The 6C Survey of Radio Sources - I. Declination Zone $Dec > 80°$

Baldwin, Boysen, Hales, Jennings, Waggett, Warner and Wilson (1985)

Documentation for the Computer-Readable Version

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Abstract

This catalogue contains the first section of the 6C Cambridge survey of radio sources at 151 MHz. This part of the survey covers the region north of a declination of 80°. This survey has an angular resolution of 4.′2 x 4.′2 x cosec(dec) (half-power at map center) and a limiting flux density of 120mJy at 151 MHz. Data include the source positions (B1950), peak flux density, integrated flux density, and contour map number. This part of the survey contains 1761 sources.

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 - I. Declination Zone $Dec > 80°$" (6CSRSI) contains a compilation of radio source observations 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 first in a series of papers giving radio source observations at 151 MHz. See the discussion in 6CSRSI for details on the design and operation of the telescope and the generation of the survey. The other papers in this series include, Hales et al. (1988), Hales et al. (1990) and Hales et al. (1991).

This portion of the catalogue contains a listing of 1761 radio sources ordered by increasing right ascension. The survey covers a circular area of radius 10° centered on the North Celestial Pole. This survey has been divided into 32 separate maps.

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 ±10%. Both the peak flux density and the integrated flux densities required a primary-beam correction, and the peak flux densities required a further correction for the reduction in peak brightness caused by chromatic aberration. The latter correction is dependent on the distance of the source from the field center. See 6CSRSI for details on source selection criterion, calibration, and error analysis.

Source positions have been systematically adjusted with respect to a frame defined by standard positions of the 3C sources in the field. Positional uncertainties have been estimated to correspond to approximately 4 arcsec/S, where S is the apparent peak flux density (in Jy) before primary beam correction. See 6CSRSI for further 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 Baldwin, Boysen, Hales, Jennings, Waggett, Warner and Wilson (1985). 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

Baldwin, J.E., Boysen, R.C., Hales, S.E.G., Jennings, J.E., Waggett, P.C., Warner, P.J. 1985, MNRAS, 217, 717.

2 Structure

2.1 The File as a Whole

"The 6C Survey of Radio Sources - I. Declination Zone $Dec > 80°$" consists of a single fixed-block file of 1761 36-byte records. The original file contained 40-byte records. 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	m	I2	Right ascension (B1950)
7- 8	s	I2	Right ascension (B1950)
10-12	°	I3	Declination (B1950)
14-15	′	I2	Declination (B1950)
17-18	″	I2	Declination (B1950)
21-25	Jy	F5.2	Flux density (peak)
27-31	Jy	F5.2	Flux density (integ.)
35-36		I2	Contour map panel

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 fitted peak flux densities above 300 mJy per beam area (before primary beam correction). The integration was carried out to a limiting level of 10% of the fitted peak (or 50 mJy for sources having fitted peak values <500 mJy. The sums were then normalized by comparison with the same procedure applied to an ideal point source of 1 Jy. Note that for unresolved sources the integrated flux value can fall below the peak value. If the column is blank the peak flux was not strong enough to calculate the integrated flux.

Contour map panel: This column contains the number of the map panel in which the source appears. There are 32 panels in this survey.

3 History

3.1 Remarks and Modification

"The 6C Survey of Radio Sources - I. Declination Zone $Dec > 80°$" was received by the Astronomical Data Center (ADC), NASA Goddard Space Flight Center, from Dr. Heinz Andernach. The catalog was originally submitted by the first author, Dr. Sally Hales.

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. et al. 1990, MNRAS, 246, 256

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

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