

10-sec magnetic field enhancement detected by Kaguya orbiting around the moon in the solar wind

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Short-period magnetic enhancements were detected by LMAG magnetometer onboard Kaguya spacecraft orbiting the moon in the solar wind. The magnitude of the magnetic field enhanced up to 1.5 to 3.6 times as large as that of the preceding quiet periods which lasted for more than 5 minutes. The duration of the enhancements was specifically 10 seconds, ranging from 8 to 46 sec. Some of them showed rotation of the magnetic field, but the others did not. The short-period magnetic enhancements were not detected above the major magnetic anomaly of the moon. They were not detected recursively on the same location on the moon. They were found both on the dayside and nightside of the moon, with a slight preference above the terminator. Similar magnetic field enhancement was searched for in the simultaneously observed solar wind magnetic field data obtained by GEOTAIL spacecraft, but no intensification of the magnitude was found although similar waveforms of each magnetic field components were found. At present, it is not certain whether they originate from the lunar crustal field, the solar wind, or the interaction between them.

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