Geophysical Research Abstracts
Vol. 16, EGU2014-14769, 2014
EGU General Assembly 2014

k-filtering applied to *Cluster* density measurements in the Solar Wind: Early findings

Lauren Jeska, Owen Roberts, and Xing Li
Department of Mathematics and Physics, Aberystwyth University, United Kingdom (laj12@aber.ac.uk)

Studies of solar wind turbulence indicate that a large proportion of the energy is Alfvénic (incompressible) at inertial scales. The properties of the turbulence found in the dissipation range are still under debate $\sim$ while it is widely believed that kinetic Alfvén waves form the dominant component, the constituents of the remaining compressible turbulence are disputed. Using k-filtering, the power can be measured without assuming the validity of Taylor's hypothesis, and its distribution in (ω, $\boldsymbol{k}$)-space can be determined to assist the identification of weak turbulence components. This technique is applied to *Cluster* electron density measurements and compared to the power in $|\boldsymbol{B}(t)|$. As the direct electron density measurements from the WHISPER instrument have a low cadency of only 2.2s, proxy data derived from the spacecraft potential, measured every 0.2s by the EFW instrument, are used to extend this study to ion scales.