

A few features of the cyclic relative movements in the Earth-Moon System.

N. Bulatova

Schmidt Institute of Physics of the Earth, Russian Academy of Sciences, Moscow.
n.p.bulatova@mail.ru

Abstract

Analysis of astrometric data of the cyclic movement of the Moon relative to the Earth, constructed based on 3D spatio-temporal technology (STT) [1], revealed:

1. Spatial features of the cyclic motion of the Moon that have been identified in the analysis of oscillations the angular distance of the Moon (declination) with respect to the Earth's equatorial plane. [2]. The analysis was performed for the 18.6 year cycle of the moon's motion date relative to the Earth (1982-2002). Along the lines of quasi-sinusoidal this cycle oscillations are small wave-like disturbances 5-7 lunar periodic oscillations revealed. Two curves of cyclic fluctuations were obtained by inducing association of individual maxima and minima points of the periodic fluctuations of the lunar declination during this period.

2. Temporal features of the cyclic motion of the Moon relative to Earth.

Analysis of the time intervals (in days) to find the Moon in the provisions with maximum and minimum value of the deviation from the equatorial plane (periodic changes of lunar declination), which corresponds to its position in the Northern or Southern Hemisphere respective, shows that the variation of these intervals has a nonsynchronous and asymmetrical character.
2011.

Thus, over the 18.6 year cycle, the influence of the Moon on the Earth's active processes (tides, etc.) in the two Hemispheres is independent and not ordered in time.

The spatio-temporal technology (STT) developed by Bulatova (1998-2001) is represented in the terms of 3D geometry and astronomy as a change in impact direction of the sources (Moon and etc.) on the Earth, [1], [2], [3]

References

- [1] Bulatova N.P., Dynamics of relative movements in the Earth-Moon System. EPSC Abstracts Vol. 6, EPSC-DPS2011-662, 2011. 2-7 October 2011, Nant, France.
- [2] Bulatova N.P. "The method of moving source" (MDS) and it's application for the Earth's researches. Geophysical. Research Abstracts (EGS) 26 th General Assembly Society Symposium, Solid Earth Geophysic & GeodesyV.3, N1. . 2001, Vienna, Austria.
- [3] Bulatova, N.P. Three-dimensional spatio-temporal modeling of Geophysical Events and the movement of celestial bodies. Complex Systems, 20(3), pp. 216-227,