IAF SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 1 (2A)

Author: Ms. Sophia Casanova
ispace, inc., Luxembourg

INTRODUCING ISPACE EUROPE'S MICRO-ROVER AND ITS CONTRIBUTIONS TO LUNAR SCIENCE AND PAYLOAD DELIVERY

Abstract

Poised for liftoff in late 2024, ispace Inc. is set to embark on its second attempt at landing on the lunar surface. This presentation will outline ispace's recent advancements in lunar exploration, with a focus on ispace Europe's contributions to the upcoming Hakuto-R Mission 2 (Resilience). Central to our discussion is the development and capabilities of the ispace micro-rover, engineered in Luxembourg. This rover is designed for operation from the ispace EU Mission Control Centre in Luxembourg and demonstrates a balance between its payload delivery and scientific investigation capability. Its primary functions include deploying payloads onto the lunar surface and facilitating commercial operations, including executing NASA's first contract for lunar regolith collection using a purpose-built regolith sample scoop. The rover will also be tasked to conduct simple scientific studies related to rock mechanics and regolith characterization, aimed at enhancing our understanding of the moon's surface and material properties. Additionally, the presentation will detail ispace's approach to comprehensive lunar mission planning and design. This includes the introduction of the Mission Planning Toolkit (MPT), developed by ispace Europe for effective landing site selection, rover operation planning, and traverse planning, showcasing ispace's contribution to the technical planning and execution of lunar missions. Our presentation aims to underscore not only ispace's role in advancing lunar exploration but also our dedication to fostering synergies between commercial and scientific communities