

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

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TAIWAN'S LUNAR PAYLOAD DEVELOPMENT AND ITS OUTSOURCED TRANSPORTATION
SERVICES**Abstract**

Since mid-2022, the Taiwan Space Agency (TASA) has been working with domestic universities to develop four lunar payloads with domestic universities for scientific observations on the lunar surface. Two of them will be mounted on the lunar rover and the other two on the lunar lander. All four payloads have completed their CDRs in the third quarter of 2023, and their flight models will be ready in early 2025 (for the rover payload) and late 2025 (for the lander payload), respectively. One of the rover payloads is to take images on the surface of the Moon to obtain information such as topography and terrain features on the lunar surface and to detect and quantify unknown materials on the lunar surface through spectral analysis. The other rover payload is to explore the three-dimensional plasma environment on the lunar surface. The lunar payload transportation service for these two rover payloads has completed the outsourcing contract at the end of 2023 and is scheduled for launch at the end of 2025. The winning company is among the list of contract awardees for NASA's CLPS program. Two lander payloads are the lunar vector magnetometer and the ultraviolet telescope experiment, respectively. The main objectives of the former payload are to investigate the magnetic field turbulences and transient structures of lunar surface, and to characterize the geologic features of lunar subsurface using Geomagnetic Depth Sounding (GDS) method at the landing site. The landing site is expected to be near a lunar swirl with significant magnetic anomalies. The other lander payload is a set of small telescopes with wide-field cameras piggybacked on a lunar lander to perform a high cadence wide-field survey of the UV sky. By combining short exposure (≤ 1 min) and slow rotation of the Moon, the payload can perform high cadence continuous monitoring observations over a large region of sky. Lunar payload transportation services for both lander payloads will be outsourced to a trusted, experienced and capable company through an open tender evaluation process over the next year. International cooperation will also be considered if possible. This paper will provide an update on Taiwan's lunar payload development and its outsourced transportation services. The main design features and specifications of those payloads will be presented. To better understand the feasibility of cooperation with potential contractors or space agencies, the paper will also discuss the interface and preferred landing sites for lander payloads.