



Statistical study of mirror mode events in the Earth magnetosheath

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Using the automated event search and classification tool developed at CDPP (Centre de la Physique des Plasmas), we investigate the physics of the mirror instability. Indeed both analytical and observational recent studies have shown the paramount importance of this instability in the development of magnetosheath turbulence and its potential role in reconnection. An extensive set of Cluster, ACE and indices data have been mined by our tool which can be intuitively parametrized and set up with specific constraints on the actual data content. The advantages of this technology are illustrated by our preliminary results; some of the key questions we address include : evolution of the wave amplitude with the distance to the boundaries (shock/magnetopause), non-linear evolution of the structures and the relation with the plasma beta, tests of theoretical expressions obtained with different closure equations, ... The implications of these preliminary results for the mirror mode modelization will be discussed.