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DOCUMENTATION FOR THE MACHINE-READABLE VERSION

OF THE

YALE CATALOGUE OF THE POSITIONS AND PROPER MOTIONS OF

STARS BETWEEN DECLINATIONS -60° AND -70°



DECEMBER 1984

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(FALLON 1983)

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ABSTRACT

A detailed description of the machine-readable, character-coded version of the catalog, as it is currently being distributed from the Astronomical Data Center(ADC), is given. The format and data provided in the magnetic tape version differ somewhat from those of the published catalog, which was also produced from a tape prepared at the ADC. The primary catalog data are positions and proper motions (equinox 1950.0) for 14597 stars.

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SECTION 1 - INTRODUCTION AND SOURCE REFERENCE

The original plans for the Southern Yale Zone catalogs were to reobserve and derive strengthened positions and proper motions for all stars in the zones -30° to -50° and -60° to -90° . Having been delayed by an incredible number of misfortunes, the zone -60° to -70° has now been published (Fallon 1983). Both the new publication and this tape are based on a binary tape prepared by F. W. Fallon, who completed the reduction of the measurements made at Yale some years earlier. In addition to the data in the published catalog, this file lists the numbers of the plates measured for each star.

This document describes the machine-readable *Yale Catalogue of the Positions and Proper Motions of Stars Between Declinations -80° and -70°* . It outlines the procedures used to produce this tape from the binary version prepared by Fallon and is intended to enable users to read and process the data without problems and guesswork. A copy of this document should be transmitted to any recipient of the machine-readable catalog originating from the Astronomical Data Center.

SOURCE REFERENCE

Fallon, F. W. 1983, *Trans. Astron. Obs. Yale Univ.* 32, Part II.

SECTION 2 - TAPE CONTENTS

A byte-by-byte description of the contents of the machine-readable *Yale Catalogue of the Positions and Proper Motions of Stars Between Declinations -60° and -70°* is given in Table 1. A suggested Fortran format specification for reading each data field is included and can be modified depending upon individual programming requirements (Fortran 77 character string-type formats are used); however, caution is advised when substituting format specifications, since some data fields contain character data and others are blank when data are absent. Particular care is required for the photometric data (magnitudes and color indices) where valid zero values can exist, but where fields may be blank for nonexistent data and where precision can vary within the same field. It is safest to buffer in records in an unformatted mode or read them with character (A) formats and test for blank data fields before processing with numerical formats for calculations and/or search purposes. For such fields, primary numerical format specifications are given to indicate decimal-point locations, while alternate A-type formats are specified in parentheses. Default (null) values are always blanks in data fields for which primary suggested formats are given as A.

Table 1. Tape Contents. *Yale Zone Catalogue -60° to -70°*.

Byte(s)	Units	Suggested Format	Default Value	Remarks
1- 5	---	I5		Serial number.
6	---	A1	---	Sign of declination zone in the <i>Cape Photographic Durchmusterung</i> (CPD, Gill and Kapteyn 1896). (Always minus.)
7- 8	---	A2	---	CPD Zone. If this field is blank, the star is not in the CPD. The number in bytes 9-13 is then the number of the star in the <i>Cape Photographic Catalogue</i> (CPC, Stoy 1966).
9- 13	---	I5	---	The number in the DM zone or in the CPC.
14- 15	hours	I2	---	Right ascension, α , for equinox 1950.0 and epoch given in bytes 34-40.
16- 17	min	I2	---	α
18- 23	sec	F6.3	---	α

Table 1 (concluded)

Byte(s)	Units	Suggested Format	Default Value	Remarks
24	---	A1	---	Sign of declination, δ , for equinox 1950.0 and given epoch.
25- 26	°	I2	---	δ
27- 28	'	I2	---	δ
29- 33	"	F5.2	---	δ
34- 40	years	F7.2	---	Epoch for position.
41- 47	sec	F7.4 (A7)	blank	Annual proper motion, $\mu\alpha$.
48- 53	"	F6.3 (A6)	blank	Annual proper motion, $\mu\alpha$.
54- 59	"	F6.3 (A6)	blank	Annual proper motion, $\mu\delta$.
60- 63	mag	F4.1 (A6)	blank	Visual magnitude (see note 1).
64	---	A1	---	An asterisk indicates constructed magnitude (see note 1).
65- 69	mag	F5.2(A5)	---	Color index (see note 1).
70- 71	---	I2	---	Number of images measured. A pair of grating images is counted as one image.
72- 73	---	I2	---	Number of plates measured.
74-109	---	18I2	---	18 two-digit numbers identifying plates on which images were measured. If the number measured is less than 18, a zero fill is used for blank fields.
110	---	I1	---	Field star code (see note 2).
111	---	A1	---	Proper motion code (see note 3).

Notes to Table 1

Note 1 In most cases the visual magnitude and color index are taken directly from the *Cape Photographic Catalogue* (CPC). If a visual magnitude is not present in the CPC, it has been derived from the photographic magnitude and the color index. If both the magnitude and the color index are missing, the magnitude was constructed from the photographic magnitude and the spectral type and byte 64 contains an asterisk. If no magnitudes are given in the CPC, values were taken from any available source of V and color index (mainly the USNO *Photoelectric Catalogue* (Blanco *et al.* 1968). It was not possible to distinguish missing color indices from zero values.

Note 2 For the vast majority of stars, the positions were derived directly in the reduction. For these stars, the field star code is "0". If the star appears on only one plate for which no reference position data are available, the position has been derived from the plate constants for the plate on which it appears (i.e., the classical method). For these stars, the field star code is "1".

The proper motion codes have the following meanings:

- Note 3
- A - Proper motion taken directly from the CPC, because the star does not occur in the La Plata catalogs. This value is given only for convenience. It is not on the same system as the other proper motions. It should not be used in any statistical treatment of the material.
 - B - The proper motion is derived from the difference between the Yale and La Plata positions.
 - C - The proper motions are also derived from the difference between the Yale and the La Plata positions, but the latter is a mean of two values in overlapping zones. The epoch for the position is also the mean of those for the two zones.
 - D - The La Plata position is from the NFK (Peters 1907), and is not on the system of the La Plata catalog. Thus, the proper motion is derived from the NFK and Yale positions.
 - E - The star appears on both Yale (1942) and Sydney (1962) plates. The proper motion is from the difference in position between these plates.
 - F - The proper motion is from the difference between the mean of the Yale and Sydney positions and the La Plata position.

SECTION 3 - TAPE CHARACTERISTICS

The information in Table 3 is sufficient for a user to describe the indigenous characteristics of the *Yale Zone Catalog -80° to -70°* 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. These parameters should always be transmitted if secondary copies of the catalog are supplied to other users or installations.

Table 3. Tape Characteristics. *Yale Zone Catalogue -80° to -70°*.

NUMBER OF FILES	1
LOGICAL RECORD LENGTH (BYTES)	111
RECORD FORMAT	FR*
TOTAL NUMBER OF LOGICAL RECORDS	14597

* Fixed block length (last block may be short)

SECTION 4 - REMARKS, MODIFICATIONS, ACKNOWLEDGMENTS AND REFERENCES

The *Yale Zone Catalogue -60° to -70°* was received on magnetic tape from the author, who also provided a brief format description. The original tape had been recorded in IBM binary. The following modifications were made to the original version to produce the present data file for dissemination:

1. Certain data were clarified through discussion with Dr. Fallon, while Dr. D. Hoffleit helped to resolve a number of other problems, e.g., distinguishing between zero and nonexistent proper motions. Dr. Hoffleit also supplied a list of errors that she had detected and analyzed.
2. The binary data were processed to convert them to character-coded data for ease of use by other computers.
3. Magnitudes were rounded to one decimal place.
4. Proper motion codes were changed to one-byte letter codes.
5. Positions and proper motions given in radians on the original tape were changed to time and arc measures for right ascension and declination, respectively.

ACKNOWLEDGMENTS

Appreciation is expressed to Dr. F. W. Fallon for the original tape and for his help in interpreting certain data. We are grateful to Dr. E. D. Hoffleit for her help with the proper motions, for the errata list, and for numerous helpful communications.

REFERENCES

- Aguilar, F. and Dawson, R. H. 1929, *Catálogo La Plata B de 7792 estrellas de Declinaciones Comprendidas entre -57° y -82° (1875) para el Equinoccio 1925*, *Publ. La Plata Obs.* 7.
- Barney, I., Hoffleit, D., Jones, R. B., LU, P. K., Schlesinger, F. and van Woerkom, A. J. J. 1939-1971, *Yale Zone Catalogues*, *Trans. Astron. Obs. Yale Univ.* 16-22, 24-31.
- Blanco, V. M., Demers, S., Douglass, G. G., and Fitzgerald, M. P. 1968, *Photoelectric catalogue*, *Pub. U.S. Naval Obs.*, 2nd Ser., 21.
- Gill, D. and Kapteyn, J. C. 1896 -1900, *Cape Photographic Durchmusterung*, *Ann. Cape Obs.* 3-5.

REFERENCES (concluded)

- Jackson, J. and Stoy, R. H. 1958, *Cape Photographic Catalogue for 1950.0, Zone -56° to -64°*, *Ann. Cape Obs.* 20 (London: H. M. Stationery Office).
- Martinez, H. A. 1924, *Catálogo La Plata C de 4412 Estrellas entre 52° y 68° Declinación Austral (1875) para el Equinoccio 1925*, *Publ. La Plata Obs.* 8.
- Manganiello, V. 1936, *Catálogo de 4513 Estrellas entre 65°50' y 72°10' de Declinación Austral (1875) para el Equinoccio 1925*, *Publ. La Plata Obs.* 9.
- Peters, J. 1907, *Neuer Fundamentalkatalog des Berliner Astronomischen Jahrbuchs nach den Grundlagen von A. Auwers. für die Epochen 1875 und 1900*, *Veröff. Kön. Astron. Rechen-Inst. zu Berlin*, No. 33.
- Stoy, R.H. 1966, *Cape Photographic Catalogue for 1950.0, Zones -64° to -80°*, *Ann. Cape Obs.* 21 (London: H. M. Stationery Office).

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).

