



Lunar NEXT Payloads Study

SEA has been under contract to OHB of Bremen, Germany to perform the role of payload accommodation within a European/Canadian consortium for one of the parallel Phase A studies for Lunar NEXT.

Lunar NEXT (Next Exploration Science and Technology) is a part of the ESA Aurora program and comprises an exciting robotic mission to the Lunar South Pole. The plan is to perform a controlled soft and precision landing near the rim of a major crater (named Shackleton after the polar explorer) and then release a rover vehicle to make a series of demanding measurements of the composition and environment at the South Pole. Like the Earth's polar regions those on the Moon are amongst the most demanding for exploration due to the low temperatures and long periods without sunlight. The mission is currently estimated to be launched early 2015.

During this study SEA has been liaising with OHB, ESA, other consortium members and various UK academic centres in order to harmonise some of the more demanding requirements for the payloads and ensure that the system level requirements for the payload operation are considered in the mission design and operations concepts.

Fine landing controls and strategy will ensure the lander touches down in an area without landing hazards and in the chosen target zone. The landed system currently comprises a Lander and Rover, although an option to use a Lander with some mobile elements is also being considered in the study.

The type of payloads being considered for this mission include

- Various spectrometers to identify lunar rock and feature constituents
- Networked seismometers to determine the physical environment and features in the region
- Wide-angle and high resolution camera systems
- Radiation sensors and magnetometers
- Soil measurements down to 5 m depth using a "Mole"
- Dust (regolith) sensors

