

Diffuse magnetic fluctuations in the frequency range 1-12Hz detected by Kaguya above the polar regions of the moon

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Kaguya found a type of magnetic fluctuations in the frequency range between 1 and 16 Hz with gradual appearance and disappearance, at a 100km altitude above the polar regions of the moon in the solar wind. They were found in the 32Hz sampling magnetic field data obtained by MAP/LMAG onboard Kaguya. The data were Fourier Transformed every 32Hz. In the dynamic spectra, the magnetic fluctuations appear diffuse like a haze, due to the broad bandwidth and gradual appearance with no discrete boundary. The bandwidth was 4Hz -- 12Hz. Eight events were found during the period from January 1, 2008 to March 31, 2009. They were found mostly on the dayside and predominantly above the polar region, where the orbit of Kaguya crosses the terminator. Six of 8 events were found in the northern hemisphere. Half of the events showed gradual decrease of frequency according as the spacecraft approached the North Pole. The solar wind speed was not high during the events, but the intensities of the magnetic fluctuations was higher when number flux of the solar wind was higher.

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