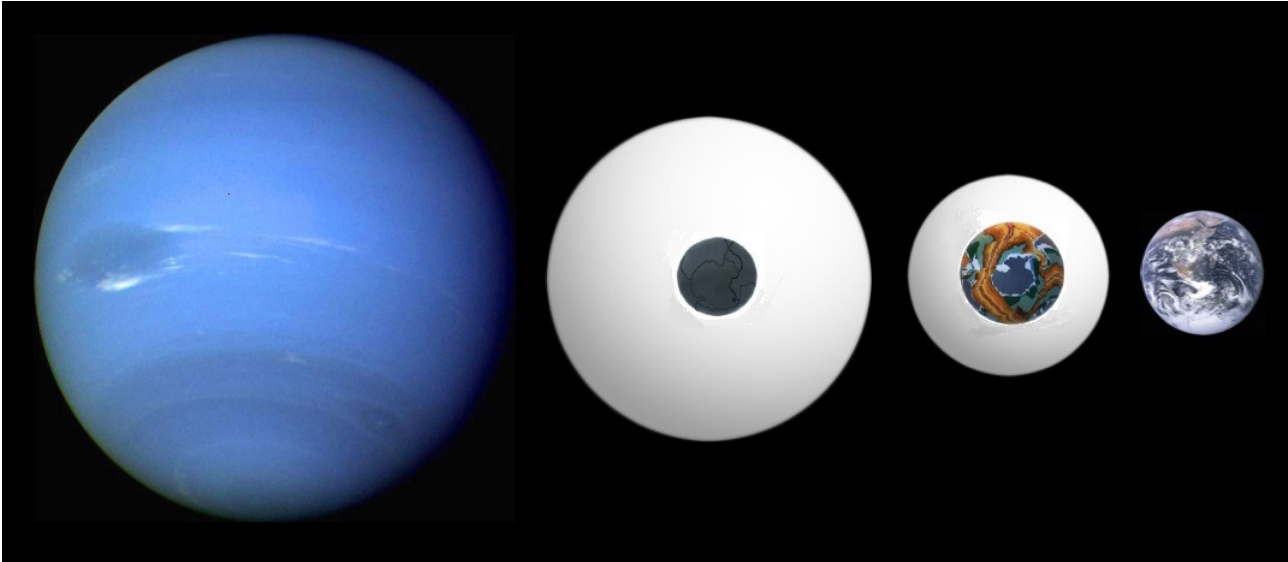


For my father, in memoriam

Stellar Metamorphosis: From Neptune to Earth

Daniel Archer
D_Archer@live.nl
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Amersfoort, NL



From Neptune to Earth visualized, crust insert pictures credit to Dr. James Maxlow¹

Abstract: A look at the evolution from a Gas Dwarf (Neptune) to a Life Host (Earth) and describing what happens in each phase; where the real history of how the crust of the Earth formed and evolved is theorized; the first crust a complete shell that expanded.

In the General Theory of Stellar Metamorphosis (GTSM)² the Earth is an evolved astron³, not all astrons will become like Earth but every astron has the potential to become like Earth; to become a life host. Just as any seed has a chance to become a tree. In this paper i will assume ideal conditions for a Gas Dwarf like Neptune to evolve into a life host like Earth. Below is the part of the Astron Classification table⁴ we will be looking at:

| Time | Population | Type | Size (R_{\odot}) | Examples |
|------|---------------|-------------|----------------------|------------------------|
| ↓ | II Gas | Gas Dwarf | 0.035-0.08 | Neptune / Keppler-11e |
| | | Water World | 0.0186-0.035 | GJ1214-b / Keppler-22b |
| | III Liquid | Pre-Earth | 0.0134-0.0186 | Kepler-10b / Corot-7b |
| | | Life host | 0.009-0.0134 | Earth / Kepler-186f |

As you can see we have 4 types to describe; starting from Gas Dwarf and taking Neptune as the archetypal type of a Gas Dwarf.

Gas Dwarf (Neptune)

Neptune has an incredibly thick gaseous atmosphere comprised of 74% hydrogen, 25% helium and approximately 1% methane according to current science sources, these elements are indeed present but that is not complete. As per GTSM all elements are present, this includes oxygen specifically. We also know there are storms, winds and lightning on Neptune, the atmosphere is mixing elements and forming molecules. The chemistry happens at all depths of the atmosphere down to the core and at different pressure regimes different molecules are made. The gaseous atmosphere is in the process of combining water and oxygen into water; this happens deeper in the interior. The formation of water is an exothermic reaction (heat releasing), the heat will be a catalyst for endothermic (heat absorbing) reactions. Water is heavier than the atmospheric gasses and thus it will form deep water layers, water (pure) is also a good insulator and any heat at the core will have a harder time escaping. This means that at the gas dwarf stage the heat is being internalized to a great degree, after a lot of atmosphere is formed into water Neptune will no longer be a gas dwarf, its size will have been reduced and we have arrived at the next phase.

Water World

With a thinner gaseous outer atmosphere and thick liquid layers. This stage is very important in GTSM for the evolution of life, we could say that the chemistry of life takes root at this phase. For this paper we will not look at life formation but what happens with the water and the heat trapped in the core. The core is hot and exerts an outward pressure, the water (atmosphere) is colder and has an inward pressure. We already established that in GTSM all elements are there and this includes Silicates and other rock forming elements, these elements are closer to the core. At this stage the water will cool the hot rocky elements; due to the high heat, these rocks will also heat up again and then cool off again when exposed to more water. Because of the water pressure there is a chance that water can push deep down into the heavy elements into the hot core, this would give an explanation of why deep water was found on Earth⁵. Through all this action, the inward and the outer pressure, a crust is formed during the Water World phase; this crust forms a complete shell with weak points and thinner at some places and thicker at others. Also during this phase, as said, the water gets into the core, in rocks and evaporates when cooling rocky material, bubbling up to the water surface and adding to the gaseous atmosphere. Water also forms hydrates, supporting organic life. All this time the water world is shrinking, gas is lost to space as well. Slowly the water layers get thinner, this will result in diminished density and thus less pressure on the crust that has formed during this phase, the heat trapped inside this crust will want to get out, creating a push outward, the crust will crack at the weakest points and expand. We are now at the next phase.

Pre-Earth

With the lesser dense water layers and smaller atmosphere the crust will expand. At breaking points the inner hot rocky material will seep out and the remaining water layers will cool this material. This newly formed crust is mainly composed of basalt, the original crust that formed the complete shell is mainly composed of granite. Granite is richer in silicates (70-77%), this is logical since most silicates would be present with the first crust forming. The deep hot rock has less silicates and thus forms basalt (49,97% Silica), this expansion of the crust is already modeled by expanding earth theorists⁶, who have different models and ideas on how it is possible the crust expanded. I hope that with GTSM this is now clear, there is no added mass nor matter needed nor any other exotic theory, it is simply a part of normal astron evolution. With continents forming and for its size still a hefty atmosphere that keeps reducing; life flourishes and we arrive at the next phase.

Life Host

The current state of the Earth, many year into its past and many years into its future the Earth will host life and we are around to think about how it all came to be and what will happen next. Current processes on Earth indicate that the Earth is cooling internally, mantle rock thickens, atmosphere is leaking. Evolving to the next stage.

Final Remarks

I tried to keep this paper short, there is so much going on at once during these stages of astron evolution, many more details could be added. This is how our Earth came to be, a puzzle people have theorized about since we could think. I hope this paper gives scientists ideas to better explain a plethora of issues about our planets formation. I also hope that scientists will try to model this part of astron evolution, to see how well it works. After all the Earth is an amazing object, its history is richer and deeper than the currently accepted paradigm. By just looking at it we are forced to wonder:



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- 3 M. Zajackowski, Star and Planet: Stages of Astron Evolution: <http://vixra.org/pdf/1510.0381v1.pdf>
- 4 D. Archer, Astron Classification Table: <http://vixra.org/pdf/1712.0460v1.pdf>
- 5 Science 13 Jun 2014: Vol.344, Issue 6189, pp.1265-1268; PDF: https://gsecars.uchicago.edu/sites/gsecars.uchicago.edu/files/uploads/Jacobsen_SciencePaper.pdf
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