Geophysical Research Abstracts
Vol. 13, EGU2011-5417, 2011
EGU General Assembly 2011


# Inner plasma structure of the low latitude reconnection layer

Qinghe Zhang (1), Malcolm Dunlop (2), and the ISSI Team

(1) SOA Key Laboratory for Polar Science, Polar Research Institute of China, Shanghai, China, (2) Rutherford Appleton Laboratory, Space Sciences Division, SSTD, Oxfordshire, OX11 0QX, United Kingdom (M.W.Dunlop@rl.ac.uk, +44 1235 44-5848)

Recent findings in active sites of magnetic reconnection in plasmas have increased the theoretical understanding of the detailed structure within the ion diffusion region surrounding the magnetic X-line or null field. Nevertheless, direct measurements of this small region in space are still relatively rare, despite an unprecedented growth in complexity of in situ measurements, resulting from recent Earth-bound space missions. Clear spatial signatures are difficult, despite recent access to multi-point sampling on small and meso-scales, owing to the time variable nature of the near-Earth space environment. We report here one of the first, clear transitions through a reconnection layer which shows a complete traversal across all reconnected field lines and the associated plasma populations, confirming details of the ion and electron mixing, time history and acceleration through the current layer.