



Variations in the Earth's rotation velocity and spatiotemporal distributions of the great earthquakes.

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A comparative analysis of time series of the density of seismic events and variations in angular velocity of the Earth's rotation (AVER) during period from 1720 to 2017 previously shown that each stage of deceleration of the AVER (braking stage) is accompanied by an increase in the density of seismic events [Levin and Sasorova, 2015, 2017].

The main attention of this work focuses on the analysis of the spatial-temporal distributions of the epicenters of EQ which occurred at the acceleration stage of the AVER and at its braking stage. This analysis was carried out for the whole planet, for the Northern Hemisphere and Southern Hemisphere separately and for several seismically active regions of the Earth. The stages of deceleration and acceleration were determined from the values of the low-frequency component of the relative AVER. All events with $M \geq 7.5$ for the period from 1895 to 2016 were considered. The ratio of the number of events during deceleration to the total number of events is denoted as Rel1. General statistics is determines: for the whole Earth-total number of the events (TNE)=638 (in the braking stage-402, in the acceleration stage-236), Rel1=63%; in the Northern Hemisphere (TNE= 389) Rel1 = 68%; in the Southern Hemisphere-TNE=240, Rel1=56%. For the following polygons the overwhelming majority of events occur in the braking stage of the Earth and the value of the Rel1 varies from 76% to 100% (Europe and Turkey coordinates: Lat 43N-35N, Long 25W-30E, TNE=26; central Asia: Lat 50N-20N, Long 50E-100E, TNE=62; Caribs: Lat 23N-10N, Long 82W-60W, TNE=10; South. America (northern part): Lat 7N-20S, Long 86W-65W, TNE=62; Southeast Japan: Lat 34.4N-25.1N, Long 143E-128E, TNE=25; Kamchatka: Lat 59.1N-51.9N, Long 154E-164.5E, TNE=17. For a number of polygons, a significant part of the events (from 60 to 70%) also appears during the braking phase (Alaska, Lat 66N-54N, Long 175W-135W, TNE=11; Southern Kuriles (Lat 54N-44.37N, Long 150E-156E), TNE=11). Attention is drawn to the fact that for the continental regions there is a significant advantage of events that occurred in the braking stage. On the island arcs and in the equatorial belt of the Indian Ocean and Pacific Ocean clusters of the epicenters of the EQ, that occurred in the braking stage are interspersed in space by clusters of epicenters that occurred during the acceleration stage. The absolute majority of the events that occurred in the acceleration stage appear from 1913 to 1939. This is the most powerful stage of the global acceleration, for the entire period of observations. From 1898 to 1913 is observed the most powerful braking period and the greatest observed density of EQ. The first stage of a joint analysis of the characteristics of lithospheres plates and the Earth's rotation was carried out in the work [Levin, Rodkin, and Sasorova, 2017].

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