Preliminary results from several k-filtering studies in the solar wind.

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An investigation into turbulent solar wind plasma is performed through analysis of several different data sets from Cluster's Fluxgate Magnetometer using the k-filtering method (sometimes referred to as the wave telescope method). This method makes use of Cluster's ability to differentiate between spatial and temporal changes, and allows extraction of the wave vectors present in the solar wind. The time series is filtered so that only a small frequency window is seen in the time series, the k-filtering analysis is performed in order to recover the wavevectors present and the frequency transformed to be in the plasma frame. By following this process the dispersion relations in the Solar wind plasma can be found. This is done for several time intervals between January 2004 and April 2004 where the spacecraft were in a configuration with an average separation of around 200km. This short distance allows analysis of spacecraft frame frequencies of up to 1.1Hz. Data is also used from the WHISPER and STAFF instruments to ensure that there is no connection to Earth's Bow shock. From the analysed data sets propagation of the waves are mostly perpendicular to the background magnetic field and are postulated to be mostly Kinetic Alfvén waves some traces of Fast waves.