

Technology Roadmaps for Space Exploration (09)
Technology Development Concepts (2)

Author: Dr. Gwanghyeok Ju
Korea Aerospace Research Institute (KARI), Korea, Republic of, ghju@kari.re.kr

Prof. Jongho SEON
Kyung Hee University, Korea, Republic of, jhseon@khu.ac.kr

SCIENTIFIC & TECHNOLOGICAL REQUIREMENTS ANALYSIS AND TECHNOLOGY ROADMAP
PROPOSAL FOR KOREAN LUNAR MISSION**Abstract**

Asian neighbors Japan, India and China launched lunar exploration satellites into orbit recently and are planning to launch lunar landers on the moon surface in early 2010s with the ultimate vision of human lunar exploration. Korea is also planning to send a robotic lunar orbiter and lander in 2020s, while a launch of a manned Korean spacecraft is unthinkable thus far. Under the supervision of the MEST (Ministry of Education Science and Technology), KARI (Korea Aerospace Research Institute) has conducted the study on establishing a preliminary plan for the national space exploration including robotic lunar exploration activities. In addition, internal research activities have been done since 2010 for the conceptual study of lunar orbiter/lander prototype including the detailed survey for scientific payloads and technological achievements from the lunar exploration. In this paper, scientific technological requirements for Korean lunar mission are derived and analyzed from the previous studies and survey results. In order to derive those requirements, the appropriate scientific objectives for Korean lunar mission are firstly suggested by a group of space scientists and referring several reports issued by National Research Council. Secondly, science payloads previously used for lunar mission are compared and its trend analysis is performed with respect to its scientific goal, scientific achievements, down-streamed science data, physical specifications and intrinsic performance. Thirdly, major technological achievements through previous lunar mission are investigated. In addition, a draft for technology roadmap of Korean lunar mission is also proposed based on the scientific technological requirements analysis for Korean lunar mission. In conclusion, the outcome of this analytical study and the draft for technology roadmap can be extended to provide a proper guideline and input for the planned Korean unmanned lunar exploration in 2020s.