



Searching for Field Line Resonances: Case Studies From CLUSTER

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The investigation of field line resonances is important to understand plasma properties and plasma dynamics within the terrestrial magnetosphere. The CLUSTER mission provides us with a multiplicity of possibilities to unravel temporal and spatial structures of this phenomenon. This work focuses on detection and investigation of spatial structures of resonant field lines. Therefore case studies of observed Pc5 pulsations are presented using magnetic and electric field data. Pulsations are described in a field line related coordinate system to investigate specific amplitude patterns, which depend on the path of the CLUSTER satellites across a resonant field line. To separate spatial and temporal variations a sequence of frames is generated showing the four satellites moving along the amplitude variations. This allows an accurate identification of the resonant field line and provides information about their large scale structure. For selected cases we shall compare observed spatial structures of field line resonances with theoretically expected one.