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NASA's Solar System Exploration Research Virtual Institute: Combining Science and Exploration

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Abstract

The NASA Solar System Exploration Research Virtual Institute (SSERVI) is a virtual institute focused on research at the intersection of science and exploration, training the next generation of lunar scientists, and community development. As part of the SSERVI mission, we act as a hub for opportunities that engage the larger scientific and exploration communities in order to form new interdisciplinary, research-focused collaborations.

This talk will describe the research efforts of the nine domestic teams that constitute the U.S. complement of the Institute and how we will engage the international science and exploration communities through workshops, conferences, online seminars and classes, student exchange programs and internships.

1. Introduction

NASA's Solar System Exploration Research Virtual Institute (SSERVI) represents a close collaboration between science, technology and exploration that will enable deeper understanding of the Moon and other airless bodies as we move further out of low-Earth orbit. The new Institute is centered on the scientific aspects of exploration as they pertain to the Moon, Near Earth Asteroids (NEAs) and the moons of Mars. The Institute focuses on interdisciplinary, exploration-related science centered around all airless bodies targeted as potential human destinations. Areas of study reported here will represent the broad spectrum of lunar, NEA, and Martian moon sciences encompassing investigations of the surface, interior, exosphere, and near-space environments as well as science uniquely enabled from these bodies.

We will provide a detailed look at research being conducted by each of the 9 domestic US teams as well as our 7 international partners. The research profile of the Institute integrates investigations of plasma physics, geology/geochemistry, technology integration, solar system origins/evolution, regolith geotechnical properties, analogues, volatiles, ISRU and exploration potential of the target bodies.

2. Summary and Conclusions

As the Institute's teams build upon their proposed research, new opportunities for both domestic and international partnerships will be generated that will produce exciting new results and generate new ideas for scientific and exploration endeavors. SSERVI enhances the widening knowledgebase of planetary research by acting as a bridge between several different groups and bringing together researchers from: 1) scientific and exploration communities, 2) multiple disciplines across the full range of planetary sciences, and 3) domestic and international communities and partnerships.

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