

EGU21-7918

<https://doi.org/10.5194/egusphere-egu21-7918>

EGU General Assembly 2021

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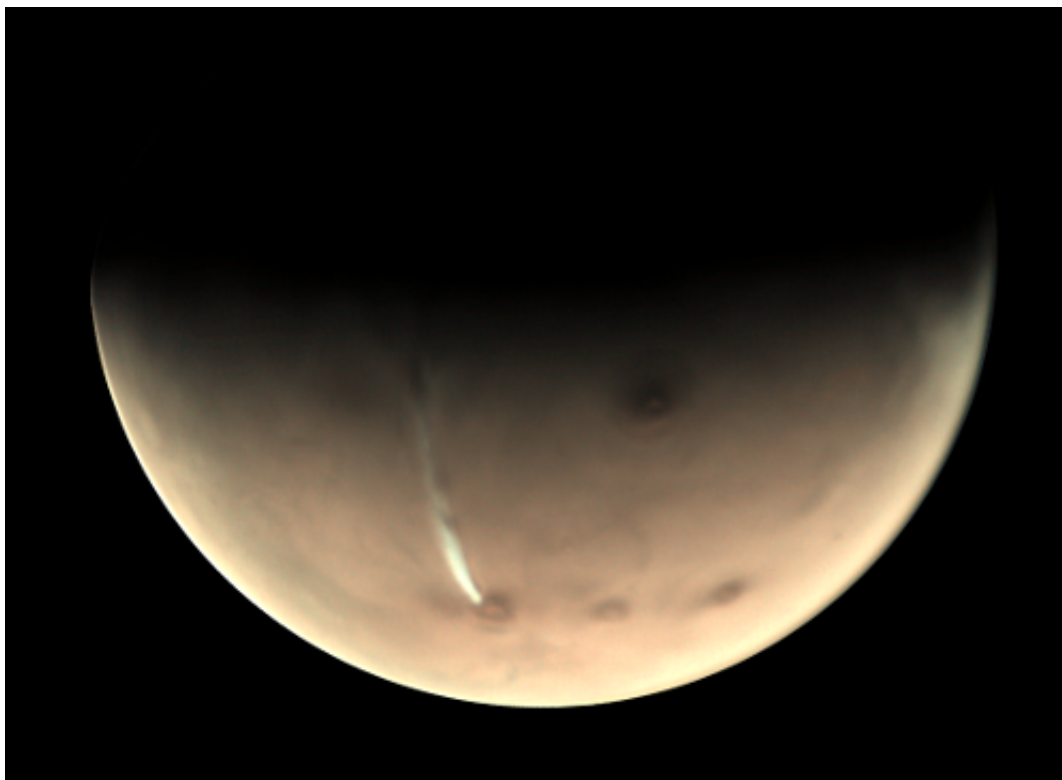
Exploring de formation of the Arsia Mons Elongated Cloud on Mars

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In a recent work (Hernández-Bernal et al. 2020) we reported the existence and properties of the AMEC (Arsia Mons Elongated Cloud). This cloud appears every martian year around the southern solstice following a quick daily cycle, it expands up to 1800 km after sunrise and disappears before noon. While in the previous work we made an extensive observational study, a number of questions remain unsolved, including the specific specific set of atmospheric conditions that originates this particular cloud at this moment of the year, and why other near volcanoes do not exhibit analogous clouds. In this work we explore, based on models, the physical conditions of the atmosphere around Arsia Mons, such as temperature gradients, winds, and water vapor distribution, as a first step to try to understand this particular cloud.



References:

Hernández-Bernal, J., Sánchez-Lavega, A., Río-Gaztelurrutia, T. D., Ravanis, E., Cardesín-Moinelo, A., Connour, K., ... & Hauber, E. An Extremely Elongated Cloud over Arsia Mons Volcano on Mars: I. Life Cycle. *Journal of Geophysical Research: Planets*, DOI: 10.1029/2020JE006517