



A Survey of Lightning-Generated Whistlers in the Venusian Ionosphere

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Venus Express has now completed its mission after more than 8.5 years in orbit. During this time its dual fluxgate magnetometer collected data up to 64 Hz allowing for frequent observations of ELF waves in the ionosphere. These are dispersive waves extending the full bandwidth of the instrument, they are nearly circularly right-hand polarized, and they propagate along the direction of the magnetic field, which are all characteristic of whistler-mode waves. Approximately 100 signals per Venus year (225 days) were detected throughout the mission when the spacecraft periapsis was well below 250 km altitude. When the spacecraft was within 200-350 km altitude it detected whistlers at a rate of $\sim 1\%$ of the time calculated over all local times and latitudes. This suggests that the occurrence of lightning on Venus is as ubiquitous as it is on Earth. In this study we examine the extent of the Venus Express observations.