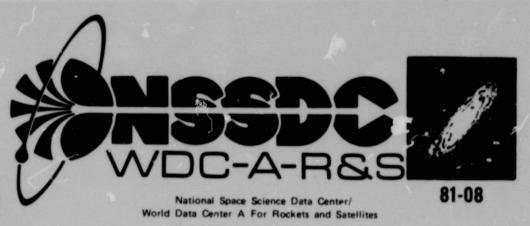
ovided by NASA Technical Reports Serve

brought to you by I CORE

5,268 STANDARD STARS, 1950.0 BASED ON THE
NORMAL SYSTEM N30 (NASA) 14 p HC A02/MF A01 Unclas
CSCL 03A H2/89 27612



Documentation for the Machine-Readable Version of the Catalog of 5,268 Standard Stars, 1950.0 Based on the Normal System N30



July 1981

DOCUMENTATION FOR THE MACHINE-READABLE VERSION OF THE CATALOG OF 5,268 STANDARD STARS, 1950.0 BASED ON THE NORMAL SYSTEM N30

Wayne H. Warren Jr.

July 1981

National Space Science Data Center (NSSDC)/
World Data Center A for Rockets and Satellites (WDC-A-R&S)
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

TABLE OF CONTENTS

		1 - INTRODUCTION 1-	
Sec	tion	2 - TAPE CONTENTS 2-	1
Sec	cion	3 - TAPE CHARACTERISTICS 3-	1
Sec	tion	4 - REMARKS, MODIFICATIONS AND REFERENCES 4-	1
Sec	tion	5 - SAMPLE LISTING 5-	1
		LIST OF TABLES	
Tak	le		
1	Tape	Contents	1
2	Tape	Contents of Remarks File 2-	3
* 4	Tape	Characteristics 3-	٠1

PRECEDING PAGE BLANK NOT FILMED

SECTION 1 - INTRODUCTION

The N30 catalog of 5,268 standard stars, 1950.0 (Morgan 1952) was constructed primarily to assist in the reduction and interpretation of planetary observations, particularly those made in the nineteenth century. The new catalog was considered necessary because the only fundamental catalogs available at the time (FK3, GC) have mean epochs around 1900, and over the period of approximately fifty years, positional accuracies had deteriorated from cumulative effects of proper-motion inaccuracies. A full description of the formation of the catalog, source catalogs used, probable errors, and other information can be found in the introduction to the published version.

This document describes the machine-readable version of the N30 catalog available on magnetic tape from the Astronomical Data Center. Numerical representations of some data fields on the original catalog have been changed to conform more closely to formats now being used for star-catalog data, plus all records having asterisks indicating footnotes in the published catalog now have corresponding remarks entries in a second tape file; i.e. the footnotes in the published catalog have been computerized and are contained in a second file of the tape.

This paper is intended to fully describe the tape version of the N30 catalog so that users can avoid the frequent problems and guesswork usually involved with processing a not fully documented machine-sensible data set. A copy of the document should be distributed with any machine-readable version of the catalog.

SECTION 2 - TAPE CONTENTS

A byte-by-byte description of the contents of the logical records in the N30 catalog is given in Tables 1 and 2. The suggested format specifications can be modified depending upon usage, but care must be exercised when using integer and real format specifications in place of character (A) formats because some data fields contain blanks when data are absent. Real (F) format specifications are suggested for some data to indicate the location of decimal points, even though the data are recorded on the tape as integers. Alternate specifications are given in parentheses.

Table 1. Tape (Contents. N30	Catalog of	5,268	Standard	Stars

Byte(s)	Description	Sugges Forma	
1- 4	N30 running number	14	
5-12	DM number (Present for all stars)	3.4	(A8)
	5 sign 6- 7 zone	A1 A2	(12)
	8-12 number		(15)
13-17	GC number (blank if not present)	A5	
18-21	Harvard photometric magnitude For double stars, if the position is for one component, the magnitude of that component is given and the magnitude, distance and position angle of the companion are given in the notes (file 2 of the tape catalog).	F4	. 2

If the position is for the mean, center of light, or center of gravity, the combined magnitude is given and the magnitudes, distance and position angle of the components are given in the notes. Where the position is for the center of gravity, the orbital corrections used in the reduction of the observation were taken from the GC, Vol. I, Ap. II. For double stars of distances 1" to 2", there is an uncertainty as to part observed, depending upon the relative magnitudes of the components. If the components are separated and differ considerably in magnitude, then the use of screens cuts out the fainter star. There are a number of such stars and in older work the observations were reduced as the mean, or center of light. Where it seems probable that the new position is for the brighter star and the GC gives a mean, a note is given.

	The magnitudes of variable stars are given as a blank followed by three zeroes.	
22-25	Henry Draper (HD) spectral type Composite spectra are given as combinations; e.g. KOAO or KO+A. A few peculiar composite spectra require >4 characters and the p's are omitted in the fields, but given in the notes.	M
26-34	Right ascension (a) for equinox and epoch 1950.0 (brought up from epoch of observation using Newcomb's precession and the proper motions in this catalog)	
	26-27 hours 28-29 minutes 30-34 seconds	I2 I2 F5.3
35-41	Third term in right ascension (the first and second terms are not included on the tape).(0501)	F7 • 2
42-46	Centennial proper motion in right ascension (μ_{α}) (0.501)	F5.2
47-53	$\Delta\mu_{\alpha}$ centennial secular variation (0.01) (blank if not present)	F7.2
54-56	Mean epoch of α (0.1 yr) (1900+)	F3.1
57-59	Sum of combining weights used in forming the normal position in $\boldsymbol{\alpha}$	13
60-68	Declination (δ) for equinox and epoch 1950.0 (see note for right ascension)	
	60 sign 61-62 degrees 63-64 arcminutes 65-68 arcseconds	Al _, 12 12 F4•2
69-73	Third term in declination (the first and second terms are not included on the tape) (0.1)	F5.1
74-78	Centennial proper motion in declination (μ_{δ}) (0.1)	F5.1
79-81	Δμ _δ centennial secular variation (0"1) (blank if not present)	F3.2
82-84	Mean epoch of δ (0.1 yr) (1900+)	F3.1

85-87	Sum of combining weights used in forming the normal position in $\boldsymbol{\delta}$	13
88	* if there is a remark in the notes file of the catalog, otherwise blank	A1

Table 2. Tape Contents of Notes File. N30 Catalog of 5,268 Standard Stars

Byte(s)	Description	Suggested Format
1- 4	N30 running number	14
5	A period (.)	A1
6	Blank	1X
7-80	Remark(s)	74A1

For printing only, the notes file can, of course, be read with format 80A1 (or 20A4, 8A10, etc.). Note that the remarks are upper and lower case characters, so the use of an extended chain printer is recommended. Note also that the symbol for degrees (hexidecimal A1, punch code 11-0-1) is used throughout the remarks file, and it may be necessary to convert it for other than IBM systems.

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 3 is sufficient to enable a user to read the machine version of the catalog. Information for the entire catalogue (both files) is given in the table, but parameters which are easily varied from installation to installation, such as blocksize (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, and coding (EBCDIC, ASCII) are not included. This information should always be supplied if copies of the catalog are transmitted to other users or installations.

Table 3. Tape Characteris	tics.	N30	Catalog	of 5,268 Standard	Stars
NUMBER OF TRACKS				• • • • • • •	9
NUMBER OF FILES				• • • • • • •	2
LOGICAL RECORD LENGTH .					88,80
RECORD FORMAT		• • •			FB*
NUMBER OF LOGICAL RECORDS					5268,277

^{*}Fixed length blocks

The numbers separated by commas refer to the first and second files of the catalog, respectively. Logical record lengths are given in bytes (characters).

SECTION 4 - REMARKS, MODIFICATIONS AND REFERENCE

The catalog was received on magnetic tape from the Centre de Données Stellaires, Strasbourg. The following modifications were made to the format in order to make the records appear more similar to the published catalog, to make them easier to read when listed, and to simplify processing to produce printed and microform versions closely approximating the published catalog in appearance:

- 1. Data were read and rewritten to discard leading zeroes, which make the numbers difficult to read when listed.
- 2. All positive Durchmusterung numbers had zeroes in the zone numbers where + signs would ordinarily be. The zeroes were changed to + signs.
- 3. The GC numbers and secular variations in α and δ were changed to blank fields if not present. (They were zeroes on the tape as received.)
- 4. Several modifications were made to the spectral types:
 - (a) Peculiar and emission symbols (p, e) were changed to lower case to conform to standard usage.
 - (b) Composite spectra are indicated by two spectral types which run together in the 4-byte field. For types of the form KOA, a change was made to the form KO+A.
 - (c) Peculiar HD O-star types were coded numerically; they were decoded by replacing 01 by 0b, 03 by 0d, 04 by 0e5, and 00P by Oap.
- 5. Plus (+) signs were added to the first byte of the declination field where blanks had been previously.
- 6. The note indicator (byte 88) was an asterisk (*) in many cases, but for more than half of the stars having notes, a peculiar code was found which printed as β on an extended chain printer. Since there should have been no varying note characters, the latter codes were changed to asterisks for uniformity.

The notes file was created and added to the machine-readable catalog. Checks were made to ensure that all records containing an * have corresponding notes and vice versa.

REFERENCE

Morgan, H. R. (1952). Catalog of 5,268 Standard Stars for the Equinox and Epoch 1950.0 Based on the Normal System N30, Astron. Papers Amer. Ephemeris 13, Part III.

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 each file are illustrated. The beginning of each record and the bytes within the record are indicated by the column heading index across the top of each page (digits read vertically).

TAPP PILE MAME: W30 CAT 5268 STD. STAPS 30

RECORDS

13 88 BYTES WISOO1 TAPE FILE RECORD LENSTH INPUT VOLSER

388899999 37890123	21	91	25	17	2	24	19	61	15	13	<u>*</u>	22	39	0#	0	96	74	12*	60	25	=		* 9	<u>=</u>	52	6	28	=	27.	19
123456	288	328	319.2	332	202	302 2	287	335.4	331	286	313	290	354 3	305	321	320	342	317	349	314	320	378	333 (293	307	377	331 2	346	310 2	321
56789	9	•	-17	-17	7	۳	=	91	-68	m	- 36	-174	=	٠	80	-161	-178	20	33	-128	-111	=	~	18	m	7	-31	23	-	120
17777	2-	7	?	-7	-5	7	-2	-5	7	-2	7-	?	?-	7	7	-5	7	-7	-2	ri I	7-	-5	-7	7	2-	7	?	-5	-5	-5
444444455555555556666666677777777777788888888899999 2345678901234567890123456789012345678901234567890123	21+03374347	91-17365139	23+14060289	17-71425477	5+22592925	21+27234787	17+44570384	53-05591409	15-09534135	15+40082500	14-49211106	22+28444455	36-23230701	39-02493720	39-02433375	107+28485206	80+58522666	12-54164963	8+64473201	25+17152706	14-46012376	11-26091142	71+45473882	14-82300740	24+56531441	9+59234311	25-12512743	41-28044137	24+55505380	19-35244672
45555555 901234567	269	325	325	-2332	202	311	292	349	331	293	-6313	2290	363	314	327	13121	11333	-1317	5349	311	-1320	378	331	6293	311	37.7	341	351	1319	-1321
345678	-13	19	ş	83	279	5	-27	9-	19	9	209	282	73	21	-	100	929	5	212	7	121	58	m	96-	3 8	0	106	æ	12	134
3333444 5789012	·	,	~	#	•	-	7	-	_	2	m	-	-	-	-	-	S	æ	∞	-	7	-	2	65	*	un:	-	-	6	2
######################################	000106388	277011000	000121865	000210299	900220739	000226561	000234999	000246543	000257334	000329358	000344214	000000000	000416660	000510365	000538400	000547843	000629754	000631526	1005537001	000644937	000652764	000726364	000742752	000748518	117121000	000756243	0000000000	000902241	069606000	000911687
122222 1901234	816F0	462A0	726F0	56489	78795	65765	65110	468KO	71125	67195	57750	620K0	60610	63388	632K0	215A0p	24275	63460	702K0	71760	394KO	74612	50870	530K0	65438	67083	594K0	556K0	715A0	519F5
1111		23	26	#2		8) #	54	59	69	87	6	9.5	9.8	114	124	127	147	148	152	154	158	164	169	173	176	177	181	197	201	202
1111	\$ 926	6417	5201	2800	4950	# 744	4550	6357	6227	5219	14337	# 70#	<i>=</i>	7	m	±	m	19	m	~	18	35	7.1	#	F	=	T.	56	£:	#5
1234567	1+03	2-18	3+13	4-72	5+22	6+26	7+44	8-06	9-10	10+39	11-491	12+28	13-23	14-03	15-03	16+28	17+5P	18-54	19+64	20+15	21-46	22-26	23+45	24-82	25+56	26+58	27-13	28-28	29+62	30-35
U Em Emm	-	C.	m	27	ŗ	Ġ	7	6 0	<u>о</u> г	10	=======================================	12	13	=	ŧ	16	17	18	61	20	21	22	23	24	25	56	27	28	53	30
DEE SEC SEC	RECORD	RECORD	RECORD	RECOPD	PECORD	RECORD	PECORD	PECORD	PECOND	GECORD	FECOPP	PECORD	PECORD	PECORD	PECORP	SECORD	PECORD	FECORD	RECORD	PECORD	RPCORD	RECORD	PECOPD	PECORD	RECORD	BECORD	RECORE	RECORD	RECORD	RECORD

LISTING OF RECORDS PROM TAPE PILE

 TAPE FILE NAME:
 H30 CAT 5268 STD.
 STARS

 RECORD
 5239 TO
 5268

 TAPE FILE
 13

 RECORD LEMSTH
 88 BTTS

 INPUT VOLSER
 WTS001

D 0

	5 ≅ ∹≽≼	12345678	19012345678	961234	5676901234567	89012	3456789	0123456	ı <u>ĸ</u> 5678901234567890123 456789 0123456789012345678901234567890123456789012345678901234567890123456789012	1234	567890	12345678	2012
RECORD	5239	5239-00	458533165	59881	235213003	-	-27	305	35-00100765	-5	F	303 32	
RECORD	5240	5240+73	106333166	62789	235222187	11	-16	369	61+74075521	7	-7	362 63	
RECORD	5241	5241-321	1-321772333175	60583	235241692	7	24	324	11-32115959	7	0	324 11	
RECORD	5242	5242+82	74333205	0000 NO	235403934	80	246	20362	84+82544602	7	=	362 91*	
RECORD	5243	5243+21	499933208	011069	235408387	-	-16	344	52+22221139	7-	9-	348 47	
PECORD	5244	5244-63	194033215	604A2	235443352	7	164	-2313	12-63140655	7	28	313 12	
RECORD	5285	5245+0	4737	8 26 70	235450890	-	-51	244	9+02435483	-7	-33	244 9	
RECORD	5246	5246-82	90733219	56840	235451798	95	-107	9285	11-82265262	?	-20	286 11	
RFCORD	5247	5247+17	5013	810K0	235458278	خنوا	7	325	4+17591784	-5	-1	325 4	
RECORD	5248	5248+19	5176	80065	235503156	-	9	254	9+20030717	-5	*	254 9	
RECORD	5249	5249+24	486533230	475HD	235512362	-	-32	343	44+24514866	Çİ	-29	340 47	
RECORD	5250	5250-12	6592	79055	235542375	(p-1	-47	329	18-11441079	-5	80	329 18	
RECORD	5251	5251-16	639433242	640K2	235546933	-	58	326	32-16073315	-5	-10	324 33	
RECORD	5252	5252+34	503933243	67113	235547886	7	7	298	22+34440481	-7	10	291 25#	
PECORD	5253	5253-571	53-571038933246	05019	235555938	SC.	38	-1314	8-57333278	?	-13	314 8	
RECORD	5254	5254-04	599633248	SC7K0	235606764	-	36-	328	60-03500041	?-	-72	330 59	
RECORD	5255	5255-531	55-531056133256	514KD	235620816	72	ır	-1316	12-53013044	-7	68	316 12	
RECORD	5256	5256+54	308233257	493B2	235627689	##*	7	322	20+55283635	7-	7	315 244	
RECORD	5257	5257+06	522733262	40315	235644498	.4)	66	315	315109+06351136	?	-110	322100	
RECORD	5258	5258-06	633533273	67735	735706717	-	24	327	33-06101433	7-	64-	321 32	
RECORD	5259	5259-66	381933280	47189	235719983	œ	76	-2309	13-65511884	7	-15	309 53	
RECORD	5260	5260+05	5245	766KO	235720455	-	=	17.2	17+05404306	7	-36	277 17	
RECORD	5261	5261-00	4603	8 10 KO	235805220	•	72	305	21-00031926	-5	13	305 21	
RECORD	5262	5262-491	52-491431633305	566 KO	235830847	•	φ	330	11-49051765	-7	7	330 11	
RECORD	5263	5263+49	430933311	636KO	235845374	m	7	338	12+49421206	7	î	338 12	
RECORD	5264	5264-77	159633321	473K0	235903675	30	-60	3226	10-77203027	-7	2014	246 10	
RECORD	5265	5265-401	55-401531133323	68215	235907860	7	\$	334	12-40253682	-5	in.	334 12	
PECOND	5268	5266-371	56-371546933328	703K0	235921769	7	F	338	12-37302815	çı	94-	338 12	
RECORD	5267	5267-06	634533330	46631	235923729	-	*	332	56-06173087	-5	-34	329 57	
RECORD	5268	5268+07	512133341	578 10	235956196	~	19-	310	32+08122794	7-	-45	302 32	

```
TAPE FILE MARE: #30 CAT HOTES FILE
             30
                                     80 BYTES
             9
                                                 WIS001
                          #
                         TAFE FILE
             RECORDS
                                     RECORD LENGTH
                                                IMPUT VOLSER
```

¢ UEM

, , ,	•	
RECORD	-	18. 6.4:8.5, 0.6", 274".
RECORD	8	29. 9.9, 1.6", 2050,
RECORD	m	70. 5.5:8.0, binary.
GRODE	4	107. 8.6, 5.9", 1660.
RECORD	L O,	112. 5.7:6.5, 0.3%, binary.
RECORD	9	124. 6.5:6.5, 0.5", binary.
RECORD	٢	133. Variable, 2.1 to 2.6 mag.
RECORD	60	144, 6.8:7.0, 0.7", 3460.
RECORD	o.	152. Variable, 5.7 to 6.1 mag.
RECORD	<u>e</u>	160. GC proper motion in 3.A. is doubtful.
RECORD	1	163. 3.7:7.3; c. of q.
RECORD	12	194. 7.5;8.7, 0.6", 3330.
RCORD	<u> </u>	199. 7.6:7.6, 0.2", 100.
RECORD	7	208. 7.0:10.0, 1.4", 246°.
RECORD	5	218. 4.2:4.2, 1.4", 60.
RECORD	16	259. Wariable 6.9 to 8.1 mag.
RYCORD	11	261. Preceding.
PECORD	E	262. Pollowing.
RECORD	19	268. 9.4, 2.6", 3370.
PECORD	20	276. 7.4:7.9, 0.3", 600.
RECORD	21	297. Variable, 6.2 to 8.8 mag.
RECORD	22	309. 11. mag. 1.0", 190.
RECORD	23	326. 6.0:7.1, 1.8", 1010.
RECORD	24	356. 6.7:8.1, 1.0", 39°.
RECORD	25	378. 7.5:7.7, 0.4m, 1890.
PECORD	56	390. 4.83 mag, 8.3m, 00.
RECORD	27	392. Variable, 6.7 to 9.2 msq.
RECORD	28	421. 5.23 mag, 2.5%, 312°.
RECORD	29	497. 7.1 mag. 2.4", 2510; GC qives mean.
RECORD	39	503. 11. mag, 1.5", 1420; GC qives mean.

```
TAPE FILE NAME: N30 CAT NOTES FILE
                    277
                    248 TO
                      RECORDS
```

80 BYTES WIS001 TAPE PILE IMPUT VOLSER RECORD - LENGTH

೮

OME CHH

7.6 maq, 3.0%, binary; GC qives mean, TIVES Mean. 4942. Variable, 4.9 to 5.7 maq. 4951. GC declination in error. tho: GC 7.5:7,5:, 0,2", binary. 6.3:6.3, 0.2", binary. Variable, 3.7 to 4.4. 10.5 mad, 0.6", 222°. 60 8,5 mag, 4.3m, 2670. 4795. 7.7 mag. 3.1", 690. 6.5:8.3, 0.3", 109°. 6.6:6.6, 0.4", 60°. 0.34, 1430. 9.7 mag, 1.0m, 1746, 0.3", 320°. 5.6:9.1, 1.2F, 213°. 6.7:7.2, 0.2", 3190. 6.0:7.5, 0.9", 240°. 0.3m, 2140. 6.2:9.2, 1.1", 7.0 Mag, 1.6", 5064. 85 + AZp. 5.7:5.7, 8.0:8.5, 7.0:8.4. 5057. 5031. 5087. 5123. 5121. 5137. 4955. 4982. 4991. 5029. 5030. 5075. 5077. 5078. 5089. 4923. 5116. 249 250 253 255 256 258 259 263 265 566 267 251 26.9 261 268 257 254 257 264 262 ECORD PECORD RECORD ECORD PCORD RECORD RECORD RCORD PECORD RECORD RECORD ECCRD RCORD PCORD PCORT. RCORD ECORD PCORD RCORD ECORD ECORD

9.5 maq, 1.2", 3440; wariable, 4.9 to 5.0 maq.

0.3", 1300.

7.4:7.6

5140.

569

PECORD PCORD PECORD

5162. 5165. 5187. 5236. 5242.

273 271 272 273

Variable, 4.4 to 5.1 mag. Variable, 6.2 to 7.9 mag.

200

9.2 mag, 3.5",

5252.

275

ECORD ECORD

274

RECORD

ECORD

9.0 mag, 1.5", 280°. 7.0 mag, 3.1", 3260.

5254.

276

5256.

277

RECORD

6.2:7.1, 0.6", 3330.

RCORP

7.3:7.5, D 2", 150°.