Multispacecraft Study of the 21 January 2005 ICME

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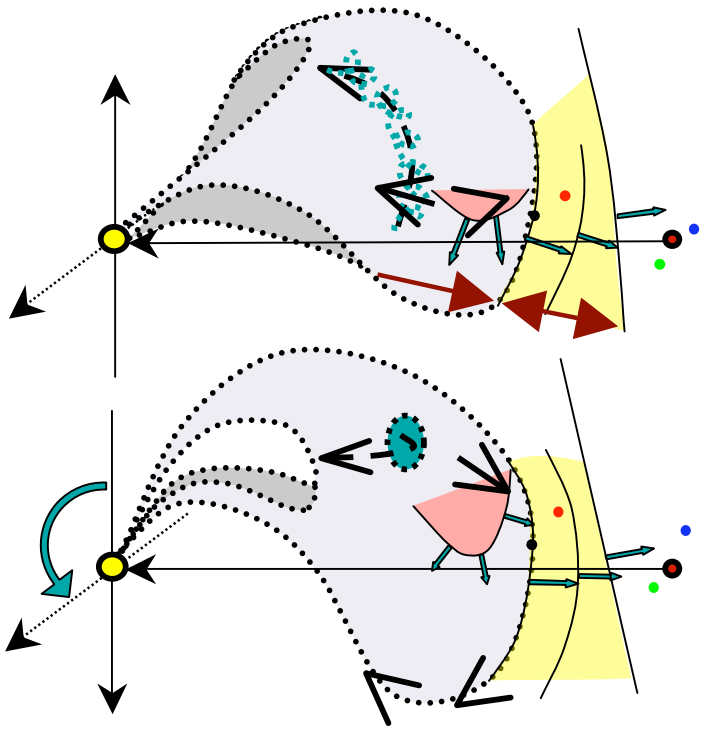

ACE, WIND, GEOTAIL,CLUSTER, ULYSSES

Properties on different scales and at differerent points around the ICME

Shock, Sheath, Flux rope,
Noncompressive density enhancement bounded by flux rope-canopy current sheet

Flux rope identified on Flank; 67°

Lateral expansion from shock normals

80° rotation of flux rope and sheath between Sun and 1 AU indicates helical kink

Ion States in Halloween and 2005/01/20 ICMES
Cara Rakowski

Charge states of quasi-thermal particles

O, Si, Fe are complementary, O freezes in first

O charge state (Q=6) limits initial temperature, Fe (Q=14-16) requires implies fairly high temperature at larger heights

Both Halloween and Jan. 20 events require heating above 1.5 Rsun

Heating ~ 10 x KE gain given by acceleration

Higher charge states observed at Ulysses;

Consistent with Foullon's analysis that ACE passes through flank of ICME, while ULYSSES was closer to the nose