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

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OVERVIEW OF THE ISRAELI LUNAR LANDER

Abstract

The exploration and exploitation of the Earth's Moon now is entering a new era. Following a series of highly successful lunar orbiter missions conducted between 1994 and the present not only by the US but also by ESA, Japan, India and China, that achieved comprehensive global mapping of the Moon's topography, mineralogy, chemistry and scouting of future landing sites, access to the lunar surface is now going to be gained on a largely routine basis by involving commercial service providers. This new environment was largely incubated by the Google Lunar X-Prize competition including the Israeli contestant - SpaceIL which is due to launch early 2019. Both NASA and ESA are pursuing plans to draw upon said commercial service providers for sending science, exploration and technology experiments to the surface of the Moon in the coming 10 years and beyond.

The Israeli Lunar lander (ILL) has evolved on the solid base of SpaceIL's Beresheet lunar lander, and provides with a unique and cost effective solution for small to medium payloads. In this presentation we shall present the ILL's key features, planned evolution and overview its incorporation in current and/or future lunar payload delivery services. The ILL platform is aimed at providing maximal mission flexibility for lunar orbit and surface missions. Its key features are:

- Multiple payload housing options, optional payloads release in lunar orbit (e.g. cube-sats) or on the lunar surface (e.g rovers or ejectable payloads).
- Total payload capacity of several tens of kg for ILL-1, and expected increase in future revisions.
- Flexibility in landing site selection and precision landing. Ability to land in permanently illuminated areas near the poles and thus support long term operations.
- Continuous allocation of resources (power, communication) to payloads while in orbit and on surface activities.

Finally, we shall present a roadmap for future builds of the lander aimed for increased payload capabilities, and describe the current status of cooperation with service providers and space agencies.