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## The geomagnetic field behavior inside Vrancea zone (Romania) in correlation with tectonic, atmospheric and solar activity

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The present study assesses two signal processing methods on geomagnetic data to detect precursory signals appearing before  $M > 5.0$  Vrancea, Romania earthquakes occurred between 2016 and 2021. Geomagnetic data are obtained from Muntele Rosu Seismological Observatory situated in one corner of Vrancea seismogenic zone – as primary station, and from Intermagnet Surlari National Geomagnetic Observatory of IGR, located about 150Km South-East to Vrancea zone as remote station respectively. The first method, the diurnal variation ratio method computes difference between daily maximum with minimum value before finding ratio of primary to remote station for each individual component. The second method, the polarization ratio analysis is performed on both stations data to compute the ratio of vertical to total horizontal component in ultra-low frequency range. Geomagnetic indices taken from NOAA/Space Weather Prediction Center are compared to separate the global variation from seismo-electromagnetic anomalies possibly presented in a seismic area like Vrancea zone and to ensure that any geomagnetic fluctuations are not caused by solar-terrestrial effect.

In the end, the paper aims to compare the results from both methods in term of reliability and effectiveness.

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