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Ceres: structures from afar and near.

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"Orbits make structures" – basic statement of the wave planetology [1-3]. Moving in non-circular keplerian orbits with periodically changing accelerations cosmic bodies are warped by inertia-gravity waves. Their lengths and amplitudes are proportional to orbiting periods or inversely proportional to orbiting frequencies. They have standing character and four crossing directions: ortho- and diagonal. An etalon is Earth with 1/365 days frequency and corresponding πR/4 tectonic granule size.

Ceres has 1/4435 days orbital frequency and 1/9.07 hours rotation frequency. To both parameters correspond tectonic granules too large and too small to be observed (3.3πR and πR/3863). The wave modulation (division and multiplication of the higher fr. by the lower fr.) gives two side frequencies: 1/85212 and 1/965410. To them correspond tectonic granules πR/38.8 and πR/440.8 (R=475 km), thus about 38.4 km and 3.4 km. Now both sizes are discerned: larger granules from larger distance as 'blobs" at wave intersections (HST image, Fig. 1; Dawn's distant image, Fig. 2) and small circles in strings and grids covering the whole imaged surface, Fig. 3.

Earlier the wave modulation approach was used to explain anomalies (extra craters) in the lunar crater size – frequency curve [4] and for explaining appearance and size of the saturnian storms making the "leopard skin" picture [5]. Recently, a bifurcation nature and sizes of debris on the Churyumov-Gerasimenko comet core surface were also explained by this method [6]

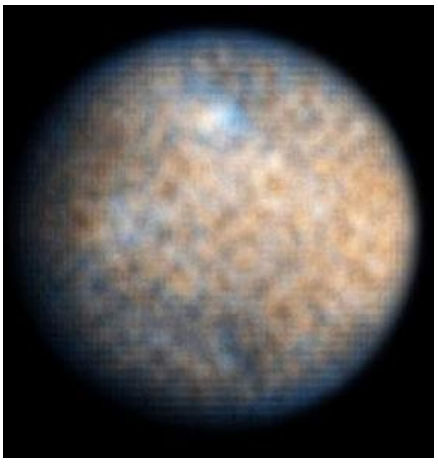

Fig.1.

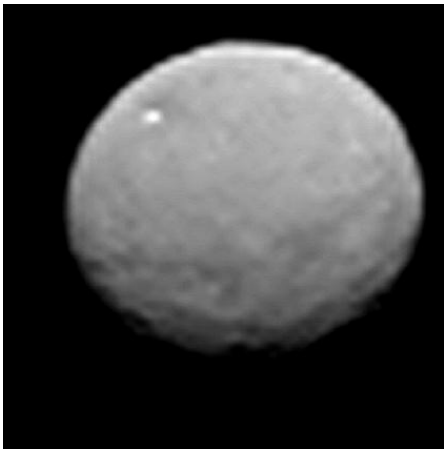

Fig.2.

Fig. 1. Color view of Ceres (HST image), PIA10235. In visible and ultraviolet light between Dec. 2003 and Jan. 2004. Diameter 950 km. Image credit: NASA/ESA/J. Parker, P. Thomas, L. McFadden, M. Mutchler & Z. Levay

Fig. 2. DAWN image of Ceres. FC21B0032726_smooth_700-237000km.jpg.

Fig. 3. A portion of Ceres from distance of 22000 km, view_of_the_bright_spots_in_the_cra.jpg.

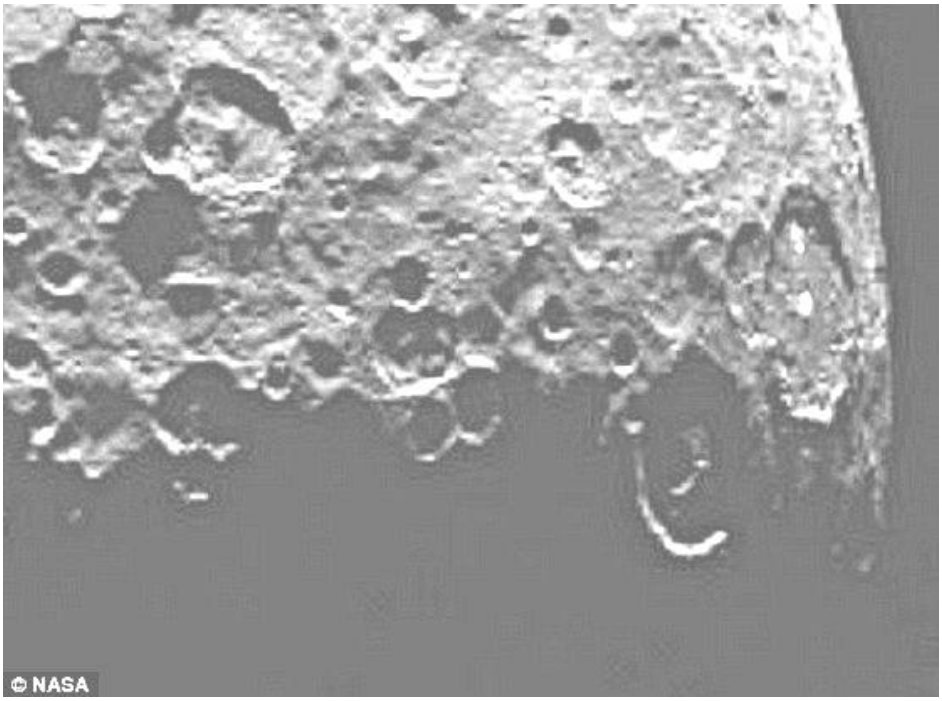

Fig. 3.

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