



Symposium: Venus Science Enabled by Human Proximity

July 20 - 21, 2022

Keck Institute for Space Studies, Caltech

Symposium Vision, Goals, and Expectations

Vision (official)

- “As NASA develops its plans for potential opposition-class missions to Mars, it is important that this discussion is informed by the science opportunities that could result from a Venus fly-by. The options for science operations related to human missions at Venus have not been examined in depth by the space science and engineering community in over forty years. Over those decades, the relevant technologies and science objectives have changed significantly. The symposium is therefore highly likely to generate innovative new ideas for science and engineering related to human missions to Venus.”

Vision (additional unofficial)

- *Convene the first meeting of the Venus Underground to discuss science opportunities, mission architecture pathways, and socio-economic organizing options for a first human mission to the Venus.*
- *Concepts of operations for a first human mission to Venus to discuss:*
 - *Dedicated fly-by*
 - *Dedicated orbital*
 - *Fly-by as part of mission to Mars*

Goals

The goals of the KISS symposium on Venus Science Enabled by Human Proximity are to:

- Identify the most valuable science opportunities that human proximity to Venus would enable.
- Identify the technologies and engineering solutions required to realize these science opportunities.
- Evaluate the effect that potential human Venus missions could have on robotic Venus missions and the overall Venus science community.
- Evaluate community support for human exploration mission concepts that include Venus (particularly amongst graduate students, post-doctorate students, and early-career professionals).

Goals (additional unofficial)

- Notional high-level system requirements and concept of operations options for a first human mission to Venus sufficient to enable further mission planning and R&D investments.
- Development of a long-lived informal coalition dedicated to realizing a first human mission to Venus.

Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.

Margaret Mead, 1978

Expectations (products)

- ~5 page summary of our symposium discussions, findings, and conclusions
 - 1-2 page on potential Venus science enabled
 - 1-2 page on mission architectures and technologies
 - 1-2 page on community development and policy support
 - 1-2 page notional requirements and con-ops of mission(s)
- Exchange of views on importance of human Venus missions relative to national policy (w/ associated next steps for action, or not)
- Short list of 3-5 desired outcomes (or questions) for IAC special session on human Venus missions relevant to international audience.
- 1 (or 2? 3?) compelling illustrations related to a first human mission to Venus defined/outlined