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Methone as an icy cosmic model of Earth

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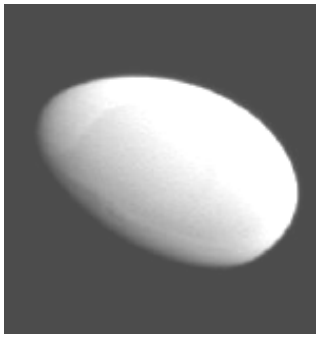
Developed by the wave comparative planetology conception on priorities of structures (shapes) of celestial bodies over their inner processes [1, 2 & others] is supported by recently imaged small icy saturnian satellites Methone (Fig. 1). With its size about 3 km and thus negligible inner energy it has very spectacular shape of an egg and no traces of impacts (what very surprises impact planetologists!). Any body moving in non-circular keplerian orbit with periodically changing accelerations is a subject of an inertia-gravity forces action (Fig. 3). This action inevitably results in oscillations of body shells.

An interference of these oscillations, having in rotating bodies four ortho- and diagonal directions, makes their shapes and structures. The longest fundamental wave 1 forms the tectonic dichotomy – an opposition of convex and concave hemispheres-segments (Fig. 7-9). At Earth they are the Pacific and continental hemispheres. The first overtone wave 2 twice-shorter and long πR brings antipodean tectonic sectors of different levels but joining in an octahedron (Fig.. 4-6, 10-11). At Earth one of examples of such antipodean sectors are the pressed in Arctic and bulging Antarctic.

Long ago known, this opposition was very intriguing but never was adequately explained. For the small bodies - asteroids also was noticed an opposition of a sharp (convex) and blunt (concave) ends. Recently obtained an image of a miniature icy saturnian satellite Methone confirms principles of the wave planetology. Having length only about 3 km (radius 1.6 ± 0.6 km) it shows an opposition of convex and flat sides (the fundamental dichotomy) and sharp and blunt ends (a second order dichotomy). In this sense it presents a small cosmic model of Earth. It orbits Saturn between orbits of Mimas and Enceladus, close to the first. One might suspect that Enceladus' gaseous plumes (Fig. 2) could finally accumulate themselves in a small icy body - Methone.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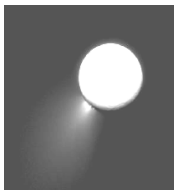
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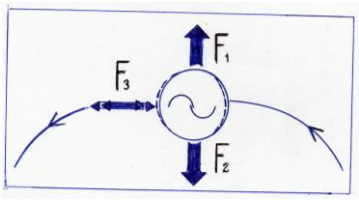

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Fig. 1. Saturnian satellite Methone long about 3 km (PIA 14633) as a model of wave shaping. Image of the leading side. North is up. Convex northern hemisphere opposes flat southern: fundamental dichotomy, wave 1. Sharp end opposes blunt end: second order dichotomy, wave 2. Compare to Earth: wave 1 dichotomy east-west, wave 2 dichotomy north-south (Arctic-Antarctic). **Fig. 2.** Enceladus with plume, PIA14658, Saturn –facing side. North is up and rotated 45˚ to the right. **Fig. 3.**

Forces acting upon moving in the keplerian orbit body: F1-centrifugal, F2-central body attraction, F3-inertia-gravity.


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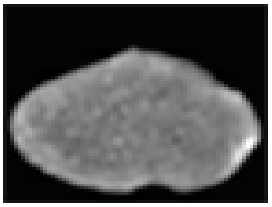
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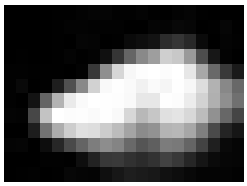
Parts of an octahedron structure. **Fig. 4.** "Diamond" of Yanus (octahedron outlines), PIA08192, long 220 km. **Fig. 5.** Phoebe, PIA06066, long 115 km, sectors joining in the center. **Fig. 6.** "Diamond' of Amalthea , PIA01074, long 270 km, convexo-concave shape and sharp and blunt ends.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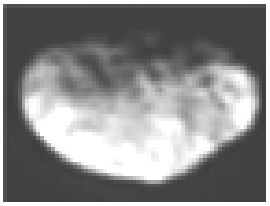
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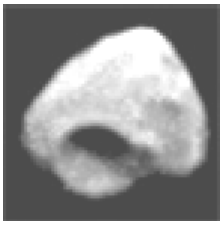
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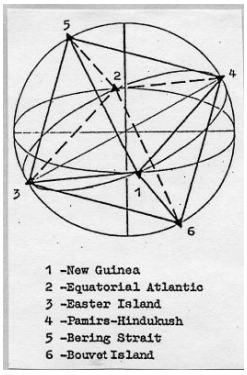
Evidence of a convexo-concave shape. **Fig. 7.**Atlas-32 km, PIA08233; **Fig. 8** Hyperion-350 km, PIA06645; **Fig. 9.**Thebe-110 km, PIA02531.



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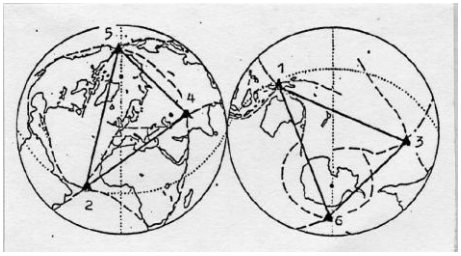
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The Earth's octahedron (**Fig. 10**) and positions of its 6 vertices on two Earth's hemispheres: with the highest proportion of land (left) and the highest proportion of water (right) (**Fig. 11**). The antipodean vertices are on equator, tropics, and polar rings showing a cosmic orientation of the Earth's structural octahedron.

References: [1] Kochemasov G.G. Theorems of the wave planetary tectonics // Geophys. Res. Abstr., 1999, V. 1, # 3, p. 700. [2] Kochemasov G.G. Coherent structurization of the Earth's geospheres from ore to atmosphere and lithospheric weakness zones favourable for concentration of metals // Global Tectonics and Metallogeny, Vol. 8, # 1-4, June 2003, p. 209-212.