

The orbits of the moon, planets and tidal forces.

We postpone the existing solution to the problem of the influence of tidal forces by using the law of conservation of angular momentum of the system, since in such a solution it is easy to lose sign in front of one or more members. Consider a simple diagram of the forces acting in a system.

Since the Earth's surface, when the Earth rotates around its own axis, rotates faster than the Moon moves around the Earth, it is believed that the rotation of the Earth accelerates the rotation of the Moon. It is believed that the vector of this acceleration is directed tangentially to the orbit of the moon. We show that this is not so, considering the tidal forces really exist.

Let us identify the tidal forces with the physical ones, mentally matching them with a metal chain, one end of which is fixed on the Moon, and the other freely located on the surface of the Earth. When the Earth rotates, the chain will drag the Moon along with it, while the acceleration vector, which is easily imaginable, will not be directed tangentially to the Moon's orbit, but will be composed of a vector formed by the inertia of the Moon along the tangent to the orbit and a vector formed by tidal force. Obviously, the resulting vector will act in orbit, narrowing it, and not expanding, as it is believed. It is clear that with such a consideration, no law of conservation of angular momentum in the system will be violated.

Further, if we consider the very possibility of the existence of tidal forces, then according to the Law of Planetary Gravitation (PTA) [1], the gravitational flow directed towards the Moon is completely indifferent to whether the body attracted by the Moon will rotate or not. The same thing from the side of the Earth, attraction is carried out from the center of the body of attraction. Therefore, there is no reason to consider tidal forces to be real and affecting orbital motion. We can consider the only tidal force to be the force along the line connecting the centers of gravity of the bodies and affecting the occurrence of sea tides.

The existing statement about the expansion of the orbit of the Moon, therefore, is completely unfounded and one can even argue about the existence of forces acting on the orbit of the Moon, reducing its size. Thus, according to the PTA, during the evolution of planets and the decay of chemical elements in them, the mass of the planets increases and their gravitational attraction increases, which will narrow their orbit. A direct confirmation of the fact of an increase in the Earth's gravity in the process of evolution is the discovery of the remains of ancient animals, judging by the reconstruction so massive that they could not exist under the current gravity. Indirect evidence is the mention by Laplace in the "System of Peace" of ancient Arab astronomical tables, in which the

orbit of the moon is indicated much more than modern.

Thus, it can be argued about the expansion of the planets, the growth of their masses and the narrowing of their orbits in the process of their evolution.

Apparently, one of the reasons influencing the adoption of the right decision to narrow the orbits of the planets is the psychological factor. People are afraid of the very probability of the planets falling on the Sun, and the Moon on Earth, although such a process can take hundreds of millions of years, which may not correspond to the length of human history. In addition, given the cooling of the Earth, its approach to the Sun is a favorable factor for the existence of life on the planet.

Sources

1. Vladimir Kirov, "*The Law of Planetary Gravity*", <http://vixra.org/abs/1912.0086>

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