

Lunar Exploration (3)

Lunar Concepts (3)

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SELECTION OF THE RELAY WAYS FOR LANDING ON THE FAR SIDE OF THE MOON

Abstract

The soft landing probes on the far side of the moon must rely on the relay satellites to return data back. It's necessary for the relay ways to increase the communication coverage and data volume as much as possible under the design constraints (such as velocity increment, illumination, lifetime, etc.). At present the main relay ways include the circumlunar orbit relay and Earth-Moon L2 Lagrange point orbit relay. And the latter is mainly divided into two categories: Lissajous orbit relay and Halo orbit relay. The key parameters (such as relay time for the lander, data volume, illumination, orbit transfer time, velocity increment, antenna pointing precision, etc.) are analyzed based on the circumlunar orbit relay and Earth-Moon L2 Lagrange point orbit relay in this paper. Finally the selection suggestion is proposed, which can provide reference for landing on the far side of the moon.