

# Magnetic substorms during the Oct. 2003 and Nov. 2004 super magnetic storms

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We are analyzing magnetic field and ionospheric electric field variations observed at the CPMN stations during the super magnetic storms during Oct. 24-31, 2003, and Nov.7-11, 2004. The former showed sc-triggered substorms with  $AE=2100$  nT at 15:20 UT on Oct. 24, 2003 and 3800 nT at 06:00UT on Oct. 29, 2003. While no sc-triggered substorms occurred during the later event. In the present paper, we will discuss on the difference by analyzing the CPMN magnetic and ionospheric FM-CW radar data, and satellite data.