



The Sun Radio Imaging Space Experiment (SunRISE) Mission

Joseph Lazio (1), Justin Kasper (2), Farah Alibay (1), and Konstantin Belov (1)

(1) Jet Propulsion Laboratory, California Institute of Technology, Pasadena, United States, (2) Department of Climate and Space Sciences & Engineering, University of Michigan, Ann Arbor, United States

Coronal mass ejections (CMEs) are able to accelerate particles at their shock fronts, as evidenced by the radio emissions that they generate. However, many aspects of this particle acceleration remain poorly constrained, including the location or locations of the sites of particle acceleration and the evolution of the particle acceleration as the CME moves out into the heliosphere. Ground-based radio telescopes are able to image CMEs and locate the particle acceleration sites during the early stages of a CME, but they are limited to tracking CMEs to only a few solar radii before the frequencies of radio emission drop below the Earth's ionospheric cutoff. Triangulation between the STEREO/SWAVES and Wind/WAVES instruments have provided some initial constraints on particle acceleration sites at larger distances (lower frequencies), but the uncertainties remain considerable.

We describe the Sun Radio Imaging Space Experiment (SunRISE) mission concept. A constellation of small spacecraft, with each spacecraft carrying a radio receiving system for observations below 30 MHz, SunRISE will produce the first images of CMEs more than a few solar radii from the Sun.

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