LUNAR SIMULATION SOFTWARE SUITE

ASTROBOTIC

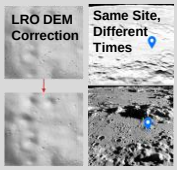
SOFTWARE SOLUTIONS FOR YOUR ENTIRE MISSION

COMPREHENSIVE MISSION SUITE

Astrobotic's Lunar Simulation Software supports mission planning and execution through a suite of tools capable of highly customized data generation, analysis, and verification. Simulation of the lunar surface and space customized for various mission apps. supporting SITL/HITL testing for: TRN, HDA, landing site selection surface/mission ops, & in-orbit RPOD.

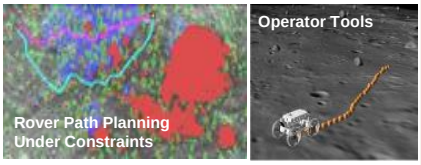
LUNARAY LANDING SIMULATION

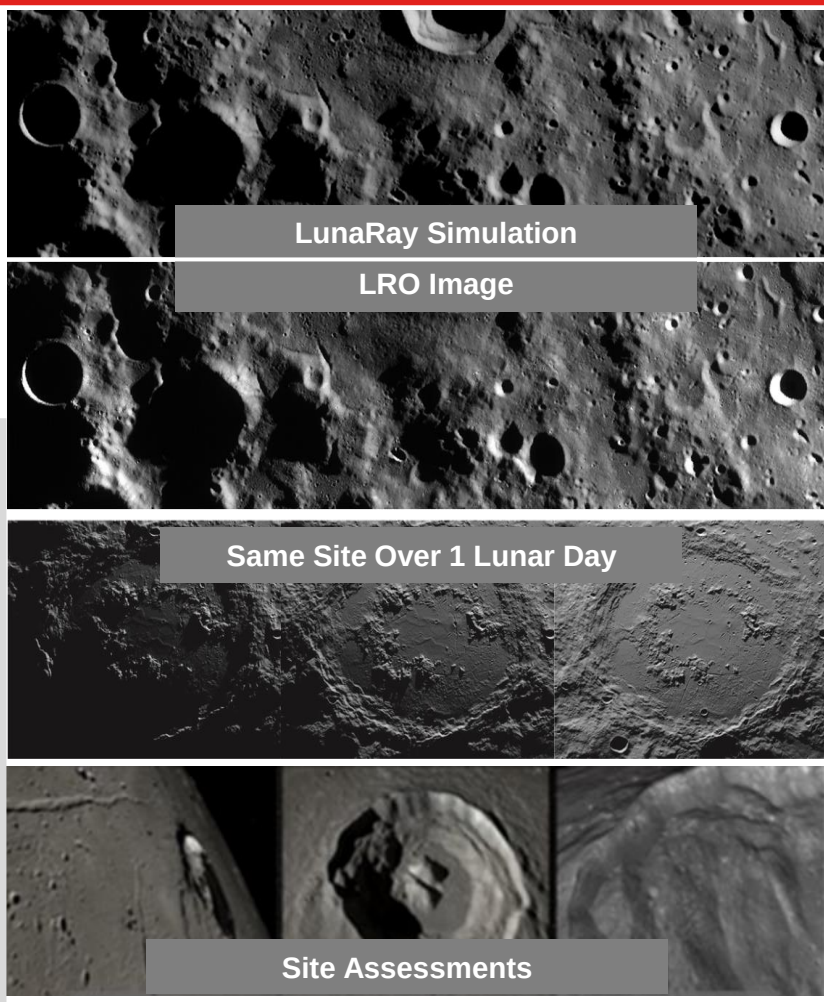
LunaRay is a physically accurate renderer and suite of software tools for planetary missions. It uses topography and ephemeris data to produce photometrically accurate renderings of the lighting conditions on the planetary surface for any location and time. This is especially useful for polar missions, where long, sweeping shadows can cause the lighting conditions to change dramatically. LunaRay also generates maps to support mission and science ops (e.g., ground station line-of-sight, solar loading) LunaRay incorporates real-time physics-based ray tracing and employs state-of-the-art photogrammetric methods to synthesize high-resolution DEMs from orbital images and LiDAR data, for maximum accuracy.



SURFACE ROVER MISSION PLANNING

Astrobotic has developed software for planning operation of lander and rover missions. The software provides a graphical user interface for mission engineers and scientists to interactively explore scenarios involving different landing sites, mission durations, and safety margins. Robust and efficient route-planning optimization algorithms consider time-varying conditions, rover capabilities – such as climbing ability and energy requirements – risk specifications, and the sequencing of science objectives. The software can also be applied to spatiotemporal planning for aerial surveying, on-surface construction and other applications, in addition to spacecraft ops. (e.g., comms)





CAPABILITIES

- Landing Site Feasibility Assessment
- Camera Data Reproduction and Mission Simulation
- Terrain Model Generation/ Synesthetic Features Beneath GSD
- Surface Ops. Planning/Simulation
- Automated Satellite Image Photometric Correction
- Line-of-Sight, Solar Illumination, and Communication Path Analysis
- Tool and Analysis Customization to Specific Mission Needs

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