Scientific Event:
Land Masses Rise Up From Water Covered Earth

Time Frame: ~3.3 billion years ago

The scientific descriptions on these pages are derived from AI investigations using ChatGPT and Gemini 3 asking for the history of landmasses rising up from the water and also how they developed while beneath the early water covered Earth. The AI output has been revised appropriately for improved accuracy, ease of comprehension, and relevance to this study of Genesis 1.

Background: The Development of Landmass Beneath the Water

After Earth's first global oceans condensed, roughly 4.4 to 4.3 billion years ago, nearly all solid surfaces were submerged beneath water for about a billion years. The submerged surface of early Earth was dominated by the basaltic rock that was the result of solidified lava from volcanoes. Silica-poor and dense, it lacked the compositional diversity that characterizes modern continental landmasses. In basaltic rock, heat rose rapidly through the crust, and partial melting occurred at relatively shallow depths. As a result, the crust could not support long-lived, mechanically strong tectonic plates. But over time the interaction between the hot basaltic crust and seawater profoundly altered both. Basalt reacted chemically with water to form new minerals. This process changed the chemistry of the crust, enriched the oceans, and established chemical energy gradients that later became important for early life.

Over time, the thick basaltic crust began to differentiate. As it heated and thickened, its lower portions partially melted, producing rocks that are lighter and more buoyant than basalt and represent the earliest form of continental crust. Initially, most of this material remained submerged, but it formed the structural and chemical nuclei from which continents would eventually grow. Above sea level, true land was rare and transient. Volcanic islands and small proto-continental highs occasionally emerged, only to be eroded or submerged again.

During this billion-year interval, Earth did not yet operate under modern plate tectonics. Instead, heat was lost primarily through vertical processes. These vertical processes nonetheless laid the groundwork for plate tectonics. By roughly 3.0 to 2.5 billion years ago, stable cratons—thick, buoyant blocks of continental crust—had formed. Modern-style plate tectonics likely emerged gradually rather than suddenly, building on the physical and chemical foundations established during Earth's long submerged, basalt-dominated youth.

In summary, for roughly the first billion years after oceans formed, Earth's land consisted of hot, thick, basaltic crust lying almost entirely beneath the sea. Although this crust was chemically simple and mechanically weak, it was intensely altered by water, internally differentiated, and vertically recycled. These processes quietly produced the buoyant continental seeds and structural weaknesses that eventually enabled the transition to stable continents and global plate tectonics.

- **Time Span:** ~4.3 to 3.3 billion years ago (Ga)
- **Evidence:** The evidence comes from independent isotopic systems, experimental petrology, field geology, metamorphic studies, and geochemical modeling, all pointing to the same physical reality.

Development of Continents on Earth

When Earth first formed about 4.54 billion years ago, it was not a planet of continents and oceans as we know them today, but a violent and fluid world. Then for a time, Earth was essentially a water-covered world with little or no persistent dry land. As cooling continued between about 4.4 and 4.0 billion years ago, the magma ocean solidified into a primitive crust. These buoyant crust fragments may have risen above sea level as small islands or island chains, though they were unstable and short-lived. By around 4.0 billion years ago, the first long-lived continental nuclei—known as cratons—started to form. Land at this stage was no longer purely transient. Over the next several hundred million years, from about 3.2 to 2.5 billion years ago, continental growth accelerated. By around 2.5 billion years ago, the total volume of continental crust had reached a large fraction of its modern value. From about 2.5 to 1.8 billion years ago, the large supercontinent-scale land masses emerged.

1. **Widespread landmasses arise**
    a. **Time Frame:** ~3.3 to 3.0 Ga
    b. **Evidence:** Paleosols (soil preserved underneath volcanic deposits), weathering signatures in rocks
2. **Large, stable continental blocks**
    a. **Time Frame:** 2.7 to 2.5 Ga
    b. **Evidence:** Craton stabilization (cratons becoming resistant to deformation)
3. **Supercontinent-scale landmasses**
    a. **Time Frame:** 2.5 to 1.8 Ga
    b. **Evidence:** Matching rock sequences and mountain belts, fossil distribution, paleomagnetism, ocean floor evidence

Description in Genesis 1 of This Event

And God said, "Let the water under the sky be gathered to one place, and let dry ground appear." And it was so. God called the dry ground "land," and the gathered waters he called "seas." And God saw that it was good.
Genesis 1:9-10 (NIV)

Passages left highlighted are those most relevant to the scientific event of interest

The approach that this supplement pack takes in making associations between Genesis 1 events and scientific events is to use the earliest scientific event that makes sense according to the Hebrew words used in Genesis 1 (i.e., the use of good hermeneutics) while also considering where the event would likely be placed on a timelines that is consistent with the sequence of events described in Genesis 1.

The first widespread land masses arising from the oceans began about 3.3 billion years ago, so this is where we designate that this Genesis Physical Event 6 began. The growth in landmasses above water continued for about 1.5 billion years. This is only the first physical event described for the third Yom/Day of Genesis 1. Putting together the next Genesis physical event of the plants, then both of these physical events combined lasted almost 2 billion years.