



## **Three-dimensional distribution of EMIC waves in the magnetosphere by joining Cluster/FGM and Van Allen Probes/EMFISIS/FGM datasets**

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Observations in the Earth's magnetosphere of ElectroMagnetic Ion Cyclotron (EMIC) waves are mainly controlled by episodes of magnetospheric compressions resulting from impulses in the solar wind dynamic pressure. This study gathers observations of EMIC waves observed by Cluster spacecraft and Van Allen Probes whose datasets supplement each other. Cluster orbit is rather polar and its perigee is at almost 20 Earth Radii (perigee above 4 Earth radii). Van Allen Probes orbits are designed to probe the inner magnetosphere equatorial region (from about 2 to 6 Re). The same automatic detection procedure (adapted from Bortnik et al.) is applied to Cluster/FGM and VAP/EMFISIS/FGM instruments dataset in the [0.1 ; 2Hz] frequency range.

The main objective of this study is to present a three-dimensional distribution of EMIC waves in the magnetosphere as a function of magnetic local time (MLT), magnetic latitude (MLAT) and L-shell value (L). Waves are sorted by local frequency bands (H<sup>+</sup>, He<sup>+</sup> and O<sup>+</sup>) and by their wave vector directions. The region where the two datasets overlap is detailed: differences are discussed in terms of orbital, instrumental and external parameters (Kp, solar wind dynamic pressure) effects.