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

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LUNAR SURFACE ACCESS SERVICE (LSAS) – THE OHB-IAI COLLABORATION ON COMMERCIAL LUNAR LANDERS

Abstract

The continued exploration of the Earth's moon will rely on the one hand on institutional missions – such as through the US's, China's, India's and Russia's space programs – but on the other hand on a strong commercial element. Several actors, funded through venture capital, private donors, philanthropists but also by public-private partnerships, are in advanced stages of developing lunar orbital and landing spacecraft for uncrewed missions. NASA's human return to the Moon also will draw upon commercial service providers to land science and engineering payloads on the Moon as part of preparatory missions preceding future landings by astronauts. Also the European Space Agency ESA is planning a lunar mission campaign for flying various payloads to the Moon that would make use of commercial service providers.

Of all the commercial lunar mission actors, SpaceIL with Israel Aerospace Industries (IAI) was the first to launch a privately funded lunar landing spacecraft, being the Beresheet lander that was successfully launched February 22, 2019 and which is due to land in Mare Serenitatis in mid-April. Whereas the SpaceIL endeavor was begun under the now discontinued Lunar Google X-Prize, IAI already have completed a design study for a follow-on lander type – referred to as the Israeli Lunar Lander (ILL) – that will be more capable in terms of flexibility in choice of landing site and with regard to payload mass.

In January 2019, OHB System and IAI have signed a teaming agreement for offering a Lunar Surface Access Service (LSAS) based on the ILL design which would respond to the needs of ESA and other public or private customers wanting to send payloads to exciting locations on the Moon. In this paper, we describe the LSAS collaboration and the respective workshare on lander missions offered by our consortium. Whereas capability enhancements will be implemented through modest design changes, non-recurring activities under the service will focus on accommodation of the customer-specific payload and mission requirements, under the lead of OHB System. Procurement strategies for some items of the spacecraft will be changed to address export restrictions and to increase involvement of Western European vendors.

The key advantage of the LSAS under the OHB-IAI collaboration is the already available flight heritage from Beresheet, giving us a significant edge over competitors in terms of risk and schedule.