

The Moon in Planetary Science and Astrobiology Decadal Survey, and the Endurance Rover Concept

Summary: Every 10 years, NASA commissions a Decadal Survey to assess key scientific questions in planetary science and astrobiology, and prioritize missions for the coming decade. The recently completed Decadal Survey, “Origins, Worlds, and Life: A Decadal Strategy for Planetary Science and Astrobiology 2023-2032,” lays out a bold plan for a decade of robotic exploration of the Solar System, including of the Moon. In this talk, I will summarize the results of the new Decadal Survey, including the surprising recommendation for a new, ambitious lunar rover: Endurance. Endurance would explore the gigantic South Pole–Aitken (SPA) basin, collect samples, and ultimately deliver those samples to astronauts for return to Earth. Between Endurance and all of the other recommendations of the Decadal Survey, it is an exciting time for lunar exploration!

About the Speaker: Dr. James Tuttle Keane is a planetary scientist at the Jet Propulsion Laboratory (JPL). His research focuses on studying the interactions between orbital dynamics, rotational dynamics, and geologic processes on rocky and icy worlds across the solar system. Prior to joining JPL, he was a postdoctoral fellow in the Joint Center for Planetary Astronomy under the Division of Geological and Planetary Sciences at the California Institute of Technology, and a graduate research associate at the University of Arizona. He has extensive experience with NASA missions, including the GRAIL lunar orbiter, the New Horizons mission to Pluto and the Kuiper belt, and the Juno mission to Jupiter. He served on the Mercury and Moon panel of the Planetary Science and Astrobiology Decadal Survey 2023-2032, and was the science champion for the Endurance-A rover concept for exploring and returning samples from the farside of the Moon. Dr. Keane currently serves as JPL’s lunar program scientist, assisting JPL’s mission formulation efforts.