



An Introduction to PRESTO's Pillar One: Sun, interplanetary space and geospace

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The first pillar of the PRESTO programme is on the Sun, interplanetary space and geospace. This is a wide research area, covering a vast physical domain. It focuses on large-scale solar transients, e.g., coronal mass ejections (CMEs), slow-fast stream interaction regions (SIRs), and solar energetic particle (SEP) events all way through from their genesis in the solar atmosphere, their subsequent evolution and propagation in the interplanetary space and eventually their impact into geospace. Main questions Pillar One addresses include the following: identify conditions/criteria in the solar atmosphere which are related to eruptivity, pinpoint optimal observational inputs to various (semi-)empirical and physics-based models aiming to forecast the properties of solar transients, and, determine how the solar and internal magnetospheric processes drive the radiation belt and ring current dynamics. We will discuss the science and activities of Pillar One, its research vehicles as well as ways that the community could be involved.