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Identification of Low-frequency Wave Modes at the Magnetopause.

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Several different wave modes appear in the magnetopause region, where a mixture of magnetospheric and magnetosheath plasmas occurs. These waves can be excited by the density and field gradients as well as flow shears across the discontinuity between the magnetosheath and the magnetosphere. In most cases these waves are of high amplitude and therefore the identification methods derived from the linear theory would not work. We apply a new nonlinear model for identification of low frequency waves. Field and plasma observations on the four Cluster spacecraft are used to analyse low frequency waves and to identify their modes by comparison with the theoretical nonlinear model.