



Jets from coronal holes - possible source of the slow solar wind

Maria Madjarska (1), Zhenghua Huang (1), Srividya Subramanian (2), and Gerry Doyle (1)

(1) Armagh Observatory, Armagh BT61 9DG, N. Ireland (madj@arm.ac.uk), (2) Inter-University Centre for Astronomy and Astrophysics, Post Bag-4, Ganeshkhind, Pune University Campus, Pune 411 007, India

We will report on statistical studies on the occurrence rate, plasma properties, dynamics and structural evolution, including the magnetic field evolution, of small-scale transients in and along the boundaries of equatorial coronal holes. A comparison is made with quiet-Sun transients. We use multi-instrument observations from the photosphere to the corona comprising imaging, magnetogram and imaging spectroscopy data from EIS, XRT and SOT on board Hinode and SUMER onboard SoHO. The visual analysis of these transients reveals that around 70% of them in equatorial, polar and transient coronal holes and their boundaries show expanding loop structures and/or collimated outflows, i.e. jets. In the quiet Sun only 30% of the brightenings show flows with most of them appearing to be contained in the solar corona by closed magnetic field lines. This strongly suggests that magnetic reconnection of co-spatial open and closed magnetic field lines creates the necessary conditions for plasma outflows to large distances. The ejected plasma always originates from preexisting or newly emerging (at X-ray temperatures) bright points. We will discuss in detail the evolution of individual jets and the possibility whether these phenomena could be one of the sources of the slow solar wind.