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Geomagnetic sudden commencement(SC) seen from the solar wind

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It is well known that geomagnetic sudden commencements (SCs) are caused by dynamic pressure(Pd) increase associated with interplanetary shock/discontinuities(IPS/DISCONs). It has not been known yet, however, if all of IPS/DISCONs produce SCs. There is no analysis which studied statistically ground geomagnetic signatures starting from the list of IPS/DISCONs. Here we first list up interplanetary IPS/DISCONs and then inveswtigate corresponding geomagnetic ground respnces.

Takeuchi et al. [2002] found that two IPSs with similar Pd increase produce different type of geomagnetic variations and that it depends upon differnece in inclination of the shock front. When the inclination is large, interaction time of the shock with the magnetosphere becomes longer and the shock produces a slower geomagnetic variation which is not identified as SC.

We first check if this is applied to other many IPS/DISCONs.

Keywords: Geomagnetic sudden commkencement (SC), solar wind, interplqanetary shock/discontinuity, magnetosphere, ionosphere