National Space Science Data Center/
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Documentation for the Machine-Readable Version

of

A TABLE OF REDSHIFTS FOR ABELL CLUSTERS

(SARAZIN, ROOD AND STRUBLE 1982)

November 1983

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ABSTRACT

A detailed description of the machine-readable catalog (*Astron. Astrophys.* 108, L7) is given. The machine version contains the same data as the published table, including a second file with the notes. These computerized data files were prepared at the Astronomical Data Center, NASA Goddard Space Flight Center.

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SECTION 1 - INTRODUCTION AND SOURCE REFERENCE

The machine-readable catalog *A Table of Redshifts for Abell Clusters* gives redshifts for 329 Abell clusters, all those known to the authors in published or preprint form at the time of the compilation (through 1982). The data table has been compiled critically, based partially on a number of photometric distance estimators derived from the redshift data. These were used to evaluate probable accuracies of the redshifts and to resolve discrepancies among different values for the same clusters. Notes on detected discrepancies and cluster identifications based on the photometric estimators are contained in the second file of the machine catalog, and are flagged in the data records. These notes should always be consulted when using the tabulated redshifts.

This document describes the machine-readable redshifts table as it was prepared at and is being distributed by the Astronomical Data Center. It is intended to enable users to read and process the data and notes without problems or guesswork. Additional details concerning the compilation and critical evaluation of these redshift data can be found in the source reference. This document should accompany any copy of the machine-readable catalog.

SOURCE REFERENCE

Sarazin, C. L., Rood, H. J. and Struble, M. F. 1982, *Astron. Astrophys.* 108, L7.

SECTION 2 - TAPE CONTENTS

Byte-by-byte descriptions of the contents of the data and notes files of the catalog *A Table of Redshifts for Abell Clusters* are given in Tables 1 and 2. The suggested format specifications apply to FORTRAN formatted read statements and can be modified depending upon individual programming and processing requirements. Values of varying precision are given for the redshift data; thus, it is recommended that these data be read with an A format and evaluated before being used in computations. Alternate format specifications are given in parentheses.

Table 1. Tape Contents. *A Table of Redshifts for Abell Clusters.* Data File.

Byte(s)	Suggested Format	Default Value	Description
1- 5	A5 (A1,I4)	---	Abell cluster number (Abell 1958).
6	A1	blank	Asterisk (*) if there is a note in file 2 for this cluster.
7-12	F6.4 (A6)	---	The redshift, z. The precision varies and is based on the estimated accuracy of the determination. When values are given to fewer than four decimal places, the remaining bytes are blank.
13	1X	---	Blank
14-16	I3	blank	Number of redshifts of different galaxies averaged to determine the cluster value (if given in the original reference).
17	1X	---	Blank
18-20	A3	---	Reference code for the source of the determination. Lower case letters are present. Code references are given in file 2.

The notes are contained in the second file. The beginning of the file lists the coded references referred to in bytes 18-20 of the data records. The notes follow and are contained in uniform records described in Table 2.

Table 2. Tape Contents. *A Table of Redshifts for Abell Clusters.* Notes File.

Byte(s)	Description
1- 5	Abell cluster number.
6- 7	Blank
8	Integer used to sequentially number remarks for the same cluster.
9-80	Remarks in upper and lower case characters.

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 3 is sufficient for a user to describe the indigenous characteristics of the two files of *A Table of Redshifts for Abell Clusters* 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, and internal coding (EBCDIC, ASCII, etc.) is not included. These parameters should always be supplied if secondary copies are transmitted to other installations. Parameters relating to the two files of the catalog are separated by commas.

Table 3. Tape Characteristics. *A Table of Redshifts for Abell Clusters.*

NUMBER OF FILES	2
LOGICAL RECORD LENGTH (BYTES)	20, 80
RECORD FORMAT	FB*
TOTAL NUMBER OF LOGICAL RECORDS	329, 102

* Fixed block length (last block may be short)

SECTION 4 - REMARKS, ACKNOWLEDGMENTS AND REFERENCES

The data and notes files of *A Table of Redshifts for Abell Clusters* were created at the Astronomical Data Center by keying the data directly to a computer disk. The data were listed, checked against the source reference, and transferred to magnetic tape.

ACKNOWLEDGMENTS

Appreciation is extended to the authors for permission to make these data machine-readable and to distribute the catalog to the astronomical community. They have also reviewed the document prior to final printing.

REFERENCES

Abell, G. O. 1958, *Astrophys. J. Suppl.* 3, 211.

Sarazin, C. L., Rood, H. J. and Struble, M. F. 1982, *Astron. Astrophys.* 108, L7.

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 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).

LISTING OF RECORDS FROM TAPE FILE

TAPE FILE NAME: Redshifts Abell C1 data
RECORDS 1 TO 30
TAPE FILE 65
RECORD LENGTH 20 BYTES
INPUT VOLSER ADC007

COLUMN HEADING INDEX

```
         1111111111222222222233333333334444444444555555555566666666667777777777888888888899999999990000000000111111
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345
```

RECORD	1	A	14	0.064	2	SRa
RECORD	2	A	15	0.121	1	N
RECORD	3	A	21	0.0948	1	HGT
RECORD	4	A	24	0.1338	1	N
RECORD	5	A	31	0.1596	2	N
RECORD	6	A	41	0.275	1	N
RECORD	7	A	46	0.150	2	N
RECORD	8	A	76	0.0377	1	N
RECORD	9	A	79	0.0927	1	N
RECORD	10	A	84	0.119	1	N
RECORD	11	A	85	0.0518	3	A
RECORD	12	A	86	0.0610	1	N
RECORD	13	A	88	0.1086	1	HGT
RECORD	14	A	96	0.1344	1	N
RECORD	15	A	98	0.1054	12	N
RECORD	16	A	104	0.0822	1	HGT
RECORD	17	A	114	0.0566	1	N
RECORD	18	A	115	0.1959	1	N
RECORD	19	A	119	0.0437	21	HQD
RECORD	20	A	121	0.1048	1	HGT
RECORD	21	A	133	0.06		Rea
RECORD	22	A	140	0.149	12	Coa
RECORD	23	A	141	0.230		SRb
RECORD	24	A	147	0.0438	3	N
RECORD	25	A	151	0.0526	2	N
RECORD	26	A	154	0.0658	11	N
RECORD	27	A	160	0.0450	1	N
RECORD	28	A	166	0.1156	1	HGT
RECORD	29	A	168	0.0452	13	N
RECORD	30	A	171	0.0729	1	N

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: Redshifts Abell C1 data
                 RECORDS      300 TO     329
               TAPE FILE      65
           RECORD LENGTH      20 BYTES
            INPUT VOLSER    ADC007

C O L U M N
H E A D I N G                                                                                                 111111111111111111111111111111111111
I N D E X     000000000111111111122222222223333333333444444444455555555556666666666777777777788888888889999999999000000000011111111112222222222333333
              123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345

RECORD      300 A2382 0.0648    1 HGT
RECORD      301 A2384 0.0943    1 HGT
RECORD      302 A2397 0.224     1 N
RECORD      303 A2399 0.0587    1 HGT
RECORD      304 A2410 0.0806    1 HGT
RECORD      305 A2440*0.0873    2 KUC
RECORD      306 A2443 0.108     1 N
RECORD      307 A2457 0.0597    1 HGT
RECORD      308 A2550 0.1543    1 KUC
RECORD      309 A2554 0.106     1 N
RECORD      310 A2556 0.0851    1 KUC
RECORD      311 A2572 0.0395    4 C
RECORD      312 A2584 0.1196    1 N
RECORD      313 A2589 0.0421   13 N
RECORD      314 A2593 0.0440    2 N
RECORD      315 A2597 0.0852    3 KUC
RECORD      316 A2622 0.0615    1 N
RECORD      317 A2626 0.0562    1 N
RECORD      318 A2632 0.1860      SRD
RECORD      319 A2634 0.0322   16 N
RECORD      320 A2638*0.0825    1 SRD
RECORD      321 A2645*0.246     1 N
RECORD      322 A2646 0.193       SRD
RECORD      323 A2657 0.0414    2 N
RECORD      324 A2656 0.185       SRD
RECORD      325 A2666 0.0273   15 N
RECORD      326 A2670 0.0749   10 N
RECORD      327 A2675 0.0726    1 HGT
RECORD      328 A2700 0.0970    1 HGT
RECORD      329 A2703 0.1144    2 SRD
```

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

TAPE FILE NAME: Redshifts Abell Cl notes
RECORDS 1 TO 30
TAPE FILE 06
RECORD LENGTH 80 BYTES
INPUT TOLSER ADC007

COLUMN HEADING INDEX

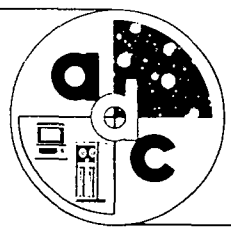
RECORD 1 Notes to Table 1
RECORD 2 References:
RECORD 3 A - weighted average of HGT and HSH.
RECORD 4 B - weighted average of HGT and N.
RECORD 5 C - Corwin, H.G. Jr. 1974, Astron. J. 79, 1356.
RECORD 6 Cea - Cooke, J.A., Emerson, D., Kelly, B.D., MacGillivray, H.T., and Dodd, R.J.
RECORD 7 1981, Monthly Notices Roy. Astron. Soc. 196, 397.
RECORD 8 D - Dressler A. 1980, Astrophys. J. Suppl. 42, 565.
RECORD 9 E - weighted average of Hea and HQa.
RECORD 10 F - average of HGT and N.
RECORD 11 Gea - Gioia, I.M., Geller, M.J., Huchra, J.P., Maccacaro, T., Steiner, J.E., and
RECORD 12 Stocke, J. 1982, Astrophys. J. 255, L17.
RECORD 13 HGT - Hoessel, J.G., Gunn, J.E., and Thuan, T.X. 1980, Astrophys. J. 241, 486.
RECORD 14 Hea - Hill, J.M., Angel, J.R.P., Scott, J.S., Lindley, D., and Hintzen, P. 1980,
RECORD 15 Astrophys. J. 242, L69.
RECORD 16 HSH - Hintzen, P., Scott, J.S., and McKee, J.D. 1980, Astrophys. J. 242, 857.
RECORD 17 KUC - Kowalski, M.P., Ulmer, M.P., and Cruddace, R.G. 1982, preprint.
RECORD 18 Mea - Mason, K.O., Spinrad, H., Bowyer, S., Weichert, G., and Stauffer, J. 1981,
RECORD 19 Astron. J. 86, 803.
RECORD 20 MJa - Melnick, J., and Quintana, H. 1981a, Astron. Astrophys. Suppl. 44, 87.
RECORD 21 MJb - Melnick, J., and Quintana, H. 1981b, Astron. J. 86, 1567.
RECORD 22 N - Noonan, T.W. 1981, Astrophys. J. Suppl. 45, 613.
RECORD 23 PL - Perrenod, S.C., and Lesser, M.P. 1980, Pub. Astron. Soc. Pac. 92, 764.
RECORD 24 Wea - Weichert, G., Mason, K.O., Lea, S.M., Charles, P.A., Bowyer, S., and
RECORD 25 Pravdo, S. 1981, Astrophys. J. 247, 803.
RECORD 26 SHa - Struble, M.F., and Rood, H.J. 1982a, Astron. J. 87, 7.
RECORD 27 SHb - Struble, M.F., and Rood, H.J. 1982b, preprint.
RECORD 28 Notes:
RECORD 29 a A 370 1z(photo) = .138; observed redshift is suprisingly large. However,
RECORD 30 a A 370 2photometric redshift formula probably can not be extrapolated to red-

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: Redshifts About Cl notes.
RECORDS 73 TO 102
TAPE FILE 06
RECORD LENGTH 80 BYTES
INPUT VOLSER ADC007

COLUMN HEADING INDEX
1111111111222222222233333333334444444444555555555566666666667777777778888888888999999999900000000011111111112
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123

RECORD 73 A1878 1z(photo) = .138; observed redshift is surprisingly large. However,
RECORD 74 A1878 2photometric redshift formula probably can not be extrapolated to
RECORD 75 A1878 3redshifts this large.
RECORD 76 A2001 1Alternative redshift is z = .1755 (Hea) for two galaxies; chosen value
RECORD 77 A2001 2agrees better with z(photo) = .125.
RECORD 78 A2084 1z(photo) = .157; observed redshift is surprisingly large. However,
RECORD 79 A2084 2photometric redshift formula probably can not be extrapolated to
RECORD 80 A2084 3redshifts this large.
RECORD 81 A2151 1Probably two clusters. Mean redshift is given; individual redshifts
RECORD 82 A2151 2are .0383 and .0365.
RECORD 83 A2152 1Part of Hercules supercluster, a very confused region. Alternative
RECORD 84 A2152 2redshift for only two brightest galaxies is z = .0448 (HSM); chosen
RECORD 85 A2152 3value agrees better with z(photo) = .030.
RECORD 86 A2177 1Alternative redshift is z = .0769 (KUC) for one galaxy; chosen value
RECORD 87 A2177 2agrees better with z(photo) = .133.
RECORD 88 A2241 1Two clusters; smaller redshift, which agrees better with photometric
RECORD 89 A2241 2redshift z = .056, is given. Larger redshift is z = .1021 for three
RECORD 90 A2241 3galaxies.
RECORD 91 A2255 1May be two clusters (see Tarenghi and Scott 1976, Astrophys. J. 207, 19)
RECORD 92 A2319 1Probably two clusters; the lower redshift is given. Larger redshift is
RECORD 93 A2319 2z = .0634 (H) for 9 galaxies.
RECORD 94 A2355 1Alternative redshift is z = .1244 (KUC) for two galaxies; chosen value
RECORD 95 A2355 2agrees better with z(photo) = .219.
RECORD 96 A2440 1Alternative redshifts are z = .057 for the radio galaxy 3C 445 (C) which
RECORD 97 A2440 2may be a foreground galaxy, and z = .1121 (HSM) based on only one line
RECORD 98 A2440 3from one galaxy; z(photo) = .069 does not usefully discriminate between
RECORD 99 A2440 4the two lower values.
RECORD 100 A2638 1May be foreground galaxy; z(photo) = .184.
RECORD 101 A2645 1Alternative redshift is z = .1d5 (N) for two galaxies; chosen value
RECORD 102 A2645 2agrees better with z(photo) = .238.



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