



Search for field-line resonances: first THEMIS results

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The resonant coupling between compressional waves generated at the magnetopause and toroidal field line oscillations in the outer magnetosphere, the field line resonance mechanism, is the paradigmatic explanation for ULF waves in the Pc5 pulsation period range. While ground-based and ionospheric observations clearly indicate the existence of such field line resonances, direct observations in space are sparse as special observational conditions need to be met to detect field line resonances with their characteristic spatial variations of amplitude and phase in radial direction. During its coast phase the five THEMIS spacecraft are almost aligned like pearls on a string and traverse the afternoon equatorial magnetosphere in almost radial direction. This provides for a unique possibility to study the spatio-temporal structure of ULF waves, in particular their radial variation. THEMIS is thus a very suitable tool to search for and study field line resonance structures. We shall report about first results using magnetic field data from the THEMIS magnetometer experiment.