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The Earth and the Moon elastic energies and their seismicity

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Tidal and shell-dynamics interactions of the given celestial body with external celestial bodies lead to v
of their tensional state and as consequence to variations of different planetary processes including vari
seismic activity. It is clearly observed that variations of lunar seismicity have the celestial mechanic
and depend from the Moon perturbed orbital motion [1], [3].
The full elastic energy of the luni-solar tides superposition is not an additive sum of elastic energies of s
tides and contains additional terms of the mutual character, which play a significant role in the geody
life of the Earth [2], [3]. The tensional state of the Earth is characterized by the elastic energy stored i
position of tides. Some part of elastic energy dissipates and goes to the warm energy and to an energi
different geodynamical processes in definite rhythms. A correlation of the extreme variations of the ela
energy of the Earth with earthquakes and moonquakes events (in period 1971-1976 years) has beer
in [2] - [4]. This potential regularity of seismic process we have used for prediction of the dates of
earthquakes in 2003 and 2004 years. In particular the date of phenomenal Hokkaido quake of 25.83 Se
2003 with magnitude M=8.3 and date of catastrophic Sumatraquake of 26.04 Dec., 2004 (M=9.0) wi
consequences and Nicobarquake of 26.18 Dec., 2004 (M=7.5) have been predicted with high accurac
[3]. Corresponding predicted dates are 26.3 Sep., 2003 and 26.10 Dec., 2004 ([2], [3]).
We have been studied a behavior of elastic energy curve (in conditional units) and dates of extreme
in 2005 and 2006. These dates are the dates of perturbed tensional states of the Earth and can be int
as crisis dates of the planet and in particular as dates of potential biggest earthquakes. A statistical an
quake events in period 1997-2004 has been shown that in reality some concentration of the large eart
closely to crisis dates (and to the dates displaced on 1.5-2 days) is observed. Here we present a list of t
dates for 2005:
2.992 Jan., 8.816 Jan., 14.982 Jan., 22.761 Jan., 30.314 Jan.;
5.71 Feb., 11.361 Feb., 19.082 Feb., 26.563 Feb.;
4.403 Mar., 10.701 Mar., 18.389 Mar., 25.787 Mar., 31.789 Mar.;
6.991 Apr., 14.668 Apr., 22.053 Apr., 28.167 Apr.;
4.262 May, 11.925 May, 19.396 May, 25.482 May, 31.555 May;
08.188 Jun., 15.791 Jun., 21.728 Jun., 27.892 Jun.;
05.480 Jul., 13.169 Jul., 18.950 Jul., 25.262 Jul.;
01.805 Aug., 09.467 Aug., 15.215 Aug., 21.630 Aug., 29.142 Aug.;
05.676 Sep., 11.554 Sep., 17.969 Sep., 25.457 Sep.;
02.861 Oct., 08.940 Oct., 15.276 Oct., 22.726 Oct., 30.107 Oct.;
05.311 Nov., 11.571 Nov., 18.965 Nov., 26.449 Nov.;
02.619 Dec., 08.881 Dec., 16.214 Dec., 23.848 Dec., 29.862 Dec.
We have been fulfilled also the statistical analysis of differences of dates of big earthquakes (in last 3
[8]) and close dates of extremes of tidal elastic energy. Obtained results in general have been confi
correlation of these dates and a new phenomenon of displacements of dates of the big quakes on 1.5-
with respect to the dates of extremes of elastic energy has been observed. These phenomena of th
activization are not very clear and in reality illustrate only some general tendencies of concentratio
dates of big quakes closely to the dates of the more perturbed states of the Earth.
We can dear to suggest that variations of elastic tidal energy exert some control on seismic proces
important to note that the crossed terms of the elastic energy plays a relevant role in the observed co
with seismic events. It seems natural: a part of the elastic energy accumulated with every orbital cycle
(and Sun) dissipates to inner geodynamical processes that its variation drives.
For an explanation of observed regularity of the seismic process we have been suggested a mechanism
ential and cyclic action of the Moon and Sun on the interacting plates. This mechanism is a trigger me