

BREAKING ASTEROIDS AND TYPES OF METEORITES

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Decreasing sphericity of celestial bodies with increasing solar distance in the inner solar system, caused by warping action of planetary standing inertia-gravity waves (Kochemasov, 1986-1999), culminates in the asteroid belt. There bodies are extremely flattened and bent acquiring crescent-like shapes. This is partially due to a wave resonance between the fundamental wave warping any cosmic body and inherent to asteroids wave also long the great planetary circle. This 1:1 breaking resonance leaves no chance to any relatively large body to survive in the asteroid orbital zone. Enormous mass deficit exists here. Along with impact action wave bending contributes to development of high pressure assemblages marked by diamond dust and asteroid destruction (development of binaries, satellites).

Rotating low sphericity asteroids must be heterogeneous to level angular momenta of tectonic blocks with differing radii (distance to the rotation axis) and keep their integrity. This condition is not always observed and, hence, asteroids tend to break. Asteroid belt is full of debris of varying densities with not perfect radial separation by densities but with a clear tendency to do so. Some fragments reach Earth as meteorites and we have an opportunity to judge about density ranges existing in the belt: carbonaceous chondrites - irons. This range does not contradict with requirement of wave planetology to have noticeable density differences between various parts of highly irregular bodies. Heterogeneity of Ida (including spectrally different Dactyl) and Gaspra confirms this. It is interesting to note that a delicate texture of mesosiderites places them rather near asteroidal surfaces than deep in cores.