

Great magnetic storms revisited

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In this work, we revisit a very important topic of space weather, the great magnetic storms. Our inspiration comes from the work done by Tsurutani et al. (GRL, 1992), in which 5 $Dst < -250$ nT geomagnetic storms were studied in terms mainly of their interplanetary origin. Since 1996, the post-SOHO era, we have identified a number of 18 $Dst < -200$ nT events, this time with a much more complete set of observations of the sun and of the near-earth space. We use data from the Large Angle and Spectrometric Coronagraph and the Extreme Ultraviolet Imaging Telescope, both aboard the Solar and Heliospheric Observatory, to identify the solar origin of these events. Solar wind and interplanetary magnetic field from the Advanced Composition Explorer are used to study these events in terms of their interplanetary structure. We also address the high energy cosmic ray modulation caused by these events, using ground-based muon observations from telescope installed at the Southern Space Observatory, Brazil.