

**Cross-cutting planetary waves producing crater chains, grids and square craters are ubiquitous features of cosmic bodies well pronounced on the icy satellites surfaces.**

G.G. Kochemasov

IGEM of the Russian Academy of Sciences, Moscow, [kochem.36@mail.ru](mailto:kochem.36@mail.ru)

The wave planetology [1-3 & others] states that along with tectonic segmentation (dichotomy,  $2\pi R$ -structure) and sectoring ( $\pi R$ -structure) cosmic bodies display tectonic granulations caused by warping waves lengths of which are inversely proportional to orbital frequencies. The warping waves (and their overtones) appear due to movements of all bodies in non-circular orbits with changing accelerations. Arising warping waves have stationary character and 4 crossing interfering directions (ortho- and diagonal, Fig. 1). Produced by this interference tectonic granules (craters) dispose themselves in grids, alignments, often spoiled by superposed impacts, but nevertheless distinguished in many cases. An alignment of square shaped craters shows their wave origin. Wave produced craters and ring forms must be taken out of the crater size-frequency statistics to make it real [3]. Below are some examples of the wave woven forms proving their ubiquitous (Fig. 2-10). Remark various classes of cosmic bodies.

**References:** [1] Kochemasov, G. G. (1998) Tectonic dichotomy, sectoring and granulation of Earth and other celestial bodies // "Proceedings of international symposium on new concepts in global tectonics ('98 TSUKUBA)", Tsukuba, Japan, Nov. 1998, p.144-147; [2] Kochemasov G.G. (1999) Theorems of wave planetary tectonics // Geophys. Res. Abstr., v.1, #3, 700; [3] Kochemasov G.G. (2005) Cassini' lesson: square craters, shoulder-to-shoulder even-size aligned and in grids craters having wave interference nature must be taken out of an impact craters statistics to make it real// Vernadsky-Brown microsymp. 42, Moscow, Abstr. M42\_31, CD-ROM;

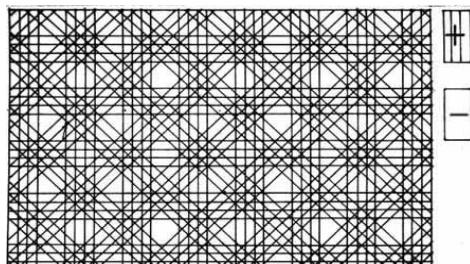


Fig. 1. Graphic representation of crossing waves producing chains and grids of round forms (craters) (better seen from some distance).

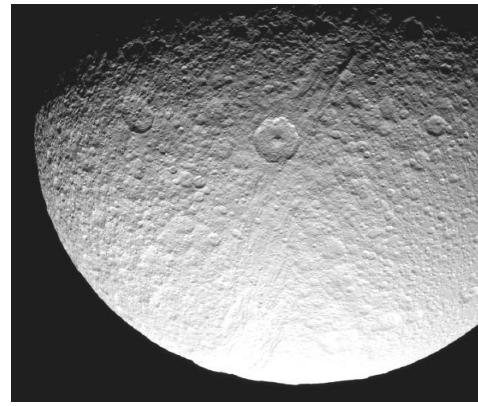


Fig. 2. Tethys, PIA10506. Crossing lineations



Fig. 3. Dione, PIA12743 Crossing lineations.

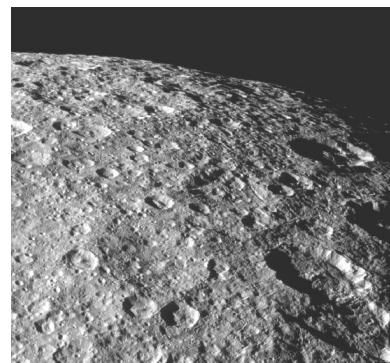


Fig. 4. Rhea, PIA14605. Crossing lineations

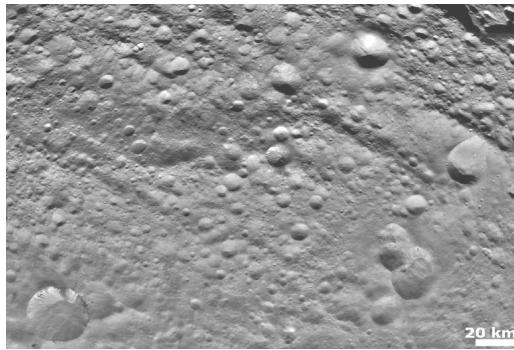


Fig. 5. Vesta, Cross-cutting lineaments and ring structures. (dawn-image 073111-full.jpg).  
Credit:NASA/JPL-  
Caltech/UCLA/MPS/DLR/IDA).

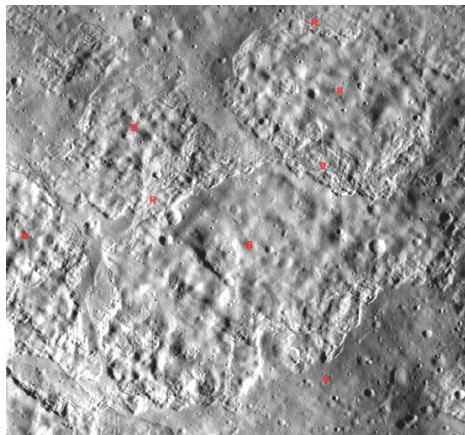


Fig. 6. Moon, PIA13683\_modest.jpg, Crossing wavy lineations.



Fig. 7. Eros. Gently rolling in crossing directions surface (standing waves) producing a regular net of pits (craters) with comparable sizes. Mosaic of images 0142203174 & 0142203236.



Fig. 8. Eros. Square craters (chess-board structure) as a result of crossing standing waves. Image 132151598.

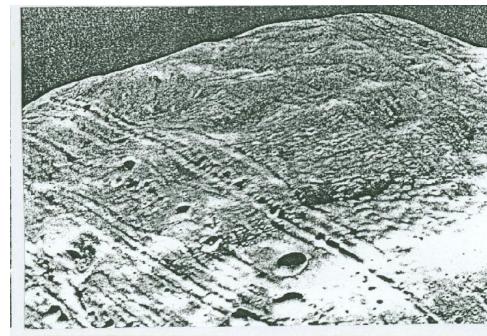


Fig. 9. Phobos. Crossing “ripples”. The NASA Atlas of the Solar System, R. Greeley & R. Batson. Clear control of degassing crater chains by linear structures.

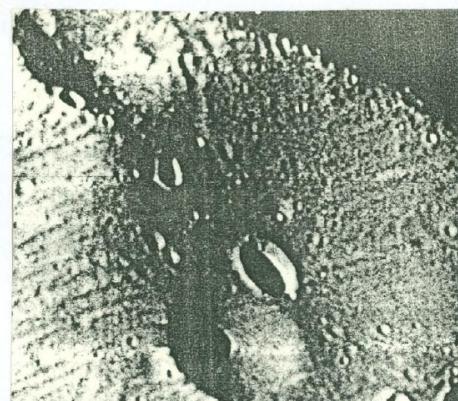


Fig. 10. Phobos. Crossing “ripples”, a portion of frame 039B84, ~ 9 km across.