

# **FIELD LINE RESONANCE SOUNDING OF 2D MAGNETOSPHERIC DENSITY BY MULTIPLE MAGNETOMETER NETWORKS**

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One of the modern and popular uses of ground magnetometer data is to identify field line resonance frequencies through cross-phase or cross-amplitude analysis and infer the equatorial mass density in the magnetosphere. Most studies on this topic to date focus on the observations along a specific meridian, and, as the Earth rotates, the observations constantly advance in local time. This study presents the field line resonance analysis using data gathered by a number of magnetometer networks in North America, such as McMAC, Falcon, IGPP-LANL, THEMIS, CARISMA, AUTUMN, and Alaskan stations. The observations provide two-dimensional snapshots of the equatorial mass density over a range of L-values and local hours. Using the October 2007 magnetic storm as an example, we will show the spatiotemporal features of density structure observed by the combined two-dimensional magnetometer network and how they are compared with the results obtained by observations along a single meridian.

field line resonance, magnetoseismology, magnetic storms

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