



## **Long-term space climate variations as evidenced by geomagnetic field variations**

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The solar magnetic and Gleissberg cycles signatures in the observed variations of the geomagnetic field are presented and discussed. Long time series of geomagnetic indices describing both the regular (SR) and the irregular (geomagnetic activity) variations are used for this purpose. The role of the long-term main geomagnetic field variations in the observed geomagnetic activity is explored as well. The relationship between the solar activity and various aspects of the variability of the geomagnetic field implies that at both the 22-year scale and the Gleissberg cycle scale, the coronal source field (as reflected by general heliospheric conditions at 1 AU - IMF strength, solar wind speed and density, described in turn by the aa index of geomagnetic activity, and/or as reflected by the IMF strength at 1 AU, described in turn by the IDV index), the photospheric magnetic field (as reflected by the R index), and the solar radiative output (as reflected by x, y, z, r, and S) have a similar behavior, being subject to similar long-term variations caused by processes developing in the Sun.