

**Origin of Plate Tectonics, Why did Plate Tectonics occur only on Earth?
Why is there a Deep Ocean Floor and Seawater only on Earth?
 Mystery (Driving Force and Origin of Pacific Rim Back-Arc Basin).
 we challenge Them All !**

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Why is "**Multi-Impact Hypothesis**" Origin of "Moon"?,

But also **Origin of "Deep Ocean Floor of Earth" and "Plate Tectonics"?**

Origin of "**Seven Seas of Earth**" and "**Plate Boundary**" and "**Returned Pacific Arc Archipelago, Back Arc Basin, Solitary Trench**", Origins of "**Extreme Extinction of Species**" and "**Asteroid Belts** and Differentiated Meteorites" and "**Jupiter Great Red Spot**", and Origins of "Pluto" and "**Core-rich Venus**", Origins of "Rotation Axis Inclination", "**Rapid Change of Plate Moving Direction**" and "**Kimber light pipe**" and Origin of "Moon" is **all Result of a Series of Solar System Evolutions.**

Orbit of **Differentiated Mars-sized protoplanet CERRA** formed at the Ceres position according to **Bode's law** changed to an Elliptical Orbit due to **Perturbation of Massive Jupiter Gas Planet**. At Position where Gravity of **Sun** and **Jupiter** are balanced, CERRA ruptures and Orbits in a Row as **Train-Mantle-Ruptured Asteroids** like **Comet Shoemaker-Levy Ninth**. At Intersection with **Earth's Orbit**, a Collision chance occurs at **each meeting cycle**. This **Train Mantle Fragment** caused **Multi-Impact**. **Core and Mantle Fragments of CERRA** became a Molten Sphere, and Velocity and Angular Momentum were reduced by **Law of Equal Energy distribution**, which became Origin of **Core-Rich Venus**. Collision Speed and Angle were **calculated theoretically**, and **V=12.4km/s** and **Φ=36.45 degrees** were obtained. Projectile in Earth's Mantle could explain Lunar Orbit $R_m \approx 60 \times R_e$, which was slightly less than Secondary Space Velocity of 11.2 km/s. Ejected **Earth Mantle is eccentric** and **rotates around Common center of Gravity**, so that Heavier one (**front side = Basalt rich**) **always faces Earth**. Moon was **covered with Molten Crust**, but under Impact of Heavy Bombardment of Meteorite, Underground Basalt (black) expanded and flowed out, forming Lunar Sea. Component of Asteroid belt (fragment of CERRA) is **Andesitic mantle**. On **Back-side of Moon** (surface component of Earth = **Andesitic**), even if it collides, it becomes **Same breccia** and Craters, **but Basalt sea is not formed**.

"Why does **only Earth** have **Deep Ocean Floor and Seawater**?" **Mystery can be explained below.**

One hundred years ago, when **Wegener proposed Theory of Continental Drift (Origin of Plate Tectonics)**, he also **pointed out Mystery of Frequency of two peaks at Earth's altitude**. It is a **Mystery** that Seafloor with an **Average Depth of about 4 km** (1/1000 Radius of 6,400 km.) **has formed about 70% of Earth's Surface.**

In "**Multi-Impact Hypothesis**"

is **Lunar Origin Hypothesis**, but also **Origin of Great Extinction of Species** such as **Ocean Floor and Plate Tectonics in Collisions**. Orbit of **Differentiated CERRA** turned into an Elliptical orbit to Jupiter by Subsequent perturbation of Giant planet Jupiter. **CERRA's Orbital flattening** took about 600 million years, and **Earth and CERRA were completely differentiated and solidified.**

At a position where Gravitation was equal between **Sun** and **Jupiter**, **Tension exceeded Strength of CERRA** and **Tidal Rupture occurred**. Like **Comet Shoemaker, Levi and Ninth in 1997**, it became **Train & CERRA's mantle fragment** intermittently **collided with Earth** instead of Jupiter.

Defect was isostatic and formed a **Deep Ocean Floor** with an **Average Dpth of 4 km**. Surrounding Plate collapsed to form Return Pacific Concave Back Arc Basin. High-latitude Collision toward Antarctic position stopped when Tethys Sea and Indian Ocean, Earth Tilt and Antarctic Continent moved to Rotation Axis Position.

Instead of **God making Land in Sea**, *Dent was created by Collision on land, and connected to form Ocean Floor.*

During **First launch of Moon**, *Earth's Mantle cracked and became a Plate Boundary.*

Collision of Mantle Fragment with Hawaiian location resulted in Ejection of Moon and Origin of Kimberlite Pipe.

"Why did **Plate Tectonics** occur *only on Earth?*"

It is *inevitable* that Tragedy of CERRA born inside Giant Mass Jupiter and **Collision of Train Mantle Fragment.**

Driving Force is a couple that Minimizes Moment of Inertia, and **when Plates begin to overlap**, Convex Plate goes under Concave Plate. Origins of Asteroid belt and Jupiter's Great Red Spot can be explained without Contradiction.

Clinging to Thermal Convection Hypothesis cannot explain Sudden Change in Direction of Plate movement, Does Not reach Truth.

Assuming Correct Model, Theory can verify Collision Speed and Angle by Abduction, Re-Verification through Experiments and Observations is desired.

But Giant Impact Hypothesis is Accidental Collision of Mars-sized Tia gives only 3×Re Orbital Energy.

Furthermore, Mechanism of Accelerating Up to 60×Re(=Moon Energy) is not shown.

It is a *Plan to simulate a mantle-only Moon* but not to explain its Feeding Zone.

It will also be released in M-IS22, M-ZZ56(May 24), U-02(May26AM2), S-IT25(26AM1*)

Keywords: Origin of Plate Tectonics, Why did Plate Tectonics occur only on Earth?, Why is there a Deep Ocean Floor and Seawater only on Earth? , Challenge Mystery of all origins ! Will be revealed in M-IS22 session!, Origin of Plate Tectonics can be explained by the same Origin, as Origin of Moon and Origin of Earth's Deep Ocean Floor, Multi-Impact Hypothesis can explain Origins of Moon, Earth, Earth's Ocean, and Living things.

