

ISM observation sessions

Each observation session (when ISM was on) corresponds to one raw data file; the 20 files transmitted to the ground are contained in the ISM data base in the directory `/raw_data/flight` in original compressed format (as reformatted by the ground stations). An observation session usually contains one or two calibration sessions, one main science session, and possibly one or two secondary science sessions. The original telemetry files are read and decompressed by `Convert.for` and the `ddISM.for` routine (see file `SOFTINFO.TXT`). The telemetry file included in the data base results from a cross-check between two versions received at two different ground stations; the method used actually results in minor inconsistencies in some data files, all of which are corrected by the decompression program.

Edited and calibrated data files are extracted from raw data files, and include all useful science or calibration data. They are decompressed and contain only spectral measurements and important ancillary information. Measurements in odd and even channels are written in two separate files. Files are named after the target (file root on 3 or 4 characters + “`even.edt`” or “`odd.edt`” for edited data, or “`even.cal`” or “`odd.cal`” for calibrated data).

Edited and calibrated data files are listed in `Files.asc` with the correspondence to raw data files (original file, start and stop time) and a description of instrumental parameters.

All times given here are related to the spacecraft clock, *i.e.* they correspond to the information contained in the files, and read by the programs. The corresponding UTC time is provided in the files label.

NOVTEST.DAT (15/11/88)

Cruise test. No signal detected.

JANTEST.DAT (16/1/89)

Cruise test. Signal corresponds to a solar reflection on the spacecraft tanks.

From 16:53:00,75 to 16:53:32,0

Total of 251 spectra (36 lines of 7 samples).

Signal is present only at the end of the session. Only the last nine spectra are extracted.

File root: Cru1

From 16:53:36,0 to 17:00:07,5

Total of 350 raw spectra (7 lines of 50 samples).

File root: Cru2

MARS0102.DAT

Insertion orbit (elliptical, elongated), spacecraft is not stabilized. No signal detected (dark sky observations).

MARS0502.DAT

Insertion orbit (elliptical, elongated), spacecraft is not stabilized. Looks at Mars, but detector temperature is very high. Not usable practically, no data extracted.

MARS0802.DAT

Transfer orbit (elliptical with apocenter lowered). High resolution observations. High detector temperature.

Main session: 296 lines x 8 samples. Transect across Pavonis Mons.

Files root: Pav

Secondary science session is outside the disk.

MARS1102.DAT

Transfer orbit (elliptical with apocenter lowered). High resolution observations. High detector temperature.

Main session: 274 lines x 8 samples west of Pavonis Mons, across the southern flank of Biblis and Ulysses paterae.

Files root: Bib

Secondary science session from 16:41:12 to 16:41:42.

Gain changes from 1 to 2 at 2 a 16:41:41,25

File root: Lim1

After-science session is outside the disk.

MARS1402.DAT

No signal detected (dark sky observations). Lots of timing discontinuities in the file. No data extracted.

MARS2102.DAT

Circular orbit (altitude of Phobos). High detector temperature.

Main session: 98 lines x 25 samples. Bright and intermediate terrains in Arabia Terra and Terra Meridiani.

Files root: Ara

MARS2202.DAT

Circular orbit (altitude of Phobos). Spacecraft is not stabilized but spins around its principal axis. This session was intended to observe Elysium Mons, but the actual projection of the data on the surface is unknown. May be calibrated, though (see details in DocISM.asc).

Main session from 02:28:03 to 02:55:07. 121 lines x 25 samples.

Files root: Spin

Dark sky calibrations are extracted, may be used without problem.

MARS2702.DAT

Circular orbit (altitude of Phobos).

Main session: 121 lines x 25 samples west of Arsia Mons (Daedalia Planitia).

File root: Dae

PHOB2702.DAT

Quasi-synchronous Phobos orbit (Phobos transit). The spacecraft is depointed to follow Phobos. No science observations performed.

MARS2802.DAT

Quasi-synchronous Phobos orbit (Phobos transit). The spacecraft is depointed to follow Phobos. No science observations performed.

MARS0103.DAT

Circular orbit (altitude of Phobos). Many cosmic rays and transmission problems; the file rewinds at a certain point. Most glitches are filtered in `Convert.for`.

Main session: 121 lines x 25 samples across Syrtis Major and Isidis Planitia.

File root: Syr

MARS0703.DAT

Circular orbit (altitude of Phobos).

Main session: 121 lines x 25 samples over the central part of Valles Marineris.

File root: VMC

MARS1203.DAT

Circular orbit (altitude of Phobos). Orbital parameters are not precisely known, and may have change during acquisition. Therefore, there could be a problem of projection at the eastern end, but Mariner and Viking altimetry data are not reliable either.

Main session: 121 lines x 25 samples over the eastern part of Valles Marineris and Aurorae Planum.

File root: Aur

MARS1303.DAT

Circular orbit (altitude of Phobos).

Main session: 91 lines x 25 samples over Olympus Mons and Amazonis Planitia.

File root: Oly

MARS1403.DAT

Circular orbit (altitude of Phobos).

Main session: 120 lines x 25 samples west of Pavonis Mons, across Gordii Planum.

File root: Gor

MARS2103.DAT

Circular orbit (altitude of Phobos). This is the only Mars session acquired at gain 3. Saturation and non-linearities are present in several channels in the short wavelength range (see DocISM.pdf). The gain coefficients are derived from this session, and could be in error at short wavelengths due to different amount of atmospheric scattering in the data.

Main session: 120 lines x 25 samples across Tharsis, from Asraeus Mons to Lunae Planum.

File root: Asc

PHOB2503.DAT

Circular orbit synchronized on Phobos, the spacecraft is depointed to follow Phobos. See file DocISM.pdf for detailed information on viewing geometry.

First session: 298 lines x 1 samples along the equator (location is not accurately determined).

The average phase angle is 20° , Phobos distance is about 190 km.

Data are contaminated by Martian reflected light and cannot be calibrated.

File root: PhT

Main session: 24 lines x 25 samples in the external trailing hemisphere.

The average phase angle is 30° , Phobos distance is about 220 km.

Observations in gain 3, but recalibrated: the uncertainty on gain 3 coefficients does not affect this session.

A special processing is applied to register spectral channels.

File root: Pho.

The first four dark sky calibrations are in continuity with the track, but gain is different.

MARS2603.DAT

Circular orbit (altitude of Phobos).

Main session: 120 lines x 25 samples east of Pavonis Mons, across Tharsis and Hebes Chasma.

File root: Heb