SPACE EXPLORATION SYMPOSIUM (A3)
Interactive Presentations (IP)

Author: Mr. Jie Dong
China Academy of Space Technology (CAST), China, donghn13@163.com

Mr. Linzhi Meng
China Academy of Space Technology (CAST), China, mlinzhi@sohu.com
Ms. Yang Zhao
China Academy of Space Technology(CAST), China, zyolivian@gmail.com
Prof.Dr. Jia-wen Qiu
China Academy of Space Technology (CAST), China, 13911816829@139.com

SELECTION OF THE MARTIAN LANDING SITE BASED ON THE ENGINEERING CONSTRAINTS

Abstract

The selection of landing site is one of the vital steps for the Martian landing and roving mission. Both the scientific objectives and the engineering constraints should be considered. The engineering constraints are more important for the Martian landing mission due to the high risks in the process. The engineering constraints are mainly related to the atmosphere environments, surface characteristics of the landing sites, mission trajectory, etc. The surface characteristics include sunlight, thermal constraints, local elevation, rocks distribution, dust thickness, slopes and relief that can affect the EDL safety and the rover mobility. At first the engineering constraints are listed out and sorted in this paper. Then to resolve the problem of landing site selection, weights of different constraints are defined, the analysis model based on fuzzy algorithm is set up, the index for evaluating the suitability of different landing sites based on fuzzy inference is proposed. Finally an advice on the primary appropriate landing areas is given mainly considering about the engineering constraints.