National Space Science Data Center/
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Documentation for the Machine-Readable Version of the Survey of the Astrographic Catalogue from 1 to 31 Degrees of Northern Declination (Fresneau 1983)

November 1983

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DOCUMENTATION FOR THE MACHINE-READABLE VERSION

OF THE

SURVEY OF THE ASTROGRAPHIC CATALOGUE FROM 1 TO 31 DEGREES

OF NORTHERN DECLINATION (FRESNEAU 1983)

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November 1983

National Space Science Data Center (NSSDC)/
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ABSTRACT

A description of the machine-readable catalog, including detailed format and tape file characteristics, is given. The machine file is a computation of mean values for position and magnitude at a mean epoch of observation for each unique star in the Oxford, Paris, Bordeaux, Toulouse and northern hemisphere Algiers zones. The version described here is modified from the file received from the author in that the format was changed to effect more efficient data searching by position and additional duplicate entries were removed. The final catalog contains data for 997311 stars.

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SECTION 1 - INTRODUCTION AND SOURCE REFERENCE

The machine-readable version of the *Astrographic Catalogue* (AC), Zones +01° to +31° is the result of the determination of mean values for position and magnitude at a mean epoch of observation for each unique star in the original catalogs. As is well known, the overlap of original *Carte du Ciel* plates resulted in multiple entries for many stars in the final catalogs. The zones considered here actually contained 1870976 individual measurements, from which an initial catalog of mean data for 1025208 stars was derived. Following preparation of a tape version ordered strictly by increasing right ascension and decreasing declination, an additional 27897 apparently duplicate entries were discovered. These entries were eliminated from the file according to a separation criterion (see Section 4) to produce the final compilation. The estimated mean standard errors for positional and magnitude data are 0.4 arcsec in each coordinate and 0.4 mag, respectively. For additional information about the procedures used to compute the mean data, and basic results obtained from the survey, such as completeness and the stellar distribution in the northern Galactic hemisphere, the source references should be consulted.

This document describes the machine-readable catalog as it is currently available from the Astronomical Data Center. It is intended to enable users to read and process the data without problems and guesswork. A copy of this document should accompany any machine-readable version of the catalog.

SOURCE REFERENCES

Fresneau, A. 1983*a*, *Astron. J.* 88, 1378.

Fresneau, A. 1983*b*, *Proc. Statistical Methods in Astronomy Symposium, Strasbourg*, 13-16 September (ESA SP-201), p. 17.

SECTION 2 - TAPE CONTENTS

A byte-by-byte description of the contents of the machine-readable AC survey catalog is given in Table 1. The suggested format specifications apply to FORTRAN formatted read statements and are given primarily to specify data types and to locate decimal points. Since all fields contain real numerical data, i.e. all data are TYPE REAL and there are no blank fields, there is no need to give default (null) values, so these are omitted from the table.

Table 1. Tape Contents. *Survey of the Astrographic Catalogue, Zones +01° to +31°.*

Byte(s)	Units	Suggested Format	Description
1- 8	°	F8.4	Right ascension at mean epoch given, equinox 1950.0
9-15	°	F7.4	Declination at mean epoch given, equinox 1950.0
16-19	mag	F4.1	Mean photographic magnitude.
20-26	years	F7.2	Mean epoch (unweighted) of all observations for this star.

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 2 is sufficient for a user to describe the indigenous characteristics of the machine-readable AC Survey compilation to a computer. Information easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, number of tracks, and internal coding (EBCDIC, ASCII, etc.) is not included. This information should always be supplied if secondary copies are transmitted to other users or installations.

Table 2. Tape Characteristics. *Survey of the Astrographic Catalogue, Zones +01° to +31°.*

NUMBER OF FILES	1
LOGICAL RECORD LENGTH (BYTES)	26
RECORD FORMAT	FB*
TOTAL NUMBER OF LOGICAL RECORDS	997311

* Fixed block length (last block may be short)

SECTION 4 - REMARKS, MODIFICATIONS, ACKNOWLEDGMENTS AND REFERENCES

The machine-readable AC Survey +01° to +31° was prepared from a tape supplied by the author (A. Fresneau) during a visit to the Astronomical Data Center (ADC) on 21 July 1983. As received, the file was found immediately to contain some stars at various right ascensions which were apparently appended to the file; however, a copy of the unsorted file was supplied to R. L. Millis of Lowell Observatory, where he and L. H. Wasserman found additional groups of stars out of RA order. The arrangement of the data was a result of the reduction procedure (Fresneau 1983*c*) and should not have been unexpected. Since the stars should be in some kind of rigorous order for data searching purposes, the file was sorted by increasing RA with decreasing DEC as the secondary sort field and increasing magnitude as the tertiary sort field. A copy of the sorted file was then supplied to D. W. Dunham, who discovered 19873 records where all data were identical and 8024 records where differences were too small to be accounted for by duplicity at AC resolution. A separation criterion of 0°.00031 was used to eliminate all stars whose positions matched to within the limit in both RA and DEC. Since Dunham also changed some of the faint magnitudes to suit his own applications, only his program to eliminate duplicates was used to process the original sorted version to produce the present file with no magnitude modifications and the revised format. Although a more detailed analysis may be performed later, the author concurs with the present method and production of this file for distribution until such time as improved criteria may be established. It is important to note and consider the fact that there are quite a few stars present having magnitudes in the 16-18 range and others for which punching errors have occurred, resulting in magnitudes such as 79.3, 79.5, 26.0, 75.3, 49.5, etc. (77 stars fainter than 16 magnitude, including definite punching errors). These errors have not been corrected in the present machine version.

ACKNOWLEDGMENTS

Appreciation is expressed to A. Fresneau for making the machine-readable catalog available for distribution from the ADC and for reviewing and commenting on a preliminary version of this document. L. H. Wasserman and D. W. Dunham kindly transmitted their findings back to the ADC, and Dr. Dunham supplied his program for elimination of duplicate entries and a copy of his modified version, formatted specifically for ADC purposes. The combined efforts of these colleagues have produced an improved version of the machine catalog for distribution to the astronomical community.

REFERENCES

Fresneau, A. 1983*a*, *Astron. J.* 88, 1378.

Fresneau, A. 1983*b*, *Proc. Statistical Methods in Astronomy Symposium, Strasbourg*, 13-16 September (ESA SP-201), p. 17.

Fresneau, A. 1983*c*, personal communication.

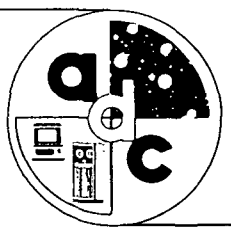
SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. Groups of records from the beginning and end of the catalog are illustrated. The beginning of each record and bytes within the record are indicated by the column heading index across the top of each page (digits read vertically).

L I S T I N G   O F   R E C O R D S   F R O M   T A P E   F I L E

```
            TAPE FILE NAME: AC Survey +01° to +31°
                   RECORDS        1 TO       30
                 TAPE FILE        1
            RECORD LENGTH        26 BYTES
             INPUT VOLSER    WHW015

C O L U M N                                                                                                        1111111111111111
H E A D I N G               1111111111222222222233333333334444444444555555555566666666667777777777888888888899999999990000000000111111
I N D E X          1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345

RECORD        1    0.000520.474612.01895.82
RECORD        2    0.001713.284611.71907.83
RECORD        3    0.002127.664112.61897.82
RECORD        4    0.002524.309612.11894.80
RECORD        5    0.004211.963311.01908.85
RECORD        6    0.004314.923910.91905.29
RECORD        7    0.0044 7.396112.51919.80
RECORD        8    0.0049 8.711312.21908.80
RECORD        9    0.0050 8.790714.01919.80
RECORD       10    0.006118.5569 8.51896.27
RECORD       11    0.008819.279512.11895.81
RECORD       12    0.009711.167513.01921.80
RECORD       13    0.0119 5.255512.81910.95
RECORD       14    0.012214.581510.71905.29
RECORD       15    0.012723.612211.61892.79
RECORD       16    0.012711.698710.21908.85
RECORD       17    0.0135 3.923613.81910.95
RECORD       18    0.014127.405812.01896.35
RECORD       19    0.014731.655210.11902.69
RECORD       20    0.014924.412611.71895.33
RECORD       21    0.015028.608213.51906.94
RECORD       22    0.015628.947412.61900.91
RECORD       23    0.0156 7.4471 9.71908.79
RECORD       24    0.016730.854111.51899.25
RECORD       25    0.017727.647512.21897.82
RECORD       26    0.0177 5.246611.81913.85
RECORD       27    0.018630.714912.61895.81
RECORD       28    0.0189 9.560913.01921.80
RECORD       29    0.019318.727312.51895.80
RECORD       30    0.0195 7.480813.71919.80
```

```
LISTING OF RECORDS FROM TAPE FILE

        TAPE FILE NAME: AC Survey +01° to +31°
               RECORDS  997282 TO  997311
             TAPE FILE      1
         RECORD LENGTH     26 BYTES
          INPUT VOLSER   WHW015

COLUMN
HEADING          11111111112222222222333333333344444444445555555555666666666677777777778888888888999999999900000000001111111
INDEX   123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345

RECORD  997282 359.9E4130.593112.61895.81
RECORD  997283 359.9E4818.504112.01896.27
RECORD  997284 359.9E5229.421312.71901.37
RECORD  997285 359.9E5424.442812.11895.33
RECORD  997286 359.9E54 8.2083 6.11905.13
RECORD  997287 359.965827.225311.51896.14
RECORD  997288 359.966411.101512.71911.84
RECORD  997289 359.986913.768712.31908.88
RECORD  997290 359.988122.426712.61891.84
RECORD  997291 359.9881 7.598413.01919.80
RECORD  997292 359.989129.707213.01901.37
RECORD  997293 359.9902 7.887413.61919.80
RECORD  997294 359.9906 9.922013.11921.80
RECORD  997295 359.991015.0569 8.91905.29
RECORD  997296 359.991531.780411.01902.69
RECORD  997297 359.9922 8.003913.31919.80
RECORD  997298 359.992316.453011.01900.32
RECORD  997299 359.9932 8.758914.21919.80
RECORD  997300 359.993611.930212.01906.86
RECORD  997301 359.993823.797510.91892.79
RECORD  997302 359.993819.798912.31895.35
RECORD  997303 359.994215.9779 7.91903.31
RECORD  997304 359.9954 5.573711.01909.77
RECORD  997305 359.995630.473512.61895.81
RECORD  997306 359.9962 2.805710.91910.39
RECORD  997307 359.9962 1.805710.91910.39
RECORD  997308 359.9970 4.953211.01909.77
RECORD  997309 359.997912.320710.71911.55
RECORD  997310 359.9983 8.891314.21919.80
RECORD  997311 359.998618.4043 8.11896.27
```



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