

## Meaning of rise time of geomagnetic sudden commencement (SC)

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Geomagnetic sudden commencement (SC) shows a stepwise increase of the geomagnetic H-component in low latitude region. The rise time  $dT$  of the increase is most probably 4-5 min and ranges between 2 and 10 min.

Here we assume that the rise time is essentially determined by time which is necessary for an interplanetary shock to sweep an effective length  $L_e$  of the magnetosphere. For several sets of Mach number and solar wind parameters in front of the shock we calculated shock velocity  $V_s$  and dynamic pressure jump  $dP$  across the shock. The rise time  $dT$  of SC observed on the ground is given by  $L/V_s$  and SC amplitude  $dH$  is given by an experimental relationship between  $dP$  and  $dH$ . It was found that the observed scatter plot of  $dH$  and  $dT$  can be explained by taking about 30  $R_e$  for  $L$ .