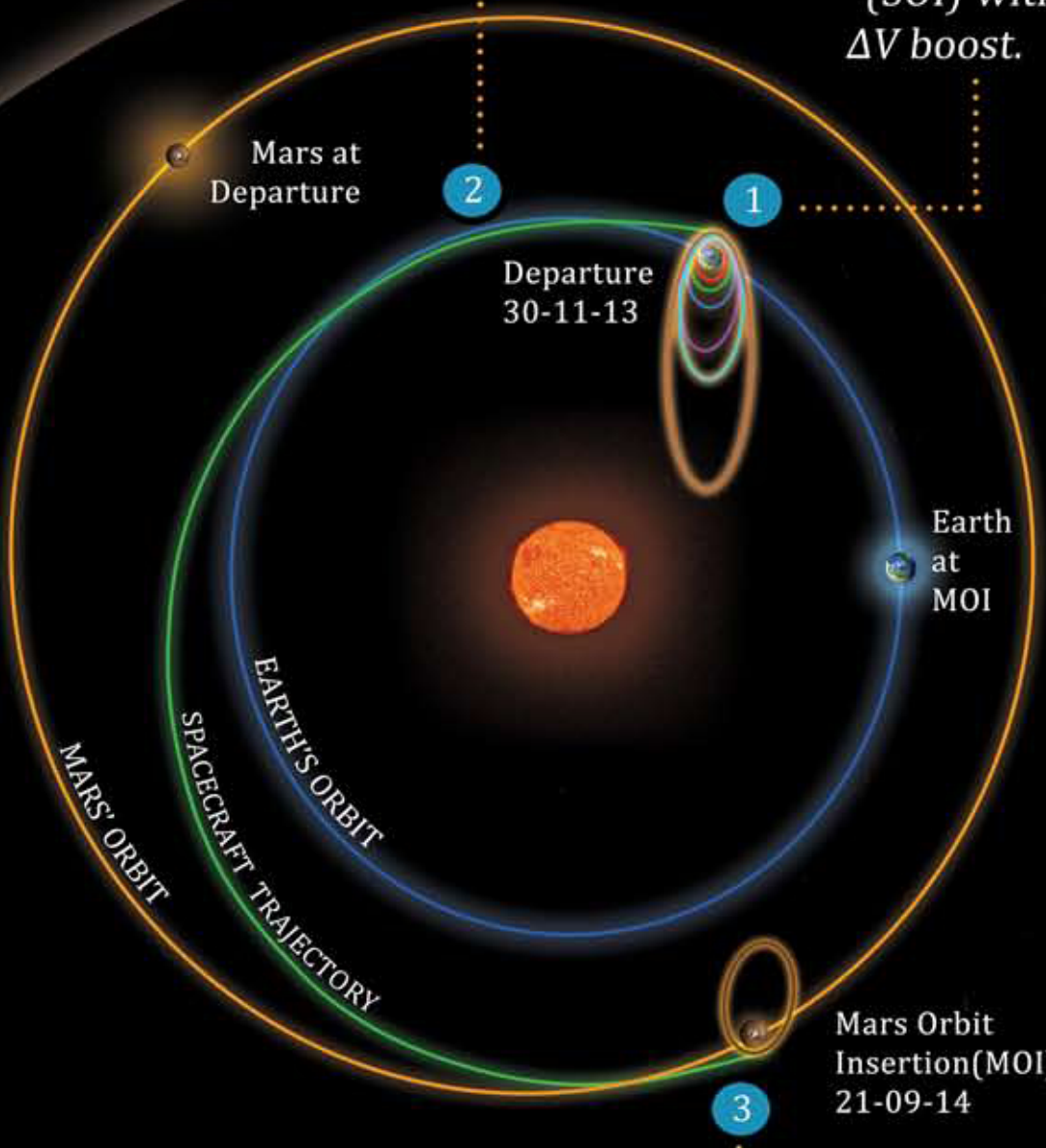
MARS ORBITER MISSION

Trajectory Design

Spacecraft leaves Earth in a direction tangential to Earth's orbit around sun. Encounters Mars tangentially to its orbit around sun. The flight path is roughly one half of an ellipse around sun.

Launcher inserts the orbiter to an Earth Parking Orbit of 248 x 23000 km. Six EBNs take the spacecraft gradually into a departure hyperbolic trajectory. S/C escapes from the Earth's Sphere Of Influence (SOI) with Earth's orbital velocity + ΔV boost.



Martian Orbit

MOI Epoch : 21-09-2014, 17:21
Periapsis: 377 km
Apo-apsis: 80000 km
Sun Elevation: 6.8°

Spacecraft arrives at Mars' SOI in a hyperbolic trajectory. When the spacecraft reaches Mars Periapsis, it is captured into the planned orbit around Mars by imparting ΔV retro.