



Anisotropic ion heating and ULF waves downstream of quasi-perpendicular bow shocks

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A large temperature anisotropy, as a typical feature of quasi-perpendicular bow shocks, provides free energy that can excite mirror waves and/or ion cyclotron waves in the downstream region. We have analyzed a large number of bow shock crossings observed by multi-spacecraft missions (Cluster and THEMIS) with different upstream parameters. We have studied an evolution of the ion temperature anisotropy on short time intervals in the downstream region. This anisotropy has been compared to the predicted one calculated as an analytical solution for anisotropic MHD shocks. Using a time series analysis we have investigated occurrence rates and properties of both mirror mode waves and ion cyclotron waves with respect to the upstream conditions.