

OBSERVING MARS FROM AREOSTATIONARY ORBIT: BENEFITS AND APPLICATIONS

A White Paper submitted to the Planetary Science and Astrobiology Decadal Survey 2023-2032

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List of signatories

➤ On 07/19/2020: **Takeshi Kuroda** Tohoku University Japan

Specific reason(s) for supporting this WP: *“For the safeness of future human/robotic activities on Mars, the weather system on Mars needs to become predictable like Earth in the next decade. We definitely need the areostationary data as proposed in this White Paper, which has never been obtained, to realize the weather forecasting on Mars.”*

➤ On 07/19/2020: **Peter L. Read** University of Oxford UK

Specific reason(s) for supporting this WP: *“Areostationary satellites provide platforms that enable Mars science to move from exploratory mapping to continuous monitoring. This will enable a host of new investigations that include short timescale phenomena, diurnal cycles and many other features.”*

➤ On 07/20/2020: **Ehouarn Millour** Laboratoire de Météorologie Dynamique (LMD/IPSL/CNRS) France

➤ On 07/20/2020: **Stephen R. Lewis** The Open University UK

➤ On 07/21/2020: **Katsuyuki Noguchi** Nara Women's University Japan

➤ On 07/22/2020: **Abigail A. Fraeman** Jet Propulsion Laboratory, California Institute of Technology USA

➤ On 07/29/2020: **Andrew E. Turner** Maxar Technologies USA

Specific reason(s) for supporting this WP: *“I have supported the development of the areostationary orbit for many years. The orbital dynamics and Mars surface coverage advantages of this useful orbit were discussed in a paper (AAS 03-179) I co-authored with JPL engineers in 2003. I have also been involved in developing related concepts to support communications between Earth and Mars assets. One of them was covered in a more recent paper, AAS 17-218. It discusses a spacecraft at the Sun-Earth Lagrange Point L5 (SE-L5) that serves as a relay when the Sun is in between Earth and Mars and is blocking direct communication between the two planets. This SE-L5 relay would maintain the traffic carried by any spacecraft in the areostationary orbit at a high level over many years. The white paper will convince others to support the development of the important areostationary orbit and make it useful for the communications, meteorological and related operations that are essential to the exploration of Mars in the coming decades.”*

➤ On 07/30/2020: **Steven J. Greybush** The Pennsylvania State University USA

Specific reason(s) for supporting this WP: *“An areostationary spacecraft would improve atmospheric weather monitoring, and hence the potential to advance modeling, reanalysis, and understanding of Martian weather phenomena.”*

➤ On 08/01/2020: **Hiroyuki Maezawa** Osaka Prefecture University Japan

Specific reason(s) for supporting this WP: *“For understandings of origins of life/central dogma, habitability in exoplanets, evolutions of atmospheres of terrestrial planets. For educations on the study about the wonderfulness of Earth's environment and life”*

We are still accepting signatories for this paper. The list will be updated after August 31, 2020

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