## Carbon-bearing Grains of Asteroids to Form Organic Life Systems on Active Water-Planet Earth

Yasunori MIURA

Department of Earth System Sciences, Faculty of Science, Yamaguchi University

Introduction: The major two groups of inorganic and organic compounds on active water-planet Earth are originated as two Silicon (Si)-bearing groups and Carbon (C)-bearing groups at primordial stages on the Solar System. From light elements are actively existed on upper systems of air and liquid phases, though heavier elements are mainly situated in lower solid to fluid phases stable at lower PT conditions relatively. Therefore, Carbon -bearing organic life activity mainly existed surface of rocky grounds, which are high-level life systems ate the similar of three phases of the earth with three system layered structure which are the same of Earth-related structure fundamentally. Therefore, we discuss high-level life species in active-water Earth as special planet production relatively, though all elements and solids states recently formed. The purpose to show the more detail consideration carbon-related grains and life-related concept here [1-6].

Carbon significance: Ions and elements (isotopes) are formed chemically in the star (nuclear reaction, as in the Sun) condition, which can find widely in the space world. However rock and mineral (crystal) with carbon contents are formed by giant atomic composition and structure (at more stable reaction time and space) which are found on the surface on rocky body of Asteroids or planets (as in Earth-type planet and Asteroids). This means that carbon-bearing grains which are similar structure process of the rock of the Earth with stable low PT conditions as longer existences on the Solar System [1-4].

**Energy sources significances**: The present energy sources on the Active Earth are three sources of planetary impacts (or meteorite impacts), Earthquake and volcano. 1) The outer-spaced sources (to the Earth) are meteorite impact, gravitational sources of Earth quake, and volcano which are occurred on active Earth. 2) Probable missing sources of meteorite-meteorite (Asteroids) impacts around Earth are considered to be occurred (especially sources of fluid waters and carbon gases on the Earth) [3-6] (Table 1).

Carbon-bearing rocks and grains variety: Grains on the Solar Systems are used mixed minerals and unclear intermediate fluids with glassy solids usually. However, terminology of organic comopound is used for prefect crystal and crystalline solids (definition on Earth organic crystals), though its crystal has been formed at stable condition with every surface on the rocks widely or longer. Therefore, crystal-like parts of organic grains on Asteroid (on the Moon and Mars also), which are different completely by Earth's organic crystal. Main difference is that Earth organics are completely crystal (with stable higher PT condition with longer condition), though Asteroid crystal-like parts are quick shock-wave condition with unstable and less time reaction with various PT conditions). It might be used organic-like or meteoritic organic grains for extraterrestrial organic grains [5-6].

Inhomogeneous rocks on the Earth: Active Earth shows phase states of air, liquid and solid uniform materials, though these systems are slow, long changes with quick mixing. Especially organic grains are remained last formation. In fact, Earth surface is formed largely sea bottom rocks of carbonates even large continents widely now which show wide sea bottom rock of carbonate rocks are as first rock. Even in the present sea bottom are remained changed shapes by ocean-impact effects mainly. It is not continuous cyclic structure of active Earth (even longer ca.4.6Ga years). This means that original Asteroid organic grains are started to many organic formation except longer high PT condition possible in active water-planet. This shows that many sea and

land rocks with organic grains are formed by various surface sites and kinds on the Earth now [6] (Table 1).

Table.1 Organic grains of the Earth, Asteroid and other extraterrestrial bodies.

Celestial bodies	Organic grains	Carbon-bearing System
Earth (active, water planet)	Perfect crystals with mixed as rocks	Organic life & inorganic bone system (3
		phases as Earth)
Asteroids, the Moon & Mars	Shocked organic grains mixed solids	C-bearing, SiC-bearing & bone- solids.

**Summary:** The present works are summarized as follows.

- 1. Active planet Earth shows three phase system with variable changed and remained on the rocks with carbon-bearing and organics grains.
- 2. Organic grains with stable in the low PT conditions are found on Asteroids the Solar System widely.
- 3. The present energy sources are planetary impacts, and gravitational sources are also found in Asteroids impacts on Asteroids are occurred (as fluid sources).
- 4. Organic grains on the Solar Systems are used mixed and unclear intermediate fluids with glassy solids. Asteroid mineral-like parts are quick shock-wave condition as meteoritic solid rocks.
- 5. Earth surface remade as various active behavior, originally from Asteroid rock widely.

**References:** [1] Miura Y. (2018) IMA-22,1189. [2] Miura Y. (2023) JAMS. E5-15. [3] Miura Y. (1996) Shock-Wave Handbook (SV, Tokyo),1073-1209. [4] Miura Y. and Kato T. (1993) AIP, 283, 488-492. [5] Miura Y. (1992) Celestial Mechanic. & Dynamical Astro. (KA), 54, 249-253. [6] Y. Miura (2024) In this volume.