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Author: Mr. Gregor Hanuschak
United States

Mr. Jim Crisafulli
State of Hawaii, United States
Mr. Lynn Harper
NASA, United States
Mr. Bruce Pittman
NASA, United States
Dr. Dan Rasky
National Aeronautics and Space Administration (NASA), United States
Dr. Frank Schowengerdt
Pacific International Space Center for Exploration Systems (PISCES), United States

POLICIES RELATED TO AN INTERNATIONAL LUNAR RESEARCH PARK

Abstract

A concept for a multi-purpose International Lunar Research Park (ILRP) emerged in November 2010 with unanimous endorsement from the international community at the Japan-U.S. Science, Technology and Space Applications Program (JUSTSAP) Symposium. Since then, the concept has attracted a number of influential supporters and grass-roots advocates. Technically, the project is feasible. By pooling public as well as private resources from multiple nations, the cost to any one participant becomes tractable. There are numerous international policies to be established, protections to be secured, and hurdles to be negotiated before the investments of governments and private investors can be obtained. For these reasons, International Space Policies are foundational to the development of the ILRP. This paper explores current treaties, legislative enablers and impediments, and models like the "Port Authority" and the Antarctic Treaty System, to help frame dialog within the international community on next steps toward enabling the first human settlement on another world.

The ILRP is envisioned to be implemented in three phases. Multinational, public, and private contributions to technical, financial, and programmatic components are assumed for each phase. NASA has a Space Act Agreement with the State of Hawaii to collaborate on phase 1 of this proposed endeavor. NASA's policy on phases 2 and 3 is not clear as of this writing.

Phase 1 would begin with development of a terrestrial prototype for a multinational lunar base, established in Hawaii through the Pacific International Space Center for Exploration systems (PISCES) at the University of Hawaii at Hilo. The PISCES analog site would utilize the unique terrain on the Big Island (which closely simulates lunar soil, or "regolith") to test and evaluate innovative robotics, energy, communications, resource utilization, and other technologies required to establish a sustained human presence beyond low-Earth orbit.

Phase 2 would focus on implementing a robotic village on the lunar surface – building upon unmanned missions currently under development at NASA and other space agencies, as well as commercial efforts championed by Google Lunar X-Prize contestants and other entrepreneurial ventures. Robots in the village would be teleoperated from Earth, and provide a unique capability for scientists, educators, and students to explore the lunar surface and conduct groundbreaking experiments. These robotic technologies

would evolve over time to eventually enable the construction of the first sustainable human presence on the Moon.

Phase 3 would include the full build-out of sustainable robotic and human modules on the lunar surface ...