



## **Multi-point magnetic field observations of field-aligned currents from Space Technology 5**

G. Le(1), J. Slavin(1), Y.-L. Wang(2), and R. Strangeway(3)

(1) Heliophysics Sciences Division, NASA GSFC, Greenbelt, MD, USA, (2) UMBC/GEST at NASA GSFC, Greenbelt, MD, USA, (3) IGPP/UCLA, Los Angeles, CA, USA  
(Guan.Le@nasa.gov)

Space Technology 5 (ST5) is a three micro-satellite constellation deployed into a 300 x 4500 km, dawn – dusk, sun synchronous polar orbit on March 22, 2006. The spacecraft were maintained in a “pearls on a sting” constellation with controlled spacings ranging from just over 5000 km down to under 50 km. Each spacecraft carried a miniature tri-axial fluxgate magnetometer (MAG). Although the short 90-day mission was designed to flight validate new technologies, the constellation mission returned high quality magnetic field data as they flew in formation and made simultaneous multi-point measurements of the magnetic field through Earth’s dynamic ionospheric current systems. During the three-month mission duration, the ST5 constellation made over 2000 passes across the Earth’s polar ionosphere, and a substantial volume of magnetic field data were taken over a range of inter-satellite spacing. These separations allow us to separate spatial versus temporal structures of auroral field-aligned currents over a wide range of spatial ( $\sim 50$ -4000 km) and temporal ( $\sim 5$  s-10 min) scales. We report first results of magnetic field measurements of field-aligned currents using ST5 data.