

Solar and Heliospheric Data Requirements: Going Further than L1

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Current operational space weather forecasting relies on solar wind observations made by the ACE spacecraft located at the L1 point providing 30-40 minutes warning time. Some use is also made of SOHO and STEREO solar imaging that potentially can give multiple days of warning time. However, our understanding of the propagation and evolution of solar wind transients is still limited resulting in a typical timing uncertainty of ~10 hours. In order to improve this critical understanding, a number of NASA missions are being planned. Specifically the Solar Probe Plus and Solar Orbiter missions will investigate the inner Heliospheric evolution of coronal mass ejections and the acceleration and propagation of solar energetic particles. In addition, a number of multi-spacecraft concepts have been studied that have the potential to significantly improve the accuracy of long-term space weather forecasts.