



Venera-D Joint Science Definition Team Workshop: Potential Landing Sites and Cloud Layer Habitability

Space Research Institute, Moscow, October 2-5, 2019

Notice of Interest to Attend: 3 June 2019

Abstract deadline : August 10, 2019 11:59 pm (Moscow Local Time, UT+3 :00 hrs)

The Space Research Institute (IKI) and the Vernadsky Institute (GEOKHI) of the Russian Academy of Sciences and the Venera-D Joint Science Definition Team are hosting a four-day workshop on Venera-D Lander's landing site selection, and the past and current habitability of Venus' cloud layers. This workshop will be held just prior to the 10th Moscow Solar System Symposium (10M-S³) dates 7-11 October, 2019) also at IKI (<https://ms2019.cosmos.ru/>). The 10M-S³ Venus session is scheduled for Tuesday October 8th.

The overarching theme of the Venera-D mission concept is the investigation of *Venus' atmosphere, surface and interior and the processes that link them as a system*. The baseline mission includes an orbiter, a VEGA like lander and one long life surface stations (LLISSE). Possible augmentations to the mission baseline may include more LLISSEs, 2 small seismic stations, a variable altitude aerial platform or perhaps one or two sub-orbiters.

Potential Landing Sites:

The first workshop will focus on scientifically desirable landing sites for the Venera-D lander which could be accessible from the approach trajectory and are low risk. An attempt will be made to produce a scientifically prioritized list of landing sites at this workshop. Please refer to the Venera-D Phase II report from the JSDT to learn about the constraints (<http://www.iki.rssi.ru/events/2019/Venera-DPhaseIIFinalReport.pdf>). The primary sessions exploring these topics will be held during 2-3 October (additional splinters may occur a day later).

Cloud Layer Habitability:

The second part of the workshop will focus on the habitability of the cloud layer on Venus and related topics. Models (constrained by observations) indicate that early Venus hosted liquid surface water for perhaps ~ 2 billion years, a time-scale sufficient to allow life to evolve independently or survive if delivered to Venus. Though Venus' present-day surface is parched, the cloud layer (47-70 km) provides the energy, liquid water (mixed in with sulfuric acid cloud droplets) and nutrients required to support microbial life. It is even speculated that cloud dwelling micro-organism colonies are one of the unidentified sources absorbing sunlight at the wavelengths where Venus' cloud contrasts are most prominent. The habitability sessions will be held 4-5 October (preliminary splinters may occur a day earlier).

You are invited to submit abstracts related to one or more of these four categories:

- landing sites targets: geology, mineralogy, surface morphology, seismology, atmospheric boundary studies
- theoretical studies on habitability, bio species survival and atmospheric chemistry relevant to habitability and climate evolution
- surface/atmosphere/bio species (micro-organism) instrumentation and sampling systems, including indications of the preferred observing platform
- laboratory studies supporting surface/atmospheric sample analysis and cloud species identifications; this includes spectral signatures of minerals, aerosols, gases, bio species, and studies of micro-organism sustainability within Venus analog environments.

Meeting registration fee details will be disclosed in the abstract confirmation letter.

Mid to early career scientists are encouraged to submit abstracts. Some travel support for US citizens may be possible for selected abstracts. Interested parties are requested to notify the organizers of their interest as soon as possible to help with the workshop planning. A Workshop bulletin summarizing the meeting findings will be produced—we are seeking volunteer scribes to facilitate this effort.

To indicate your interest by June 3, 2019 please e-mail venera-d@cosmos.ru and indicate in the subject line: *JSDT 2019 Workshop (category of interest)*. Include your name and title of your abstract in the body of the message; please also include in the message your availability/willingness to serve as a volunteer scribe.

Visa for entry into Russia will be needed for many participants. Additional information will be posted on the workshop URL (<http://venera-d.cosmos.ru>), including the letter of invitation for visa processing.

For additional questions/inquiries please contact :

- Dr. Ludmila Zasova (zasova@iki.rssi.ru) regarding Venera-D JSDT and 10M-S³
- Dr. Mikhail Ivanov (Mikhail_Ivanov@brown.edu) & Dr. Jim Head (James.Head@brown.edu) for the Landing Site workshop
- Dr. Sanjay Limaye (sslimaye@wisc.edu), Dr. Kandis-Lea Jessup (knasaven@gmail.com) & Dr. Elena Vorobyeva (el.vb0247@gmail.com) for the Astrobiology/Cloud Workshop
- Dmitry Gorinov (dmitry_gorinov@rssi.ru) for Abstract information
- Dr. Adriana Ocampo (aco@nasa.gov) for NASA-support related questions