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# Predicting local ground magnetic field variations using empirical models

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The local ground magnetic field, and especially its time derivative dB, is an useful proxy for the electric fields that drive geomagnetically induced currents (GIC). There are three main phenomena that give rise to large dB values: storm sudden commencement (SSC); geomagnetic storm; magnetic pulsations. The properties of these phenomena are discussed, with special attention the variations over Europe, and their relation to upstream solar wind. Empirical models relating various aspects of dB to the solar wind are discussed in terms of prediction lead time, local time variation and latitudinal variation. This work is carried out within the EU/FP7 project Eurisgic.