

Release of MOM Third Year Data (24th Sep 2016 to 23rd Sep 2017) to public

Mars Orbiter Mission (MOM), the maiden interplanetary mission of ISRO, launched on November 5, 2013 by PSLV-C25 got inserted into Martian orbit on September 24, 2014 in its first attempt. MOM completes 1463 Earth days in its orbits as on 26th Sep,2018, well beyond its designed mission life of six months. 1463 Earth days corresponds to 1423.8 Mars Sols (Martian Solar day) and MOM completed 559 orbits.

MOM is credited with many laurels like cost-effectiveness, short period of realization, economical mass-budget, miniaturization of five heterogeneous science payloads etc. Satellite is in good health and continues to work as expected. Scientific analysis of the data received from the Mars Orbiter spacecraft is in progress.

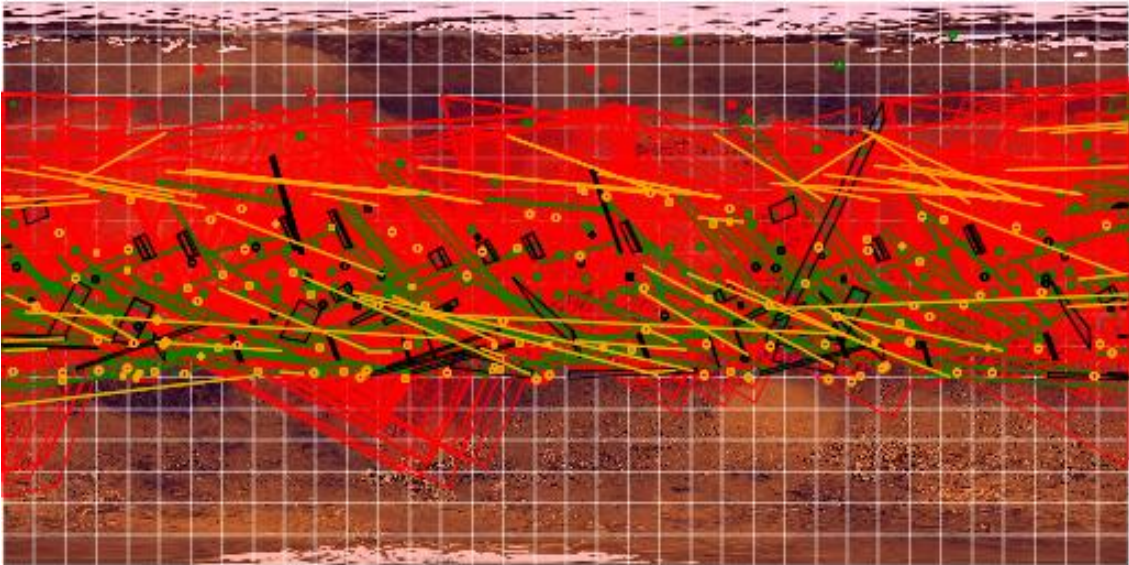
An orbital manoeuvre was performed on MOM spacecraft to avoid the impending long eclipse duration for the satellite. The duration of the eclipse would have been as long as 8 hours. As the satellite battery is designed to handle eclipse duration of only about 1 Hour 40 minutes, a longer eclipse would have drained the battery beyond the safe limit. The manoeuvres performed on January 17, 2017 brought down the eclipse duration to zero during this long eclipse period. On the Evening of January 17, all the eight numbers of 22N thrusters were fired for a duration of 431 seconds, achieving a velocity difference of 97.5 m/s. This has resulted in a new orbit for the MOM spacecraft, which completely avoided eclipse up to September 2017. About 20 kg propellant was consumed for this manoeuvres leaving another 13 kg of propellant for its further mission life.

ISRO had also launched MOM Announcement of Opportunity (AO) programs for researchers in the country to use MOM data for R&D. The success of Mars Orbiter Mission has motivated India's student and research community in a big way. A Planetary data analysis workshop was also conducted to strengthen the MOM-AO scientist's research interest during March,2017 in SAC, Ahmedabad.

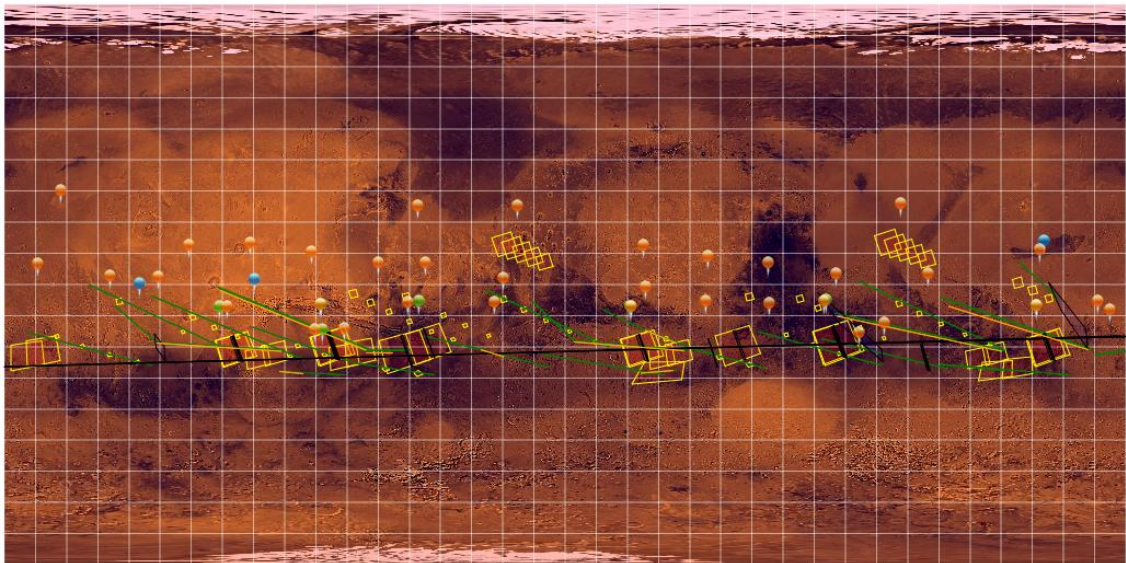
The Mars Colour Camera, one of the scientific payloads onboard MOM, has produced more than 1000 images so far (as on 23rd Sep,2018).Using early MCC images a Mars Atlas was prepared and made available on ISRO website.

As of now (4th Sep,2018) there are 2192 registered users, approximately 22000 downloads of data size 621 GB with the page hits reaching 100 million.

The 548 data sets from all the five instruments of MOM have been added to online archive in this release. And now MOM portal hosts 2643 data sets in total.



LTA 1, 2 & 3 Coverages (24th Sep, 2014 to 23rd Sep, 2017)

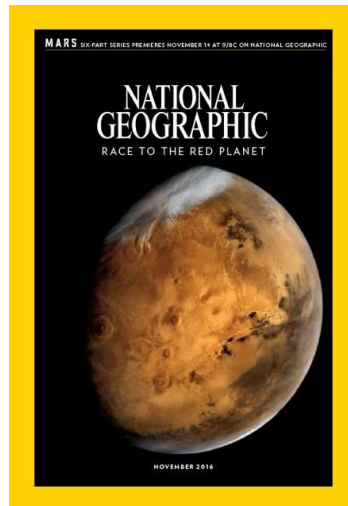


MCC (frames), TIS (black lines), MSM (green lines)&LAP (orange pinholes) Footprints of dataset collected during 24th Sep, 2016 to 23rd Sep, 2017

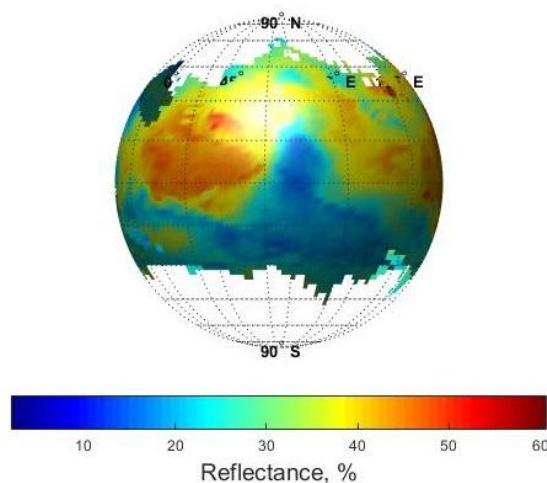
Science Results derived using datasets acquired during 24th Sep, 2016 to 23rd Sep, 2017

MOM Science outcome during previous years were covered in earlier statements during data release in Sep, 2016 and 2017 respectively. National Geographic Magazine published a MCC Mars Global shot High Dynamic Range image in its cover page of November, 2016 issue. Important science results have been generated and published during this period such as a reflectance map of Mars at 1.65 μ m wavelength using MSM data sets and analysis of ASTER/Lee-Wave clouds over Olympus & Ascreaus Mons using MCC datasets as shown in the following figures.

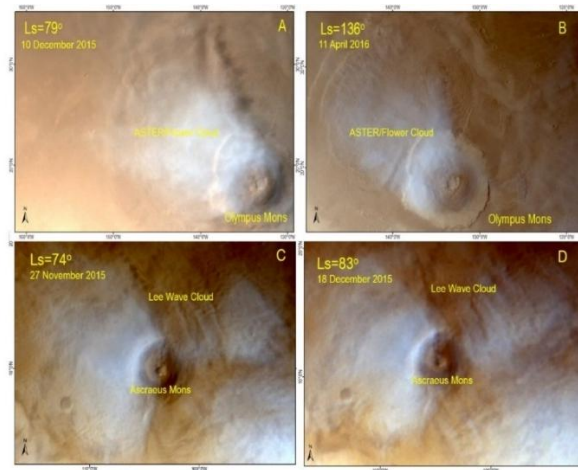
MENCA science analysis reported the first time observation of abundance of oxygen exceeds that of carbon dioxide at an altitude of about 270 km, during the perihelion evening hours. MENCA also detected suprathermal Argon in the exosphere of Mars.



National Geography Magazine Nov, 2016 Cover Page



First Reflectance map of Mars at 1.65 μ m derived from reference channel data of MSM



ASTER/Lee Wave Cloud over Olympus Mons & Ascræus Mons

Archive Release statement summary

- ISRO Science Data Archive (ISDA) LTA holds data sets acquired during Mars Orbiting Phase from 24-Sep-2014 to 23-Sep-2017 from all the five instruments namely MCC, TIS, MSM, LAP and MENCA. This release has Level-0 (CODMAC-2) and Level-1 (CODMAC-3) basic data sets prepared using PDS 3 standards. Multiple data releases will cover different mission durations, experiments, and observations.
- Data Clarifications will be provided by PI and Data Processing Teams on mission, experiment, Processing and science analysis aspects of these data sets, in addition to documents placed in archive.

Acknowledge the source of data, funding etc.

Researchers and common public who is downloading the Mars Orbiter Mission data sets, are required to acknowledge the ISRO for data, funding (if granted) and the research write ups taken from the archive.

1. When publishing a paper using the Mars Orbiter Mission data, there is a need to mention on "Mars Orbiter Mission (MOM)" in abstract and include the following statement in acknowledgement

"We acknowledge the use of data from the Mars Orbiter Mission (MOM), first inter-planetary mission of the Indian Space Research Organization (ISRO), archived at the Indian Space Science Data Centre (ISSDC)"

2. If you are using the results of Mars Orbiter Mission which are already published and carrying out further interpretation or modeling, please include the following statement in acknowledgement -

"The research is based partially / to a significant extent (whichever is applicable) on the results obtained from the Mars Orbiter Mission (MOM), first inter-planetary mission of the Indian Space Research Organization (ISRO), archived at the Indian Space Science Data Centre (ISSDC)"