

PAC meeting
November 14, 2023



VEXAG 2023 Meeting
DRAFT 2023 FEQ
Venus Exploration Strategy
Upcoming Activities

Noam Izenberg Applied Physics Laboratory, Chair
Debra Buczkowski Applied Physics Laboratory, Dpty Chair
Molly McCanta* University of Tennessee
Jason Rabinovich* Stevens Institute of Technology
Siddharth Krishnamoorthy**

Jet Propulsion

Laboratory, ECR

Sara Port**

Glenn Research Center, ECR

Chuanfei Dong

Boston University, ECR

Erika Kohler

Goddard Space Flight Center,

ECR

Eric Grosfils

Pomona College

Daniel Nunes

Jet Propulsion Laboratory

Anna Gulcher

California Institute of Technology.

ECR

Michael Way

Goddard Institute for Space

Studies

Tracy Gregg

University of Buffalo

Alexander Akins

Jet Propulsion Laboratory. ECR

Natalie Punt

Scribe

Darby Dyar

PSI, Mount Holyoke College, Emeritus

Nick Lang

NASA HQ, ex officio

*Term ends in January 2024



21ST MEETING
OCT 30-31 2023

New Mexico Museum of Natural
History and Science,
Albuquerque

123 in person registrants
191 virtual

Late breaking numbers put
individual attendance at 400+

Meeting day 2 was haunted



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VEXAG

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THREE YEAR GOALS
2023-2025

VEXAG

**Develop Venus Exploration Strategy
for the next decade with NASA**

Work with missions and the international
Venus community

**Nurture the next generation of Venus
scientists and engineers**

Improve communication within Venus
community and among the general
public

Revise GOI, Roadmap, Tech Plan

OPPORTUNITIES FOR VENUS EARLY CAREER NETWORKING



VEXAG



140 members and growing
Speed Networking event at VEXAG
EC dinner



FINDINGS
ENDORSEMENTS
QUESTIONS

VEXAG

Seeking the most effective way to advocate for the Venus community, show support, and get the information we need

Findings

- Go to the PAC
- 2 ONLY
- Inter-AG recommendations for action

Endorsements

- Go to NASA
- Support and information from the community

Questions

- Go to SMD director, NASA Liaison, others at HQ
- Information the community seeks



DRAFT FINDINGS 2023

VEXAG

Will be narrowed to 2 most actionable by/with PAC. The rest will become Endorsements

R&A Finding: There is an R&A program gap in funding fundamental research that is badly needed to support Venus missions. A **Venus Fundamental Research** (VFR) program or “**Precursor Science Investigations – Discovery**” (PSI-D) R&A program could address these needs.

Examples:

- The recent Venus Experimental Workshop recommended a round-robin set of experiments in which all facilities would run the same sample and comparisons could be made to ensure consistency across facilities.
- Lack of laboratory spectra acquired under Venus conditions.

VERITAS Finding: **VERITAS engineering development funds should be reinstated and a launch date be determined ASAP.** A launch in FY29 would help retain radar staff and key VERITAS personnel, support the ongoing work of international partners, reduce technical risk and total cost, and deconflict VERITAS and EnVision temporal overlap.



DRAFT FINDINGS 2023

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In-Situ Technology Finding: There are multiple technology gaps in in-situ exploration technologies, which are critical follow-ons to the DAVINCI, VERITAS, and EnVision missions as well as throughout the solar system. A “**CloudTech**” program would focus on probes, aerial/airborne technologies, deep atmospheres, and implementations applicable to multiple planetary targets; while a **HOTTech 3 program** would enable maturing and integrating key technologies into **platforms and systems**.

Workforce Finding: LPSC and other relevant planetary **conferences should rotate to a broader set of locations to increase community access**, consistent with the NASA principles of Inclusion, Diversity, Equity, and Accessibility (IDEA). Headquarters and the community are urged to support use of multiple pronouns, both in collecting demographic information and in increasing visibility in postings on official NASA websites.



DRAFT FINDINGS 2023

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SIMPLEx Finding: NASA is leaning towards requiring SIMPLEx proposals/payloads to be co-destined with the primary mission that launches them. VEXAG endorses this plan and therefore finds NASA should issue a **SIMPLEx AO in FY 2024 or 2025**, soliciting rideshare payloads early enough to accompany the launch of DAVINCI in 2029, and/or VERITAS in 2029–2031 (depending on restart date), provided this has no detrimental impact on the primary mission efforts.

- SIMPLEx co-destination reduces wasted proposal efforts, but also limits opportunity - an AO for a 2029 launch is a short fuse, but there are many viable candidates from past AOs.



**DRAFT ENDORSEMENTS
2023**

VEXAG

INTERNATIONAL COLLABORATION: VEXAG RECOGNIZES THE VALUE OF NASA'S CONTINUED ENGAGEMENT IN INTERNATIONAL MISSIONS TO VENUS. JAXA, ESA, ISRO, MORE.

NEW FRONTIERS: VEXAG ENDORSES THE INCLUSION OF THE VISE THEME (RECOMMENDED IN OWL) TO THE NEXT NEW FRONTIERS COMPETITION.

PLANETARY MAPPING: VEXAG ENDORSES THE NEEDED COMPLETION OF MAGELLAN VENUS QUADRANGLE GEOLOGIC MAPPING AND THE IMPORTANCE OF PLANETARY GEOLOGIC MAPS FOR UPCOMING MISSIONS.

EARTH-BASED VENUS SCIENCE: VEXAG ENDORSES SUPPORT OF VENUS-ANALOG FIELD CAMPAIGNS IN ADDITION TO GROUND-BASED/BALLOON/SUBORBITAL OBSERVATIONS OF VENUS, INCLUDING GROUND-BASED RADAR FACILITIES, AND LEVERAGING CROSS-DIVISION OPPORTUNITIES THAT CAN SUPPORT VENUS AND NON-VENUS COMMUNITIES ALIKE.



DRAFT ENDORSEMENTS
2023

VEXAG

LLISSE TECHNOLOGY: VEXAG ENDORSES THE COMPLETION OF DEVELOPMENT FOR THE LONG LIFE IN-SITU SOLAR SYSTEM EXPLORER (LLISSE)

STUDENT AND EARLY CAREER SUPPORT: VEXAG ENDORSES AND ENCOURAGES NASA EFFORTS TO ENGAGE AND TRAIN/RECRUIT DIVERSE EARLY-STAGE SCIENTISTS AND ENGINEERS IN VENUS INVESTIGATIONS THROUGH R&A PROGRAMS AND MISSION INVOLVEMENT.

LABORATORY ACCESS: VEXAG ENDORSES NASA SUPPORT OF EXPERIMENTAL TESTS TO PREPARE FOR UPCOMING MISSIONS, ENABLE LOW COSTS FREE ACCESS FOR EARLY CAREER AND UNDERREPRESENTED GROUPS, ENABLE FURTHER TECHNOLOGY MATURATION. EXAMPLES: COMMUNITY TEST IN GEER (GRC) AND OTHER DEDICATED FACILITIES (E.G. JPL ATMOSPHERE CHAMBER)

SAW 4: A Strategy for the Exploration of Venus

Since early 2023, VEXAG has been developing a **new strategy for the exploration of Venus** that is intentionally broader in scope, and looks to a longer time horizon, than standard VEXAG publications such as the *Goals, Investigations, and Investigations* and *Technology Roadmap* documents

The Exploration Strategy SAW identified **six complementary, related elements** for advancing Venus exploration:

1. Venus as a **Science Nexus**
2. Exploration-Enabling **Technologies and Infrastructure**
3. **Supporting Venus Science** in the United States
4. Building Venus Exploration **Partnerships**
5. Venus **Mission-related Actions**
6. The **Long-Term Vision** for Venus

Through findings and recommendations for multiple stakeholders, the overall goal of this exploration strategy document is to lay the foundation for **the establishment by NASA of a formal Venus Exploration Program in the 2030s.**



Upcoming VEXAG events, etc.

Venus at AGU and other meetings

Finalized FEQ Jan-Feb '24

Townhall at LPSC

*Release of Exploration Strategy

Update of GOI, Roadmap, Tech Plan documents (Spring-Summer '24)

LPI Initiative meeting #4 (Summer '24?)

Exoplanets in our Backyard 3 (Nov. '24)

22nd VEXAG, November '24



VEXAG