

ASTROBIOLOGY VENUS COLLECTION. S.S. Limaye, (University of Wisconsin, Madison, Wisconsin 53706, USA, sslimaye@wisc.edu).

Introduction: A two-day workshop on Venus Cloud Layer Habitability was organized by the Roscosmos-IKI/NASA Joint Science Definition Team (JSDT) and hosted by the Space Research Institute, Moscow, Russia during October 4-5, 2019. Approximately fifty scientists and students attended the combined Venera-D Landing Sites and Habitability workshop which spanned over four days. Twenty-two presentations were given in the Venus Cloud Habitability portion of the meeting.

The goal of the workshop was to seek broader scientific input for investigating the potential habitability of the Venus cloud layer including the potential biological nature of the UV solar radiation absorbers in the Venus atmosphere, one of the Venera-D science objectives. Presentations given at the workshop can be found [here](#).

A special Venus Collection that includes papers emanating from this workshop is being published in the [Astrobiology](#) journal. The papers in this collection provide a scientific foundation for advancing astrobiology research on Venus and guide assessment of the habitability of exoplanets via the study of Venus [1]. The collection also includes three papers that were not presented at the workshop but are very relevant to the Venus cloud habitability. The following papers comprise the collection.

[AST-2020-2268. Venus, an Astrobiology Target](#), S.S. Limaye, R. Mogul, K.H. Baines, M.A. Bullock, C. Cockell, J.A. Cutts, D.M. Gentry, D.H. Grinspoon, J.W. Head, K.-L. Jessup, V. Kompanichenko, Y.J. Lee, R. Mathies, T. Milojevic, R.A. Pertzborn, L. Rothschild, S. Sasaki, D. Schulze-Makuch, D.J. Smith, and M.J. Way.

[AST-2020-2296. Exobiology of Venusian Clouds: New Insights into Habitability through Terrestrial Models and Methods of Detection](#), O.R. Kotsyurbenko, J.A. Cordova Jr., A.A. Belov, V.S. Cheptsov, D. Kölbl, Y.Y. Khrunyk, M.O. Kryuchkova, T. Milojevic, R. Mogul, S. Sasaki, G.P. Słowik, V. Snytnikov, and E.A. Vorobyova.

[AST-2020-2244. The Venusian Lower Atmosphere Haze as a Depot for Desiccated Microbial Life: A Proposed Life Cycle for Persistence of the Venusian](#)

[Aerial Biosphere](#), S. Seager, J.J. Petkowski, P. Gao, W. Bains, N.C. Bryan, S. Ranjan, and J. Greaves.

[AST-2020-2326. Biologically Available Chemical Energy in the Temperate but Uninhabitable Venusian Cloud Layer: What Do We Want to Know?](#)
C.S. Cockell, P.M. Higgins, and A.A. Johnstone

[AST-2021-0032. Potential for Phototrophy in Venus' Clouds](#), R. Mogul, S.S. Limaye, Y.J. Lee, and M. Pasillas.

[AST-2020-2267. Phosphorus in Venus' Clouds: Potential for Bioavailability](#), T. Milojevic, A.H. Treiman, and S. Limaye.

[AST-2021-0034. Phosphine Generation Pathways on Rocky Planets](#), A. Omran, C. Oze, B. Jackson, C. Mehta, L.M. Barge, J. Bada, and M.A. Pasek.

[AST-2020-2352. Phosphine on Venus Cannot Be Explained by Conventional Processes](#), W. Bains, J.J. Petkowski, S. Seager, S. Ranjan, C. Sousa-Silva, P.B. Rimmer, Z. Zhan, J.S. Greaves, and A.M.S. Richards.

[AST-2020-2280. The Venus Life Equation](#), N.R. Izenberg, D.M. Gentry, D.J. Smith, M.S. Gilmore, D.H. Grinspoon, M.A. Bullock, P.J. Boston, and G.P. Słowik.

[AST-2021-0001. Investigation of Venus Cloud Aerosol and Gas Composition Including Potential Biogenic Materials via an Aerosol-Sampling Instrument Package](#), K.H. Baines, D. Nikolić, J.A. Cutts, M.L. Delitsky, J.-B. Renard, S.M. Madzunkov, L.M. Barge, O. Mousis, C. Wilson, S.S. Limaye, and N. Verdier.

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References:

- [1] Kane, S.R., et al., *Venus as a Laboratory for Exoplanetary Science*. Journal of Geophysical Research: Planets, 2019. 124(8): p. 2015-2028, 10.1029/2019je005939