Geophysical Research Abstracts
Vol. 12, EGU2010-2098, 2010
EGU General Assembly 2010

"Geometric" planetology and origin of the Moon

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The comparative wave planetology [1 & othres] demonstrates graphically its main conceptual point: orbits make structures. The structures are produced by a warping action of stationary waves induced in bodies by non-circular orbits with periodically changing bodies' accelerations. A geometric model of tectonic granulation of planets is a schematic row of even circles adorned with granules radius of which increases in direction from Sun to the outer planets. It was shown that the granule radii are inversely proportional to the orbital frequencies of planets. Thus, there is a following row of these radii: Mercury R/16, Venus R/6, Earth R/4, Mars R/2, asteroids R/1. It was also shown that these radii well correlate with planetary surface "ruggedness". This observation led to a conception of the "relief-forming potential of planets"[2]. So, this potential is rather weak in Mercury and Venus, rather high in Mars and intermediate in Earth. Certainly, orbital eccentricities were even higher at the earlier period of planet formation, at debris zones of their accretion causing scattering debris material. This scattering was small at Mercury' and Venus' zones, large at the Mars' zone and intermediate at the Earth's zone. Consequently, gravity kept debris in the first zones, allowed them escape in the martian zone, and allowed to have separated debris sub zone in the vicinity of the Earth's zone or around not fully consolidated (accreted) Earth. Rejecting the giant impact hypotheses of Moon formation as contradicting the fact of the ubiquitous wave induced tectonic dichotomy of celestial bodies (Theorem1 [3]) one should concentrate at hypotheses dealing with formation of the satellite from primordial debris in a near-Earth heliocentric orbit or in a circumterrestrial orbit from debris wave separated from the Earth' zone of accretion. Wave scattering of primordial material from an accretion zone or from a not fully accreted (consolidated) body is a normal process traces of which one observes now in presence of satellites around all planets except Venus and Mercury (both have smallest wave induced granula sizes: [U+F070]R/6 and [U+F070]R/16, correspondingly). So, Venus during its formation was not able to throw away enough solids to form a satellite (but degassing was important, nearly complete and the huge atmosphere is there). Earth with the larger amplitude of its granula forming waves produced enough solids to make a satellite (during a pre-planet stage from accretion debris or during earlier stages of debris accretion into a body). Mars with still larger granula forming waves (granula size [U+F070]R/2) threw away a lot of material but its small gravity now keeps only two small satellites. The martian body itself warped by huge waves lost a lot of its mass and is semi-destructed. In the asteroid belt still larger wave (granula size [U+F070]R/1, and in the 1:1 resonance with the fundamental wave !) scattered away almost all primary mass of material and there was no chance to gather any decent planetary body. In the outer Solar system large planets with important gravities keep "exuberant" satellite systems and debris rings. The wave comparative planetology, thus, introducing the conception of warping structurizing waves, is not surprised by the Moon appearance. What is needed, just to recognize a special position of Earth in the planetary sequence determining its orbital frequency and thus a size of its tectonic granulation. References: [1] Kochemasov, G.G. (1992) Concerted wave supergranulation of the solar system bodies // 16th Russian-American microsymposium on planetology, Abstracts, Moscow, Vernadsky Inst. (GEOKHI), p. 36-37. [2] Kochemasov G.G. (2009) New Concepts in Global Tectonics Newsletter, # 51, 58-61. [3] Kochemasov G. (1999) Geophys. Res. Abstr., V.1, #3, 700.