The 6C Survey of Radio Sources - IV. The Zone $67° < Dec < 82°$, $0^h < RA < 24^h$

Hales, Mayer, Warner and Baldwin (1991)

Documentation for the Computer-Readable Version

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Abstract

This catalogue contains the fourth section of the 6C Cambridge survey of radio sources at 151 MHz, covering the region from 67° to 82° in declination and between 0^h and 24^h in right ascension. The survey has an angular resolution of 4.′2 x 4.′2 x cosec(dec). Data include the source positions (B1950), peak flux density, integrated flux density, contour map panel number and contour map field names. The limiting flux density is 160 mJy at 151 MHz in the present zone with completeness achieved at 400 mJy on the best maps and at about 800 mJy on the worst. This part of the survey contains 5421 sources, covering an area of 1440 square degrees.

1 Introduction

A copy of this document should be distributed with every copy of the machine-readable catalog.

1.1 Description

"The 6C Survey of Radio Sources - IV. The Zone 67°$< Dec <$ 82°, $0^h < RA < 24^h$" (6CSRSIV) contains a compilation of radio source oservations made with the use of an (non-tracking) Earth-rotation aperture synthesis telescope comprising many small aerial arrays on an east-west baseline operating at 151 MHz. This paper is the fourth in a series: Details on the design and operation of the telescope and the reduction of the survey were first discussed in Baldwin et al. (1985). Other papers in the series include Hales et al. (1988) and Hales et al. (1990). The present zone overlaps that covered in Baldwin et al. (1985) over the range 80°$< Dec <$ 82° and also that covered in Hales et al. (1990) over the range 67°$< Dec <$ 68° and $5^h25^m < RA < 18^h17^m$.

The catalogue contains a listing of 5421 radio sources ordered by increasing right ascension from 0^h to 24^h. The survey is centered on a declination of 75° and includes from declination 67° to 82°. Eight fields have been included in this survey: 0100+75, 0400+75, 0700+75, 1000+75, 1300+75, 1600+75, 1900+75, and 2200+75.

Attenuation corrections were applied to all flux densities and maps using tables derived for each synthesis (see Hales et al. 1988). Flux densities are on the scale of Roger, Bridle and Costain (1973) (RBC). The authors believe the flux density scale is consistent with the RBC scale to within ±5%. See 6CSRSIV and Baldwin et al. (1985) for details on source selection criterion and error analysis.

Source positions have been adjusted (by 2.8s to 5.5s in right ascension and by up to 11″ in declination) to agree with known positions of bright sources. The residual rms scatter in the corrected positions of the reference sources relative to their true positions is estimated to be ±3-5″ in each coordinate. See 6CSRSIV for details.

Note that this file only contains the catalogue of radio sources. It is intended to be used with the radio maps originally published on microfiche in Hales, Mayer, Warner and Baldwin (1991). The

source lists and FITS format maps for the four regions of the 6C survey published to date have been placed on a CDROM entitled "Images from the Radio Universe", which is available from the address below. A nominal fee may be charged for such requests.

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1.2 Reference

Hales, S.E.G., Mayer, C.J., Warner, P.J. and Balwin J.E. 1991, MNRAS, 251, 46.

2 Structure

2.1 The File as a Whole

"The 6C Survey of Radio Sources - IV. The Zone $67^\circ < Dec < 82^\circ$, $0^h < RA < 24^h$" consists of a single fixed-block file of 5421 50-byte records. The original file was variable format with 49-bytes per record. Detailed descriptions of some of the fields in the file are given in the following sections.

2.2 Catalog File

Bytes	Units	Suggested Format	Item
1- 2	h	I2	Right ascension (B1950)
4- 5	min	I2	Right ascension (B1950)
7-10	s	F4.1	Right ascension (B1950)
12-14	°	I3	Declination (B1950)
16-17	′	I2	Declination (B1950)
19-20	″	I2	Declination (B1950)
23-27	Jy	F5.2	Flux density (peak)
30-34	Jy	F5.2	Flux density (integ.)
38-39		I2	Contour map panel number
41		A1	The character ":"
43-49		A7	Contour map field name

Table 1: Catalog Record Format

Flux density (peak): Source peak flux density at 151 MHz.

Flux density (integrated): Source integrated flux density at 151 MHz. Integrated flux densities were carried out for sources with apparent flux densities above 513 mJy. The integration was carried out to a limiting level of 10% of the fitted peak (or for 110 mJy for sources having apparent flux densities < 1.10 Jy). For the right-half of the field 1900+75, the threshold to qualify for integration was raised to 1.54 Jy and for the apex of the field 2200+75, to 0.96 Jy, with limiting level for both cases of 10% (or 154 mJy for sources having apparent peak flux densities < 1.54 Jy). Note that for unresolved sources the integrated flux value can fall below the peak value. If the column is marked with a dash (-), the peak flux was not strong enough to calculate the integrated flux. If the column is marked with an asterisk (*), the peak flux was strong enough to qualify for integration, but it has been integrated into a brighter adjoining peak.

Contour map panel number: This column contains the panel number of the contour map in which the source appears in the survey. The number of contour panels per map field varies from 27 to 32. The panel number and the map field name tell the user where to look up the source of interest in the published contour map.

Contour map field name: This column contains the name of the field in which the source appears. Eight fields have been included in this survey: 0100+75, 0400+75, 0700+75, 1000+75, 1300+75, 1600+75, 1900+75, and 2200+75. The panel number and the map field name tell the user where to look up the source of interest in the published contour map.

3 History

3.1 Remarks and Modification

"The 6C Survey of Radio Sources - IV. The Zone $67° < Dec < 82°$, $0^h < RA < 24^h$" was received by the Astronomical Data Center (ADC), NASA Goddard Space Flight Center, from Dr. Heinz Andernach of Instituto de Astrofisica de Canarias, IAC, Tenerife, Spain.

4 Reference to the Documentation

Baldwin, J.E., Boysen, R.C., Hales, S.E.G., Jennings, J.E., Waggett, P.C., Warner, P.J. and Wilson, D.M.A. 1985, MNRAS, 217, 717

Hales, S.E.G., Baldwin, J.E. and Warner, P.J. 1988, MNRAS, 234, 919

Hales, S.E.G. 1990, MNRAS, 246, 256

Hales, S.E.G. 1991, MNRAS, 251, 46

Roger, R.S., Bridle, A.H. and Costain, C.H. 1973, AJ, 78, 1030