

**EUROPEAN SPACE AGENCY**

**SOLAR SYSTEM WORKING GROUP**

**Recommendation on the Double Star extension**

At its 118<sup>th</sup> meeting held on 27<sup>th</sup> April 2005 at the Austria Centre, Vienna, the Solar System Working Group (SSWG) heard the case for a 17 month extension of the Double Star programme (DSP). DSP is a highly successful joint project between ESA and the Chinese Academy of Sciences (CAS) to explore the equatorial and polar magnetosphere, and its interaction with the solar wind.

Highlights of the first months of scientific operations include new results concerning the bow shock, sub-solar and cusp magnetic reconnection, magnetotail dipolarisation, and plasma turbulence. In addition, there have been a very limited number of opportunities to use observations from DSP in conjunction with other spacecraft, in particular Cluster, to obtain important results concerning the global structure of the magnetosphere.

The most important rationale for the extension is to continue joint observations with the ESA Cluster spacecraft in its extended mission. A very important aspect of magnetospheric science is to study the global structure of the magnetosphere on scales of an Earth radius or greater, and this requires multiple spacecraft at widely-separated locations, and is optimised when spacecraft are “magnetically connected”. Orbital calculations indicate that such spacecraft conjunctions will occur, permitting studies of energy transport between magnetopause and magnetotail, and between magnetopause and ionosphere. The extension will also allow the first ever stereo energetic neutral atom (ENA) imaging of the ring current with the IMAGE spacecraft during a geomagnetic storm. This is a very important topic in understanding global magnetospheric dynamics.

***The SSWG unanimously endorses the proposed 17 month extension of DSP.***