

## Variations of the geomagnetic field and cosmic ray flux

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The Principal Component Analysis of locally measured meteorological parameters (air temperature, T, and geopotential heights, gph) at different pressure levels in troposphere-lower stratosphere regions was used to extract variability modes which strongly resemble variations of space weather (SW)(Coimbra-COI, Madrid-CaLMa). The time scale of the atmospheric variations analysed in this study is from weeks to months. Three modes of the variations of T and gph at different pressure levels in the mid-latitude low atmosphere show co-variability with global and locally measured SW parameters :

