

Dear Venus List,

Welcome to the June 2020 Newsletter. The Planetary and Astrobiology Decadal approaches, and COVID-19 and other news continues to disrupt the greater community of which Venus science is a small part. This affects several of the items in the note today.

- 1) Decadal Survey White Papers - Deadline Delay, Status of Venus White Papers, and Other Notes
- 2) VEXAG 2020 Annual Meeting is going Virtual.
- 3) Fall AGU is going Virtual, and Venus Mission Special Session
- 4) Akatsuki Venus Atmospheric Phenomena Paper

- 1) Decadal Survey White Papers - Deadline Delay, Status of Venus White Papers, and Other Notes

As has been announced in multiple venues, the Decadal Survey on Planetary Science and Astrobiology has announced a set of delayed due dates for white papers:

- * Science White Papers: now due JULY 15.
- * Mission Concept White Papers: now due AUGUST 15.
- * All Other White Papers: now due SEPTEMBER 15.

With this news, we sent out a query to all first authors of Venus related white papers listed on the VEXAG tracking document. Most white papers are proceeding and expect to be complete by their respective due dates. A small few have informed they can't be completed in time due to extenuating circumstances of COVID-19 or collateral effects. Science white papers that must be canceled or reduced in scope or impact because of current events are being tracked for submission to the Decadal Survey to inform them of gaps in material they might need. If you are leading a white paper that is canceled or diminished for these reasons please contact Noam Izenberg (noam (dot) izenberg (at) jhuapl (dot) edu) to have your paper included in the list by July 15.

As of this newsletter 5 of the 20 already submitted White papers on the Decadal White Paper Site are for Venus.

2) VEXAG 2020 Annual Meeting is going Virtual

We have been informed by NASA Headquarters that all Advisory Group (AG) meetings for at least the next 6 months are going to remain virtual. This means VEXAG will be on-line only and not at Cal Tech this year. VEXAG 2021 is currently planned to be in person at that location. More information about the virtual program and agenda will be forthcoming. Current plans are to keep the meeting dates November 16-18, 2020.

3) Virtual AGU and Venus Special Sessions

AGU announced that the fall meeting will be virtual, with more details about the meeting coming soon. However, there will be a special Venus session: Preparing for the Next Venus Missions.

Stay tuned for more information on Fall AGU submissions and program information.

4) Akatsuki Venus Atmospheric Phenomena from Javier Peralta

It has been a long way, but we finally published the discovery of one of the most interesting atmospheric phenomena spotted by the Akatsuki mission: a giant discontinuity/disruption rapidly propagating along the middle and lower clouds of Venus but invisible at the upper clouds. This atmospheric phenomenon is comparable with other planetary patterns spotted at the upper clouds like the Y-feature or the giant stationary bow, and a revisit of past observations with ground-based telescopes and the Venus Express mission evidence that this is a quasi-permanent feature of the Venus atmosphere that we have missed since, at least, the year 1984.

In this work we studied this phenomenon with day and night side observations performed by JAXA's Akatsuki, NASA's IRTF telescope and even small telescopes from amateur astronomers. The disruption propagates faster than the super-rotating winds of Venus, it is able to keep a coherent shape after several revolutions and can severely affect clouds' optical thickness and size distribution of aerosols. Although its physical interpretation is yet an open issue, we proposed a nonlinear Kelvin wave generated below the clouds as a plausible candidate to explain many of its properties.

We suspect that this disruption may be a missing critical factor to explain Venus's atmospheric circulation since: (1) it seems to vanish before arriving at the upper clouds and its phase speed is consistent with a wave dissipating (and depositing momentum) at the level of the upper clouds, and (2) its effect over clouds' properties and aerosols evidence that it may also affect the thermal balance and chemical processes of the Venus atmosphere. We hope these results are inspiring for future observations of Venus and missions!

For more information, please consult the original paper published in Geophysical Research Letters: <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2020GL087221>

While the preprint PDF available in arXiv is more complete and has animated figures embedded: <https://arxiv.org/abs/2005.13540>