



Statistical study of magnetic reconnection in the solar wind at 1 AU

Jakub Enzl, Lubomir Prech, Jana Safrankova, and Zdenek Nemecek

Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic (jakub.enzl@seznam.cz)

Magnetic reconnection is a phenomenon where the energy stored in the magnetic field dissipates into heating and plasma acceleration. It can occur on boundaries connecting plasma with different magnetic field orientations. In spacecraft observations, we can identify magnetic reconnection as its exhaust where the plasma on reconnected field lines leaves the reconnection site.

We present a statistical study based on data from the WIND spacecraft during a period of 1995–2012. We track the signatures of magnetic reconnection exhaust such as a rotation of the magnetic field or acceleration and heating of the plasma. Our statistics focuses on such parameters as the velocity change, temperature, and density enhancements or the shear angle of reconnection.