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Analysis of the 27-day cycle of the geomagnetic field during the past 50 years.

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Phase and frequency variability of 27-day cycle, related with solar rotation, has been evaluated from the range of variations in the geomagnetic field recorded during the last 50 years at L'Aquila Geomagnetic Observatory (covering roughly 4.5 sunspot cycles).
The magnetic field variations observed on the ground, generated by the Sun surface rotation, is mainly due to the non-symmetrical distribution of active regions over the Sun surface.
In this presentation we show the connections between the Sun's rotation and its magnetic field and between terrestrial magnetic field variation and the influence of the physical conditions of the ionosphere and magnetosphere on the signals recorded on the ground.