```
PDS_VERSION_ID          = PDS3
RECORD_TYPE             = FIXED_LENGTH
RECORD_BYTES            = 80
OBJECT                  = TEXT
 PUBLICATION_DATE       = 1999-03-10
 NOTE                   = "Software Interface Specification for DSN Weather
                          data files.  This is an ad hoc adaptation of DSN
                          document TRK-2-24 by the MGS Radio Science Team.
                          The document is formatted for display or printing
                          with up to 78 constant width characters per line."
END_OBJECT              = TEXT
END
```

A. PURPOSE

     This document defines the formats and content of weather data provided by
the Tracking System Analytic Calibration (TSAC) Group of the Deep Space
Network (DSN). It is an ad hoc adaptation by the Mars Global Surveyor (MGS)
Radio Science Team (RST), since no version more recent than 1986 could be
located. The original document was:

                    Document 820-13, Rev. A
                    DSN SYSTEM REQUIREMENTS DETAILED INTERFACE DESIGN
                    TRK-2-24
                    DSN TRACKING SYSTEM INTERFACES
                    WEATHER DATA INTERFACE
                    Effective Date: January 15, 1986
                    Initial Release Date: January 15, 1986

B. GENERAL INFORMATION

     Weather data provided by the DSN are used by Radio Science teams and
other investigators. Delivery schedules and coverage are negotiated between
TSAC and users based on accuracy and timeliness requirements. The weather
data file is maintained as a permanently catalogued file on the TSAC computer
system being used for mission operations. Weather data files may be
downloaded to other computers via ftp.

     The size of the file will be determined by user requirements and by
system constraints. For MGS, separate files are delivered for each Deep Space
Communications Complex (DSCC). Each file is cumulative, starting from January
1 of the current year. For a nominal 30-minute interval between data points,
a typical file grows at approximately 3000 bytes per day. Approximately 30
days before the end of a year, a new file may be started for each DSCC so as
to provide a bridge between years. The bridge file is typically discontinued
within a month of the start of the new year.

C. DATA FORMATS

  1. General Description

     Weather data are provided in the form of card images in a computer file.
Files delivered to the MGS Radio Science Team are in American Standard Code
for Information Interchange (ASCII) format. Each card image constitutes one
record (60 characters maximum) and is terminated by an ASCII line feed.

     All dates and times are Universal Time, Coordinated (UTC).

  2. Header Format

     Each day's data are preceded by a 5-record header. The first record
consists of the date (YYMMDD, columns 7-12), day of year (DDD, columns 21-23),
and DSS (nn, columns 30-31). The second record is blank. The third and

fourth records consist of column titles and units of measurement describing
the data in each column. The fifth record consists of hyphens and blanks to
separate the headers from the data. See Figure TRK-2-24-1. Each line in this
figure constitutes one record.

   3. Data format

     Each data record comprises a time tag and five right-justified data
fields, as shown in the following list. The sign, S, may be either - or blank
(+), according to the data.

          Time (HHMM), columns 2-5.
          Dew point (STT.T, degrees Celsius), columns 11-15.
          Ambient temperature (STT.T, degrees Celsius), columns 20-24.
          Pressure (PPPP.P, millibars), columns 29-34.
          Water vapor partial pressure (PPPP.P, millibars), columns 40-45.
          Relative humidity (HHH, in percent), columns 55-57.

   4. Trailer Format

     The last data record of each day is followed by two blank records.

   5. Number of Data Records per Day

     Because the data can have gaps due to system malfunction, the number of
records per day may vary from one day to another. The minimum number of data
records is zero; the maximum number is 1440 -- for the smallest possible data
interval, which is 1 minute. The sample data in Figure TRK-2-24-1 have a
large gap between 0130 and 2230.

- -
DATE: 791221 DOY: 355 DSS 63

TIME (HHMM)	DEW PT (C)	TEMP (C)	PRESSURE (mb)	H2O PARTIAL PRES (mb)	RELATIVE HUM(%)
0000	-2.6	-.9	1013.4	5.0	59
0030	-2.6	-1.0	1013.3	5.0	57
0100	-2.9	-1.2	1013.1	4.9	57
0130	-2.8	-.9	1013.1	4.9	56
2230	-2.3	-.5	1009.1	5.1	55
2300	-2.6	-.2	1008.4	5.0	53
2330	-2.5	-.3	1008.8	5.0	52

DATE: 791222 DOY: 356 DSS 63

TIME (HHMM)	DEW PT (C)	TEMP (C)	PRESSURE (mb)	H2O PARTIAL PRES (mb)	RELATIVE HUM(%)
0000	-2.1	-.4	1008.4	5.2	66
0030	-2.1	-.5	1008.3	5.2	66
0100	-2.5	-1.4	1008.0	5.0	67

- -
      Figure TRK-2-24-1. Example of Portion of a Weather Data File