

HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)
Going Beyond the Earth-Moon System: Human Missions to Mars, Libration Points, and NEO's (4)

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A REFERENCE STUDY ON CONSTRUCTING HUMAN EXPLORATION STATION AT
EARTH-MOON LIBRATION POINT

Abstract

On Sep 2011, International Space Exploration Coordination Group (ISECG) released reference mission scenario ultimately conducting the manned exploration to Mars. On the course of attaining the ultimate goal, several preparatory exploration missions might be required. One of the most promising intermediate destinations is Earth-Moon Lagrange Points (EMLs) which have unique characteristic of gravitational equilibrium. Among the 5 EMLs, L2 is considered as the most superior position not only as the staging station for further solar system exploration but as the base camp for lunar far side exploration. This paper outlines the logistic scenario for the L2 station to clarify the affordability in constructing and maintaining such L2 outpost. Assuming the currently existing and evolution system from the current transportation workforces, several patterns of logistic scenario are presented. Also, this paper suggests the possibility of the transportation efficiency improvements by using the swing-by trajectory and by optimum coupling of chemical-electric propulsion.