



Interactive comment on “Earth’s rotation variations and earthquakes 2010–2011” by L. Ostrihanský

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Received and published: 27 February 2012

I think that the manuscript introduces new ideas. In the past they were done some comparisons of LOD and number of earthquakes but only in global scale presenting results that longer LOD corresponds to larger number of earthquakes (Varga et al. 2005; Wang 2000). Really most of plates move westward and during the Earth’s deceleration earthquakes are triggered. But they are plates moving northward and they trigger earthquakes in Earth’s acceleration preferentially. The direct comparison of daily LOD records with earthquakes the paper introduces for the first time. All astronomical phenomena influencing the earthquake triggering are explained in detail in many factual examples. References are old because the problem is insufficiently solved for many years and on the other hand journals (Nature, Science) are not willing to publish new

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ideas contradicting to present scientific opinion. The unknown reviewer attacks a sentence (lines 27-30 page 34) “. . . earthquake, proving that not only sidereal 13.66 days variations but also the 19 years Metons cycle is the period of earthquakes occurrence”. This sentence proves many: First, 13.66 days variations trigger earthquakes as proven in detail statistics in the paper but further that the earthquake can repeat again exactly after 235 synodic months and 254 sidereal months after 19 years of Metonic cycle exactly in LOD minimums (highest Moons declination) in both cases and in the full Moons, in 2004 exactly in the Moon’s apogee and only 4 days before apogee in 1985 (for this reason this earthquake was only of 6.6 magnitude). This confirms that astronomical parameters have decisive impact on earthquake triggering. On page 7 is a short remark about summer acceleration and heating of northern continental hemisphere. This is the work of the member of our team Dr. P. Kalenda who presented comprehensive monograph on this topic (Kalenda and Neumann 2011). Page 37 lines 19-21: “Therefore it is sensitive to deceleration of the Earth’s rotation and..” Explanation: Fault showing the westward movement of the plate shows that the plate is sensitive on Earth’s deceleration. In such case the tidal friction affecting the whole oceanic Pacific plate is considered as dominant plate driver. Tidal friction causes the Earth’s rotation deceleration and also the westward movement of the Pacific plate. Problem is not solved. Transfer of oceanic bulging stress to oceanic lithosphere some models describe (Schwidorski etc.). Page 38 lines 20-25: The shaking of the Earth 46 cm involves the whole planet but the plates own mobility is given above all by their size and conditions for subduction. Small Cocos and Nazca plates stay firmly on the mantle.(Galapagos hotspot and 2 hotspot tracks confirm this, Ostrihanský 1997). Large Pacific plate moves quickly towards west. Page 38 line 1: I think hat it is obvious that the Earth’s acceleration triggered earthquake and followed tsunamis are a consequence of the earthquake. Page 38 line 29: I agree that the fraction line should be either horizontal or denominator in parentheses. This was made during rewriting the manuscript. Page 39 lines 20-21: That the Meton’s cycle governs the earthquake triggering is fully explained in just submitted paper SE-2012-5. I recommend to unknown reviewer to ask editorial board to

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revise this paper. Nevertheless it cannot to be a chance that strong earthquakes 1985 and 2004 coincide in LOD minimums, full Moon, declination, Earth-Moon distance and solstices. Because both earthquakes occurred in winter solstice when also the Sun has the highest declination and because they were on the line, they exerted in that moment the largest torque on the Earth. However many earthquakes do not coincide so exactly. I am writing next paper: "Metonic cycle and Alaskan earthquakes". This concerns also: Page 40 line 20: "In Fig. 3C an earthquake 20 Feb. 1986 is missing". Distinctive LOD minimums trigger earthquakes but in some cases the magnitude of earthquake can be below the chosen range.

Interactive comment on Solid Earth Discuss., 4, 33, 2012.