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SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 3 (2C)

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INTERNATIONAL LUNAR RESEARCH PARK CONCEPT

Abstract

This paper presents a proposal for an International Lunar Research Park (ILRP) that would provide a cost-effective, near-term, and sustainable "next step" for advancing space exploration, development, and utilization beyond low-Earth orbit. The ILRP would be multinational in scope, enabled through public-private partnerships, and would engage the public as major stakeholders – providing a mechanism for linking complementary assets and capabilities among space-faring nations to help reduce the costs, enhance the benefits, and accelerate the timetables for future space missions.

Building upon current planned governmental and entrepreneurial lunar robotic missions, the Park would enable the development, testing and demonstration of space systems for use on the Moon, Mars, asteroids, and other planetary systems. It would involve constructing a joint governmental and commercial research and development facility on the Moon within the next decade, designed and implemented through an international public/private consortium involving multiple space agencies, commercial entities, and universities (incorporating elements of previous models for international collaboration, such as COMSAT, Intelsat, Inmarsat, the U.N. 1958 Antarctica Treaty, ITER, and the ISS).

The ILRP would achieve several important objectives and enable a variety of benefits, including: Earth, solar and planetary observation; deep space astronomy (with a radio telescope on the far side of the moon); spin-off opportunities to industry in robotics, renewable energy, broadband communications, and advanced manufacturing; a testbed for analog research; commercial projects from the private sector, including resource mining and media opportunities; scientific studies, including seismic analysis, mineral assays, and astrophysics; and STEM education and training opportunities. It also could utilize the ISS, and serve as a stepping-stone toward building facilities on other planetary bodies, especially Mars.

With broad international participation, the ILRP development costs per nation would be some fraction of the total, spread over a developmental life of ten to fifteen years. In addition, if robotic lunar landing missions already planned by multiple countries were incorporated into the ILRP development and implementation strategy, many of the science and technology objectives, transportation systems components, and core costs for these missions could be shared among participating partners, and implemented within existing agency budgets.

As such, we believe the ILRP concept presents a remarkably creative, timely, cost-effective, and congruent proposition – relative to current robotic and human space exploration budgets and programs, both domestic and international – providing a "minimize risk/maximize return" scenario for sustainable enterprises beyond low-Earth orbit.