#655

AUREOLE 2
ION MASS SPECTROMETER DATA ON TAPE
73-107A-02A

REQ. AGENT	RAND NO.	ACQ. AGENT
SAR	V0344	RNH
SAR	V0347	RNH

AUREOLE 2

ION MASS SPECTROMETER

DATA ON TAPE

73-107A-02A

THIS DATA SET CATALOG CONSISTS OF THREE MAGNETIC TAPES. THE TAPES ARE 9-TRACK, 1600 BPI, WRITTEN IN EBCDIC. THE TAPES WERE CREATED ON AN IBM 360 COMPUTER. THE D AND C NUMBERS ALONG WITH THE TIME SPANS ARE AS FOLLOWS:

D#	C#	FILES	TIME SPAN
D-74236	C-26190	12	01/25/74 - 01/25/74
D-74161		18	02/04/74 - 02/04/74
D-74235	C-26189	18	02/19/74 - 02/19/74

NOW IN AIM AS OREDL 2
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Description of the data

Mass-spectrometer measurements of H^+ and O^+ ions have been made during February-March 1974 on the board of Aureol 2 satellite. Height of the satellite changed from 400 to 2000 km. Prime investigators: Prof. Yu. I. Galperin (USSR) and Prof. F. Cambou (France). Description of the instrument is presented in the paper by Grechnev K.V. et al. Kosmicheskie Issledovaniya magazine (It is published in Russian but there is translation into English), 1977 vol . 15, No. 2, p. 274

Data logical structure

Magnetic tape contains some seances of mass-spectrometer measurements. Two files (the first - with H^+ data and the second - with O^+ data) are usually presented on the tape for every seance. The first record in the file with H^+ data is header record (HR); it is followed by some thousand data record (DR). File with O^+ data consists of DR only. Length of DR is equal to that of HR record and is equal to 1799 byte.

Data physical structure

The tape is written in EBCDIC code, 1600 bpi, odd parity, 9 tracks (our computer is analogous to IBM(360), not labelled. Blocks of constant physical length are used as follows:
DCB = (RECEM = FB, BLKSIZE = [redacted]8995, LRECL = 1799).

HR and DR contain a lot of auxiliary information completely useless for ordinary users. Therefore not all the parameters are listed below.

However, there may be blocks with length equal to n x LRECL, where n varies from 1 to 4.

Header Record

No.	Type (Size)	Parameter
1.	I 10	Number of block
2.	I 10	Satellite identificator
3.	I 10	Telemetry regime
4.	I 10	Number of seance
5.	I 10	Number of seance part
6.	I 10	Amount of blocks
7.	I 10	Amount of sequences in a seance
8.	7 I 10	Seance beginning date: day, month, year, hour, minute, second, millisecond
9.	7 I 10	Seance final date: day, month, year, hour, minute, second, millisecond
10.	40 I 10	Auxiliary information
11.	1189 X	Spare

Data Record

1.	7I5	Spectrum beginning date: year, month, day, hour, minute, second, millisecond (instead of year zero is often inserted)
2.	I 5	Auxiliary information (AI)
3.	41 E 16.8	
4.	I 5	
5.	41 E 16.8	
6.	2 I5	
7.	4 E 16.8	
8.	E 16.8	Ion density (cm^{-3})
9.	- " -	Height (km)
10.	- " -	Geographical latitude (degrees)
11.	- " -	Geographical longitude (degrees)
12.	- " -	AI
13.	- " -	Magnetic field intensity (G)
14.	E 16.8	AI

Data Record (cont'd)

15.	E 16.8	Satellite velocity module (m/s)
16.	3 E 16.8	AI
17.	E 16.8	McIlwain parameter (L)
18.	E 16.8	Invariant latitude at the field-line footing (degrees)
19.	- " -	Satellite invariant latitude
20.	- " -	AI
21.	- " -	Medium local solar time (degrees)
22.	- " -	AI
23.	- " -	Mass-spectrometer axis attack angle
24.	2 E 16.8	AI

Aureole 2
D-74161
2/4/74- 2/4/74

```
$ASS IN HTO
$NOP
$NOP
$NOP
$NOP **** SOUT2 ****
$EXEC TPLIST BS

INPUT PARAMETERS ARE:  ED FL=2=2 18 1 1

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   9024
          0         2         0       529         0      1699     35672         4         2       197
4        13        41        29       808         4         2      1974        17         2
52       181        23         1         0         4         2      1974        13         9
 52       891   7571177     10521     12916      8861     50465     55519         0        31
  34        35        36        21         7        10        11        12        47        32
   33        44        22         8         9        20        46        19        23        24
    45        48

                    0    2    4   13   42    2  540   13   .37954545E+00   .31850000E+00   .445625
00E+00   .65750000E+00   .78462500E+00   .99650000E+00   .11236250E+01   .13355000E+01   .14626250E
+01   .18016250E+01   .20135000E+01   .21406250E+01   .23525000E+01   .24796250E+01  0.
  0.              0.              0.              0.              0.              0.
.29200000E+00   .27500000E+00   .18200000E+00   .20100000E+00   .25600000E+00   .18300000E+00   .21
900000E+00   .61840000E+01   .20100000E+00   .21900000E+00   .20100000E+00   .21900000E+00   .23800
000E+00  0.              0.              0.              0.              0.              0.
      0.              12   .69636364E+00   .25493750E+00   .38206250E+00   .59393750E+00   .721062
50E+00   .93293750E+00   .10600625E+01   .12719375E+01   .16109375E+01   .17380625E+01   .19499375E
+01   .20770625E+01   .24160625E+01  0.              0.              0.              0.
  0.              0.              0.              0.              .11000000E+01   .36000000E+00
.18000000E+00   .36000000E+00   .36000000E+00   .36000000E+00   .73000000E+00   .36000000E+00   .73
000000E+00   .55000000E+00   .36000000E+00   .73000000E+00  0.              0.              0.
         0.              0.              0.              0.              0.              2    4
-.52733575E+02  -.99000000E+02  0.              .85880077E-12  -.99000000E+02  0.              0.
            0.              0.              0.              0.              0.              0.
         0.              0.              0.              0.              0.              0.
      0.              0.              0.              0.              0.              .18000000E+
03  0.              0.              0    2    4   13   42    8  540   13   .37954545E+00   .20862
500E+00   .42050000E+00   .54762500E+00   .75950000E+00   .88662500E+00   .12256250E+01   .14375000
E+01   .15646250E+01   .17765000E+01   .19036250E+01   .21155000E+01   .22426250E+01   .24545000E+0
1  0.              0.              0.              0.              0.              0.
0.              .67800000E+00   .95100000E+00   .34800000E+00   .21900000E+00   .27500000E+00   .2
3800000E+00   .20100000E+00   .20100000E+00   .25600000E+00   .14600000E+00   .21900000E+00   .2380
0000E+00   .21900000E+00  0.              0.              0.              0.              0.
      0.              0.              12   .74636364E+00   .14506250E+00   .35693750E+00   .48406
250E+00   .69593750E+00   .10349375E+01   .13739375E+01   .15010625E+01   .17129375E+01   .18400625
E+01   .20519375E+01   .21790625E+01   .23909375E+01  0.              0.              0.
  0.              0.              0.              0.              0.              .14600000E+01
 .14600000E+01   .11000000E+01   .55000000E+00   .55000000E+00   .11000000E+01   .55000000E+00   .1
4600000E+01   .73000000E+00   .11000000E+01   .73000000E+00   .36000000E+00  0.              0.
         0.              0.              0.              0.              0.              0.
         1    2  -.53859400E+02  -.99000000E+02  0.              .12158607E-11  -.99000000E+02  0.
            0.              0.              0.              0.              0.              0.
```

```
                0.                0.                0.                0.                0.                0.
            0.                0.                0.                0.                0.                0.
        0.                0.                0.                0.                0.                0.
      .18000000E+03  0.                0.                0    2    4   11   19   46  339   14   .3316
3636E+00   .21862500E+00   .42950000E+00   .55662500E+00   .76750000E+00   .89462500E+00   .1105500
0E+01   .12326250E+01   .14435000E+01   .15706250E+01   .17815000E+01   .19086250E+01   .21195000E+
01   .22466250E+01   .24575000E+01  0.                0.                0.                0.
 0.                0.                .38500000E+00   .34800000E+00   .56900000E+00   .10280000E+01   .
26250000E+01   .58370000E+01   .61680000E+01   .61680000E+01   .61680000E+01   .61680000E+01   .471
70000E+01   .19090000E+01   .15050000E+01   .32490000E+01  0.                0.                0.
        0.                0.                0.                13   .83181818E+00   .15506250E+00   .3659
3750E+00   .70393750E+00   .83106250E+00   .10419375E+01   .11690625E+01   .13799375E+01   .1507062
5E+01   .17179375E+01   .18450625E+01   .20559375E+01   .21830625E+01   .23939375E+01  0.
    0.                0.                0.                0.                0.                0.
  .92000000E+00   .11000000E+01   .11000000E+01   .33100000E+01   .92000000E+01   .23190000E+02   .
33870000E+02   .29090000E+02   .16570000E+02   .73600000E+01   .34900000E+01   .22000000E+01   .294
00000E+01  0.                0.                0.                0.                0.                0.
        0.                2   13  -.60568642E+02  -.99000000E+02   .39680356E+01   .69088633E-10  -
.99000000E+02  0.                0.                0.                0.                0.                0.
            0.                0.                0.                0.                0.                0.
        0.                0.                0.                0.                0.                0.
      0.                .18000000E+03  0.                0.                0    2    4   11   19   52
 339   12   .33336364E+00   .30262500E+00   .51350000E+00   .64062500E+00   .85150000E+00   .978625
00E+00   .11895000E+01   .13166250E+01   .15275000E+01   .18655000E+01   .19926250E+01   .22035000E
+01   .23306250E+01  0.                0.                0.                0.                0.
  0.                0.                0.                .27500000E+00   .29300000E+00   .53200000E+00
.19820000E+01   .44600000E+01   .61680000E+01   .61680000E+01   .61680000E+01   .56170000E+01   .29
730000E+01   .12660000E+01   .19640000E+01  0.                0.                0.                0.
        0.                0.                0.                0.                13   .89909091E+00   .239
06250E+00   .44993750E+00   .57706250E+00   .78793750E+00   .91506250E+00   .11259375E+01   .125306
25E+01   .14639375E+01   .15910625E+01   .18019375E+01   .19290625E+01   .22670625E+01   .24779375E
+01  0.                0.                0.                0.                0.                0.
  0.                .92000000E+00   .11000000E+01   .16500000E+01   .18400000E+01   .69900000E+01
.15830000E+02   .36450000E+02   .61680000E+02   .20800000E+02   .10670000E+02   .47800000E+01   .40
500000E+01   .58900000E+01  0.                0.                0.                0.                0.
        0.                0.                2   13  -.60954775E+02  -.99000000E+02  0.
 .12932108E-09  -.99000000E+02  0.                0.                0.                0.                0.
            0.                0.                0.                0.                0.                0.
        0.                0.                0.                0.                0.                0.
      0.                0.                .18000000E+03  0.                0.


 TAPE NO.   1              FILE NO.   18
 RECORD   138              LENGTH   1828
    0    2    4   11   19   58  339   14   .33009091E+00   .25950000E+00   .38662500E+00   .5975000
0E+00   .72462500E+00   .93550000E+00   .10626250E+01   .12735000E+01   .14006250E+01   .16115000E+
01   .17386250E+01   .19495000E+01   .20766250E+01   .22875000E+01   .24146250E+01  0.
 0.                0.                0.                0.                0.                .33000000E+00   .
27500000E+00   .42200000E+00   .93600000E+00   .30840000E+01   .59290000E+01   .61680000E+01   .616
80000E+01   .61680000E+01   .61680000E+01   .40750000E+01   .23680000E+01   .17250000E+01   .514000
00E+00  0.                0.                0.                0.                0.                0.
      13   .93272727E+00   .32306250E+00   .53393750E+00   .66106250E+00   .87193750E+00   .9990625
0E+00   .12099375E+01   .13370625E+01   .15479375E+01   .16750625E+01   .18859375E+01   .20130625E+
01   .22239375E+01   .23510625E+01  0.                0.                0.                0.
 0.                0.                0.                .14700000E+01   .14700000E+01   .18400000E+01   .
33100000E+01   .11780000E+02   .23190000E+02   .32770000E+02   .28720000E+02   .13620000E+02   .662
00000E+01   .31300000E+01   .22000000E+01   .25700000E+01  0.                0.                0.
        0.                0.                0.                0.                2   13  -.60444975E+02  -
.99000000E+02   .38950907E+01   .67699616E-10  -.99000000E+02  0.                0.                0.
            0.                0.                0.                0.                0.                0.
        0.                0.                0.                0.                0.                0.
      0.                0.                0.                0.                .18000000E+03  0.
    0.


***** JOB DONE.
$WEO LPS
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