

WORKSHOP
NEMO - NumERical MOdelling using high performance computing
infrastructures

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Solid Earth Dynamics Department,
Institute of Geodynamics of the Romanian Academy, Romania.
Jean-Louis Calderon str. 19-21 nr. sector 2, Bucharest

1) PRESENTATION TITLE:

Validation of the statistical parameter of correlation between earth tides and earthquakes

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3) ABSTRACT:

Currently, many studies confirm the involvement of Earth tides in the earthquake triggering at the regional level. On a global scale, however, this has not been found. Statistical approach plays an important role in the methodology of the correlation analyses. With the help of such method, based on a specific technique for assessing the statistical correlation parameter, p , we present our results related to the correlation between M2 earth tide component and earthquakes.

The data base includes temporal series of intermediate seismic events that took place from 1980 to 2012, corresponding to seismic nest regions of Vrancea (Romania), Bucaramanga (Colombia) and Hindu Kush (Afghanistan). To these are added the fault planes solutions for major events in this period in the considered areas. From geological and geodynamics point of view, all three areas are characterized by a strong heterogeneities.

Different signatures of the p variation are observed in the neighbourhood of the stronger earthquakes. Coupling tendencies between some earth tide components (semi-diurnal M2 wave especially) and seismic activity for these important seismic regions of the world are studied by means of the statistical p -value and validated by means of random synthetically date series. We suppose that statistical p -value, could have a potential capacity to identify the existence of transient features around strong seismic events.

We focused our presentation on the validation algorithm of the correlation statistical parameter, p .

Keywords: statistical parameter p of correlation, seismic nest zones, earth tide, synthetically series, validation.

4) POSITION OF CORRESPONDING AUTHOR:

Student	yes	no
Post-Doctoral	yes	no
Researcher	yes	no