



## **Lightning Occurrence in the Venus Atmosphere: Statistics from Venus Explorer Observations of ELF Emissions**

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Venus Express has now recorded ELF emissions (up to 64 Hz) in the low-altitude Venus ionosphere since mid-2006. These signals are most prevalent when the ionosphere magnetic field dips into the atmosphere, enabling the electromagnetic signal to enter the ionosphere. The signals can extend over the full bandwidth of the instrument, up to 64 Hz. The waves are nearly circularly polarized and are right-hand polarized, as expected for whistler-mode propagation generated by lightning. When isolated bursts of signal occur, frequently dispersion is seen in which the high-frequency waves arrive first. This is the expected signature generated by impulsive electric discharges. These observations suggest that the rate of lightning occurrence on Venus is not unlike the terrestrial rate where atmosphere chemistry is affected measurably by these discharges. Here we report on the latest results of our studies.