Geophysical Research Abstracts,
Vol. 11, EGU2009-4928, 2009
EGU General Assembly 2009

Structure of Slow Solar Wind during Solar Activity Minimum

E.K.J. Kilpua (1), J.G. Luhmann (2), J.T. Gosling (3), and the Ekilpua Team

(1) Department of Physics, University of Helsinki, Finland (emilia.kilpua@helsinki.fi), (2) Space Sciences Laboratory, University of California, Berkeley, CA, USA, (3) Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder, CO, USA

We investigate the structure of the slow solar wind using the observations by the STEREO and Wind spacecraft during two Carrington rotations (2054 and 2055) that occurred at the time of the present solar activity minimum. At solar minimum distinct interplanetary coronal mass ejections (ICMEs) are rare, but we found that the signatures of transients with small scale-sizes and/or low magnetic field strength (comparable with the typical solar wind value) are frequently found in the slow solar wind at these times. Source mapping using models based on GONG magnetograms suggests that these transients come from the vicinity of coronal source surface sector boundaries and in-situ they are correspondingly observed near high density structures where the dominant electron heat flux reverses its flow polarity. We will discuss the properties of the identified transients and the extent the slow solar wind may be considered transient in nature. We will also discuss their connection to dynamical changes at the coronal hole boundaries where magnetic reconnection has been suggested to open up the magnetic field lines allowing the material to escape from the closed loops.