

**Dr. Collado-Vega talk title:** Moon to Mars Space Weather Analysis Office; Support for NASA Missions and the Artemis Program

**Abstract:** The Moon to Mars (M2M) Space Weather Analysis Office located at NASA's Goddard Space Flight Center supports NASA's Space Radiation Analysis Group (SRAG) at Johnson Space Center by providing novel capabilities to characterize the space radiation environment for the Artemis program. The team monitors space weather activity to support NASA robotic missions and to develop, execute, and validate SEP models in real time in support of the Integrated Solar Energetic Proton Alert/Warning System (ISEP) project; a collaboration between the Community Coordinated Modeling Center (CCMC), SRAG, and M2M. M2M supported SRAG through the duration of the Artemis I mission with 24/7 real-time space weather analysis and support using the first iteration of newly developed tools in collaboration with NOAA's Space Weather Prediction Center. We will present our team's efforts, goals, and concept of operations in support of NASA missions and the Artemis program.

**Bio:** Dr. Yaireska (Yari) Collado-Vega is originally from Ponce, Puerto Rico. She received her PhD in Space Physics from The Catholic University of America in Washington, DC with honors in January 2013. She received both her BS and MS in theoretical physics from the University of Puerto Rico at Mayagüez, Puerto Rico, in 2004 and 2007, respectively, and a second MS from The Catholic University of America on May 2010. She is the director of the Moon to Mars (M2M) Space Weather Analysis Office which was established to support NASA's Space Radiation Analysis Group (SRAG) with human space exploration activities. The M2M Office also provides real-time analysis of the space environment and their probable impacts for NASA missions across the solar system. Collado-Vega's research focuses on the solar wind interaction with the Earth's magnetic environment, solar energetic particle events and coronal mass ejections, X-ray imagers, and space weather effects on planetary environments. She also works on the validation of magnetospheric models and the current developments on machine learning capabilities to improve space weather analysis and forecasting. She also conducts education and public outreach for NASA and the Heliophysics Science Division including social media events and live tv/radio interviews in English and Spanish. She has also been a Co-Investigator in several internal funded proposals on a data mining tool development and has presented on many international and national scientific conferences. She has been part of the NASA family for 19 years and has been working on space weather analysis since 2012.

**Dr. Mouser Title:** Exploring early planetary formation processes using high-pressure, high-temperature experimental techniques

**Abstract:** The early formation of the rocky planets in our Solar System likely began with a magma ocean stage. For larger silicate bodies (e.g., Earth, Venus, Mercury, Mars) this stage may have resulted in widespread global melting that led to the differentiation of the core and mantle. For smaller bodies (e.g., asteroidal sized) the magma ocean process may have occurred via partial melting, leading to partial or full separation of metal and silicate materials to create a core and mantle. This presentation will discuss experimental methods that have been used to investigate magma ocean processes to better understand the early dynamics of rocky planet formation.

**Bio:** Megan is an experimental petrology postdoctoral fellow at the Earth and Planets Laboratory, Carnegie Institution for Science. Her research involves using high-pressure and high-temperature techniques to study silicate materials at planetary conditions. Current areas of research broadly include early planetary formation during the magma ocean stage, and geochemical and geophysical evolution of silicate mantles post-magma ocean solidification. In addition to her research, Megan currently serves on the Mercury Exploration and Assessment Group (MExAG) which works to advance science and exploration on Mercury.

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**Dr. Weider title:** Mercury Exploration: Past, Present, and Future

**Abstract:** In this talk, Shoshana Weider, will discuss highlights from past exploration of Mercury (namely with NASA's MESSENGER mission), the ongoing ESA/JAXA-led BepiColombo mission, and what the future might hold for exploration of the solar system's innermost planet.

**Bio:** Dr Shoshana Weider is a Program Scientist in the Planetary Science Division at NASA Headquarters, serving as the Executive Scientist to Division Director Dr Lori Glaze, the Program Scientist for the Strofio instrument on the BepiColombo mission, the NASA Liaison to the Mercury Exploration Assessment Group, and in other roles. Before coming NASA Headquarters, she was the Communications Manager for the Institute of Molecular Science and Engineering at Imperial College London, and was a science writer and editor—working for many institutions in Europe, including the European Space Agency, Diamond Light Source, and SPIE Newsroom. Her children's book, "Moon Landings", was published by DK in 2019. Shoshana obtained her Masters in Earth Sciences from the University of Oxford and her PhD in planetary science from Birkbeck College, the University of London. She conducted her postdoctoral research at Carnegie Science, as a member of the MESSENGER science team, between 2011 and 2014.