

Double Star Program in China

Z. X. Liu

Center for Space Science and Applied Research, Chinese Academy of Sciences, Beijing, China

Abstract. The Geospace Double Star Project (DSP) contains two satellites operating in the near-earth equatorial and polar regions respectively. The tasks of DSP are: (i) to provide high-resolution field, particle and wave measurements in several important near-earth magnetosphere active regions which have not been covered by existing ISTP missions in the geospace, such as the near-earth plasma sheet and its boundary layer, the ring current, the radiation belts, the dayside magnetopause boundary layer, and the polar region; (ii) to investigate the trigger mechanisms of magnetic storms, magnetospheric substorms, and magnetospheric particle storms, as well as the responses of geospace storms to solar activities and interplanetary disturbances; (iii) to set up the models describing the spatial and temporal variations of the near-earth space environment. To complete the mission, there are eight instruments on board the equatorial satellite and the polar satellite, respectively. The orbit of the equatorial satellite with a perigee at 565.5km and an apogee at 78959.9km, and the inclination is 28.17°; while the orbit of the polar satellite is proposed with a perigee at 700km and an apogee at 40000km, as well as an inclination about 90°. The equatorial satellite has been launched successfully in December 2003. Now the equatorial satellite (TC-1) and instruments operate normally. Payloads have provided good quality of data of fields and particles. Already very good conjunction in the dayside magnetopause and magnetotail with Cluster, CME effects could be investigated. The first results of data analysis have already shown great interest. The polar (TC-2) satellite has been launched successfully in July 2004. Now the satellite operates normally. The commissioning of the payload has started since the end of July 2004 and will be finished in the middle of Sep.2004. The instrument has been normally operation and downlink the data.

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