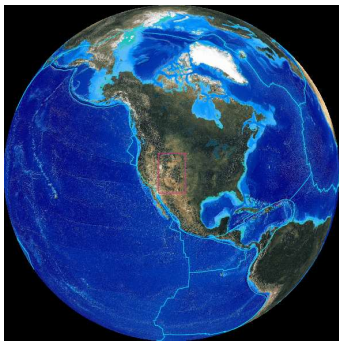
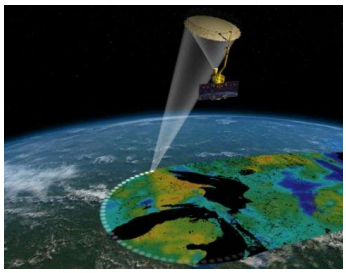
MEETING NOTICE **Buenaventura MTT-S Chapter**

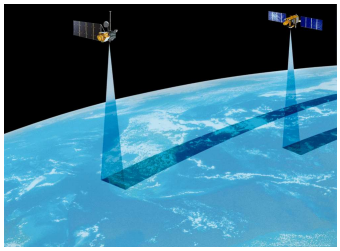
Date and Time: Thursday, July 20th, 2017 (6:30PM)

Location : Skyworks (Conference Room), 649 Lawrence Drive, Newbury Park, CA 91320

Agenda: 6:30PM Reception & Networking;
7PM Presentation







Compositional Heterogeneity of Impact Melt Rocks at the Haughton Structure: Implications for Planetary Processes and Remote Sensing

Presenter : **Dr. Rebecca Greenberger**
NASA Postdoctoral Program Fellow

Abstract: Meteorite impacts are a geological process affecting every solar system body. These impacts bring subsurface units to the surface, where they can be studied through remote sensing and "in situ" measurements. In many cases, impact craters are the primary windows into subsurface compositions and permit identification of minerals that might not otherwise be observable. The melt that forms as a byproduct of impacts is present in all but the smallest impact structures and often fills large portions of the craters. This impact melt rock is often explicitly or implicitly assumed to be homogenous, though some studies of impact structures on Earth have suggested that this is not the case. However, a quantitative assessment of melt rock composition and heterogeneity at the scale of outcrops, comparable to orbital and landed planetary missions, has thus far been impossible through standard geologic field methods because the presence of clasts of variable size and composition do not permit collection of hand-samples entirely representative of outcrops. I will present the results of a study using visible-shortwave infrared imaging spectroscopy of outcrops in the field at the Haughton impact structure in the Canadian High Arctic to quantify outcrop composition. This technique measures reflected light as a function of wavelength, providing information about the minerals present at a spatial scale of a few cm/pixel in the field and allowing us to essentially sample compositions of entire outcrops. Comparing the compositions of outcrops around the structure, we then evaluate the heterogeneity of this melt rock unit, determine the source of clasts from within the target stratigraphy, and consider the implications for both our understanding of impact processes as well as interpretation of planetary remote sensing datasets.

Bio: Dr. Rebecca Greenberger is currently a NASA Postdoctoral Program Fellow at JPL working with Dr. Bethany Ehlmann and Dr. Robert Green in the Imaging Spectroscopy Group (382B). She received her Ph.D. in 2015 and Sc.M. in 2012 from Brown University in Geological Sciences and completed her undergraduate degree in 2010 at Washington University in St. Louis with a major in Earth and Planetary Sciences. Her research uses imaging spectrometers in the field and laboratory to investigate a variety of geological processes on Earth and as an analog for other solar system bodies.