

MOM Science Meet

Mars Orbiter Mission (MOM), the first interplanetary mission of ISRO, completed three years in its orbit on September 24, 2017 though the designed mission life of MOM was six months. Satellite is in good health and continues to work as expected. Scientific analysis of the data from Mars Orbiter spacecraft is in progress.

On the occasion of three years completion of MOM in Martian orbit on September 24, 2017, Space Science Programme Office, ISRO HQ conducted a 'MOM Science Meet' on September 25, 2017.

The following distinguished scientists graced the occasion:

- i. Dr.K. Radhakrishnan, Honorary Adviser, ISRO and former Chairman of ISRO and Secretary DOS was guest of honour for this occasion
- ii. Dr.M. Annadurai, Director, ISAC inaugurated the meet and
- iii. Dr. P.G. Diwakar, Scientific Secretary, ISRO initiated with introductory remarks

The inaugural session was followed by presentations by payload teams and by project leads/members of the funded projects, which were reviewed by the review committees. At present 28 projects are funded, which includes scientific groups from IITs/NITs (6), Universities (12) other Institutes (7) and ISRO/DOS centres (3).

The five scientific payload teams of MOM presented the science outcomes during the science meet. They also mentioned the caveats to be considered while analysing the data. Highlights of the presentations:

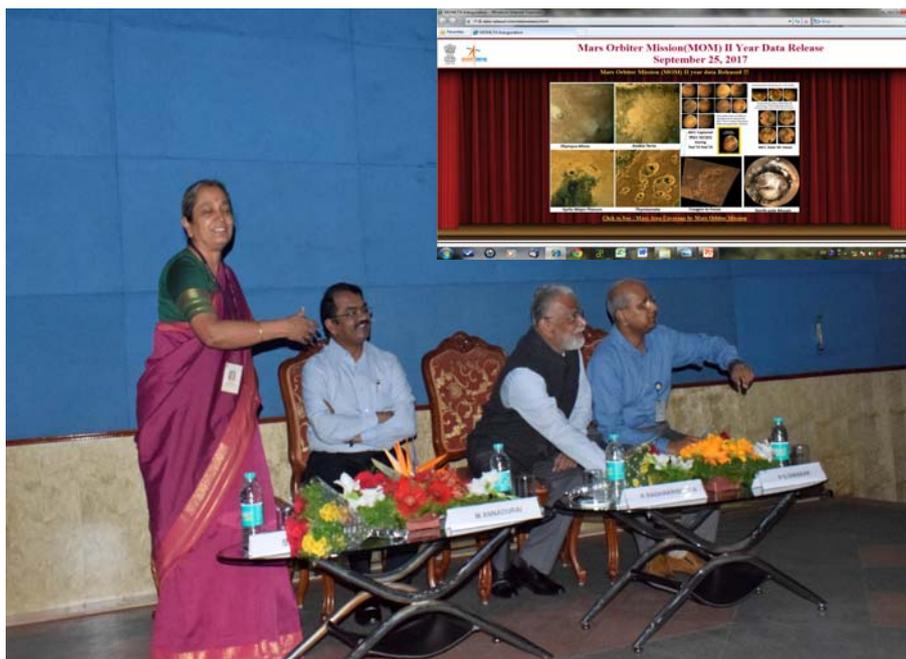
- SWIR Albedo Mapping of Mars using MOM Methane Sensor of Mars (MSM) data.
- Estimation of dust variability and scale height of atmospheric optical depth (AOD) in the Valles Marineris on Mars using Mars Colour Camera (MCC) data.
- MCC mosaic of the Martian North Polar Region in azimuthal equal area projection from 60°N to 90°N.
- Estimation of Lee Wave cloud velocity over Martian Ascræus Mons using MCC data.
- Conjunctive analysis of MOM/MCC and Mars Reconnaissance Orbiter (MRO)/ Compact Reconnaissance Imaging Spectrometer for Mars (CRISM) images acquired over same region for morphological and mineral identification studies.
- Automatic extraction and change detection of Martian North polar ice cap area using MCC.
- First observations in the evening time exosphere of Mars using MENCA.
- Observation of suprathermal argon in the exosphere of Mars using MENCA

- LAP data revealed successful registration of the hydrogen Lyman-alpha brightness as well as clear hydrogen Lyman-alpha flux absorption signatures of Martian atmosphere.

Further sessions included presentation from 26 MOM Announcement of opportunity (MOM-AO) project teams. Preliminary science results and progress were presented by the project teams from IITs, NITs, Universities and National Institutes in addition to ISRO/DOS centres.

These presentations were made by the Project leads/members of the team covering a large number of topics on Mars surface processes, Martian geomorphology, Morphometric analyses of various Martian landforms, Crater infilling processes, Active and dynamic Aeolian processes operating on Mars have been covered. Also, a couple of presentations highlighted the presence of high altitude clouds and nature of these clouds. Presentations also included dust and aerosol modelling studies using MOM-MCC data. The detection of methane on Martian atmosphere was also discussed and simulation studies were presented. Few studies have shown the dendritic drainage patterns and Martian outflow channels testifying the presence of surface water during the early part of Mars' history. Morphometric analysis of the drainage basins was carried out for understanding the evolution of these basins. One of the studies highlighted the presence of grabens and wrinkle ridges at the East Coprates Planum region and mapped the polygonal craters and double craters that are associated with pre-existing structures. Local stress regimes were identified and total crustal shortening have been computed from the wrinkle ridges. Another interesting study talked about was the Martian impact cratering processes, Ejecta mobility and spallation process. Status of the studies on modelling of the Martian exospheric composition and characterisation of CH₄, C₃, HCl and their protonated species to spectroscopic accuracy were also presented. A paper on automated detection of crater area was also presented.

About 100 participants attended the Science Meet.



Dr.K.Radhakrishnan releases the second year MOM data to public.