

**Tuesday, November 14, 2017**  
**VEXAG POSTER SESSION**  
**4:45 p.m.**

Mazarico E. Iess L. de Marchi F. Andrews-Hanna J. C. Smrekar S. E.

[Advancing Venus Geophysics with the NF4 Venus Origins Explorer \(VOX\) Gravity Investigation](#) [#8003]

The proposed Venus Origins Explorer NF4 mission will obtain a high-resolution field to address Venus crust evolution, in particular the structure and origin of tesserae. We present comprehensive simulation results validating science requirements.

Venkatapathy E. Stackpoole M. Violette S.

[Sustaining Phenolic Impregnated Carbon Ablator \(PICA\) for Future NASA Robotic Science Missions Including NF-4 and Discovery](#) [#8011]

Sustainability of PICA for the upcoming NF-4 and future Discovery to Flag missions required us to evaluate new source of domestic rayon as the current rayon supplier has discontinued manufacturing. This poster presents results from our investigation.

Grimm R. E.

[Stratospheric Balloon Test of Aerial Electromagnetic Probing of the Lithosphere of Venus](#) [#8013]

Electromagnetic sounding that resolves the outer 10s of km of Venus can be achieved from the nominal 55-km balloon float altitude. A terrestrial demonstration program from 30 km altitude is underway.

Laine P. E.

[Earth and Venus: Planetary Evolution and Habitability](#) [#8016]

What caused Earth and Venus to evolve very differently? Could Venus have evolved to more Earth-like state? Could Earth end up to similar state that Venus is today? This is a review of these questions in the light of astrobiology and Earth's future.

Antoine A. F. Bianco S. J. Jakuszeit C. A. Sievers B. T. Tiffin D. J. Kremic T.  
 Balcerski J. A. Hunter G. W.

[Lander Concept: Surface Analysis of Venus' Atmosphere and Geophysical Events \(SAVAGE\)](#) [#8019]

This lander/orbiter concept builds on LLISSE and was designed to demonstrate the capabilities of high temperature sensors and electronics while obtaining the first long term *in situ* data on the climate and geophysical activity of Venus.

Widemann T. Marcq E. Tsang C. Mueller N. Kappel D. Helbert J. Dyar M. D. Smrekar S.

[The Venus Emissivity Mapper — Investigating the Atmospheric Structure and Dynamics of Venus' Polar Region](#) [#8023]

VEM will map cloud particle modes and their temporal variations, and track cloud-level wind field in the polar vortices. VOX circular polar orbit geometry will provide an unprecedented simultaneous study of both polar regions.

Warwick S. Ross F. Sokol D.

[Venus Atmospheric Maneuverable Platform \(VAMP\) — Future Work and Scaling for a Mission](#) [#8029]

The Venus Atmospheric Maneuverable Platform (VAMP) offers a unique opportunity to explore the atmosphere of Venus. This poster details the mission scaling and near term work required to mature the concept.

Peltz L. Jones W. M. Frampton R. V. Keith A. R. Scherer A.

[Field Emission Vacuum \(FEV\) Electronic Devices for Operation Above 500 Degrees Celsius](#) [#8032]

Boeing is teamed with Caltech to develop FEV (Field-Emission Vacuum) electronics. Our Boeing-Caltech team has recently begun work, under NASA ROSES C.24 HOTTech program, to demonstrate robust FEV operating at 500C, towards Venus surface missions.

Goossens S. Lemoine F. G. Rosenblatt P. Lebonnois S. Mazarico E.

[\*Analysis of Magellan and Venus Express Tracking Data for Venus Gravity Field Determination\*](#) [#8036]

We use tracking data from Magellan and Venus Express to determine a high-resolution gravity field model for Venus.

Sauder J. Wilcox B. Cutts J.

[\*An Airborne Turbine for Power Generation on Venus\*](#) [#8037]

A stationary airborne turbine in the Venus atmosphere has the potential to generate sustained power to operate a lander. It would fly dozens of meters off the ground, to obtain higher wind power than what a surface lander could access.

Rehnmark F. Bailey J. Cloninger E. Zacny K. Hall J. Sherrill K. Melko J.

Kriechbaum K. Wilcox B.

[\*Performance Characterization of HT Actuator for Venus\*](#) [#8038]

A high temperature (HT) actuator capable of operating in the harsh environment found on the surface of Venus has been built and tested in rock drilling trials at JPL's Venus Materials Test Facility.

Mandt K. E. Luspai-Kuti A. Mousis O. Fuselier S. A.

[\*Can Rosetta Noble Gas and Isotopic Measurements Contribute to Understanding the Origin and Evolution of Venus' Atmosphere?\*](#) [#8039]

New observations of noble gas abundances and stable isotope ratios from comets provide important information on potential sources of volatiles for Venus. They can help refine current atmospheric evolution models and plan for future missions.

Jessup K.-L. Carlson R. W. Perez-Hoyos S. Lee Y.-J. Mills F. P. Limaye S. Ignatiev N. Zasova L.

[\*Motivations for a Detailed In-Situ Investigation of Venus' UV Absorber\*](#) [#8040]

Motivations for an *in-situ* investigation of Venus unknown UV absorber. This presentation will provide details of the critical measurements and the critical observational parameters that are required to define the nature of Venus' UV absorber.

Ndao S. Elzouka M.

[\*The Way to Thermal Computers Utilizing Near-Field Thermal Radiation\*](#) [#8048]

Limited performance and reliability of electronic devices in harsh environments requires alternative computing technologies development. Our research group proposed and experimentally demonstrated the first high temperature thermal logic devices.