 9	0.08	8.052	6.87	1
15	197.686 366 1	−23.945 386 3	8 774.268 790 6	0.08	8.109	6.07	2
15	197.676 391 2	−23.927 143 7	8 774.446 528 0	0.01	9.809	9.63	2
15	197.676 433 9	−23.927 150 2	8 774.446 532 6	0.01	9.748	5.98	1
15	197.672 261 2	−23.919 509 6	8 774.521 096 3	0.05	9.808	7.69	2
15	197.672 304 6	−23.919 514 8	8 774.521 100 9	0.05	9.748	9.12	1
15	197.671 473 1	−23.918 037 8	8 774.535 417 4	0.06	9.808	7.85	2
15	197.671 516 4	−23.918 043 4	8 774.535 422 0	0.06	9.748	6.03	1
15	197.667 383 1	−23.910 419 9	8 774.609 960 8	0.08	9.808	11.39	2
15	197.667 426 8	−23.910 426 0	8 774.609 965 3	0.08	9.747	10.66	1
15	197.666 599 2	−23.908 948 2	8 774.624 331 2	0.08	9.807	10.06	2
15	197.666 643 3	−23.908 953 1	8 774.624 335 6	0.08	9.747	7.92	1
15	197.662 549 1	−23.901 328 2	8 774.698 899 0	0.08	9.807	8.76	2
15	197.662 593 4	−23.901 332 1	8 774.698 903 4	0.08	9.747	7.67	1
15	197.661 776 6	−23.899 867 3	8 774.713 195 3	0.08	9.807	9.47	2
15	197.661 820 4	−23.899 873 4	8 774.713 199 7	0.08	9.747	6.63	1
15	197.454 446 8	−23.363 882 8	8 780.209 973 0	0.01	34.452	9.18	1
15	197.454 400 5	−23.363 854 9	8 780.209 978 7	0.01	34.482	14.56	2
15	197.454 142 6	−23.362 551 4	8 780.224 294 1	0.02	34.451	11.73	1
15	197.454 098 7	−23.362 520 2	8 780.224 299 8	0.02	34.482	22.57	2
15	197.452 556 3	−23.355 656 2	8 780.298 837 7	0.06	34.450	14.68	1
15	197.452 511 0	−23.355 627 3	8 780.298 843 5	0.06	34.481	20.25	2
15	197.452 261 0	−23.354 320 5	8 780.313 195 8	0.07	34.450	13.28	1
15	197.452 215 3	−23.354 290 8	8 780.313 214 0	0.07	34.481	13.38	2
15	197.450 715 1	−23.347 434 0	8 780.387 751 4	0.09	34.449	11.88	1
15	197.450 670 7	−23.347 404 4	8 780.387 757 2	0.09	34.479	19.01	2
15	197.450 422 1	−23.346 112 0	8 780.402 072 4	0.09	34.449	11.58	1
15	197.450 375 5	−23.346 085 5	8 780.402 078 2	0.09	34.479	23.47	2
15	197.448 918 1	−23.339 232 2	8 780.476 640 1	0.08	34.448	15.43	1
15	197.448 875 7	−23.339 200 4	8 780.476 645 8	0.08	34.478	18.97	2
15	197.448 634 2	−23.337 910 4	8 780.490 961 1	0.08	34.448	9.53	1
15	197.448 589 7	−23.337 881 6	8 780.490 966 8	0.08	34.478	11.16	2
15	197.445 466 0	−23.322 873 8	8 780.654 389 8	0.01	36.421	15.03	1
15	197.445 422 6	−23.322 844 2	8 780.654 392 4	0.01	36.475	12.86	2
15	197.445 190 7	−23.321 559 1	8 780.668 760 2	0.02	36.421	10.23	1
15	197.445 148 5	−23.321 528 0	8 780.668 762 8	0.02	36.474	9.96	2
15	197.443 807 0	−23.314 713 8	8 780.743 303 8	0.06	36.419	13.68	1
15	197.443 758 8	−23.314 690 8	8 780.743 306 4	0.06	36.473	19.97	2
15	197.443 538 1	−23.313 405 7	8 780.757 649 6	0.07	36.419	8.44	1
15	197.443 495 0	−23.313 376 3	8 780.757 652 2	0.07	36.473	9.16	2
15	197.442 186 8	−23.306 580 6	8 780.832 192 9	0.09	36.418	10.13	1
15	197.442 144 4	−23.306 550 9	8 780.832 195 5	0.09	36.472	11.22	2
15	197.441 933 0	−23.305 265 1	8 780.846 538 5	0.09	36.418	8.84	1
15	197.441 887 5	−23.305 239 4	8 780.846 541 2	0.09	36.472	6.21	2
15	197.440 369 9	−23.297 137 8	8 780.935 488 9	0.08	36.417	30.16	1
15	200.552 576 3	−21.345 444 6	8 818.834 028 2	0.06	338.846	11.01	1
15	200.565 165 8	−21.344 604 5	8 818.908 593 2	0.09	338.701	13.30	2
15	200.565 197 3	−21.344 591 0	8 818.908 596 3	0.09	338.846	9.50	1
15	200.567 594 0	−21.344 446 1	8 818.922 914 2	0.09	338.701	9.97	2
15	200.567 626 4	−21.344 434 9	8 818.922 917 3	0.09	338.846	8.64	1
15	200.580 241 5	−21.343 607 1	8 818.997 482 2	0.10	338.700	11.57	2
15	200.580 272 2	−21.343 591 8	8 818.997 485 3	0.10	338.845	9.50	1
15	200.582 667 7	−21.343 444 9	8 819.011 778 5	0.10	338.700	5.31	2
15	200.582 699 3	−21.343 431 7	8 819.011 781 6	0.10	338.845	10.00	1
15	283.981 995 5	−27.631 343 3	9 044.677 487 9	0.11	199.418	17.13	2
15	283.982 069 1	−27.631 364 0	9 044.677 494 3	0.11	199.396	11.07	1
15	283.987 441 9	−27.630 678 7	9 044.691 858 3	0.11	199.418	13.24	2
15	283.987 514 3	−27.630 702 4	9 044.691 864 7	0.11	199.395	13.14	1
15	284.015 739 7	−27.627 236 1	9 044.766 333 6	0.10	199.393	21.33	1
15	284.081 690 3	−27.619 118 6	9 044.940 455 4	0.03	197.465	11.62	1
15	284.087 111 9	−27.618 449 9	9 044.954 776 5	0.04	197.464	12.68	1
15	284.087 040 1	−27.618 424 7	9 044.954 777 2	0.04	197.501	14.33	2
16	330.270 221 5	−12.885 735 8	7 885.286 194 9	−0.09	6.445	12.39	1
16	330.275 667 5	−12.883 914 2	7 885.300 528 3	−0.08	6.445	14.72	1
16	333.839 208 2	−11.659 465 2	7 894.530 183 5	−0.13	324.973	16.65	2
16	333.839 198 5	−11.659 473 3	7 894.530 186 5	−0.13	324.983	11.18	1
16	333.844 817 8	−11.657 489 6	7 894.544 504 6	−0.12	324.973	14.64	2
16	333.844 806 3	−11.657 495 1	7 894.544 507 6	−0.12	324.982	12.20	1
16	333.874 021 0	−11.647 203 1	7 894.619 048 2	−0.09	324.972	6.76	2
16	333.874 011 9	−11.647 211 9	7 894.619 051 1	−0.09	324.981	11.08	1
16	333.879 642 3	−11.645 223 6	7 894.633 394 1	−0.07	324.972	13.78	2
16	333.879 635 8	−11.645 236 1	7 894.633 397 0	−0.07	324.981	11.99	1
16	55.617 844 5	17.184 726 7	8 087.722 619 1	−0.12	192.375	10.06	1
16	55.617 819 0	17.184 733 5	8 087.722 625 7	−0.12	192.408	11.10	2
16	55.623 566 1	17.185 797 6	8 087.736 964 8	−0.12	192.376	10.47	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
16	55.623 540 3	17.185 803 1	8 087.736 971 3	−0.12	192.409	11.01	2
16	61.796 835 6	18.204 088 3	8 103.720 472 6	−0.12	132.189	6.47	2
16	61.796 833 4	18.204 089 5	8 103.720 479 6	−0.12	132.175	7.57	1
16	61.802 146 5	18.204 845 4	8 103.734 776 0	−0.11	132.175	8.68	1
16	61.829 865 0	18.208 778 8	8 103.809 349 8	−0.05	132.194	12.61	2
16	61.829 864 8	18.208 778 3	8 103.809 356 8	−0.05	132.179	11.81	1
16	61.835 172 8	18.209 531 0	8 103.823 633 8	−0.04	132.195	21.27	2
16	61.835 173 6	18.209 529 5	8 103.823 640 8	−0.04	132.180	13.99	1
16	72.980 113 1	19.261 372 3	8 137.941 331 3	−0.09	215.875	15.70	2
16	72.980 138 4	19.261 356 4	8 137.941 332 6	−0.09	215.883	11.25	1
16	73.000 225 9	19.262 157 6	8 138.015 887 6	−0.02	215.878	7.31	2
16	73.000 253 2	19.262 143 7	8 138.015 888 9	−0.02	215.885	14.36	1
16	79.829 351 3	18.840 239 2	8 185.287 982 1	−0.13	202.981	4.68	2
16	79.829 381 8	18.840 223 3	8 185.288 010 2	−0.13	203.082	7.13	1
16	79.829 238 1	18.839 916 6	8 185.302 327 8	−0.13	202.981	6.57	2
16	79.829 269 8	18.839 903 4	8 185.302 331 2	−0.13	203.082	4.65	1
16	75.410 405 0	20.277 391 6	8 334.327 477 6	−0.05	36.255	13.74	1
16	75.410 363 3	20.277 409 3	8 334.327 478 6	−0.05	36.231	28.78	2
16	75.414 510 4	20.278 051 6	8 334.341 749 2	−0.05	36.255	20.03	1
16	75.414 485 5	20.278 075 0	8 334.341 799 6	−0.05	36.231	19.87	2
16	75.435 942 7	20.281 446 6	8 334.416 366 8	−0.02	36.259	13.95	1
16	75.435 906 3	20.281 470 4	8 334.416 368 0	−0.02	36.235	12.31	2
16	75.440 063 1	20.282 104 0	8 334.430 687 8	−0.02	36.260	12.32	1
16	75.440 026 4	20.282 127 5	8 334.430 689 0	−0.02	36.235	8.18	2
16	82.087 565 7	21.113 712 5	8 355.388 693 1	0.03	322.180	16.73	2
16	82.087 610 6	21.113 743 9	8 355.388 707 3	0.03	322.186	15.66	1
16	82.092 480 4	21.114 178 2	8 355.403 014 1	0.03	322.180	17.28	2
16	82.092 524 1	21.114 205 6	8 355.403 016 0	0.03	322.186	18.21	1
16	154.405 723 9	9.995 995 5	8 547.201 808 6	0.05	221.976	7.96	2
16	154.409 981 3	9.994 465 4	8 547.216 098 9	0.05	221.968	15.66	1
16	154.458 242 3	9.977 258 7	8 547.379 555 7	−0.05	220.568	16.85	1
16	154.458 213 4	9.977 291 7	8 547.379 558 3	−0.05	220.517	12.91	2
16	154.462 480 6	9.975 755 0	8 547.393 901 3	−0.05	220.568	18.41	1
16	154.462 447 4	9.975 783 0	8 547.393 903 9	−0.05	220.517	9.91	2
16	154.484 477 5	9.967 909 2	8 547.468 469 6	−0.01	220.569	20.48	1
16	154.484 446 6	9.967 939 6	8 547.468 472 2	−0.01	220.518	27.07	2
16	154.488 705 3	9.966 407 7	8 547.482 790 5	−0.01	220.569	20.64	1
16	154.488 671 8	9.966 435 2	8 547.482 793 2	−0.01	220.518	29.52	2
16	157.972 801 5	8.706 073 6	8 559.822 785 9	−0.04	169.106	22.95	2
16	157.972 865 9	8.706 088 6	8 559.822 788 0	−0.04	169.071	18.20	1
16	157.976 661 8	8.704 659 6	8 559.837 131 5	−0.04	169.106	18.41	2
16	157.976 726 7	8.704 672 4	8 559.837 133 7	−0.04	169.072	18.77	1
16	157.996 786 3	8.697 316 4	8 559.911 702 0	0.00	169.072	17.63	1
16	158.000 570 2	8.695 901 5	8 559.926 020 7	0.00	169.107	22.92	2
16	158.000 639 1	8.695 910 9	8 559.926 035 4	0.00	169.072	23.91	1
16	158.020 618 9	8.688 559 3	8 560.000 613 7	0.04	169.107	10.61	2
16	158.020 687 4	8.688 570 9	8 560.000 628 4	0.04	169.072	22.25	1
16	158.024 462 3	8.687 140 5	8 560.014 909 9	0.04	169.107	20.45	2
16	158.024 527 3	8.687 154 4	8 560.014 912 4	0.04	169.072	19.60	1
16	165.501 383 6	5.926 431 4	8 593.494 622 5	−0.05	245.504	17.11	1
16	165.503 810 6	5.925 572 7	8 593.508 886 2	−0.04	245.486	15.17	2
16	165.503 820 6	5.925 552 8	8 593.508 894 2	−0.04	245.505	14.12	1
16	165.516 493 9	5.920 965 0	8 593.583 491 5	−0.01	245.487	29.89	2
16	165.516 516 0	5.920 950 5	8 593.583 499 5	−0.01	245.506	22.21	1
16	165.518 946 0	5.920 090 5	8 593.597 812 5	0.00	245.487	23.17	2
16	165.518 957 4	5.920 071 1	8 593.597 820 6	0.00	245.506	19.48	1
16	168.746 205 8	4.885 787 1	8 624.057 513 7	−0.05	166.400	14.66	1
16	168.746 124 7	4.885 764 2	8 624.057 518 1	−0.05	166.440	19.48	2
16	168.746 701 5	4.885 744 7	8 624.071 884 2	−0.04	166.400	20.39	1
16	168.746 619 6	4.885 725 2	8 624.071 888 5	−0.04	166.440	17.28	2
16	168.749 164 0	4.885 555 2	8 624.146 456 7	−0.01	166.440	24.47	2
16	168.749 248 3	4.885 570 2	8 624.146 489 6	−0.01	166.400	20.85	1
16	168.749 733 3	4.885 532 3	8 624.160 748 8	−0.01	166.400	18.92	1
16	168.749 651 0	4.885 513 9	8 624.160 753 0	−0.01	166.440	25.26	2
16	168.716 329 0	5.075 672 6	8 637.922 209 0	0.01	224.469	12.47	1
16	168.716 286 7	5.075 717 3	8 637.922 210 6	0.01	224.555	28.65	2
16	168.715 771 7	5.076 106 6	8 637.936 554 7	0.02	224.469	13.32	1
16	168.715 729 1	5.076 151 1	8 637.936 556 3	0.02	224.555	12.51	2
16	168.712 833 7	5.078 346 8	8 638.011 123 1	0.05	224.469	12.52	1
16	168.712 792 7	5.078 393 2	8 638.011 124 7	0.05	224.555	17.47	2
16	168.712 271 9	5.078 784 6	8 638.025 444 2	0.06	224.469	12.57	1
16	168.712 228 2	5.078 828 1	8 638.025 445 7	0.06	224.555	17.98	2
16	168.709 306 5	5.081 046 5	8 638.099 987 5	0.07	224.469	11.76	1
16	168.709 263 8	5.081 091 4	8 638.099 988 8	0.07	224.555	10.62	2
16	168.708 726 6	5.081 479 2	8 638.114 357 8	0.07	224.469	13.32	1
16	168.708 682 3	5.081 522 4	8 638.114 359 2	0.07	224.555	15.82	2
16	157.924 949 6	10.672 945 4	8 762.975 859 0	0.11	339.228	44.72	1
16	157.926 698 8	10.672 284 6	8 762.990 155 4	0.12	339.229	21.14	1
16	157.935 812 5	10.668 913 8	8 763.064 809 8	0.14	339.229	19.02	1
16	157.935 739 8	10.668 890 2	8 763.064 812 0	0.14	339.141	27.12	2
16	157.937 570 2	10.668 254 8	8 763.079 155 5	0.14	339.229	15.72	1
16	157.937 498 7	10.668 228 2	8 763.079 157 6	0.14	339.141	22.92	2
16	163.267 825 9	8.602 722 7	8 793.984 500 8	0.10	61.217	28.31	1
16	163.267 828 4	8.602 740 9	8 793.984 522 0	0.10	61.168	28.95	2
16	163.270 908 2	8.601 509 1	8 793.998 880 1	0.11	61.169	33.86	2
16	163.270 918 0	8.601 492 5	8 793.998 883 6	0.11	61.218	22.66	1
16	163.286 921 0	8.595 126 0	8 794.073 386 5	0.14	61.170	31.93	2
16	163.286 926 9	8.595 107 2	8 794.073 389 9	0.14	61.219	21.52	1
16	167.747 041 6	6.785 264 0	8 813.106 225 2	0.13	350.484	20.34	2
16	167.747 102 3	6.785 276 9	8 813.106 234 6	0.13	350.479	14.16	1
16	230.643 909 7	−15.439 615 6	9 033.666 084 5	0.09	237.186	17.05	1
16	230.643 902 2	−15.439 594 9	9 033.666 090 1	0.09	237.257	21.82	2
18	174.523 140 2	3.106 917 4	7 900.883 274 7	0.07	238.556	7.11	2
18	174.523 152 3	3.106 893 3	7 900.883 280 8	0.07	238.527	7.28	1
18	174.523 856 9	3.107 433 3	7 900.897 613 9	0.05	238.527	10.90	1
18	161.414 959 2	13.993 210 0	8 023.804 534 2	0.03	343.182	8.69	1
18	161.414 953 4	13.993 207 2	8 023.804 536 3	0.03	343.204	8.45	2
18	161.416 293 9	13.992 734 8	8 023.818 879 8	0.02	343.182	9.96	1
18	161.416 287 5	13.992 733 9	8 023.818 881 9	0.02	343.204	11.74	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
18	161.423 249 8	13.990 253 1	8 023.893 447 2	−0.02	343.183	10.67	1
18	161.423 243 3	13.990 252 8	8 023.893 449 2	−0.02	343.205	15.12	2
18	161.424 588 9	13.989 775 2	8 023.907 768 1	−0.03	343.183	10.72	1
18	161.424 582 7	13.989 773 7	8 023.907 770 1	−0.03	343.205	7.46	2
18	171.135 784 8	10.039 850 3	8 074.356 237 6	0.04	343.054	24.01	2
18	171.135 791 0	10.039 843 8	8 074.356 241 0	0.04	343.058	16.13	1
18	171.139 598 0	10.038 242 9	8 074.370 558 3	0.03	343.054	20.69	2
18	171.139 601 0	10.038 246 7	8 074.370 561 7	0.03	343.058	17.99	1
18	171.159 462 1	10.029 881 5	8 074.445 150 3	−0.01	343.055	35.03	2
18	171.159 469 1	10.029 872 7	8 074.445 153 9	−0.01	343.058	16.23	1
18	171.163 271 8	10.028 274 3	8 074.459 446 6	−0.01	343.055	13.32	2
18	171.163 276 9	10.028 271 5	8 074.459 450 1	−0.01	343.059	16.02	1
18	171.183 141 3	10.019 915 3	8 074.534 014 1	−0.04	343.056	16.24	2
18	171.183 145 5	10.019 915 0	8 074.534 017 6	−0.04	343.059	17.16	1
18	238.338 845 7	−12.097 287 7	8 262.149 132 3	0.02	204.404	15.99	2
18	238.338 847 9	−12.097 298 0	8 262.149 133 2	0.02	204.422	18.10	1
18	238.434 440 5	−12.109 097 2	8 262.401 447 1	0.07	202.411	17.48	1
18	238.434 435 8	−12.109 094 4	8 262.401 454 2	0.07	202.331	16.50	2
18	238.439 874 1	−12.109 764 7	8 262.415 792 8	0.07	202.411	16.70	1
18	238.439 870 0	−12.109 760 6	8 262.415 799 8	0.07	202.330	23.00	2
18	238.468 102 7	−12.113 235 0	8 262.490 335 9	0.06	202.411	19.08	1
18	238.468 095 9	−12.113 237 7	8 262.490 342 9	0.06	202.330	22.64	2
18	238.473 530 6	−12.113 911 7	8 262.504 681 5	0.06	202.411	16.70	1
18	238.473 527 6	−12.113 905 3	8 262.504 688 6	0.06	202.330	23.07	2
18	238.501 753 9	−12.117 360 1	8 262.579 212 0	0.03	202.410	20.38	1
18	238.501 753 7	−12.117 359 2	8 262.579 231 5	0.03	202.329	21.67	2
18	238.507 191 3	−12.118 033 3	8 262.593 582 2	0.02	202.410	23.44	1
18	238.507 183 8	−12.118 037 8	8 262.593 589 4	0.02	202.329	21.29	2
18	238.535 400 5	−12.121 480 6	8 262.668 100 3	−0.02	202.409	18.46	1
18	238.535 400 9	−12.121 478 5	8 262.668 119 8	−0.02	202.328	19.64	2
18	238.540 828 4	−12.122 148 3	8 262.682 446 0	−0.02	202.409	22.25	1
18	238.540 825 1	−12.122 143 4	8 262.682 453 2	−0.02	202.328	23.47	2
18	238.602 673 2	−12.129 683 9	8 262.845 896 5	0.07	200.299	33.30	2
18	238.602 685 5	−12.129 679 5	8 262.845 909 9	0.07	200.308	20.90	1
18	238.608 104 2	−12.130 334 7	8 262.860 242 1	0.07	200.299	47.14	2
18	238.608 111 6	−12.130 330 3	8 262.860 243 2	0.07	200.308	19.34	1
18	238.636 300 2	−12.133 756 5	8 262.934 772 8	0.06	200.299	41.98	2
18	238.636 324 1	−12.133 759 5	8 262.934 823 4	0.06	200.308	25.98	1
18	238.641 720 8	−12.134 417 1	8 262.949 106 1	0.06	200.299	24.79	2
18	238.641 728 5	−12.134 411 3	8 262.949 107 3	0.06	200.308	23.75	1
18	238.669 922 3	−12.137 838 4	8 263.023 673 6	0.03	200.298	30.83	2
18	238.669 929 4	−12.137 833 5	8 263.023 674 8	0.03	200.307	17.37	1
18	238.675 351 2	−12.138 473 4	8 263.037 995 6	0.02	200.307	34.80	1
18	238.703 545 7	−12.141 887 2	8 263.112 574 3	−0.02	200.298	22.16	2
18	238.708 957 9	−12.142 534 9	8 263.126 882 8	−0.03	200.298	11.46	2
18	238.708 962 0	−12.142 537 4	8 263.126 884 0	−0.03	200.307	15.92	1
18	238.770 734 2	−12.149 978 1	8 263.290 309 5	0.07	198.204	15.87	2
18	238.770 742 8	−12.149 973 5	8 263.290 311 2	0.07	198.247	12.96	1
18	238.776 160 9	−12.150 614 9	8 263.304 655 1	0.07	198.204	24.55	2
18	238.776 167 3	−12.150 617 2	8 263.304 656 9	0.07	198.247	15.82	1
18	238.843 348 9	−12.158 658 2	8 263.482 446 3	0.02	198.246	23.44	1
18	239.942 233 4	−12.283 971 8	8 266.401 377 9	0.07	183.839	13.55	2
18	239.942 238 2	−12.283 959 7	8 266.401 378 6	0.07	183.864	18.20	1
18	239.947 595 1	−12.284 552 7	8 266.415 662 6	0.07	183.864	21.31	1
18	239.947 599 9	−12.284 560 5	8 266.415 686 5	0.07	183.839	37.26	2
18	239.975 566 5	−12.287 579 9	8 266.490 254 2	0.06	183.839	36.39	2
18	239.975 569 5	−12.287 595 2	8 266.490 255 0	0.06	183.864	19.29	1
18	239.980 936 8	−12.288 162 3	8 266.504 575 1	0.05	183.839	44.39	2
18	239.980 940 7	−12.288 164 5	8 266.504 575 9	0.05	183.864	19.03	1
18	240.042 220 8	−12.294 798 2	8 266.668 043 5	−0.02	183.839	18.67	2
18	240.042 225 2	−12.294 794 9	8 266.668 044 2	−0.02	183.864	18.57	1
18	240.108 838 1	−12.301 955 3	8 266.845 820 3	0.07	181.883	16.56	2
18	240.108 843 2	−12.301 956 1	8 266.845 821 9	0.07	181.893	15.97	1
18	240.114 198 4	−12.302 535 2	8 266.860 128 9	0.07	181.883	34.87	2
18	240.114 203 5	−12.302 536 4	8 266.860 130 6	0.07	181.894	16.39	1
18	240.142 130 9	−12.305 518 2	8 266.934 696 6	0.06	181.883	17.16	2
18	240.142 136 1	−12.305 522 7	8 266.934 698 3	0.06	181.894	22.35	1
18	240.147 495 5	−12.306 090 9	8 266.949 006 9	0.05	181.894	27.02	1
18	240.147 495 0	−12.306 084 9	8 266.949 017 5	0.05	181.883	23.17	2
18	240.175 425 1	−12.309 069 9	8 267.023 597 3	0.02	181.884	22.37	2
18	240.175 430 6	−12.309 067 2	8 267.023 599 0	0.02	181.894	19.65	1
18	240.180 760 7	−12.309 638 3	8 267.037 833 6	0.02	181.894	56.21	1
18	240.180 782 9	−12.309 646 1	8 267.037 906 0	0.02	181.884	10.52	2
18	240.208 712 2	−12.312 608 2	8 267.112 487 5	−0.02	181.894	22.51	1
18	240.214 073 2	−12.313 186 7	8 267.126 808 3	−0.03	181.894	25.72	1
18	240.214 072 6	−12.313 178 6	8 267.126 819 0	−0.03	181.884	22.90	2
18	240.313 856 1	−12.323 724 1	8 267.393 448 1	0.05	179.762	20.22	1
18	240.313 854 6	−12.323 720 2	8 267.393 460 8	0.05	179.730	11.50	2
18	240.341 761 8	−12.326 612 0	8 267.468 052 6	0.02	179.762	26.76	1
18	240.347 108 9	−12.327 208 1	8 267.482 348 8	0.02	179.762	15.51	1
18	240.347 102 6	−12.327 204 4	8 267.482 349 4	0.02	179.730	10.89	2
18	240.380 362 8	−12.330 693 0	8 267.571 274 2	−0.03	179.762	15.35	1
18	240.380 356 5	−12.330 694 2	8 267.571 274 8	−0.03	179.730	8.57	2
18	260.451 821 5	−11.755 212 3	8 332.237 702 8	0.02	139.997	12.24	1
18	260.451 819 1	−11.755 213 9	8 332.237 703 4	0.02	140.007	14.10	2
18	260.454 824 3	−11.754 439 9	8 332.251 999 1	0.02	139.997	13.00	1
18	260.454 824 5	−11.754 444 5	8 332.251 999 7	0.02	140.007	20.62	2
18	260.470 478 0	−11.750 414 7	8 332.326 566 6	−0.02	139.996	12.90	1
18	260.470 476 7	−11.750 417 4	8 332.326 567 2	−0.02	140.006	16.07	2
18	260.473 493 8	−11.749 640 5	8 332.340 936 9	−0.02	139.996	14.11	1
18	260.473 493 4	−11.749 644 2	8 332.340 937 5	−0.02	140.006	23.62	2
18	263.833 748 6	−10.348 265 5	8 353.919 613 1	0.04	214.375	9.70	1
18	263.833 736 9	−10.348 259 4	8 353.919 615 4	0.04	214.384	18.40	2
18	263.835 112 1	−10.347 198 4	8 353.933 985 6	0.03	214.384	25.95	2
18	263.835 125 9	−10.347 203 2	8 353.934 008 0	0.03	214.374	13.53	1
18	263.842 252 5	−10.341 677 6	8 354.008 526 1	0.00	214.374	9.55	1
18	263.842 239 3	−10.341 672 7	8 354.008 528 6	0.00	214.383	14.69	2
18	263.843 615 0	−10.340 619 2	8 354.022 834 6	−0.01	214.373	14.18	1
18	263.843 609 4	−10.340 603 9	8 354.022 849 5	−0.01	214.383	14.12	2
18	263.850 693 0	−10.335 078 3	8 354.097 392 1	−0.04	214.382	14.78	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
18	263.850 709 1	−10.335 084 4	8 354.097 463 8	−0.04	214.372	16.29	1
18	263.852 065 9	−10.334 018 2	8 354.111 710 7	−0.04	214.372	12.62	1
18	263.852 055 2	−10.334 008 8	8 354.111 713 1	−0.04	214.382	9.06	2
18	249.525 547 0	−11.187 826 8	8 484.400 011 8	−0.09	331.258	7.58	1
18	249.525 547 7	−11.187 829 2	8 484.400 016 6	−0.09	331.270	9.12	2
18	249.527 271 2	−11.189 543 0	8 484.414 312 7	−0.10	331.270	8.78	2
18	249.527 278 0	−11.189 549 3	8 484.414 357 3	−0.10	331.257	12.07	1
18	254.476 330 2	−14.154 115 7	8 509.190 689 2	−0.06	48.898	13.24	1
18	254.476 325 1	−14.154 110 0	8 509.190 693 9	−0.06	48.885	9.72	2
18	254.480 237 8	−14.155 770 1	8 509.205 010 0	−0.07	48.898	13.54	1
18	254.480 229 0	−14.155 767 5	8 509.205 014 7	−0.07	48.884	12.92	2
18	254.500 591 6	−14.164 385 4	8 509.279 594 4	−0.11	48.883	19.69	2
18	254.500 617 4	−14.164 394 7	8 509.279 651 4	−0.11	48.896	14.09	1
18	254.504 497 6	−14.166 042 9	8 509.293 873 5	−0.11	48.896	7.87	1
18	254.504 492 4	−14.166 037 7	8 509.293 878 3	−0.11	48.882	8.29	2
18	281.130 293 8	−19.060 132 6	8 574.081 764 8	−0.11	10.206	11.28	1
18	281.130 287 8	−19.060 133 5	8 574.081 772 5	−0.11	10.144	6.58	2
18	281.176 234 7	−19.061 802 7	8 574.170 653 6	−0.11	10.205	8.16	1
18	281.176 228 3	−19.061 804 5	8 574.170 661 2	−0.11	10.144	12.96	2
18	281.183 637 8	−19.062 070 6	8 574.184 974 6	−0.11	10.205	14.85	1
18	281.183 637 6	−19.062 074 0	8 574.184 994 5	−0.11	10.144	27.60	2
18	281.229 597 1	−19.063 736 1	8 574.273 864 1	−0.05	10.205	12.54	1
18	281.229 591 0	−19.063 735 9	8 574.273 871 7	−0.05	10.143	11.70	2
18	281.314 152 5	−19.066 742 9	8 574.437 321 7	−0.07	8.260	13.85	2
18	281.321 562 5	−19.067 015 9	8 574.451 642 6	−0.07	8.260	6.57	2
18	281.321 572 0	−19.067 016 0	8 574.451 647 6	−0.07	8.323	9.46	1
18	281.360 171 0	−19.068 357 0	8 574.526 222 4	−0.11	8.260	19.08	2
18	281.367 580 8	−19.068 605 8	8 574.540 531 0	−0.11	8.260	12.06	2
18	281.367 590 1	−19.068 607 6	8 574.540 536 0	−0.11	8.323	10.97	1
18	281.406 195 8	−19.069 948 0	8 574.615 098 8	−0.11	8.260	13.58	2
18	281.406 206 0	−19.069 944 8	8 574.615 103 9	−0.11	8.322	10.77	1
18	281.413 613 5	−19.070 203 8	8 574.629 419 7	−0.11	8.260	9.24	2
18	281.413 623 5	−19.070 201 4	8 574.629 424 8	−0.11	8.322	10.92	1
18	281.452 255 0	−19.071 522 1	8 574.703 993 2	−0.07	8.322	11.73	1
18	281.459 663 6	−19.071 770 1	8 574.718 289 7	−0.05	8.322	10.22	1
18	281.551 848 1	−19.074 874 6	8 574.896 119 6	−0.08	6.323	13.24	1
18	281.590 513 1	−19.076 147 0	8 574.970 662 4	−0.11	6.323	10.17	1
18	281.597 933 5	−19.076 393 5	8 574.984 976 9	−0.11	6.197	11.32	2
18	281.597 942 3	−19.076 393 7	8 574.984 983 4	−0.11	6.323	11.68	1
18	281.644 021 8	−19.077 901 5	8 575.073 785 8	−0.11	6.323	39.07	1
18	281.644 058 7	−19.077 895 4	8 575.073 865 7	−0.11	6.197	23.77	2
18	281.682 762 5	−19.079 142 7	8 575.148 415 9	−0.07	6.323	10.82	1
18	283.495 984 4	−19.123 870 0	8 578.615 004 2	−0.11	350.050	9.01	1
18	283.495 982 9	−19.123 870 8	8 578.615 007 3	−0.11	349.973	8.22	2
18	283.636 566 7	−19.126 222 0	8 578.881 698 1	−0.07	347.630	9.92	1
18	283.636 565 4	−19.126 223 8	8 578.881 698 5	−0.07	347.658	10.71	2
18	283.644 107 0	−19.126 343 7	8 578.895 994 3	−0.08	347.630	11.12	1
18	283.644 105 3	−19.126 343 7	8 578.895 994 6	−0.08	347.658	15.67	2
18	283.683 430 5	−19.126 970 5	8 578.970 537 1	−0.11	347.630	11.02	1
18	283.683 428 4	−19.126 968 6	8 578.970 537 3	−0.11	347.657	15.90	2
18	283.730 349 2	−19.127 698 2	8 579.059 450 6	−0.11	347.629	9.36	1
18	283.730 347 3	−19.127 696 4	8 579.059 450 8	−0.11	347.656	15.26	2
18	283.777 270 7	−19.128 404 2	8 579.148 340 1	−0.06	347.628	16.51	1
18	283.784 834 1	−19.128 525 5	8 579.162 661 3	−0.04	347.628	11.48	1
18	283.784 834 5	−19.128 533 1	8 579.162 661 5	−0.04	347.655	17.82	2
18	283.871 166 3	−19.129 786 6	8 579.326 113 8	−0.07	345.822	20.09	2
18	283.871 171 0	−19.129 791 2	8 579.326 114 1	−0.07	345.830	17.41	1
18	283.918 129 3	−19.130 457 0	8 579.414 977 4	−0.11	345.821	24.25	2
18	283.918 130 8	−19.130 449 9	8 579.414 977 7	−0.11	345.829	16.86	1
18	283.925 723 2	−19.130 555 9	8 579.429 347 8	−0.11	345.821	5.67	2
18	283.925 726 3	−19.130 555 2	8 579.429 348 1	−0.11	345.829	14.24	1
18	283.965 129 3	−19.131 089 6	8 579.503 890 8	−0.11	345.820	11.36	2
18	283.965 133 2	−19.131 091 1	8 579.503 891 3	−0.11	345.828	13.74	1
18	284.012 138 3	−19.131 723 9	8 579.592 780 2	−0.06	345.819	32.77	2
18	284.012 143 5	−19.131 730 9	8 579.592 780 7	−0.06	345.827	19.28	1
18	74.815 075 4	14.678 978 0	8 832.716 048 6	−0.02	189.496	17.37	1
18	74.858 308 9	14.680 503 5	8 832.790 614 4	−0.05	189.500	15.52	2
18	74.858 322 7	14.680 494 4	8 832.790 616 0	−0.05	189.496	13.23	1
18	74.866 612 6	14.680 786 8	8 832.804 935 4	−0.05	189.500	16.73	2
18	74.866 626 8	14.680 780 4	8 832.804 936 9	−0.05	189.496	10.98	1
18	74.960 688 3	14.684 014 9	8 832.967 185 5	0.05	188.533	13.63	1
18	74.968 988 1	14.684 293 1	8 832.981 506 5	0.05	188.533	13.58	1
18	74.968 976 9	14.684 301 7	8 832.981 507 7	0.05	188.515	15.09	2
18	75.012 202 5	14.685 759 3	8 833.056 074 0	0.03	188.534	10.78	1
18	75.012 190 7	14.685 762 4	8 833.056 075 1	0.03	188.516	19.98	2
18	75.020 486 4	14.686 037 4	8 833.070 370 1	0.02	188.534	13.63	1
18	75.020 474 6	14.686 040 5	8 833.070 371 3	0.02	188.516	12.46	2
18	75.063 670 7	14.687 485 7	8 833.144 926 6	−0.01	188.516	14.46	2
18	75.063 688 6	14.687 479 5	8 833.144 937 6	−0.01	188.534	11.68	1
18	75.071 985 2	14.687 757 6	8 833.159 258 5	−0.02	188.534	12.38	1
18	75.071 973 6	14.687 759 2	8 833.159 259 8	−0.02	188.516	4.84	2
18	117.201 080 4	8.720 392 0	8 935.495 975 7	0.03	234.518	8.20	2
18	117.201 088 9	8.720 382 6	8 935.495 981 5	0.03	234.489	9.17	1
18	117.203 050 1	8.719 423 0	8 935.510 296 6	0.02	234.518	11.33	2
18	117.203 056 3	8.719 411 9	8 935.510 302 3	0.02	234.489	8.28	1
18	117.213 265 7	8.714 377 1	8 935.584 839 4	−0.01	234.519	12.59	2
18	117.213 272 7	8.714 366 5	8 935.584 845 2	−0.01	234.489	7.99	1
18	117.215 229 7	8.713 409 3	8 935.599 185 0	−0.02	234.519	11.99	2
18	117.215 234 0	8.713 396 8	8 935.599 190 7	−0.02	234.490	8.23	1
18	103.505 068 3	15.912 510 0	9 043.210 154 6	−0.07	336.087	10.15	2
18	103.505 084 4	15.912 520 0	9 043.210 156 3	−0.07	336.116	8.11	1
18	103.505 473 0	15.914 031 1	9 043.224 475 4	−0.08	336.087	7.62	2
18	103.505 490 3	15.914 038 4	9 043.224 477 2	−0.08	336.116	10.28	1
18	103.507 599 3	15.921 961 8	9 043.299 042 9	−0.11	336.086	9.84	2
18	103.507 617 1	15.921 967 6	9 043.299 044 6	−0.11	336.115	7.52	1
18	103.508 015 4	15.923 478 2	9 043.313 363 8	−0.11	336.086	6.65	2
18	103.508 032 4	15.923 485 6	9 043.313 365 6	−0.11	336.115	7.42	1
18	103.510 623 5	15.932 903 4	9 043.402 227 7	−0.11	336.085	14.35	2
18	103.510 638 3	15.932 915 3	9 043.402 229 7	−0.11	336.114	9.30	1
18	104.994 142 0	17.427 077 4	9 059.700 339 0	−0.11	42.106	9.57	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
18	104.994 121 7	17.427 096 6	9 059.700 344 8	−0.11	42.214	12.21	2
18	104.996 231 9	17.428 194 7	9 059.714 653 3	−0.12	42.214	9.94	2
18	104.996 260 9	17.428 182 7	9 059.714 672 3	−0.12	42.107	15.70	1
19	57.623 912 3	20.001 673 1	8 087.988 509 6	−0.10	191.610	22.67	2
19	57.623 892 7	20.001 684 5	8 087.988 519 5	−0.10	191.601	15.19	1
19	57.717 206 6	20.019 235 4	8 088.166 272 2	−0.12	191.604	17.27	1
19	57.717 234 1	20.019 231 1	8 088.166 274 5	−0.12	191.613	8.81	2
19	57.724 772 3	20.020 653 5	8 088.180 632 5	−0.12	191.613	29.77	2
19	57.763 865 3	20.028 000 6	8 088.255 161 6	−0.07	191.605	15.14	1
19	57.763 893 0	20.027 997 1	8 088.255 163 8	−0.07	191.614	20.49	2
19	57.771 385 5	20.029 398 8	8 088.269 495 0	−0.06	191.605	16.39	1
19	57.771 420 2	20.029 398 5	8 088.269 509 6	−0.06	191.614	18.99	2
19	64.924 816 6	21.205 207 8	8 102.045 888 6	−0.04	139.522	19.08	1
19	65.008 532 5	21.216 995 3	8 102.209 338 5	−0.11	137.614	15.45	1
19	65.008 551 1	21.217 011 4	8 102.209 340 8	−0.11	137.568	22.37	2
19	82.725 877 6	22.638 800 4	8 139.258 309 5	−0.11	218.775	12.05	2
19	82.725 851 7	22.638 825 0	8 139.258 311 2	−0.11	218.775	12.47	1
19	82.732 035 8	22.638 909 7	8 139.272 605 9	−0.10	218.776	11.33	2
19	82.732 005 9	22.638 929 7	8 139.272 607 6	−0.10	218.776	11.64	1
19	92.997 688 5	22.388 836 0	8 166.728 444 5	−0.13	138.670	13.66	1
19	86.491 902 5	21.339 392 5	8 309.536 980 6	−0.07	320.719	14.00	1
19	86.491 928 2	21.339 415 7	8 309.536 981 1	−0.07	320.679	11.03	2
19	86.494 016 2	21.339 608 1	8 309.551 301 6	−0.07	320.720	13.44	1
19	86.494 040 5	21.339 632 8	8 309.551 302 2	−0.07	320.679	19.08	2
19	86.505 036 8	21.340 739 9	8 309.625 869 8	−0.04	320.721	14.41	1
19	86.505 063 7	21.340 761 6	8 309.625 870 4	−0.04	320.681	15.01	2
19	86.507 158 5	21.340 956 4	8 309.640 190 8	−0.04	320.722	17.50	1
19	86.507 188 2	21.340 975 0	8 309.640 191 4	−0.04	320.681	15.41	2
19	86.518 237 6	21.342 074 0	8 309.714 759 1	0.00	320.723	15.17	1
19	86.518 267 6	21.342 092 4	8 309.714 759 8	0.00	320.682	28.36	2
19	86.520 369 0	21.342 289 6	8 309.729 080 2	0.01	320.723	9.54	1
19	86.520 396 8	21.342 310 5	8 309.729 080 9	0.01	320.683	8.18	2
19	91.333 202 2	21.623 129 4	8 331.930 096 5	0.02	43.126	15.39	1
19	91.333 215 6	21.623 118 2	8 331.930 104 3	0.02	43.117	26.63	2
19	91.337 167 6	21.623 244 8	8 331.944 442 3	0.03	43.126	14.82	1
19	91.337 184 2	21.623 233 4	8 331.944 462 4	0.03	43.117	16.82	2
19	100.061 320 6	21.549 108 3	8 358.586 244 6	0.03	322.823	11.16	2
19	100.061 303 1	21.549 098 6	8 358.586 245 6	0.03	322.826	14.42	1
19	100.066 595 5	21.548 885 6	8 358.600 541 1	0.04	322.824	14.43	2
19	100.066 579 3	21.548 874 3	8 358.600 542 1	0.04	322.826	12.19	1
19	100.126 947 7	21.546 286 1	8 358.763 994 3	−0.07	322.900	17.42	1
19	100.126 966 8	21.546 295 0	8 358.764 002 7	−0.07	322.916	25.60	2
19	100.132 231 1	21.546 063 3	8 358.778 302 9	−0.07	322.900	22.87	1
19	100.132 247 2	21.546 075 8	8 358.778 311 3	−0.07	322.917	44.14	2
19	194.951 644 2	−6.341 886 2	8 771.858 741 6	0.06	0.122	18.98	1
19	194.951 617 6	−6.341 881 5	8 771.858 757 0	0.06	0.133	17.62	2
19	194.951 115 6	−6.341 559 1	8 771.873 075 0	0.07	0.122	14.36	1
19	194.951 089 5	−6.341 560 3	8 771.873 078 1	0.07	0.133	9.90	2
19	194.948 385 5	−6.339 875 9	8 771.947 630 8	0.10	0.122	16.08	1
19	194.948 359 4	−6.339 879 3	8 771.947 634 0	0.10	0.133	23.45	2
19	194.947 838 8	−6.339 556 9	8 771.961 955 0	0.10	0.133	17.34	2
19	194.945 173 4	−6.337 884 5	8 772.036 519 6	0.10	0.122	20.48	1
19	194.945 147 5	−6.337 882 5	8 772.036 522 8	0.10	0.133	21.26	2
19	194.944 658 4	−6.337 571 0	8 772.050 889 7	0.09	0.122	14.42	1
19	194.944 632 6	−6.337 574 3	8 772.050 893 0	0.09	0.133	8.95	2
19	195.059 191 9	−6.282 843 2	8 787.056 699 0	0.11	59.469	20.40	2
19	195.059 202 8	−6.282 858 9	8 787.056 700 4	0.11	59.401	21.31	1
19	195.059 903 9	−6.283 046 6	8 787.071 032 3	0.11	59.469	28.95	2
19	195.059 913 2	−6.283 063 2	8 787.071 033 7	0.11	59.401	21.37	1
19	195.063 605 0	−6.284 123 0	8 787.145 575 0	0.09	59.469	23.43	2
19	195.063 614 5	−6.284 139 8	8 787.145 576 5	0.09	59.401	20.38	1
19	195.064 323 5	−6.284 330 0	8 787.159 920 6	0.08	59.469	13.66	2
19	195.064 336 4	−6.284 344 7	8 787.159 922 1	0.08	59.401	17.27	1
20	317.831 634 0	−15.587 128 6	7 984.578 725 5	−0.07	133.077	15.82	1
20	317.831 596 6	−15.587 166 2	7 984.578 726 8	−0.07	133.458	18.06	2
20	317.836 492 4	−15.585 659 9	7 984.593 046 5	−0.07	133.076	13.28	1
20	317.836 456 4	−15.585 698 8	7 984.593 047 7	−0.07	133.458	14.82	2
20	317.891 843 0	−15.568 831 5	7 984.756 503 7	0.00	133.071	17.63	1
20	317.891 804 0	−15.568 866 7	7 984.756 506 8	0.00	132.771	19.23	2
20	317.896 686 2	−15.567 353 8	7 984.770 824 7	0.01	133.070	16.49	1
20	317.896 653 3	−15.567 394 5	7 984.770 827 8	0.01	132.770	20.11	2
20	317.926 759 6	−15.558 197 0	7 984.859 726 2	0.04	133.067	14.73	1
20	317.926 731 2	−15.558 231 7	7 984.859 753 8	0.04	132.767	14.86	2
20	328.516 764 5	−12.004 896 2	8 020.827 354 5	0.04	202.987	12.76	1
20	322.902 357 1	−14.045 881 3	8 196.433 409 4	0.12	299.990	10.77	1
20	322.902 319 7	−14.045 938 1	8 196.433 412 0	0.12	300.002	14.46	2
20	322.904 515 7	−14.045 271 4	8 196.447 755 1	0.12	299.990	10.98	1
20	322.904 481 0	−14.045 329 5	8 196.447 757 7	0.12	300.001	13.60	2
20	322.915 752 3	−14.042 095 9	8 196.522 298 3	0.12	299.989	13.30	1
20	322.915 718 7	−14.042 154 4	8 196.522 300 7	0.12	300.000	8.49	2
20	322.917 914 8	−14.041 481 6	8 196.536 643 8	0.11	299.988	11.74	1
20	322.917 880 2	−14.041 539 4	8 196.536 646 2	0.11	299.999	9.69	2
20	322.929 135 6	−14.038 350 3	8 196.611 114 9	0.05	299.997	32.60	2
20	322.929 191 5	−14.038 290 3	8 196.611 223 3	0.05	299.987	12.14	1
20	322.931 361 8	−14.037 678 9	8 196.625 531 7	0.03	299.987	9.41	1
20	328.660 317 7	−12.245 381 2	8 223.177 767 7	0.11	22.382	16.13	2
20	328.660 335 3	−12.245 388 2	8 223.177 768 8	0.11	22.398	12.90	1
20	328.664 204 9	−12.244 084 8	8 223.192 088 6	0.10	22.382	14.44	2
20	328.664 222 4	−12.244 091 6	8 223.192 089 6	0.10	22.398	12.90	1
20	328.712 556 3	−12.227 925 0	8 223.369 864 2	0.05	22.232	10.54	1
20	328.712 537 8	−12.227 920 4	8 223.369 866 9	0.05	22.233	17.73	2
20	335.221 584 8	−9.932 462 5	8 244.682 468 6	0.06	301.423	12.50	2
20	335.221 609 0	−9.932 415 1	8 244.682 470 7	0.06	301.456	14.05	1
20	335.226 369 9	−9.930 696 3	8 244.696 764 9	0.07	301.422	13.98	2
20	335.226 402 4	−9.930 654 0	8 244.696 767 1	0.07	301.456	15.29	1
20	335.251 351 9	−9.921 481 0	8 244.771 358 0	0.11	301.420	12.55	2
20	335.251 378 4	−9.921 435 1	8 244.771 360 1	0.11	301.453	11.02	1
20	335.256 138 2	−9.919 712 0	8 244.785 654 4	0.12	301.420	7.89	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
20	335.256 167 3	−9.919 667 7	8 244.785 656 5	0.12	301.453	11.58	1
20	335.281 127 1	−9.910 482 0	8 244.860 247 1	0.13	301.417	14.50	2
20	335.281 154 7	−9.910 436 9	8 244.860 249 2	0.13	301.451	10.19	1
20	89.573 946 0	23.064 842 5	8 487.387 294 4	−0.02	207.390	14.11	1
20	89.574 057 4	23.064 787 5	8 487.387 298 0	−0.02	207.375	24.61	2
20	89.613 225 9	23.064 631 2	8 487.461 838 0	0.03	207.394	19.16	1
20	89.613 339 4	23.064 579 6	8 487.461 841 7	0.03	207.378	22.55	2
20	89.620 778 1	23.064 601 2	8 487.476 159 2	0.04	207.395	15.68	1
20	89.620 889 1	23.064 544 9	8 487.476 162 9	0.04	207.378	19.09	2
20	89.660 069 4	23.064 387 7	8 487.550 727 3	0.07	207.398	14.11	1
20	89.660 182 0	23.064 334 1	8 487.550 731 0	0.07	207.381	9.26	2
20	89.667 627 3	23.064 344 8	8 487.565 073 0	0.08	207.399	15.22	1
20	89.667 738 5	23.064 288 5	8 487.565 076 7	0.08	207.382	20.93	2
20	97.880 983 9	22.797 872 2	8 503.459 539 3	0.04	147.668	5.15	1
20	97.881 099 7	22.797 934 8	8 503.459 546 2	0.04	147.765	9.72	2
20	97.888 243 7	22.797 629 9	8 503.473 867 3	0.05	147.766	5.57	2
20	97.888 140 0	22.797 566 7	8 503.473 885 0	0.05	147.669	20.28	1
20	97.925 771 8	22.795 315 9	8 503.548 428 4	0.08	147.673	10.65	1
20	97.925 884 3	22.795 384 0	8 503.548 435 4	0.08	147.770	9.19	2
20	97.933 000 3	22.794 882 7	8 503.562 749 4	0.08	147.674	13.32	1
20	97.933 113 5	22.794 949 8	8 503.562 756 3	0.08	147.771	17.40	2
20	97.970 641 2	22.792 626 0	8 503.637 341 9	0.09	147.678	14.18	1
20	97.970 756 5	22.792 690 2	8 503.637 348 7	0.09	147.776	8.89	2
20	97.977 885 0	22.792 182 6	8 503.651 687 6	0.09	147.679	13.07	1
20	97.977 998 4	22.792 249 5	8 503.651 694 3	0.09	147.777	19.14	2
20	113.984 848 1	20.976 306 3	8 538.140 857 6	0.06	231.703	10.22	1
20	113.984 944 5	20.976 190 5	8 538.140 860 5	0.06	231.733	8.19	2
20	113.990 752 8	20.975 313 2	8 538.155 154 0	0.07	231.704	11.17	1
20	113.990 847 3	20.975 196 1	8 538.155 156 8	0.07	231.734	23.28	2
20	114.021 567 6	20.970 143 5	8 538.229 746 5	0.08	231.710	13.37	1
20	114.021 661 9	20.970 026 3	8 538.229 749 3	0.08	231.740	9.71	2
20	114.027 466 9	20.969 149 2	8 538.244 042 8	0.08	231.711	12.82	1
20	114.027 560 7	20.969 031 7	8 538.244 045 5	0.08	231.741	18.77	2
20	123.986 859 2	18.932 458 8	8 566.572 863 4	0.08	151.255	4.26	2
20	123.986 676 8	18.932 365 0	8 566.572 864 6	0.08	151.270	6.85	1
20	123.990 865 0	18.931 475 7	8 566.587 184 4	0.08	151.255	13.17	2
20	124.011 682 1	18.926 394 9	8 566.661 752 2	0.09	151.258	5.78	2
20	124.011 500 3	18.926 300 2	8 566.661 753 6	0.09	151.272	5.76	1
20	124.015 681 5	18.925 420 9	8 566.676 097 9	0.09	151.258	10.52	2
20	124.015 500 4	18.925 325 1	8 566.676 099 2	0.09	151.273	7.54	1
20	119.288 562 2	19.835 940 9	8 708.152 864 8	0.11	331.890	6.54	1
20	119.288 773 8	19.836 047 9	8 708.152 865 7	0.11	331.933	5.70	2
20	119.291 428 9	19.835 528 4	8 708.167 185 7	0.10	331.890	8.37	1
20	119.291 642 1	19.835 632 0	8 708.167 186 6	0.10	331.933	9.98	2
20	119.306 377 1	19.833 383 1	8 708.241 777 2	0.02	331.892	7.98	1
20	119.306 588 3	19.833 487 0	8 708.241 778 3	0.02	331.934	13.53	2
20	125.608 531 2	18.718 658 3	8 731.878 528 0	0.09	56.164	6.35	1
20	125.608 625 1	18.718 526 0	8 731.878 530 0	0.09	56.166	11.91	2
20	125.613 141 9	18.717 717 9	8 731.892 873 9	0.10	56.165	7.40	1
20	125.613 232 5	18.717 583 6	8 731.892 875 8	0.10	56.167	10.43	2
20	125.637 131 9	18.712 832 0	8 731.967 442 0	0.13	56.169	7.30	1
20	125.637 224 2	18.712 698 9	8 731.967 443 9	0.13	56.172	6.30	2
20	125.641 748 9	18.711 890 6	8 731.981 787 6	0.13	56.170	8.10	1
20	125.641 840 1	18.711 756 8	8 731.981 789 6	0.13	56.173	9.19	2
20	135.331 451 0	16.411 247 1	8 758.712 692 9	0.11	335.139	14.67	2
20	135.331 313 2	16.411 185 3	8 758.712 697 6	0.11	335.206	8.82	1
20	135.337 102 3	16.409 727 8	8 758.727 038 4	0.10	335.139	7.96	2
20	135.336 962 1	16.409 671 0	8 758.727 043 2	0.10	335.207	9.78	1
20	135.366 483 1	16.401 825 7	8 758.801 605 3	0.02	335.142	13.78	2
20	135.366 345 4	16.401 763 7	8 758.801 610 0	0.02	335.209	9.78	1
20	151.253 336 1	11.408 304 3	8 796.915 778 1	0.05	51.057	14.35	2
20	151.253 258 4	11.408 396 0	8 796.915 781 4	0.05	51.018	13.60	1
20	151.259 516 7	11.406 105 2	8 796.930 123 5	0.03	51.058	11.81	2
20	151.259 444 1	11.406 201 0	8 796.930 126 8	0.03	51.018	11.41	1
20	151.297 759 8	11.392 585 1	8 797.019 010 3	0.04	49.227	9.94	1
20	151.297 841 1	11.392 494 4	8 797.019 011 0	0.04	49.238	8.72	2
20	151.329 898 4	11.381 150 8	8 797.093 578 9	0.11	49.230	11.41	1
20	151.329 975 6	11.381 056 9	8 797.093 579 5	0.11	49.240	16.62	2
20	151.336 085 0	11.378 953 2	8 797.107 924 7	0.12	49.230	11.11	1
20	151.336 162 9	11.378 859 9	8 797.107 925 2	0.12	49.241	13.19	2
20	151.368 214 9	11.367 515 3	8 797.182 468 0	0.14	49.233	10.04	1
20	151.368 295 3	11.367 424 1	8 797.182 468 7	0.14	49.243	6.61	2
20	151.374 386 7	11.365 316 3	8 797.196 788 9	0.14	49.233	11.46	1
20	151.374 467 6	11.365 225 5	8 797.196 789 7	0.14	49.244	16.56	2
20	156.412 432 9	9.516 250 6	8 808.826 025 7	0.11	3.056	28.36	1
20	156.412 597 8	9.516 238 3	8 808.826 087 1	0.11	3.176	24.52	2
20	156.418 814 7	9.513 871 3	8 808.840 383 3	0.10	3.176	27.29	2
20	156.528 585 5	9.472 406 2	8 809.092 748 1	0.13	1.763	30.56	2
20	156.528 450 6	9.472 409 4	8 809.092 750 4	0.13	1.675	16.81	1
20	156.534 669 7	9.470 066 5	8 809.107 046 7	0.13	1.675	16.71	1
20	156.534 815 4	9.470 060 8	8 809.107 069 1	0.13	1.763	10.58	2
20	156.567 242 7	9.457 799 6	8 809.181 612 5	0.14	1.763	14.43	2
20	156.567 107 5	9.457 805 2	8 809.181 614 6	0.14	1.675	13.64	1
20	156.573 462 0	9.455 451 5	8 809.195 908 8	0.14	1.763	12.67	2
20	156.573 326 7	9.455 451 9	8 809.195 910 8	0.14	1.675	11.50	1
20	156.605 922 7	9.443 170 1	8 809.270 525 6	0.11	1.763	19.27	2
20	156.605 787 3	9.443 171 6	8 809.270 527 7	0.11	1.675	11.55	1
20	156.612 142 1	9.440 815 7	8 809.284 821 7	0.10	1.763	12.38	2
20	156.612 006 6	9.440 814 5	8 809.284 823 9	0.10	1.675	11.35	1
22	334.273 204 9	−23.811 848 2	8 022.962 926 2	0.01	200.047	15.56	1
22	334.273 186 7	−23.811 841 5	8 022.962 933 1	0.01	200.031	19.99	2
22	334.276 955 9	−23.811 683 7	8 022.977 197 9	0.02	200.047	19.91	1
22	334.276 936 7	−23.811 679 2	8 022.977 204 6	0.02	200.031	24.97	2
22	334.296 555 1	−23.810 825 4	8 023.051 803 0	0.04	200.046	19.60	1
22	340.677 177 4	−24.302 809 0	8 053.350 861 6	−0.07	121.766	15.76	1
22	340.677 183 4	−24.302 803 1	8 053.350 861 9	−0.07	121.822	14.85	2
22	340.679 343 8	−24.303 491 6	8 053.365 207 4	−0.06	121.765	14.11	1
22	340.679 352 6	−24.303 487 1	8 053.365 207 7	−0.06	121.822	23.62	2
22	340.690 561 6	−24.307 031 3	8 053.439 750 7	−0.05	121.760	17.37	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
22	340.690 564 2	−24.307 023 4	8 053.439 750 9	−0.05	121.818	10.12	2
22	342.696 922 3	−25.703 982 5	8 073.338 288 4	−0.06	197.115	12.73	2
22	342.696 955 6	−25.703 992 5	8 073.338 289 1	−0.06	197.111	10.87	1
22	342.701 108 0	−25.712 199 1	8 073.427 165 2	−0.03	197.116	19.99	2
22	342.701 140 9	−25.712 210 2	8 073.427 166 0	−0.03	197.112	13.64	1
22	342.701 779 3	−25.713 530 1	8 073.441 523 3	−0.02	197.116	7.46	2
22	342.701 813 5	−25.713 537 4	8 073.441 524 1	−0.02	197.112	10.76	1
22	342.705 248 5	−25.720 438 2	8 073.516 066 7	0.01	197.117	13.60	2
22	342.705 281 9	−25.720 447 7	8 073.516 067 6	0.01	197.113	11.02	1
22	342.705 912 2	−25.721 769 6	8 073.530 412 3	0.01	197.117	9.88	2
22	342.705 945 7	−25.721 778 9	8 073.530 413 2	0.01	197.113	10.05	1
22	342.709 346 6	−25.728 687 8	8 073.604 980 5	0.04	197.118	6.65	2
22	342.709 378 8	−25.728 700 7	8 073.604 981 5	0.04	197.114	8.71	1
22	342.710 000 6	−25.730 023 6	8 073.619 301 5	0.04	197.118	10.56	2
22	342.710 034 6	−25.730 031 3	8 073.619 302 4	0.04	197.114	10.46	1
22	329.935 919 1	−29.444 218 1	8 193.941 333 4	0.06	293.634	10.93	1
22	329.935 928 7	−29.444 201 9	8 193.941 335 2	0.06	293.622	9.67	2
22	329.937 175 7	−29.442 391 5	8 193.955 703 6	0.04	293.634	13.51	1
22	329.951 466 2	−29.421 544 6	8 194.119 139 3	0.06	293.959	10.36	2
22	329.951 458 0	−29.421 561 1	8 194.119 140 2	0.06	293.970	12.48	1
22	329.952 723 8	−29.419 716 7	8 194.133 460 3	0.07	293.959	23.85	2
22	329.952 712 4	−29.419 731 9	8 194.133 461 3	0.07	293.970	13.98	1
22	334.141 181 0	−25.509 163 5	8 220.953 026 2	0.10	22.302	6.77	2
22	334.141 211 4	−25.509 174 5	8 220.953 026 7	0.10	22.263	11.31	1
22	334.144 266 2	−25.506 859 3	8 220.967 322 3	0.09	22.302	13.53	2
22	334.144 296 8	−25.506 869 9	8 220.967 322 8	0.09	22.262	13.85	1
22	339.620 835 7	−21.800 660 7	8 242.738 740 6	0.08	305.156	18.25	1
22	339.620 842 2	−21.800 656 7	8 242.738 746 2	0.08	305.172	15.85	2
22	339.667 092 7	−21.771 457 8	8 242.902 219 0	0.05	303.925	13.73	2
22	339.667 095 4	−21.771 464 5	8 242.902 226 9	0.05	303.914	15.92	1
22	339.671 148 2	−21.768 908 3	8 242.916 515 4	0.06	303.925	12.98	2
22	339.671 148 2	−21.768 913 1	8 242.916 523 2	0.06	303.914	16.08	1
22	68.423 029 0	17.681 894 7	8 483.198 755 4	0.12	210.131	17.16	1
22	68.422 985 0	17.681 925 4	8 483.198 762 6	0.12	210.125	23.79	2
22	68.427 611 9	17.683 019 0	8 483.213 051 6	0.11	210.131	16.59	1
22	68.427 566 2	17.683 047 0	8 483.213 058 8	0.11	210.126	14.78	2
22	68.451 511 8	17.688 876 4	8 483.287 643 5	0.07	210.134	17.74	1
22	68.451 467 3	17.688 906 6	8 483.287 650 8	0.07	210.129	24.52	2
22	68.484 551 2	17.696 973 6	8 483.390 829 1	0.00	209.938	15.97	1
22	68.484 502 6	17.696 998 8	8 483.390 831 1	0.00	209.929	16.78	2
22	75.512 185 7	19.454 983 8	8 508.093 235 9	0.10	131.460	16.00	1
22	75.512 187 3	19.455 001 8	8 508.093 239 7	0.10	131.444	30.68	2
22	65.713 948 4	28.272 726 9	8 654.755 762 3	0.10	317.974	16.18	1
22	65.713 951 8	28.272 724 5	8 654.755 771 4	0.10	317.964	19.61	2
22	65.714 957 4	28.273 288 1	8 654.770 067 7	0.10	317.964	17.25	2
22	65.714 959 6	28.273 294 3	8 654.770 145 0	0.10	317.974	54.59	1
22	65.720 245 2	28.276 209 7	8 654.844 626 3	0.09	317.974	15.82	1
22	65.720 242 7	28.276 213 3	8 654.844 635 4	0.09	317.964	15.27	2
22	65.721 264 1	28.276 775 1	8 654.858 972 0	0.09	317.974	18.05	1
22	65.721 271 6	28.276 769 1	8 654.858 981 1	0.09	317.964	26.24	2
22	65.726 607 2	28.279 690 6	8 654.933 514 9	0.06	317.975	16.28	1
22	65.726 613 2	28.279 686 2	8 654.933 524 1	0.06	317.965	16.00	2
22	68.677 794 1	29.144 907 1	8 675.652 981 1	0.10	35.054	15.12	1
22	68.677 777 7	29.144 914 1	8 675.652 990 1	0.10	35.053	25.57	2
22	68.693 266 9	29.148 211 4	8 675.727 548 6	0.08	35.057	15.83	1
22	68.693 260 5	29.148 230 0	8 675.727 557 6	0.08	35.056	26.52	2
22	68.696 196 1	29.148 783 3	8 675.741 894 1	0.07	35.058	12.66	1
22	68.696 184 0	29.148 794 8	8 675.741 903 1	0.07	35.057	14.61	2
22	68.711 662 6	29.152 033 7	8 675.816 461 4	0.03	35.061	14.71	1
22	68.711 652 0	29.152 046 3	8 675.816 470 4	0.03	35.060	17.37	2
22	76.093 363 3	30.287 726 0	8 702.738 642 6	0.09	311.400	18.09	2
22	76.093 367 2	30.287 730 0	8 702.738 652 5	0.09	311.410	17.79	1
22	76.098 131 7	30.288 273 0	8 702.753 012 9	0.08	311.401	11.03	2
22	76.098 133 6	30.288 278 5	8 702.753 022 7	0.08	311.411	14.88	1
22	76.122 860 4	30.291 122 8	8 702.827 555 8	0.05	311.407	16.89	2
22	76.122 864 6	30.291 126 6	8 702.827 565 5	0.05	311.417	17.42	1
22	76.127 620 4	30.291 675 3	8 702.841 898 8	0.04	311.419	18.93	1
22	76.127 620 5	30.291 671 8	8 702.841 901 4	0.04	311.409	10.10	2
22	91.204 931 8	31.229 047 7	8 741.653 254 7	0.10	16.639	22.14	1
22	91.204 938 1	31.229 043 6	8 741.653 262 0	0.10	16.634	49.57	2
22	91.211 122 8	31.229 141 4	8 741.667 575 7	0.10	16.639	28.37	1
22	91.211 128 0	31.229 134 4	8 741.667 582 9	0.10	16.634	32.83	2
22	91.243 348 6	31.229 581 5	8 741.742 143 5	0.10	16.640	24.06	1
22	91.243 356 6	31.229 582 1	8 741.742 151 0	0.10	16.635	33.08	2
22	91.249 540 7	31.229 671 1	8 741.756 464 4	0.10	16.641	20.17	1
22	91.249 549 9	31.229 675 1	8 741.756 472 0	0.10	16.636	31.18	2
22	91.281 788 4	31.230 088 8	8 741.831 068 9	0.07	16.642	25.31	1
22	91.281 797 0	31.230 091 2	8 741.831 076 6	0.07	16.637	22.81	2
22	91.287 986 6	31.230 188 0	8 741.845 389 8	0.06	16.642	26.97	1
22	91.287 996 0	31.230 193 0	8 741.845 397 4	0.06	16.637	31.05	2
22	91.320 215 9	31.230 605 3	8 741.919 919 9	0.01	16.644	32.31	1
22	91.320 230 8	31.230 610 8	8 741.919 940 0	0.01	16.639	50.95	2
22	91.364 887 5	31.231 201 7	8 742.023 156 2	0.05	14.601	35.65	2
22	91.364 891 0	31.231 210 4	8 742.023 175 3	0.05	14.593	22.51	1
22	94.475 047 4	31.242 636 9	8 749.119 692 2	0.05	346.151	28.26	1
22	94.481 396 9	31.242 604 1	8 749.134 013 4	0.07	346.151	24.79	1
22	94.481 395 3	31.242 603 1	8 749.134 016 3	0.07	346.190	16.74	2
22	94.520 831 0	31.242 374 6	8 749.222 927 3	0.10	346.152	23.54	1
22	94.520 833 5	31.242 378 7	8 749.222 942 5	0.10	346.191	26.32	2
22	94.560 261 0	31.242 148 7	8 749.311 815 8	0.09	346.153	16.39	1
22	94.560 259 9	31.242 147 6	8 749.311 818 8	0.09	346.192	32.10	2
22	94.593 350 4	31.241 938 4	8 749.386 383 4	0.06	346.154	25.83	1
22	94.599 705 2	31.241 900 7	8 749.400 704 2	0.05	346.154	18.10	1
22	94.599 702 5	31.241 906 2	8 749.400 707 2	0.05	346.193	17.25	2
22	94.632 784 3	31.241 711 7	8 749.475 246 7	0.00	346.155	40.03	1
22	94.639 136 5	31.241 649 2	8 749.489 542 9	−0.01	346.156	20.64	1
22	94.639 136 3	31.241 646 5	8 749.489 546 0	−0.01	346.194	18.94	2
22	94.678 620 2	31.241 393 2	8 749.578 478 1	0.07	344.819	14.94	1
22	94.678 618 3	31.241 393 5	8 749.578 482 4	0.07	344.852	14.15	2
22	94.711 725 6	31.241 158 6	8 749.653 021 6	0.10	344.820	22.66	1
22	94.711 735 7	31.241 156 4	8 749.653 050 6	0.10	344.853	22.96	2
22	94.718 085 4	31.241 116 5	8 749.667 342 6	0.10	344.820	19.97	1
22	94.718 081 3	31.241 124 5	8 749.667 346 9	0.10	344.853	10.97	2
22	94.751 200 5	31.240 871 1	8 749.741 885 7	0.10	344.821	20.79	1
22	94.751 209 7	31.240 872 8	8 749.741 915 0	0.10	344.855	24.95	2
22	94.757 580 9	31.240 832 9	8 749.756 260 5	0.09	344.855	18.42	2
22	94.757 585 9	31.240 838 0	8 749.756 268 2	0.09	344.821	18.88	1
22	175.511 492 5	15.277 241 1	8 939.486 462 5	0.12	244.461	31.68	2
22	175.511 468 4	15.277 265 8	8 939.486 467 5	0.12	244.408	18.05	1
22	175.516 031 8	15.276 075 6	8 939.500 783 5	0.12	244.461	17.93	2
22	175.516 017 9	15.276 105 0	8 939.500 788 5	0.12	244.408	13.74	1
22	175.539 703 3	15.270 036 9	8 939.575 326 5	0.11	244.466	9.51	2
22	175.544 246 6	15.268 876 2	8 939.589 647 3	0.10	244.467	20.29	2
22	175.544 230 3	15.268 904 5	8 939.589 652 4	0.10	244.413	17.06	1
22	175.572 454 1	15.261 685 9	8 939.678 535 4	0.04	244.472	26.33	2
22	175.572 443 4	15.261 716 9	8 939.678 540 5	0.04	244.418	20.48	1
22	189.977 838 2	14.139 841 4	9 009.108 034 4	0.11	160.296	13.70	1
22	189.977 797 2	14.139 824 3	9 009.108 040 3	0.11	160.290	17.67	2
22	189.978 604 7	14.140 725 7	9 009.122 318 3	0.11	160.296	14.57	1
22	189.978 565 9	14.140 705 5	9 009.122 336 6	0.11	160.290	18.63	2
23	184.722 493 6	9.813 324 3	7 876.622 744 5	0.07	162.096	16.59	2
23	184.722 420 4	9.813 303 4	7 876.622 745 6	0.07	162.119	13.12	1
23	184.728 021 6	9.812 014 6	7 876.637 115 1	0.09	162.096	9.70	2
23	184.727 949 9	9.811 988 8	7 876.637 116 2	0.09	162.119	12.77	1
23	184.756 687 3	9.805 219 2	7 876.711 658 8	0.13	162.097	13.07	2
23	184.756 613 9	9.805 197 4	7 876.711 659 8	0.13	162.120	10.66	1
23	193.087 127 7	8.248 301 8	7 901.945 342 5	0.08	242.647	8.64	1
23	193.090 956 9	8.247 882 0	7 901.959 663 5	0.09	242.647	10.94	1
23	185.015 666 3	9.185 763 3	8 029.846 983 1	0.11	1.786	16.63	2
23	185.015 590 7	9.185 764 4	8 029.846 993 3	0.11	1.807	14.75	1
23	185.015 850 0	9.183 842 9	8 029.861 277 2	0.11	1.807	8.20	1
23	185.015 925 8	9.183 840 8	8 029.861 279 3	0.11	1.786	8.88	2
23	185.017 224 7	9.173 793 6	8 029.935 845 1	0.11	1.807	11.40	1
23	185.017 300 6	9.173 792 5	8 029.935 847 0	0.11	1.786	10.68	2
23	185.017 492 9	9.171 862 7	8 029.950 166 0	0.10	1.807	7.60	1
23	185.017 568 7	9.171 861 9	8 029.950 167 7	0.10	1.786	7.78	2
23	186.214 383 2	6.639 780 5	8 046.910 124 0	0.05	65.896	7.61	1
23	186.214 401 6	6.639 739 1	8 046.910 134 9	0.05	65.957	5.96	2
23	186.216 078 3	6.637 470 0	8 046.924 445 0	0.05	65.896	7.92	1
23	186.216 095 1	6.637 427 8	8 046.924 455 9	0.05	65.957	5.47	2
23	186.224 938 8	6.625 437 4	8 046.999 036 8	−0.01	65.897	7.92	1
23	186.224 958 6	6.625 396 8	8 046.999 047 7	−0.01	65.957	8.08	2
23	192.131 076 9	1.145 687 8	8 078.530 258 9	−0.02	339.852	13.34	2
23	192.131 056 4	1.145 680 1	8 078.530 262 5	−0.02	339.842	17.20	1
23	192.134 561 3	1.143 071 3	8 078.544 608 1	−0.03	339.842	15.14	1
23	201.703 359 4	−4.987 528 7	8 112.025 079 6	0.10	56.739	27.13	2
23	201.703 340 4	−4.987 503 8	8 112.025 083 7	0.10	56.771	18.51	1
23	201.707 940 4	−4.990 126 9	8 112.039 375 7	0.09	56.739	18.15	2
23	201.707 924 8	−4.990 099 7	8 112.039 379 7	0.09	56.771	13.85	1
23	201.731 857 7	−5.003 676 1	8 112.113 967 9	0.07	56.738	16.67	2
23	201.731 851 0	−5.003 643 0	8 112.113 972 0	0.07	56.770	17.27	1
23	201.736 447 6	−5.006 279 2	8 112.128 288 8	0.06	56.738	19.62	2
23	201.736 429 3	−5.006 253 7	8 112.128 292 9	0.06	56.770	15.30	1
23	207.319 458 1	−7.997 544 3	8 128.823 059 8	0.09	350.235	30.65	1
23	207.319 472 4	−7.997 550 8	8 128.823 078 6	0.09	350.210	28.88	2
23	207.324 437 0	−8.000 068 6	8 128.837 375 1	0.10	350.210	30.81	2
23	207.324 432 0	−8.000 070 5	8 128.837 381 0	0.10	350.235	18.98	1
23	207.350 335 0	−8.013 189 6	8 128.911 942 5	0.09	350.209	32.07	2
23	207.350 329 2	−8.013 186 7	8 128.911 948 5	0.09	350.235	25.20	1
23	207.355 300 5	−8.015 709 7	8 128.926 257 1	0.09	350.235	21.99	1
23	207.355 310 4	−8.015 713 6	8 128.926 263 5	0.09	350.209	29.11	2
23	207.381 201 2	−8.028 856 7	8 129.000 787 6	0.06	350.235	26.97	1
23	207.381 217 5	−8.028 852 4	8 129.000 818 4	0.06	350.209	28.40	2
23	207.386 188 7	−8.031 371 3	8 129.015 145 4	0.05	350.234	21.88	1
23	207.386 198 0	−8.031 372 3	8 129.015 151 6	0.05	350.209	23.06	2
23	207.412 117 9	−8.044 512 9	8 129.089 737 3	0.00	350.234	26.08	1
23	207.412 125 8	−8.044 505 8	8 129.089 743 4	0.00	350.208	20.01	2
23	207.417 093 8	−8.047 032 5	8 129.104 027 3	−0.01	350.208	32.05	2
23	294.752 622 0	−28.429 963 6	8 401.457 518 5	0.04	161.512	8.10	2
23	294.752 702 3	−28.429 939 8	8 401.457 519 0	0.04	161.391	14.05	1
23	294.751 593 0	−28.431 023 7	8 401.471 863 9	0.03	161.512	18.10	2
23	294.751 673 1	−28.430 999 3	8 401.471 864 5	0.03	161.391	17.48	1
23	294.746 224 7	−28.436 534 1	8 401.546 406 7	0.00	161.511	10.68	2
23	294.746 305 0	−28.436 510 2	8 401.546 407 3	0.00	161.390	12.76	1
23	294.745 191 0	−28.437 591 2	8 401.560 703 0	0.00	161.511	23.31	2
23	294.745 272 1	−28.437 569 7	8 401.560 703 6	0.00	161.390	13.43	1
23	294.739 779 5	−28.443 124 9	8 401.635 319 8	−0.03	161.510	10.20	2
23	294.739 860 7	−28.443 103 5	8 401.635 320 4	−0.03	161.389	13.33	1
23	294.738 733 5	−28.444 178 8	8 401.649 640 8	−0.03	161.510	23.79	2
23	294.738 814 0	−28.444 155 5	8 401.649 641 4	−0.03	161.389	13.07	1
23	294.725 760 0	−28.457 351 5	8 401.827 397 8	0.06	163.317	14.99	1
23	294.725 678 9	−28.457 373 2	8 401.827 402 7	0.06	163.334	10.74	2
23	294.720 219 4	−28.462 890 3	8 401.901 990 1	0.04	163.316	16.91	1
23	294.720 140 7	−28.462 919 3	8 401.901 995 1	0.04	163.333	21.21	2
23	294.719 154 1	−28.463 954 5	8 401.916 286 1	0.03	163.316	16.65	1
23	294.719 072 8	−28.463 976 0	8 401.916 291 2	0.03	163.333	19.63	2
23	294.713 574 5	−28.469 509 6	8 401.990 878 3	0.00	163.316	15.92	1
23	294.713 494 1	−28.469 533 4	8 401.990 883 4	0.00	163.332	26.50	2
23	294.712 498 4	−28.470 570 4	8 402.005 186 9	0.00	163.316	23.96	1
23	294.712 414 6	−28.470 588 1	8 402.005 204 3	0.00	163.332	25.61	2
23	294.706 874 1	−28.476 124 0	8 402.079 779 1	−0.03	163.315	17.32	1
23	294.706 792 8	−28.476 145 5	8 402.079 784 0	−0.03	163.332	26.15	2
23	294.693 329 1	−28.489 383 2	8 402.257 549 1	0.06	165.164	18.31	1
23	294.693 246 9	−28.489 400 3	8 402.257 550 5	0.06	165.188	14.69	2
23	294.692 228 3	−28.490 450 1	8 402.271 870 0	0.06	165.164	17.11	1
23	294.692 146 5	−28.490 468 6	8 402.271 871 5	0.06	165.188	13.50	2
23	294.686 480 6	−28.496 025 1	8 402.346 437 6	0.04	165.164	15.87	1
23	294.686 397 3	−28.496 038 6	8 402.346 439 2	0.04	165.187	21.83	2
23	294.685 291 4	−28.497 108 4	8 402.360 735 3	0.03	165.187	14.80	2

N	Reference point α_0 deg	Reference point δ_0 deg	Date Epoch JD[TT]	Date $\Delta\tau$ s	Abscissa θ deg	Abscissa σ_{v*} mas	F
1	2	3	4	5	6	7	8
23	294.679 581 7	−28.502 661 6	8 402.435 288 8	0.00	165.163	19.86	1
23	294.679 496 2	−28.502 679 9	8 402.435 327 6	0.00	165.187	16.61	2
23	294.678 461 0	−28.503 730 5	8 402.449 646 9	0.00	165.163	15.56	1
23	294.678 379 7	−28.503 750 9	8 402.449 648 5	0.00	165.187	19.65	2
23	294.651 474 7	−28.529 310 3	8 402.790 883 0	0.04	167.012	15.56	1
23	294.651 390 3	−28.529 319 0	8 402.790 883 8	0.04	167.042	20.46	2
23	294.637 107 8	−28.542 656 3	8 402.968 733 8	−0.03	167.011	22.82	1
23	294.637 025 3	−28.542 672 6	8 402.968 734 5	−0.03	167.041	17.55	2
23	278.345 499 6	−32.452 894 1	8 488.303 362 6	0.01	331.750	73.91	2
23	278.345 582 1	−32.452 870 7	8 488.303 383 9	0.01	331.704	26.91	1
23	278.344 444 9	−32.452 715 4	8 488.317 634 1	0.00	331.750	19.93	2
23	278.344 521 7	−32.452 681 6	8 488.317 643 0	0.00	331.705	21.52	1
23	278.338 935 6	−32.451 751 6	8 488.392 251 0	−0.03	331.751	6.16	2
23	278.339 018 4	−32.451 727 1	8 488.392 259 9	−0.03	331.706	22.92	1
23	278.337 963 7	−32.451 533 0	8 488.406 518 9	−0.04	331.706	18.41	1
23	278.337 888 1	−32.451 569 9	8 488.406 522 4	−0.04	331.751	23.99	2
23	278.332 494 3	−32.450 562 6	8 488.481 185 3	−0.06	331.707	21.37	1
23	278.331 378 9	−32.450 413 6	8 488.495 435 4	−0.07	331.752	30.89	2
23	278.331 456 4	−32.450 380 7	8 488.495 444 4	−0.07	331.708	16.80	1
23	278.325 966 4	−32.449 451 5	8 488.570 027 8	−0.07	331.753	21.46	2
23	278.326 046 9	−32.449 423 2	8 488.570 036 9	−0.07	331.708	23.65	1
23	277.935 664 2	−32.211 878 6	8 501.813 094 7	−0.08	26.065	9.82	2
23	277.935 722 8	−32.211 900 2	8 501.813 149 5	−0.08	26.064	29.46	1
23	277.935 854 9	−32.211 551 0	8 501.827 440 3	−0.08	26.065	32.35	2
23	277.935 913 4	−32.211 572 8	8 501.827 445 8	−0.08	26.064	28.57	1
23	277.939 561 2	−32.205 688 8	8 502.094 107 5	−0.02	28.568	22.45	1
23	277.939 508 4	−32.205 661 9	8 502.094 109 2	−0.02	28.561	15.43	2
23	5.035 596 9	−11.176 051 1	8 818.073 065 4	−0.13	199.027	21.99	1
23	350.747 773 0	−16.344 571 0	8 938.642 509 7	−0.11	294.513	14.13	1
23	350.747 755 5	−16.344 602 4	8 938.642 513 1	−0.11	294.534	21.64	2
23	350.747 711 9	−16.343 335 4	8 938.656 830 7	−0.11	294.513	19.57	1
23	350.747 702 1	−16.343 370 2	8 938.656 834 1	−0.11	294.534	21.62	2
23	350.747 469 4	−16.336 959 3	8 938.731 377 6	−0.08	294.534	12.91	2
23	350.747 486 5	−16.336 922 6	8 938.731 436 0	−0.08	294.514	25.47	1
23	350.747 438 0	−16.335 728 3	8 938.745 723 3	−0.07	294.535	17.27	2
23	350.747 455 6	−16.335 693 9	8 938.745 757 0	−0.07	294.514	24.49	1
23	350.747 271 7	−16.329 274 6	8 938.820 263 8	−0.01	294.515	16.10	1
23	350.747 254 9	−16.329 306 2	8 938.820 267 0	−0.01	294.535	29.49	2
23	350.747 227 7	−16.328 072 7	8 938.834 588 0	0.00	294.536	11.96	2
23	352.261 952 2	−13.736 123 8	8 962.288 703 9	−0.03	18.557	16.43	2
23	352.261 985 1	−13.736 136 8	8 962.288 717 6	−0.03	18.526	23.08	1
23	3.341 287 1	−5.772 543 0	9 012.174 452 4	−0.10	9.207	26.86	2
23	3.341 308 3	−5.772 549 8	9 012.174 468 8	−0.10	9.282	20.22	1
23	3.345 546 6	−5.769 976 4	9 012.188 752 7	−0.10	9.282	26.86	1
23	3.367 662 2	−5.756 532 5	9 012.263 316 6	−0.09	9.206	40.46	2
23	3.367 680 1	−5.756 539 7	9 012.263 320 8	−0.09	9.282	20.07	1
23	3.371 915 7	−5.753 944 0	9 012.277 637 7	−0.08	9.206	20.72	2
23	3.371 933 6	−5.753 951 2	9 012.277 641 8	−0.08	9.281	21.78	1
23	3.394 070 7	−5.740 506 4	9 012.352 230 9	−0.04	9.206	13.57	2
23	3.394 088 2	−5.740 515 5	9 012.352 234 8	−0.04	9.281	27.38	1
23	3.398 325 6	−5.737 926 4	9 012.366 552 1	−0.03	9.206	19.49	2
23	3.398 342 1	−5.737 941 5	9 012.366 556 0	−0.03	9.281	27.43	1
23	6.504 889 5	−3.895 795 5	9 022.447 890 3	−0.09	324.659	30.87	2
23	6.504 900 0	−3.895 789 6	9 022.447 890 7	−0.09	324.618	20.59	1
23	6.509 457 8	−3.893 162 1	9 022.462 198 8	−0.09	324.659	23.87	2
23	6.509 467 2	−3.893 154 8	9 022.462 199 4	−0.09	324.618	18.98	1
27	331.698 902 7	−13.018 052 8	7 884.308 465 7	−0.13	10.116	23.33	2
27	331.698 922 5	−13.018 056 6	7 884.308 468 7	−0.13	10.144	13.38	1
27	331.704 409 6	−13.015 995 3	7 884.322 752 6	−0.13	10.144	17.32	1
27	331.704 393 6	−13.015 994 8	7 884.322 762 0	−0.13	10.116	28.98	2
27	331.733 039 5	−13.005 256 1	7 884.397 330 3	−0.09	10.116	12.74	2
27	331.733 059 7	−13.005 258 4	7 884.397 333 3	−0.09	10.143	14.21	1
27	331.738 562 2	−13.003 197 1	7 884.411 654 4	−0.08	10.143	17.06	1
27	336.072 933 7	−11.341 126 2	7 895.418 812 2	−0.13	320.973	18.98	1
27	336.072 913 9	−11.341 139 7	7 895.418 816 0	−0.13	320.955	21.65	2
27	336.078 720 4	−11.338 877 3	7 895.433 158 0	−0.12	320.973	25.20	1
27	336.078 703 3	−11.338 893 9	7 895.433 161 8	−0.12	320.955	10.32	2
27	336.108 728 5	−11.327 115 9	7 895.507 689 2	−0.09	320.971	15.51	1
27	336.108 707 8	−11.327 128 3	7 895.507 693 0	−0.09	320.954	12.75	2
27	336.114 490 0	−11.324 848 7	7 895.522 010 3	−0.08	320.971	17.16	1
27	336.114 465 9	−11.324 857 0	7 895.522 014 0	−0.08	320.954	14.72	2
27	103.853 014 7	22.358 996 1	8 143.002 925 3	−0.05	219.898	22.59	2
27	103.853 048 7	22.358 959 6	8 143.002 926 6	−0.05	219.880	14.16	1
27	103.894 062 0	22.355 879 0	8 143.077 467 7	−0.11	219.904	9.77	2
27	103.894 102 7	22.355 849 9	8 143.077 469 0	−0.10	219.886	9.65	1
27	103.901 998 7	22.355 254 4	8 143.091 802 2	−0.11	219.887	12.84	1
27	114.446 029 5	21.225 014 2	8 162.983 887 7	−0.05	149.133	31.74	1
27	114.446 047 0	21.224 990 4	8 162.983 961 8	−0.05	149.069	11.27	2
27	114.453 295 0	21.223 990 4	8 162.998 282 6	−0.06	149.070	12.58	2
27	114.453 319 3	21.224 002 0	8 162.998 282 6	−0.06	149.134	12.89	1
27	114.491 032 0	21.218 778 9	8 163.072 862 1	−0.11	149.074	12.32	2
27	114.491 052 1	21.218 796 7	8 163.072 862 2	−0.11	149.138	10.41	1
27	114.498 270 9	21.217 777 5	8 163.087 170 6	−0.12	149.075	17.07	2
27	114.498 293 5	21.217 791 2	8 163.087 170 7	−0.12	149.139	11.68	1
27	138.234 971 6	16.636 664 5	8 225.175 814 6	−0.09	159.164	5.80	1
27	138.234 966 7	16.636 664 1	8 225.175 814 9	−0.09	159.216	6.34	2
27	138.237 971 6	16.636 053 2	8 225.190 160 1	−0.10	159.164	10.27	1
27	138.237 966 8	16.636 052 2	8 225.190 160 3	−0.10	159.216	8.99	2
27	138.253 532 3	16.632 874 5	8 225.264 666 0	−0.13	159.165	7.59	1
27	138.253 534 0	16.632 873 8	8 225.264 703 2	−0.13	159.217	6.93	2
27	138.256 532 1	16.632 260 6	8 225.279 048 7	−0.13	159.165	11.06	1
27	138.256 527 1	16.632 258 6	8 225.279 048 9	−0.13	159.217	6.09	2
27	140.509 539 2	16.275 315 2	8 240.654 147 7	−0.05	223.737	7.48	2
27	140.509 550 6	16.275 302 4	8 240.654 154 9	−0.05	223.720	5.57	1
27	140.515 492 8	16.275 188 9	8 240.728 714 7	−0.10	223.738	2.52	2
27	140.515 503 8	16.275 176 7	8 240.728 722 2	−0.10	223.721	5.87	1
27	140.516 640 3	16.275 153 4	8 240.743 043 1	−0.11	223.721	5.52	1
27	140.523 642 2	16.275 038 6	8 240.831 875 0	−0.13	223.739	7.14	2
27	140.523 659 3	16.275 028 5	8 240.831 944 1	−0.13	223.722	4.73	1

N	Reference point α_0 deg	Reference point δ_0 deg	Date Epoch JD[TT]	Date $\Delta\tau$ s	Abscissa θ deg	Abscissa σ_{v*} mas	F
1	2	3	4	5	6	7	8
27	140.530 593 4	16.274 938 1	8 240.920 813 4	−0.11	223.740	6.05	2
27	140.530 603 9	16.274 927 2	8 240.920 820 8	−0.11	223.724	4.83	1
27	133.748 807 4	19.271 714 8	8 364.537 154 9	−0.10	335.356	17.95	2
27	133.752 699 9	19.270 306 4	8 364.551 520 3	−0.11	335.339	10.60	1
27	133.752 529 6	19.270 605 0	8 364.551 525 0	−0.11	335.356	10.33	2
27	133.772 025 3	19.264 540 6	8 364.626 063 5	−0.10	335.341	9.65	1
27	133.771 856 2	19.264 837 8	8 364.626 068 4	−0.10	335.358	11.30	2
27	133.775 750 2	19.263 429 9	8 364.640 421 5	−0.10	335.341	13.07	1
27	133.775 581 4	19.263 726 8	8 364.640 426 5	−0.10	335.358	10.28	2
27	142.047 001 2	16.646 471 7	8 391.282 396 2	−0.09	61.030	17.39	2
27	142.047 010 2	16.646 450 0	8 391.282 398 0	−0.09	61.078	11.76	1
27	142.052 026 2	16.644 786 5	8 391.296 717 1	−0.09	61.031	14.36	2
27	142.052 038 4	16.644 766 5	8 391.296 718 9	−0.09	61.078	9.67	1
27	142.078 190 4	16.636 002 8	8 391.371 285 2	−0.05	61.036	11.06	2
27	142.078 199 8	16.635 981 3	8 391.371 287 1	−0.05	61.083	10.29	1
27	142.083 216 8	16.634 315 0	8 391.385 606 3	−0.04	61.037	14.38	2
27	142.083 228 2	16.634 294 5	8 391.385 608 2	−0.04	61.084	9.73	1
27	264.992 338 4	−22.442 634 9	8 702.780 356 7	−0.09	224.509	19.30	2
27	264.992 335 9	−22.442 624 1	8 702.780 366 5	−0.09	224.499	17.99	1
27	264.995 014 0	−22.442 717 5	8 702.794 665 3	−0.09	224.509	16.87	2
27	264.995 003 6	−22.442 716 3	8 702.794 687 4	−0.09	224.498	16.44	1
27	250.877 722 5	−22.065 059 4	8 830.807 218 3	−0.03	345.288	18.22	1
27	250.874 802 4	−22.065 363 1	8 830.881 830 6	0.00	345.287	23.08	2
27	250.874 825 8	−22.065 355 9	8 830.881 835 8	0.00	345.288	15.24	1
27	250.874 274 5	−22.065 412 3	8 830.896 144 4	0.00	345.288	13.03	1
27	250.874 250 6	−22.065 419 4	8 830.896 151 6	0.00	345.287	12.19	2
27	250.871 399 9	−22.065 712 3	8 830.970 719 9	0.04	345.287	11.16	2
27	250.871 424 7	−22.065 709 9	8 830.970 725 0	0.04	345.288	17.24	1
27	250.870 856 2	−22.065 763 0	8 830.985 016 2	0.04	345.287	11.29	2
27	250.870 879 5	−22.065 755 7	8 830.985 021 3	0.04	345.288	12.68	1
28	57.337 975 9	8.487 967 5	8 513.232 975 6	0.12	135.053	31.06	1
28	57.339 436 6	8.487 153 9	8 513.247 284 2	0.12	135.053	32.00	1
28	57.346 961 4	8.482 915 2	8 513.321 848 0	0.14	135.145	17.65	2
28	57.346 996 3	8.482 943 1	8 513.321 864 4	0.14	135.054	16.59	1
28	57.348 410 0	8.482 106 2	8 513.336 193 5	0.13	135.146	17.52	2
28	57.348 440 6	8.482 137 9	8 513.336 197 7	0.13	135.054	13.48	1
28	47.023 407 3	6.493 489 5	8 648.014 705 7	0.08	300.163	21.05	1
28	47.023 387 4	6.493 449 3	8 648.014 706 5	0.08	300.161	13.45	2
28	47.034 440 5	6.502 445 1	8 648.089 273 9	0.10	300.163	13.48	1
28	47.034 415 1	6.502 407 0	8 648.089 274 4	0.10	300.161	9.73	2
28	47.036 561 7	6.504 161 4	8 648.103 570 2	0.10	300.163	14.47	1
28	47.036 540 5	6.504 120 7	8 648.103 570 7	0.10	300.161	18.15	2
28	47.047 622 5	6.513 129 8	8 648.178 137 9	0.09	300.164	18.20	1
28	47.047 605 4	6.513 085 6	8 648.178 138 5	0.09	300.162	25.81	2
28	47.049 758 0	6.514 848 4	8 648.192 458 8	0.08	300.164	14.31	1
28	47.049 735 7	6.514 807 0	8 648.192 459 4	0.08	300.162	15.98	2
28	53.215 736 2	10.117 527 2	8 676.166 122 7	0.06	29.739	20.36	2
28	53.215 750 6	10.117 519 7	8 676.166 126 1	0.06	29.720	15.19	1
28	53.219 801 9	10.119 422 8	8 676.180 431 3	0.05	29.740	16.88	2
28	53.219 817 1	10.119 412 6	8 676.180 447 0	0.05	29.721	14.00	1
28	53.240 985 1	10.129 265 9	8 676.255 010 9	0.01	29.741	16.17	2
28	53.240 998 6	10.129 258 2	8 676.255 014 3	0.01	29.722	17.06	1
28	53.245 071 5	10.131 166 1	8 676.269 381 2	0.00	29.742	29.73	2
28	53.245 082 1	10.131 153 8	8 676.269 384 5	0.00	29.723	16.75	1
28	180.776 277 2	1.767 470 6	8 961.255 110 6	0.12	163.891	31.68	2
28	180.776 302 5	1.767 484 8	8 961.255 116 0	0.12	163.935	17.37	1
28	180.781 233 3	1.766 151 8	8 961.269 456 2	0.12	163.891	14.50	2
28	180.781 259 8	1.766 162 0	8 961.269 461 7	0.12	163.935	19.81	1
28	180.806 998 7	1.759 260 0	8 961.344 023 6	0.09	163.891	25.85	2
28	180.807 024 8	1.759 271 3	8 961.344 029 1	0.09	163.935	16.91	1
28	180.811 942 6	1.757 947 3	8 961.358 344 4	0.08	163.891	29.22	2
28	180.811 967 7	1.757 962 0	8 961.358 350 0	0.08	163.935	22.40	1
28	180.837 694 2	1.751 055 8	8 961.432 911 4	0.02	163.892	16.13	2
28	180.837 721 7	1.751 061 4	8 961.432 917 1	0.02	163.935	21.05	1
28	180.842 635 2	1.749 743 6	8 961.447 232 1	0.00	163.892	27.29	2
28	180.842 666 6	1.749 749 7	8 961.447 250 3	0.00	163.935	19.50	1
28	188.130 781 6	0.107 290 3	8 984.894 140 1	0.05	203.175	19.71	1
28	188.130 777 6	0.107 294 5	8 984.894 144 7	0.05	203.259	6.87	2
28	188.134 658 7	0.106 647 0	8 984.908 448 7	0.04	203.175	21.16	1
28	188.134 657 9	0.106 650 5	8 984.908 465 5	0.04	203.259	70.85	2
28	188.210 391 6	0.094 241 8	8 985.188 411 3	0.12	203.275	17.37	1
28	188.210 388 3	0.094 246 8	8 985.188 419 2	0.12	203.232	13.96	2
28	188.230 515 3	0.090 970 2	8 985.262 991 3	0.10	203.275	18.77	1
28	188.230 510 1	0.090 971 1	8 985.262 998 9	0.10	203.232	17.91	2
28	188.234 373 8	0.090 344 6	8 985.277 299 7	0.09	203.275	19.34	1
28	188.234 371 5	0.090 344 0	8 985.277 319 7	0.09	203.232	19.24	2
28	188.254 472 7	0.087 091 6	8 985.351 879 3	0.04	203.275	19.81	1
28	188.254 467 9	0.087 094 0	8 985.351 886 8	0.04	203.232	28.79	2
28	188.258 330 3	0.086 470 3	8 985.366 200 0	0.02	203.275	19.24	1
28	188.258 323 5	0.086 468 0	8 985.366 207 4	0.02	203.232	32.92	2
28	188.345 180 9	0.072 531 8	8 985.689 517 3	0.10	203.206	32.11	2
28	188.349 011 6	0.071 920 0	8 985.703 813 6	0.10	203.206	19.13	2
28	188.368 983 2	0.068 734 8	8 985.778 378 2	0.05	203.153	14.68	1
28	188.368 980 7	0.068 742 0	8 985.778 380 9	0.05	203.206	19.39	2
28	188.372 802 3	0.068 119 0	8 985.792 662 1	0.04	203.153	20.74	1
28	188.372 801 1	0.068 121 1	8 985.792 677 0	0.04	203.206	28.47	2
28	188.465 781 8	0.053 483 6	8 986.141 016 3	0.10	203.178	23.08	2
28	188.465 786 8	0.053 478 0	8 986.141 023 3	0.10	202.997	15.35	1
28	193.465 840 8	−0.177 797 8	9 009.539 710 4	0.12	162.193	13.27	1
28	193.465 809 4	−0.177 808 8	9 009.539 710 9	0.12	162.182	18.87	2
28	193.468 049 2	−0.177 449 2	9 009.554 031 4	0.12	162.193	15.07	1
28	193.468 019 2	−0.177 464 9	9 009.554 031 9	0.12	162.182	16.56	2
28	193.479 510 9	−0.175 592 6	9 009.628 549 7	0.10	162.193	16.05	1
28	193.479 480 6	−0.175 607 7	9 009.628 550 1	0.10	162.182	31.00	2
28	193.481 715 6	−0.175 238 9	9 009.642 895 1	0.09	162.193	16.46	1
28	193.481 683 4	−0.175 248 3	9 009.642 895 6	0.09	162.182	25.73	2
28	195.155 974 8	0.626 229 8	9 025.524 318 5	0.11	226.663	13.10	1
28	195.160 083 2	0.631 902 8	9 025.598 947 1	0.09	226.622	29.37	2
28	195.160 071 3	0.631 917 1	9 025.598 947 8	0.09	226.663	29.65	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
29	318.456 547 7	−21.005 022 5	7 986.090 823 3	0.00	127.769	12.21	2
29	318.456 523 3	−21.005 047 0	7 986.090 825 7	0.00	127.834	11.25	1
29	318.461 819 0	−21.003 595 4	7 986.105 120 5	0.01	127.768	10.04	2
29	318.461 794 9	−21.003 620 3	7 986.105 122 1	0.01	127.834	11.35	1
29	318.527 341 9	−20.985 862 6	7 986.282 898 1	−0.07	126.532	10.87	2
29	318.527 321 6	−20.985 889 3	7 986.282 904 0	−0.07	126.560	11.04	1
29	318.554 826 7	−20.978 422 2	7 986.357 515 1	−0.07	126.527	21.44	2
29	318.554 810 1	−20.978 451 3	7 986.357 521 2	−0.07	126.554	11.35	1
29	318.560 090 1	−20.976 995 9	7 986.371 811 4	−0.07	126.526	7.03	2
29	318.560 070 9	−20.977 023 1	7 986.371 817 4	−0.07	126.553	10.28	1
29	329.933 580 0	−17.651 125 2	8 021.553 937 0	−0.02	201.997	11.10	1
29	329.933 646 8	−17.651 146 0	8 021.553 944 3	−0.02	201.997	11.82	2
29	329.953 822 2	−17.644 863 1	8 021.628 505 2	0.02	201.996	10.95	1
29	329.953 888 6	−17.644 885 6	8 021.628 512 5	0.02	201.996	12.21	2
29	329.957 711 2	−17.643 652 7	8 021.642 826 2	0.02	201.995	12.61	1
29	329.957 776 5	−17.643 677 8	8 021.642 833 5	0.02	201.995	11.82	2
29	329.977 929 3	−17.637 400 7	8 021.717 394 4	0.04	201.994	10.24	1
29	336.361 832 5	−15.660 035 3	8 051.763 285 9	0.00	119.207	12.36	2
29	336.361 816 2	−15.660 062 3	8 051.763 290 0	0.00	119.210	7.65	1
29	336.372 648 7	−15.656 787 9	8 051.837 805 1	0.03	119.205	8.43	2
29	336.372 632 3	−15.656 814 7	8 051.837 808 7	0.03	119.208	7.60	1
29	336.374 735 9	−15.656 165 2	8 051.852 175 5	0.04	119.204	7.13	2
29	336.374 721 0	−15.656 192 9	8 051.852 179 3	0.04	119.208	7.70	1
29	338.139 854 9	−15.170 105 4	8 071.113 789 3	−0.06	191.517	8.44	2
29	338.139 742 4	−15.170 084 6	8 071.113 809 1	−0.06	191.518	7.10	1
29	338.140 341 7	−15.170 020 0	8 071.128 061 1	−0.05	191.517	27.31	2
29	338.140 228 7	−15.170 000 3	8 071.128 068 4	−0.05	191.518	12.21	1
29	338.142 865 9	−15.169 585 6	8 071.202 703 4	−0.03	191.517	8.57	2
29	338.142 753 9	−15.169 562 0	8 071.202 710 6	−0.03	191.518	6.65	1
29	325.333 896 0	−15.411 461 0	8 196.432 742 7	0.11	299.350	8.22	1
29	325.333 888 0	−15.411 469 5	8 196.432 745 2	0.11	299.362	14.85	2
29	325.335 976 7	−15.410 143 8	8 196.447 063 7	0.12	299.350	10.86	1
29	325.335 965 8	−15.410 150 8	8 196.447 066 3	0.12	299.362	16.69	2
29	325.346 845 9	−15.403 289 6	8 196.521 631 5	0.11	299.349	7.38	1
29	325.346 838 7	−15.403 298 2	8 196.521 633 9	0.11	299.361	4.75	2
29	325.348 938 9	−15.401 969 2	8 196.535 977 2	0.11	299.349	8.92	1
29	325.348 933 0	−15.401 978 4	8 196.535 979 6	0.11	299.360	11.44	2
29	325.359 837 3	−15.395 104 6	8 196.610 519 6	0.05	299.348	8.62	1
29	325.359 833 1	−15.395 114 5	8 196.610 522 3	0.05	299.359	14.94	2
29	325.361 939 3	−15.393 783 2	8 196.624 865 0	0.03	299.348	10.12	1
29	330.846 700 6	−12.491 821 2	8 222.733 463 2	0.11	22.341	8.03	1
29	330.846 812 3	−12.491 869 8	8 222.733 467 1	0.11	22.332	9.10	2
29	330.850 495 1	−12.489 972 0	8 222.747 784 0	0.10	22.341	7.68	1
29	330.850 607 9	−12.490 018 3	8 222.747 788 0	0.10	22.331	3.04	2
29	337.547 563 0	−9.297 853 2	8 245.126 491 7	0.06	300.210	12.81	2
29	337.547 566 3	−9.297 843 2	8 245.126 496 8	0.06	300.208	13.05	1
29	337.552 284 6	−9.295 621 6	8 245.140 837 4	0.07	300.209	20.74	2
29	337.576 823 0	−9.284 019 9	8 245.215 381 3	0.11	300.207	15.92	2
29	337.576 827 8	−9.284 011 1	8 245.215 386 3	0.11	300.206	11.23	1
29	337.581 529 9	−9.281 793 9	8 245.229 677 6	0.11	300.207	14.31	2
29	337.581 534 9	−9.281 785 1	8 245.229 682 6	0.11	300.205	11.49	1
29	83.695 876 4	28.178 965 0	8 484.986 829 6	0.09	212.307	10.02	1
29	83.695 944 9	28.178 927 7	8 484.986 833 9	0.09	212.289	8.34	2
29	83.777 537 2	28.187 251 6	8 485.164 606 9	−0.01	211.653	18.13	1
29	83.777 603 6	28.187 213 1	8 485.164 608 5	−0.01	211.631	21.45	2
29	83.811 775 2	28.190 717 2	8 485.239 175 3	0.04	211.659	13.85	1
29	83.811 843 2	28.190 681 1	8 485.239 176 8	0.04	211.636	8.71	2
29	83.818 346 1	28.191 376 8	8 485.253 496 3	0.04	211.660	14.30	1
29	83.818 414 5	28.191 341 4	8 485.253 498 0	0.05	211.637	16.41	2
29	103.475 672 5	29.509 004 9	8 534.538 707 1	0.05	185.239	13.73	1
29	103.475 754 6	29.508 994 8	8 534.538 708 6	0.05	185.215	7.00	2
29	103.480 155 8	29.509 253 3	8 534.553 028 1	0.06	185.239	9.13	1
29	103.480 238 6	29.509 250 9	8 534.553 029 6	0.06	185.215	10.99	2
29	103.503 478 9	29.510 574 6	8 534.627 571 4	0.08	185.239	11.13	1
29	103.503 565 3	29.510 573 9	8 534.627 585 2	0.08	185.216	9.72	2
29	103.507 965 2	29.510 837 3	8 534.641 917 0	0.08	185.239	9.78	1
29	103.508 046 9	29.510 829 5	8 534.641 918 4	0.08	185.216	14.16	2
29	103.531 265 5	29.512 169 0	8 534.716 484 8	0.08	185.239	11.83	1
29	103.531 347 1	29.512 164 0	8 534.716 485 9	0.08	185.216	16.80	2
29	103.535 725 6	29.512 422 3	8 534.730 768 7	0.08	185.239	10.73	1
29	103.535 807 0	29.512 416 2	8 534.730 769 8	0.08	185.216	12.94	2
29	103.614 452 7	29.516 917 0	8 534.983 151 7	0.05	185.414	15.09	2
29	103.614 368 6	29.516 922 3	8 534.983 154 5	0.05	185.432	11.93	1
29	103.618 792 6	29.517 186 5	8 534.997 376 8	0.06	185.432	25.65	1
29	103.618 902 8	29.517 177 2	8 534.997 460 4	0.06	185.414	17.49	2
29	103.642 068 4	29.518 510 9	8 535.072 003 6	0.08	185.414	10.69	2
29	103.646 523 2	29.518 765 4	8 535.086 349 2	0.08	185.414	10.89	2
29	103.646 440 4	29.518 772 9	8 535.086 352 1	0.08	185.432	8.38	1
29	103.669 657 1	29.520 100 4	8 535.160 892 1	0.08	185.414	12.84	2
29	103.669 574 5	29.520 105 7	8 535.160 895 1	0.08	185.432	8.43	1
29	103.674 098 6	29.520 358 9	8 535.175 213 1	0.08	185.414	7.84	2
29	103.674 016 3	29.520 366 3	8 535.175 216 1	0.08	185.432	7.79	1
29	103.752 122 6	29.524 892 0	8 535.427 595 8	0.05	185.614	9.48	1
29	103.756 534 1	29.525 147 5	8 535.441 879 8	0.06	185.614	6.29	1
29	103.779 548 6	29.526 485 7	8 535.516 447 8	0.08	185.614	6.49	1
29	103.783 965 5	29.526 742 6	8 535.530 768 7	0.08	185.614	6.94	1
29	103.806 948 4	29.528 087 1	8 535.605 336 5	0.08	185.614	6.89	1
29	103.811 359 3	29.528 346 3	8 535.619 657 4	0.08	185.614	6.49	1
29	110.703 365 8	30.377 339 0	8 567.813 383 8	0.06	148.827	10.67	1
29	110.704 888 2	30.377 928 0	8 567.827 696 8	0.06	148.864	18.21	2
29	110.704 835 3	30.377 899 1	8 567.827 704 8	0.06	148.827	12.15	1
29	110.712 502 1	30.380 862 7	8 567.902 264 8	0.09	148.864	9.09	2
29	110.712 449 8	30.380 833 2	8 567.902 273 0	0.09	148.827	9.68	1
29	110.713 966 4	30.381 416 8	8 567.916 585 8	0.09	148.864	12.72	2
29	110.713 911 8	30.381 390 6	8 567.916 594 0	0.09	148.827	9.49	1
29	110.721 532 3	30.384 349 8	8 567.991 153 6	0.09	148.864	11.69	2
29	110.722 972 3	30.384 920 6	8 568.005 449 7	0.08	148.864	9.15	2
29	110.722 920 6	30.384 890 6	8 568.005 458 1	0.08	148.827	7.81	1
29	111.326 778 6	30.955 641 6	8 580.611 723 9	0.02	202.912	8.90	1
29	111.326 674 7	30.956 361 3	8 580.626 045 0	0.03	202.913	6.44	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
29	111.326 224 5	30.960 100 5	8 580.700 587 6	0.07	202.978	8.98	2
29	111.326 118 1	30.960 138 4	8 580.700 588 7	0.07	202.914	8.22	1
29	111.326 113 1	30.960 829 2	8 580.714 908 7	0.08	202.978	4.46	2
29	111.326 007 4	30.960 868 6	8 580.714 909 8	0.08	202.914	6.44	1
29	111.325 494 7	30.964 609 5	8 580.789 501 1	0.09	202.979	5.89	2
29	111.325 388 5	30.964 648 3	8 580.789 502 4	0.09	202.915	4.82	1
29	95.560 940 3	31.496 075 2	8 663.287 293 1	0.11	1.680	5.36	1
29	95.561 055 1	31.496 071 3	8 663.287 294 0	0.11	1.633	4.32	2
29	95.560 227 4	31.495 182 9	8 663.301 614 1	0.11	1.680	5.46	1
29	95.560 342 1	31.495 179 5	8 663.301 614 9	0.11	1.633	7.80	2
29	95.556 545 0	31.490 532 6	8 663.376 181 5	0.08	1.680	5.36	1
29	95.556 659 4	31.490 528 3	8 663.376 182 1	0.08	1.633	5.14	2
29	95.555 844 7	31.489 641 6	8 663.390 477 7	0.07	1.680	5.07	1
29	95.555 959 1	31.489 636 6	8 663.390 478 3	0.07	1.633	4.79	2
29	95.547 967 4	31.479 440 9	8 663.553 966 7	0.06	3.980	5.61	1
29	95.543 787 2	31.473 891 7	8 663.642 831 4	0.11	3.979	5.26	1
29	95.543 898 3	31.473 887 4	8 663.642 831 7	0.11	4.032	9.38	2
29	95.543 118 9	31.472 994 1	8 663.657 177 1	0.11	3.979	4.77	1
29	95.543 230 0	31.472 989 0	8 663.657 177 4	0.11	4.032	5.72	2
29	95.539 675 1	31.468 332 4	8 663.731 757 3	0.11	3.979	5.66	1
29	95.539 785 9	31.468 325 0	8 663.731 757 5	0.11	4.032	7.74	2
29	95.539 020 1	31.467 436 1	8 663.746 065 9	0.11	3.979	4.53	1
29	95.539 131 1	31.467 431 6	8 663.746 066 1	0.11	4.032	7.17	2
29	95.535 639 9	31.462 782 5	8 663.820 571 7	0.08	3.979	16.04	1
29	95.535 746 5	31.462 766 8	8 663.820 658 3	0.08	4.032	5.83	2
29	95.534 992 7	31.461 877 8	8 663.834 954 2	0.07	3.979	4.63	1
29	95.535 103 6	31.461 872 4	8 663.834 954 5	0.07	4.032	4.17	2
29	95.429 721 5	31.054 322 6	8 670.220 283 9	0.08	33.330	6.86	1
29	95.430 840 9	31.048 527 9	8 670.309 145 8	0.11	33.363	7.27	2
29	95.430 778 9	31.048 566 9	8 670.309 148 4	0.11	33.328	7.35	1
29	95.431 017 9	31.047 598 6	8 670.323 491 5	0.11	33.363	5.12	2
29	95.430 954 5	31.047 635 7	8 670.323 494 0	0.11	33.328	6.07	1
29	95.431 966 8	31.042 770 1	8 670.398 034 7	0.11	33.361	10.39	2
29	95.431 903 8	31.042 807 0	8 670.398 037 1	0.11	33.326	7.84	1
29	95.432 151 9	31.041 837 8	8 670.412 367 9	0.10	33.361	6.48	2
29	95.432 088 9	31.041 874 8	8 670.412 370 5	0.11	33.326	6.95	1
29	95.433 091 0	31.037 040 5	8 670.486 900 7	0.07	33.324	9.77	1
29	95.433 355 1	31.036 077 1	8 670.501 243 8	0.06	33.360	5.43	2
29	95.433 292 1	31.036 113 4	8 670.501 246 3	0.06	33.323	7.20	1
29	100.606 066 7	28.690 126 4	8 705.934 767 9	0.08	321.619	14.59	1
29	100.606 153 6	28.690 193 8	8 705.934 770 0	0.08	321.619	16.42	2
29	100.609 716 6	28.689 151 4	8 705.949 064 1	0.07	321.620	7.64	1
29	100.609 809 0	28.689 212 7	8 705.949 066 2	0.07	321.620	11.12	2
29	109.892 502 9	26.488 083 2	8 735.521 289 8	0.12	46.790	16.43	2
29	109.892 494 3	26.488 089 8	8 735.521 290 0	0.12	46.787	14.30	1
29	109.897 669 2	26.486 889 7	8 735.535 635 5	0.12	46.791	28.24	2
29	109.897 664 3	26.486 899 3	8 735.535 635 7	0.12	46.788	19.54	1
29	117.638 907 4	24.623 634 4	8 755.871 892 0	0.12	334.459	13.14	1
29	117.638 994 6	24.623 672 7	8 755.871 895 2	0.12	334.460	15.45	2
29	117.644 580 1	24.622 201 7	8 755.886 175 9	0.12	334.460	8.94	1
29	117.644 666 7	24.622 241 0	8 755.886 179 2	0.12	334.460	8.39	2
29	117.674 210 8	24.614 694 8	8 755.960 743 7	0.12	334.463	12.18	1
29	117.674 299 6	24.614 730 0	8 755.960 747 2	0.12	334.464	17.61	2
29	117.679 901 8	24.613 253 7	8 755.975 064 7	0.12	334.464	8.79	1
29	117.679 987 2	24.613 294 8	8 755.975 068 1	0.12	334.465	8.52	2
29	212.915 558 1	−15.302 733 3	9 006.603 117 3	0.09	156.753	17.23	1
29	212.915 666 5	−15.302 692 2	9 006.603 123 2	0.09	156.693	28.12	2
29	212.918 913 8	−15.304 382 5	9 006.617 438 2	0.08	156.753	16.02	1
29	212.919 020 6	−15.304 337 7	9 006.617 444 0	0.08	156.693	17.57	2
29	212.936 476 0	−15.312 908 2	9 006.692 011 0	0.00	156.691	13.43	2
30	9.631 598 3	7.647 639 2	7 860.230 527 6	−0.09	312.007	7.07	1
30	9.631 649 9	7.647 698 4	7 860.230 537 7	−0.09	312.029	12.22	2
30	9.632 856 4	7.647 835 4	7 860.244 848 5	−0.09	312.007	7.72	1
30	9.632 907 8	7.647 895 1	7 860.244 858 6	−0.09	312.029	6.60	2
30	11.975 286 4	8.257 063 9	7 876.227 553 8	−0.10	17.051	18.63	2
30	11.975 186 8	8.257 098 0	7 876.227 558 6	−0.10	17.047	13.69	1
30	11.978 167 5	8.257 943 7	7 876.241 899 4	−0.10	17.051	20.60	2
30	11.978 066 5	8.257 972 8	7 876.241 904 3	−0.10	17.047	13.85	1
30	11.993 047 9	8.262 517 7	7 876.316 447 1	−0.13	17.047	15.97	1
30	11.996 030 4	8.263 356 9	7 876.330 775 7	−0.13	17.051	21.10	2
30	11.995 932 2	8.263 392 5	7 876.330 780 4	−0.13	17.047	14.45	1
30	20.511 360 7	11.096 344 8	7 906.523 558 5	−0.13	295.045	12.44	1
30	20.511 377 4	11.096 375 7	7 906.523 560 3	−0.13	295.059	12.10	2
30	20.516 392 6	11.098 051 8	7 906.537 904 1	−0.13	295.045	15.74	1
30	20.516 409 0	11.098 082 9	7 906.537 905 9	−0.13	295.059	21.65	2
30	32.888 744 4	15.163 628 8	7 937.441 420 7	−0.04	18.089	10.16	2
30	32.888 678 9	15.163 649 8	7 937.441 421 7	−0.04	18.136	17.01	1
30	32.895 091 3	15.165 592 4	7 937.455 741 6	−0.05	18.090	18.11	2
30	32.895 026 8	15.165 616 6	7 937.455 742 6	−0.05	18.136	14.62	1
30	32.928 158 4	15.175 836 7	7 937.530 321 2	−0.10	18.091	11.62	2
30	32.934 504 3	15.177 803 1	7 937.544 629 7	−0.11	18.092	27.37	2
30	32.934 440 9	15.177 831 1	7 937.544 630 6	−0.11	18.138	13.69	1
30	41.214 142 1	17.596 779 5	7 955.407 507 4	−0.13	309.691	21.23	2
30	41.214 112 7	17.596 737 8	7 955.407 511 6	−0.13	309.706	17.94	1
30	176.623 544 7	0.358 291 8	8 248.826 486 3	−0.10	246.220	18.75	2
30	176.623 522 2	0.358 323 4	8 248.826 492 3	−0.10	246.231	18.82	1
30	176.636 974 6	0.351 319 7	8 248.901 041 8	−0.11	246.220	15.48	2
30	176.636 958 2	0.351 354 0	8 248.901 047 7	−0.11	246.231	7.05	1
30	179.359 680 2	−1.524 383 4	8 285.061 209 0	−0.04	183.120	12.09	1
30	179.359 841 3	−1.524 391 4	8 285.061 217 8	−0.04	183.155	13.80	2
30	179.359 078 0	−1.524 434 9	8 285.075 542 3	−0.05	183.120	14.26	1
30	179.359 239 2	−1.524 438 2	8 285.075 551 1	−0.05	183.155	22.28	2
30	179.355 924 1	−1.524 652 3	8 285.150 097 4	−0.09	183.120	10.75	1
30	179.356 085 1	−1.524 658 8	8 285.150 106 2	−0.09	183.155	11.11	2
30	179.355 313 7	−1.524 697 3	8 285.164 418 1	−0.10	183.120	15.50	1
30	179.355 474 9	−1.524 698 0	8 285.164 427 0	−0.10	183.155	24.13	2
30	179.340 510 2	−1.525 516 0	8 285.505 658 1	−0.04	185.343	16.45	2
30	179.340 350 8	−1.525 493 8	8 285.505 661 3	−0.04	185.290	12.66	1
30	179.339 864 8	−1.525 539 8	8 285.519 979 0	−0.05	185.343	23.99	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
30	179.339 704 5	−1.525 526 7	8 285.519 982 2	−0.05	185.290	17.00	1
30	179.336 481 9	−1.525 646 6	8 285.594 546 3	−0.10	185.343	16.26	2
30	179.336 321 4	−1.525 635 1	8 285.594 549 6	−0.09	185.290	12.81	1
30	179.335 826 7	−1.525 677 3	8 285.608 867 3	−0.10	185.343	20.69	2
30	179.335 665 6	−1.525 671 6	8 285.608 870 4	−0.10	185.290	20.09	1
30	179.332 394 9	−1.525 795 2	8 285.683 434 9	−0.12	185.343	19.01	2
30	179.332 234 8	−1.525 779 0	8 285.683 438 1	−0.12	185.290	16.06	1
30	179.331 732 3	−1.525 807 0	8 285.697 755 9	−0.12	185.343	16.59	2
30	179.331 572 1	−1.525 791 9	8 285.697 759 1	−0.12	185.290	18.34	1
30	179.136 490 5	−1.513 266 0	8 289.061 191 1	−0.04	201.213	26.42	2
30	179.136 350 9	−1.513 213 5	8 289.061 191 4	−0.04	201.197	19.98	1
30	179.135 487 4	−1.513 150 2	8 289.075 512 1	−0.05	201.213	26.50	2
30	179.135 350 1	−1.513 091 4	8 289.075 512 3	−0.05	201.197	16.12	1
30	179.130 260 9	−1.512 486 8	8 289.150 079 5	−0.10	201.213	27.84	2
30	179.130 119 9	−1.512 436 1	8 289.150 079 6	−0.10	201.197	14.78	1
30	179.129 114 7	−1.512 298 7	8 289.164 400 4	−0.11	201.197	20.34	1
30	179.129 254 9	−1.512 351 7	8 289.164 400 4	−0.11	201.213	17.62	2
30	179.104 813 0	−1.509 077 1	8 289.505 634 6	−0.04	203.467	7.59	2
30	179.104 675 2	−1.509 019 2	8 289.505 635 6	−0.04	203.351	12.10	1
30	179.103 767 7	−1.508 936 6	8 289.519 955 4	−0.06	203.467	14.96	2
30	179.103 630 3	−1.508 877 6	8 289.519 956 4	−0.06	203.351	11.99	1
30	179.098 313 7	−1.508 167 7	8 289.594 522 8	−0.10	203.467	6.97	2
30	179.098 173 9	−1.508 112 8	8 289.594 523 8	−0.10	203.351	11.89	1
30	179.097 259 6	−1.508 023 3	8 289.608 843 7	−0.11	203.467	13.69	2
30	179.097 122 2	−1.507 962 6	8 289.608 844 6	−0.11	203.351	13.64	1
30	179.091 761 5	−1.507 230 3	8 289.683 411 5	−0.12	203.467	9.87	2
30	179.091 620 7	−1.507 176 2	8 289.683 412 4	−0.12	203.351	11.07	1
30	179.090 560 3	−1.507 024 0	8 289.697 721 0	−0.12	203.351	14.31	1
30	179.090 700 5	−1.507 077 7	8 289.697 732 4	−0.12	203.467	14.78	2
30	179.071 632 8	−1.504 232 4	8 289.950 027 0	−0.05	205.366	16.52	1
30	179.071 767 1	−1.504 299 0	8 289.950 028 4	−0.05	205.401	13.37	2
30	179.070 547 0	−1.504 055 8	8 289.964 397 2	−0.06	205.366	21.72	1
30	179.070 683 3	−1.504 118 5	8 289.964 398 7	−0.06	205.401	11.52	2
30	165.017 100 8	3.807 551 5	8 372.265 016 0	−0.11	1.754	16.65	1
30	165.017 254 6	3.807 548 9	8 372.265 021 4	−0.11	1.768	16.61	2
30	165.016 620 8	3.807 846 2	8 372.279 312 4	−0.10	1.754	15.51	1
30	165.016 774 4	3.807 840 3	8 372.279 317 7	−0.10	1.768	19.70	2
30	165.014 291 3	3.809 400 6	8 372.353 935 8	−0.03	1.768	24.31	2
30	165.014 137 8	3.809 409 1	8 372.353 942 8	−0.03	1.754	21.11	1
30	165.013 819 5	3.809 693 0	8 372.368 232 3	−0.02	1.768	18.62	2
30	165.129 842 2	3.864 451 9	8 385.508 016 0	−0.13	56.095	21.52	1
30	165.129 890 1	3.864 378 5	8 385.508 020 7	−0.13	56.271	25.43	2
30	165.134 319 2	3.863 317 2	8 385.596 922 4	−0.09	56.271	36.35	2
30	165.134 269 9	3.863 389 0	8 385.596 942 3	−0.09	56.095	16.13	1
30	165.134 998 8	3.863 117 8	8 385.611 268 1	−0.08	56.271	27.89	2
30	165.134 962 3	3.863 198 7	8 385.611 275 7	−0.08	56.095	19.39	1
30	283.638 288 7	−24.814 954 6	8 736.097 779 3	−0.07	136.456	16.08	1
30	283.638 351 0	−24.814 900 4	8 736.097 787 6	−0.07	136.400	14.03	2
30	283.640 140 6	−24.814 818 5	8 736.112 133 4	−0.06	136.399	20.90	2
30	283.640 074 7	−24.814 867 8	8 736.112 137 4	−0.06	136.455	23.70	1
30	284.759 888 0	−24.784 313 2	8 752.287 390 9	−0.10	200.478	12.84	2
30	284.759 783 1	−24.784 277 3	8 752.287 391 7	−0.10	200.493	13.31	1
30	284.760 572 4	−24.784 469 4	8 752.361 909 9	−0.12	200.493	20.46	1
30	284.760 679 3	−24.784 501 1	8 752.361 934 0	−0.12	200.478	18.85	2
30	284.760 832 5	−24.784 522 3	8 752.376 230 3	−0.12	200.478	31.45	2
30	284.760 727 7	−24.784 486 5	8 752.376 230 9	−0.12	200.493	15.43	1
31	66.378 783 0	55.682 214 8	7 919.679 217 0	0.02	338.712	13.15	1
31	66.379 662 0	55.680 871 8	7 919.693 513 2	0.01	338.713	8.82	1
31	66.379 736 1	55.680 888 9	7 919.693 520 2	0.01	338.767	8.55	2
31	66.384 286 7	55.673 868 6	7 919.768 105 5	−0.01	338.718	12.09	1
31	66.384 360 2	55.673 887 1	7 919.768 112 5	−0.01	338.771	16.34	2
31	68.945 313 3	54.135 861 0	7 935.867 491 7	−0.05	41.775	11.66	1
31	68.945 297 6	54.135 866 9	7 935.867 496 7	−0.05	41.765	6.08	2
31	68.967 288 6	54.127 408 8	7 935.956 380 4	−0.05	41.779	10.54	1
31	68.967 272 6	54.127 414 5	7 935.956 385 3	−0.05	41.767	18.59	2
31	80.402 109 2	51.282 247 6	7 966.769 536 0	0.01	311.696	14.25	1
31	80.402 149 2	51.282 270 7	7 966.769 541 2	0.01	311.702	10.50	2
31	80.408 805 3	51.280 919 9	7 966.783 832 2	0.00	311.700	17.14	1
31	80.408 839 9	51.280 945 9	7 966.783 837 4	0.00	311.706	15.46	2
31	80.443 698 7	51.274 020 1	7 966.858 399 6	−0.03	311.720	12.91	1
31	80.443 730 8	51.274 047 6	7 966.858 405 0	−0.03	311.725	12.65	2
31	80.450 387 9	51.272 701 2	7 966.872 708 2	−0.03	311.724	16.37	1
31	80.450 428 1	51.272 724 2	7 966.872 713 6	−0.03	311.729	9.93	2
31	96.127 982 1	48.214 724 4	7 996.977 327 4	0.00	32.899	17.16	1
31	96.135 932 2	48.213 085 6	7 996.991 623 7	0.00	32.900	15.87	1
31	96.135 952 0	48.213 076 6	7 996.991 628 4	0.00	32.662	11.77	2
31	96.177 410 1	48.204 541 2	7 997.066 191 3	−0.03	32.904	13.17	1
31	96.177 430 7	48.204 532 9	7 997.066 196 1	−0.03	32.666	12.97	2
31	96.185 373 8	48.202 896 4	7 997.080 512 1	−0.04	32.904	11.67	1
31	96.185 391 5	48.202 885 0	7 997.080 516 9	−0.04	32.667	8.80	2
31	96.226 862 2	48.194 346 2	7 997.155 079 8	−0.06	32.909	13.95	1
31	96.226 881 6	48.194 336 7	7 997.155 084 5	−0.06	32.672	13.72	2
31	96.234 825 3	48.192 697 6	7 997.169 400 8	−0.06	32.910	12.60	1
31	96.234 844 1	48.192 687 4	7 997.169 405 5	−0.06	32.673	12.30	2
31	107.677 857 8	45.625 072 4	8 017.430 877 3	−0.01	320.721	17.53	1
31	211.278 461 9	−0.567 662 7	8 298.211 031 5	−0.08	233.306	15.39	2
31	211.278 466 3	−0.567 673 1	8 298.211 032 4	−0.08	233.302	16.75	1
37	153.380 781 4	14.933 363 1	7 883.552 517 3	0.06	167.260	9.63	1
37	153.380 837 4	14.933 377 5	7 883.552 518 4	0.06	167.256	15.93	2
37	153.388 536 6	14.932 732 5	7 883.730 257 2	0.10	168.349	14.22	2
37	153.388 478 5	14.932 721 3	7 883.730 261 2	0.10	168.381	11.25	1
37	153.389 147 0	14.932 688 5	7 883.744 615 3	0.11	168.349	14.97	2
37	153.389 088 8	14.932 677 5	7 883.744 619 3	0.11	168.381	12.76	1
37	153.392 296 3	14.932 446 0	7 883.819 183 4	0.13	168.349	12.20	2
37	153.392 239 1	14.932 429 7	7 883.819 187 4	0.13	168.381	10.49	1
37	153.437 782 9	15.020 760 6	7 893.329 540 7	0.05	209.814	10.93	2
37	153.437 690 3	15.020 815 1	7 893.329 547 1	0.05	209.870	12.56	1
37	153.431 746 0	15.024 690 5	7 893.507 323 3	0.11	211.479	10.05	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
37	153.431 257 1	15.025 007 3	7 893.521 644 4	0.12	211.479	10.15	1
37	153.431 350 3	15.024 951 9	7 893.521 644 7	0.12	211.427	13.90	2
37	153.428 680 4	15.026 656 6	7 893.596 212 3	0.13	211.478	9.70	1
37	153.428 775 7	15.026 603 9	7 893.596 212 7	0.13	211.427	11.03	2
37	153.428 181 3	15.026 976 2	7 893.610 533 3	0.13	211.478	9.44	1
37	153.428 274 8	15.026 920 4	7 893.610 533 7	0.13	211.427	15.50	2
37	139.745 859 8	18.284 497 1	7 975.646 751 3	0.08	9.311	13.93	2
37	139.745 767 1	18.284 512 3	7 975.646 754 6	0.08	9.356	10.06	1
37	139.745 359 1	18.284 192 5	7 975.661 022 9	0.08	9.311	13.30	2
37	139.745 266 6	18.284 209 2	7 975.661 026 2	0.08	9.356	11.43	1
37	139.742 767 6	18.282 601 3	7 975.735 615 3	0.07	9.311	9.63	2
37	139.742 673 7	18.282 609 9	7 975.735 618 5	0.07	9.356	9.71	1
37	139.742 275 0	18.282 292 2	7 975.749 911 5	0.07	9.311	7.35	2
37	139.742 182 4	18.282 307 8	7 975.749 914 8	0.07	9.356	10.42	1
37	139.739 732 1	18.280 690 0	7 975.824 503 5	0.04	9.311	12.16	2
37	139.739 639 4	18.280 705 1	7 975.824 506 9	0.04	9.355	11.28	1
37	139.739 249 0	18.280 379 6	7 975.838 799 6	0.03	9.311	10.27	2
37	139.739 156 6	18.280 396 1	7 975.838 802 9	0.03	9.355	8.39	1
37	139.736 754 7	18.278 766 0	7 975.913 391 4	−0.01	9.311	13.05	2
37	139.736 661 4	18.278 777 4	7 975.913 394 9	−0.01	9.355	11.33	1
37	139.736 186 0	18.278 456 1	7 975.927 691 1	−0.02	9.355	10.72	1
37	139.722 420 1	18.008 357 3	7 984.727 096 5	0.02	47.572	9.99	1
37	139.722 481 7	18.008 288 2	7 984.727 099 6	0.02	47.883	10.56	2
37	139.724 632 2	18.005 436 4	7 984.801 663 9	−0.02	47.572	10.24	1
37	139.724 698 2	18.005 371 1	7 984.801 666 8	−0.02	47.883	18.24	2
37	139.725 053 3	18.004 865 6	7 984.816 009 4	−0.03	47.572	9.84	1
37	139.725 117 6	18.004 798 9	7 984.816 012 3	−0.03	47.883	12.40	2
37	139.732 875 7	17.994 806 4	7 985.068 336 7	0.06	49.048	10.11	2
37	139.732 809 1	17.994 871 9	7 985.068 338 3	0.06	49.055	10.14	1
37	139.733 324 4	17.994 230 3	7 985.082 682 3	0.06	49.048	17.71	2
37	139.733 260 0	17.994 297 5	7 985.082 683 9	0.06	49.055	9.33	1
37	139.735 708 8	17.991 255 2	7 985.157 224 9	0.02	49.048	15.30	2
37	139.735 648 9	17.991 326 3	7 985.157 226 4	0.02	49.055	10.25	1
37	139.736 168 2	17.990 678 4	7 985.171 570 5	0.02	49.048	5.97	2
37	139.736 108 0	17.990 749 3	7 985.171 572 1	0.02	49.055	9.23	1
37	144.406 250 7	15.603 212 1	8 020.265 102 0	−0.01	335.907	21.82	2
37	144.406 220 7	15.603 199 1	8 020.265 104 8	−0.01	335.845	19.34	1
37	144.422 345 8	15.596 286 7	8 020.339 669 2	−0.04	335.908	36.31	2
37	144.422 315 8	15.596 274 4	8 020.339 672 2	−0.04	335.846	18.88	1
37	144.425 427 4	15.594 981 7	8 020.353 990 1	−0.05	335.909	9.38	2
37	144.425 403 2	15.594 965 6	8 020.354 017 8	−0.05	335.847	19.50	1
37	239.707 118 4	−23.209 571 7	8 349.850 828 0	0.02	208.953	33.86	1
37	239.701 842 4	−23.210 232 2	8 349.925 368 5	−0.01	208.964	23.62	2
37	239.701 814 0	−23.210 212 9	8 349.925 370 8	−0.01	208.953	20.43	1
37	239.700 797 4	−23.210 330 2	8 349.939 642 3	−0.02	208.953	31.27	1
37	239.700 821 4	−23.210 351 4	8 349.939 689 4	−0.02	208.964	20.14	2
37	239.695 480 9	−23.210 973 7	8 350.014 256 9	−0.05	208.965	22.55	2
37	239.695 454 0	−23.210 950 8	8 350.014 259 1	−0.05	208.954	17.89	1
37	239.694 458 0	−23.211 081 2	8 350.028 577 8	−0.06	208.965	15.48	2
37	239.694 425 0	−23.211 068 3	8 350.028 580 0	−0.06	208.954	21.52	1
37	239.689 048 4	−23.211 674 9	8 350.103 123 1	−0.07	208.954	30.44	1
37	239.689 077 0	−23.211 693 3	8 350.103 145 4	−0.07	208.965	34.31	2
37	224.796 950 8	−20.472 407 2	8 434.387 700 7	−0.12	9.537	17.74	1
37	224.772 315 3	−20.462 811 6	8 434.728 901 0	−0.11	11.194	22.56	1
37	224.771 298 2	−20.462 394 0	8 434.743 246 5	−0.12	11.194	21.47	1
37	224.766 009 9	−20.460 323 0	8 434.817 814 3	−0.12	11.194	15.09	1
37	224.764 999 4	−20.459 924 0	8 434.832 122 9	−0.12	11.194	19.91	1
37	314.517 988 6	−19.042 534 6	8 935.624 444 3	−0.01	301.375	29.44	2
37	314.518 008 3	−19.042 509 5	8 935.624 450 1	−0.01	301.404	18.72	1
37	314.521 546 9	−19.041 255 6	8 935.638 740 6	0.00	301.375	34.02	2
37	314.521 564 0	−19.041 228 9	8 935.638 746 4	0.00	301.404	15.82	1
37	314.543 693 8	−19.033 299 5	8 935.727 629 8	0.04	301.370	19.73	2
39	188.820 234 2	−1.134 041 5	7 858.510 682 6	0.12	233.836	12.71	1
39	188.820 226 4	−1.134 030 2	7 858.510 686 5	0.12	233.665	8.16	2
39	193.356 891 2	−2.368 688 7	7 875.381 809 3	0.12	165.100	8.28	2
39	193.356 926 5	−2.368 679 0	7 875.381 812 5	0.12	165.172	12.55	1
39	193.379 203 3	−2.374 160 8	7 875.470 698 4	0.13	165.100	8.17	2
39	193.379 238 4	−2.374 151 2	7 875.470 701 4	0.13	165.172	10.68	1
39	193.382 795 9	−2.375 039 9	7 875.485 019 3	0.13	165.100	26.05	2
39	193.382 831 9	−2.375 033 7	7 875.485 022 4	0.13	165.172	15.51	1
39	193.401 499 3	−2.379 607 9	7 875.559 611 6	0.10	165.100	12.14	2
39	193.401 534 2	−2.379 598 6	7 875.559 614 6	0.10	165.172	12.76	1
39	193.405 082 6	−2.380 482 7	7 875.573 907 6	0.08	165.100	12.53	2
39	193.405 117 1	−2.380 472 3	7 875.573 910 6	0.08	165.172	15.66	1
39	199.536 092 6	−3.433 116 4	7 904.878 544 8	0.09	244.618	12.29	1
39	199.536 089 0	−3.433 101 7	7 904.878 551 0	0.09	244.610	11.68	2
39	199.538 384 1	−3.433 221 5	7 904.892 816 3	0.08	244.618	15.19	1
39	202.366 350 8	−2.270 400 8	7 939.896 481 8	0.13	171.403	16.83	1
39	202.365 672 2	−2.264 784 0	7 939.971 066 3	0.08	171.430	14.97	2
39	202.365 547 6	−2.263 703 7	7 939.985 362 3	0.06	171.430	13.84	2
39	202.365 595 4	−2.263 698 7	7 939.985 369 7	0.06	171.403	10.81	1
39	202.363 908 5	−2.250 250 6	7 940.163 112 9	0.10	173.347	17.14	2
39	202.363 955 9	−2.250 242 6	7 940.163 113 1	0.10	173.298	14.18	1
39	202.363 215 0	−2.244 566 6	7 940.237 705 9	0.14	173.298	12.80	1
39	202.363 167 1	−2.244 571 5	7 940.237 706 0	0.14	173.347	14.84	2
39	202.363 070 2	−2.243 483 7	7 940.252 026 9	0.14	173.298	12.14	1
39	202.363 022 3	−2.243 488 7	7 940.252 027 0	0.14	173.347	8.84	2
39	202.362 293 6	−2.237 798 9	7 940.326 619 2	0.13	173.298	11.47	1
39	202.362 245 7	−2.237 803 7	7 940.326 619 3	0.13	173.347	12.27	2
39	202.362 093 0	−2.236 709 6	7 940.340 915 5	0.13	173.347	11.24	2
39	202.362 140 8	−2.236 703 5	7 940.340 915 5	0.13	173.298	14.07	1
39	202.361 279 5	−2.231 004 7	7 940.415 482 7	0.08	173.347	15.21	2
39	202.361 327 1	−2.230 996 9	7 940.415 482 7	0.08	173.298	11.83	1
39	202.361 167 7	−2.229 902 1	7 940.429 803 4	0.06	173.298	14.58	1
39	202.233 751 8	−1.812 223 6	7 945.496 269 9	0.11	197.121	12.60	2
39	202.233 791 3	−1.812 232 9	7 945.496 272 2	0.11	196.918	13.51	1
39	202.230 822 3	−1.805 639 8	7 945.570 813 4	0.14	197.121	9.95	2
39	202.230 861 9	−1.805 648 8	7 945.570 815 6	0.14	196.918	12.14	1
39	202.230 255 6	−1.804 374 8	7 945.585 134 3	0.14	197.121	19.75	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
39	202.230 295 1	−1.804 384 4	7 945.585 136 5	0.14	196.918	13.87	1
39	202.227 288 2	−1.797 775 3	7 945.659 702 0	0.13	197.121	11.69	2
39	202.227 326 7	−1.797 788 7	7 945.659 704 2	0.13	196.918	12.34	1
39	202.226 714 2	−1.796 508 6	7 945.674 022 8	0.12	197.121	13.48	2
39	202.226 753 6	−1.796 518 9	7 945.674 025 1	0.12	196.918	10.51	1
39	190.443 201 3	6.011 398 8	8 031.624 063 2	0.11	8.051	8.30	2
39	190.443 245 1	6.011 394 7	8 031.624 066 1	0.11	8.046	12.67	1
39	190.442 488 0	6.011 465 4	8 031.638 384 3	0.12	8.051	9.05	2
39	190.442 531 7	6.011 460 2	8 031.638 387 1	0.12	8.046	11.04	1
39	190.438 792 2	6.011 810 9	8 031.712 952 1	0.12	8.051	13.37	2
39	190.438 835 6	6.011 802 8	8 031.712 955 0	0.12	8.046	14.51	1
39	190.438 084 8	6.011 869 9	8 031.727 272 9	0.11	8.051	9.03	2
39	190.438 129 0	6.011 866 5	8 031.727 275 9	0.11	8.046	10.18	1
39	190.434 422 1	6.012 192 3	8 031.801 840 2	0.08	8.051	14.54	2
39	190.434 466 4	6.012 189 7	8 031.801 843 3	0.08	8.046	13.64	1
39	190.433 722 2	6.012 254 4	8 031.816 161 1	0.07	8.051	10.76	2
39	190.433 766 2	6.012 249 7	8 031.816 164 2	0.07	8.046	8.65	1
39	190.256 128 5	5.800 539 7	8 046.022 054 8	0.06	64.083	8.91	2
39	190.256 133 0	5.800 526 2	8 046.022 059 6	0.06	64.050	15.68	1
39	190.256 467 1	5.800 069 2	8 046.036 388 0	0.05	64.083	15.93	2
39	190.256 472 3	5.800 056 0	8 046.036 392 9	0.05	64.050	14.39	1
39	190.258 238 6	5.797 610 3	8 046.110 967 4	0.00	64.083	13.11	2
39	190.258 243 6	5.797 597 0	8 046.110 972 5	0.00	64.051	15.78	1
39	190.262 553 0	5.791 687 2	8 046.288 719 9	0.11	65.090	8.32	2
39	190.262 559 1	5.791 675 0	8 046.288 721 7	0.11	65.055	11.41	1
39	193.461 994 6	3.643 564 3	8 078.975 186 0	−0.02	339.686	18.82	1
39	193.461 959 7	3.643 547 6	8 078.975 200 7	−0.02	339.690	17.49	2
39	193.464 329 1	3.642 248 5	8 078.989 494 6	−0.03	339.686	21.05	1
39	193.476 499 7	3.635 395 6	8 079.064 030 6	0.07	339.590	14.73	1
39	193.478 848 9	3.634 063 2	8 079.078 376 3	0.08	339.590	12.08	1
39	193.478 809 9	3.634 051 5	8 079.078 380 4	0.08	339.599	11.70	2
39	193.491 054 0	3.627 180 2	8 079.152 944 5	0.10	339.591	16.02	1
39	193.491 015 2	3.627 167 5	8 079.152 948 2	0.10	339.599	21.31	2
39	193.493 356 1	3.625 859 1	8 079.167 269 2	0.10	339.599	18.01	2
39	193.493 412 0	3.625 851 3	8 079.167 339 5	0.10	339.591	25.10	1
39	200.874 127 1	−0.104 010 5	8 113.447 842 0	0.06	52.624	21.62	1
39	200.874 109 3	−0.104 003 0	8 113.447 848 3	0.06	52.605	27.94	2
39	200.877 815 3	−0.105 742 2	8 113.462 169 2	0.06	52.605	19.69	2
39	200.877 836 6	−0.105 755 0	8 113.462 187 7	0.06	52.624	17.11	1
39	205.012 322 6	−1.960 451 9	8 128.469 065 2	0.09	351.677	15.51	1
39	205.012 285 4	−1.960 461 3	8 128.469 065 4	0.09	351.708	27.16	2
39	205.016 461 4	−1.962 244 0	8 128.483 312 0	0.08	351.677	24.11	1
39	205.016 439 8	−1.962 244 6	8 128.483 373 9	0.08	351.708	18.96	2
39	205.038 121 6	−1.971 474 4	8 128.557 928 9	0.05	351.677	41.02	1
39	205.042 271 2	−1.973 426 8	8 128.572 262 1	0.04	351.708	20.68	2
39	205.042 308 1	−1.973 415 9	8 128.572 262 1	0.04	351.677	18.72	1
39	272.062 151 2	−14.229 214 2	8 309.490 340 5	0.09	217.500	18.10	1
39	272.092 458 6	−14.226 099 2	8 309.579 229 2	0.08	217.497	13.95	1
39	272.092 439 4	−14.226 084 0	8 309.579 229 8	0.08	217.537	13.70	2
39	272.097 339 9	−14.225 596 6	8 309.593 550 1	0.07	217.497	19.76	1
39	272.097 322 5	−14.225 579 2	8 309.593 550 7	0.07	217.537	21.35	2
39	272.122 761 3	−14.222 970 8	8 309.668 142 4	0.04	217.494	13.95	1
39	272.122 741 4	−14.222 956 5	8 309.668 143 0	0.04	217.534	18.70	2
39	272.127 624 9	−14.222 466 4	8 309.682 413 8	0.03	217.494	15.04	1
39	272.127 606 0	−14.222 450 7	8 309.682 414 4	0.03	217.534	17.52	2
39	278.421 699 7	−13.326 658 7	8 329.485 266 9	0.09	138.346	19.76	1
39	278.425 890 5	−13.325 890 2	8 329.499 587 9	0.09	138.346	14.62	1
39	278.447 653 5	−13.321 866 3	8 329.574 200 4	0.07	138.430	13.76	2
39	278.447 677 1	−13.321 841 4	8 329.574 204 9	0.07	138.344	16.70	1
39	278.451 859 4	−13.321 066 8	8 329.588 525 8	0.06	138.344	14.83	1
39	285.445 107 5	−11.521 791 6	8 358.361 257 5	0.08	215.222	7.80	2
39	285.445 134 7	−11.521 809 8	8 358.361 258 9	0.08	215.224	7.77	1
39	285.447 781 1	−11.520 830 2	8 358.375 553 7	0.07	215.222	18.04	2
39	285.447 806 9	−11.520 850 3	8 358.375 555 1	0.07	215.224	11.71	1
39	288.862 183 9	−9.270 334 2	8 395.689 255 7	0.04	138.814	7.23	1
39	288.862 151 1	−9.270 362 0	8 395.689 258 6	0.04	138.837	6.76	2
39	288.861 019 8	−9.267 050 3	8 395.763 823 0	0.00	138.814	6.52	1
39	288.860 986 9	−9.267 078 4	8 395.763 825 8	0.00	138.838	6.11	2
39	288.860 795 0	−9.266 423 4	8 395.778 143 9	0.00	138.814	10.24	1
39	288.860 759 3	−9.266 448 5	8 395.778 146 8	0.00	138.838	12.10	2
39	288.859 587 5	−9.263 145 5	8 395.852 711 2	−0.04	138.814	6.47	1
39	288.859 553 9	−9.263 173 5	8 395.852 714 0	−0.04	138.838	7.57	2
39	288.859 351 8	−9.262 517 0	8 395.867 032 2	−0.04	138.815	12.40	1
39	288.859 320 3	−9.262 547 5	8 395.867 035 1	−0.04	138.838	14.15	2
39	288.856 539 9	−9.255 394 8	8 396.030 490 5	0.07	140.735	9.90	2
39	288.856 574 4	−9.255 364 6	8 396.030 534 5	0.07	140.707	8.28	1
39	288.856 292 9	−9.254 775 6	8 396.044 786 8	0.07	140.735	7.96	2
39	288.856 328 0	−9.254 746 9	8 396.044 793 7	0.07	140.707	7.33	1
39	288.854 964 4	−9.251 526 5	8 396.119 379 2	0.04	140.736	6.75	2
39	288.854 998 9	−9.251 496 9	8 396.119 385 9	0.04	140.708	6.32	1
39	288.854 706 9	−9.250 905 4	8 396.133 700 2	0.04	140.736	6.00	2
39	288.854 742 7	−9.250 877 3	8 396.133 706 9	0.04	140.708	7.58	1
39	288.853 339 3	−9.247 668 1	8 396.208 267 5	0.00	140.736	15.89	2
39	288.853 374 2	−9.247 638 7	8 396.208 274 2	0.00	140.708	8.08	1
39	288.853 070 0	−9.247 043 9	8 396.222 588 5	0.00	140.736	9.78	2
39	288.853 105 0	−9.247 014 7	8 396.222 595 1	0.00	140.708	10.29	1
39	288.851 386 3	−9.243 195 5	8 396.311 476 6	−0.04	140.737	11.39	2
39	288.851 422 4	−9.243 167 4	8 396.311 483 4	−0.04	140.708	11.69	1
39	288.693 759 4	−9.056 612 9	8 401.008 094 5	0.04	161.624	6.70	2
39	288.693 799 1	−9.056 598 8	8 401.008 096 5	0.04	161.609	6.16	1
39	288.693 071 8	−9.056 092 7	8 401.022 415 3	0.03	161.624	6.87	2
39	288.693 111 8	−9.056 080 0	8 401.022 417 3	0.03	161.609	6.26	1
39	288.689 476 8	−9.053 408 2	8 401.097 007 5	0.00	161.624	7.50	2
39	288.689 515 1	−9.053 391 2	8 401.097 009 5	0.00	161.609	6.41	1
39	288.688 784 4	−9.052 896 2	8 401.111 303 6	−0.01	161.624	7.11	2
39	288.688 824 1	−9.052 883 5	8 401.111 305 7	−0.01	161.609	5.81	1
39	288.685 148 1	−9.050 216 8	8 401.185 871 1	−0.04	161.624	5.71	2
39	288.685 186 8	−9.050 202 3	8 401.185 873 1	−0.04	161.609	5.61	1
39	288.684 447 5	−9.049 708 3	8 401.200 192 1	−0.04	161.624	6.65	2
39	288.684 486 7	−9.049 695 6	8 401.200 194 0	−0.04	161.609	5.81	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
39	288.671 872 6	−9.040 725 9	8 401.452 530 8	0.04	163.579	7.49	2
39	288.671 911 8	−9.040 713 4	8 401.452 531 4	0.04	163.472	5.66	1
39	288.671 146 6	−9.040 219 9	8 401.466 876 3	0.03	163.579	5.49	2
39	288.671 186 5	−9.040 210 1	8 401.466 876 8	0.03	163.472	5.86	1
39	288.667 352 4	−9.037 590 6	8 401.541 419 0	−0.01	163.579	5.23	2
39	288.667 391 8	−9.037 579 3	8 401.541 419 6	0.00	163.472	5.46	1
39	288.666 618 2	−9.037 082 0	8 401.555 739 9	−0.01	163.579	7.42	2
39	288.666 658 0	−9.037 071 8	8 401.555 740 5	−0.01	163.472	6.26	1
39	288.662 781 3	−9.034 462 0	8 401.630 332 0	−0.04	163.579	8.72	2
39	288.662 820 7	−9.034 450 6	8 401.630 332 6	−0.04	163.472	6.76	1
39	288.662 042 1	−9.033 961 3	8 401.644 628 3	−0.04	163.579	6.00	2
39	288.662 082 0	−9.033 950 9	8 401.644 628 9	−0.04	163.472	6.01	1
39	275.719 576 2	−13.328 849 6	8 490.530 125 6	0.00	340.653	13.19	2
39	275.719 618 5	−13.328 834 6	8 490.530 134 3	0.00	340.641	8.60	1
39	275.719 537 6	−13.330 207 5	8 490.544 446 5	−0.01	340.653	5.76	2
39	275.719 579 5	−13.330 191 9	8 490.544 455 2	−0.01	340.641	6.05	1
39	275.719 356 4	−13.337 270 6	8 490.619 013 9	−0.05	340.652	8.96	2
39	275.719 397 9	−13.337 253 8	8 490.619 022 5	−0.05	340.640	9.55	1
39	275.719 327 3	−13.338 630 7	8 490.633 334 8	−0.06	340.652	6.37	2
39	275.719 368 8	−13.338 614 0	8 490.633 343 4	−0.06	340.640	6.40	1
39	275.719 191 8	−13.345 694 4	8 490.707 902 2	−0.09	340.652	9.34	2
39	275.719 233 5	−13.345 678 0	8 490.707 910 8	−0.09	340.640	10.30	1
39	276.411 024 8	−14.681 804 0	8 505.372 077 2	−0.10	38.105	14.12	1
39	276.410 995 1	−14.681 780 6	8 505.372 083 5	−0.10	38.156	9.11	2
39	276.412 385 3	−14.683 044 9	8 505.386 410 5	−0.10	38.105	14.57	1
39	276.412 357 8	−14.683 018 7	8 505.386 416 8	−0.10	38.156	16.17	2
39	276.420 833 2	−14.690 704 2	8 505.475 330 4	−0.08	38.156	7.32	2
39	281.437 415 2	−16.717 638 2	8 533.697 434 5	−0.08	355.598	8.10	1
39	281.437 379 3	−16.717 644 9	8 533.697 437 5	−0.08	355.638	5.89	2
39	281.441 013 2	−16.718 425 1	8 533.711 755 3	−0.09	355.598	8.35	1
39	281.440 977 1	−16.718 429 7	8 533.711 758 3	−0.09	355.638	8.76	2
39	281.527 014 5	−16.737 006 6	8 534.052 967 5	−0.04	355.455	8.51	1
39	281.526 976 8	−16.737 011 9	8 534.052 969 1	−0.04	355.443	12.20	2
39	281.530 620 6	−16.737 787 0	8 534.067 226 6	−0.05	355.455	14.33	1
39	281.530 598 6	−16.737 794 9	8 534.067 290 0	−0.05	355.443	4.20	2
39	281.549 506 4	−16.741 827 7	8 534.141 855 8	−0.08	355.455	7.09	1
39	281.549 469 3	−16.741 831 8	8 534.141 857 4	−0.08	355.443	8.39	2
39	281.553 139 8	−16.742 605 1	8 534.156 201 3	−0.09	355.455	7.19	1
39	281.553 102 7	−16.742 609 3	8 534.156 203 0	−0.09	355.443	11.47	2
39	281.639 839 5	−16.760 973 8	8 534.497 409 8	−0.04	355.242	8.91	1
39	281.639 800 2	−16.760 978 5	8 534.497 411 2	−0.04	355.263	14.32	2
39	281.643 490 2	−16.761 745 3	8 534.511 730 6	−0.05	355.242	8.26	1
39	281.643 451 1	−16.761 750 1	8 534.511 732 1	−0.05	355.263	6.31	2
39	281.662 512 6	−16.765 736 0	8 534.586 298 0	−0.08	355.241	7.24	1
39	281.662 474 1	−16.765 742 8	8 534.586 299 6	−0.08	355.263	9.43	2
39	281.666 168 9	−16.766 503 0	8 534.600 618 9	−0.09	355.241	7.70	1
39	281.666 130 5	−16.766 509 1	8 534.600 620 4	−0.09	355.263	4.18	2
39	281.685 221 6	−16.770 482 1	8 534.675 186 4	−0.10	355.241	8.00	1
39	281.685 183 6	−16.770 489 1	8 534.675 187 7	−0.10	355.263	6.98	2
39	281.688 884 0	−16.771 249 6	8 534.689 507 4	−0.10	355.241	8.31	1
39	281.688 845 7	−16.771 252 8	8 534.689 508 7	−0.10	355.263	9.27	2
39	282.347 933 5	−16.901 230 7	8 537.210 241 8	−0.07	311.905	8.21	1
39	282.347 916 3	−16.901 247 8	8 537.210 247 1	−0.07	311.863	10.14	2
39	282.351 750 0	−16.901 936 0	8 537.224 562 8	−0.07	311.904	8.62	1
39	282.351 734 9	−16.901 954 9	8 537.224 568 0	−0.07	311.862	7.00	2
39	282.371 691 1	−16.905 650 3	8 537.299 130 1	−0.10	311.901	9.63	1
39	282.371 674 1	−16.905 667 4	8 537.299 135 2	−0.10	311.859	12.62	2
39	282.375 515 0	−16.906 359 6	8 537.313 426 4	−0.10	311.900	8.57	1
39	282.375 498 8	−16.906 377 6	8 537.313 431 5	−0.10	311.858	14.24	2
39	282.395 490 1	−16.910 064 1	8 537.388 019 0	−0.09	311.896	11.20	1
39	292.794 107 6	−17.704 873 9	8 569.194 164 7	−0.08	26.091	10.40	1
39	292.794 079 1	−17.704 863 3	8 569.194 166 3	−0.08	26.024	7.01	2
39	292.799 470 2	−17.704 859 7	8 569.208 411 5	−0.09	26.091	9.48	1
39	292.799 442 7	−17.704 846 9	8 569.208 413 1	−0.09	26.024	6.23	2
39	292.827 565 4	−17.704 778 8	8 569.283 028 6	−0.10	26.089	9.58	1
39	292.827 536 7	−17.704 768 5	8 569.283 030 1	−0.10	26.022	10.54	2
39	292.832 958 6	−17.704 763 5	8 569.297 349 6	−0.10	26.089	10.61	1
39	292.832 929 9	−17.704 752 9	8 569.297 351 0	−0.10	26.022	10.43	2
39	299.068 558 7	−17.473 737 6	8 585.102 485 1	−0.05	318.599	8.32	2
39	299.068 574 8	−17.473 721 9	8 585.102 486 4	−0.05	318.727	9.45	1
39	299.074 441 9	−17.473 329 8	8 585.116 830 6	−0.06	318.598	7.80	2
39	299.074 459 0	−17.473 315 2	8 585.116 832 0	−0.06	318.727	8.89	1
39	299.105 040 4	−17.471 228 8	8 585.191 373 4	−0.09	318.594	12.79	2
39	299.105 059 2	−17.471 216 1	8 585.191 374 9	−0.09	318.723	10.33	1
39	299.110 920 6	−17.470 824 7	8 585.205 694 2	−0.10	318.593	13.49	2
39	299.110 939 0	−17.470 811 6	8 585.205 695 6	−0.10	318.722	11.25	1
39	299.141 531 0	−17.468 712 6	8 585.280 237 3	−0.10	318.590	17.27	2
39	299.141 550 1	−17.468 700 3	8 585.280 238 8	−0.10	318.718	9.56	1
39	299.147 440 5	−17.468 290 9	8 585.294 584 5	−0.10	318.718	11.56	1
39	23.793 016 4	5.532 657 1	8 775.725 828 6	0.03	166.247	15.21	1
39	23.792 990 8	5.532 656 1	8 775.725 831 7	0.03	166.178	17.12	2
39	23.798 975 6	5.534 254 3	8 775.740 149 5	0.02	166.247	11.32	1
39	23.798 950 2	5.534 252 4	8 775.740 152 5	0.02	166.178	14.91	2
39	23.830 006 7	5.542 591 4	8 775.814 741 6	−0.02	166.247	11.88	1
39	23.829 982 1	5.542 586 0	8 775.814 744 6	−0.02	166.178	7.52	2
39	23.835 965 0	5.544 186 3	8 775.829 062 4	−0.03	166.247	9.83	1
39	23.835 940 2	5.544 181 8	8 775.829 065 5	−0.03	166.178	11.01	2
39	23.866 967 9	5.552 517 8	8 775.903 605 0	−0.07	166.247	13.78	1
39	23.866 943 3	5.552 512 8	8 775.903 608 2	−0.07	166.178	18.71	2
39	23.872 936 6	5.554 109 1	8 775.917 950 6	−0.08	166.247	12.91	1
39	23.872 910 9	5.554 108 4	8 775.917 953 7	−0.08	166.178	9.89	2
39	23.903 945 8	5.562 428 2	8 775.992 518 3	−0.09	166.247	12.55	1
39	23.903 921 9	5.562 420 8	8 775.992 521 5	−0.09	166.178	13.47	2
39	23.909 902 2	5.564 019 2	8 776.006 839 2	−0.09	166.247	14.44	1
39	23.909 877 0	5.564 016 8	8 776.006 842 4	−0.09	166.178	18.05	2
39	24.020 733 1	5.593 692 6	8 776.273 508 5	−0.03	164.517	25.23	2
39	24.020 758 3	5.593 693 1	8 776.273 511 6	−0.03	164.530	23.81	1
39	42.730 020 3	9.230 282 4	8 824.813 324 6	−0.09	202.155	11.23	2
39	42.734 954 0	9.230 737 3	8 824.827 669 0	−0.09	201.700	12.36	1
39	42.734 929 6	9.230 756 5	8 824.827 670 2	−0.09	202.155	16.16	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
40	301.593 573 2	−20.453 301 5	7 969.469 975 6	−0.06	198.738	14.31	1
40	301.593 547 9	−20.453 291 3	7 969.469 978 6	−0.06	198.724	11.23	2
40	301.600 212 2	−20.452 261 7	7 969.484 296 7	−0.05	198.738	16.08	1
40	301.600 187 0	−20.452 251 2	7 969.484 299 6	−0.05	198.723	13.84	2
40	301.634 751 6	−20.446 827 4	7 969.558 867 7	−0.02	198.722	11.10	2
40	301.634 785 2	−20.446 829 9	7 969.558 877 1	−0.02	198.736	15.19	1
40	301.641 415 4	−20.445 791 6	7 969.573 185 7	−0.02	198.736	16.18	1
40	301.641 388 1	−20.445 786 5	7 969.573 188 7	−0.02	198.721	18.57	2
40	309.505 563 9	−19.068 696 1	7 987.258 727 0	−0.05	126.722	24.94	1
40	309.505 546 6	−19.068 726 0	7 987.258 728 4	−0.05	126.689	38.10	2
40	309.537 211 5	−19.062 621 1	7 987.333 319 9	−0.02	126.716	13.85	1
40	309.537 191 3	−19.062 649 0	7 987.333 321 2	−0.02	126.683	18.65	2
40	309.543 289 2	−19.061 456 9	7 987.347 640 9	−0.01	126.715	14.68	1
40	309.543 266 8	−19.061 483 3	7 987.347 642 3	−0.01	126.682	11.02	2
40	309.574 912 9	−19.055 384 2	7 987.422 209 0	0.02	126.709	13.28	1
40	309.574 894 4	−19.055 413 5	7 987.422 210 2	0.02	126.677	12.00	2
40	309.580 988 8	−19.054 220 6	7 987.436 530 0	0.03	126.708	16.02	1
40	309.580 968 4	−19.054 248 6	7 987.436 531 2	0.03	126.676	19.39	2
40	321.857 337 9	−16.498 030 5	8 019.851 250 2	0.03	204.917	15.20	1
40	321.857 317 5	−16.498 016 2	8 019.851 251 0	0.03	204.891	19.70	2
40	321.862 017 7	−16.497 025 0	8 019.865 571 2	0.03	204.917	17.40	1
40	321.861 996 2	−16.497 013 1	8 019.865 572 0	0.03	204.891	17.86	2
40	321.886 343 8	−16.491 837 3	8 019.940 114 6	0.05	204.915	13.10	1
40	330.190 586 6	−15.015 287 4	8 052.458 692 4	−0.06	123.054	9.05	1
40	330.190 559 1	−15.015 328 3	8 052.458 694 6	−0.06	123.082	13.58	2
40	330.193 060 3	−15.015 099 3	8 052.473 038 1	−0.06	123.054	9.31	1
40	330.193 033 3	−15.015 140 6	8 052.473 040 3	−0.06	123.082	11.52	2
40	330.205 883 0	−15.014 120 1	8 052.547 606 4	−0.03	123.051	10.86	1
40	330.205 853 5	−15.014 160 0	8 052.547 608 6	−0.03	123.080	10.02	2
40	330.208 344 7	−15.013 935 4	8 052.561 927 3	−0.03	123.051	10.71	1
40	330.208 318 2	−15.013 977 2	8 052.561 929 6	−0.03	123.079	10.10	2
40	330.221 136 3	−15.012 977 7	8 052.636 495 6	0.01	123.048	8.40	1
40	330.221 106 8	−15.013 017 8	8 052.636 497 6	0.01	123.077	15.18	2
40	330.223 587 2	−15.012 794 0	8 052.650 816 7	0.02	123.048	7.85	1
40	330.223 556 8	−15.012 833 6	8 052.650 818 7	0.02	123.076	10.75	2
40	332.166 478 6	−15.167 432 0	8 069.078 587 3	0.03	186.498	9.63	1
40	332.166 445 3	−15.167 429 9	8 069.078 590 9	0.03	186.517	7.99	2
40	332.167 358 0	−15.167 905 1	8 069.092 908 3	0.03	186.498	8.13	1
40	332.167 325 1	−15.167 898 9	8 069.092 911 8	0.03	186.517	7.67	2
40	332.171 913 1	−15.170 376 3	8 069.167 476 6	0.06	186.498	12.28	1
40	332.171 879 7	−15.170 371 6	8 069.167 479 8	0.06	186.517	11.86	2
40	332.172 784 1	−15.170 859 8	8 069.181 822 2	0.06	186.498	7.49	1
40	332.172 750 2	−15.170 858 0	8 069.181 825 5	0.06	186.517	11.09	2
40	332.183 423 2	−15.176 838 3	8 069.359 568 8	−0.04	187.424	7.32	2
40	323.673 648 6	−19.761 404 3	8 195.543 681 3	0.11	298.618	10.95	1
40	323.673 619 7	−19.761 443 8	8 195.543 682 4	0.11	298.615	15.42	2
40	323.676 974 2	−19.759 960 5	8 195.558 002 4	0.12	298.618	12.61	1
40	323.676 949 3	−19.760 002 1	8 195.558 003 5	0.12	298.615	11.39	2
40	331.512 503 1	−16.431 864 3	8 222.288 181 0	0.10	22.494	13.08	1
40	331.512 475 6	−16.431 853 6	8 222.288 181 4	0.10	22.504	17.56	2
40	331.517 407 3	−16.429 776 7	8 222.302 465 0	0.10	22.494	13.14	1
40	331.517 391 2	−16.429 763 5	8 222.302 502 4	0.10	22.504	15.30	2
40	339.843 483 0	−12.808 236 1	8 244.681 135 2	0.05	300.532	23.05	2
40	339.843 509 9	−12.808 197 9	8 244.681 137 3	0.05	300.559	14.91	1
40	339.849 153 2	−12.805 721 6	8 244.695 431 5	0.06	300.532	13.30	2
40	339.849 176 6	−12.805 681 4	8 244.695 433 7	0.06	300.559	14.09	1
40	339.878 726 9	−12.792 587 9	8 244.770 024 6	0.10	300.528	10.23	2
40	339.878 750 2	−12.792 547 7	8 244.770 026 7	0.10	300.555	11.76	1
40	339.884 394 9	−12.790 069 3	8 244.784 321 0	0.11	300.528	15.42	2
40	339.884 420 0	−12.790 030 2	8 244.784 323 1	0.11	300.555	13.62	1
40	99.019 173 1	22.201 770 5	8 490.319 909 5	0.08	201.536	20.03	2
40	99.019 210 1	22.201 752 5	8 490.319 910 9	0.08	201.549	21.83	1
40	99.097 999 1	22.199 456 7	8 490.483 331 6	−0.03	200.384	23.18	1
40	99.097 964 5	22.199 471 0	8 490.483 335 3	−0.03	200.372	31.43	2
40	99.104 876 1	22.199 275 6	8 490.497 668 7	−0.02	200.372	23.36	2
40	99.104 916 1	22.199 259 7	8 490.497 677 4	−0.02	200.384	21.83	1
40	99.140 798 3	22.198 196 3	8 490.572 224 6	0.02	200.374	13.98	2
40	99.140 838 6	22.198 180 4	8 490.572 233 2	0.02	200.386	14.94	1
40	99.147 715 8	22.198 003 9	8 490.586 570 4	0.03	200.374	17.72	2
40	99.147 754 6	22.197 984 3	8 490.586 579 0	0.03	200.386	15.92	1
40	99.183 643 1	22.196 939 6	8 490.661 138 7	0.06	200.375	27.56	2
40	99.183 680 5	22.196 916 9	8 490.661 147 2	0.06	200.388	19.60	1
40	99.190 565 8	22.196 707 5	8 490.675 443 5	0.06	200.388	26.29	1
40	99.190 530 9	22.196 721 7	8 490.675 447 3	0.06	200.376	40.22	2
40	99.233 334 4	22.195 431 8	8 490.764 323 7	0.08	200.377	24.59	2
40	99.233 374 8	22.195 415 9	8 490.764 332 4	0.08	200.390	17.16	1
40	104.267 105 0	21.970 562 0	8 501.415 988 3	0.08	158.286	19.03	1
40	104.267 067 7	21.970 553 4	8 501.415 992 6	0.08	158.364	28.24	2
40	104.273 683 1	21.970 171 4	8 501.430 288 8	0.08	158.365	27.89	2
40	104.273 727 0	21.970 190 5	8 501.430 309 3	0.08	158.286	23.28	1
40	104.308 183 6	21.968 133 7	8 501.504 819 2	0.05	158.367	33.70	2
40	104.308 232 3	21.968 141 9	8 501.504 839 7	0.05	158.288	24.53	1
40	104.349 330 5	21.965 709 2	8 501.593 750 2	−0.02	156.462	30.12	2
40	104.349 367 6	21.965 723 7	8 501.593 755 5	−0.02	156.464	17.53	1
40	104.356 025 7	21.965 296 1	8 501.608 113 5	−0.02	156.464	38.74	1
40	104.390 460 7	21.963 247 3	8 501.682 651 7	0.02	156.465	10.74	2
40	104.390 497 4	21.963 263 3	8 501.682 657 0	0.02	156.467	16.59	1
40	104.397 087 3	21.962 844 8	8 501.696 972 8	0.03	156.465	15.38	2
40	104.397 125 5	21.962 857 6	8 501.696 978 0	0.03	156.467	17.94	1
40	104.431 576 4	21.960 787 2	8 501.771 565 6	0.06	156.467	20.89	2
40	104.431 614 1	21.960 801 5	8 501.771 570 9	0.06	156.469	16.75	1
40	104.438 169 2	21.960 402 7	8 501.785 837 2	0.07	156.468	19.58	2
40	104.438 219 8	21.960 425 2	8 501.785 879 6	0.07	156.470	32.20	1
40	119.927 414 2	20.431 648 5	8 538.954 172 2	0.02	233.001	17.49	1
40	119.954 326 3	20.428 115 1	8 539.028 715 6	0.05	233.007	15.78	1
40	119.954 307 4	20.428 145 7	8 539.028 717 7	0.05	233.017	8.34	2
40	119.959 494 1	20.427 469 0	8 539.043 075 8	0.06	233.018	12.91	2
40	119.959 517 9	20.427 438 2	8 539.043 086 1	0.06	233.008	9.83	1
40	119.986 388 7	20.423 941 4	8 539.117 619 0	0.08	233.024	13.63	2
40	119.986 413 9	20.423 911 2	8 539.117 629 3	0.08	233.013	14.38	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
40	119.991 557 1	20.423 266 5	8 539.131 939 9	0.08	233.025	11.34	2
40	119.991 578 6	20.423 233 6	8 539.131 950 3	0.08	233.014	12.88	1
40	118.582 802 7	24.810 553 9	8 708.598 490 6	0.10	332.505	13.65	2
40	118.582 841 9	24.810 571 2	8 708.598 495 3	0.10	332.501	10.39	1
40	118.584 896 8	24.810 085 5	8 708.612 811 3	0.09	332.506	16.25	2
40	118.584 936 4	24.810 102 0	8 708.612 816 0	0.09	332.502	12.52	1
40	118.595 870 7	24.807 638 2	8 708.687 358 3	0.02	332.503	12.77	1
40	123.886 860 6	23.594 874 7	8 732.945 571 7	0.12	55.977	11.77	1
40	123.886 833 5	23.594 906 7	8 732.945 572 3	0.12	55.964	14.99	2
40	123.890 837 9	23.593 919 7	8 732.959 892 6	0.12	55.977	12.29	1
40	123.890 810 4	23.593 951 3	8 732.959 893 3	0.12	55.965	19.17	2
40	123.911 619 6	23.588 973 1	8 733.034 484 5	0.07	55.981	11.98	1
40	123.911 593 7	23.589 005 6	8 733.034 485 2	0.07	55.970	15.67	2
40	123.915 597 4	23.588 019 5	8 733.048 780 6	0.05	55.982	11.51	1
40	123.915 573 5	23.588 053 1	8 733.048 781 3	0.05	55.971	17.96	2
40	132.171 517 6	21.457 239 3	8 758.639 569 6	0.13	334.285	24.57	2
40	132.171 549 8	21.457 257 9	8 758.639 574 4	0.13	334.354	22.61	1
40	132.198 258 9	21.449 805 1	8 758.714 129 6	0.10	334.357	23.70	1
40	132.198 228 9	21.449 789 3	8 758.714 137 2	0.10	334.288	39.87	2
40	132.203 401 6	21.448 373 4	8 758.728 487 4	0.09	334.357	24.48	1
40	132.203 366 5	21.448 367 6	8 758.728 495 0	0.09	334.289	31.68	2
40	132.230 071 8	21.440 933 8	8 758.803 037 3	0.01	334.292	29.39	2
40	132.230 114 4	21.440 932 6	8 758.803 042 0	0.01	334.360	21.00	1
40	148.651 252 9	16.179 144 1	8 800.827 334 1	0.11	34.334	41.19	2
40	148.651 286 3	16.179 123 6	8 800.827 341 2	0.11	34.327	24.37	1
40	148.687 940 1	16.165 918 8	8 800.916 241 5	0.04	34.329	26.19	1
40	148.687 907 3	16.165 930 9	8 800.916 247 0	0.04	34.336	13.03	2
40	148.693 832 3	16.163 799 7	8 800.930 525 1	0.02	34.329	17.16	1
40	148.693 810 3	16.163 818 1	8 800.930 543 0	0.02	34.336	33.71	2
40	148.730 483 4	16.150 599 5	8 801.019 478 6	0.06	32.355	26.52	2
40	148.730 514 8	16.150 583 0	8 801.019 482 6	0.06	32.365	16.85	1
40	148.761 232 9	16.139 513 5	8 801.094 034 6	0.12	32.356	25.90	2
40	148.761 261 2	16.139 492 0	8 801.094 038 8	0.12	32.366	20.07	1
40	148.767 133 6	16.137 383 4	8 801.108 343 3	0.12	32.356	18.81	2
40	148.767 163 6	16.137 364 5	8 801.108 347 4	0.12	32.366	19.91	1
40	148.797 891 6	16.126 287 2	8 801.182 911 5	0.14	32.357	26.13	2
40	148.797 925 8	16.126 274 7	8 801.182 915 4	0.14	32.367	19.86	1
40	148.803 810 4	16.124 153 5	8 801.197 257 2	0.14	32.357	22.14	2
40	148.803 844 1	16.124 130 6	8 801.197 273 4	0.14	32.367	16.02	1
40	148.834 571 1	16.113 067 4	8 801.271 800 0	0.11	32.358	47.95	2
40	148.834 596 7	16.113 041 7	8 801.271 803 9	0.11	32.368	19.39	1
40	148.840 463 8	16.110 929 8	8 801.286 096 1	0.10	32.359	27.50	2
40	148.840 494 3	16.110 911 4	8 801.286 100 1	0.10	32.368	17.58	1
40	148.871 235 1	16.099 743 7	8 801.360 691 9	0.04	32.369	12.60	1
40	148.877 145 3	16.097 675 4	8 801.375 008 7	0.02	32.360	22.30	2
40	148.877 173 7	16.097 654 1	8 801.375 012 5	0.02	32.369	16.91	1
40	148.944 630 1	16.073 302 3	8 801.538 523 1	0.12	30.256	23.82	2
40	148.950 519 1	16.071 180 6	8 801.552 782 4	0.13	30.256	15.49	2
40	148.981 302 7	16.060 057 8	8 801.627 350 4	0.14	30.257	31.18	2
40	148.987 221 8	16.057 911 3	8 801.641 696 1	0.14	30.257	20.14	2
40	149.018 014 4	16.046 769 3	8 801.716 288 3	0.11	30.258	21.29	2
40	149.091 454 7	16.020 200 6	8 801.894 042 5	0.04	28.592	23.23	1
40	149.091 422 3	16.020 214 6	8 801.894 049 8	0.04	28.609	15.99	2
40	149.097 364 7	16.018 051 2	8 801.908 363 6	0.06	28.593	13.69	1
40	149.097 332 0	16.018 064 8	8 801.908 371 0	0.06	28.609	22.60	2
40	149.128 163 8	16.006 899 1	8 801.982 932 1	0.12	28.593	20.69	1
40	149.128 129 9	16.006 911 0	8 801.982 939 4	0.12	28.610	14.35	2
40	149.134 089 0	16.004 752 1	8 801.997 277 9	0.13	28.593	17.48	1
40	149.134 055 5	16.004 764 9	8 801.997 285 2	0.13	28.610	23.37	2
40	149.164 868 0	15.993 593 9	8 802.071 796 4	0.14	28.594	19.65	1
40	149.164 837 9	15.993 613 0	8 802.071 803 8	0.14	28.610	38.11	2
40	149.170 805 7	15.991 444 7	8 802.086 166 8	0.14	28.594	16.34	1
40	149.170 774 3	15.991 461 7	8 802.086 174 1	0.14	28.611	18.54	2
40	149.201 594 9	15.980 268 8	8 802.160 709 6	0.11	28.594	28.47	1
40	149.201 567 0	15.980 292 3	8 802.160 717 0	0.11	28.611	32.63	2
40	149.207 506 4	15.978 135 6	8 802.175 005 8	0.10	28.595	19.34	1
40	149.207 474 7	15.978 152 5	8 802.175 013 2	0.10	28.611	16.40	2
40	149.238 330 8	15.966 964 2	8 802.249 597 4	0.03	28.595	17.48	1
40	149.238 299 6	15.966 982 6	8 802.249 604 9	0.03	28.612	22.18	2
40	149.275 060 3	15.953 633 2	8 802.338 485 5	0.04	26.694	26.97	1
40	149.280 970 0	15.951 492 0	8 802.352 782 0	0.06	26.695	18.51	1
40	149.280 945 5	15.951 507 1	8 802.352 808 4	0.06	26.645	18.13	2
40	150.047 578 4	15.671 984 0	8 804.205 157 4	0.12	19.613	30.49	1
40	150.047 540 2	15.671 998 2	8 804.205 165 6	0.12	19.456	26.85	2
40	150.231 773 4	15.604 449 3	8 804.649 586 7	0.12	17.589	27.01	2
40	150.231 828 0	15.604 415 8	8 804.649 621 2	0.12	17.358	28.47	1
40	150.237 717 7	15.602 269 1	8 804.663 920 0	0.13	17.589	19.63	2
40	150.237 770 1	15.602 246 5	8 804.663 942 3	0.13	17.357	25.25	1
40	150.268 675 2	15.590 906 1	8 804.738 460 8	0.14	17.357	28.63	1
40	150.274 582 8	15.588 723 0	8 804.752 821 3	0.14	17.589	40.31	2
40	150.274 631 4	15.588 705 8	8 804.752 831 1	0.14	17.357	20.64	1
40	150.305 550 9	15.577 356 2	8 804.827 373 9	0.11	17.357	22.20	1
40	150.305 504 2	15.577 361 9	8 804.827 376 5	0.11	17.589	22.97	2
40	150.311 475 8	15.575 180 2	8 804.841 657 8	0.10	17.357	25.51	1
40	150.379 240 5	15.550 260 1	8 805.005 127 2	0.05	15.903	22.93	2
40	150.379 292 5	15.550 250 9	8 805.005 135 3	0.05	15.719	19.39	1
40	150.416 173 0	15.536 686 9	8 805.094 024 9	0.12	15.719	21.21	1
40	150.416 134 9	15.536 705 0	8 805.094 041 5	0.12	15.902	33.09	2
40	150.422 067 7	15.534 525 3	8 805.108 337 9	0.13	15.902	17.07	2
40	150.422 117 8	15.534 509 6	8 805.108 346 0	0.13	15.719	24.84	1
40	150.453 057 4	15.523 132 9	8 805.182 901 6	0.14	15.719	27.17	1
40	150.453 010 3	15.523 139 3	8 805.182 906 0	0.14	15.902	22.36	2
40	150.458 996 3	15.520 931 5	8 805.197 222 5	0.14	15.719	18.98	1
40	150.458 950 5	15.520 942 7	8 805.197 226 9	0.14	15.902	26.34	2
40	150.489 914 4	15.509 552 2	8 805.271 831 4	0.11	15.902	28.59	2
40	150.489 969 2	15.509 533 1	8 805.271 851 8	0.11	15.718	24.11	1
40	150.495 898 6	15.507 353 7	8 805.286 135 6	0.10	15.718	19.81	1
40	150.495 854 0	15.507 369 2	8 805.286 139 9	0.10	15.902	14.65	2
40	150.526 799 9	15.495 956 5	8 805.360 706 8	0.02	15.901	36.51	2
40	150.526 853 1	15.495 950 2	8 805.360 714 7	0.02	15.718	28.99	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
40	150.600 588 1	15.468 779 0	8 805.538 446 9	0.12	14.368	28.30	2
40	150.600 644 7	15.468 765 3	8 805.538 470 3	0.12	14.251	26.65	1
40	150.606 585 2	15.466 574 1	8 805.552 779 0	0.13	14.251	20.48	1
40	150.606 540 9	15.466 570 5	8 805.552 792 7	0.13	14.368	16.53	2
40	150.637 550 7	15.455 151 8	8 805.627 359 2	0.14	14.251	20.43	1
40	150.637 504 9	15.455 163 4	8 805.627 360 7	0.14	14.368	10.27	2
40	150.643 496 8	15.452 956 6	8 805.641 680 2	0.14	14.251	20.38	1
40	150.643 450 0	15.452 964 5	8 805.641 681 6	0.14	14.368	11.30	2
40	234.768 593 6	−16.377 188 4	8 998.075 519 4	0.14	170.389	18.31	1
40	234.774 762 8	−16.378 546 5	8 998.089 815 6	0.14	170.389	17.58	1
42	314.248 161 0	−20.042 895 7	7 973.483 617 8	−0.07	180.938	13.79	2
42	314.248 283 0	−20.042 895 8	7 973.483 624 6	−0.07	180.922	13.59	1
42	314.292 556 1	−20.034 872 0	7 973.558 186 0	−0.05	180.938	14.20	2
42	314.292 678 1	−20.034 868 7	7 973.558 192 5	−0.05	180.922	13.59	1
42	320.885 353 6	−18.755 562 1	7 984.757 565 4	0.00	132.107	13.28	1
42	320.885 282 2	−18.755 629 1	7 984.757 568 5	0.00	131.795	21.59	2
42	320.893 676 5	−18.753 835 2	7 984.771 886 4	0.00	132.106	13.17	1
42	320.893 606 7	−18.753 903 7	7 984.771 889 4	0.00	131.794	17.27	2
42	320.937 056 4	−18.744 865 9	7 984.846 479 3	0.04	132.101	15.14	1
42	320.936 988 6	−18.744 936 2	7 984.846 482 2	0.04	131.787	10.09	2
42	320.945 385 8	−18.743 144 9	7 984.860 800 2	0.04	132.100	15.82	1
42	342.616 234 2	−13.634 123 8	8 024.115 495 3	−0.08	195.654	16.63	2
42	342.616 352 5	−13.634 163 6	8 024.115 497 9	−0.08	195.703	12.12	1
42	342.623 650 3	−13.632 271 4	8 024.129 816 3	−0.08	195.653	11.88	2
42	342.623 770 8	−13.632 303 6	8 024.129 818 9	−0.08	195.702	11.40	1
42	342.662 270 4	−13.622 546 7	8 024.204 359 7	−0.05	195.652	19.15	2
42	342.662 390 6	−13.622 580 3	8 024.204 362 4	−0.05	195.701	16.54	1
42	342.669 700 6	−13.620 678 5	8 024.218 705 3	−0.05	195.652	15.75	2
42	342.669 820 7	−13.620 712 8	8 024.218 708 1	−0.05	195.701	13.35	1
42	354.779 729 8	−10.659 699 0	8 048.907 953 6	−0.09	112.950	13.92	1
42	354.779 695 0	−10.659 790 5	8 048.907 958 0	−0.09	112.953	16.78	2
42	354.786 325 3	−10.658 190 2	8 048.922 299 3	−0.09	112.949	7.92	1
42	354.786 285 9	−10.658 279 8	8 048.922 303 6	−0.09	112.952	11.10	2
42	6.681 010 7	−8.421 852 6	8 077.865 734 7	−0.08	200.188	14.25	2
42	6.681 148 3	−8.421 900 3	8 077.865 737 0	−0.08	200.199	9.46	1
42	6.686 075 9	−8.421 222 2	8 077.880 080 4	−0.08	200.188	6.04	2
42	6.686 213 0	−8.421 271 1	8 077.880 082 6	−0.08	200.199	9.31	1
42	6.712 371 3	−8.417 978 4	8 077.954 624 0	−0.05	200.187	11.16	2
42	6.712 507 9	−8.418 028 4	8 077.954 626 1	−0.05	200.198	11.57	1
42	6.717 418 2	−8.417 361 8	8 077.968 945 0	−0.04	200.187	7.98	2
42	6.717 555 1	−8.417 411 0	8 077.968 947 2	−0.04	200.198	9.86	1
42	6.743 699 2	−8.414 134 7	8 078.043 537 6	0.00	200.187	10.47	2
42	6.743 836 3	−8.414 183 6	8 078.043 540 2	0.00	200.198	8.95	1
42	6.748 879 2	−8.413 576 3	8 078.057 873 6	0.01	200.198	9.86	1
42	16.044 232 6	−9.215 172 3	8 119.537 608 7	−0.08	152.336	4.31	2
42	16.044 438 2	−9.215 065 2	8 119.537 611 1	−0.08	152.327	5.64	1
42	16.045 173 3	−9.216 347 8	8 119.551 929 5	−0.08	152.336	6.23	2
42	16.045 378 3	−9.216 239 3	8 119.551 932 1	−0.08	152.327	6.09	1
42	16.050 042 7	−9.222 478 8	8 119.626 497 3	−0.06	152.336	7.03	2
42	16.050 249 0	−9.222 372 0	8 119.626 500 1	−0.06	152.327	6.68	1
42	16.050 970 6	−9.223 654 6	8 119.640 830 8	−0.05	152.335	8.05	2
42	16.051 178 1	−9.223 549 9	8 119.640 833 5	−0.05	152.327	5.20	1
42	16.055 779 2	−9.229 800 8	8 119.715 411 2	−0.02	152.335	7.17	2
42	16.055 987 1	−9.229 695 9	8 119.715 414 0	−0.02	152.326	5.74	1
42	16.056 698 8	−9.230 986 4	8 119.729 732 2	−0.01	152.335	4.98	2
42	16.056 905 8	−9.230 879 7	8 119.729 735 1	−0.01	152.326	4.75	1
42	16.061 446 7	−9.237 148 8	8 119.804 300 4	0.03	152.334	7.16	2
42	16.061 654 4	−9.237 042 4	8 119.804 303 2	0.03	152.325	5.05	1
42	16.062 353 4	−9.238 334 2	8 119.818 646 4	0.04	152.334	5.71	2
42	16.062 562 4	−9.238 229 9	8 119.818 649 1	0.04	152.325	5.89	1
42	16.072 561 1	−9.251 897 6	8 119.982 076 9	−0.08	153.628	4.30	2
42	16.072 772 6	−9.251 796 4	8 119.982 077 1	−0.08	154.155	5.15	1
42	16.073 445 2	−9.253 091 4	8 119.996 397 9	−0.08	153.628	6.82	2
42	16.073 656 8	−9.252 990 3	8 119.996 398 0	−0.08	154.155	7.52	1
42	16.083 605 5	−9.266 630 3	8 120.159 855 3	−0.02	154.154	6.98	1
42	16.083 391 4	−9.266 730 6	8 120.159 857 5	−0.02	154.567	7.40	2
42	16.084 465 6	−9.267 828 6	8 120.174 176 3	−0.01	154.153	4.95	1
42	16.084 251 4	−9.267 929 0	8 120.174 178 6	−0.01	154.566	4.02	2
42	16.088 914 5	−9.274 077 5	8 120.248 744 5	0.03	154.153	6.48	1
42	16.088 699 0	−9.274 176 3	8 120.248 746 9	0.03	154.566	8.64	2
42	16.089 763 0	−9.275 279 0	8 120.263 065 7	0.04	154.153	4.55	1
42	16.089 547 7	−9.275 378 3	8 120.263 068 1	0.04	154.566	6.03	2
42	4.801 012 7	−11.708 220 8	8 204.158 588 7	0.06	313.041	11.06	2
42	4.801 146 1	−11.708 082 3	8 204.158 589 1	0.06	313.014	9.43	1
42	4.799 094 6	−11.694 973 2	8 204.261 797 3	−0.03	314.786	11.70	2
42	4.799 234 4	−11.694 835 6	8 204.261 802 5	−0.03	314.783	9.48	1
42	4.797 761 4	−11.685 376 3	8 204.336 390 0	0.00	314.787	8.49	2
42	4.797 901 5	−11.685 238 2	8 204.336 395 4	0.00	314.784	6.28	1
42	4.797 512 0	−11.683 536 2	8 204.350 686 4	0.01	314.787	8.74	2
42	4.797 649 1	−11.683 395 0	8 204.350 691 7	0.01	314.784	7.13	1
42	4.796 231 9	−11.673 920 8	8 204.425 279 4	0.05	314.788	6.92	2
42	4.796 371 0	−11.673 781 0	8 204.425 284 8	0.05	314.785	6.73	1
42	4.795 988 1	−11.672 069 8	8 204.439 600 3	0.05	314.788	7.60	2
42	4.796 128 3	−11.671 931 1	8 204.439 605 8	0.05	314.785	7.83	1
42	4.794 761 3	−11.662 439 0	8 204.514 168 3	0.07	314.789	13.22	2
42	4.794 900 5	−11.662 298 7	8 204.514 173 8	0.07	314.786	7.83	1
42	4.794 528 3	−11.660 585 2	8 204.528 489 3	0.07	314.790	5.75	2
42	4.794 669 0	−11.660 446 1	8 204.528 494 8	0.07	314.787	7.93	1
42	4.793 349 0	−11.650 930 4	8 204.603 057 2	0.05	314.791	9.42	2
42	4.793 490 1	−11.650 791 3	8 204.603 062 5	0.05	314.789	8.23	1
42	4.972 676 6	−10.327 857 3	8 213.861 517 6	0.08	355.902	11.34	1
42	4.972 477 6	−10.327 872 9	8 213.861 522 6	0.08	355.914	8.80	2
42	4.981 326 3	−10.302 488 7	8 214.024 954 3	−0.03	357.614	11.18	2
42	4.981 524 5	−10.302 479 0	8 214.024 956 1	−0.03	357.621	9.03	1
42	4.982 112 2	−10.300 257 5	8 214.039 300 1	−0.02	357.614	10.37	2
42	4.982 310 5	−10.300 249 7	8 214.039 301 8	−0.02	357.621	11.19	1
42	4.986 221 6	−10.288 669 8	8 214.113 868 3	0.02	357.614	12.54	2
42	4.986 419 9	−10.288 658 0	8 214.113 870 1	0.02	357.621	10.33	1
42	4.987 015 0	−10.286 434 0	8 214.128 189 3	0.03	357.614	6.37	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
42	4.987 213 3	−10.286 421 1	8 214.128 191 2	0.03	357.621	8.13	1
42	4.991 171 4	−10.274 819 1	8 214.202 757 6	0.06	357.614	12.96	2
42	4.991 369 9	−10.274 808 7	8 214.202 759 4	0.06	357.621	10.84	1
42	4.991 975 0	−10.272 586 3	8 214.217 090 9	0.06	357.614	10.75	2
42	4.992 173 6	−10.272 575 9	8 214.217 092 7	0.06	357.621	7.48	1
42	10.703 264 7	−3.812 946 1	8 249.386 392 6	0.09	293.144	12.84	1
42	10.703 227 6	−3.813 027 4	8 249.386 397 6	0.08	293.157	22.31	2
42	10.706 839 2	−3.810 058 9	8 249.400 738 2	0.08	293.144	12.38	1
42	10.706 807 0	−3.810 142 3	8 249.400 743 3	0.08	293.157	4.42	2
42	10.747 661 7	−3.777 268 9	8 249.564 196 4	0.00	293.427	9.16	2
42	10.747 700 8	−3.777 186 3	8 249.564 197 6	0.00	293.433	13.31	1
42	19.278 924 7	2.092 652 7	8 278.262 425 3	0.08	20.915	20.97	2
42	19.279 006 8	2.092 614 8	8 278.262 432 9	0.08	20.929	16.65	1
42	19.283 740 9	2.095 578 7	8 278.276 721 5	0.06	20.915	18.21	2
42	19.283 826 3	2.095 549 2	8 278.276 729 0	0.06	20.929	22.71	1
44	332.152 816 2	−11.274 045 1	8 021.537 993 5	−0.04	201.361	23.62	2
44	332.152 821 9	−11.274 053 0	8 021.537 998 4	−0.04	201.362	16.49	1
44	332.156 405 3	−11.272 907 4	8 021.552 282 5	−0.03	201.361	14.36	1
44	332.156 400 5	−11.272 904 5	8 021.552 289 9	−0.03	201.361	11.88	2
44	332.178 671 2	−11.265 833 7	8 021.641 171 9	0.02	201.360	14.88	1
44	332.178 666 5	−11.265 830 7	8 021.641 179 2	0.02	201.360	19.66	2
44	337.930 934 4	−9.507 211 0	8 050.251 777 0	−0.07	116.694	12.96	1
44	337.930 939 2	−9.507 201 8	8 050.251 784 2	−0.07	116.732	17.30	2
44	337.941 726 0	−9.504 292 7	8 050.326 345 1	−0.05	116.692	12.19	1
44	337.941 731 2	−9.504 283 6	8 050.326 352 3	−0.05	116.731	12.00	2
44	337.943 791 9	−9.503 728 7	8 050.340 690 8	−0.05	116.692	13.12	1
44	337.943 799 2	−9.503 720 7	8 050.340 698 0	−0.05	116.730	5.29	2
44	327.123 797 2	−15.880 656 3	8 196.610 099 9	0.05	298.909	13.11	1
44	327.123 797 8	−15.880 656 3	8 196.610 102 6	0.05	298.921	17.05	2
44	327.125 496 5	−15.880 068 8	8 196.624 445 3	0.03	298.909	10.76	1
44	338.078 915 4	−11.802 326 0	8 244.681 629 0	0.05	300.891	16.91	2
44	338.078 913 6	−11.802 319 2	8 244.681 631 1	0.05	300.921	17.11	1
44	338.083 362 5	−11.800 567 7	8 244.695 925 4	0.07	300.891	8.98	2
44	338.083 364 5	−11.800 563 2	8 244.695 927 6	0.07	300.921	14.62	1
44	338.106 625 6	−11.791 423 0	8 244.770 506 1	0.11	300.888	9.46	2
44	338.106 626 4	−11.791 414 0	8 244.770 520 6	0.11	300.918	14.21	1
44	338.111 080 7	−11.789 662 0	8 244.784 814 8	0.11	300.888	26.47	2
44	338.111 084 7	−11.789 658 7	8 244.784 816 9	0.11	300.918	15.97	1
44	86.811 229 0	20.454 529 5	8 486.943 711 5	−0.01	207.635	17.93	2
44	86.811 160 6	20.454 561 5	8 486.943 714 6	−0.01	207.632	12.78	1
44	86.848 418 4	20.454 983 1	8 487.018 255 3	0.04	207.638	32.58	2
44	86.848 352 4	20.455 019 6	8 487.018 258 3	0.04	207.635	17.38	1
44	86.855 559 7	20.455 064 3	8 487.032 576 3	0.05	207.638	16.54	2
44	86.855 490 6	20.455 095 5	8 487.032 579 4	0.05	207.636	15.49	1
44	86.892 752 8	20.455 504 1	8 487.107 144 4	0.08	207.641	16.85	2
44	86.892 684 9	20.455 537 6	8 487.107 147 5	0.08	207.638	12.57	1
44	86.899 898 9	20.455 594 1	8 487.121 465 3	0.08	207.642	8.57	2
44	86.899 830 1	20.455 626 0	8 487.121 468 4	0.08	207.639	11.96	1
44	86.937 083 6	20.456 020 2	8 487.196 033 3	0.10	207.644	17.22	2
44	86.937 016 2	20.456 054 9	8 487.196 036 5	0.10	207.642	14.21	1
44	86.944 227 3	20.456 106 3	8 487.210 354 2	0.10	207.645	19.91	2
44	86.944 155 4	20.456 132 7	8 487.210 357 5	0.10	207.642	13.44	1
44	95.394 143 7	20.318 787 3	8 504.526 400 1	0.09	144.149	15.17	1
44	95.394 203 0	20.318 834 8	8 504.526 408 7	0.09	144.108	19.16	2
44	95.400 922 2	20.318 493 8	8 504.540 671 6	0.09	144.150	12.33	1
44	95.400 985 6	20.318 536 1	8 504.540 680 2	0.09	144.109	14.62	2
44	95.436 365 7	20.316 928 7	8 504.615 263 7	0.05	144.154	12.13	1
44	95.436 429 5	20.316 970 8	8 504.615 272 3	0.05	144.114	8.66	2
44	95.485 365 7	20.314 754 8	8 504.718 424 1	0.00	142.565	18.42	1
44	119.572 024 1	17.393 436 1	8 567.817 153 6	0.05	152.170	7.57	2
44	119.571 913 6	17.393 383 0	8 567.817 161 5	0.05	152.144	7.41	1
44	119.575 488 9	17.392 780 7	8 567.831 474 5	0.06	152.170	5.76	2
44	119.575 379 8	17.392 725 1	8 567.831 482 6	0.06	152.144	5.72	1
44	122.837 766 7	16.792 455 6	8 586.035 347 9	0.07	225.283	8.40	1
44	122.837 887 7	16.792 343 1	8 586.035 352 8	0.07	225.305	9.76	2
44	122.839 358 5	16.792 210 8	8 586.049 669 0	0.08	225.283	7.06	1
44	122.839 478 5	16.792 097 4	8 586.049 673 8	0.08	225.305	4.95	2
44	122.847 609 9	16.790 936 5	8 586.124 212 5	0.10	225.284	7.95	1
44	122.847 729 9	16.790 823 4	8 586.124 217 1	0.10	225.306	6.74	2
44	122.849 191 8	16.790 694 9	8 586.138 533 5	0.10	225.284	8.35	1
44	122.849 313 5	16.790 583 3	8 586.138 538 1	0.10	225.306	10.50	2
44	122.857 397 0	16.789 438 6	8 586.213 101 1	0.09	225.284	7.11	1
44	122.857 513 8	16.789 322 7	8 586.213 105 7	0.09	225.307	12.32	2
44	122.858 963 9	16.789 195 0	8 586.227 422 0	0.08	225.284	8.15	1
44	122.859 083 9	16.789 082 4	8 586.227 426 6	0.08	225.307	6.48	2
44	115.316 960 7	22.169 095 6	8 707.620 488 5	0.13	329.762	9.35	1
44	115.317 078 3	22.169 160 9	8 707.620 496 7	0.13	329.756	8.25	2
44	115.320 458 1	22.168 898 9	8 707.634 809 5	0.13	329.762	8.10	1
44	115.320 575 0	22.168 965 1	8 707.634 817 7	0.13	329.757	8.48	2
44	115.338 708 7	22.167 838 3	8 707.709 377 0	0.10	329.764	8.05	1
44	115.338 825 9	22.167 902 5	8 707.709 385 1	0.10	329.759	8.88	2
44	115.342 218 7	22.167 632 0	8 707.723 697 8	0.09	329.765	8.25	1
44	115.342 334 7	22.167 697 8	8 707.723 705 8	0.09	329.759	12.29	2
44	123.135 318 2	21.247 639 6	8 732.767 324 8	0.10	55.326	8.13	1
44	123.135 374 5	21.247 560 2	8 732.767 325 6	0.10	55.311	11.28	2
44	123.140 548 5	21.246 795 1	8 732.781 645 8	0.10	55.327	13.85	1
44	123.140 605 9	21.246 716 5	8 732.781 646 5	0.10	55.312	12.44	2
44	133.492 769 0	19.135 692 7	8 758.638 915 3	0.13	334.705	8.64	2
44	133.492 697 4	19.135 660 0	8 758.638 920 1	0.13	334.773	13.90	1
44	133.524 634 5	19.127 975 8	8 758.713 482 9	0.10	334.708	7.54	2
44	133.524 562 2	19.127 945 0	8 758.713 487 6	0.10	334.776	10.26	1
44	133.530 765 7	19.126 490 6	8 758.727 828 4	0.09	334.708	17.27	2
44	133.530 693 0	19.126 460 6	8 758.727 833 1	0.09	334.776	11.53	1
44	133.562 639 4	19.118 766 6	8 758.802 395 4	0.01	334.711	11.84	2
44	133.562 569 3	19.118 731 3	8 758.802 400 0	0.01	334.779	15.27	1
44	151.044 331 5	13.935 660 0	8 797.982 844 3	0.11	45.748	18.59	2
44	151.044 279 6	13.935 712 5	8 797.982 845 1	0.11	45.751	17.04	1
44	151.050 864 9	13.933 406 1	8 797.997 165 3	0.12	45.749	11.22	2
44	151.084 889 4	13.921 671 3	8 798.071 733 4	0.14	45.751	22.81	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
44	151.084 833 1	13.921 721 0	8 798.071 734 1	0.14	45.754	14.52	1
44	151.091 437 9	13.919 415 4	8 798.086 079 1	0.14	45.752	15.52	2
44	151.091 386 7	13.919 463 0	8 798.086 092 2	0.14	45.754	18.32	1
44	151.125 445 1	13.907 670 2	8 798.160 622 0	0.12	45.755	11.56	2
44	151.125 391 6	13.907 724 1	8 798.160 622 7	0.12	45.757	20.78	1
44	151.131 997 1	13.905 416 1	8 798.174 967 6	0.11	45.755	18.42	2
44	151.131 945 9	13.905 472 5	8 798.174 968 3	0.11	45.757	18.47	1
44	151.165 942 7	13.893 717 6	8 798.249 498 3	0.05	45.760	22.32	1
44	151.166 009 5	13.893 667 2	8 798.249 510 1	0.05	45.758	37.52	2
44	151.172 551 8	13.891 416 7	8 798.263 830 8	0.03	45.758	6.54	2
44	151.172 496 9	13.891 471 5	8 798.263 831 4	0.03	45.761	12.11	1
44	155.920 076 0	12.198 308 4	8 808.648 976 3	0.12	3.205	18.40	2
44	155.920 001 6	12.198 317 2	8 808.648 976 6	0.12	3.083	14.06	1
44	155.926 619 9	12.195 916 8	8 808.663 272 7	0.13	3.205	11.60	2
44	155.926 545 3	12.195 922 0	8 808.663 273 0	0.13	3.083	17.14	1
44	155.960 749 3	12.183 384 4	8 808.737 840 6	0.14	3.204	11.86	2
44	155.960 674 2	12.183 385 0	8 808.737 840 9	0.14	3.083	13.49	1
44	155.967 315 3	12.180 972 5	8 808.752 186 3	0.14	3.204	10.66	2
44	155.967 240 4	12.180 978 5	8 808.752 186 6	0.14	3.083	14.83	1
44	156.001 432 8	12.168 423 6	8 808.826 729 1	0.11	3.204	15.07	2
44	156.001 357 7	12.168 429 6	8 808.826 729 4	0.11	3.083	13.18	1
44	156.007 976 9	12.166 032 3	8 808.841 025 3	0.10	3.204	16.57	2
51	325.781 853 6	−2.954 710 1	8 050.070 621 3	0.05	117.321	24.38	2
51	325.781 883 3	−2.954 672 1	8 050.070 621 9	0.05	117.297	16.23	1
51	325.800 109 1	−2.943 009 7	8 050.248 369 7	−0.05	118.129	15.35	1
51	325.800 087 3	−2.943 052 6	8 050.248 377 0	−0.05	118.177	13.99	2
51	326.660 819 3	−2.196 574 3	8 066.942 142 3	0.06	180.274	16.15	1
51	326.660 737 6	−2.196 575 1	8 066.942 149 8	0.06	180.264	20.16	2
51	326.660 800 1	−2.196 269 7	8 066.956 488 0	0.06	180.274	12.47	1
51	326.660 718 4	−2.196 270 9	8 066.956 495 5	0.06	180.264	15.38	2
51	326.660 485 6	−2.192 813 4	8 067.119 918 3	−0.05	181.527	13.71	1
51	326.660 405 4	−2.192 809 5	8 067.119 919 2	−0.05	181.563	19.62	2
51	326.660 369 6	−2.192 509 0	8 067.134 264 9	−0.04	181.563	8.20	2
51	326.660 241 6	−2.190 967 1	8 067.208 807 7	−0.01	181.527	13.30	1
51	326.660 161 9	−2.190 964 8	8 067.208 808 5	−0.01	181.563	10.65	2
51	326.660 197 3	−2.190 678 2	8 067.223 128 8	0.00	181.527	11.38	1
51	326.660 117 8	−2.190 674 8	8 067.223 129 7	0.00	181.563	12.96	2
51	71.597 204 7	8.435 537 3	8 651.995 743 0	0.06	312.506	18.07	1
51	71.597 527 8	8.436 912 2	8 652.010 038 1	0.08	312.522	22.21	2
51	71.597 540 3	8.436 921 5	8 652.010 039 5	0.08	312.506	16.17	1
51	71.599 303 2	8.444 139 4	8 652.084 630 9	0.12	312.521	13.78	2
51	71.599 313 8	8.444 150 5	8 652.084 632 7	0.12	312.505	15.14	1
51	71.599 643 3	8.445 532 8	8 652.098 951 9	0.12	312.521	7.80	2
51	71.599 655 4	8.445 542 5	8 652.098 953 6	0.12	312.505	14.31	1
51	71.601 461 6	8.452 772 6	8 652.173 519 9	0.12	312.521	18.60	2
51	71.601 471 1	8.452 784 5	8 652.173 521 6	0.12	312.504	14.47	1
51	71.601 816 8	8.454 162 9	8 652.187 840 9	0.12	312.521	18.47	2
51	71.601 825 9	8.454 175 0	8 652.187 842 5	0.12	312.504	16.12	1
51	231.937 334 7	−12.859 116 5	9 033.487 764 2	0.13	236.659	16.54	1
51	231.937 343 2	−12.859 091 7	9 033.487 844 1	0.13	236.734	0.54	2
51	231.941 682 1	−12.858 876 0	9 033.502 085 2	0.14	236.659	19.24	1
51	231.941 661 7	−12.858 856 4	9 033.502 091 0	0.14	236.734	27.73	2
63	75.888 576 0	30.023 260 6	7 919.228 258 7	0.03	344.432	19.71	1
63	196.661 776 6	−9.347 782 7	8 279.389 336 2	−0.06	161.599	15.86	2
63	196.661 852 1	−9.347 759 7	8 279.389 342 8	−0.06	161.605	12.60	1
63	196.673 910 8	−9.356 303 3	8 279.463 879 2	−0.09	161.598	20.16	2
63	196.673 986 1	−9.356 279 5	8 279.463 885 7	−0.09	161.604	18.15	1
63	196.676 244 0	−9.357 945 8	8 279.478 224 8	−0.09	161.598	27.35	2
63	196.676 316 5	−9.357 913 6	8 279.478 231 4	−0.09	161.604	16.49	1
63	196.688 420 2	−9.366 433 1	8 279.552 774 6	−0.09	161.604	12.19	1
63	196.690 744 0	−9.368 069 5	8 279.567 107 9	−0.09	161.603	11.20	1
63	196.690 673 3	−9.368 098 3	8 279.567 126 0	−0.09	161.597	10.07	2
63	198.744 540 0	−11.218 134 2	8 298.570 610 1	−0.10	235.579	12.85	1
63	198.744 483 3	−11.218 055 3	8 298.570 610 8	−0.10	235.599	11.67	2
63	198.745 229 6	−11.219 258 4	8 298.584 906 3	−0.10	235.579	18.48	1
63	198.745 175 8	−11.219 182 9	8 298.584 956 5	−0.10	235.599	17.64	2
63	186.627 109 2	−9.866 802 7	8 422.021 963 4	−0.08	341.101	18.63	1
63	186.627 032 3	−9.866 822 5	8 422.021 966 9	−0.08	341.092	18.91	2
63	4.137 679 2	1.752 013 2	8 789.588 129 1	−0.09	114.257	20.15	2
63	4.137 725 0	1.752 091 0	8 789.588 139 0	−0.09	114.338	15.35	1
63	4.141 925 3	1.754 336 8	8 789.602 425 2	−0.10	114.257	15.35	2
63	4.141 962 8	1.754 418 2	8 789.602 435 1	−0.10	114.338	14.68	1
63	11.011 946 4	5.815 373 4	8 818.068 621 1	−0.12	198.757	22.20	1
63	358.967 594 7	5.524 608 7	8 945.302 407 4	−0.12	312.804	17.85	2
63	358.967 700 5	5.524 725 6	8 945.302 412 0	−0.12	312.896	10.46	1
63	358.968 024 7	5.524 658 2	8 945.316 728 4	−0.12	312.804	12.06	2
63	358.968 130 5	5.524 775 0	8 945.316 733 0	−0.12	312.896	13.88	1
63	358.970 280 2	5.524 929 7	8 945.391 296 5	−0.09	312.804	9.22	2
63	358.970 387 3	5.525 044 9	8 945.391 301 2	−0.09	312.897	12.07	1
88	246.420 627 1	−26.363 038 9	7 960.782 014 8	0.10	231.998	12.22	2
88	246.420 621 4	−26.363 038 3	7 960.782 021 0	0.10	232.012	13.22	1
88	246.435 979 9	−26.366 096 9	7 960.856 551 3	0.07	232.010	20.28	1
88	246.435 991 1	−26.366 096 0	7 960.856 557 4	0.07	231.995	26.35	2
88	246.438 941 6	−26.366 688 3	7 960.870 915 3	0.06	231.994	18.12	2
88	246.438 944 3	−26.366 681 6	7 960.870 921 5	0.06	232.009	12.39	1
88	236.751 711 2	−22.343 862 3	8 087.588 004 8	0.12	347.212	14.71	1
88	236.751 733 2	−22.343 860 7	8 087.588 011 4	0.12	347.178	18.05	2
88	236.751 978 9	−22.343 245 1	8 087.602 301 1	0.13	347.212	11.68	1
88	236.752 000 1	−22.343 240 2	8 087.602 307 8	0.13	347.179	13.30	2
88	236.753 391 2	−22.339 992 7	8 087.676 893 7	0.13	347.213	11.83	1
88	236.753 410 8	−22.339 982 7	8 087.676 900 4	0.13	347.179	13.65	2
88	236.753 663 6	−22.339 358 6	8 087.691 189 9	0.13	347.213	10.31	1
88	236.753 685 0	−22.339 355 9	8 087.691 196 6	0.13	347.179	8.19	2
88	236.755 124 3	−22.336 116 9	8 087.765 782 2	0.10	347.213	10.47	1
88	236.755 145 2	−22.336 113 1	8 087.765 788 6	0.10	347.179	8.99	2
88	236.755 411 6	−22.335 507 6	8 087.780 078 2	0.09	347.213	10.31	1
88	236.755 432 6	−22.335 504 3	8 087.780 084 7	0.09	347.179	12.17	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
88	237.968 413 2	−21.869 526 4	8 103.585 865 4	0.13	49.230	11.25	1
88	237.968 427 3	−21.869 534 5	8 103.585 908 0	0.13	49.214	21.79	2
88	237.970 302 8	−21.869 305 9	8 103.600 179 6	0.13	49.213	14.82	2
88	237.970 294 4	−21.869 297 7	8 103.600 186 4	0.13	49.229	9.92	1
88	237.980 130 1	−21.868 111 9	8 103.674 747 3	0.13	49.211	8.33	2
88	237.980 121 2	−21.868 104 3	8 103.674 754 2	0.13	49.228	11.86	1
88	237.982 026 6	−21.867 879 7	8 103.689 068 1	0.12	49.210	16.36	2
88	237.982 017 2	−21.867 872 5	8 103.689 075 0	0.12	49.227	10.07	1
88	237.991 891 8	−21.866 698 4	8 103.763 610 7	0.09	49.208	13.95	2
88	237.991 886 8	−21.866 688 0	8 103.763 617 7	0.09	49.225	11.40	1
88	237.993 786 8	−21.866 478 3	8 103.777 956 1	0.07	49.208	14.91	2
88	237.993 782 3	−21.866 467 5	8 103.777 963 2	0.07	49.225	10.68	1
88	257.641 459 1	−22.568 857 5	8 169.245 039 8	0.11	42.054	24.00	2
88	257.647 554 4	−22.569 005 2	8 169.259 358 4	0.12	42.093	16.13	1
88	257.647 555 1	−22.569 012 2	8 169.259 360 8	0.12	42.053	27.88	2
88	257.679 317 1	−22.569 814 7	8 169.333 953 0	0.13	42.048	25.97	2
88	257.679 308 6	−22.569 821 4	8 169.333 963 3	0.13	42.088	21.83	1
88	257.685 388 7	−22.569 978 7	8 169.348 247 2	0.13	42.087	15.97	1
88	257.685 393 7	−22.569 981 1	8 169.348 249 4	0.13	42.047	14.32	2
88	265.224 981 9	−22.624 465 9	8 186.219 963 2	0.13	332.192	11.91	2
88	265.224 981 7	−22.624 471 2	8 186.219 965 1	0.13	332.168	16.02	1
88	265.231 650 2	−22.624 393 3	8 186.234 259 4	0.12	332.191	21.97	2
88	265.231 660 8	−22.624 397 3	8 186.234 285 9	0.12	332.168	25.31	1
88	265.266 420 5	−22.623 960 1	8 186.308 851 5	0.09	332.189	20.23	2
88	265.266 422 9	−22.623 970 5	8 186.308 853 4	0.09	332.165	20.12	1
88	265.273 099 8	−22.623 880 5	8 186.323 172 3	0.08	332.188	24.69	2
88	265.273 097 1	−22.623 882 1	8 186.323 174 2	0.08	332.164	22.87	1
88	265.307 878 6	−22.623 450 7	8 186.397 739 6	0.01	332.185	32.80	2
88	265.307 872 2	−22.623 446 8	8 186.397 741 3	0.01	332.161	18.05	1
88	265.314 553 2	−22.623 364 5	8 186.412 062 2	0.00	332.161	21.31	1
88	16.196 283 0	11.966 329 6	8 424.198 526 2	0.11	196.458	22.35	1
88	16.196 268 9	11.966 342 3	8 424.198 529 1	0.11	196.525	19.42	2
88	16.201 240 6	11.968 701 6	8 424.212 847 2	0.11	196.458	15.30	1
88	16.201 226 7	11.968 715 3	8 424.212 850 0	0.11	196.525	15.28	2
88	30.201 230 2	18.846 541 4	8 475.469 235 7	0.10	200.983	19.61	2
88	30.201 257 8	18.846 532 7	8 475.469 243 8	0.10	201.031	14.36	1
88	30.203 709 9	18.847 910 9	8 475.483 532 1	0.11	200.984	16.73	2
88	30.203 735 8	18.847 898 3	8 475.483 540 2	0.11	201.031	15.87	1
88	30.216 624 9	18.855 044 2	8 475.558 100 2	0.13	200.985	17.04	2
88	30.216 651 0	18.855 032 5	8 475.558 108 2	0.13	201.032	12.45	1
88	30.219 099 0	18.856 405 6	8 475.572 421 2	0.13	200.985	32.31	2
88	30.219 126 1	18.856 396 5	8 475.572 429 1	0.13	201.033	15.76	1
88	30.231 978 9	18.863 532 9	8 475.646 964 1	0.12	200.986	8.96	2
88	30.232 005 9	18.863 524 5	8 475.646 972 1	0.12	201.034	12.08	1
88	20.134 482 8	14.700 984 3	8 602.423 250 4	0.08	315.171	22.52	2
88	20.134 515 8	14.701 008 9	8 602.423 255 5	0.08	315.121	14.76	1
88	20.135 047 5	14.700 478 7	8 602.437 490 0	0.08	315.121	37.52	1
88	20.135 026 8	14.700 442 0	8 602.437 571 4	0.08	315.172	13.59	2
88	21.460 564 5	14.420 900 0	8 618.153 488 5	−0.02	18.735	20.59	1
88	21.460 533 3	14.420 911 0	8 618.153 491 7	−0.02	18.693	26.33	2
88	21.462 400 9	14.420 922 3	8 618.167 846 5	−0.02	18.735	23.39	1
88	21.462 370 3	14.420 935 7	8 618.167 849 8	−0.02	18.693	20.83	2
88	21.483 370 2	14.421 191 0	8 618.331 270 0	0.08	19.422	17.37	1
88	21.483 337 4	14.421 198 8	8 618.331 271 0	0.08	19.405	17.59	2
115	58.268 755 8	31.989 262 7	7 915.230 483 3	0.01	321.813	19.65	2
115	58.268 738 7	31.989 262 7	7 915.230 489 8	0.01	321.787	12.96	1
115	58.271 945 5	31.987 380 4	7 915.244 804 2	0.01	321.814	15.39	2
115	58.271 934 6	31.987 373 8	7 915.244 810 7	0.01	321.788	12.81	1
115	63.371 659 5	30.029 063 9	7 933.181 124 3	−0.08	32.774	12.33	1
115	63.371 657 5	30.029 060 4	7 933.181 126 8	−0.08	32.759	21.00	2
115	63.376 492 9	30.027 771 4	7 933.195 470 0	−0.08	32.774	9.14	1
115	63.376 494 4	30.027 772 7	7 933.195 472 5	−0.08	32.759	9.59	2
115	63.406 524 1	30.019 850 7	7 933.284 358 7	−0.08	32.778	9.60	1
115	63.406 524 4	30.019 850 7	7 933.284 361 3	−0.08	32.761	9.99	2
115	74.960 298 9	27.983 449 3	7 962.322 066 9	0.00	311.068	20.73	2
115	74.960 303 5	27.983 461 0	7 962.322 068 2	0.00	311.051	17.14	1
115	74.966 669 0	27.982 602 7	7 962.336 387 9	−0.01	311.070	16.00	2
115	90.158 539 4	26.000 753 5	7 994.408 644 4	−0.06	36.774	18.60	2
115	90.158 550 5	26.000 755 7	7 994.408 646 8	−0.06	36.888	14.94	1
115	90.195 326 2	25.995 511 8	7 994.483 236 7	−0.08	36.779	11.40	2
115	90.195 330 1	25.995 505 5	7 994.483 239 1	−0.08	36.893	16.70	1
115	90.202 405 8	25.994 508 4	7 994.497 582 2	−0.09	36.780	15.99	2
115	90.202 414 8	25.994 508 2	7 994.497 584 7	−0.09	36.894	16.39	1
115	98.918 014 2	24.625 801 6	8 012.005 363 0	0.03	331.670	29.25	1
115	98.955 327 8	24.619 291 6	8 012.079 917 3	−0.01	331.657	22.32	2
115	98.955 355 8	24.619 303 5	8 012.079 942 9	−0.01	331.674	38.27	1
115	98.962 473 9	24.618 046 7	8 012.094 188 7	−0.02	331.658	13.95	2
115	98.962 497 0	24.618 057 8	8 012.094 202 0	−0.02	331.675	19.60	1
115	307.040 334 2	−26.280 089 5	8 758.049 065 3	−0.10	206.802	30.30	2
115	307.041 927 5	−26.279 639 0	8 758.063 403 9	−0.11	206.755	20.74	1
115	307.041 919 2	−26.279 627 3	8 758.063 410 8	−0.11	206.802	36.58	2
115	307.050 189 8	−26.277 156 8	8 758.137 946 8	−0.13	206.754	18.31	1
115	307.050 181 0	−26.277 146 0	8 758.137 953 9	−0.13	206.801	22.02	2
115	307.051 765 9	−26.276 672 8	8 758.152 311 9	−0.13	206.800	30.30	2
115	307.051 775 7	−26.276 683 7	8 758.152 317 1	−0.13	206.753	30.86	1
115	307.059 984 9	−26.274 224 3	8 758.226 848 0	−0.12	206.752	24.17	1
115	307.059 975 7	−26.274 216 7	8 758.226 867 5	−0.12	206.799	20.42	2
115	307.061 559 3	−26.273 750 3	8 758.241 169 1	−0.11	206.752	21.62	1
115	307.061 547 8	−26.273 744 9	8 758.241 176 2	−0.11	206.799	30.75	2
115	302.618 297 4	−16.467 614 2	8 934.649 731 7	−0.02	305.882	22.35	1
115	302.618 306 2	−16.467 611 8	8 934.649 756 4	−0.02	305.879	37.47	2
115	302.623 469 5	−16.465 948 8	8 934.664 077 3	−0.02	305.882	16.44	1
115	302.623 468 0	−16.465 948 2	8 934.664 077 4	−0.02	305.878	13.80	2
115	302.650 364 3	−16.457 279 0	8 934.738 670 2	0.02	305.878	16.59	1
115	302.650 358 2	−16.457 275 1	8 934.738 670 4	0.02	305.875	21.92	2
115	302.655 514 9	−16.455 612 4	8 934.752 966 5	0.02	305.877	17.32	1
115	302.655 513 3	−16.455 611 6	8 934.752 966 7	0.02	305.874	14.78	2
115	302.682 402 8	−16.446 933 2	8 934.827 510 0	0.05	305.874	24.48	1
115	302.682 407 7	−16.446 927 9	8 934.827 534 6	0.05	305.870	26.67	2

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
115	302.687 578 9	−16.445 271 2	8 934.841 830 9	0.05	305.869	21.26	2
115	302.687 581 3	−16.445 272 6	8 934.841 831 0	0.05	305.873	20.07	1
115	318.258 704 6	−11.081 872 3	8 972.782 235 0	−0.03	2.805	24.11	1
115	318.258 681 6	−11.081 868 6	8 972.782 242 4	−0.03	2.713	23.55	2
115	318.265 124 5	−11.079 450 4	8 972.796 543 7	−0.02	2.805	21.52	1
115	318.265 106 6	−11.079 453 8	8 972.796 563 5	−0.02	2.713	26.22	2
115	318.298 586 8	−11.066 916 6	8 972.871 124 2	0.01	2.805	21.31	1
115	318.298 563 6	−11.066 922 1	8 972.871 131 6	0.01	2.712	28.11	2
115	318.305 012 8	−11.064 516 3	8 972.885 445 3	0.02	2.805	27.59	1
115	318.304 989 8	−11.064 520 4	8 972.885 452 6	0.02	2.712	23.99	2
115	318.338 456 8	−11.051 981 9	8 972.960 020 7	0.05	2.712	31.09	2
115	318.344 913 6	−11.049 565 8	8 972.974 346 9	0.05	2.804	27.48	1
115	318.344 890 7	−11.049 573 9	8 972.974 354 1	0.05	2.712	26.71	2
115	318.420 409 9	−11.021 262 4	8 973.142 539 3	−0.06	0.936	23.65	2
115	318.420 431 1	−11.021 253 4	8 973.142 540 9	−0.06	0.919	22.87	1
115	318.426 842 2	−11.018 856 1	8 973.156 860 3	−0.05	0.936	35.22	2
115	318.426 868 8	−11.018 861 7	8 973.156 874 3	−0.05	0.919	25.46	1
115	318.466 786 1	−11.003 866 6	8 973.245 774 3	−0.02	0.936	19.57	2
115	318.466 807 1	−11.003 868 9	8 973.245 775 8	−0.02	0.919	22.40	1
129	171.970 913 9	7.847 707 0	7 899.460 946 7	0.13	234.985	9.39	1
129	171.970 854 6	7.847 794 9	7 899.460 948 9	0.13	234.920	3.84	2
129	171.972 082 4	7.848 435 6	7 899.475 292 3	0.12	234.985	10.73	1
129	171.972 021 8	7.848 522 5	7 899.475 294 5	0.12	234.920	11.37	2
129	171.978 139 9	7.852 233 6	7 899.549 834 8	0.07	234.986	14.05	1
129	171.978 083 8	7.852 324 1	7 899.549 836 9	0.07	234.921	10.56	2
129	171.979 308 9	7.852 971 1	7 899.564 180 3	0.05	234.986	15.09	1
129	171.979 251 5	7.853 060 7	7 899.564 182 4	0.05	234.921	14.20	2
129	162.881 983 9	18.554 443 8	8 024.530 975 9	0.09	345.107	11.90	2
129	162.882 067 3	18.554 463 4	8 024.530 983 1	0.09	345.095	11.69	1
129	162.891 417 7	18.549 796 3	8 024.605 518 9	0.07	345.108	25.19	2
129	162.891 501 9	18.549 813 0	8 024.605 526 1	0.07	345.096	13.90	1
129	175.137 191 5	12.712 353 2	8 075.526 455 7	0.07	341.232	13.12	1
129	175.137 137 5	12.712 331 9	8 075.526 462 9	0.07	341.241	11.58	2
129	175.161 621 3	12.700 807 7	8 075.601 023 6	0.07	341.234	15.71	1
129	175.161 565 4	12.700 791 7	8 075.601 030 7	0.07	341.242	22.06	2
129	175.166 313 5	12.698 593 4	8 075.615 344 6	0.07	341.234	13.38	1
129	175.166 258 9	12.698 573 2	8 075.615 351 7	0.07	341.242	8.55	2
129	175.190 758 2	12.687 045 5	8 075.689 912 1	0.04	341.235	13.95	1
129	175.190 702 3	12.687 028 7	8 075.689 919 1	0.04	341.244	14.68	2
129	175.195 448 4	12.684 824 9	8 075.704 208 4	0.04	341.235	16.91	1
129	175.195 393 0	12.684 806 5	8 075.704 215 4	0.04	341.244	14.65	2
129	289.264 732 3	−14.828 392 8	8 314.555 173 4	0.06	196.551	22.51	1
129	289.264 683 3	−14.828 375 9	8 314.555 177 6	0.06	196.576	25.76	2
129	289.271 619 9	−14.827 692 1	8 314.569 568 4	0.06	196.551	17.53	1
129	289.271 571 8	−14.827 672 2	8 314.569 572 7	0.06	196.576	17.88	2
129	289.307 282 5	−14.824 014 5	8 314.644 086 3	0.01	196.550	16.96	1
129	289.307 232 0	−14.824 002 8	8 314.644 090 7	0.01	196.575	16.70	2
129	289.392 255 8	−14.815 235 2	8 314.821 864 4	0.10	194.757	15.66	2
129	289.392 308 4	−14.815 248 4	8 314.821 871 3	0.10	194.748	13.85	1
129	289.399 117 4	−14.814 514 4	8 314.836 210 1	0.10	194.757	12.52	2
129	289.399 170 0	−14.814 527 5	8 314.836 217 0	0.10	194.748	13.17	1
129	289.434 736 9	−14.810 828 6	8 314.910 728 6	0.10	194.756	17.36	2
129	289.434 787 3	−14.810 849 2	8 314.910 735 5	0.10	194.747	14.57	1
129	289.441 590 7	−14.810 126 1	8 314.925 074 3	0.10	194.756	6.35	2
129	289.441 642 7	−14.810 140 6	8 314.925 081 2	0.10	194.747	11.82	1
129	289.484 066 3	−14.805 705 2	8 315.013 962 7	0.06	194.755	11.18	2
129	289.484 118 0	−14.805 720 8	8 315.013 969 5	0.06	194.746	10.79	1
129	294.294 389 5	−14.237 472 4	8 325.310 027 2	0.00	149.156	14.31	1
129	294.294 346 3	−14.237 488 9	8 325.310 032 0	0.00	149.120	24.07	2
129	294.300 918 8	−14.236 605 3	8 325.324 348 0	−0.02	149.156	14.94	1
129	294.300 879 9	−14.236 628 9	8 325.324 353 0	−0.02	149.119	13.63	2
129	294.341 423 8	−14.231 269 3	8 325.413 265 5	0.07	147.503	12.43	2
129	294.341 461 0	−14.231 243 4	8 325.413 267 8	0.07	147.501	17.63	1
129	294.375 447 3	−14.226 748 9	8 325.487 823 8	0.11	147.499	17.27	1
129	294.375 409 0	−14.226 764 2	8 325.487 833 7	0.11	147.501	28.52	2
129	294.381 928 0	−14.225 907 1	8 325.502 130 0	0.11	147.501	19.90	2
129	294.381 968 5	−14.225 885 8	8 325.502 132 4	0.11	147.499	17.94	1
129	294.415 914 0	−14.221 401 4	8 325.576 722 5	0.10	147.499	25.82	2
129	294.415 949 5	−14.221 372 6	8 325.576 724 8	0.10	147.497	16.59	1
129	294.422 434 1	−14.220 530 6	8 325.591 043 3	0.09	147.498	10.77	2
129	294.422 470 1	−14.220 502 5	8 325.591 045 6	0.09	147.497	14.88	1
129	294.456 392 5	−14.216 018 9	8 325.665 610 9	0.06	147.497	14.13	2
129	294.456 447 4	−14.215 991 5	8 325.665 650 2	0.06	147.495	19.91	1
129	294.462 918 6	−14.215 151 3	8 325.679 944 1	0.05	147.496	12.62	2
129	294.462 956 3	−14.215 125 5	8 325.679 946 3	0.05	147.494	11.88	1
129	309.525 899 2	−11.649 812 2	8 362.802 639 3	0.11	208.121	18.41	1
129	309.525 873 6	−11.649 801 4	8 362.802 641 5	0.11	208.129	13.31	2
129	309.530 878 7	−11.648 823 2	8 362.816 923 3	0.11	208.121	15.51	1
129	309.530 854 5	−11.648 810 1	8 362.816 925 5	0.11	208.129	17.06	2
129	309.556 881 7	−11.643 633 4	8 362.891 503 1	0.09	208.120	18.10	1
129	309.556 856 1	−11.643 622 7	8 362.891 505 4	0.09	208.127	19.67	2
129	309.561 843 8	−11.642 625 3	8 362.905 813 9	0.08	208.127	24.84	2
129	309.561 871 2	−11.642 639 7	8 362.905 824 0	0.08	208.119	17.32	1
129	309.587 846 9	−11.637 452 9	8 362.980 391 4	0.04	208.118	17.22	1
129	309.587 822 6	−11.637 439 9	8 362.980 393 7	0.04	208.125	19.21	2
129	317.675 149 1	−10.047 096 6	8 390.436 237 5	0.07	119.425	9.60	2
129	317.675 162 4	−10.047 066 9	8 390.436 243 9	0.07	119.402	13.26	1
129	317.678 509 7	−10.046 510 3	8 390.450 570 7	0.06	119.425	22.06	2
129	317.678 529 8	−10.046 484 4	8 390.450 577 1	0.06	119.401	18.91	1
129	317.696 007 5	−10.043 482 7	8 390.525 138 0	0.01	119.423	11.04	2
129	317.696 022 9	−10.043 454 6	8 390.525 144 3	0.01	119.399	12.38	1
129	317.699 366 1	−10.042 903 0	8 390.539 458 8	0.00	119.422	23.39	2
129	317.699 386 5	−10.042 877 8	8 390.539 465 2	0.00	119.399	13.21	1
129	321.670 240 4	−9.652 324 6	8 413.288 543 9	0.08	196.535	10.90	1
129	321.678 424 3	−9.653 090 5	8 413.363 087 4	0.10	196.535	9.63	1
129	321.679 995 7	−9.653 238 6	8 413.377 433 0	0.10	196.535	10.64	1
129	321.688 142 2	−9.654 021 5	8 413.452 000 6	0.09	196.535	8.97	1
129	321.689 692 3	−9.654 167 4	8 413.466 210 4	0.08	196.535	23.66	1
129	317.278 795 2	−20.842 213 0	8 563.862 750 2	−0.03	25.539	27.90	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
129	317.278 791 0	−20.842 213 4	8 563.862 760 1	−0.03	25.538	36.93	2
129	317.282 130 8	−20.841 626 0	8 563.877 068 7	−0.03	25.538	34.62	2
129	317.282 140 0	−20.841 636 4	8 563.877 108 2	−0.03	25.538	27.90	1
129	317.299 554 6	−20.838 566 8	8 563.951 685 5	−0.06	25.536	17.08	2
129	317.299 561 0	−20.838 567 4	8 563.951 688 1	−0.06	25.537	19.50	1
129	317.302 913 4	−20.837 974 8	8 563.966 055 9	−0.06	25.536	94.23	2
129	317.302 916 6	−20.837 981 7	8 563.966 058 4	−0.06	25.536	43.09	1
192	65.527 722 7	31.406 523 7	7 916.310 431 2	−0.06	327.406	10.57	2
192	65.527 716 7	31.406 518 0	7 916.310 433 2	−0.06	327.400	15.79	1
192	65.536 832 2	31.401 165 0	7 916.385 023 5	−0.08	327.408	13.40	2
192	65.536 826 3	31.401 160 5	7 916.385 025 5	−0.08	327.404	11.57	1
192	65.538 591 4	31.400 130 6	7 916.399 344 4	−0.08	327.409	16.03	2
192	65.538 580 2	31.400 133 5	7 916.399 346 5	−0.08	327.404	15.34	1
192	65.558 730 1	31.388 432 9	7 916.562 805 1	0.02	329.599	17.25	2
192	65.558 735 3	31.388 425 0	7 916.562 874 9	0.02	329.576	18.31	1
192	65.560 502 3	31.387 406 5	7 916.577 121 8	0.02	329.576	11.97	1
192	65.560 507 2	31.387 407 5	7 916.577 126 1	0.02	329.599	11.45	2
192	68.445 962 6	30.455 592 1	7 932.218 359 6	−0.04	33.398	14.69	2
192	68.446 001 2	30.455 567 9	7 932.218 368 1	−0.04	33.400	10.86	1
192	68.463 786 9	30.451 964 7	7 932.292 927 1	−0.07	33.400	18.99	2
192	68.463 824 4	30.451 939 0	7 932.292 935 5	−0.07	33.401	12.44	1
192	68.467 212 7	30.451 258 2	7 932.307 272 8	−0.07	33.400	10.99	2
192	68.467 252 7	30.451 235 6	7 932.307 281 2	−0.07	33.402	8.97	1
192	68.488 510 4	30.446 941 2	7 932.396 161 4	−0.08	33.402	12.85	2
192	68.488 550 8	30.446 919 3	7 932.396 169 8	−0.08	33.405	9.53	1
192	78.122 065 3	29.345 369 7	7 962.855 097 6	−0.04	312.115	7.08	2
192	78.122 064 9	29.345 364 7	7 962.855 099 0	−0.04	312.093	14.88	1
192	78.127 465 2	29.344 937 5	7 962.869 418 5	−0.05	312.116	9.30	2
192	78.127 459 4	29.344 936 7	7 962.869 419 8	−0.05	312.094	14.99	1
192	78.155 563 9	29.342 702 5	7 962.943 961 1	−0.08	312.125	11.13	2
192	78.155 560 8	29.342 699 8	7 962.943 962 5	−0.08	312.103	11.67	1
192	276.233 027 2	−32.608 535 6	8 739.476 169 0	−0.11	151.603	18.27	2
192	276.233 163 3	−32.608 473 2	8 739.476 169 9	−0.11	151.585	17.27	1
192	276.233 898 5	−32.609 308 5	8 739.490 514 7	−0.11	151.602	21.68	2
192	276.234 032 9	−32.609 243 0	8 739.490 527 9	−0.11	151.585	19.71	1
192	276.238 439 0	−32.613 384 4	8 739.565 095 2	−0.09	151.601	13.58	2
192	276.238 572 7	−32.613 317 4	8 739.565 096 0	−0.09	151.583	17.58	1
192	276.239 298 7	−32.614 156 8	8 739.579 391 5	−0.09	151.600	8.24	2
192	276.239 434 8	−32.614 093 5	8 739.579 392 3	−0.09	151.582	18.31	1
192	276.243 784 7	−32.618 228 2	8 739.653 971 9	−0.05	151.599	15.23	2
192	276.243 921 3	−32.618 164 9	8 739.653 972 8	−0.05	151.580	16.23	1
192	276.244 642 1	−32.619 011 6	8 739.668 293 0	−0.04	151.598	12.17	2
192	276.244 780 2	−32.618 950 4	8 739.668 293 9	−0.04	151.580	14.73	1
192	276.254 444 1	−32.627 878 6	8 739.831 731 0	−0.07	153.759	17.16	1
192	276.255 143 8	−32.628 723 2	8 739.846 074 0	−0.08	153.758	14.62	2
192	276.255 282 6	−32.628 662 4	8 739.846 076 5	−0.08	153.759	16.59	1
192	258.961 546 8	−32.663 408 6	8 833.021 406 4	−0.05	350.174	15.87	1
192	258.961 387 4	−32.663 435 0	8 833.021 407 5	−0.05	350.196	13.53	2
192	258.955 550 3	−32.657 574 4	8 833.095 974 6	−0.02	350.175	14.76	1
192	258.955 390 3	−32.657 601 3	8 833.095 975 8	−0.02	350.196	14.54	2
192	258.954 405 8	−32.656 454 9	8 833.110 283 3	−0.02	350.175	14.66	1
192	258.954 244 6	−32.656 480 2	8 833.110 296 9	−0.02	350.196	10.09	2
192	258.948 470 5	−32.650 612 5	8 833.184 863 8	0.02	350.175	16.93	1
192	258.948 310 0	−32.650 640 0	8 833.184 865 1	0.02	350.197	29.55	2
192	258.947 341 3	−32.649 504 0	8 833.199 160 1	0.02	350.176	14.36	1
192	258.947 179 8	−32.649 527 2	8 833.199 161 4	0.02	350.197	16.89	2
192	258.941 467 9	−32.643 655 3	8 833.273 752 9	0.04	350.176	14.56	1
192	258.941 305 3	−32.643 676 5	8 833.273 754 1	0.04	350.198	19.04	2
192	258.940 350 9	−32.642 536 1	8 833.288 012 1	0.04	350.177	45.39	1
192	258.940 183 2	−32.642 558 9	8 833.288 099 8	0.04	350.198	12.13	2
192	258.927 746 1	−32.629 798 6	8 833.450 773 3	−0.05	351.656	14.81	1
192	258.927 584 3	−32.629 821 8	8 833.450 782 2	−0.05	351.664	17.69	2
192	258.926 646 5	−32.628 664 8	8 833.465 106 6	−0.05	351.656	18.84	1
192	258.926 482 9	−32.628 687 6	8 833.465 140 2	−0.05	351.664	15.56	2
192	258.920 970 8	−32.622 835 7	8 833.539 650 1	−0.02	351.657	15.72	1
192	258.920 808 4	−32.622 859 1	8 833.539 659 2	−0.02	351.664	13.08	2
192	258.919 886 3	−32.621 714 5	8 833.553 971 2	−0.01	351.657	19.80	1
192	258.919 723 9	−32.621 738 0	8 833.553 980 3	−0.01	351.664	19.21	2
192	258.914 270 4	−32.615 879 2	8 833.628 564 0	0.02	351.657	14.97	1
192	258.914 107 0	−32.615 899 8	8 833.628 573 1	0.02	351.665	11.83	2
192	258.913 198 3	−32.614 758 8	8 833.642 884 9	0.02	351.657	15.07	1
192	258.913 035 6	−32.614 784 0	8 833.642 894 1	0.02	351.665	25.30	2
196	279.215 197 6	−24.172 240 7	7 992.573 110 1	0.01	135.337	16.08	1
196	279.215 202 2	−24.172 245 4	7 992.573 115 0	0.01	135.405	19.02	2
196	279.217 234 7	−24.172 582 3	7 992.587 431 2	0.02	135.336	13.59	1
196	279.217 237 8	−24.172 585 6	7 992.587 436 1	0.02	135.405	23.68	2
196	279.227 816 1	−24.174 356 1	7 992.661 987 1	0.05	135.334	19.34	1
196	279.227 818 0	−24.174 358 2	7 992.661 992 0	0.05	135.402	10.32	2
196	280.978 039 2	−24.757 829 9	8 012.390 782 9	0.05	208.163	12.67	1
196	280.983 652 3	−24.764 240 5	8 012.568 586 8	0.03	208.817	11.43	1
196	280.983 637 3	−24.764 239 2	8 012.568 588 6	0.03	208.756	8.94	2
196	280.984 076 3	−24.764 789 9	8 012.582 908 0	0.04	208.817	9.83	1
196	268.329 705 5	−28.259 238 0	8 139.211 991 5	0.13	318.908	21.00	2
196	268.329 708 8	−28.259 230 6	8 139.211 993 1	0.13	318.897	17.01	1
196	268.331 439 1	−28.259 231 7	8 139.226 337 0	0.12	318.908	26.57	2
196	268.331 445 4	−28.259 227 4	8 139.226 338 6	0.12	318.897	15.04	1
196	268.340 473 1	−28.259 206 8	8 139.300 879 5	0.08	318.906	7.70	2
196	268.340 481 7	−28.259 205 2	8 139.300 881 2	0.08	318.896	17.16	1
196	268.342 216 0	−28.259 202 7	8 139.315 225 1	0.07	318.906	23.23	2
196	268.342 219 1	−28.259 195 5	8 139.315 226 8	0.07	318.895	16.70	1
196	273.262 694 4	−28.163 092 7	8 165.616 296 0	0.03	41.987	18.82	1
196	273.281 034 4	−28.162 478 2	8 165.690 864 7	0.10	41.984	25.57	1
196	273.284 568 5	−28.162 350 7	8 165.705 185 7	0.11	41.983	15.25	1
196	273.302 909 4	−28.161 757 9	8 165.779 753 7	0.13	41.980	20.38	1
196	273.302 907 9	−28.161 743 4	8 165.779 758 9	0.13	41.983	16.77	2
196	357.597 485 5	−8.890 352 2	8 593.980 479 4	0.06	293.421	21.00	2
196	357.597 494 0	−8.890 327 5	8 593.980 481 5	0.06	293.424	18.82	1
196	357.598 740 8	−8.889 031 9	8 593.994 837 3	0.05	293.421	27.29	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
196	357.598 747 2	−8.889 006 3	8 593.994 839 4	0.05	293.424	21.68	1
196	357.605 263 9	−8.882 169 0	8 594.069 367 6	0.02	293.420	19.68	2
196	357.605 266 0	−8.882 141 6	8 594.069 369 9	0.02	293.424	12.81	1
196	357.606 522 8	−8.880 847 1	8 594.083 713 2	0.01	293.420	24.14	2
196	357.613 066 4	−8.873 969 0	8 594.158 243 6	−0.02	293.420	22.06	2
196	357.613 079 7	−8.873 946 3	8 594.158 246 0	−0.02	293.423	18.57	1
216	330.524 086 2	−3.953 378 7	7 895.421 071 6	−0.12	321.741	17.48	1
216	330.524 069 3	−3.953 383 2	7 895.421 075 4	−0.12	321.721	24.16	2
216	330.530 816 0	−3.951 907 4	7 895.435 404 9	−0.12	321.740	22.92	1
216	330.530 804 6	−3.951 910 3	7 895.435 421 1	−0.12	321.721	66.70	2
216	330.565 784 9	−3.944 232 0	7 895.509 952 3	−0.08	321.720	18.60	2
216	330.572 521 0	−3.942 738 6	7 895.524 282 0	−0.07	321.740	15.45	1
216	330.572 509 2	−3.942 749 5	7 895.524 285 7	−0.07	321.720	13.84	2
216	109.061 287 8	12.444 156 1	8 165.296 182 0	−0.12	143.837	9.11	1
216	109.066 137 9	12.442 089 4	8 165.310 492 9	−0.13	143.662	14.56	2
216	109.066 119 9	12.442 072 3	8 165.310 502 9	−0.13	143.838	10.33	1
216	105.621 863 3	4.097 517 4	8 311.308 593 5	−0.11	330.786	17.50	1
216	105.621 906 6	4.097 543 6	8 311.308 594 6	−0.11	330.805	42.38	2
216	105.621 708 8	4.098 946 6	8 311.322 963 9	−0.11	330.786	18.21	1
216	105.621 748 5	4.098 980 4	8 311.322 977 3	−0.11	330.805	28.01	2
216	105.620 900 6	4.106 416 3	8 311.397 544 4	−0.09	330.786	11.84	1
216	105.620 947 8	4.106 435 8	8 311.397 545 7	−0.09	330.805	13.54	2
216	105.620 755 3	4.107 840 9	8 311.411 865 5	−0.08	330.786	15.94	1
216	105.620 797 0	4.107 869 9	8 311.411 866 8	−0.08	330.805	20.20	2
216	105.620 003 1	4.115 289 9	8 311.486 433 7	−0.04	330.786	10.78	1
216	105.620 047 3	4.115 314 6	8 311.486 435 1	−0.04	330.805	14.93	2
216	105.619 864 6	4.116 717 6	8 311.500 754 9	−0.03	330.786	13.26	1
216	105.619 905 9	4.116 747 5	8 311.500 756 2	−0.03	330.805	13.44	2
216	105.619 152 1	4.124 177 8	8 311.575 348 0	0.02	330.785	15.58	1
216	106.190 698 8	5.529 556 1	8 326.165 908 2	−0.01	32.985	22.12	2
216	106.190 677 0	5.529 567 0	8 326.165 912 2	−0.01	32.957	15.32	1
216	106.205 985 3	5.545 714 8	8 326.343 712 7	−0.10	34.426	19.07	1
216	106.206 005 1	5.545 701 7	8 326.343 714 5	−0.10	34.390	26.90	2
216	106.212 476 5	5.552 456 5	8 326.418 282 4	−0.10	34.391	33.90	2
216	106.212 457 3	5.552 470 1	8 326.418 292 9	−0.10	34.427	21.58	1
216	106.213 713 3	5.553 780 0	8 326.432 626 2	−0.10	34.427	14.71	1
216	106.213 732 4	5.553 765 7	8 326.432 628 1	−0.10	34.391	12.44	2
216	106.220 223 6	5.560 527 5	8 326.507 169 7	−0.07	34.427	13.53	1
216	106.220 240 8	5.560 510 6	8 326.507 171 7	−0.07	34.391	18.25	2
216	111.760 021 6	7.802 768 9	8 358.862 842 1	−0.07	325.686	20.23	2
216	111.759 996 6	7.802 753 7	8 358.862 846 0	−0.07	325.661	15.40	1
216	111.777 939 6	7.806 091 7	8 358.937 401 8	−0.04	325.662	14.52	1
216	111.777 962 4	7.806 114 9	8 358.937 410 3	−0.04	325.687	15.10	2
216	111.781 388 2	7.806 741 8	8 358.951 747 7	−0.03	325.662	17.16	1
216	111.781 415 0	7.806 759 1	8 358.951 756 2	−0.03	325.687	11.45	2
216	111.799 360 3	7.810 045 7	8 359.026 266 6	0.02	325.662	28.88	1
216	111.799 387 8	7.810 071 2	8 359.026 299 7	0.02	325.688	32.96	2
216	111.802 791 1	7.810 711 5	8 359.040 575 2	0.02	325.662	28.94	1
216	111.802 828 3	7.810 727 8	8 359.040 620 7	0.02	325.688	15.19	2
230	34.769 397 0	13.448 488 1	7 908.387 403 0	−0.11	298.673	12.45	1
230	34.769 390 8	13.448 473 0	7 908.387 403 4	−0.11	298.715	8.56	2
230	42.748 040 9	14.651 719 9	7 935.308 871 2	−0.09	25.193	14.31	1
230	42.748 002 8	14.651 742 2	7 935.308 879 2	−0.09	25.170	22.22	2
230	42.753 006 5	14.652 602 7	7 935.323 192 1	−0.09	25.193	11.41	1
230	42.752 966 4	14.652 620 8	7 935.323 200 2	−0.09	25.171	15.35	2
230	50.836 886 8	16.089 459 7	7 956.724 513 8	−0.12	309.096	13.90	1
230	50.836 878 0	16.089 444 5	7 956.724 518 0	−0.12	309.064	13.17	2
230	50.842 685 6	16.090 458 6	7 956.738 834 8	−0.12	309.097	14.42	1
230	50.842 675 5	16.090 444 4	7 956.738 839 0	−0.12	309.065	10.02	2
230	173.975 884 7	−9.002 925 8	8 250.516 887 6	−0.07	247.437	13.95	1
230	173.975 900 3	−9.002 962 1	8 250.516 889 2	−0.07	247.431	10.44	2
230	173.988 500 0	−9.013 278 6	8 250.591 455 1	−0.10	247.436	20.43	1
230	173.988 521 2	−9.013 313 2	8 250.591 456 8	−0.10	247.430	16.80	2
230	173.990 928 2	−9.015 259 9	8 250.605 763 6	−0.11	247.436	19.97	1
230	173.990 945 7	−9.015 296 0	8 250.605 765 3	−0.11	247.430	12.49	2
230	174.003 506 0	−9.025 601 8	8 250.680 319 1	−0.11	247.434	15.35	1
230	174.003 518 9	−9.025 640 2	8 250.680 320 9	−0.11	247.429	26.61	2
230	176.412 403 6	−12.570 550 4	8 286.397 360 5	−0.05	189.044	14.25	2
230	176.412 382 3	−12.570 542 9	8 286.397 360 7	−0.05	189.541	10.31	1
230	176.411 736 3	−12.571 236 1	8 286.411 681 5	−0.06	189.044	4.76	2
230	176.411 714 4	−12.571 232 4	8 286.411 681 6	−0.06	189.541	11.28	1
230	176.404 020 9	−12.579 015 6	8 286.575 147 9	−0.12	190.016	7.62	2
230	176.403 998 3	−12.579 014 2	8 286.575 149 9	−0.12	189.541	12.46	1
230	176.403 337 6	−12.579 693 7	8 286.589 431 9	−0.12	190.016	11.19	2
230	176.403 315 5	−12.579 689 3	8 286.589 433 9	−0.12	189.541	11.85	1
230	176.391 046 9	−12.591 494 7	8 286.841 828 0	−0.05	191.645	12.13	2
230	176.391 024 0	−12.591 488 3	8 286.841 834 6	−0.05	191.586	9.48	1
230	176.390 339 2	−12.592 151 8	8 286.856 111 9	−0.06	191.645	15.60	2
230	176.390 314 2	−12.592 153 1	8 286.856 130 7	−0.06	191.586	11.18	1
230	176.386 615 6	−12.595 599 2	8 286.930 691 7	−0.10	191.645	6.69	2
230	176.386 592 6	−12.595 594 2	8 286.930 698 1	−0.10	191.586	9.12	1
230	176.385 895 6	−12.596 262 3	8 286.945 012 6	−0.11	191.645	10.96	2
230	176.382 127 9	−12.599 672 5	8 287.019 642 1	−0.12	191.645	2.74	2
230	176.382 104 8	−12.599 668 0	8 287.019 648 5	−0.12	191.586	15.84	1
230	175.991 751 6	−12.797 088 6	8 292.619 553 4	−0.06	217.640	10.36	1
230	175.991 797 2	−12.797 123 6	8 292.619 557 5	−0.06	217.685	8.21	2
230	175.990 486 5	−12.797 436 6	8 292.633 849 6	−0.07	217.640	11.99	1
230	175.990 533 2	−12.797 470 1	8 292.633 853 7	−0.07	217.685	12.50	2
230	175.983 854 6	−12.799 249 9	8 292.708 441 7	−0.11	217.641	10.25	1
230	175.983 898 4	−12.799 286 7	8 292.708 445 9	−0.11	217.685	9.43	2
230	175.982 578 4	−12.799 596 2	8 292.722 738 0	−0.11	217.641	12.30	1
230	175.982 625 5	−12.799 628 8	8 292.722 742 2	−0.11	217.686	11.77	2
230	175.975 907 0	−12.801 379 5	8 292.797 305 6	−0.13	217.642	10.36	1
230	175.975 953 4	−12.801 412 6	8 292.797 309 9	−0.13	217.686	18.32	2
230	175.950 422 6	−12.807 914 0	8 293.078 319 5	−0.07	219.552	12.80	1
230	175.950 465 3	−12.807 952 8	8 293.078 324 4	−0.07	219.603	26.77	2
230	163.392 228 1	−5.291 001 2	8 371.373 908 8	−0.11	358.437	29.32	2
230	163.392 219 0	−5.290 995 5	8 371.373 909 4	−0.11	358.447	16.17	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
230	163.392 017 2	−5.289 475 7	8 371.388 230 4	−0.10	358.447	9.72	1
230	163.392 026 1	−5.289 477 2	8 371.388 230 7	−0.10	358.437	11.44	2
230	163.390 988 4	−5.281 544 8	8 371.462 799 0	−0.04	358.447	15.20	1
230	163.390 996 6	−5.281 546 7	8 371.462 801 3	−0.04	358.437	31.39	2
230	163.390 795 7	−5.280 034 3	8 371.477 095 5	−0.02	358.447	9.31	1
230	163.390 803 8	−5.280 036 3	8 371.477 096 9	−0.02	358.437	13.49	2
230	163.697 280 0	−4.211 512 1	8 383.373 222 7	−0.10	48.772	19.05	2
230	163.697 242 9	−4.211 475 7	8 383.373 227 4	−0.10	48.560	13.85	1
230	163.698 196 0	−4.210 466 6	8 383.387 568 5	−0.09	48.772	12.11	2
230	163.698 163 7	−4.210 425 8	8 383.387 573 3	−0.09	48.559	11.78	1
230	163.720 321 4	−4.185 733 8	8 383.728 783 6	−0.13	50.128	14.94	1
230	163.720 356 6	−4.185 776 4	8 383.728 783 6	−0.13	50.189	15.19	2
230	163.721 258 7	−4.184 711 4	8 383.743 129 3	−0.13	50.128	15.09	1
230	163.721 297 1	−4.184 751 5	8 383.743 129 3	−0.13	50.188	11.19	2
230	302.597 025 1	−10.579 579 0	8 935.895 155 3	−0.06	303.831	18.75	2
230	302.602 391 9	−10.579 086 1	8 935.909 500 4	−0.05	303.853	11.93	1
230	302.602 412 5	−10.579 059 5	8 935.909 501 0	−0.05	303.831	20.26	2
230	302.630 413 1	−10.576 393 1	8 935.984 043 9	−0.02	303.850	14.88	1
230	302.630 435 0	−10.576 367 3	8 935.984 044 6	−0.02	303.828	15.54	2
324	301.443 110 1	−27.204 651 1	8 320.705 863 8	0.10	166.881	17.06	1
324	301.443 038 5	−27.204 665 8	8 320.705 869 0	0.10	166.914	8.68	2
324	301.487 509 5	−27.195 366 4	8 320.794 776 8	0.06	166.881	14.57	1
324	301.487 438 9	−27.195 384 9	8 320.794 782 0	0.06	166.914	11.45	2
324	301.524 702 8	−27.187 577 9	8 320.869 269 9	0.01	166.882	29.46	1
324	301.524 631 3	−27.187 592 8	8 320.869 275 2	0.01	166.914	31.64	2
324	301.531 876 4	−27.186 071 6	8 320.883 640 1	−0.01	166.882	14.99	1
324	301.531 806 5	−27.186 092 7	8 320.883 645 4	−0.01	166.914	11.52	2
324	301.613 382 3	−27.168 974 5	8 321.047 070 7	0.10	164.885	14.24	2
324	301.613 458 3	−27.168 959 8	8 321.047 078 3	0.10	164.870	13.64	1
324	301.620 546 1	−27.167 483 4	8 321.061 416 4	0.10	164.884	19.72	2
324	301.620 622 2	−27.167 469 2	8 321.061 424 0	0.10	164.870	16.91	1
324	301.657 765 9	−27.159 681 0	8 321.135 984 3	0.10	164.884	21.20	2
324	301.657 840 0	−27.159 660 6	8 321.135 991 8	0.10	164.870	15.82	1
324	301.664 905 3	−27.158 154 6	8 321.150 305 3	0.10	164.884	23.36	2
324	301.664 980 5	−27.158 138 0	8 321.150 312 8	0.10	164.870	19.19	1
324	301.790 871 4	−27.131 625 3	8 321.402 625 3	0.04	162.580	12.91	1
324	301.790 799 2	−27.131 640 1	8 321.402 632 1	0.04	162.602	22.55	2
324	301.798 021 2	−27.130 097 9	8 321.416 971 2	0.06	162.579	16.75	1
324	301.797 952 7	−27.130 123 5	8 321.416 977 9	0.06	162.602	19.72	2
324	301.835 203 5	−27.122 252 5	8 321.491 514 8	0.10	162.579	17.48	1
324	301.835 133 4	−27.122 273 3	8 321.491 521 4	0.10	162.602	23.56	2
324	301.842 355 6	−27.120 733 3	8 321.505 860 5	0.10	162.579	13.02	1
324	301.842 285 8	−27.120 754 7	8 321.505 867 1	0.10	162.602	15.48	2
324	301.879 471 5	−27.112 888 1	8 321.580 435 0	0.10	162.601	18.93	2
324	301.879 546 9	−27.112 863 7	8 321.580 440 7	0.10	162.579	19.08	1
324	301.923 849 8	−27.103 481 3	8 321.669 292 0	0.07	162.578	16.96	1
324	301.923 779 9	−27.103 502 3	8 321.669 298 8	0.07	162.601	15.91	2
324	301.931 007 7	−27.101 962 2	8 321.683 649 9	0.06	162.578	17.27	1
324	301.930 934 4	−27.101 973 6	8 321.683 656 7	0.06	162.601	36.28	2
324	301.968 147 3	−27.094 091 7	8 321.758 143 1	0.01	162.578	17.63	1
324	301.968 082 9	−27.094 109 6	8 321.758 162 3	0.01	162.601	13.95	2
324	301.975 321 0	−27.092 562 7	8 321.772 538 0	−0.01	162.578	20.38	1
324	301.975 251 9	−27.092 586 0	8 321.772 544 9	−0.01	162.601	4.79	2
324	302.056 713 1	−27.075 272 2	8 321.935 986 3	0.10	160.370	11.18	2
324	302.101 066 0	−27.065 822 6	8 322.024 850 2	0.10	160.359	15.71	1
324	302.100 994 7	−27.065 844 3	8 322.024 850 8	0.10	160.369	12.30	2
324	303.206 022 1	−26.826 427 3	8 324.247 093 0	0.10	149.870	17.27	2
324	303.206 082 7	−26.826 386 8	8 324.247 096 2	0.10	149.941	16.80	1
324	303.250 132 4	−26.816 714 4	8 324.335 981 4	0.06	149.867	16.88	2
324	303.250 198 7	−26.816 682 7	8 324.335 984 5	0.06	149.939	13.22	1
324	303.294 245 3	−26.806 984 3	8 324.424 894 3	0.00	149.864	22.81	2
324	303.294 311 4	−26.806 952 3	8 324.424 897 3	0.00	149.936	15.35	1
324	303.301 349 7	−26.805 415 9	8 324.439 215 3	−0.01	149.864	18.06	2
324	303.301 414 9	−26.805 382 6	8 324.439 218 2	−0.01	149.936	15.14	1
324	303.345 449 0	−26.795 661 2	8 324.528 132 2	0.06	148.091	20.81	2
324	303.345 516 4	−26.795 623 5	8 324.528 141 1	0.06	148.065	19.08	1
324	303.382 484 4	−26.787 453 5	8 324.602 672 4	0.10	148.062	14.42	1
324	303.382 425 1	−26.787 492 9	8 324.602 675 8	0.10	148.088	13.53	2
324	303.389 584 0	−26.785 878 2	8 324.616 993 4	0.10	148.061	22.45	1
324	303.389 521 8	−26.785 913 4	8 324.616 996 8	0.10	148.088	16.88	2
324	303.426 563 1	−26.777 693 4	8 324.691 561 2	0.10	148.059	15.82	1
324	303.426 500 5	−26.777 728 1	8 324.691 564 7	0.10	148.085	13.59	2
324	303.433 672 6	−26.776 112 2	8 324.705 906 7	0.09	148.058	16.91	1
324	303.433 613 8	−26.776 152 3	8 324.705 910 2	0.09	148.084	15.36	2
324	303.470 629 5	−26.767 915 7	8 324.780 449 5	0.06	148.056	14.47	1
324	303.470 568 9	−26.767 953 4	8 324.780 453 1	0.06	148.082	16.16	2
324	303.477 737 1	−26.766 341 6	8 324.794 782 8	0.06	148.055	14.88	1
324	303.477 676 5	−26.766 379 5	8 324.794 786 4	0.06	148.081	21.50	2
324	303.514 692 8	−26.758 133 1	8 324.869 337 6	0.00	148.053	14.31	1
324	303.514 630 1	−26.758 168 2	8 324.869 341 3	0.00	148.078	12.46	2
324	303.521 784 8	−26.756 546 7	8 324.883 658 5	−0.01	148.052	18.36	1
324	303.602 776 3	−26.738 525 3	8 325.047 090 4	0.10	146.117	15.25	1
324	303.602 712 8	−26.738 558 9	8 325.047 094 8	0.10	146.075	14.13	2
324	303.609 901 1	−26.736 945 0	8 325.061 460 8	0.10	146.116	15.51	1
324	303.609 838 0	−26.736 979 2	8 325.061 465 2	0.10	146.074	18.95	2
324	303.646 832 9	−26.728 712 1	8 325.136 003 9	0.10	146.113	18.25	1
324	303.646 775 4	−26.728 753 7	8 325.136 008 5	0.10	146.071	24.84	2
324	303.653 950 9	−26.727 122 6	8 325.150 374 1	0.09	146.113	14.21	1
324	303.653 888 3	−26.727 157 5	8 325.150 378 7	0.09	146.071	12.41	2
324	303.690 881 0	−26.718 886 6	8 325.224 916 9	0.06	146.110	12.76	1
324	303.690 818 1	−26.718 921 5	8 325.224 921 5	0.06	146.067	12.26	2
324	303.697 909 1	−26.717 334 2	8 325.239 242 4	0.06	146.067	18.03	2
324	303.697 977 5	−26.717 296 8	8 325.239 250 2	0.06	146.109	18.31	1
324	303.734 889 0	−26.709 035 5	8 325.313 792 7	0.00	146.106	16.59	1
324	303.734 838 8	−26.709 078 2	8 325.313 809 8	0.00	146.063	18.17	2
324	303.741 994 9	−26.707 457 9	8 325.328 125 9	−0.01	146.105	16.65	1
324	303.741 935 1	−26.707 497 5	8 325.328 130 9	−0.01	146.063	17.00	2
324	303.785 965 1	−26.697 644 8	8 325.417 043 2	0.07	144.252	12.03	2
324	303.786 023 8	−26.697 603 6	8 325.417 045 5	0.07	144.250	15.25	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
324	303.822 874 7	−26.689 361 9	8 325.491 611 4	0.10	144.248	10.91	2
324	303.822 934 8	−26.689 322 1	8 325.491 613 8	0.10	144.247	14.47	1
324	303.829 965 8	−26.687 774 0	8 325.505 932 4	0.10	144.247	15.56	2
324	303.830 028 8	−26.687 737 9	8 325.505 934 8	0.10	144.246	13.79	1
324	323.187 825 9	−21.077 834 0	8 366.714 562 0	0.09	198.061	26.04	2
324	323.194 183 7	−21.075 592 6	8 366.728 894 3	0.09	198.054	16.80	1
324	323.194 121 6	−21.075 580 6	8 366.728 895 4	0.09	198.060	16.52	2
324	323.226 988 2	−21.063 690 9	8 366.803 450 1	0.11	198.051	10.73	1
324	323.233 246 1	−21.061 550 5	8 366.817 795 8	0.11	198.051	11.98	1
324	323.233 186 2	−21.061 531 3	8 366.817 796 9	0.11	198.057	10.55	2
324	333.022 727 5	−17.141 433 4	8 390.276 879 9	0.11	115.874	9.00	2
324	333.022 762 5	−17.141 364 6	8 390.276 886 6	0.11	115.862	9.94	1
324	333.052 019 1	−17.128 393 4	8 390.351 435 6	0.12	115.869	20.13	2
324	333.052 051 1	−17.128 323 7	8 390.351 442 2	0.12	115.857	10.96	1
324	333.057 636 9	−17.125 885 0	8 390.365 756 6	0.12	115.868	5.08	2
324	333.057 670 8	−17.125 816 3	8 390.365 763 1	0.12	115.856	8.71	1
324	333.092 530 3	−17.110 329 2	8 390.454 645 0	0.08	115.861	8.85	2
324	333.092 565 7	−17.110 261 7	8 390.454 651 4	0.08	115.850	9.73	1
324	343.050 528 8	−12.029 826 2	8 418.517 872 7	0.00	200.357	14.68	2
324	340.522 652 6	6.591 681 2	8 553.560 192 0	0.06	343.469	2.58	2
324	340.522 818 9	6.591 734 2	8 553.560 194 0	0.06	343.464	4.15	1
324	340.523 617 9	6.592 706 2	8 553.574 488 3	0.06	343.469	5.85	2
324	340.523 785 2	6.592 755 7	8 553.574 490 2	0.06	343.464	6.88	1
324	340.528 683 0	6.598 071 1	8 553.649 080 4	0.03	343.469	3.68	2
324	340.528 849 7	6.598 122 7	8 553.649 082 4	0.03	343.464	3.95	1
324	340.529 660 6	6.599 098 1	8 553.663 376 7	0.03	343.469	12.08	2
324	340.529 827 2	6.599 150 2	8 553.663 378 7	0.03	343.464	7.32	1
324	340.553 592 9	6.623 706 0	8 554.004 654 6	0.06	345.628	5.93	2
324	340.553 760 1	6.623 747 3	8 554.004 656 8	0.06	345.609	4.59	1
324	340.554 621 2	6.624 740 8	8 554.018 963 3	0.06	345.628	7.37	2
324	340.554 788 2	6.624 783 0	8 554.018 965 5	0.06	345.609	6.78	1
324	341.131 561 0	7.056 812 1	8 559.782 317 9	0.06	10.848	7.76	2
324	341.131 690 5	7.056 787 6	8 559.782 320 1	0.06	10.883	7.19	1
324	341.133 393 7	7.057 933 7	8 559.796 651 2	0.05	10.849	4.98	2
324	341.133 523 3	7.057 910 6	8 559.796 653 3	0.05	10.883	5.19	1
324	341.143 085 6	7.063 728 6	8 559.871 233 1	0.02	10.884	6.36	1
324	341.144 928 0	7.064 847 8	8 559.885 554 1	0.02	10.884	5.09	1
324	341.154 422 5	7.070 694 4	8 559.960 119 2	−0.02	10.849	8.49	2
324	341.154 550 7	7.070 670 1	8 559.960 121 6	−0.02	10.884	5.53	1
324	341.156 276 2	7.071 811 4	8 559.974 440 2	−0.02	10.849	5.13	2
324	341.156 404 5	7.071 787 6	8 559.974 442 6	−0.02	10.884	5.09	1
324	351.556 687 1	11.033 422 4	8 597.539 542 9	0.03	297.416	7.70	1
324	351.556 637 7	11.033 332 9	8 597.539 549 6	0.03	297.426	8.00	2
324	351.562 324 6	11.035 334 7	8 597.553 863 9	0.03	297.417	7.40	1
324	351.562 274 5	11.035 245 6	8 597.553 870 6	0.03	297.426	9.00	2
324	351.591 680 5	11.045 295 4	8 597.628 406 7	−0.01	297.420	8.65	1
324	351.591 634 2	11.045 204 4	8 597.628 413 4	−0.01	297.430	12.60	2
324	351.597 330 9	11.047 210 1	8 597.642 740 1	−0.01	297.421	8.75	1
324	351.597 282 1	11.047 120 4	8 597.642 746 7	−0.01	297.431	8.75	2
324	2.456 313 3	14.670 422 3	8 622.152 035 1	−0.05	18.996	7.93	1
324	2.456 240 3	14.670 443 3	8 622.152 036 4	−0.05	18.989	7.14	2
324	2.463 222 2	14.672 693 5	8 622.166 306 7	−0.05	18.996	7.93	1
324	2.463 149 2	14.672 714 1	8 622.166 308 1	−0.05	18.989	5.65	2
324	15.435 618 2	18.800 666 0	8 647.386 267 9	−0.03	293.144	14.86	1
324	15.435 602 1	18.800 618 5	8 647.386 282 2	−0.03	293.151	19.06	2
324	15.443 356 3	18.803 024 4	8 647.400 601 2	−0.03	293.145	13.09	1
324	15.443 333 8	18.802 974 7	8 647.400 603 2	−0.03	293.153	17.95	2
324	15.483 608 8	18.815 297 1	8 647.475 168 9	−0.04	293.156	12.79	1
324	15.483 585 5	18.815 247 5	8 647.475 171 1	−0.04	293.162	15.03	2
324	35.098 592 0	24.179 404 5	8 682.212 255 3	0.06	7.725	12.51	1
324	35.098 528 2	24.179 411 4	8 682.212 257 9	0.06	7.668	22.19	2
324	35.106 976 9	24.181 389 4	8 682.226 600 9	0.06	7.725	12.15	1
324	35.106 913 3	24.181 397 6	8 682.226 603 5	0.06	7.669	36.40	2
324	35.150 546 7	24.191 679 7	8 682.301 143 8	0.04	7.726	10.30	1
324	35.150 483 3	24.191 687 7	8 682.301 146 5	0.04	7.670	20.71	2
324	35.158 932 1	24.193 658 2	8 682.315 489 4	0.04	7.726	11.53	1
324	35.158 867 9	24.193 661 4	8 682.315 492 2	0.04	7.670	12.57	2
349	227.991 884 5	−17.976 693 1	7 910.829 823 3	0.03	233.499	18.19	2
349	227.991 939 4	−17.976 763 6	7 910.829 830 3	0.03	233.504	13.38	1
349	227.995 524 9	−17.977 987 0	7 910.844 119 8	0.04	233.498	7.67	2
349	228.014 556 4	−17.984 806 9	7 910.918 695 0	0.08	233.500	15.35	1
349	228.018 144 4	−17.986 031 7	7 910.933 009 1	0.08	233.495	22.90	2
349	228.018 201 1	−17.986 101 3	7 910.933 016 0	0.08	233.500	14.21	1
349	233.089 244 3	−19.835 924 2	7 933.755 555 8	0.08	150.651	13.12	1
349	233.089 231 2	−19.835 937 5	7 933.755 568 7	0.08	150.671	15.94	2
349	233.091 900 6	−19.836 951 2	7 933.769 913 7	0.07	150.651	13.43	1
349	236.371 833 5	−21.368 221 4	7 958.546 541 6	0.11	232.684	11.42	2
349	236.371 908 9	−21.368 319 2	7 958.546 548 3	0.11	232.693	10.00	1
349	236.372 875 1	−21.368 964 8	7 958.560 862 5	0.11	232.684	10.73	2
349	236.372 953 2	−21.369 060 7	7 958.560 869 3	0.11	232.693	9.49	1
349	236.378 379 0	−21.372 914 8	7 958.635 436 5	0.07	232.693	12.98	1
349	236.379 340 2	−21.373 560 6	7 958.649 775 3	0.06	232.684	8.61	2
349	236.379 418 4	−21.373 656 4	7 958.649 782 1	0.06	232.693	9.80	1
349	221.737 897 9	−21.500 510 0	8 083.233 641 1	0.12	339.876	13.83	2
349	221.737 930 5	−21.500 498 6	8 083.233 642 8	0.12	339.862	9.89	1
349	221.738 222 6	−21.500 630 1	8 083.247 962 1	0.12	339.876	12.13	2
349	221.738 255 6	−21.500 619 6	8 083.247 963 8	0.12	339.862	10.20	1
349	221.739 939 6	−21.501 278 0	8 083.322 554 1	0.09	339.876	11.83	2
349	221.739 972 2	−21.501 266 9	8 083.322 555 9	0.09	339.862	9.59	1
349	221.740 272 5	−21.501 403 7	8 083.336 850 3	0.08	339.876	13.59	2
349	221.740 304 1	−21.501 390 1	8 083.336 852 1	0.08	339.862	9.99	1
349	228.969 710 8	−23.378 670 4	8 132.995 658 8	0.09	335.388	18.06	2
349	228.969 740 0	−23.378 654 5	8 132.995 664 8	0.09	335.396	11.62	1
349	228.973 269 8	−23.379 517 4	8 133.009 979 7	0.09	335.388	13.95	2
349	228.973 303 3	−23.379 509 9	8 133.009 985 8	0.09	335.396	12.86	1
349	228.991 833 9	−23.383 971 1	8 133.084 546 9	0.04	335.386	21.34	2
349	228.991 866 7	−23.383 961 9	8 133.084 553 1	0.04	335.394	12.29	1
349	228.995 406 8	−23.384 837 6	8 133.098 867 7	0.03	335.385	16.47	2
349	228.995 437 1	−23.384 823 5	8 133.098 873 9	0.03	335.393	14.05	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
349	241.637 253 5	−26.018 589 6	8 173.967 560 1	−0.01	31.014	27.10	2
349	241.637 359 2	−26.018 639 8	8 173.967 565 6	−0.01	31.045	18.25	1
349	241.669 444 9	−26.024 266 8	8 174.056 402 9	0.06	29.131	27.69	1
349	241.696 406 4	−26.028 985 9	8 174.131 008 4	0.11	29.130	18.98	1
349	241.696 303 4	−26.028 934 4	8 174.131 009 1	0.11	29.156	16.97	2
349	241.701 588 6	−26.029 890 8	8 174.145 341 7	0.11	29.130	16.75	1
349	241.701 481 7	−26.029 845 6	8 174.145 342 4	0.11	29.156	17.78	2
349	241.728 542 7	−26.034 611 0	8 174.219 897 2	0.11	29.128	15.61	1
349	241.728 439 3	−26.034 560 1	8 174.219 897 9	0.11	29.154	16.60	2
349	241.733 730 7	−26.035 518 7	8 174.234 242 8	0.10	29.127	13.28	1
349	241.733 626 2	−26.035 469 5	8 174.234 243 5	0.10	29.154	12.27	2
349	241.760 701 9	−26.040 224 4	8 174.308 785 5	0.07	29.126	16.44	1
349	241.760 596 2	−26.040 177 0	8 174.308 786 1	0.07	29.152	13.07	2
349	241.765 885 7	−26.041 142 7	8 174.323 131 1	0.06	29.125	15.35	1
349	241.765 782 3	−26.041 091 6	8 174.323 131 7	0.06	29.151	18.14	2
349	241.792 873 4	−26.045 858 6	8 174.397 698 3	0.01	29.123	16.28	1
349	241.792 771 3	−26.045 805 7	8 174.397 699 0	0.01	29.150	14.86	2
349	241.798 058 9	−26.046 762 6	8 174.412 019 1	−0.01	29.123	15.14	1
349	241.797 955 5	−26.046 711 6	8 174.412 019 9	−0.01	29.149	16.88	2
349	241.862 460 8	−26.057 985 3	8 174.589 796 1	0.11	27.440	12.24	1
349	241.889 486 6	−26.062 703 3	8 174.664 363 9	0.11	27.438	18.72	1
349	241.889 387 6	−26.062 649 7	8 174.664 371 9	0.11	27.435	18.99	2
349	241.894 687 6	−26.063 601 9	8 174.678 697 1	0.10	27.438	15.76	1
349	241.894 584 2	−26.063 555 7	8 174.678 705 1	0.10	27.435	10.19	2
349	241.921 627 0	−26.068 258 5	8 174.753 260 4	0.07	27.433	25.25	2
349	241.921 747 8	−26.068 308 4	8 174.753 301 6	0.07	27.436	20.69	1
349	242.023 761 1	−26.086 021 0	8 175.034 270 7	0.11	25.233	15.04	1
349	242.050 859 4	−26.090 717 7	8 175.108 826 2	0.11	25.232	21.16	1
349	242.055 953 4	−26.091 580 1	8 175.123 131 6	0.10	25.186	10.03	2
349	242.056 058 7	−26.091 624 0	8 175.123 134 8	0.10	25.232	16.08	1
349	242.083 181 9	−26.096 316 9	8 175.197 714 5	0.07	25.230	18.57	1
349	242.088 285 9	−26.097 174 6	8 175.212 032 2	0.06	25.184	12.68	2
349	242.088 390 1	−26.097 220 4	8 175.212 035 4	0.06	25.230	15.09	1
349	242.115 522 2	−26.101 911 6	8 175.286 602 6	0.01	25.229	17.01	1
349	242.115 421 9	−26.101 868 0	8 175.286 611 8	0.01	25.183	20.86	2
349	242.120 739 6	−26.102 802 4	8 175.300 923 4	−0.01	25.228	14.00	1
349	242.120 639 8	−26.102 757 9	8 175.300 932 6	−0.01	25.183	13.29	2
349	242.180 260 9	−26.113 077 0	8 175.464 372 3	0.11	23.198	17.74	1
349	242.180 159 8	−26.113 040 2	8 175.464 393 7	0.11	23.259	27.47	2
349	242.185 479 9	−26.113 984 1	8 175.478 705 6	0.11	23.198	17.06	1
349	242.185 376 8	−26.113 941 4	8 175.478 714 7	0.11	23.259	13.60	2
349	242.212 652 7	−26.118 672 8	8 175.553 273 5	0.11	23.197	16.91	1
349	242.212 549 7	−26.118 630 2	8 175.553 282 4	0.11	23.258	23.92	2
349	242.217 874 7	−26.119 569 1	8 175.567 594 3	0.10	23.196	14.62	1
349	242.217 768 1	−26.119 533 9	8 175.567 603 3	0.10	23.258	19.05	2
349	242.245 060 5	−26.124 247 8	8 175.642 149 4	0.07	23.195	17.01	1
349	242.244 954 9	−26.124 210 6	8 175.642 158 3	0.07	23.257	14.35	2
349	242.250 286 7	−26.125 150 6	8 175.656 482 6	0.06	23.195	16.54	1
349	242.250 185 9	−26.125 103 4	8 175.656 491 6	0.06	23.256	21.47	2
349	242.277 489 2	−26.129 822 0	8 175.731 037 4	0.00	23.194	18.31	1
349	242.282 717 5	−26.130 725 7	8 175.745 370 6	−0.01	23.194	17.48	1
349	242.309 931 5	−26.135 407 7	8 175.819 950 1	0.05	21.197	18.82	1
349	242.315 171 4	−26.136 313 3	8 175.834 308 3	0.07	21.197	20.02	1
349	242.342 286 4	−26.140 940 1	8 175.908 830 2	0.11	21.154	28.36	2
349	242.342 404 9	−26.140 972 6	8 175.908 864 3	0.11	21.196	22.51	1
349	242.347 519 7	−26.141 833 0	8 175.923 151 2	0.11	21.154	21.91	2
349	242.347 624 5	−26.141 874 9	8 175.923 160 5	0.11	21.196	15.14	1
349	242.374 761 1	−26.146 516 3	8 175.997 719 1	0.11	21.153	31.60	2
349	242.374 871 6	−26.146 544 5	8 175.997 728 4	0.11	21.195	18.51	1
349	242.379 997 3	−26.147 408 4	8 176.012 040 0	0.10	21.153	20.11	2
349	242.380 101 7	−26.147 450 8	8 176.012 049 2	0.10	21.195	17.16	1
349	242.407 253 2	−26.152 088 5	8 176.086 607 4	0.07	21.152	14.77	2
349	242.407 361 6	−26.152 120 9	8 176.086 616 7	0.07	21.194	17.37	1
349	242.412 495 9	−26.152 971 2	8 176.100 928 2	0.06	21.152	13.65	2
349	242.412 602 6	−26.153 007 5	8 176.100 937 5	0.06	21.194	16.13	1
349	242.439 764 5	−26.157 652 5	8 176.175 495 5	0.00	21.151	19.05	2
349	242.439 871 6	−26.157 687 0	8 176.175 504 7	0.00	21.193	16.49	1
349	242.445 020 8	−26.158 543 7	8 176.189 853 6	−0.01	21.151	13.17	2
349	242.445 126 5	−26.158 581 0	8 176.189 862 6	−0.01	21.193	17.16	1
349	242.504 943 2	−26.168 806 4	8 176.353 278 7	0.11	19.094	17.37	1
349	242.504 839 5	−26.168 777 1	8 176.353 284 2	0.11	19.115	20.41	2
349	242.510 187 4	−26.169 703 3	8 176.367 599 7	0.11	19.094	14.52	1
349	242.510 085 7	−26.169 669 0	8 176.367 605 2	0.11	19.115	18.96	2
349	242.537 506 2	−26.174 357 5	8 176.442 167 5	0.11	19.093	16.44	1
349	242.537 402 7	−26.174 328 8	8 176.442 173 1	0.11	19.114	13.90	2
349	242.542 764 3	−26.175 250 2	8 176.456 513 1	0.10	19.093	15.30	1
349	242.542 661 2	−26.175 220 3	8 176.456 518 6	0.10	19.114	15.06	2
349	242.570 085 8	−26.179 906 9	8 176.531 055 8	0.07	19.092	14.94	1
349	242.569 983 3	−26.179 875 7	8 176.531 061 1	0.07	19.114	16.57	2
349	242.575 341 2	−26.180 812 8	8 176.545 401 4	0.06	19.092	14.57	1
349	242.575 239 0	−26.180 780 9	8 176.545 406 7	0.06	19.114	7.13	2
349	242.602 676 1	−26.185 468 7	8 176.619 943 8	0.00	19.091	22.04	1
349	242.607 942 9	−26.186 351 6	8 176.634 289 4	−0.01	19.091	16.80	1
349	242.607 839 3	−26.186 324 5	8 176.634 295 0	−0.01	19.113	19.82	2
349	242.635 290 2	−26.191 005 9	8 176.708 837 2	0.05	17.037	21.83	1
349	242.640 557 0	−26.191 908 5	8 176.723 195 4	0.07	17.037	19.29	1
349	242.667 809 7	−26.196 538 2	8 176.797 723 7	0.11	16.996	19.99	2
349	242.667 912 5	−26.196 567 7	8 176.797 726 7	0.11	17.037	21.62	1
349	242.673 082 7	−26.197 430 4	8 176.812 081 6	0.11	16.996	25.30	2
349	242.673 191 7	−26.197 469 8	8 176.812 109 4	0.11	17.037	31.89	1
349	242.700 556 5	−26.202 098 0	8 176.886 603 1	0.10	17.036	16.39	1
349	242.700 456 8	−26.202 074 2	8 176.886 612 3	0.10	16.996	13.29	2
349	242.705 854 3	−26.202 939 1	8 176.900 973 4	0.10	17.036	38.79	1
349	242.733 119 2	−26.207 611 4	8 176.975 500 6	0.07	16.995	20.92	2
349	242.733 221 6	−26.207 640 5	8 176.975 503 8	0.07	17.036	17.48	1
349	242.738 399 8	−26.208 496 4	8 176.989 858 5	0.06	16.995	22.92	2
349	242.738 500 1	−26.208 531 5	8 176.989 861 7	0.06	17.036	17.58	1
349	242.765 796 1	−26.213 152 5	8 177.064 388 7	0.00	16.995	12.37	2
349	242.765 900 9	−26.213 173 4	8 177.064 391 8	0.00	17.035	17.27	1
349	242.771 165 4	−26.214 056 4	8 177.078 700 3	−0.01	17.035	28.57	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
349	242.771 077 4	−26.214 043 0	8 177.078 746 7	−0.01	16.995	22.18	2
349	242.831 202 4	−26.224 212 7	8 177.242 162 1	0.11	14.879	27.96	2
349	242.831 306 6	−26.224 235 8	8 177.242 170 9	0.11	14.880	17.32	1
349	242.836 489 9	−26.225 098 9	8 177.256 520 1	0.11	14.879	11.15	2
349	242.836 592 0	−26.225 128 6	8 177.256 528 9	0.11	14.880	17.16	1
349	242.863 945 0	−26.229 741 0	8 177.331 087 9	0.10	14.879	13.81	2
349	242.864 048 4	−26.229 765 6	8 177.331 096 6	0.10	14.879	15.82	1
349	242.869 315 6	−26.230 664 2	8 177.345 405 3	0.10	14.879	15.92	1
349	242.869 218 0	−26.230 636 2	8 177.345 408 9	0.10	14.879	10.40	2
349	321.544 727 9	−23.374 220 6	8 366.448 617 5	0.09	199.804	24.38	2
349	321.544 841 3	−23.374 259 7	8 366.448 622 7	0.09	199.768	20.48	1
349	321.549 216 5	−23.373 404 0	8 366.462 852 1	0.09	199.804	12.44	2
349	321.549 331 1	−23.373 440 2	8 366.462 857 3	0.09	199.767	12.30	1
349	321.572 729 5	−23.369 126 7	8 366.537 444 2	0.05	199.802	15.96	2
349	321.572 844 6	−23.369 162 2	8 366.537 449 4	0.05	199.766	13.89	1
349	321.577 243 8	−23.368 301 6	8 366.551 764 9	0.03	199.802	11.56	2
349	321.577 358 8	−23.368 337 2	8 366.551 770 0	0.03	199.765	13.79	1
349	328.577 162 8	−22.209 486 6	8 391.773 268 8	0.08	116.964	13.73	1
349	328.577 119 4	−22.209 570 4	8 391.773 269 0	0.08	116.983	12.95	2
349	328.580 532 9	−22.209 036 2	8 391.787 589 6	0.07	116.963	11.49	1
349	328.580 498 3	−22.209 120 6	8 391.787 614 6	0.07	116.982	8.26	2
349	328.598 075 3	−22.206 695 3	8 391.862 181 5	0.02	116.958	11.14	1
349	328.598 030 9	−22.206 778 6	8 391.862 181 8	0.02	116.978	13.57	2
349	328.601 398 2	−22.206 330 8	8 391.876 502 6	0.01	116.977	7.78	2
349	333.220 794 8	−21.926 563 2	8 417.290 859 1	0.08	201.397	7.80	1
349	333.220 670 7	−21.926 521 6	8 417.290 861 9	0.08	201.373	8.60	2
349	333.229 901 5	−21.927 448 5	8 417.365 476 6	0.10	201.397	7.30	1
349	333.229 778 9	−21.927 404 2	8 417.365 479 5	0.10	201.372	4.01	2
349	333.231 641 8	−21.927 622 3	8 417.379 772 9	0.11	201.397	6.59	1
349	333.231 517 1	−21.927 582 7	8 417.379 775 9	0.11	201.372	9.56	2
349	321.188 618 3	−24.753 033 2	8 540.860 679 8	−0.03	302.340	15.74	2
349	321.188 692 1	−24.752 922 5	8 540.860 682 8	−0.03	302.324	9.26	1
349	321.191 268 5	−24.746 532 2	8 540.935 247 2	−0.05	302.341	7.40	2
349	321.191 344 0	−24.746 422 7	8 540.935 250 3	−0.05	302.324	6.45	1
349	323.368 168 6	−22.502 693 6	8 562.529 669 4	−0.01	22.090	6.70	1
349	323.368 067 8	−22.502 657 9	8 562.529 670 1	−0.01	22.119	10.69	2
349	323.370 433 4	−22.501 053 1	8 562.543 965 6	−0.02	22.090	9.67	1
349	323.382 406 7	−22.492 165 8	8 562.618 533 2	−0.04	22.088	8.01	1
349	323.382 306 9	−22.492 127 5	8 562.618 533 8	−0.04	22.117	7.80	2
349	323.384 701 5	−22.490 470 0	8 562.632 829 4	−0.05	22.088	7.46	1
349	323.384 601 8	−22.490 431 6	8 562.632 829 9	−0.05	22.116	6.95	2
349	329.260 953 4	−18.886 993 9	8 589.541 144 9	0.00	299.050	8.88	1
349	329.260 899 8	−18.887 080 6	8 589.541 150 6	0.00	299.070	6.10	2
349	340.727 376 5	−12.864 284 9	8 626.410 797 4	−0.03	6.245	10.75	1
349	340.727 299 0	−12.864 280 5	8 626.410 801 9	−0.03	6.190	6.35	2
349	340.732 319 9	−12.861 744 0	8 626.425 142 9	−0.04	6.245	11.32	1
349	340.732 242 7	−12.861 737 5	8 626.425 147 4	−0.04	6.190	9.43	2
349	340.758 021 3	−12.848 523 5	8 626.499 710 6	−0.06	6.245	11.32	1
349	340.757 943 9	−12.848 518 7	8 626.499 715 0	−0.06	6.189	10.07	2
349	340.762 958 4	−12.845 983 2	8 626.514 031 5	−0.07	6.245	12.65	1
349	340.762 881 2	−12.845 975 5	8 626.514 035 9	−0.07	6.189	17.54	2
349	340.788 660 7	−12.832 759 8	8 626.588 574 7	−0.07	6.244	9.17	1
349	340.788 583 7	−12.832 751 1	8 626.588 579 1	−0.07	6.189	12.91	2
349	340.793 539 1	−12.830 204 6	8 626.602 949 5	−0.07	6.189	9.61	2
349	340.793 629 3	−12.830 203 0	8 626.602 982 1	−0.07	6.244	13.37	1
349	340.849 918 3	−12.801 210 2	8 626.766 387 0	0.02	4.373	16.99	2
349	340.849 996 4	−12.801 211 4	8 626.766 387 7	0.02	4.427	13.37	1
349	340.854 869 2	−12.798 660 6	8 626.780 732 6	0.01	4.373	8.06	2
349	340.854 947 0	−12.798 664 0	8 626.780 733 2	0.01	4.427	9.68	1
349	340.880 598 2	−12.785 429 9	8 626.855 275 4	−0.03	4.373	14.31	2
349	340.880 675 9	−12.785 433 2	8 626.855 276 1	−0.03	4.427	12.29	1
349	343.525 185 9	−11.426 267 3	8 634.410 653 7	−0.04	330.269	11.25	2
349	343.530 268 0	−11.423 657 3	8 634.424 987 0	−0.04	330.269	10.56	2
349	343.530 355 8	−11.423 606 5	8 634.424 992 3	−0.04	330.315	9.53	1
349	343.556 791 3	−11.410 033 7	8 634.499 535 2	−0.07	330.314	14.40	1
349	343.556 704 5	−11.410 075 9	8 634.499 542 2	−0.07	330.268	22.82	2
349	343.561 783 9	−11.407 467 9	8 634.513 863 2	−0.07	330.268	10.75	2
349	343.561 871 8	−11.407 417 7	8 634.513 868 5	−0.07	330.314	10.15	1
349	343.588 240 5	−11.393 875 3	8 634.588 455 8	−0.07	330.268	14.76	2
349	343.588 327 4	−11.393 823 9	8 634.588 461 1	−0.07	330.314	11.58	1
354	2.525 261 8	−14.393 448 3	7 899.516 586 0	−0.10	302.945	41.33	1
354	2.525 269 1	−14.393 438 0	7 899.516 662 2	−0.10	302.998	17.03	2
354	2.543 126 3	−14.383 405 5	7 899.591 278 1	−0.03	302.943	11.67	1
354	72.170 357 7	7.116 285 8	8 094.035 918 8	−0.07	174.645	13.90	1
354	72.170 309 3	7.116 279 3	8 094.035 922 7	−0.07	174.601	15.44	2
354	72.175 797 1	7.116 428 1	8 094.050 289 3	−0.06	174.645	16.59	1
354	72.175 748 2	7.116 427 0	8 094.050 293 2	−0.06	174.601	33.54	2
354	72.209 426 2	7.117 335 4	8 094.139 160 8	−0.02	173.092	15.25	1
354	72.237 579 8	7.118 081 5	8 094.213 695 7	−0.10	173.062	17.42	2
354	72.237 630 3	7.118 080 3	8 094.213 702 9	−0.10	173.092	15.04	1
354	72.243 005 4	7.118 237 1	8 094.228 041 3	−0.11	173.062	19.34	2
354	72.243 055 5	7.118 240 0	8 094.228 048 4	−0.11	173.092	18.41	1
354	72.338 471 4	7.120 687 7	8 094.480 344 9	−0.07	173.092	14.57	1
354	72.338 430 8	7.120 679 7	8 094.480 362 2	−0.07	173.062	15.64	2
354	72.343 861 9	7.120 830 5	8 094.494 732 6	−0.06	173.062	25.50	2
354	72.343 912 6	7.120 831 9	8 094.494 740 1	−0.06	173.092	14.31	1
354	88.828 554 0	5.882 589 9	8 142.816 231 0	−0.11	216.874	15.22	1
354	88.828 506 8	5.882 629 3	8 142.816 233 5	−0.11	216.874	15.00	2
354	95.213 206 7	4.027 024 8	8 169.029 040 3	−0.09	141.263	15.74	2
354	95.213 247 6	4.027 043 9	8 169.029 064 8	−0.09	141.253	20.35	1
354	95.215 980 5	4.025 889 9	8 169.043 336 4	−0.08	141.253	15.97	1
354	95.215 947 1	4.025 869 2	8 169.043 361 4	−0.08	141.263	18.40	2
354	98.310 526 6	2.066 354 1	8 192.932 940 7	−0.13	229.950	11.68	1
354	98.310 492 2	2.066 397 8	8 192.932 944 5	−0.13	229.937	13.66	2
354	98.315 937 6	2.059 368 9	8 193.021 830 3	−0.07	229.950	16.01	1
354	98.315 906 1	2.059 414 7	8 193.021 834 0	−0.07	229.937	12.66	2
354	98.316 803 4	2.058 239 7	8 193.036 176 1	−0.05	229.950	14.14	1
354	98.316 768 5	2.058 282 7	8 193.036 180 0	−0.05	229.937	12.14	2
354	85.382 454 5	9.636 221 3	8 307.312 779 5	−0.08	315.164	14.08	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
354	85.382 409 5	9.636 177 1	8 307.312 785 3	−0.08	315.158	16.94	2
354	85.383 496 1	9.638 636 5	8 307.327 125 2	−0.08	315.163	12.08	1
354	85.383 448 4	9.638 595 1	8 307.327 131 0	−0.08	315.158	13.29	2
354	85.388 925 3	9.651 190 7	8 307.401 668 6	−0.05	315.163	8.62	1
354	85.388 881 6	9.651 145 5	8 307.401 674 7	−0.05	315.157	5.32	2
354	85.389 973 3	9.653 601 6	8 307.415 989 7	−0.04	315.163	14.63	1
354	85.389 926 3	9.653 559 7	8 307.415 995 8	−0.04	315.157	19.07	2
354	85.395 447 5	9.666 157 4	8 307.490 558 1	0.00	315.162	15.29	1
354	85.395 404 6	9.666 111 8	8 307.490 564 2	0.00	315.157	15.76	2
354	88.904 681 9	13.331 141 9	8 331.039 310 2	0.02	41.635	11.70	2
354	88.904 702 8	13.331 122 1	8 331.039 312 5	0.02	41.647	15.70	1
354	88.907 809 2	13.333 152 2	8 331.053 631 3	0.03	41.635	13.05	2
354	88.907 829 9	13.333 132 1	8 331.053 633 6	0.03	41.648	12.93	1
354	96.222 138 2	16.429 609 1	8 357.252 450 5	0.04	323.300	18.23	2
354	96.222 177 7	16.429 630 6	8 357.252 451 0	0.04	323.326	11.61	1
354	96.226 892 0	16.430 964 0	8 357.266 746 8	0.04	323.300	13.44	2
354	96.226 929 1	16.430 988 7	8 357.266 747 3	0.04	323.327	12.63	1
354	112.145 273 8	18.736 395 5	8 398.224 953 5	−0.07	30.850	18.67	2
354	112.145 292 2	18.736 384 0	8 398.224 957 2	−0.07	30.900	17.12	1
354	112.183 628 3	18.737 941 4	8 398.313 855 0	−0.05	30.853	15.93	2
354	112.183 648 9	18.737 933 2	8 398.313 858 5	−0.05	30.904	16.50	1
354	112.215 803 9	18.739 211 9	8 398.388 435 7	−0.02	30.856	28.11	2
354	112.215 824 3	18.739 203 4	8 398.388 439 0	−0.03	30.907	16.45	1
354	112.221 977 3	18.739 461 9	8 398.402 732 0	−0.02	30.857	17.68	2
354	112.221 996 1	18.739 450 8	8 398.402 735 4	−0.02	30.908	16.66	1
354	112.254 176 2	18.740 733 6	8 398.477 324 8	0.02	30.859	10.76	2
354	112.254 193 9	18.740 720 3	8 398.477 328 2	0.02	30.911	15.22	1
354	112.260 343 9	18.740 961 0	8 398.491 633 4	0.02	30.860	16.38	2
354	112.260 364 0	18.740 951 5	8 398.491 636 9	0.02	30.911	16.04	1
354	112.330 957 4	18.743 695 8	8 398.655 101 6	−0.07	28.921	14.81	1
354	112.330 936 3	18.743 700 5	8 398.655 109 9	−0.07	28.895	16.88	2
354	112.337 144 6	18.743 935 2	8 398.669 422 5	−0.07	28.921	16.15	1
354	112.337 127 3	18.743 946 6	8 398.669 430 8	−0.07	28.895	6.38	2
354	112.369 355 8	18.745 159 7	8 398.743 990 4	−0.06	28.924	18.15	1
354	112.369 337 0	18.745 168 3	8 398.743 998 2	−0.06	28.898	16.92	2
354	112.375 555 2	18.745 396 5	8 398.758 336 2	−0.05	28.924	26.43	1
354	112.375 536 3	18.745 405 3	8 398.758 344 6	−0.05	28.899	17.30	2
354	112.407 769 6	18.746 615 5	8 398.832 879 7	−0.02	28.927	15.12	1
354	112.407 750 1	18.746 623 3	8 398.832 888 2	−0.02	28.901	20.81	2
354	112.413 965 0	18.746 849 0	8 398.847 213 0	−0.02	28.928	13.58	1
354	112.413 949 8	18.746 855 3	8 398.847 233 8	−0.02	28.902	17.29	2
354	112.446 202 8	18.748 052 5	8 398.921 793 6	0.02	28.930	14.19	1
354	112.446 184 6	18.748 062 8	8 398.921 801 9	0.02	28.904	21.01	2
354	112.452 406 8	18.748 286 3	8 398.936 139 2	0.02	28.931	18.15	1
354	112.452 387 7	18.748 295 2	8 398.936 147 6	0.02	28.905	17.71	2
354	114.660 542 9	18.805 885 6	8 404.002 843 3	−0.07	6.970	19.05	2
354	114.660 574 7	18.805 884 7	8 404.002 844 1	−0.07	6.982	15.18	1
354	114.693 297 7	18.806 374 2	8 404.077 423 4	−0.06	6.970	12.63	2
354	114.693 328 9	18.806 369 1	8 404.077 424 3	−0.06	6.982	11.63	1
354	114.699 588 0	18.806 465 3	8 404.091 744 5	−0.05	6.970	20.06	2
354	114.699 619 4	18.806 462 5	8 404.091 745 4	−0.05	6.982	14.35	1
354	114.732 336 2	18.806 951 6	8 404.166 288 2	−0.02	6.970	10.25	2
354	114.732 367 7	18.806 949 7	8 404.166 288 9	−0.02	6.982	13.99	1
354	114.738 650 0	18.807 042 7	8 404.180 658 5	−0.02	6.970	9.84	2
354	114.738 681 5	18.807 041 4	8 404.180 659 3	−0.02	6.982	13.79	1
354	114.771 417 2	18.807 516 4	8 404.255 226 5	0.02	6.970	12.88	2
354	114.771 448 7	18.807 514 2	8 404.255 227 4	0.02	6.982	15.90	1
354	114.777 701 3	18.807 614 4	8 404.269 522 9	0.03	6.970	17.88	2
354	114.777 732 8	18.807 612 2	8 404.269 523 8	0.03	6.983	16.36	1
354	114.849 549 1	18.808 585 5	8 404.432 973 2	−0.07	5.423	12.72	2
354	114.849 582 9	18.808 584 4	8 404.432 976 0	−0.07	5.438	16.21	1
354	114.855 857 8	18.808 679 3	8 404.447 318 9	−0.07	5.423	12.30	2
354	114.855 891 2	18.808 673 8	8 404.447 321 6	−0.07	5.438	17.85	1
354	114.888 638 1	18.809 108 6	8 404.521 862 2	−0.06	5.424	18.72	2
354	114.888 671 8	18.809 106 9	8 404.521 864 9	−0.06	5.438	16.26	1
354	114.894 937 2	18.809 196 0	8 404.536 183 3	−0.05	5.424	13.50	2
354	114.894 970 5	18.809 191 7	8 404.536 185 9	−0.05	5.438	14.92	1
354	114.927 726 4	18.809 619 4	8 404.610 726 9	−0.02	5.424	17.70	2
354	114.927 759 8	18.809 616 5	8 404.610 729 4	−0.02	5.438	12.66	1
354	114.934 037 4	18.809 699 2	8 404.625 072 5	−0.02	5.424	16.77	2
354	114.934 070 7	18.809 696 4	8 404.625 075 1	−0.02	5.438	12.76	1
354	114.966 845 1	18.810 106 3	8 404.699 640 6	0.02	5.424	27.76	2
354	114.966 877 9	18.810 097 8	8 404.699 643 3	0.02	5.439	17.29	1
354	114.973 158 2	18.810 189 0	8 404.713 986 3	0.03	5.424	19.98	2
354	114.973 190 7	18.810 178 7	8 404.713 989 0	0.03	5.439	13.48	1
354	202.138 983 7	1.845 687 1	8 598.479 095 5	−0.08	237.912	9.69	2
354	202.138 965 7	1.845 709 2	8 598.479 104 4	−0.08	237.926	11.57	1
354	202.168 709 9	1.841 126 0	8 598.553 639 1	−0.05	237.912	13.09	2
354	202.168 690 9	1.841 147 5	8 598.553 647 9	−0.05	237.926	11.26	1
354	202.174 423 4	1.840 245 4	8 598.567 984 9	−0.04	237.913	9.12	2
354	202.174 406 7	1.840 268 3	8 598.567 993 7	−0.04	237.927	13.22	1
354	202.204 139 9	1.835 695 8	8 598.642 528 5	0.01	237.913	16.17	2
354	202.204 127 7	1.835 721 4	8 598.642 537 5	0.01	237.927	12.14	1
354	202.209 850 9	1.834 824 7	8 598.656 849 6	0.02	237.913	14.42	2
354	202.209 833 5	1.834 847 0	8 598.656 858 6	0.02	237.927	10.59	1
354	208.610 073 9	1.083 250 1	8 615.261 420 3	−0.10	168.195	16.61	1
354	208.610 079 6	1.083 253 5	8 615.261 420 8	−0.10	168.205	24.47	2
354	208.615 370 9	1.082 845 8	8 615.275 704 2	−0.10	168.195	13.74	1
354	208.615 375 6	1.082 854 1	8 615.275 704 8	−0.10	168.205	17.65	2
354	225.435 259 4	3.984 744 7	8 676.117 692 7	−0.06	150.695	10.96	1
354	225.435 259 2	3.984 751 9	8 676.117 701 6	−0.06	150.675	13.33	2
354	225.437 297 9	3.986 581 1	8 676.132 047 3	−0.06	150.675	15.51	2
354	225.437 295 5	3.986 583 6	8 676.132 050 7	−0.06	150.695	14.63	1
354	225.447 855 4	3.996 133 3	8 676.206 615 6	−0.02	150.674	5.62	2
354	225.447 854 2	3.996 134 6	8 676.206 619 0	−0.02	150.695	12.17	1
354	225.449 882 0	3.997 964 5	8 676.220 936 7	−0.01	150.674	18.62	2
354	225.449 879 0	3.997 969 5	8 676.220 940 0	−0.01	150.694	15.23	1
354	225.460 394 3	4.007 543 8	8 676.295 505 0	0.03	150.674	20.50	2
354	225.460 398 6	4.007 541 9	8 676.295 520 6	0.03	150.694	15.59	1
354	225.462 403 6	4.009 373 6	8 676.309 767 7	0.04	150.694	21.92	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
354	225.462 408 0	4.009 383 2	8 676.309 813 9	0.04	150.674	7.59	2
354	215.839 073 0	13.249 979 8	8 778.175 656 1	0.07	22.846	10.58	1
354	215.839 119 7	13.249 961 0	8 778.175 661 2	0.07	22.901	10.59	2
354	215.837 878 5	13.248 723 8	8 778.189 952 4	0.07	22.846	8.07	1
354	215.837 924 6	13.248 703 6	8 778.189 957 5	0.07	22.901	5.51	2
354	215.831 671 8	13.242 176 3	8 778.264 545 0	0.08	22.845	12.48	1
354	215.831 719 2	13.242 159 2	8 778.264 550 1	0.08	22.900	11.68	2
354	215.830 482 8	13.240 912 6	8 778.278 841 2	0.08	22.845	8.77	1
354	215.830 529 3	13.240 893 1	8 778.278 846 4	0.08	22.900	10.17	2
354	215.817 036 3	13.226 439 5	8 778.442 300 6	−0.01	24.650	11.60	2
354	215.816 991 2	13.226 463 2	8 778.442 301 6	−0.01	24.610	15.09	1
354	215.815 864 1	13.225 173 0	8 778.456 596 9	−0.01	24.650	9.01	2
354	215.815 818 3	13.225 194 9	8 778.456 597 8	−0.01	24.610	10.43	1
354	215.809 770 1	13.218 558 9	8 778.531 165 1	0.03	24.649	10.21	2
354	215.809 722 4	13.218 576 6	8 778.531 166 0	0.03	24.609	12.78	1
354	215.250 811 9	12.045 069 8	8 789.552 031 4	0.01	68.849	8.89	2
354	215.250 796 5	12.045 107 5	8 789.552 041 4	0.01	68.688	9.87	1
354	215.250 529 8	12.043 316 1	8 789.566 377 2	0.02	68.849	17.13	2
354	215.250 512 5	12.043 353 0	8 789.566 387 1	0.02	68.688	9.56	1
354	215.249 076 9	12.034 195 6	8 789.640 896 2	0.06	68.848	20.39	2
354	215.249 060 2	12.034 232 9	8 789.640 906 0	0.06	68.687	12.79	1
354	215.248 796 9	12.032 439 6	8 789.655 217 2	0.06	68.848	10.85	2
354	215.248 783 2	12.032 478 0	8 789.655 227 0	0.06	68.687	8.26	1
354	215.247 387 4	12.023 296 1	8 789.729 810 0	0.08	68.847	13.24	2
354	215.247 372 1	12.023 334 0	8 789.729 819 7	0.08	68.686	14.25	1
354	215.247 116 8	12.021 537 6	8 789.744 131 0	0.09	68.847	10.31	2
354	215.247 100 9	12.021 575 4	8 789.744 140 8	0.09	68.685	9.06	1
354	217.843 649 4	6.603 194 9	8 825.033 731 1	0.03	338.165	20.29	1
354	217.843 676 8	6.603 192 9	8 825.033 737 3	0.03	338.181	27.53	2
354	217.845 909 5	6.600 749 1	8 825.048 058 4	0.04	338.181	32.75	2
354	217.845 886 4	6.600 743 2	8 825.048 064 6	0.04	338.165	16.24	1
354	217.857 566 5	6.587 913 5	8 825.122 620 5	0.08	338.166	21.93	1
354	217.857 592 9	6.587 913 0	8 825.122 626 8	0.08	338.182	21.41	2
354	217.859 832 0	6.585 465 5	8 825.136 947 9	0.09	338.182	24.29	2
354	217.859 809 8	6.585 458 4	8 825.136 953 8	0.08	338.166	17.88	1
354	295.192 592 8	−11.271 198 9	9 047.862 251 4	0.10	183.503	19.60	1
354	295.192 611 6	−11.271 197 2	9 047.862 253 2	0.10	183.508	29.51	2
354	295.197 405 3	−11.270 505 3	9 047.876 560 0	0.10	183.503	24.89	1
354	295.197 428 2	−11.270 501 9	9 047.876 574 2	0.10	183.508	22.66	2
354	295.283 733 2	−11.257 909 7	9 048.133 410 0	0.07	181.824	17.58	1
354	295.288 546 4	−11.257 223 9	9 048.147 743 4	0.08	181.824	22.87	1
354	295.460 039 2	−11.232 019 5	9 048.659 135 8	0.10	179.315	25.00	1
354	295.464 867 8	−11.231 325 2	9 048.673 555 7	0.11	179.315	18.93	1
354	295.464 886 8	−11.231 328 6	9 048.673 556 4	0.11	179.275	12.76	2
354	295.494 614 5	−11.226 930 4	9 048.762 419 7	0.10	179.315	25.41	1
354	295.494 633 5	−11.226 923 9	9 048.762 420 3	0.10	179.275	27.56	2
354	295.580 254 3	−11.214 249 5	9 049.018 448 7	0.07	177.607	28.17	2
354	295.580 241 7	−11.214 250 9	9 049.018 469 7	0.07	177.598	24.63	1
354	295.585 027 1	−11.213 539 1	9 049.032 790 8	0.08	177.598	19.55	1
354	295.585 048 1	−11.213 539 0	9 049.032 794 4	0.08	177.607	15.67	2
354	295.609 934 1	−11.209 842 4	9 049.107 346 7	0.11	177.598	23.85	1
354	295.609 955 2	−11.209 840 8	9 049.107 350 2	0.11	177.607	31.10	2
354	295.614 721 1	−11.209 129 0	9 049.121 680 0	0.11	177.598	20.64	1
354	295.614 742 2	−11.209 125 1	9 049.121 683 4	0.11	177.607	12.87	2
354	296.753 377 3	−11.034 870 0	9 052.565 495 3	0.07	161.403	19.81	1
354	296.753 396 8	−11.034 867 7	9 052.565 495 8	0.07	161.324	29.56	2
354	296.758 050 7	−11.034 131 3	9 052.579 779 3	0.08	161.403	17.16	1
354	296.758 067 8	−11.034 122 1	9 052.579 779 9	0.08	161.324	17.99	2
354	296.782 450 8	−11.030 276 7	9 052.654 372 2	0.11	161.403	18.98	1
354	296.782 469 5	−11.030 272 9	9 052.654 372 7	0.11	161.324	14.75	2
354	296.787 130 8	−11.029 539 1	9 052.668 680 9	0.11	161.403	18.41	1
354	296.787 147 5	−11.029 529 8	9 052.668 681 3	0.11	161.324	28.11	2
354	296.811 516 0	−11.025 688 5	9 052.743 260 9	0.10	161.402	22.61	1
354	296.811 535 0	−11.025 686 4	9 052.743 261 3	0.10	161.324	28.67	2
354	296.899 813 5	−11.011 722 6	9 053.013 577 9	0.08	159.528	21.11	1
354	296.899 836 6	−11.011 729 9	9 053.013 586 0	0.08	159.489	32.89	2
354	296.904 498 5	−11.010 988 8	9 053.027 923 6	0.08	159.528	19.29	1
354	296.904 516 6	−11.010 983 1	9 053.027 931 7	0.08	159.489	31.35	2
354	296.928 820 3	−11.007 132 6	9 053.102 467 1	0.11	159.528	25.72	1
354	296.928 840 1	−11.007 131 8	9 053.102 475 1	0.11	159.488	15.63	2
354	296.933 510 5	−11.006 388 4	9 053.116 796 1	0.11	159.488	27.92	2
354	296.933 498 2	−11.006 397 3	9 053.116 800 5	0.11	159.528	21.52	1
451	50.568 848 7	9.925 693 2	8 258.268 707 8	0.04	317.640	10.14	1
451	50.568 849 2	9.925 693 0	8 258.268 711 3	0.04	317.798	13.92	2
451	50.567 954 3	9.927 097 0	8 258.283 028 9	0.05	317.639	9.99	1
451	50.567 954 5	9.927 097 2	8 258.283 032 4	0.05	317.798	11.38	2
451	50.315 416 5	11.403 734 6	8 272.222 919 8	−0.05	18.090	15.00	1
451	50.315 790 4	11.405 358 9	8 272.237 240 9	−0.04	18.090	14.13	1
451	50.320 116 5	11.423 816 6	8 272.400 698 4	0.03	18.091	13.46	1
451	50.320 086 0	11.423 830 4	8 272.400 706 0	0.03	18.231	17.53	2
451	50.320 503 8	11.425 436 0	8 272.415 019 4	0.03	18.091	15.98	1
451	50.320 473 3	11.425 449 8	8 272.415 027 1	0.03	18.231	21.38	2
451	53.969 814 6	15.240 945 2	8 303.852 870 1	0.02	303.597	19.55	1
451	53.969 777 5	15.240 888 9	8 303.852 874 1	0.02	303.591	21.61	2
451	53.972 573 5	15.242 683 3	8 303.867 182 8	0.03	303.591	17.48	2
451	53.972 616 1	15.242 739 1	8 303.867 191 2	0.03	303.597	17.99	1
451	53.987 229 6	15.252 075 7	8 303.941 771 8	0.06	303.598	20.79	1
451	53.987 187 9	15.252 022 6	8 303.941 775 7	0.06	303.593	17.00	2
451	53.990 037 1	15.253 875 7	8 303.956 117 5	0.06	303.599	21.26	1
451	53.989 999 8	15.253 819 7	8 303.956 121 3	0.06	303.593	26.66	2
451	159.793 220 4	21.018 381 3	8 589.953 024 5	−0.04	244.634	24.14	2
451	159.793 225 0	21.018 375 2	8 589.953 026 4	−0.04	244.646	14.52	1
451	159.808 914 4	21.020 402 6	8 590.027 617 3	−0.01	244.639	22.95	2
451	159.808 912 8	21.020 393 7	8 590.027 619 4	−0.01	244.651	17.32	1
451	159.811 908 5	21.020 786 4	8 590.041 913 7	0.00	244.640	18.49	2
451	159.811 916 2	21.020 781 8	8 590.041 915 8	0.00	244.652	13.85	1
451	159.827 564 8	21.022 817 2	8 590.116 518 9	0.03	244.645	20.58	2
451	159.827 573 5	21.022 813 2	8 590.116 521 1	0.03	244.657	18.25	1
451	164.202 226 5	23.389 571 6	8 624.052 871 8	−0.04	165.229	16.73	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
451	164.202 203 9	23.389 562 4	8 624.052 876 2	−0.04	165.272	29.50	2
451	164.202 739 7	23.391 202 8	8 624.067 168 1	−0.04	165.228	15.96	1
451	164.202 717 0	23.391 193 7	8 624.067 172 5	−0.04	165.272	26.56	2
451	164.293 764 1	24.364 270 0	8 632.052 104 8	−0.03	200.860	12.68	1
451	164.293 746 4	24.364 273 9	8 632.052 108 8	−0.03	200.931	10.95	2
451	164.293 568 9	24.366 139 1	8 632.066 450 5	−0.03	200.860	10.78	1
451	164.293 553 3	24.366 147 7	8 632.066 454 5	−0.03	200.931	11.22	2
451	164.292 526 5	24.375 839 8	8 632.140 994 1	0.00	200.862	12.11	1
451	164.292 511 7	24.375 849 6	8 632.140 997 9	0.00	200.932	17.81	2
451	164.292 326 6	24.377 719 4	8 632.155 339 8	0.01	200.862	10.68	1
451	164.292 310 5	24.377 725 6	8 632.155 343 7	0.01	200.933	13.68	2
451	164.291 244 8	24.387 442 2	8 632.229 908 1	0.04	200.864	12.17	1
451	164.291 226 9	24.387 443 4	8 632.229 911 9	0.04	200.934	12.52	2
451	164.291 030 3	24.389 304 0	8 632.244 229 2	0.05	200.864	10.98	1
451	164.291 015 2	24.389 312 1	8 632.244 233 0	0.05	200.934	9.71	2
451	164.289 906 1	24.399 041 7	8 632.318 822 0	0.07	200.865	13.50	1
451	164.289 891 2	24.399 049 5	8 632.318 825 8	0.07	200.936	22.45	2
451	164.289 690 0	24.400 913 0	8 632.333 093 6	0.07	200.866	12.47	1
451	164.289 673 9	24.400 922 2	8 632.333 122 1	0.07	200.936	16.93	2
451	152.061 940 6	31.366 872 4	8 716.954 252 2	0.11	10.015	16.25	2
451	152.061 959 8	31.366 869 9	8 716.954 258 6	0.11	9.993	16.83	1
451	152.061 127 1	31.366 193 3	8 716.968 573 2	0.11	10.014	15.75	2
451	152.061 146 3	31.366 189 9	8 716.968 579 5	0.11	9.993	15.80	1
451	151.868 568 3	30.402 907 1	8 731.455 001 3	0.07	66.804	15.88	2
451	151.868 580 6	30.402 890 1	8 731.455 004 1	0.07	66.775	12.39	1
451	151.870 751 1	30.396 694 0	8 731.529 520 2	0.11	66.803	11.32	2
451	151.870 765 6	30.396 677 8	8 731.529 523 1	0.11	66.774	17.16	1
451	151.871 177 0	30.395 497 4	8 731.543 865 8	0.11	66.803	9.39	2
451	151.871 188 2	30.395 479 9	8 731.543 868 7	0.11	66.774	13.53	1
451	151.873 397 2	30.389 268 4	8 731.618 409 0	0.12	66.803	18.27	2
451	151.873 398 0	30.389 241 1	8 731.618 473 7	0.12	66.773	28.88	1
451	151.873 830 2	30.388 069 1	8 731.632 754 7	0.12	66.803	15.16	2
451	151.873 838 1	30.388 050 3	8 731.632 757 6	0.12	66.772	13.64	1
471	319.568 930 5	−24.256 072 3	8 020.208 781 3	0.00	205.574	9.10	2
471	319.568 940 9	−24.256 079 4	8 020.208 783 9	0.00	205.634	13.85	1
471	319.572 293 7	−24.256 431 7	8 020.223 052 9	0.00	205.574	9.91	2
471	319.572 306 4	−24.256 440 3	8 020.223 067 8	0.00	205.634	17.27	1
471	319.589 864 5	−24.258 323 3	8 020.297 623 7	0.03	205.633	14.94	1
471	319.589 855 7	−24.258 324 8	8 020.297 645 5	0.03	205.573	16.80	2
471	319.593 224 2	−24.258 685 5	8 020.311 954 2	0.04	205.573	30.61	2
471	319.593 235 0	−24.258 692 0	8 020.311 957 2	0.04	205.633	20.33	1
471	325.421 660 6	−26.601 320 2	8 056.918 489 2	−0.04	139.677	19.86	1
471	325.421 553 4	−26.601 408 1	8 056.918 493 8	−0.04	139.816	21.64	2
471	325.426 743 3	−26.609 353 4	8 056.993 057 5	−0.01	139.674	12.36	1
471	325.426 632 5	−26.609 436 9	8 056.993 062 1	−0.01	139.813	12.86	2
471	325.427 711 5	−26.610 893 3	8 057.007 378 6	0.00	139.673	13.98	1
471	325.427 602 3	−26.610 978 5	8 057.007 383 2	0.00	139.813	14.58	2
471	325.432 761 9	−26.618 949 7	8 057.081 946 7	0.03	139.670	13.93	1
471	325.432 654 6	−26.619 036 5	8 057.081 951 3	0.03	139.810	20.14	2
471	325.433 729 7	−26.620 500 2	8 057.096 267 7	0.03	139.669	12.21	1
471	325.433 618 5	−26.620 582 9	8 057.096 272 2	0.03	139.809	11.86	2
471	325.438 740 0	−26.628 571 7	8 057.170 836 0	0.06	139.667	8.46	1
471	325.438 629 5	−26.628 654 7	8 057.170 840 3	0.06	139.806	7.80	2
471	325.439 694 5	−26.630 118 3	8 057.185 132 3	0.06	139.666	8.66	1
471	325.439 586 4	−26.630 203 8	8 057.185 136 6	0.06	139.806	9.50	2
471	325.450 432 4	−26.647 943 1	8 057.348 618 1	−0.04	141.760	10.93	2
471	325.450 546 5	−26.647 867 1	8 057.348 622 0	−0.04	141.650	11.04	1
471	325.451 377 7	−26.649 503 5	8 057.362 951 5	−0.04	141.759	12.87	2
471	325.451 490 1	−26.649 425 4	8 057.362 955 3	−0.04	141.649	10.79	1
471	325.800 153 9	−27.748 788 7	8 066.518 326 7	0.06	178.811	16.14	1
471	325.800 073 0	−27.748 793 7	8 066.518 327 5	0.06	178.850	16.89	2
471	325.801 618 2	−27.770 242 0	8 066.681 734 1	−0.03	180.309	30.60	1
471	325.801 543 3	−27.770 232 4	8 066.681 828 3	−0.03	180.298	20.14	2
471	325.801 739 1	−27.772 111 0	8 066.696 116 8	−0.03	180.309	18.10	1
471	325.801 663 4	−27.772 114 0	8 066.696 124 6	−0.03	180.298	12.42	2
471	325.802 343 9	−27.781 913 6	8 066.770 685 0	0.00	180.309	13.41	1
471	325.802 268 7	−27.781 917 1	8 066.770 692 7	0.00	180.298	17.39	2
471	325.802 455 9	−27.783 798 7	8 066.785 006 0	0.01	180.309	17.19	1
471	325.802 380 9	−27.783 799 6	8 066.785 013 8	0.01	180.298	22.43	2
471	325.803 018 5	−27.793 613 5	8 066.859 599 0	0.04	180.309	14.72	1
471	325.802 943 9	−27.793 614 3	8 066.859 606 6	0.04	180.298	10.96	2
471	325.803 122 2	−27.795 496 7	8 066.873 895 3	0.04	180.309	16.69	1
471	325.803 047 7	−27.795 498 1	8 066.873 902 8	0.04	180.298	13.38	2
471	325.803 642 3	−27.805 330 9	8 066.948 488 0	0.06	180.309	13.61	1
471	325.803 568 3	−27.805 334 2	8 066.948 495 5	0.06	180.298	17.23	2
471	325.803 738 2	−27.807 221 8	8 066.962 833 7	0.06	180.309	16.69	1
471	325.803 664 3	−27.807 221 2	8 066.962 841 2	0.06	180.298	16.16	2
471	325.804 737 5	−27.828 820 3	8 067.126 239 6	−0.03	181.725	12.60	1
471	325.804 669 1	−27.828 817 7	8 067.126 240 4	−0.03	181.767	15.73	2
471	325.804 817 1	−27.830 717 1	8 067.140 585 3	−0.03	181.725	13.21	1
471	325.804 748 8	−27.830 714 8	8 067.140 586 1	−0.03	181.767	22.04	2
471	313.225 283 9	−36.598 495 5	8 147.026 253 0	0.03	320.008	12.88	2
471	313.225 444 2	−36.598 393 4	8 147.026 255 9	0.03	320.003	13.91	1
471	313.223 837 6	−36.598 316 3	8 147.040 574 2	0.04	320.009	12.18	2
471	313.223 994 2	−36.598 210 4	8 147.040 577 1	0.04	320.003	14.56	1
471	313.216 294 9	−36.597 336 3	8 147.115 142 6	0.08	320.011	20.58	2
471	313.216 453 4	−36.597 231 6	8 147.115 145 3	0.08	320.005	14.16	1
471	313.214 855 2	−36.597 147 9	8 147.129 438 9	0.09	320.011	17.07	2
471	313.215 013 9	−36.597 043 2	8 147.129 441 6	0.09	320.005	13.71	1
471	313.207 360 7	−36.596 145 6	8 147.204 031 6	0.10	320.014	13.48	2
471	313.207 515 9	−36.596 036 9	8 147.204 034 3	0.10	320.008	13.71	1
471	313.205 927 7	−36.595 952 0	8 147.218 352 5	0.10	320.014	11.78	2
471	313.206 083 3	−36.595 843 5	8 147.218 355 3	0.10	320.008	12.16	1
471	313.198 483 7	−36.594 925 5	8 147.292 919 9	0.08	320.016	12.15	2
471	313.198 644 4	−36.594 821 2	8 147.292 922 8	0.08	320.011	12.71	1
471	313.197 062 2	−36.594 727 4	8 147.307 216 2	0.08	320.017	23.71	2
471	313.197 222 3	−36.594 622 5	8 147.307 219 0	0.08	320.012	13.86	1
471	313.181 069 1	−36.592 305 6	8 147.470 691 7	0.03	321.405	18.06	1
471	313.180 903 0	−36.592 402 8	8 147.470 694 7	0.03	321.505	17.07	2

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
471	313.179 668 8	−36.592 102 9	8 147.485 012 9	0.04	321.405	18.51	1
471	313.179 503 7	−36.592 201 3	8 147.485 015 9	0.04	321.505	11.60	2
471	313.172 359 3	−36.590 992 0	8 147.559 581 1	0.08	321.407	17.21	1
471	313.172 203 4	−36.591 100 1	8 147.559 584 0	0.08	321.507	23.46	2
471	313.170 964 3	−36.590 780 5	8 147.573 902 1	0.09	321.407	14.31	1
471	313.170 801 1	−36.590 881 3	8 147.573 905 1	0.09	321.507	9.94	2
471	312.632 171 8	−36.358 225 5	8 155.648 213 6	0.10	355.989	12.09	1
471	312.632 069 3	−36.358 230 0	8 155.648 220 9	0.10	356.229	15.94	2
471	312.622 955 5	−36.346 906 1	8 155.914 878 1	0.05	358.573	11.43	2
471	312.623 054 5	−36.346 905 9	8 155.914 880 7	0.05	358.490	10.23	1
471	312.622 481 2	−36.346 293 7	8 155.929 223 7	0.05	358.573	13.45	2
471	312.622 578 7	−36.346 293 7	8 155.929 275 7	0.05	358.490	17.76	1
471	312.620 042 1	−36.343 084 5	8 156.003 767 3	0.09	358.573	9.81	2
471	312.620 141 7	−36.343 082 3	8 156.003 769 8	0.09	358.490	9.58	1
471	312.619 577 7	−36.342 465 9	8 156.018 112 9	0.09	358.573	11.54	2
471	312.619 677 4	−36.342 462 2	8 156.018 115 5	0.09	358.490	9.68	1
471	312.617 190 9	−36.339 231 9	8 156.092 656 2	0.10	358.573	10.81	2
471	312.617 291 4	−36.339 228 4	8 156.092 658 8	0.10	358.490	9.73	1
471	312.616 736 9	−36.338 614 1	8 156.107 001 9	0.10	358.573	11.92	2
471	312.616 837 5	−36.338 613 7	8 156.107 004 5	0.10	358.490	11.54	1
471	312.614 402 7	−36.335 362 4	8 156.181 544 7	0.08	358.573	10.66	2
471	312.614 503 9	−36.335 356 5	8 156.181 547 3	0.08	358.490	9.68	1
471	316.283 946 1	−33.215 245 4	8 192.002 299 5	0.11	298.440	14.29	1
471	316.283 864 0	−33.215 373 7	8 192.002 300 5	0.11	298.450	8.38	2
471	316.300 455 1	−33.206 152 0	8 192.076 867 2	0.10	298.437	12.31	1
471	316.300 373 6	−33.206 280 8	8 192.076 868 2	0.10	298.446	19.72	2
471	316.303 544 8	−33.204 532 1	8 192.091 189 2	0.10	298.445	12.47	2
471	332.071 870 2	−25.570 299 3	8 240.947 445 4	0.09	312.303	14.65	2
471	332.071 954 5	−25.570 221 4	8 240.947 452 7	0.09	312.315	13.81	1
471	332.077 504 6	−25.567 625 3	8 240.961 729 3	0.08	312.303	11.16	2
471	332.077 587 4	−25.567 546 4	8 240.961 736 5	0.08	312.315	10.01	1
471	332.147 754 5	−25.534 249 9	8 241.139 503 4	0.06	310.553	9.86	1
471	332.147 676 1	−25.534 334 3	8 241.139 506 9	0.06	310.597	11.31	2
471	87.771 186 0	19.205 896 1	8 487.388 331 5	−0.01	206.657	16.49	1
471	87.771 183 3	19.205 907 1	8 487.388 335 1	−0.01	206.641	30.04	2
471	87.804 662 6	19.210 099 2	8 487.462 875 2	0.04	206.660	14.86	1
471	87.804 655 8	19.210 102 2	8 487.462 878 9	0.04	206.644	19.83	2
471	87.811 094 4	19.210 909 0	8 487.477 196 2	0.04	206.661	16.54	1
471	87.811 088 0	19.210 912 5	8 487.477 199 9	0.04	206.645	16.53	2
471	87.844 560 5	19.215 103 8	8 487.551 768 1	0.08	206.647	14.69	2
471	87.844 573 0	19.215 102 1	8 487.551 776 7	0.08	206.663	20.32	1
471	87.850 997 6	19.215 920 9	8 487.566 073 0	0.08	206.664	19.91	1
471	87.850 997 3	19.215 926 0	8 487.566 089 1	0.08	206.648	24.61	2
471	87.884 453 8	19.220 107 3	8 487.640 628 8	0.10	206.667	16.03	1
471	87.884 446 3	19.220 108 4	8 487.640 632 4	0.10	206.651	11.84	2
471	87.890 889 2	19.220 910 5	8 487.654 974 4	0.10	206.667	22.11	1
471	87.890 888 3	19.220 914 1	8 487.654 990 4	0.10	206.651	29.08	2
471	95.252 526 7	20.052 743 2	8 504.718 510 6	0.00	142.582	21.49	1
471	95.283 262 4	20.055 917 9	8 504.793 128 3	0.05	142.585	20.52	1
471	106.945 098 2	21.354 817 5	8 537.164 267 7	0.03	229.697	12.78	1
471	106.945 090 2	21.354 823 2	8 537.164 273 0	0.03	229.732	12.25	2
471	106.949 363 1	21.355 456 3	8 537.178 588 9	0.04	229.699	11.82	1
471	106.949 358 6	21.355 464 8	8 537.178 594 2	0.04	229.733	14.55	2
471	106.971 566 3	21.358 794 1	8 537.253 156 9	0.07	229.704	9.95	1
471	106.971 564 4	21.358 804 7	8 537.253 162 1	0.07	229.739	18.68	2
471	113.567 036 4	23.348 263 0	8 568.259 651 1	0.06	151.417	11.42	2
471	113.566 970 3	23.348 227 6	8 568.259 652 3	0.06	151.372	10.46	1
471	113.568 662 4	23.349 556 4	8 568.273 972 1	0.06	151.417	8.73	2
471	113.568 595 2	23.349 522 9	8 568.273 973 3	0.06	151.372	9.06	1
471	113.577 091 4	23.356 312 7	8 568.348 515 6	0.09	151.417	11.93	2
471	113.577 024 3	23.356 279 3	8 568.348 516 8	0.09	151.371	10.86	1
471	113.578 712 1	23.357 612 4	8 568.362 873 6	0.09	151.417	20.82	2
471	114.401 303 0	24.839 514 8	8 582.390 530 0	0.03	210.594	10.07	2
471	114.401 300 5	24.839 518 9	8 582.390 532 5	0.03	210.493	11.71	1
471	114.401 337 4	24.841 239 6	8 582.404 851 0	0.03	210.595	12.66	2
471	114.401 333 8	24.841 242 1	8 582.404 853 5	0.03	210.493	7.02	1
471	114.401 498 9	24.850 239 9	8 582.479 394 6	0.07	210.597	10.64	2
471	114.401 494 5	24.850 241 6	8 582.479 397 2	0.07	210.495	9.46	1
471	114.401 524 2	24.851 972 4	8 582.493 740 4	0.08	210.597	14.00	2
471	114.401 519 6	24.851 974 0	8 582.493 743 0	0.08	210.496	8.07	1
471	114.401 628 7	24.860 985 9	8 582.568 308 5	0.10	210.599	11.46	2
471	114.401 624 1	24.860 987 9	8 582.568 311 2	0.10	210.497	7.37	1
471	114.401 643 8	24.862 718 7	8 582.582 629 4	0.10	210.599	7.70	2
471	114.401 638 3	24.862 719 3	8 582.582 632 2	0.10	210.498	7.57	1
471	114.401 691 9	24.871 743 2	8 582.657 197 0	0.09	210.601	6.97	2
471	114.401 686 1	24.871 743 9	8 582.657 199 8	0.09	210.499	8.12	1
471	99.752 488 9	33.895 250 9	8 665.865 727 3	0.11	15.754	27.73	1
471	99.752 482 8	33.895 266 2	8 665.865 790 2	0.11	15.785	17.71	2
471	99.751 708 3	33.895 577 1	8 665.880 134 7	0.11	15.754	11.41	1
471	99.751 701 1	33.895 577 9	8 665.880 135 9	0.11	15.785	12.71	2
471	99.747 653 5	33.897 136 5	8 665.954 702 5	0.11	15.754	12.31	1
471	99.747 647 2	33.897 138 7	8 665.954 703 6	0.11	15.785	10.55	2
471	99.746 880 0	33.897 434 6	8 665.969 023 5	0.11	15.754	7.56	1
471	99.746 873 0	33.897 434 5	8 665.969 024 6	0.11	15.786	7.73	2
471	99.742 882 9	33.898 983 8	8 666.043 566 3	0.08	15.753	8.06	1
471	99.742 876 8	33.898 984 9	8 666.043 567 3	0.08	15.786	9.30	2
471	99.742 119 0	33.899 280 6	8 666.057 911 8	0.07	15.753	9.16	1
471	99.742 112 1	33.899 279 4	8 666.057 912 8	0.07	15.786	3.65	2
471	99.728 964 2	33.904 438 2	8 666.310 232 1	0.11	17.938	16.17	1
471	99.728 954 4	33.904 442 2	8 666.310 237 4	0.11	17.938	7.92	2
471	99.728 232 2	33.904 727 8	8 666.324 577 8	0.11	17.938	12.82	1
471	99.728 222 6	33.904 732 3	8 666.324 583 0	0.11	17.938	18.33	2
471	99.724 454 4	33.906 225 8	8 666.399 145 6	0.11	17.938	12.57	1
471	99.724 444 0	33.906 227 2	8 666.399 150 9	0.11	17.938	10.91	2
471	99.723 736 1	33.906 517 6	8 666.413 466 6	0.11	17.938	11.22	1
471	99.723 725 9	33.906 519 0	8 666.413 471 8	0.11	17.938	11.04	2
471	99.720 013 7	33.907 999 9	8 666.488 009 2	0.07	17.937	15.27	1
471	99.720 006 5	33.908 008 2	8 666.488 014 5	0.07	17.938	18.96	2
471	99.719 305 1	33.908 290 3	8 666.502 354 8	0.06	17.937	11.47	1
471	99.719 296 7	33.908 295 3	8 666.502 360 0	0.06	17.939	12.54	2
471	99.707 070 5	33.913 239 9	8 666.754 699 4	0.11	19.916	13.26	2
471	99.707 086 6	33.913 243 4	8 666.754 705 9	0.11	20.006	14.97	1
471	99.706 396 0	33.913 524 2	8 666.769 020 4	0.11	19.916	16.69	2
471	99.706 408 2	33.913 519 3	8 666.769 026 9	0.11	20.006	14.87	1
471	99.702 894 5	33.914 956 9	8 666.843 563 6	0.11	19.916	15.75	2
471	99.702 907 3	33.914 954 4	8 666.843 570 0	0.11	20.006	13.77	1
471	99.702 228 5	33.915 234 2	8 666.857 884 6	0.11	19.916	20.31	2
471	99.702 240 9	33.915 230 9	8 666.857 891 0	0.11	20.006	12.87	1
471	99.624 515 7	33.950 713 8	8 668.902 349 6	0.08	29.809	15.94	1
471	99.624 487 2	33.950 728 3	8 668.902 350 4	0.08	29.886	20.32	2
471	99.622 304 1	33.951 877 5	8 668.976 893 6	0.11	29.886	13.87	2
471	99.622 330 6	33.951 860 9	8 668.976 905 4	0.11	29.809	15.39	1
471	99.621 924 8	33.952 093 5	8 668.991 238 8	0.11	29.809	12.68	1
471	99.621 893 1	33.952 103 1	8 668.991 239 3	0.11	29.886	13.46	2
471	99.619 796 7	33.953 230 4	8 669.065 757 2	0.11	29.809	16.95	1
471	99.619 767 4	33.953 243 4	8 669.065 757 7	0.11	29.886	24.40	2
471	99.619 396 3	33.953 451 1	8 669.080 053 5	0.11	29.809	20.46	1
471	99.619 364 7	33.953 463 6	8 669.080 103 3	0.10	29.886	11.92	2
471	99.617 323 8	33.954 583 3	8 669.154 670 2	0.07	29.808	14.79	1
471	99.617 293 6	33.954 595 2	8 669.154 670 6	0.07	29.886	24.56	2
471	99.616 932 0	33.954 799 3	8 669.168 966 3	0.06	29.808	14.64	1
471	99.616 899 0	33.954 807 1	8 669.168 966 8	0.06	29.886	18.58	2
471	99.612 199 3	33.957 449 1	8 669.346 710 7	0.08	31.644	55.21	1
471	99.610 294 0	33.958 552 3	8 669.421 340 6	0.11	31.643	10.18	1
471	99.610 261 0	33.958 570 2	8 669.421 346 6	0.11	31.669	15.04	2
471	99.609 930 1	33.958 758 0	8 669.435 661 6	0.11	31.643	13.44	1
471	99.609 894 8	33.958 773 0	8 669.435 667 6	0.11	31.669	11.66	2
471	99.608 080 6	33.959 848 4	8 669.510 229 4	0.11	31.643	9.03	1
471	99.608 047 3	33.959 866 2	8 669.510 235 5	0.11	31.669	8.26	2
471	99.607 727 7	33.960 053 5	8 669.524 562 6	0.10	31.643	13.99	1
471	99.607 695 8	33.960 073 0	8 669.524 568 7	0.10	31.669	18.68	2
471	99.605 928 8	33.961 125 3	8 669.599 093 0	0.07	31.642	11.08	1
471	99.605 896 4	33.961 144 4	8 669.599 099 1	0.07	31.669	9.43	2
471	99.605 595 4	33.961 340 8	8 669.613 438 6	0.06	31.642	12.54	1
471	99.605 560 5	33.961 356 6	8 669.613 444 7	0.06	31.669	15.61	2
471	103.878 819 1	33.612 599 9	8 707.090 860 9	0.11	324.122	27.25	2
471	103.878 705 4	33.612 549 6	8 707.090 861 1	0.11	324.118	25.60	1
471	103.882 103 8	33.612 206 0	8 707.105 181 9	0.11	324.123	33.13	2
471	103.882 003 4	33.612 143 3	8 707.105 194 5	0.11	324.119	21.08	1
471	103.899 255 2	33.610 121 0	8 707.179 774 5	0.11	324.127	18.89	2
471	103.899 153 9	33.610 056 3	8 707.179 774 6	0.11	324.122	18.15	1
471	103.902 447 6	33.609 658 1	8 707.194 095 6	0.11	324.123	18.46	1
471	112.248 408 1	32.438 886 3	8 736.144 867 0	0.05	47.648	24.17	1
471	112.248 368 7	32.438 922 7	8 736.144 875 5	0.05	47.704	24.19	2
471	112.253 149 9	32.438 152 4	8 736.159 208 5	0.03	47.705	30.10	2
471	112.253 202 4	32.438 118 3	8 736.159 224 8	0.03	47.649	29.56	1
471	119.746 982 6	31.119 203 7	8 757.206 411 3	0.11	331.987	31.74	1
471	119.747 079 2	31.119 239 9	8 757.206 420 6	0.11	331.941	34.84	2
471	119.752 442 7	31.118 179 3	8 757.220 741 7	0.12	331.942	41.98	2
471	119.752 348 2	31.118 152 8	8 757.220 757 1	0.12	331.988	52.32	1
471	119.780 178 9	31.112 762 2	8 757.295 275 5	0.12	331.992	30.96	1
471	119.780 274 0	31.112 800 5	8 757.295 285 0	0.12	331.946	34.65	2
471	119.785 533 9	31.111 729 4	8 757.309 621 1	0.11	331.993	33.03	1
471	119.785 629 2	31.111 767 4	8 757.309 630 6	0.11	331.947	26.05	2
471	201.829 706 7	10.448 528 2	9 024.710 760 8	0.10	224.655	17.68	1
471	201.829 724 2	10.448 514 1	9 024.710 764 7	0.10	224.614	20.38	2
471	201.829 817 8	10.449 657 2	9 024.725 056 9	0.09	224.656	17.06	1
471	201.829 835 2	10.449 642 9	9 024.725 060 8	0.09	224.615	34.99	2
471	201.830 405 7	10.455 578 0	9 024.799 636 7	0.05	224.656	25.41	1
471	201.830 423 6	10.455 563 9	9 024.799 640 5	0.05	224.615	21.80	2
511	14.749 594 4	−7.938 973 8	8 046.067 732 5	−0.04	115.413	21.18	2
511	14.749 577 4	−7.939 005 7	8 046.067 737 4	−0.04	115.449	17.94	1
511	14.753 901 5	−7.938 128 8	8 046.082 053 6	−0.03	115.413	21.74	2
511	14.753 888 2	−7.938 162 3	8 046.082 058 6	−0.03	115.449	16.44	1
511	14.829 805 8	−7.923 309 0	8 046.334 396 2	−0.12	114.306	27.93	2
511	14.829 785 6	−7.923 340 3	8 046.334 398 0	−0.12	114.344	20.43	1
511	24.362 782 9	−6.859 342 5	8 081.611 524 9	−0.01	200.084	17.11	1
511	24.362 730 2	−6.859 325 2	8 081.611 544 0	−0.01	200.053	44.21	2
511	30.135 078 0	−8.029 629 0	8 113.850 874 7	−0.09	128.312	16.46	2
511	30.135 057 1	−8.029 645 3	8 113.850 881 9	−0.09	128.297	13.53	1
511	30.136 727 7	−8.030 645 1	8 113.865 195 7	−0.09	128.312	18.53	2
511	30.136 711 6	−8.030 665 1	8 113.865 202 8	−0.09	128.297	13.18	1
511	30.145 355 2	−8.035 984 6	8 113.939 763 8	−0.05	128.311	16.10	2
511	30.145 335 9	−8.036 002 2	8 113.939 771 0	−0.05	128.296	13.79	1
511	30.147 008 5	−8.037 010 9	8 113.954 084 8	−0.04	128.311	11.70	2
511	30.146 992 8	−8.037 031 3	8 113.954 092 1	−0.04	128.296	12.25	1
511	31.418 861 7	−9.657 915 7	8 131.982 572 6	−0.10	200.157	14.70	2
511	31.418 940 8	−9.657 944 2	8 131.982 574 3	−0.10	200.161	15.89	1
511	31.419 190 7	−9.659 429 9	8 131.996 893 7	−0.09	200.157	21.07	2
511	31.419 269 2	−9.659 462 2	8 131.996 907 8	−0.09	200.162	15.08	1
511	31.420 947 6	−9.667 391 7	8 132.071 451 1	−0.07	200.162	16.14	1
511	31.420 868 3	−9.667 366 0	8 132.071 461 6	−0.07	200.157	20.28	2
511	31.421 189 2	−9.668 887 0	8 132.085 794 9	−0.07	200.158	36.45	2
511	31.421 266 7	−9.668 919 7	8 132.085 796 8	−0.07	200.162	19.48	1
511	31.422 835 6	−9.676 816 0	8 132.160 350 8	−0.03	200.158	10.12	2
511	31.422 913 4	−9.676 848 0	8 132.160 352 7	−0.03	200.162	15.78	1
511	31.423 144 7	−9.678 351 9	8 132.174 684 2	−0.02	200.158	26.57	2
511	31.423 225 1	−9.678 376 9	8 132.174 686 1	−0.02	200.163	13.41	1
511	20.152 582 5	−10.716 456 7	8 248.761 376 6	0.02	291.341	26.19	2
511	20.152 563 3	−10.716 501 3	8 248.761 382 6	0.02	291.323	15.21	1
511	20.153 789 5	−10.714 125 9	8 248.775 722 4	0.03	291.341	18.08	2
511	20.153 771 2	−10.714 170 8	8 248.775 728 4	0.03	291.323	14.90	1
511	20.160 094 5	−10.702 014 9	8 248.850 266 0	0.06	291.341	7.62	2
511	20.160 074 7	−10.702 059 2	8 248.850 271 9	0.06	291.323	12.62	1
511	20.161 294 1	−10.699 728 5	8 248.864 617 7	0.07	291.323	13.38	1
511	20.167 643 1	−10.687 558 2	8 248.939 155 0	0.07	291.340	14.94	2
511	20.167 625 7	−10.687 603 3	8 248.939 160 9	0.07	291.323	12.97	1
511	29.528 540 5	−1.699 590 5	8 297.455 505 7	−0.03	307.609	30.57	2
511	29.528 556 4	−1.699 568 6	8 297.455 509 9	−0.03	307.624	18.28	1

N	Reference point		Date		Abscissa		F
	α_0	δ_0	Epoch	$\Delta\tau$	θ	σ_{v*}	
	deg	deg	JD[TT]	s	deg	mas	
1	2	3	4	5	6	7	8
511	29.532 551 6	−1.696 801 6	8 297.469 814 4	−0.02	307.609	20.62	2
511	29.532 568 9	−1.696 780 9	8 297.469 818 6	−0.02	307.624	15.58	1
511	29.553 492 5	−1.682 274 3	8 297.544 419 7	0.02	307.609	19.78	2
511	29.553 517 0	−1.682 253 8	8 297.544 436 3	0.02	307.624	21.28	1
511	29.557 503 3	−1.679 487 5	8 297.558 716 1	0.03	307.609	17.41	2
511	29.557 517 4	−1.679 464 1	8 297.558 720 3	0.03	307.624	15.89	1
511	29.578 464 1	−1.664 946 9	8 297.633 276 3	0.07	307.624	15.38	1
511	29.578 452 2	−1.664 967 0	8 297.633 284 5	0.07	307.609	23.01	2
511	29.582 471 7	−1.662 184 1	8 297.647 580 7	0.07	307.609	14.93	2
511	29.582 485 3	−1.662 160 2	8 297.647 585 0	0.07	307.624	13.72	1
511	129.896 409 0	18.031 463 3	8 540.804 977 0	0.03	233.579	16.03	2
511	129.896 424 4	18.031 446 8	8 540.804 979 9	0.03	233.579	15.29	1
511	129.901 342 2	18.031 158 5	8 540.819 322 8	0.04	233.580	14.60	2
511	129.901 356 3	18.031 141 1	8 540.819 325 7	0.04	233.580	14.77	1
511	129.926 959 4	18.029 571 5	8 540.893 865 9	0.06	233.585	14.42	2
511	129.926 976 5	18.029 555 9	8 540.893 869 0	0.06	233.584	16.57	1
511	129.931 887 7	18.029 272 9	8 540.908 186 9	0.07	233.585	12.02	2
511	129.931 900 5	18.029 254 3	8 540.908 190 0	0.07	233.585	14.77	1
511	137.132 212 3	17.779 077 7	8 564.263 423 4	0.01	153.926	5.98	2
511	137.132 246 9	17.779 094 7	8 564.263 431 8	0.01	153.948	11.59	1
511	137.136 064 7	17.779 129 3	8 564.277 769 1	0.02	153.926	11.53	2
511	137.136 101 7	17.779 141 4	8 564.277 777 5	0.01	153.948	11.79	1
511	142.395 870 8	18.446 166 4	8 588.698 124 8	0.03	237.598	15.92	2
511	142.395 877 8	18.446 157 2	8 588.698 125 1	0.03	237.603	9.39	1
511	142.398 100 6	18.446 954 8	8 588.712 433 6	0.04	237.599	7.48	2
511	142.398 107 9	18.446 945 8	8 588.712 434 0	0.04	237.604	9.24	1
511	142.409 722 4	18.451 082 8	8 588.787 026 4	0.07	237.602	9.70	2
511	142.409 730 7	18.451 074 6	8 588.787 026 9	0.07	237.607	14.95	1
511	142.411 942 9	18.451 873 6	8 588.801 322 6	0.07	237.602	15.38	2
511	142.411 945 7	18.451 862 0	8 588.801 323 2	0.07	237.607	13.73	1
511	133.230 193 9	30.629 273 9	8 712.154 237 1	0.10	346.172	9.16	2
511	133.230 251 9	30.629 286 6	8 712.154 243 1	0.10	346.139	8.55	1
511	133.231 061 9	30.628 923 7	8 712.168 582 6	0.09	346.172	7.77	2
511	133.231 119 9	30.628 936 2	8 712.168 588 6	0.09	346.139	8.75	1
511	135.720 510 8	29.707 031 8	8 732.859 670 5	0.12	61.152	18.42	1
511	135.720 519 0	29.707 013 9	8 732.859 671 1	0.12	61.148	21.25	2
511	135.723 019 5	29.706 135 1	8 732.874 040 9	0.12	61.152	11.65	1
511	135.723 029 1	29.706 117 9	8 732.874 041 5	0.12	61.149	13.84	2
511	135.736 015 5	29.701 463 3	8 732.948 584 0	0.12	61.155	15.86	1
511	135.736 024 7	29.701 445 8	8 732.948 584 7	0.12	61.152	19.09	2
511	135.738 520 9	29.700 567 6	8 732.962 905 0	0.12	61.156	12.32	1
511	135.738 528 5	29.700 549 2	8 732.962 905 6	0.12	61.153	7.17	2
511	135.751 565 9	29.695 890 9	8 733.037 472 2	0.07	61.159	19.14	1
511	135.751 572 2	29.695 871 7	8 733.037 472 8	0.07	61.157	28.01	2
511	142.245 883 6	27.381 334 6	8 761.292 301 0	0.13	334.540	15.61	2
511	142.245 930 9	27.381 353 1	8 761.292 302 9	0.13	334.585	15.14	1
511	142.249 823 0	27.379 911 6	8 761.306 622 0	0.13	334.541	34.20	2
511	142.249 866 4	27.379 937 4	8 761.306 623 9	0.13	334.586	16.85	1
511	142.270 304 3	27.372 566 7	8 761.381 177 2	0.10	334.544	16.01	2
511	142.270 349 5	27.372 588 8	8 761.381 179 0	0.10	334.589	15.45	1
511	142.274 286 2	27.371 170 4	8 761.395 487 5	0.09	334.590	20.38	1
511	142.274 239 7	27.371 155 7	8 761.395 497 9	0.09	334.544	33.77	2
511	154.387 143 7	22.853 926 6	8 800.310 430 6	0.13	38.065	20.22	1
511	154.387 148 9	22.853 924 3	8 800.310 440 6	0.13	38.091	25.10	2
511	154.412 271 5	22.844 175 0	8 800.385 008 0	0.11	38.092	33.18	2
511	154.417 098 5	22.842 304 1	8 800.399 328 9	0.11	38.093	17.51	2
511	154.417 096 5	22.842 303 6	8 800.399 331 5	0.11	38.067	22.20	1
511	154.472 199 3	22.820 914 8	8 800.562 822 0	0.03	36.072	25.05	1
511	154.472 209 1	22.820 923 8	8 800.562 827 5	0.04	36.081	19.38	2
511	154.477 023 6	22.819 042 8	8 800.577 130 9	0.05	36.072	18.36	1
511	154.477 029 3	22.819 046 8	8 800.577 136 2	0.05	36.081	33.96	2
511	154.502 163 0	22.809 297 1	8 800.651 667 6	0.11	36.082	28.02	2
511	154.506 999 2	22.807 413 9	8 800.666 020 5	0.12	36.074	18.88	1
511	154.507 003 6	22.807 416 0	8 800.666 025 7	0.12	36.083	19.98	2
511	154.532 148 8	22.797 652 1	8 800.740 588 5	0.14	36.075	30.23	1
511	154.532 146 4	22.797 645 6	8 800.740 593 8	0.14	36.084	26.24	2
511	154.536 982 7	22.795 781 0	8 800.754 909 4	0.13	36.075	20.33	1
511	154.536 981 4	22.795 775 8	8 800.754 914 7	0.13	36.084	30.50	2
511	154.562 126 3	22.786 013 9	8 800.829 452 3	0.11	36.076	22.25	1
511	154.562 123 0	22.786 006 1	8 800.829 457 6	0.11	36.086	21.95	2
511	154.566 970 7	22.784 136 5	8 800.843 803 2	0.11	36.086	28.24	2
511	157.378 569 1	21.683 262 9	8 809.095 760 3	0.12	1.872	16.94	2
511	157.378 626 3	21.683 261 8	8 809.095 836 7	0.12	1.778	33.60	1
511	157.409 117 7	21.671 224 1	8 809.184 624 8	0.14	1.872	18.69	2
511	157.409 148 7	21.671 222 9	8 809.184 626 9	0.14	1.778	16.80	1
511	157.414 040 6	21.669 267 2	8 809.198 945 7	0.13	1.872	27.81	2
511	157.414 071 5	21.669 261 1	8 809.198 947 8	0.13	1.778	17.22	1
511	157.439 687 0	21.659 143 3	8 809.273 537 8	0.10	1.871	20.85	2
511	157.439 718 0	21.659 143 2	8 809.273 540 0	0.10	1.778	19.65	1
511	157.444 611 4	21.657 202 8	8 809.287 858 5	0.09	1.871	19.76	2
511	157.444 642 2	21.657 198 9	8 809.287 860 7	0.09	1.778	17.06	1
511	157.470 276 2	21.647 087 7	8 809.362 403 0	0.01	1.778	19.03	1
511	157.505 753 3	21.633 056 4	8 809.465 645 3	0.07	0.895	29.35	2
511	225.649 432 0	0.954 138 8	9 030.030 164 7	0.13	236.011	25.70	2
511	225.649 428 9	0.954 158 1	9 030.030 171 4	0.13	235.964	28.47	1
511	225.651 099 0	0.954 758 0	9 030.044 485 5	0.12	236.011	13.08	2
511	225.651 090 0	0.954 772 9	9 030.044 504 6	0.12	235.964	16.96	1
532	17.851 847 7	−12.900 650 2	7 873.467 172 6	−0.01	9.712	39.87	1
532	26.717 399 2	−3.439 984 4	7 937.436 581 1	−0.05	17.457	9.14	2
532	26.717 379 0	−3.439 974 1	7 937.436 582 1	−0.05	17.504	14.57	1
532	26.720 881 6	−3.437 668 1	7 937.450 926 7	−0.06	17.457	22.76	2
532	26.720 861 8	−3.437 656 7	7 937.450 927 7	−0.06	17.504	16.54	1
532	26.738 996 8	−3.425 594 2	7 937.525 469 1	−0.12	17.457	27.95	2
532	26.738 976 4	−3.425 584 0	7 937.525 470 0	−0.12	17.503	15.29	1
532	26.742 485 3	−3.423 268 0	7 937.539 814 8	−0.12	17.457	21.31	2
532	26.742 469 1	−3.423 252 3	7 937.539 828 0	−0.12	17.503	15.76	1
532	29.559 519 1	−1.642 902 0	7 948.561 297 8	−0.07	330.309	42.11	1
532	29.559 571 4	−1.642 869 3	7 948.561 368 1	−0.07	330.308	23.60	2
532	29.579 520 6	−1.630 868 3	7 948.635 960 1	−0.12	330.308	16.25	2
532	29.579 485 6	−1.630 884 5	7 948.635 963 7	−0.12	330.309	16.70	1
532	29.583 350 5	−1.628 577 4	7 948.650 256 3	−0.13	330.308	12.73	2
532	29.583 314 5	−1.628 592 0	7 948.650 259 9	−0.13	330.309	16.28	1
532	102.890 942 0	15.071 220 8	8 166.094 744 2	−0.07	141.465	13.33	1
532	102.890 982 2	15.071 244 0	8 166.094 744 5	−0.07	141.476	16.40	2
532	102.894 311 1	15.071 146 0	8 166.109 065 1	−0.08	141.465	10.15	1
532	102.894 349 8	15.071 171 2	8 166.109 065 3	−0.08	141.476	6.28	2
532	93.751 158 9	25.537 057 6	8 311.759 099 7	−0.08	329.386	8.45	1
532	93.751 166 1	25.537 062 2	8 311.759 100 9	−0.08	329.387	12.67	2
532	93.751 681 7	25.538 214 2	8 311.773 396 0	−0.08	329.386	11.57	1
532	93.751 689 4	25.538 218 0	8 311.773 397 2	−0.08	329.387	14.06	2
532	96.067 418 2	26.928 809 8	8 332.109 553 8	−0.07	45.098	7.11	1
532	96.067 391 2	26.928 831 8	8 332.109 554 2	−0.07	45.087	8.69	2
532	96.070 088 3	26.929 615 9	8 332.123 874 8	−0.07	45.099	7.11	1
532	96.070 061 3	26.929 637 9	8 332.123 875 2	−0.07	45.088	7.42	2
532	96.084 004 0	26.933 795 4	8 332.198 492 1	−0.06	45.104	8.70	1
532	96.083 976 7	26.933 817 3	8 332.198 492 6	−0.06	45.092	10.76	2
532	96.086 664 2	26.934 589 2	8 332.212 763 7	−0.06	45.105	11.89	1
532	96.086 639 8	26.934 613 5	8 332.212 764 2	−0.06	45.093	11.09	2
532	103.563 300 1	27.992 167 7	8 360.187 020 2	−0.05	322.621	27.59	2
532	103.563 297 9	27.992 167 6	8 360.187 027 2	−0.05	322.605	11.51	1
532	103.568 130 6	27.992 428 3	8 360.201 353 6	−0.04	322.622	12.13	2
532	103.568 130 1	27.992 426 2	8 360.201 360 6	−0.04	322.606	7.75	1
532	103.593 244 2	27.993 804 2	8 360.275 897 2	−0.01	322.626	15.00	2
532	103.593 245 8	27.993 800 2	8 360.275 904 1	−0.01	322.609	9.36	1
532	103.598 072 3	27.994 066 8	8 360.290 218 3	0.00	322.627	14.70	2
532	103.598 070 9	27.994 066 4	8 360.290 225 2	0.00	322.610	8.91	1
532	118.717 734 9	27.570 553 9	8 398.049 844 0	0.01	35.393	11.59	2
532	118.717 749 9	27.570 543 8	8 398.049 849 0	0.01	35.402	7.68	1
532	118.791 170 0	27.563 631 3	8 398.213 274 6	−0.07	33.288	11.07	2
532	118.791 185 1	27.563 621 0	8 398.213 278 2	−0.07	33.342	7.13	1
532	118.797 618 6	27.563 021 7	8 398.227 620 2	−0.07	33.288	7.77	2
532	118.797 634 7	27.563 012 6	8 398.227 623 9	−0.07	33.343	7.93	1
532	118.831 185 0	27.559 823 8	8 398.302 265 9	−0.06	33.347	15.01	1
532	118.837 578 7	27.559 229 8	8 398.316 509 3	−0.06	33.293	10.88	2
532	118.837 596 3	27.559 222 6	8 398.316 512 8	−0.06	33.348	8.38	1
532	118.871 114 5	27.556 041 8	8 398.391 077 6	−0.03	33.297	8.01	2
532	118.871 131 0	27.556 032 7	8 398.391 080 9	−0.03	33.352	7.38	1
532	118.877 556 6	27.555 428 8	8 398.405 398 6	−0.03	33.298	8.30	2
532	118.877 572 7	27.555 419 2	8 398.405 401 9	−0.03	33.353	8.73	1
532	123.889 039 6	26.987 205 9	8 409.323 807 7	−0.07	350.076	16.98	2
532	123.889 049 2	26.987 204 6	8 409.323 809 4	−0.07	350.080	9.84	1
532	123.895 731 7	26.986 332 2	8 409.338 128 7	−0.07	350.077	15.88	2
532	123.895 740 8	26.986 333 7	8 409.338 130 4	−0.07	350.080	11.14	1
532	123.930 586 7	26.981 751 0	8 409.412 696 7	−0.06	350.077	12.82	2
532	123.930 595 9	26.981 752 3	8 409.412 698 3	−0.06	350.081	8.68	1
532	123.937 269 4	26.980 874 5	8 409.426 993 0	−0.06	350.078	13.09	2
532	238.657 575 9	−5.102 307 0	8 649.197 786 1	−0.03	237.269	15.38	2
532	238.657 573 4	−5.102 302 3	8 649.197 791 1	−0.03	237.258	13.03	1
532	238.663 160 9	−5.102 826 9	8 649.212 070 2	−0.02	237.269	15.37	2
532	238.663 154 2	−5.102 824 7	8 649.212 075 1	−0.02	237.258	11.69	1
532	247.088 966 5	−5.470 262 8	8 673.011 384 2	−0.11	147.885	11.05	1
532	247.088 957 9	−5.470 266 8	8 673.011 388 0	−0.11	147.868	9.15	2
532	247.093 419 0	−5.470 201 9	8 673.025 680 5	−0.10	147.885	11.35	1
532	247.093 411 2	−5.470 207 0	8 673.025 684 3	−0.10	147.868	12.91	2
532	247.116 636 8	−5.469 879 0	8 673.100 273 4	−0.07	147.884	12.04	1
532	247.116 631 0	−5.469 886 9	8 673.100 277 2	−0.07	147.867	13.40	2
532	247.121 094 5	−5.469 820 4	8 673.114 594 5	−0.06	147.884	11.60	1
532	247.121 087 6	−5.469 826 4	8 673.114 598 2	−0.06	147.867	17.18	2
532	253.397 079 5	−4.947 735 2	8 697.993 586 0	−0.02	223.833	6.09	1
532	253.397 084 8	−4.947 740 8	8 697.993 588 1	−0.02	223.837	5.90	2
532	241.904 254 0	−11.050 536 0	8 829.201 684 2	0.06	342.729	12.38	1
532	241.904 237 7	−11.050 542 6	8 829.201 690 9	0.06	342.724	15.23	2
532	241.904 916 8	−11.052 678 5	8 829.216 029 9	0.06	342.729	14.06	1
532	241.904 900 6	−11.052 685 1	8 829.216 036 6	0.06	342.723	11.08	2
532	241.908 375 4	−11.063 791 2	8 829.290 536 1	0.07	342.728	13.52	1
532	241.908 361 9	−11.063 804 4	8 829.290 579 8	0.07	342.723	9.93	2
532	241.909 044 2	−11.065 927 7	8 829.304 894 0	0.06	342.728	16.84	1
532	241.909 031 2	−11.065 941 7	8 829.304 913 0	0.06	342.723	16.37	2
704	334.932 520 5	−0.034 837 8	8 021.105 006 6	−0.04	201.736	14.69	2
704	334.932 567 9	−0.034 862 8	8 021.105 008 1	−0.04	201.763	13.79	1
704	334.951 652 1	−0.019 920 0	8 021.179 574 8	0.00	201.736	7.34	2
704	334.951 700 1	−0.019 943 7	8 021.179 576 5	0.00	201.763	15.04	1
704	334.955 326 8	−0.017 049 7	8 021.193 895 9	0.01	201.736	15.88	2
704	334.955 375 2	−0.017 072 7	8 021.193 897 6	0.01	201.763	14.47	1
704	334.974 493 1	−0.002 146 0	8 021.268 465 8	0.04	201.763	15.56	1
704	340.600 068 3	5.164 435 0	8 046.947 605 1	0.02	114.496	15.78	1
704	340.600 037 0	5.164 367 8	8 046.947 615 9	0.02	114.488	18.60	2
704	340.602 604 0	5.167 310 4	8 046.961 963 1	0.02	114.497	15.88	1
704	340.602 569 8	5.167 244 5	8 046.961 973 9	0.02	114.488	18.25	2
704	336.263 312 9	11.137 366 6	8 223.553 679 7	0.12	22.153	15.41	1
704	336.263 221 5	11.137 407 0	8 223.553 682 3	0.12	22.160	18.75	2
704	336.280 957 5	11.136 674 6	8 223.628 259 7	0.10	22.154	16.12	1
704	336.280 864 8	11.136 711 1	8 223.628 262 4	0.10	22.161	15.39	2
704	336.284 354 0	11.136 556 9	8 223.642 580 7	0.10	22.154	10.95	1
704	336.284 261 5	11.136 593 9	8 223.642 583 4	0.10	22.161	14.28	2
704	343.903 779 7	11.706 079 3	8 250.282 864 2	0.09	291.261	14.71	2
704	343.903 794 0	11.706 112 3	8 250.282 865 9	0.09	291.273	11.91	1
704	343.908 491 2	11.706 800 1	8 250.297 209 8	0.08	291.261	14.97	2
704	343.908 505 3	11.706 833 1	8 250.297 211 4	0.08	291.273	11.55	1
704	356.951 425 5	14.576 150 9	8 285.820 020 4	0.06	354.533	17.84	1
704	356.951 329 5	14.576 138 4	8 285.820 042 1	0.06	354.478	18.64	2
704	356.957 151 8	14.577 672 7	8 285.834 378 2	0.04	354.533	13.13	1
704	356.986 885 1	14.585 581 0	8 285.908 915 0	0.00	352.474	16.39	1
704	356.986 779 8	14.585 571 6	8 285.908 920 3	0.00	352.407	16.12	2
704	356.992 606 6	14.587 115 6	8 285.923 260 9	0.02	352.474	12.36	1
704	356.992 501 7	14.587 103 7	8 285.923 266 1	0.02	352.407	14.37	2
704	357.022 358 6	14.595 044 1	8 285.997 829 5	0.08	352.474	11.94	1
704	357.022 253 5	14.595 035 3	8 285.997 834 7	0.08	352.407	8.15	2

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
704	357.028 069 9	14.596 556 5	8 286.012 138 1	0.08	352.474	10.86	1
704	357.027 970 6	14.596 542 7	8 286.012 155 7	0.08	352.407	11.67	2
704	357.057 835 4	14.604 500 0	8 286.086 718 8	0.12	352.474	11.63	1
704	357.057 730 9	14.604 489 3	8 286.086 724 2	0.12	352.407	13.50	2
704	357.063 552 6	14.606 020 6	8 286.101 039 8	0.12	352.474	12.98	1
704	357.063 449 2	14.606 002 2	8 286.101 045 2	0.12	352.407	16.53	2
704	357.093 323 7	14.613 962 7	8 286.175 607 6	0.12	352.474	11.99	1
704	357.093 219 9	14.613 948 2	8 286.175 613 0	0.12	352.406	11.57	2
704	357.099 042 7	14.615 484 6	8 286.189 928 5	0.11	352.474	13.75	1
704	357.098 938 7	14.615 472 4	8 286.189 933 9	0.11	352.406	20.51	2
704	1.141 844 4	15.727 169 0	8 296.144 590 4	0.03	308.417	17.02	1
704	1.172 636 4	15.735 851 0	8 296.219 183 5	0.08	308.421	11.07	1
704	1.172 601 3	15.735 804 5	8 296.219 186 7	0.08	308.374	13.95	2
704	1.178 534 0	15.737 519 2	8 296.233 479 9	0.09	308.422	14.90	1
704	1.178 494 4	15.737 476 1	8 296.233 483 1	0.09	308.375	18.56	2
704	1.209 309 4	15.746 204 8	8 296.308 023 5	0.12	308.426	9.83	1
704	1.209 271 1	15.746 160 9	8 296.308 026 8	0.12	308.379	5.24	2
704	1.215 230 2	15.747 878 9	8 296.322 369 2	0.12	308.426	13.86	1
704	1.215 196 6	15.747 831 5	8 296.322 372 5	0.12	308.380	16.33	2
704	1.246 028 4	15.756 570 0	8 296.396 936 9	0.11	308.430	10.45	1
704	1.245 988 0	15.756 527 9	8 296.396 940 3	0.11	308.383	13.32	2
704	1.251 931 5	15.758 238 7	8 296.411 233 2	0.11	308.431	12.41	1
704	1.251 894 0	15.758 194 3	8 296.411 236 5	0.11	308.384	10.10	2
704	1.282 728 7	15.766 942 7	8 296.485 800 3	0.04	308.434	11.54	1
704	1.282 691 2	15.766 898 5	8 296.485 803 8	0.04	308.388	9.77	2
704	1.319 462 2	15.777 325 0	8 296.574 717 2	0.02	306.826	14.02	1
704	1.319 421 7	15.777 286 2	8 296.574 717 5	0.02	306.812	24.18	2
704	1.325 369 4	15.778 995 2	8 296.589 013 6	0.03	306.827	16.19	1
704	1.325 336 6	15.778 950 8	8 296.589 013 8	0.03	306.812	21.54	2
704	87.602 486 8	31.284 923 4	8 485.415 868 5	0.09	212.971	9.04	2
704	87.602 534 6	31.284 907 1	8 485.415 928 7	0.09	212.996	19.29	1
704	87.608 167 3	31.284 689 7	8 485.430 187 9	0.09	212.997	14.31	1
704	87.608 143 3	31.284 704 4	8 485.430 189 4	0.09	212.972	20.67	2
704	87.637 572 1	31.283 494 0	8 485.504 755 5	0.07	213.000	17.27	1
704	87.637 548 3	31.283 509 0	8 485.504 756 8	0.07	212.977	29.19	2
704	87.643 202 5	31.283 256 9	8 485.519 051 7	0.06	213.001	15.45	1
704	87.643 179 7	31.283 273 3	8 485.519 053 0	0.06	212.977	16.09	2
704	87.678 231 3	31.281 841 9	8 485.607 987 3	−0.01	212.292	23.41	2
704	87.678 259 5	31.281 833 0	8 485.607 989 0	−0.01	212.323	17.89	1
704	87.707 598 5	31.280 641 2	8 485.682 530 9	0.03	212.296	17.48	2
704	87.707 619 0	31.280 621 7	8 485.682 532 5	0.03	212.328	12.91	1
704	87.713 254 6	31.280 390 9	8 485.696 841 3	0.04	212.329	14.16	1
704	87.713 234 8	31.280 404 4	8 485.696 852 0	0.04	212.297	8.94	2
704	94.116 188 0	30.863 095 5	8 503.012 998 8	0.04	147.148	13.78	2
704	94.116 157 2	30.863 083 4	8 503.013 003 7	0.04	147.197	15.61	1
704	94.121 098 4	30.862 648 8	8 503.027 295 2	0.05	147.149	9.70	2
704	94.121 070 9	30.862 632 5	8 503.027 300 0	0.05	147.197	11.41	1
704	94.146 696 9	30.860 320 4	8 503.101 863 2	0.07	147.154	20.72	2
704	94.146 671 4	30.860 301 6	8 503.101 868 0	0.07	147.202	16.34	1
704	94.151 624 0	30.859 866 0	8 503.116 209 0	0.08	147.155	24.17	2
704	94.151 592 4	30.859 855 2	8 503.116 213 7	0.08	147.202	15.66	1
704	94.177 200 2	30.857 532 9	8 503.190 776 6	0.08	147.159	12.15	2
704	94.177 170 7	30.857 519 5	8 503.190 781 5	0.08	147.207	17.42	1
704	94.182 104 6	30.857 075 8	8 503.205 060 5	0.08	147.160	7.98	2
704	94.182 076 4	30.857 060 8	8 503.205 065 4	0.08	147.207	15.61	1
704	102.890 785 9	29.627 007 8	8 534.094 227 8	0.05	185.009	13.07	1
704	102.890 806 8	29.627 010 6	8 534.094 229 4	0.05	185.022	10.16	2
704	102.893 816 7	29.626 358 3	8 534.108 548 8	0.06	185.009	11.31	1
704	102.893 837 1	29.626 356 6	8 534.108 550 5	0.06	185.022	8.73	2
704	102.909 578 0	29.622 954 7	8 534.183 116 8	0.08	185.009	12.30	1
704	102.909 597 6	29.622 949 4	8 534.183 118 4	0.08	185.022	13.16	2
704	102.928 347 7	29.618 894 9	8 534.272 006 9	0.08	185.022	16.12	2
704	102.984 309 5	29.606 716 4	8 534.538 595 9	0.05	185.242	17.30	1
704	102.984 346 2	29.606 707 7	8 534.538 671 5	0.05	185.218	31.57	2
704	102.987 306 3	29.606 061 3	8 534.552 917 0	0.06	185.242	20.56	1
704	102.987 343 1	29.606 054 5	8 534.552 992 6	0.06	185.218	15.98	2
704	103.002 929 1	29.602 644 0	8 534.627 560 5	0.08	185.218	29.06	2
704	103.002 923 8	29.602 645 2	8 534.627 633 1	0.08	185.242	32.02	1
704	103.005 883 2	29.601 999 5	8 534.641 805 9	0.08	185.242	15.03	1
704	103.005 919 6	29.601 994 0	8 534.641 881 4	0.08	185.218	13.39	2
704	103.021 436 1	29.598 578 4	8 534.716 386 0	0.08	185.242	14.88	1
704	103.021 469 6	29.598 574 9	8 534.716 448 9	0.08	185.218	9.77	2
704	103.024 414 8	29.597 929 5	8 534.730 682 3	0.08	185.242	15.75	1
704	103.024 453 4	29.597 925 1	8 534.730 769 8	0.08	185.218	14.73	2
704	103.076 805 2	29.586 371 1	8 534.983 055 7	0.05	185.433	15.39	1
704	103.076 840 8	29.586 368 2	8 534.983 114 7	0.05	185.415	17.55	2
704	106.604 767 3	27.968 008 5	8 569.235 674 4	0.09	151.702	12.86	2
704	106.604 723 5	27.967 983 9	8 569.235 685 1	0.09	151.622	15.93	1
704	106.604 533 9	27.967 306 2	8 569.249 994 0	0.10	151.622	17.96	1
704	106.604 582 0	27.967 323 3	8 569.249 995 5	0.10	151.702	26.09	2
704	106.603 552 9	27.963 724 6	8 569.324 561 6	0.09	151.623	12.60	1
704	106.603 355 1	27.963 044 1	8 569.338 882 6	0.09	151.623	14.97	1
704	106.603 398 6	27.963 068 6	8 569.338 884 0	0.09	151.703	16.83	2
704	106.601 037 0	27.955 209 2	8 569.502 287 1	0.01	152.691	17.91	1
704	106.601 080 4	27.955 228 5	8 569.502 337 9	0.01	152.685	15.48	2
704	106.600 821 9	27.954 523 1	8 569.516 657 6	0.02	152.691	13.66	1
704	106.600 866 5	27.954 544 2	8 569.516 658 9	0.02	152.685	19.72	2
704	106.599 688 6	27.950 950 2	8 569.591 238 4	0.07	152.691	9.46	1
704	106.599 735 5	27.950 967 6	8 569.591 239 6	0.07	152.686	11.25	2
704	106.130 255 4	27.492 923 4	8 579.012 885 3	0.10	193.201	16.52	1
704	106.129 054 0	27.492 215 7	8 579.027 181 5	0.10	193.200	13.40	1
704	106.129 075 5	27.492 212 2	8 579.027 181 8	0.10	193.171	10.73	2
704	106.122 760 0	27.488 514 4	8 579.101 773 9	0.09	193.200	12.19	1
704	106.122 782 2	27.488 514 0	8 579.101 774 0	0.09	193.170	10.90	2
704	106.121 548 8	27.487 803 2	8 579.116 070 1	0.08	193.200	13.25	1
704	106.121 570 8	27.487 802 6	8 579.116 070 2	0.08	193.170	11.47	2
704	106.107 619 4	27.479 685 2	8 579.279 546 9	0.03	195.113	21.72	2
704	106.107 602 0	27.479 697 6	8 579.279 547 3	0.03	195.105	29.21	1
704	106.106 390 5	27.478 981 4	8 579.293 868 1	0.04	195.113	21.36	2
704	106.106 370 7	27.478 985 8	8 579.293 868 5	0.04	195.105	15.31	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
704	106.099 953 6	27.475 274 6	8 579.368 461 2	0.08	195.113	18.92	2
704	106.099 934 5	27.475 280 6	8 579.368 461 4	0.08	195.105	14.96	1
704	106.098 697 5	27.474 574 0	8 579.382 757 8	0.09	195.105	10.93	1
704	106.092 235 3	27.470 863 2	8 579.457 325 5	0.10	195.112	12.55	2
704	106.092 215 0	27.470 865 2	8 579.457 325 9	0.10	195.104	8.16	1
704	106.090 987 4	27.470 150 4	8 579.471 621 7	0.10	195.112	15.76	2
704	106.090 967 6	27.470 154 0	8 579.471 622 2	0.10	195.104	12.04	1
704	90.673 925 5	21.921 429 7	8 660.529 468 9	0.12	348.414	13.57	2
704	90.673 898 7	21.921 423 3	8 660.529 476 7	0.12	348.514	14.36	1
704	90.673 027 1	21.920 470 8	8 660.543 765 1	0.12	348.414	10.04	2
704	90.673 000 4	21.920 463 9	8 660.543 773 0	0.12	348.514	16.99	1
704	90.668 357 6	21.915 481 6	8 660.618 382 3	0.12	348.414	18.36	2
704	90.668 331 1	21.915 475 1	8 660.618 390 2	0.12	348.514	13.65	1
704	90.667 468 5	21.914 520 7	8 660.632 678 6	0.12	348.414	18.10	2
704	90.667 441 6	21.914 516 2	8 660.632 686 5	0.12	348.514	14.82	1
704	90.376 619 7	21.331 554 5	8 669.862 054 9	0.12	29.191	26.77	2
704	90.376 607 0	21.331 565 1	8 669.862 073 3	0.12	29.165	18.39	1
704	90.376 596 9	21.330 694 9	8 669.876 400 6	0.12	29.191	14.18	2
704	90.376 579 4	21.330 698 3	8 669.876 406 7	0.12	29.165	15.18	1
704	90.376 516 3	21.326 257 6	8 669.950 968 3	0.12	29.190	24.01	2
704	90.376 505 1	21.326 271 3	8 669.950 974 5	0.12	29.164	20.18	1
704	90.376 495 2	21.325 422 8	8 669.965 283 0	0.11	29.164	16.51	1
704	90.376 505 7	21.325 406 6	8 669.965 301 5	0.11	29.190	21.55	2
704	90.376 473 3	21.320 986 7	8 670.039 831 7	0.07	29.189	18.37	2
704	90.376 456 1	21.320 990 2	8 670.039 838 0	0.07	29.163	17.38	1
704	93.559 587 0	19.686 020 5	8 703.534 075 4	0.12	318.407	15.89	2
704	93.559 578 0	19.686 008 4	8 703.534 077 1	0.12	318.424	16.23	1
704	93.562 121 8	19.685 417 4	8 703.548 396 3	0.12	318.407	15.81	2
704	93.562 104 8	19.685 413 9	8 703.548 398 1	0.12	318.425	18.77	1
704	93.575 333 7	19.682 274 6	8 703.622 939 4	0.12	318.410	17.86	2
704	93.575 323 1	19.682 264 2	8 703.622 941 2	0.12	318.427	17.11	1
704	93.577 870 7	19.681 674 9	8 703.637 260 4	0.12	318.410	6.64	2
704	93.577 860 6	19.681 663 8	8 703.637 262 2	0.12	318.427	14.16	1
704	93.591 088 9	19.678 554 7	8 703.711 803 0	0.08	318.413	26.43	2
704	93.591 076 0	19.678 546 6	8 703.711 804 8	0.08	318.430	26.71	1
704	100.943 313 0	18.299 896 7	8 735.518 425 6	0.12	43.315	16.16	2
704	100.943 303 8	18.299 902 0	8 735.518 425 8	0.12	43.312	16.65	1
704	100.947 242 6	18.299 203 1	8 735.532 771 3	0.12	43.316	28.84	2
704	100.947 232 9	18.299 207 8	8 735.532 771 5	0.12	43.313	16.23	1
901	91.477 424 4	23.478 990 9	7 963.829 759 1	−0.06	318.166	4.30	1
901	91.479 363 7	23.479 010 5	7 963.844 104 8	−0.06	318.166	3.96	1
901	91.489 812 1	23.479 082 4	7 963.918 659 9	−0.08	318.168	4.68	1
901	91.491 879 3	23.479 088 3	7 963.932 931 5	−0.08	318.169	4.92	1
901	94.574 068 1	23.467 321 9	7 993.150 032 2	−0.08	41.944	2.84	1
901	94.576 974 5	23.467 209 3	7 993.164 340 9	−0.08	41.944	2.75	1
901	94.594 463 5	23.466 514 4	7 993.253 242 1	−0.08	41.948	3.47	1
901	97.572 095 6	23.377 251 2	8 011.457 546 6	−0.08	333.272	3.04	1
901	128.369 572 1	19.129 915 3	8 150.644 823 1	−0.09	202.807	3.27	1
901	128.378 742 3	19.128 037 7	8 150.719 353 5	−0.11	202.807	3.85	1
901	134.789 299 6	17.590 125 6	8 194.967 979 9	−0.06	239.058	1.93	1
901	136.107 538 7	17.374 463 3	8 239.321 275 7	−0.05	217.836	2.47	1
901	136.099 738 4	17.377 161 2	8 239.395 855 2	−0.11	217.836	2.56	1
901	136.098 154 0	17.377 705 9	8 239.410 176 2	−0.11	217.835	3.00	1
901	126.698 010 0	19.960 616 3	8 363.219 078 9	−0.10	331.633	2.41	1
901	126.701 199 3	19.959 814 3	8 363.293 622 2	−0.09	331.634	2.03	1
901	126.701 717 1	19.959 684 9	8 363.308 004 9	−0.09	331.634	3.57	1
901	129.491 204 1	19.275 430 2	8 393.413 584 1	−0.09	53.866	4.09	1
901	129.493 148 9	19.274 944 6	8 393.427 905 1	−0.09	53.867	3.95	1
901	129.505 904 4	19.271 728 4	8 393.516 806 5	−0.06	53.869	4.53	1
901	129.517 507 1	19.268 771 6	8 393.591 399 5	−0.02	53.871	4.09	1
901	129.519 816 9	19.268 179 0	8 393.605 671 2	−0.01	53.871	4.53	1
901	132.179 756 6	18.581 099 6	8 411.365 832 6	0.00	346.724	4.62	1
901	132.182 497 2	18.580 360 2	8 411.380 141 3	0.01	346.724	4.72	1
901	132.215 653 0	18.571 348 2	8 411.543 597 2	−0.08	345.780	5.87	1
901	132.218 709 8	18.570 512 0	8 411.557 918 1	−0.09	345.780	5.49	1
901	159.538 180 0	9.574 488 8	8 549.334 473 4	0.02	214.520	3.99	1
901	159.539 680 9	9.573 970 9	8 549.348 782 0	0.02	214.520	5.15	1
901	159.547 707 1	9.571 169 2	8 549.423 337 9	0.05	214.520	3.13	1
901	161.039 590 8	9.001 212 4	8 558.400 641 4	−0.06	174.600	2.98	1
901	161.042 518 5	9.000 073 2	8 558.414 925 3	−0.06	174.600	3.03	1
901	161.057 507 1	8.994 252 4	8 558.489 555 0	−0.05	174.600	2.84	1
901	161.060 313 6	8.993 165 0	8 558.503 839 1	−0.04	174.600	3.03	1
901	161.074 614 4	8.987 662 0	8 558.578 419 7	−0.01	174.600	2.89	1
901	161.077 287 7	8.986 640 0	8 558.592 728 3	−0.01	174.600	3.08	1
901	161.090 835 9	8.981 487 5	8 558.667 309 0	0.03	174.600	3.03	1
901	161.093 361 1	8.980 534 4	8 558.681 629 9	0.03	174.600	4.57	1
901	165.173 844 5	7.458 215 0	8 593.227 852 6	0.03	245.599	3.66	1
901	165.175 969 8	7.457 336 9	8 593.242 161 4	0.04	245.599	4.24	1
901	166.336 905 5	7.131 570 2	8 624.590 178 9	−0.01	167.720	3.38	1
901	166.336 769 5	7.131 654 1	8 624.604 524 7	0.00	167.720	5.55	1
901	166.336 547 0	7.131 852 9	8 624.679 093 1	0.04	167.720	3.96	1
901	166.336 596 1	7.131 850 4	8 624.693 414 1	0.04	167.720	4.54	1
901	166.337 328 1	7.131 611 0	8 624.768 007 0	0.07	167.720	2.17	1
901	166.108 299 6	7.279 894 2	8 636.588 908 3	0.01	219.334	2.42	1
901	166.108 559 3	7.279 845 7	8 636.603 241 7	0.02	219.334	2.46	1
901	166.109 511 7	7.279 801 6	8 636.677 773 1	0.06	219.334	2.17	1
901	166.109 613 6	7.279 833 6	8 636.692 131 1	0.06	219.334	3.04	1
901	166.109 687 4	7.280 221 9	8 636.766 711 6	0.08	219.334	3.53	1
901	166.109 610 0	7.280 339 2	8 636.781 032 6	0.08	219.334	3.72	1
901	157.549 885 3	10.727 570 3	8 762.975 982 5	0.11	339.216	3.90	1
901	157.550 600 4	10.727 215 5	8 762.990 291 2	0.12	339.216	3.23	1
901	162.843 670 7	8.490 841 4	8 811.314 623 3	0.12	354.937	3.46	1
901	162.864 189 6	8.482 887 6	8 811.506 771 0	0.10	354.937	2.98	1
901	187.858 415 2	−2.130 685 8	8 946.636 898 9	0.13	221.637	2.89	1
901	187.860 048 9	−2.131 276 1	8 946.651 294 0	0.13	221.637	2.93	1
901	187.869 725 5	−2.134 755 3	8 946.740 132 9	0.09	221.637	2.45	1
901	189.668 824 9	−2.865 377 2	8 959.056 910 6	0.13	170.620	3.08	1
901	189.685 587 4	−2.872 631 6	8 959.145 798 9	0.09	170.620	2.65	1
901	194.116 336 6	−4.527 122 6	9 009.718 549 0	0.05	162.140	2.75	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
901	194.117 542 5	−4.527 535 4	9 009.732 882 2	0.04	162.140	2.51	1
901	193.990 252 7	−4.392 106 5	9 026.399 877 8	0.11	229.422	3.33	1
901	193.990 314 2	−4.392 160 9	9 026.414 186 4	0.11	229.422	2.90	1
901	193.991 325 8	−4.392 735 6	9 026.503 087 2	0.08	229.422	2.94	1
904	295.489 306 4	−21.166 110 2	7 967.959 557 1	0.05	206.136	7.79	1
904	295.490 449 3	−21.166 043 1	7 967.973 902 7	0.05	206.136	7.55	1
904	295.503 329 6	−21.165 291 1	7 968.137 333 2	−0.05	204.903	6.24	1
904	295.504 450 1	−21.165 221 6	7 968.151 679 0	−0.04	204.903	7.89	1
904	296.754 863 8	−20.976 368 6	7 989.464 547 0	−0.03	127.142	10.18	1
904	296.755 282 4	−20.976 209 4	7 989.478 868 1	−0.02	127.142	9.98	1
904	296.757 449 2	−20.975 359 7	7 989.553 497 9	0.01	127.142	35.16	1
904	296.757 848 7	−20.975 185 2	7 989.567 757 2	0.02	127.142	10.13	1
904	290.589 574 8	−22.118 533 0	8 144.454 332 9	0.12	321.340	9.34	1
904	290.589 122 8	−22.118 687 0	8 144.468 653 8	0.12	321.340	8.61	1
904	290.586 757 7	−22.119 489 3	8 144.543 221 7	0.13	321.340	10.21	1
904	290.586 301 2	−22.119 642 9	8 144.557 530 3	0.13	321.340	8.56	1
904	290.583 910 8	−22.120 440 7	8 144.632 023 5	0.09	321.341	32.15	1
904	290.417 130 6	−22.166 274 3	8 163.649 929 5	0.12	32.905	7.20	1
904	290.417 000 0	−22.166 238 4	8 163.664 275 1	0.12	32.905	9.63	1
904	290.416 226 4	−22.165 971 5	8 163.753 138 4	0.05	32.905	7.74	1
904	291.425 760 9	−22.059 071 9	8 191.208 329 4	0.10	310.809	6.92	1
904	291.430 065 1	−22.059 132 6	8 191.282 884 0	0.03	310.809	7.84	1
904	309.407 394 4	−18.857 558 2	8 393.369 067 7	0.09	126.221	9.29	1
904	309.407 600 8	−18.857 537 1	8 393.383 401 0	0.09	126.221	9.68	1
904	309.408 683 3	−18.857 432 2	8 393.457 944 0	0.08	126.221	12.50	1
904	309.408 890 7	−18.857 411 1	8 393.472 277 3	0.08	126.221	12.70	1
904	309.410 009 1	−18.857 328 2	8 393.546 844 8	0.05	126.221	11.77	1
904	309.199 685 4	−18.946 027 5	8 410.610 492 8	0.06	192.405	14.49	1

N	Reference point α_0 deg	δ_0 deg	Date Epoch JD[TT]	$\Delta\tau$ s	Abscissa θ deg	σ_{v*} mas	F
1	2	3	4	5	6	7	8
904	309.199 586 0	−18.946 147 2	8 410.624 826 2	0.07	192.405	15.51	1
904	309.198 970 4	−18.946 924 6	8 410.713 715 1	0.08	192.405	13.66	1
904	302.654 589 3	−20.597 608 3	8 539.428 192 6	−0.03	306.512	19.95	1
904	302.654 989 8	−20.597 642 3	8 539.442 538 2	−0.03	306.512	14.06	1
904	303.451 639 0	−20.440 356 4	8 566.528 035 8	−0.06	29.001	7.21	1
904	303.452 401 6	−20.440 109 6	8 566.542 393 9	−0.06	29.000	6.91	1
904	303.456 410 6	−20.438 796 7	8 566.616 961 6	−0.08	29.000	13.24	1
904	303.457 180 1	−20.438 552 3	8 566.631 245 4	−0.09	29.000	12.90	1
904	318.617 986 2	−16.717 680 4	8 712.817 245 1	−0.08	188.801	11.40	1
904	318.619 387 7	−16.717 325 1	8 712.831 553 7	−0.09	188.801	11.50	1
904	318.626 716 3	−16.715 434 7	8 712.906 158 0	−0.13	188.801	9.89	1
904	321.144 180 2	−16.062 771 9	8 760.000 902 3	−0.13	204.337	9.29	1
904	321.144 574 3	−16.062 684 3	8 760.015 211 0	−0.12	204.337	8.85	1
904	315.151 795 6	−18.049 140 0	8 935.994 759 6	−0.05	300.874	8.61	1
905	320.039 449 8	−16.387 807 8	8 729.525 570 8	−0.04	123.431	40.31	2
905	320.051 112 6	−16.384 805 8	8 729.703 322 6	−0.11	122.620	29.86	2
905	320.051 108 9	−16.384 798 6	8 729.703 333 2	−0.11	122.616	30.60	1
905	321.090 689 6	−16.075 782 7	8 760.000 986 1	−0.13	204.400	15.95	2
905	321.090 688 7	−16.075 783 5	8 760.000 988 7	−0.13	204.341	12.62	1
905	321.090 834 3	−16.075 733 7	8 760.015 307 1	−0.12	204.400	13.38	2
905	321.090 833 1	−16.075 734 7	8 760.015 309 8	−0.12	204.341	15.23	1
905	315.056 716 3	−18.057 731 4	8 935.891 661 2	−0.08	300.855	11.52	2
905	315.057 385 3	−18.057 549 9	8 935.905 994 7	−0.07	300.855	15.91	2
905	315.060 922 2	−18.056 625 0	8 935.980 537 3	−0.05	300.893	13.35	1
905	315.060 921 2	−18.056 631 5	8 935.980 562 7	−0.05	300.855	8.40	2
905	315.061 597 0	−18.056 445 0	8 935.994 858 3	−0.05	300.893	13.25	1
905	315.061 594 7	−18.056 451 8	8 935.994 859 0	−0.05	300.854	10.31	2