**PISCES: "PAVING THE WAY TO PLANETARY BASALT ISRU CONSTRUCTION – LUNAR LAUNCH/LANDING PAD.** R. Kelso[1], R.Romo[1], C. Andersen[1], J.C. Hamilton[1,2], [1]Pacific International Space Center for Exploration Systems [PSCES] (99 Aupini St, Ste 212-213. Hilo, HI 96720, rkelso54@gmail.com, rfvromo@gmail.com, canderse@hawaii.edu). [2]Dept. of Physics & Astronomy, University of Hawaii-Hilo (200 Kawili St. Hilo, Hi 96720, jch@hawaii.edu)

**Executive Overview:** To provide a briefing on the recently completed joint project between the PISCES and NASA with the goal being to: develop and demonstrate technologies in an in-the-field project associated with robotic, planetary construction using basalt.

**Synopsis** A year ago, NASA Headquarters invited PISCES to become a strategic partner in a new project called "Additive Construction with Mobile Emplacement" (ACME). The goal of this project is to investigate technologies and methodologies for constructing facilities on the Moon, Mars and asteroids using planetary basalt material. The first phase of this project is to robotically-build a 60-ft landing pad out of basalt material on the Big Island of Hawaii. PISCES and the NASA Kennedy Space Center (KSC) have recently completed the basalt construction of a robotically-built basalt launch and landing pad and finished with a pad-performance test using a 1,000 lb rocket engine.

PISCES and NASA KSC developed and tested construction methodologies for this Landing/Launch Pad Demonstration using pure basalt (no foreign additives for binding agents). The completed project had the PISCES planetary rover to deposit sintered basalt pavers for the inner-ring of the landing pad. Stabilized gravel was applied to the outer-ring.

The rocket engine firing test was conducted at the end of March to assess performance of the basalt landing pad under high temperature/high velocity engine exhaust loading.

This briefing will present the methodologies and first-look conclusions of this first-ever robotically-built basalt landing pad.