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Oral

The current space era provides a unique opportunity to leverage multiple spacecraft near the Sun-Earth L1 vantage point for space weather studies. ISRO's newly operational Aditya-L1 mission, along with NASA's Wind, ACE, DSCOVR, ARTEMIS-P2, STEREO-A, MMS, etc., provides an unprecedented cluster of spacecraft sampling near Earth's solar wind. These nearly simultaneous plasma and field measurements enable the study of spatio-temporal variations within Interplanetary Coronal Mass Ejections (ICME) and solar wind to provide new insights into their internal structure and evolution. The recent multipoint observations of ICMEs indicate the existence of small-scale heterogeneity in interplanetary structures near Earth. Exploiting the multipoint measurements using swarms of satellites near L1 to characterize interplanetary disturbances could give crucial information on drivers of geomagnetic disturbances so that their impact can be modeled and predicted accurately. To predict space weather impact accurately, just a single point measurement may not be appropriate, as it does not capture realistic plasma and magnetic field parameters of the upstream solar wind. Thus, future coordinated multipoint observations near L1 will play a significant role in improving space weather prediction at Earth.

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Risk and Resiliency to Space Weather Disruption