

## **The Earth's entry into a new phase of reduction of its angular velocity and an increase in its seismic activity.**

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We used observational data on variations in the Earth's angular velocity duration of 296 years for the semi-annual time series of observations and seismic observations c 1720 to 2016. It was determined the value of the relative angular velocity of the Earth's rotation ( $v$ ). Then by using band-pass filters were isolated the low-frequency ( $V_n$ ) component from the  $v$  values (for the periods 124-19 years). The analysis of the  $V_n$  value [Levin, Sasorova, 2015] shows, that the reduction of the  $v$  value (deceleration) is accompanied by an increase in density of seismic events. The local minimums of the  $V_n$  value coincide with maximums of seismic activity (SA). On the contrary the increase of the  $v$  values (acceleration) accompanied by a decrease in the density of events.

The main attention of this work focuses on the time period from 2013 to 2016. From 2005 to 2013 there was observed the increase in the  $v$  values and follow stage of relative stabilization (from mid-2013 to the second half of 2014), and then the second half of 2014 to the present there has been a decrease in the  $v$  values. Thus the Earth currently is entering in a new stage of braking. According to the earlier results, the new braking phase should be followed by an increase in the SA. Signs of seismic activity growth already observed, both at the global level (increase in the number of events with  $M \geq 7.5$  up to 2016 according to data from NEIC), as well as at the regional level (a series of events in Italy from August 2016, New Zealand (September, November 2016), Japan (November 2016) and Indonesia (the end of 2016.), etc.). The number of seismic events with  $M \geq 5$  and  $M \geq 6$  in Japan and New Zealand starts to increase from 2015 (in Italy and Indonesia since 2016).

Analysis of the dynamics of the increase of the SA and its decrease showed that the duration of the time interval between the neighboring local minima of the values  $V_m$  and accordingly, between the local maxima of the SA, is not constant in time. It varies from 18 to 41 year. Currently we do not have a possibility to determine how long and with what intensity would continue the braking process. Attempts to predict the behavior of the  $v$  values over time, we have not yet found, and so we can not predict, when will appears the maximum of SA. But the fact of the Earth's entry into the braking stage indicates about the probably increase in the level of the SA in the next few years.

If in the next periods of the Earth's rotation velocity will continue to decrease and the absolute values of the increments ( $\text{del}(V_n)/\text{del}(t)$ ) will continue to increases, then probability of the SA growth is also significantly increased. The subsequent reduction of the absolute value of the increments ( $\text{del}(V_n)/\text{del}(t)$ ) will indicate to the Earth's entry into the final stage of the braking phase.