#237

PIONEER VENUS PROBES

GAS & PLASMA ENVIRONMENT SIGNAL STRENGTH

78-078D-11C

78-078E-07C

78-078F-07C

78-078G-07C

PIONEER VENUS PROBE

GAS + PLASMA ENVIRONMENT SIGNAL STRENGTH

78-078D-11C, 78-078E-07C

78-078F-07C, 78-078G-07C

THESE DATA SETS HAVE BEEN RESTORED. ORIGINALLY THEY CONTAINED ONE 9-TRACK, 1600 BPI TAPE WRITTEN IN ASCII. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPE WAS CREATED ON THE MODCOMP IV COMPUTER AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DATA WERE ORIGINALLY CREATED ON A PRIME COMPUTER IN A VERSION OF ASCII THAT WAS NOT READABLE ON OUR SYSTEM, THEREFORE, THE D TAPE WAS REMADE ON THE MODCOMP IN ASCII CARD IMAGE FORM TO FACILITATE DUPING AND LISTING THE DATA. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND TIME SPAN IS AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR005309	DS005309	D046069	1-10	12/09/78 - 12/09/78

Documentation: First file on Tape

REQ. AGENT	RAND NO.	ACQ. AGENT
RSH		WSC

PIONEER VENUS PROBES

GAS & PLASMA ENVIRONMENT SIGNAL STRENGTH

78-078D-11C

78-078E-07C

78-078F-07C

78-078G-07C

These data sets are contained on one 9-track, 1600 BPI, ASCII magnetic tape created on the MODCOMP IV computer. The data were originally created on a PRIME computer in a version of ASCII that was not readable on our system, therefore, the D tape was remade on the MODCOMP in ASCII card image form to facilitate duping and listing the data.

D#	C#	TIME SPAN
D-46069	C-23658	12/09/78

ASC #237

File 1

On this tape are ten files covering the subject of the signal strength from the descending probes and, in the case of Day probe, after landing. All of these data were provided by the Deep Space Network (DSN) to the radio scientists in the form of listings of numbers, from which it was necessary to hand punch all the numbers onto cards. This task was shared between SRI and JPL. As a result of the manual step, there remains the possibility of occasional errors. Large errors were found by plotting the result and then checking all points that were markedly different from their neighbors. However small errors may persist.

This first file is called INTRODUCTION

This is a list of the first few lines from each AGC file together with some comments on their interpretation.

Written by Tom Croft of SRI International in 1980.

Next are 4 files of California DSN measurements with one point every 10 seconds. These are called P1.IN.COLUMN for probe 1 and by similar names for probes 2 and 3. The large probe is called LP.

We next provide 4 files for the Australian DSN with a point each second. Records from all 4 probes are together in each file. We found it convenient to break this long data set into four parts called boxes. Thus you will find BOX.1, BOX.2, BOX.3 and BOX.4. In each there are 5 columns. First is time in UT. Next is AGC from probe 1, then 2, then L, and then 3.

There is a tenth file called ALLP2 that contains all of the probe 2 record during the final part of its life on the surface after the end of BOX.4. The time in this extra file is given as minutes after 18:00:00 UT and it is a continuation without interruption of the data in column 3 of BOX.4.

Here are some excerpts:

This is the first part of probe 1 measurements from the California DSN.
Each probe has a number used by the communication network that is given here following the popular name. Generally this is called the "spacecraft number". Of course in addition the small probes have numbers 1 2 or 3 assigned. The use of the latter numbers is much more widespread than is the use of spacecraft numbers.

P1.IN.COLUMN

AGC FROM SMALL PROBE 1 NORTH PROBE S/C 8

Hour	Min	Sec	AGC (dB)
18	31	43	- 158.35
18	31	53	- 151.81
18	32	3	- 151.92
18	32	13	- 152
18	32	23	- 151.92
18	32	33	- 151.96

Dsc #237

```
18 : 32 : 43  - 151.91
18 : 32 : 53  - 152.04
18 : 33 : 3   - 152.03
18 : 33 : 13  - 152.1
18 : 33 : 23  - 152.05
18 : 33 : 33  - 152.09
18 : 33 : 43  - 152.01
18 : 33 : 53  - 152.19
18 : 34 : 3   - 152.07
18 : 34 : 13  - 152.14
18 : 34 : 23  - 151.79
18 : 34 : 33  - 151.94
18 : 34 : 43  - 151.82
18 : 34 : 53  - 151.89
18 : 35 : 3   - 151.9
18 : 35 : 13  - 151.83
18 : 35 : 23  - 151.68
18 : 35 : 33  - 151.89
18 : 35 : 43  - 151.72
18 : 35 : 53  - 151.74
18 : 36 : 3   - 153.32
18 : 36 : 13  - 157.29

Next is a sample of the combined data from all probes.  The format
is explained by the headings.  AGC is in decibels but care in
interpretation is required since the receiver is complex.  We
recommend that users of these data contact the Deep Space Network
in Pasadena before attempting to draw important inferences from
such numbers.
 BOX.3
      TIME                AGC MEASURED IN AUSTRALIA FOR:
      HRMNSC          SP1        SP2        LP        SP3
      193303        154.82     155.13     153.17     153.88
      193304        154.78     155.00     153.28     153.94
      193305        154.67     154.82     153.17     153.89
      193306        154.62     154.67     153.07     153.97
      193307        154.63     154.68     153.14     154.02
      193308        154.64     154.78     153.05     154.00
      193309        154.64     154.97     153.09     154.04
      193310        154.75     155.32     153.01     153.98
      193312        154.65     155.59     152.96     153.82
      193313        154.61     155.80     153.09     153.80
      193316        154.85     155.75     152.85     153.71
      193317        155.02     155.74     152.92     153.67
      193318        155.07     155.68     152.90     153.81
      193319        155.18     155.58     152.76     153.95
      193320        155.33     155.57     152.88     153.98
      193321        155.50     155.55     153.00     153.97
      193322        155.53     155.37     152.88     153.89
      193323        155.53     155.28     152.92     153.92
      193324        155.34     155.25     152.78     153.82
      193325        155.21     155.17     152.68     153.78
      193326        155.08     155.18     152.62     153.66
      193327        154.91     155.15     152.71     153.57


Here is the one-of-a-kind file providing the final minutes
of small probe 2 measurements.
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dsc #237

```
 117   ALLP2
 118  SMALL PRCEE 2 ("DAY") SURVIVED ITS LANDING
 119   TIME                    AGC MEASUREMENT
 120   MINUTES                 IN DECIBELS
 121   PAST 18:00:00 UT        BY AUSTRALIAN DSN
 122   34.2333               173.00
 123   34.2500               164.63
 124   34.2667               160.35
 125   34.2833               157.63
 126  That was the beginning and is in box.1 -- the
 127  remainder is a continuation after box.4.
 128  159.6000               157.07
 129  159.6166               156.99
 130  159.6333               156.97
 131  159.6500               157.03
 132  159.6667               157.03
 133  159.6833               157.07
 134  159.7000               157.03
 135  159.7166               157.07
 136  159.7333               157.03
 137  159.7500               157.07
 138  159.7667               157.02
 139  159.7833               157.16
 140  159.8000               157.06
 141  159.8167               157.10
 142  159.8333               157.18
 143  159.8500               157.25
 144  159.8666               157.21
 145  159.8833               157.16
 146  159.9000               157.24
 147  159.9167               157.18
 148  159.9333               157.17
 149  159.9500               157.08
 150  159.9666               157.10
 151  159.9833               157.08
 152  160.0000               157.06
 153  160.0167               157.12
 154  160.0333               157.25
 155
 156  This is the end of the  INTRODUCTION  file.
LIS
```

DSC #037

File 2

```
 1  AGC FROM SMALL PROBE 1    NORTH PROBE   S/C 8
 2  18 : 31 : 43  - 158.35
 3  18 : 31 : 53  - 151.81
 4  18 : 32 : 3   - 151.92
 5  18 : 32 : 13  - 152
 6  18 : 32 : 23  - 151.92
 7  18 : 32 : 33  - 151.96
 8  18 : 32 : 43  - 151.91
 9  18 : 32 : 53  - 152.04
10  18 : 33 : 3   - 152.03
11  18 : 33 : 13  - 152.1
12  18 : 33 : 23  - 152.05
13  18 : 33 : 33  - 152.09
14  18 : 33 : 43  - 152.01
15  18 : 33 : 53  - 152.19
16  18 : 34 : 3   - 152.07
17  18 : 34 : 13  - 152.14
18  18 : 34 : 23  - 151.79
19  18 : 34 : 33  - 151.94
20  18 : 34 : 43  - 151.82
21  18 : 34 : 53  - 151.89
22  18 : 35 : 3   - 151.9
23  18 : 35 : 13  - 151.83
24  18 : 35 : 23  - 151.68
25  18 : 35 : 33  - 151.89
26  18 : 35 : 43  - 151.72
27  18 : 35 : 53  - 151.74
28  18 : 36 : 3   - 153.32
29  18 : 36 : 13  - 157.29
30  18 : 36 : 23  - 157.42
31  18 : 36 : 33  - 157.53
32  18 : 36 : 43  - 157.53
33  18 : 36 : 53  - 157.43
34  18 : 37 : 3   - 157.58
35  18 : 37 : 13  - 157.79
36  18 : 37 : 23  - 157.75
37  18 : 37 : 33  - 157.74
38  18 : 37 : 43  - 157.64
39  18 : 37 : 53  - 157.67
40  18 : 38 : 3   - 157.8
41  18 : 38 : 13  - 157.91
42  18 : 38 : 23  - 157.69
43  18 : 38 : 33  - 157.81
44  18 : 38 : 43  - 157.75
45  18 : 38 : 53  - 157.88
46  18 : 39 : 3   - 157.78
47  18 : 39 : 13  - 157.84
48  18 : 39 : 23  - 157.79
49  18 : 39 : 33  - 157.64
50  18 : 39 : 43  - 157.52
51  18 : 39 : 53  - 157.64
52  18 : 40 : 3   - 157.47
53  18 : 40 : 13  - 157.59
54  18 : 40 : 23  - 157.46
55  18 : 40 : 33  - 157.5
56  18 : 40 : 43  - 157.47
57  18 : 40 : 53  - 157.52
58  18 : 41 : 3   - 157.53
```

DSC # 237

File 2 p. 2

```
 59  18 : 41 : 13  - 157.7
 60  18 : 41 : 23  - 157.71
 61  18 : 41 : 33  - 157.55
 62  18 : 41 : 43  - 157.72
 63  18 : 41 : 53  - 157.62
 64  18 : 42 : 3   - 157.62
 65  18 : 42 : 13  - 157.64
 66  18 : 42 : 23  - 157.52
 67  18 : 42 : 33  - 157.6
 68  18 : 42 : 43  - 157.66
 69  18 : 42 : 53  - 157.74
 70  18 : 43 : 3   - 157.53
 71  18 : 43 : 13  - 157.64
 72  18 : 43 : 23  - 157.69
 73  18 : 43 : 33  - 157.7
 74  18 : 43 : 43  - 157.64
 75  18 : 43 : 53  - 157.51
 76  18 : 44 : 3   - 157.57
 77  18 : 44 : 13  - 157.5
 78  18 : 44 : 23  - 157.79
 79  18 : 44 : 33  - 157.45
 80  18 : 44 : 43  - 157.57
 81  18 : 44 : 53  - 157.61
 82  18 : 45 : 3   - 157.31
 83  18 : 45 : 13  - 157.42
 84  18 : 45 : 23  - 157.53
 85  18 : 45 : 33  - 157.7
 86  18 : 45 : 43  - 157.69
 87  18 : 45 : 53  - 157.57
 88  18 : 46 : 3   - 157.71
 89  18 : 46 : 13  - 157.79
 90  18 : 46 : 23  - 157.59
 91  18 : 46 : 33  - 157.72
 92  18 : 46 : 43  - 157.76
 93  18 : 46 : 53  - 157.71
 94  18 : 47 : 3   - 157.24
 95  18 : 47 : 13  - 157.42
 96  18 : 47 : 23  - 157.64
 97  18 : 47 : 33  - 157.44
 98  18 : 47 : 43  - 157.6
 99  18 : 47 : 53  - 157.71
100  18 : 48 : 3   - 157.67
101  18 : 48 : 13  - 157.82
102  18 : 48 : 23  - 157.97
103  18 : 48 : 33  - 157.73
104  18 : 48 : 43  - 157.51
105  18 : 48 : 53  - 157.51
106  18 : 49 : 3   - 157.52
107  18 : 49 : 13  - 157.79
108  18 : 49 : 23  - 158.17
109  18 : 49 : 33  - 158.35
110  18 : 49 : 43  - 158.18
111  18 : 49 : 53  - 158.09
112  18 : 50 : 3   - 158.84
113  18 : 50 : 13  - 159.07
114  18 : 50 : 23  - 159.24
115  18 : 50 : 33  - 158.22
116  18 : 50 : 43  - 158
```