

Direct Exploration to Underground Cavern of the Moon and Mars

(月火星の地下空洞直接探査)

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ABSTRACT

Many explorers have visited the Moon and Mars, so far. The first rush of the exploration of the Moon and Mars was in 1960s - 1970s, about a half century ago, including Apollo manned missions to the Moon and combination mission of Viking two orbiters and two landers at Mars. The second rush has been starting with the open of the 21st century. While the exploration of the Moon and Mars in 1960s – 1970s was a race between the United States of America (USA) and the late Soviet Union, recent explorations have been carried out by new participants, Europe, Japan India, and China, except for the USA. Many orbiters and landers by the countries provided precious new data that have changed the views of the Moon and Mars made up based on the past data. Now is the time to step into the next stage. Here, we propose the next exploration target of the Moon and Mars is “underground” of the Moon and Mars, especially “underground caverns”. We expect many precious information in the underground for sciences and the future utilization of the Moon and Mars. A problem of exploration into the underground is difficulty to access there. However, at the beginnings of this century, SELENE and MRO have discovered deep holes on the Moon and Mars, respectively. These holes are entrances into the underground caverns. Direct exploration into underground cavern of the Moon and Mars is now in realistic.