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## India's first Moon and Mars missions orbit determination

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India's first moon mission (Chandrayaan-1) and Mars orbiter mission (MOM) carrying several scientific instruments for the purpose of expanding scientific knowledge about the Moon and Mars were launched in October 2008 and November 2013 respectively. The spacecrafts were put into their target orbits by carrying out sequence of orbit maneuvers. Precise orbit determinations are carried out during each phase of the mission using tracking data from network of tracking stations configured for the mission. The determined orbital solutions are used for spacecraft navigation, mission planning and science data processing. ISRO's operational orbit determination program (ODP) used for low earth missions was suitably updated and validated before the launch of these missions. Orbit determination methodology and the performance of Chandrayaan-1 and MOM orbit determination systems during initial phase of the mission along with achieved orbit determination accuracy in the early normal phase is presented.

### Biography

Narayanasetti Venkata Vighnesam is currently working as Professor at Dayanandasagar College of Engineering, Bangalore, India. He holds his MSc from Andhra University and PhD from Indian Institute of Technology, Bombay, India. He worked as Head in the Orbit Dynamics Division, Flight Dynamics Group at ISRO Satellite Centre. He was responsible for design and development of orbit determination system for all ISRO Satellites. He has published more than 65 technical papers.

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