

The Structure of Discontinuities in the Magnetic Cloud Boundary Layers Observed by WIND

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We analyze 45 MC(magnetic cloud) boundary layer events and the structure of discontinuities within between 1995.2-2003.8, that the magnetic field and plasma data were observed by WIND. We suggest that:(1)the MC boundary layers often consist of several kinds of discontinuities, which have more complicated structure than those of shocks. It indicates that they have different form mechanism; (2) The quantity of RDs (rotation discontinuities) is larger than the quantity of TDs (tangential discontinuities) in the BLs(boundary layers). Complicated nonlinear Alfvén waves was one of the causes that produced this kind of RDs.(3)The existence of complicated structure of discontinuities has close relationship with complicated dynamics effects in BLs. The initial results indicate that the discontinuities are important structures in the MC boundary layers. It provides evidences for analyzing the form mechanism of MC boundary layers.