

## Earth and planetary studies of Russian fallen meteorite by the head-on collision: Effects on large shock-waves on water

Yasunori Miura<sup>1\*</sup>

<sup>1</sup>Visiting (In & Out)

Russian meteorite(tentatively called as Chelyabinsk meteorite probably from the Asteroids belt) fallen on the Lake Chebarkul near the Chelyabinsk, central Russia on 09:15 a.m. local (12:15 in JST), 15th February, 2013 is summarized from meteorite orbit and water generation of water planet as follows:

1)Collision orbit: Head-on morning type collision at 9:15 a.m. morning local time of the meteoroids (i.e. collision of Earth approaches to any Asteroid orbit heading directly to the Sun) is generally remained as larger Asteroids originated meteorites and valuable meteorites of the Moon and Mars etc. so far. Any meteoroids of head-on type destructive collisions which can be kept the original meteoroids information before disappearance of burning against the Sun, are considered to be largely significant type in planetary scientific fields.

2) Water effect in the meteorite: Since the solar system bodies stored inside the light fluids even in the collision growth, small amounts of water are still included in ordinary stony meteorites. Therefore, the fluids from evaporated meteoroids can be observed in the atmosphere, which is also observed in the Russian meteoroids occurred during the combustion. The comet bodies easily burned near the Sun have little contribution to the water to Earth (except the head-on collision) than the meteoroids combustion with heavy stony rocks to the Earth near the Sun side.

3) Formation and retention of a liquid phase: As water phase (H<sub>2</sub>O, OH) occurs in the extreme conditions of high temperature and pressure, the maintenance of the liquid state can hold only continuous system between solid (rocks) and gas (air) phases. Although a large amount of seawater (seawater) can be remained only active planet Earth, however the liquid phase can be remained in the fine minerals grains at quenching during the heating which are obtained on the surface of the Moon, Mars, and Asteroid (through meteorite impact, rather than comets) .

4) Formation model of seawater-bearing Earth: New formation model of water-bearing Earth is proposed by larger meteoroids from evaporated fluids in the interior of primordial Earth (cf. Miura, 2013), which is example of recent Russian meteoroid impact (even smaller projectiles).

5) Crisis management of Asteroid collisions: Since larger natural disasters based on shock wave of meteoritic impact, earthquake or volcano, it is required carefully by continuous education and scientific activity from the situation control. However, it should be different standpoints of in-situ daily-crisis managements by political mass-media treatment from quick decision.

Keywords: Russian fallen meteorite, head-on collision, water planet, shock wave, water generation, earth & planetary studies