
EMPLOYING A TETHER SYSTEM FOR A MARS MISSION

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Abstract

The article deals with the possibility of employing a tether system for a Mars mission. We suggest a method of decreasing delta-v during a Mars mission by means of additional velocity increment with the help of a near-Earth tether system. We show that an optimum flight starts in a circular reference orbit or on the Earth's surface, reaches the tethered mobile platform situated upon the bottom branch of the tether system at the point where the tether linear velocity equals the elliptical orbital velocity of the spacecraft approaching the tether system, and continues with the spacecraft subsequently ascending along the tether towards the top platform, finally taking off the top platform towards Mars

Keywords

Tether system, spacecraft, orbit, tethered platform, delta-v, linear velocity, angular velocity, elliptical orbital velocity

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