



# Flood Teaching Points

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Does God actually judge  
the wicked?

The Flood reveals—with no room  
for uncertainty—that the answer  
to this crucial spiritual and moral  
question is an unqualified yes!

Scripture is unmistakably clear that God brought a world-destroying cataclysm on an earth filled with human wickedness and violence only some ten generations before Abraham.

## Genesis 6

<sup>11</sup> Now the earth was corrupt in the sight of God, and the earth was filled with violence.

<sup>13</sup> Then God said to Noah, "The end of all flesh has come before Me; for the earth is filled with violence because of them; and behold, I am about to destroy them with the earth.

<sup>17</sup> Behold, I, even I am bringing the flood of water upon the earth, to destroy all flesh in which is the breath of life, from under heaven; everything that is on the earth shall perish.

# Genesis 7

<sup>11</sup> In the six hundredth year of Noah's life, in the second month, on the seventeenth day of the month, on the same day all the fountains of the great deep burst open, and the floodgates of the sky were opened.

<sup>12</sup> The rain fell upon the earth for forty days and forty nights.

The Biblical text is emphatic that this judgment destroyed all the land-welling, air-breathing life on earth apart from the animals and humans that were aboard the ark.

## Genesis 7

<sup>19</sup> The water prevailed more and more upon the earth, so that all the high mountains everywhere under the heavens were covered.

<sup>21</sup> All flesh that moved on the earth perished, birds and cattle and beasts and every swarming thing that swarms upon the earth, and all mankind; <sup>22</sup> of all that was on the dry land, all in whose nostrils was the breath of the spirit of life, died.

# Genesis 7

<sup>23</sup> Thus He blotted out every living thing that was upon the face of the land, from man to animals to creeping things and to birds of the sky, and they were blotted out from the earth; and only Noah was left, together with those that were with him in the ark.

<sup>24</sup> The water prevailed upon the earth one hundred and fifty days.

Such a cataclysm must have left an **abundance of physical evidence.**

# Question

What sort of physical evidence  
would an event as described in  
Genesis 7 leave behind?

What about “billions of dead things buried in rock layers laid down by water all over the earth”?

When we examine the rock record what do we actually observe?

**Billions of dead things buried in sediment layers all over the earth!**



Just how much of this sort of evidence is there?

More than a mile (1,800 m), on average, of fossil-bearing sediment blanket today's continents.

Why are fossils so special and significant?

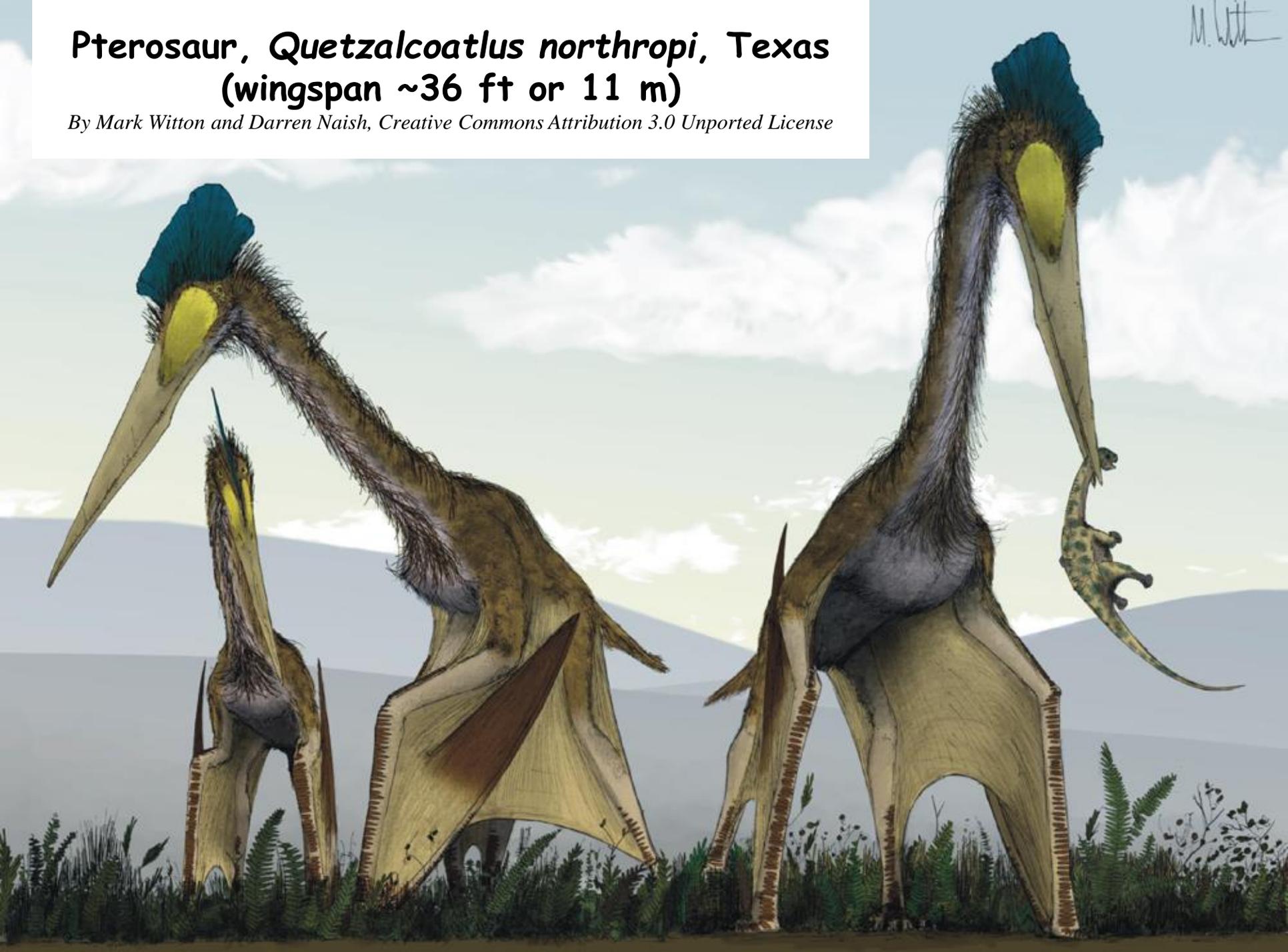


## **Plesiosaur, *Dolichorhynchops osborni*, Kansas**

*Photo by Ryan Somma, Wikipedia, distributed under Creative Commons Attribution ShareAlike 3.0 License.*

# Pterosaur, *Quetzalcoatlus northropi*, Texas (wingspan ~36 ft or 11 m)

*By Mark Witton and Darren Naish, Creative Commons Attribution 3.0 Unported License*



To be transformed into a fossil, an organisms requires rapid and complete burial.

Fossils testify to catastrophic conditions!

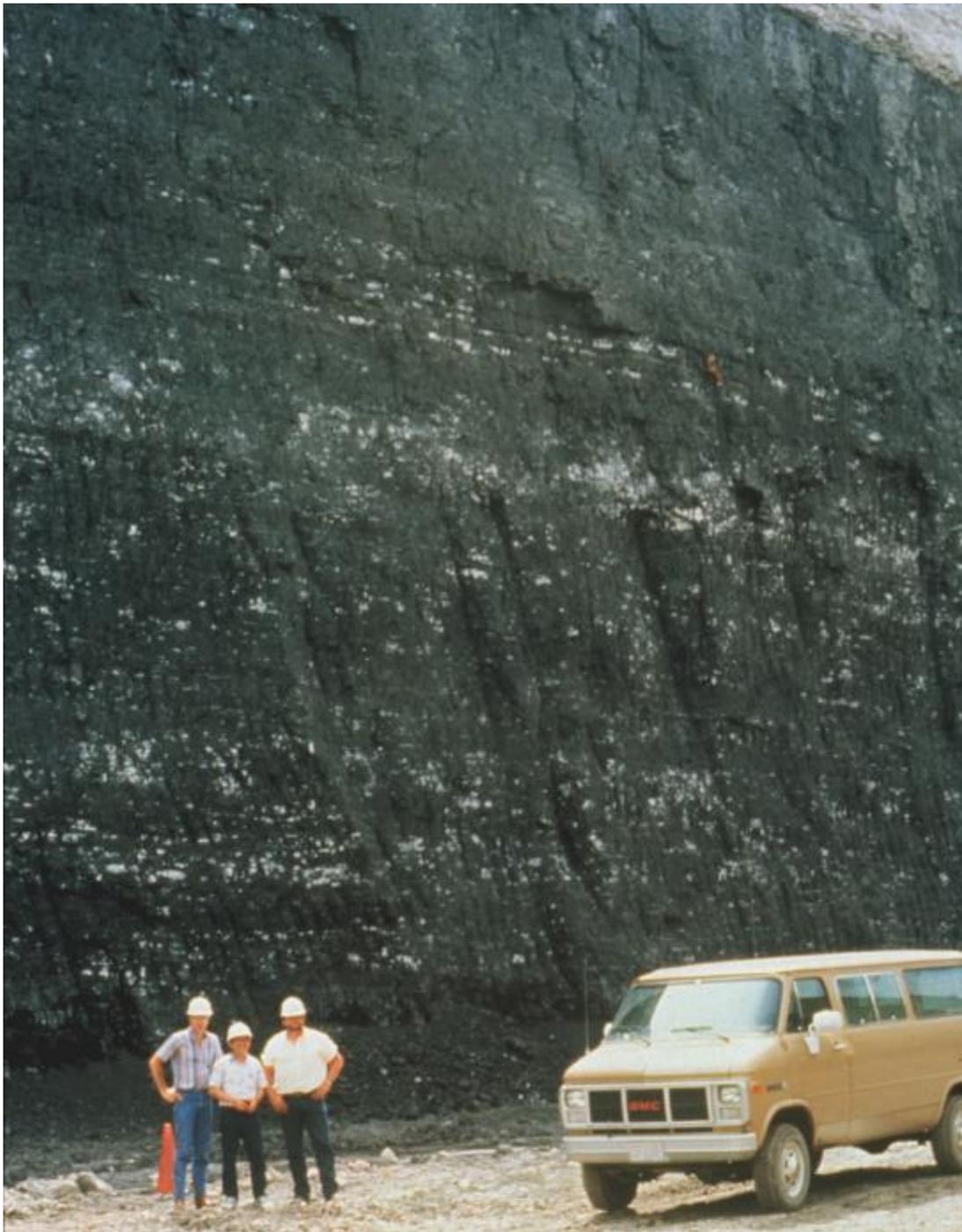
The fact that **fossils** are so common throughout the **Cambrian-Cenozoic** sediment record argues that **this entire record is the product of catastrophic conditions on a global scale.**

Fossilized plants testify to  
global-scale catastrophism.



**Powder  
River Basin  
coal  
—northern  
Wyoming,  
southern  
Montana.**

**40% of all  
the coal  
used in the  
U.S. comes  
from this  
single  
deposit.**

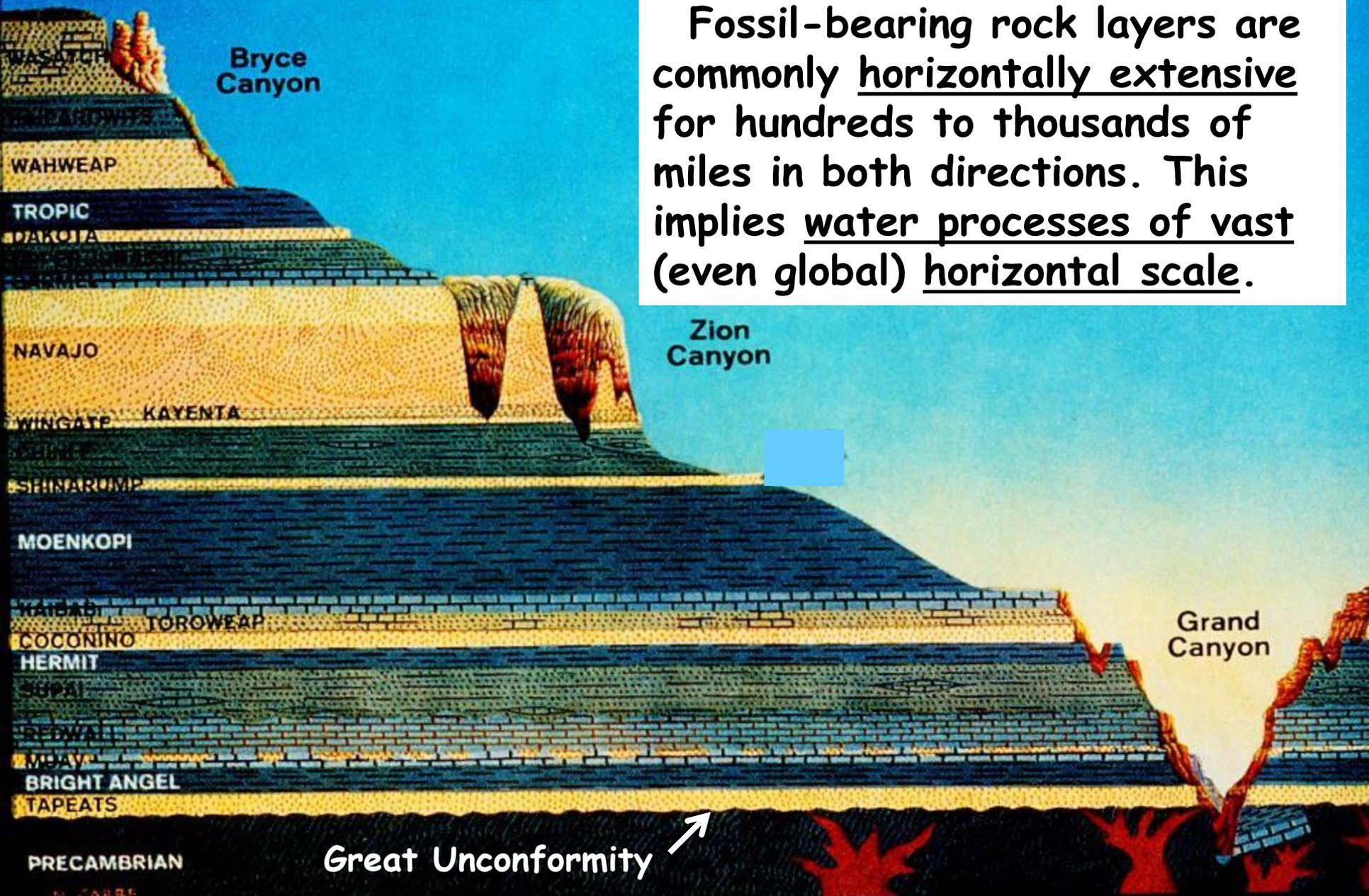


**Powder River  
Basin coal seam,  
~ 90 feet in  
thickness.**

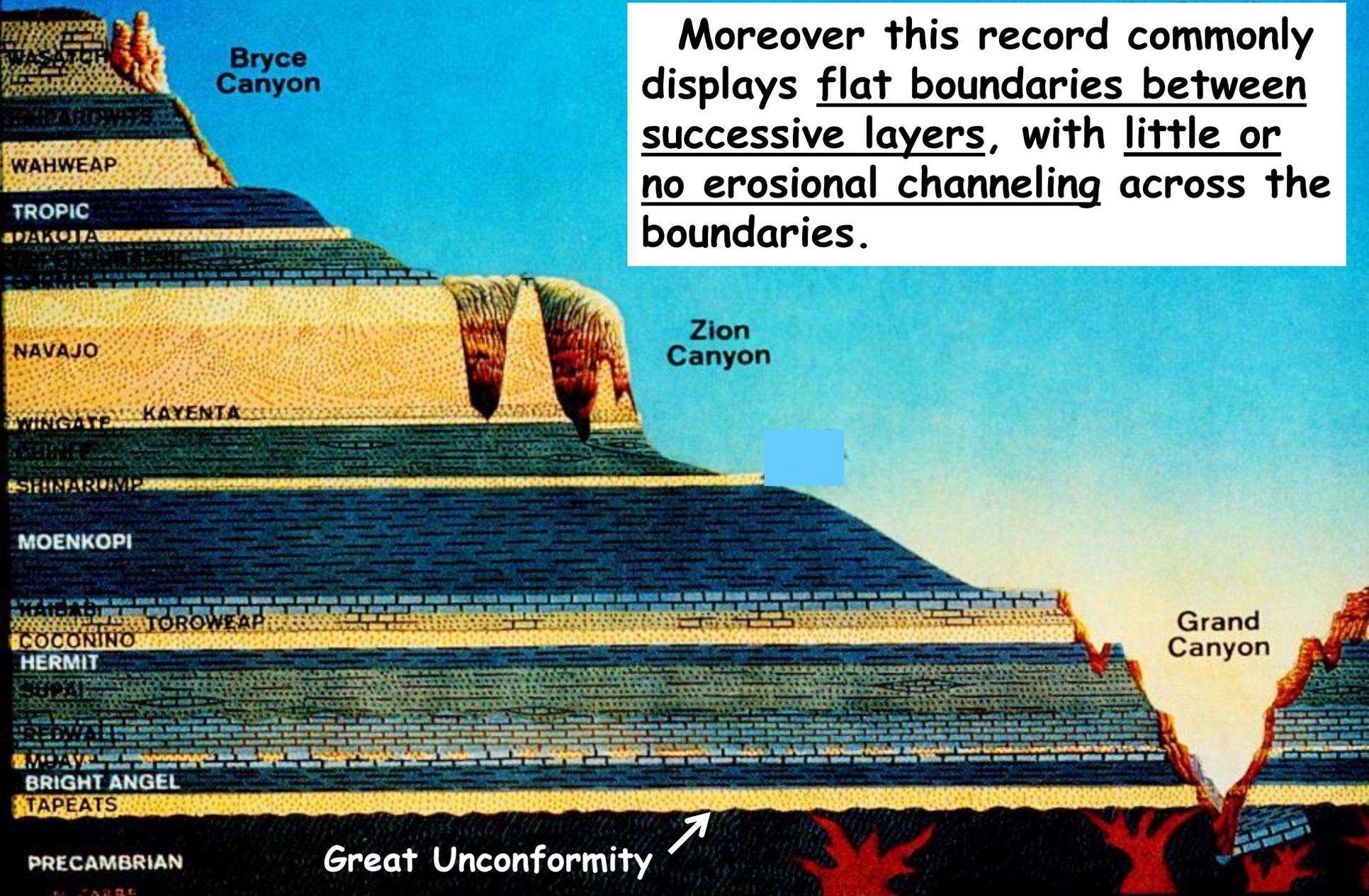
**This coal is  
composed of  
water-transported  
plant debris,  
mostly trees, that  
grew elsewhere.**

Even apart from their fossils, the **sediment layers themselves** testify to conditions radically different from those operating in our world today.

Fossil-bearing rock layers are commonly horizontally extensive for hundreds to thousands of miles in both directions. This implies water processes of vast (even global) horizontal scale.



Geological cross-section, north-south, north of Grand Canyon

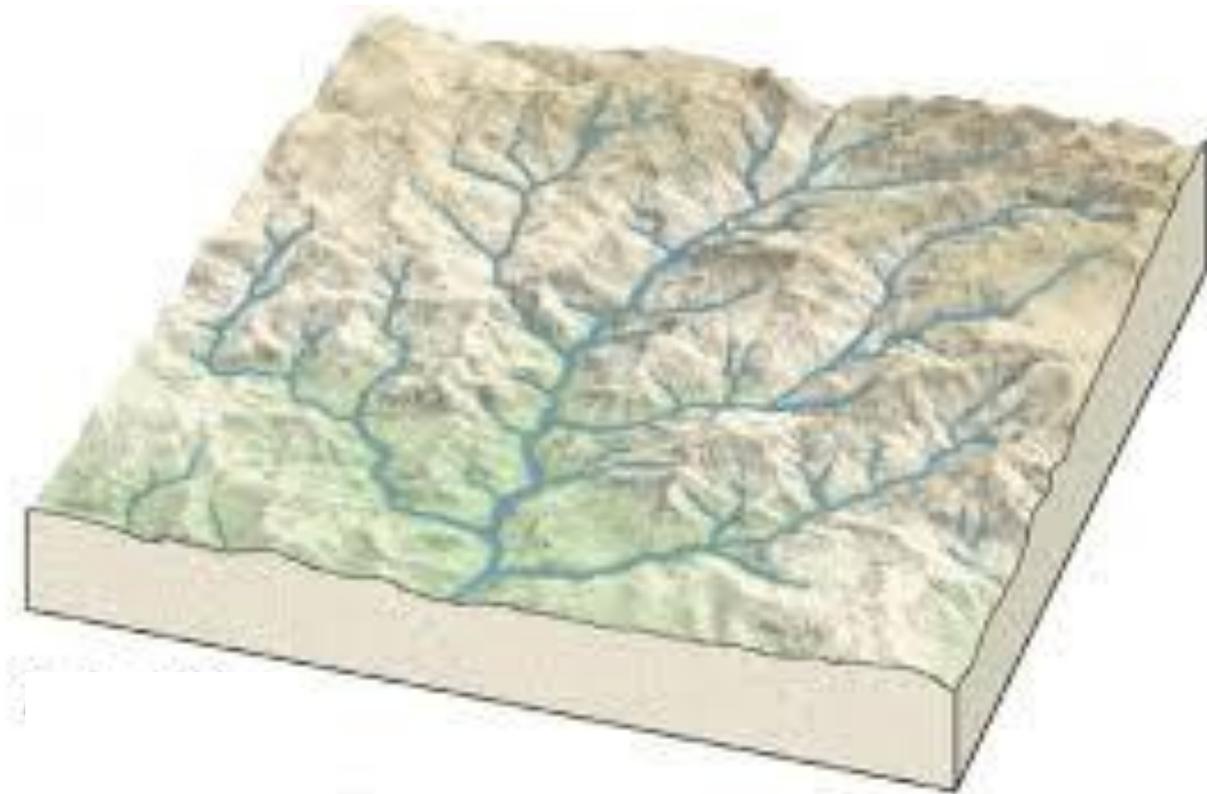


Geological cross-section, north-south, north of Grand Canyon

The implications of this are huge.  
It means that

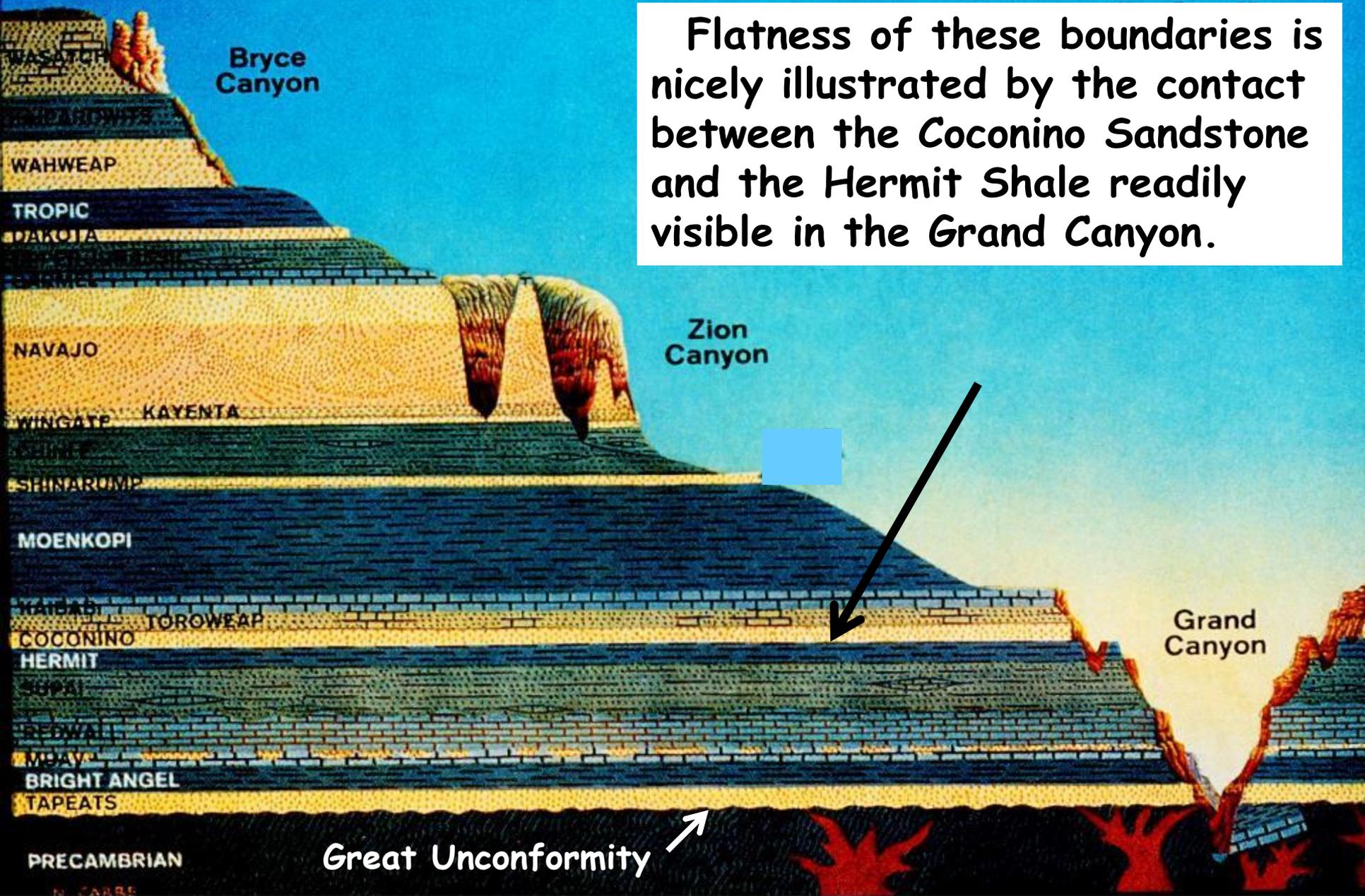
1. vast portions of the continental surface were covered by water,
2. depositional surfaces were smooth,
3. deposition was relatively uniform over vast horizontal scales.

—radically different from today!



**Typical (dendritic) drainage pattern on the continents today. Higher topography is dissected by erosional channels. Sedimentation is localized to stream and river valleys.**

Flatness of these boundaries is nicely illustrated by the contact between the Coconino Sandstone and the Hermit Shale readily visible in the Grand Canyon.



Geological cross-section, north-south, north of Grand Canyon



**Knife-edge sharp contact of the Coconino Sandstone (above) with the Hermit Shale (below) along the Bright Angel Trail, Grand Canyon, Arizona.**



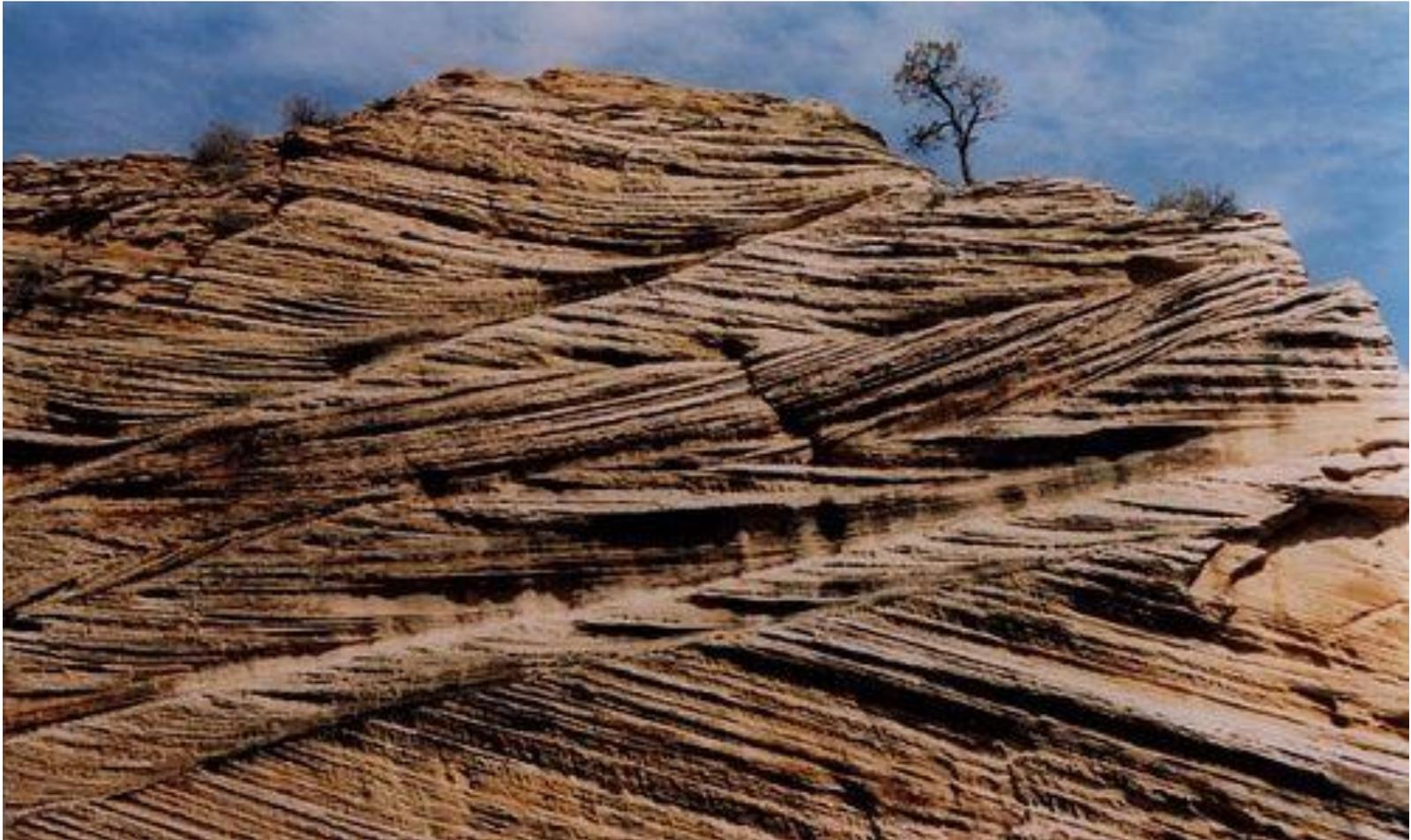


The 2,300 ft. high cliffs at Zion National Park, shown above, represent the exposed edge of a gigantic sheet of sand, the Navajo Sandstone, that stretched originally from southern California to central Wyoming, and from Idaho to New Mexico. Its volume is sufficient to bury the entire state of Texas to a depth of 285 feet.



## **Exposure of Navajo Sandstone, Zion National Park, Utah.**

**The origin of all this quartz sand had long mystified geologists. A 2003 study of zircon crystals it contains suggested the rocks of Appalachians as the most likely source.**



**Giant crossbeds in Navajo Sandstone, Zion National Park, Utah.**  
**The finer structure corresponds to layers deposited on the back sides of huge underwater sand dunes produced by rapidly flowing water. Bounding surfaces truncate this finer structure.**

Another important clue as to how the sediment record formed:

Boundaries between sediment layers, especially on a fine vertical scale, generally are exceedingly sharp.



**A common feature of fossil-bearing rock record is that of thin uniform beds separated by sharp, well-defined bedding planes.**

# Implication

Successive layers were deposited rapidly with almost no gap in time in between. Otherwise, burrowing organisms would have rapidly obliterated the sharp boundaries, a process called bioturbation.

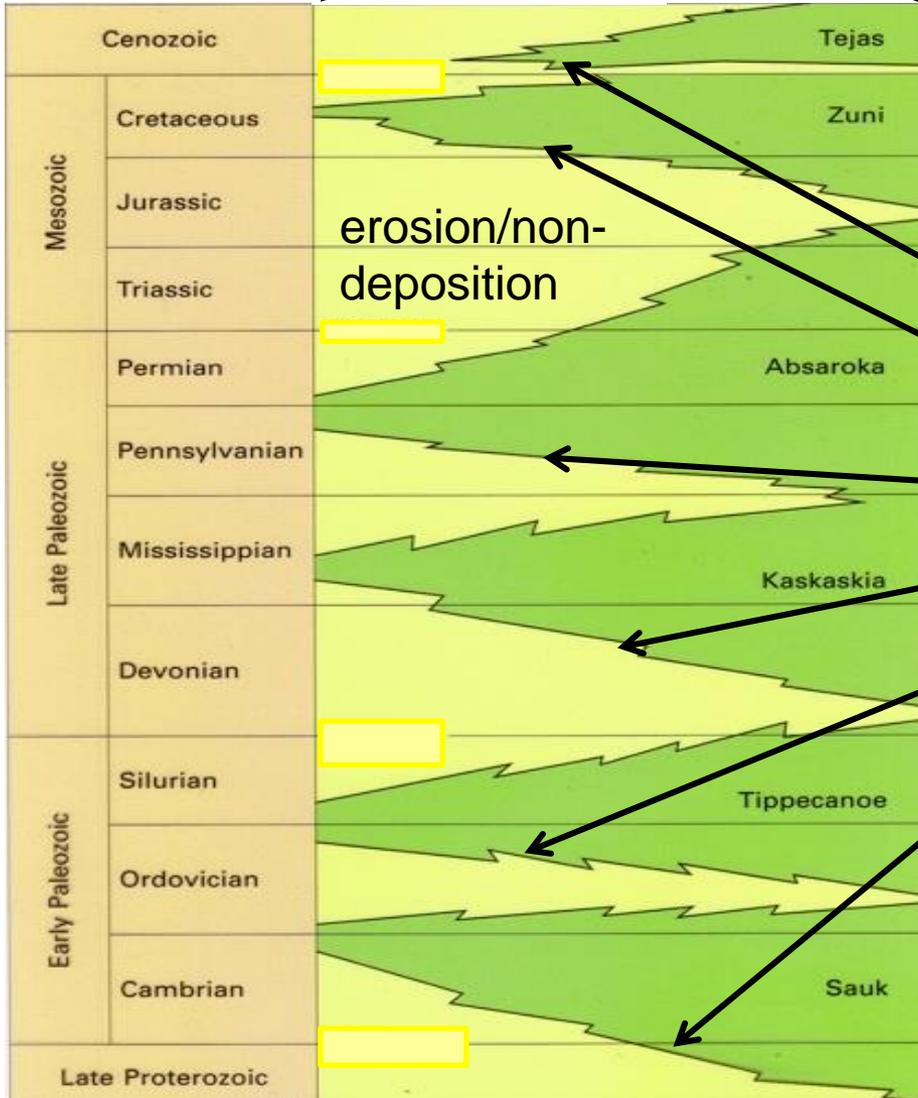
## Another important clue

Major global-scale erosional boundaries, called unconformities, divide the total fossil-bearing record into a few large packages called mega-sequences.

Geological  
Designation

Continent  
Center

Continent  
Margin



erosion/non-  
deposition

# The Sloss Megasequences

Continent-wide  
erosional  
unconformities

Preserved  
sediments are  
indicated by green.

# Implication

Global-scale physical processes,  
likely involving the earth's interior,  
were in operation to generate such  
large-scale features.

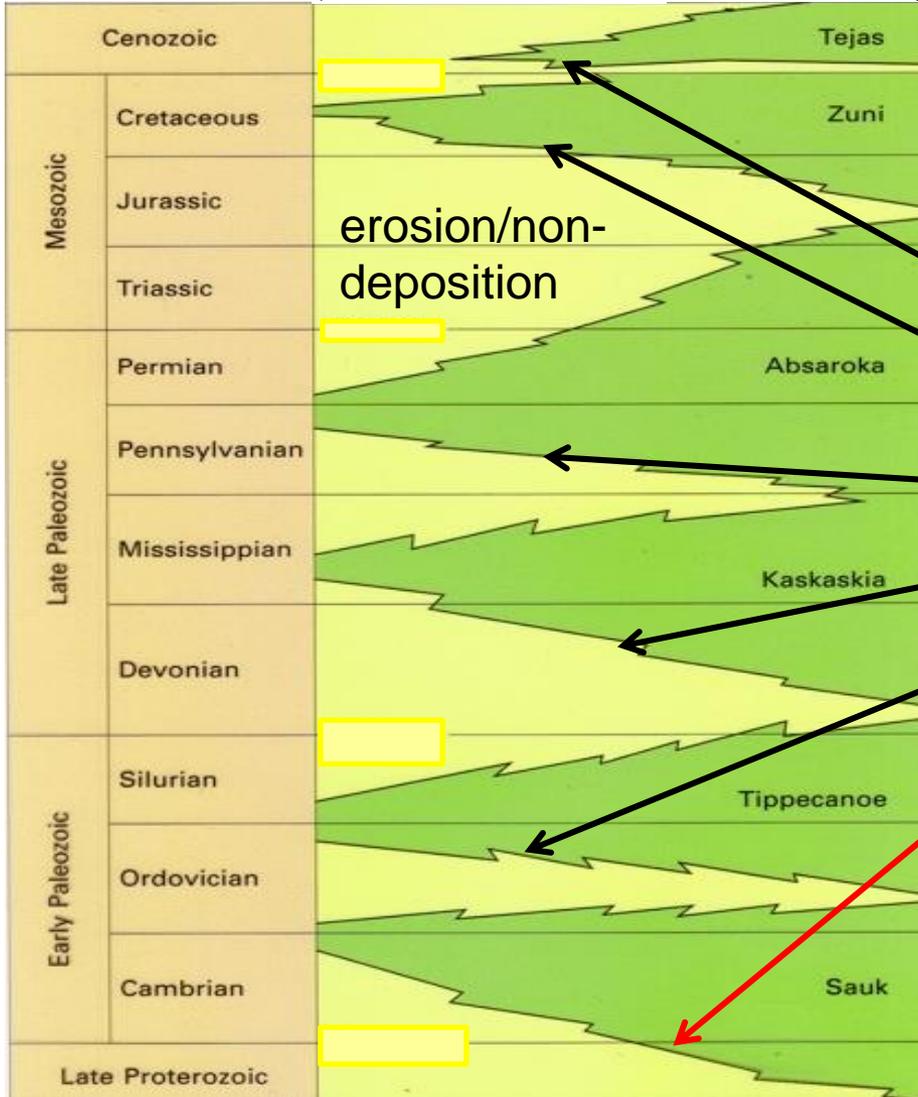
The bottommost unconformity marks the sudden first appearance of fossils of multicellular life in the rock record.

Since fossils are a trustworthy indicator of the Flood, this boundary logically must mark the onset of the Flood.

Geological  
Designation

Continent  
Center

Continent  
Margin



# The Sloss Megasequences

Continent-wide  
erosional  
unconformities

Preserved  
sediments are  
indicated by green.

This unconformity marking the onset of the Flood is known as the Great Unconformity.

The level of **violence** displayed at this point in the record is difficult for the human mind to imagine.



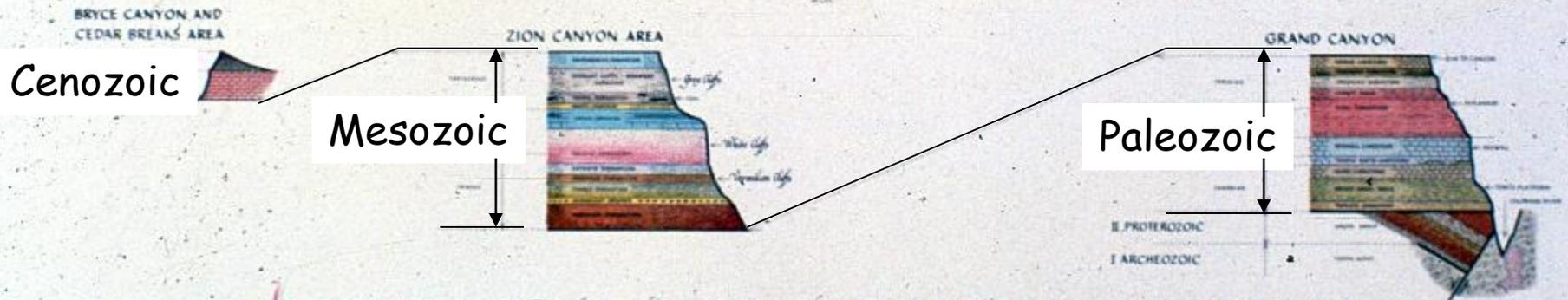
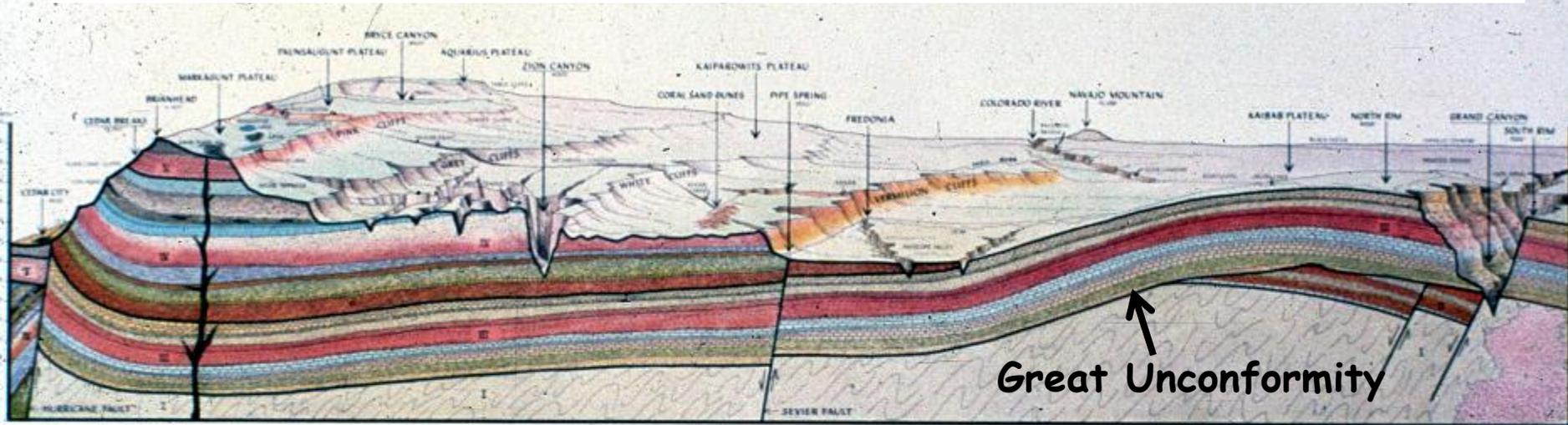
**Great  
unconformity  
in central  
Wisconsin**

**Giant  
Baraboo  
quartzite  
boulders  
atop massive  
Baraboo  
Formation**



**Great unconformity in central Wisconsin**

# GEOLOGICAL CROSS SECTION FROM THE CEDAR BREAKS AREA IN UTAH (LEFT) SOUTHWARD TO THE GRAND CANYON IN ARIZONA (RIGHT)



In this region the forces of erosion have laid bare 1 billion 500 million years of earth history. The oldest rocks, those of the Archeozoic, Proterozoic and Paleozoic are found in the walls of the Grand Canyon. The Mesozoic forms the temples and towers of Zion. The most recent, the Cenozoic, is exposed at Cedar Breaks and Bryce. Presumably all the layers of the Cenozoic and Mesozoic at Cedar Breaks and Zion once extended over the region of the Grand Canyon. The relentless wearing of the waters has striped the layers back to the north forming the celebrated 'Great Rock Stairway' of the Vermilion Cliffs, the White Cliffs, the Ivory Cliffs and the Pink Cliffs.

The horizontally extensive layers are continuous in E-W and N-S directions for hundreds of miles, contain fossils, and display internal evidence for high velocity water transport.



The Great Unconformity

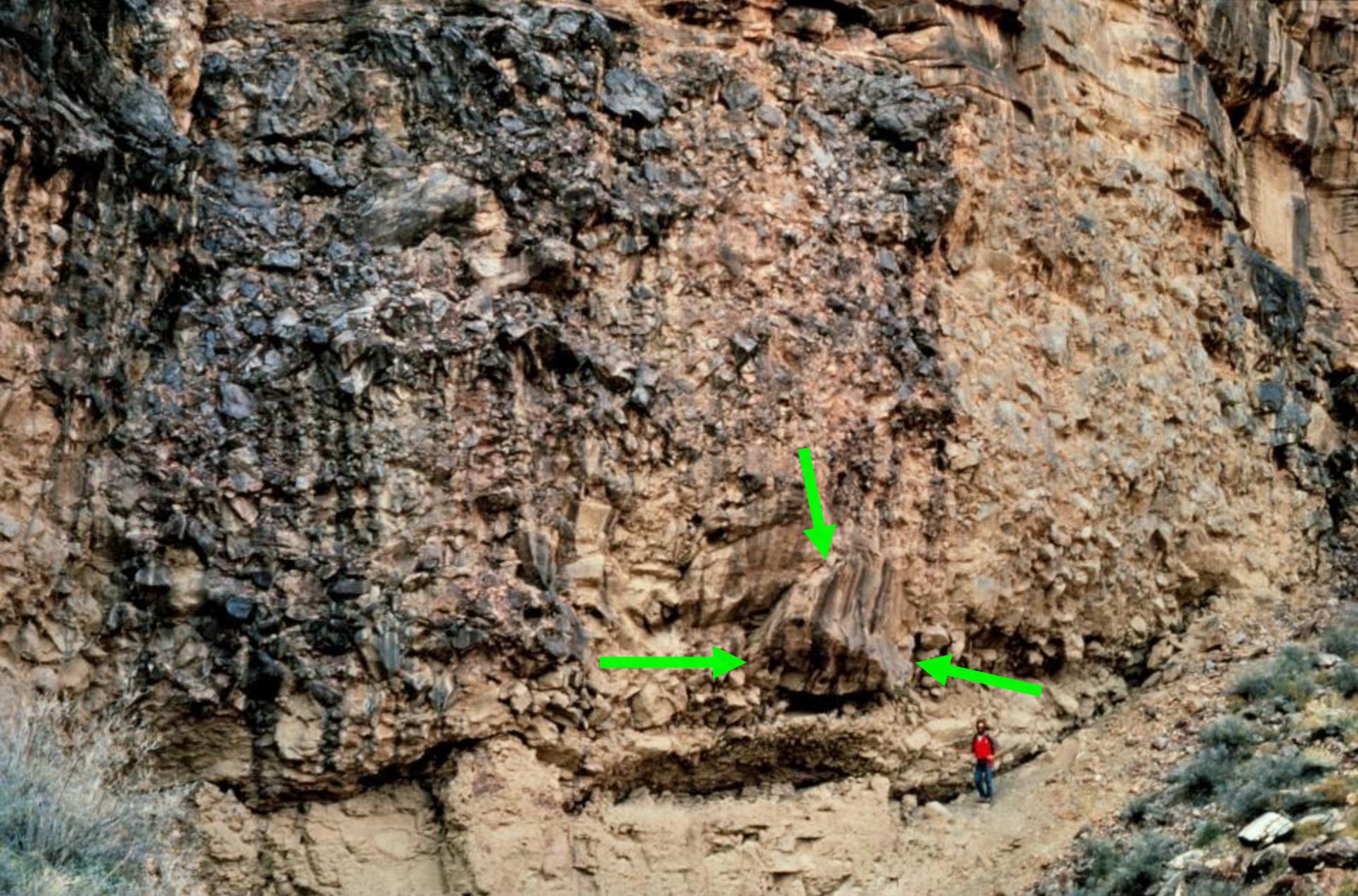
Tapeats Sandstone

Note the sizes  
of these cobbles!

Great  
Unconformity



Contact between Cambrian Tapeats Sandstone and  
Precambrian Hakatai Shale, Grand Canyon, Arizona



**Tapeats Sandstone, Grand Canyon, Arizona.  
Note 5 m diameter, 200-ton boulder.**

# The Cambrian Explosion

Representatives from 23 of the 27 animal phyla known from the entire fossil record are present in the sediment layers just above the Great Unconformity (in the Ediacaran and Cambrian sediments).

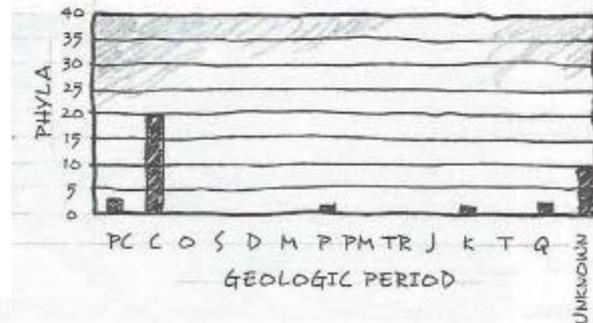
This feature is commonly known as the 'Cambrian Explosion'.

# The Great Unconformity

GEOLOGICAL TIME PERIOD	ESTIMATED NUMBER OF ANIMAL PHyla FIRST APPEARING	CUMULATIVE NUMBER OF PHyla	NAMES OF PHyla
PRECAMBRIAN	3	3	Cnidaria(?) Mollusca(?) Porifera
CAMBRIAN	20	23	ANNElIDA      HEMICHORDATA BRACHIOPODA      HYOLITHA BRYOZOA      LOBOPODIA CHAETOGNATHA      LORICIFERA CHORDATA      NEMATOMORPHA COELOSCLERI-      PHORONIDA TOPHORA      PRIAPULIDA CTENOPHORA      SIPUNCULA ECHINODERMATA      TARDIGRADA ENTOPROCTA      VETULICOLIA EUARTHROPODA
LATER GEOLOGICAL PERIODS	4	27	NEMATODA (CRETACEOUS) NEMERTEA (CARBONIFEROUS) PLATYHELMINTHES (EOCENE) ROTIFERA (EOCENE)
DO NOT APPEAR IN THE FOSSIL RECORD	9	36	ACANTHOCEPHALA      KINORHYNCHA CYCLIOPHORA      ORTHONECTIDA DICYEMIDA      PENTASTOMA GASTROTRICHA      PLACAZOA GNATHOSTOMULIDA

23 out of 27 of the total animal phyla in the entire fossil record appear by the top of the Cambrian portion of the rock record.

Darwin's Doubt,  
p.32



# Implication

The presence of such a spectacular variety of animal types at the very beginning of the fossil record powerfully affirms the reality of the Flood but utterly falsifies the hypothesis of evolution.

# Two of the best documented fossil animals from the Cambrian rocks in 1859—brachiopods and trilobites.

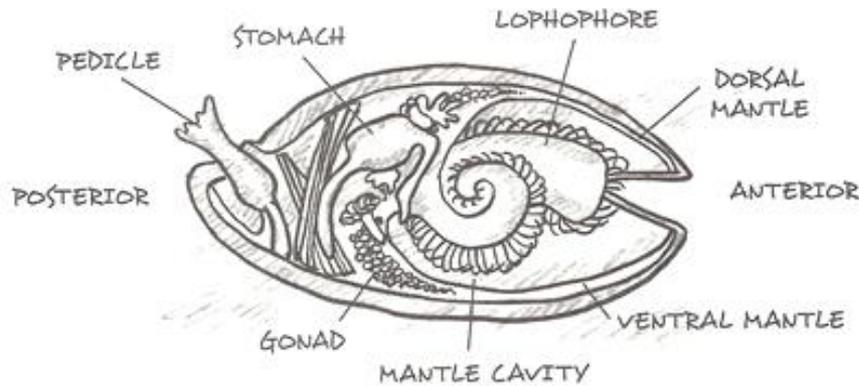


FIGURE 1.3  
 Figure 1.3a (top): Brachiopod internal anatomy. Figure 1.3b (bottom, left): Brachiopod fossil showing remains of internal structure. Courtesy Paul Chien. Figure 1.3c (bottom, right): Fossil showing exterior structure of brachiopod shell. Courtesy Corbis.

**Huge problem for Darwin—where are the ancestors for these complex animals which his theory demands?**

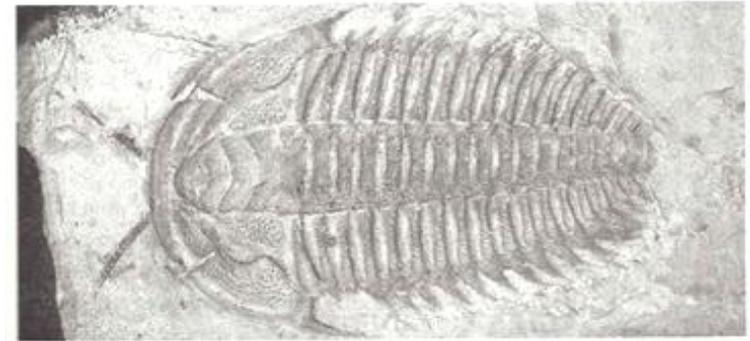
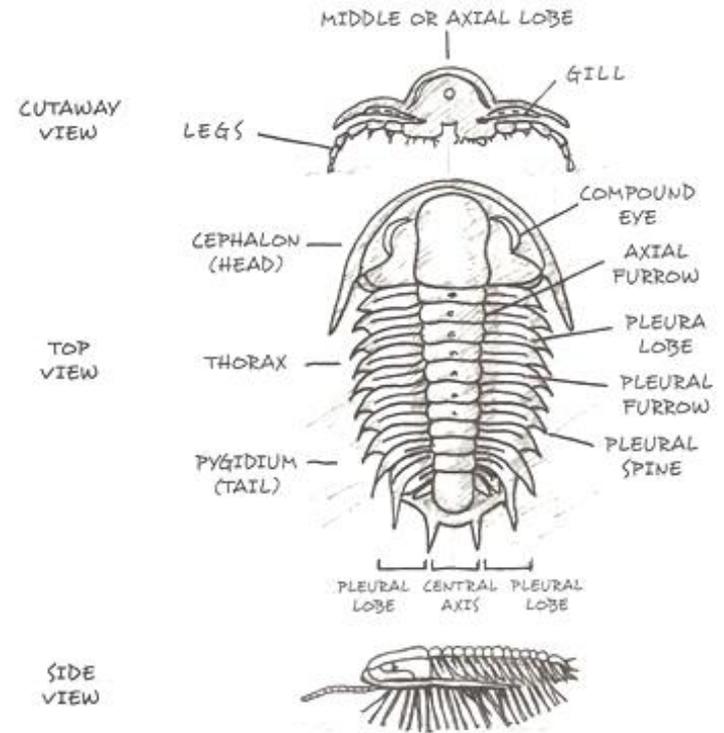


FIGURE 1.4  
 Figure 1.4a (top): Trilobite anatomy. Figure 1.4b (bottom): Trilobite fossil of the species *Kuanyangia pustulosa*. Courtesy Illustra Media.

# General Character of Fossil Record

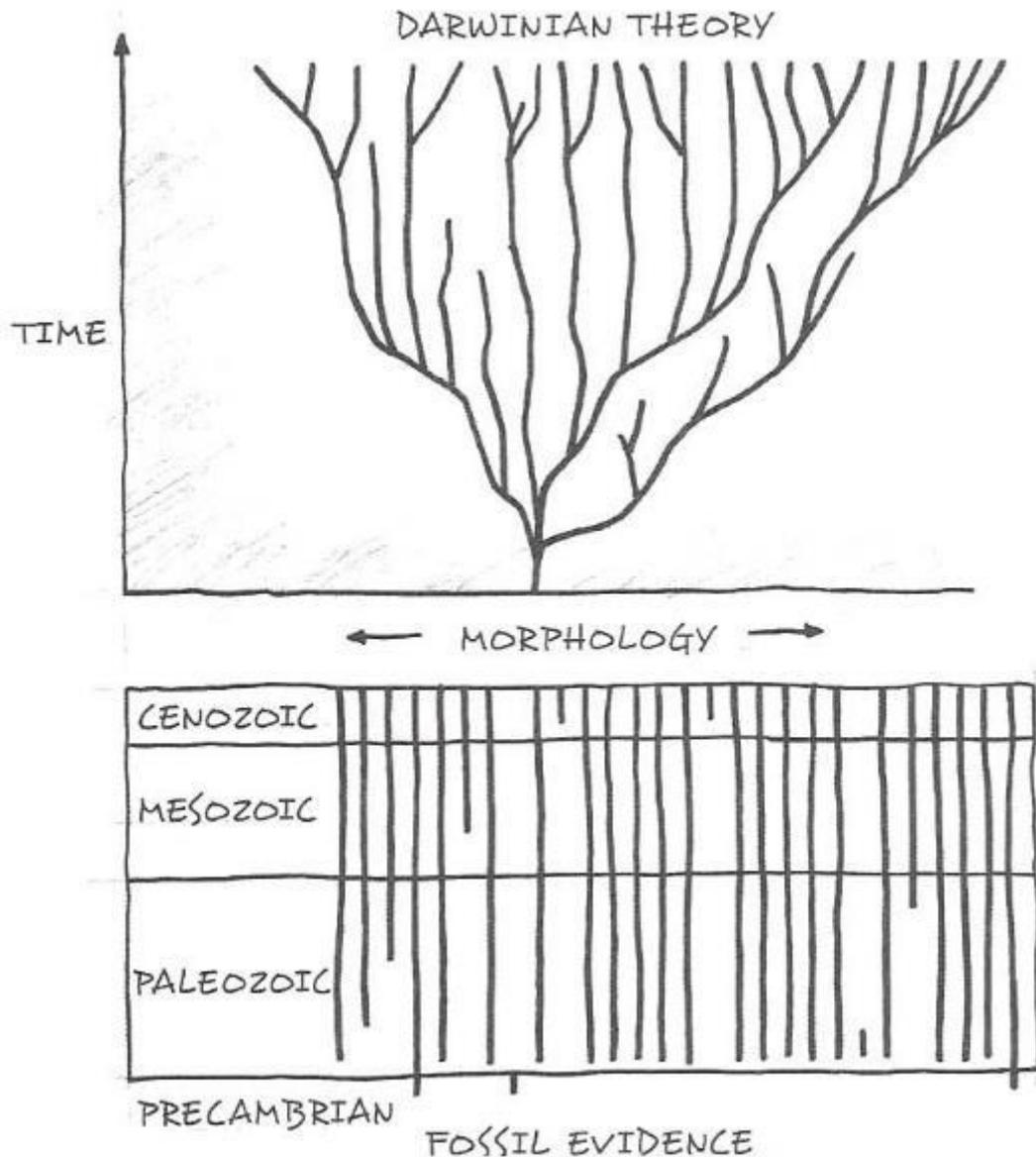
The fossil record in general is characterized by

(a) abrupt appearance

(b) lack of change (stasis)

(c) abrupt disappearance (extinction)

of fossil types.



History of life's diversity according to Darwinian expectations (top) and according to the rock record (bottom).

Actual record is characterized by striking discontinuity.

# Implication

The systematic absence of transitional forms falsifies the hypothesis of evolution.

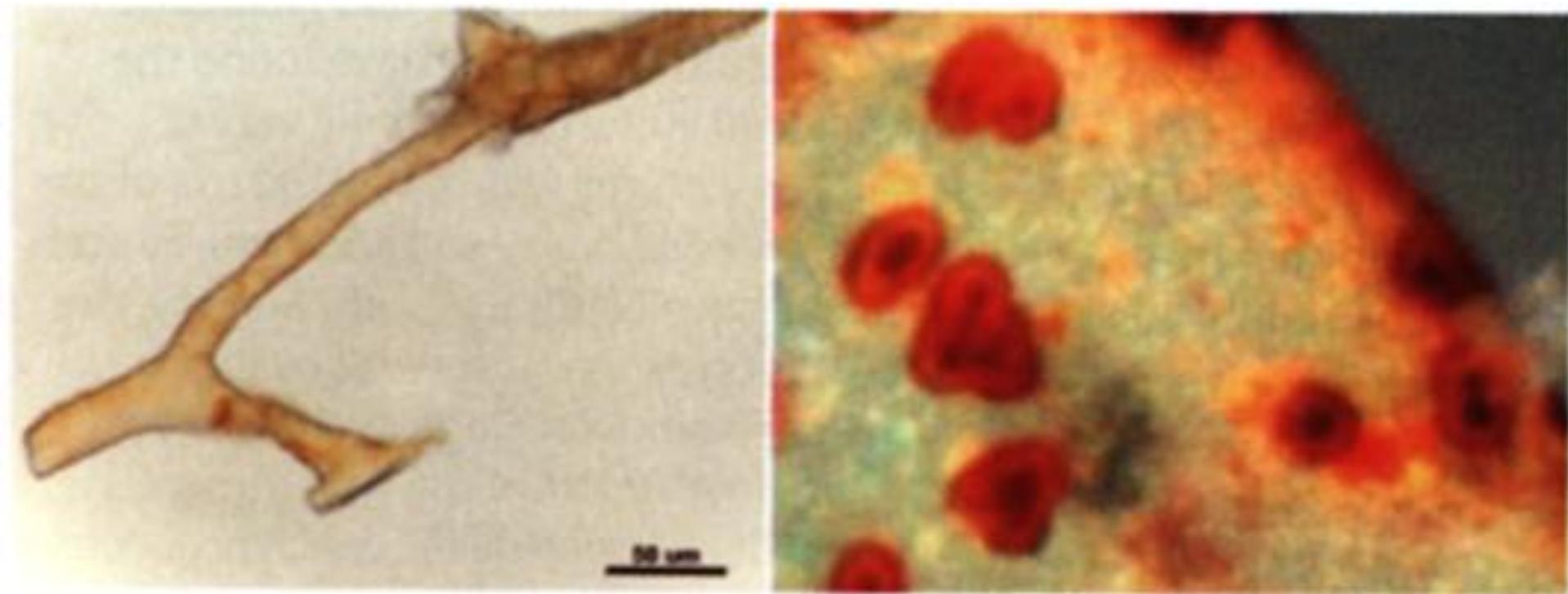
But it affirms the reality of a water cataclysm that progressively destroyed ecological zones at higher and higher elevations over the earth.

**But what about the millions of years?**

Some of you are surely thinking, "But I have been taught all my life that the fossil record spans hundreds of millions of years. What about that issue?"

One of the simplest and most powerful lines of evidence that the fossils were formed no more than a few thousand years ago are the numerous well documented examples of excellent soft tissue preservation.

One amazing example published in 2005 was that of flexible blood vessels still containing red blood cells from a *T. rex* thigh bone.



*Science*, 307, pp. 1852, 1952-1955, March 25, 2005

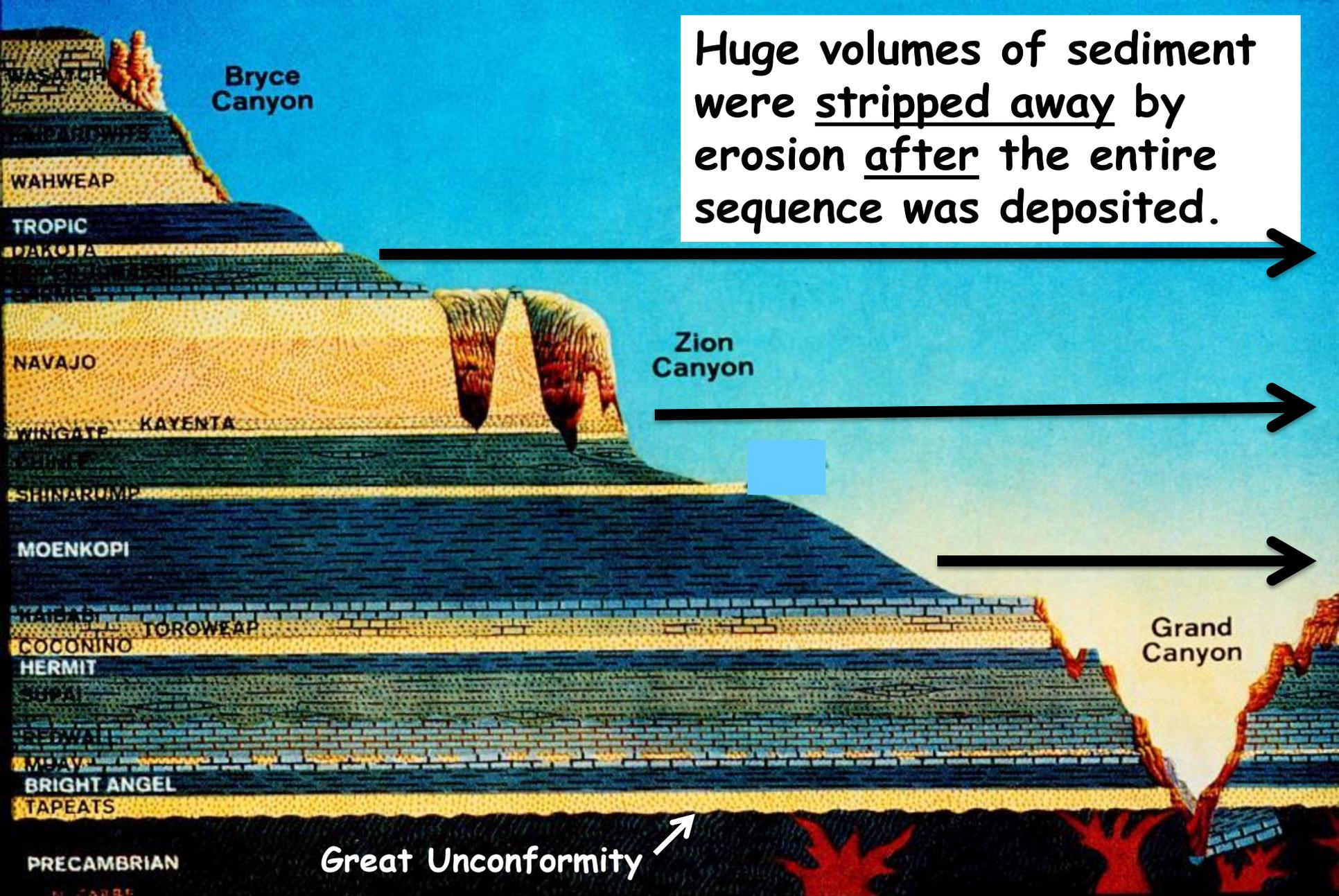
The issue of why radioisotope methods give such vast ages for rocks was addressed in a careful way by the Radioisotopes and the Age of the Earth (RATE) initiative (1997-2005).

This research documented multiple lines of radioisotope evidence which limit the earth's age to 6,000-8,000 years.

The 800-page technical report is online at <http://www.icr.org/rate2>. (Each chapter is a separate PDF file.)

# What about the end of the cataclysm?

After so vast an amount of sediment had been carried onto the continents and deposited in horizontally extensive layers, a significant fraction of that sediment was stripped away from the continent interiors and carried by runoff water to the continental shelves at the end of the Flood.



Geological cross-section, north-south, north of Grand Canyon



**Result of rapid Flood runoff in Bryce Canyon, Utah**

In summary, a staggering amount of geological change took place during this global cataclysm.

The Bible reveals that it all unfolded within the span of only a single year.

# What is the correct interpretation of the fossil record?

EON	ERA	PERIOD	TYPICAL PLANTS AND ANIMALS
Phanerozoic	Cenozoic	Neogene	
		Paleogene	
	Mesozoic	Cretaceous	
		Jurassic	
		Triassic	
	Paleozoic	Permian	
		Carboniferous	
		Devonian	
		Silurian	
		Ordovician	
		Cambrian	
Ediacaran			
Pr			

Absence of fossils  
of multi-celled organisms

Is it the record  
of some 580  
million years of  
evolution?

Or, is it tangible  
documentation of  
the destruction of  
life by the Flood  
during a single  
year?

Which is it?

# Key issue with regard to the Flood—

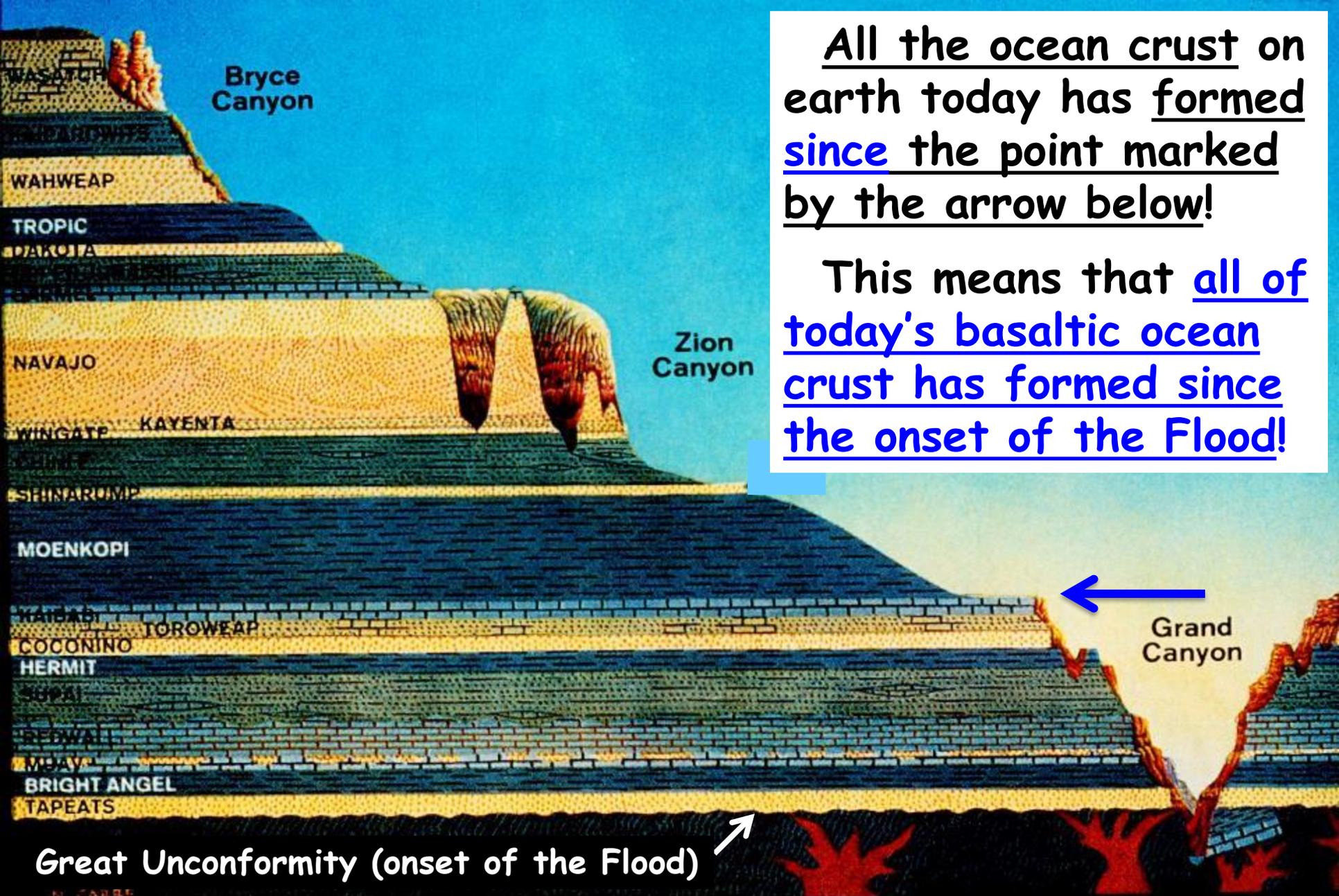
If the Bible is true concerning  
the reality of the Flood, physically  
how could so much change occur in  
a time span of only a single year?

What conceivably could have  
been the main causal mechanism?

Some major clues to the answer come from the ocean bottom.



Huge discovery  
of the 1960's:  
All of today's  
oceanic crust is  
younger than  
much of the  
fossil-bearing  
sediment record  
on the  
continents!



All the ocean crust on earth today has formed since the point marked by the arrow below!

This means that all of today's basaltic ocean crust has formed since the onset of the Flood!

Great Unconformity (onset of the Flood)

Geological cross-section, north-south, north of Grand Canyon



This implies that the opening of the entire Atlantic Ocean occurred during the Flood and also that continents migrated by thousands of miles in only a few month's time!

## What about the pre-Flood ocean floor?

It is missing from the earth's surface today. Taking cues from today's seafloor, it must have been recycled into the earth's interior.

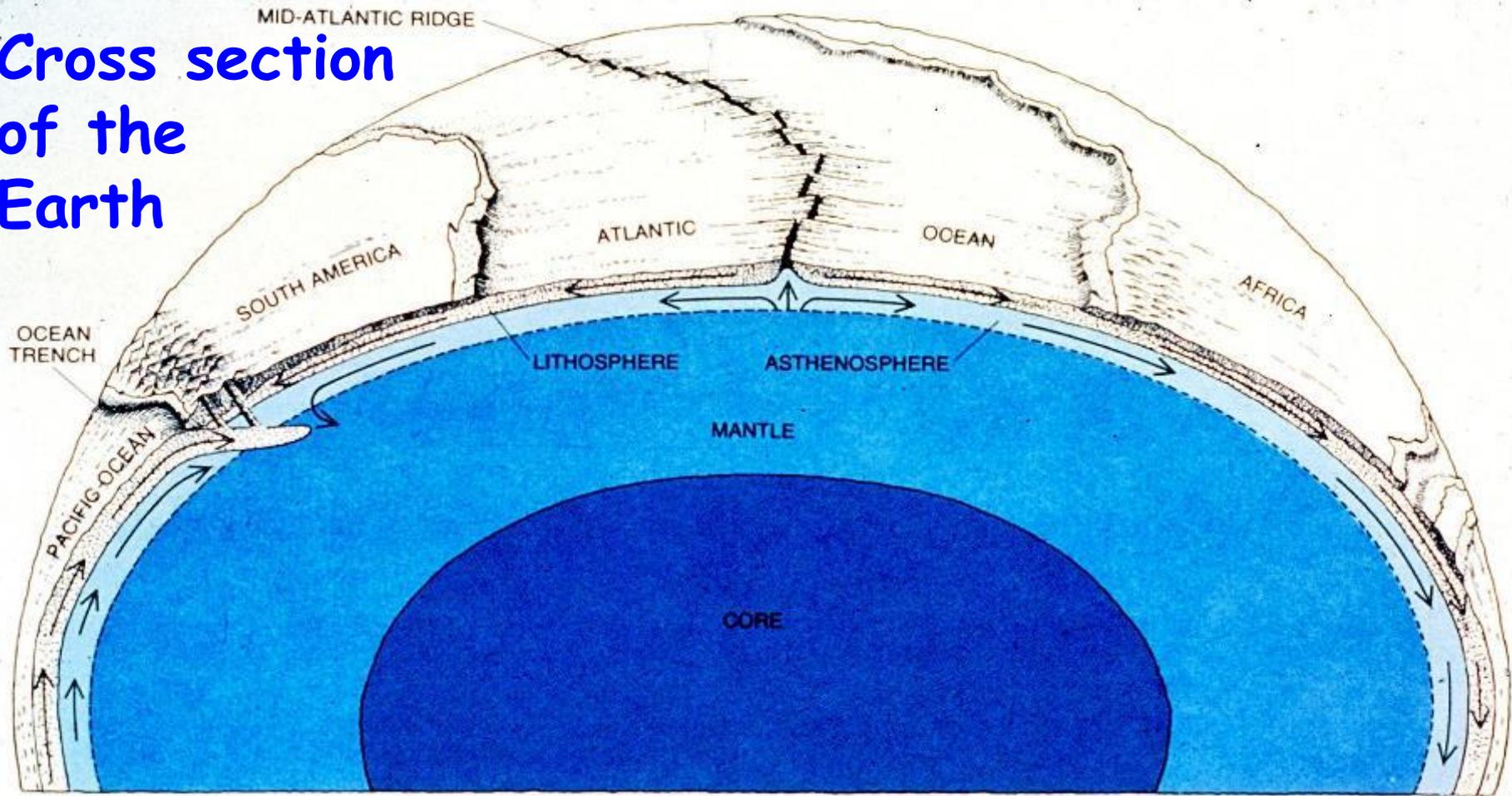
The firm conclusion that rapid, large-scale tectonic change must have been a fundamental aspect of the Genesis Flood has come to be known as catastrophic plate tectonics

The concept was presented in 1986 at the First International Conference on Creationism in Pittsburgh.

Such large-scale tectonic change at the earth surface implies that the earth's interior was also involved.

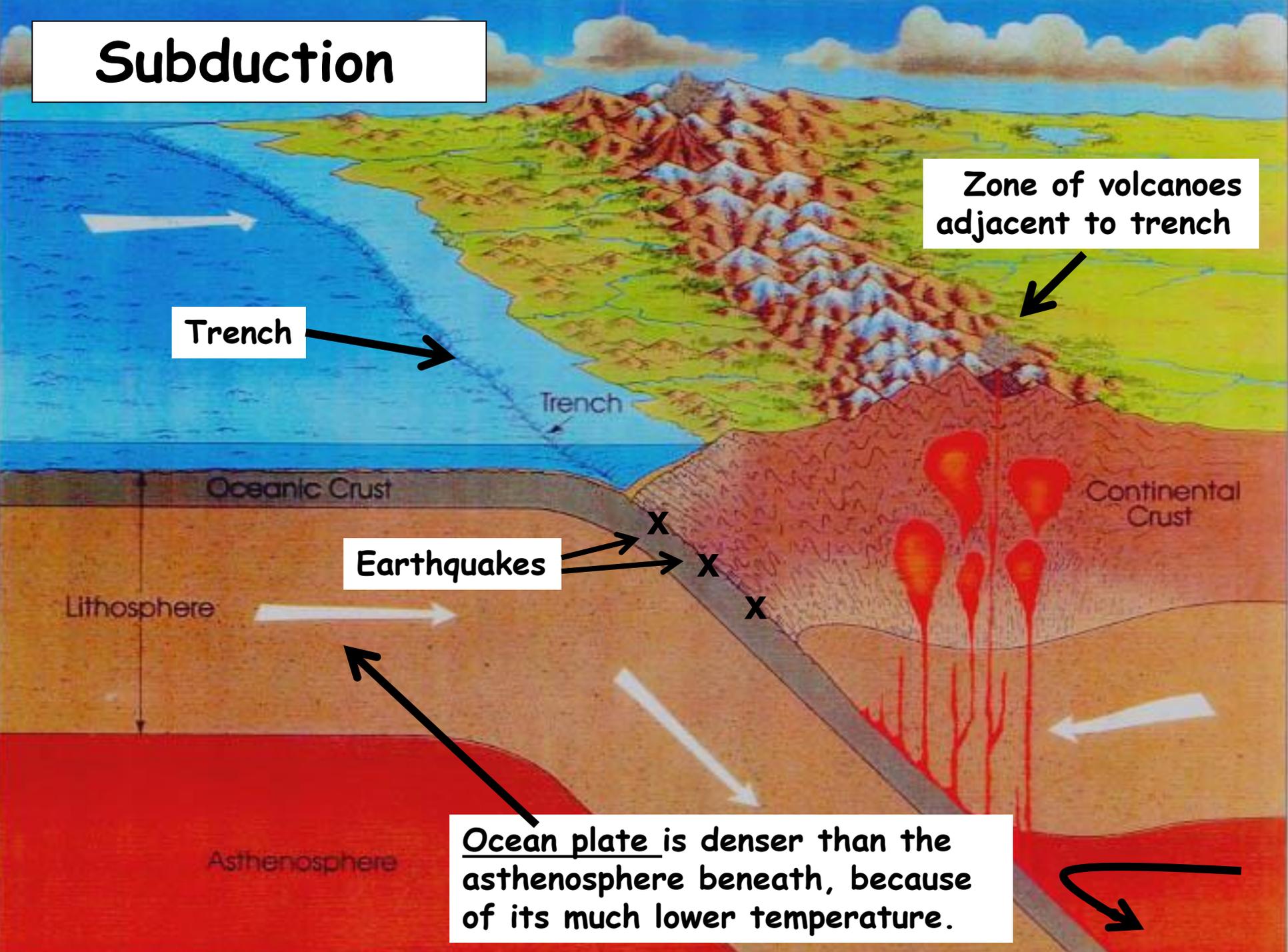
Let us review some basics of the earth's structure.

# Cross section of the Earth



The two main parts of the earth are the core, which is mostly molten iron, and the mantle which is mostly solid silicate rock. The uppermost part of the mantle is the thin, cold, and mechanically rigid lithosphere, which is broken into about a dozen large plates. Just below the lithosphere is the much weaker asthenosphere.

# Subduction



Zone of volcanoes adjacent to trench

Trench

Trench

Oceanic Crust

Continental Crust

Earthquakes

Lithosphere

Asthenosphere

Ocean plate is denser than the asthenosphere beneath, because of its much lower temperature.

# Seafloor spreading

New ocean crust forms at a mid-ocean ridge where plates are moving apart.

Mid-oceanic Ridge

Transform fault

High heat flow

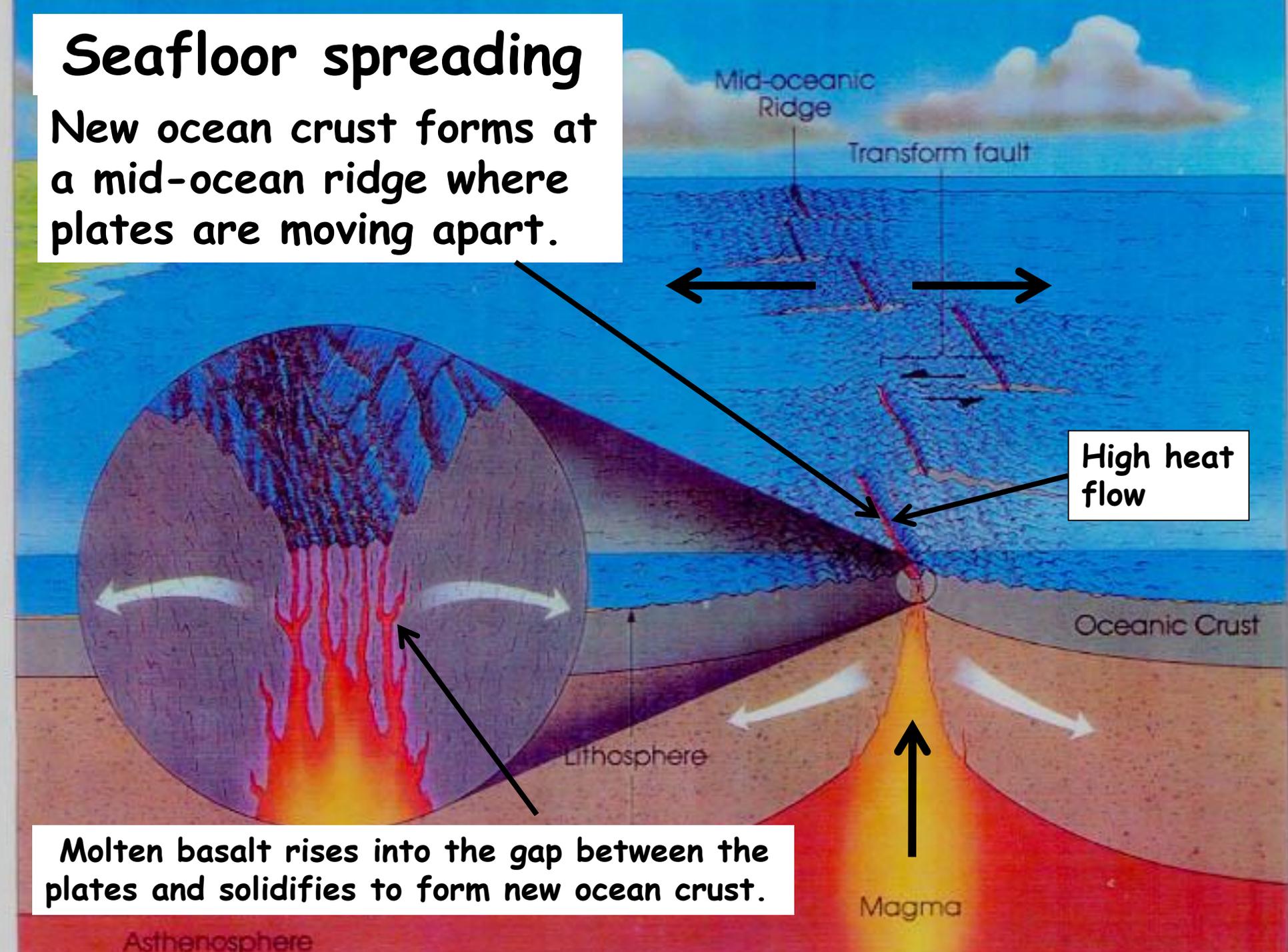
Oceanic Crust

Lithosphere

Magma

Asthenosphere

Molten basalt rises into the gap between the plates and solidifies to form new ocean crust.



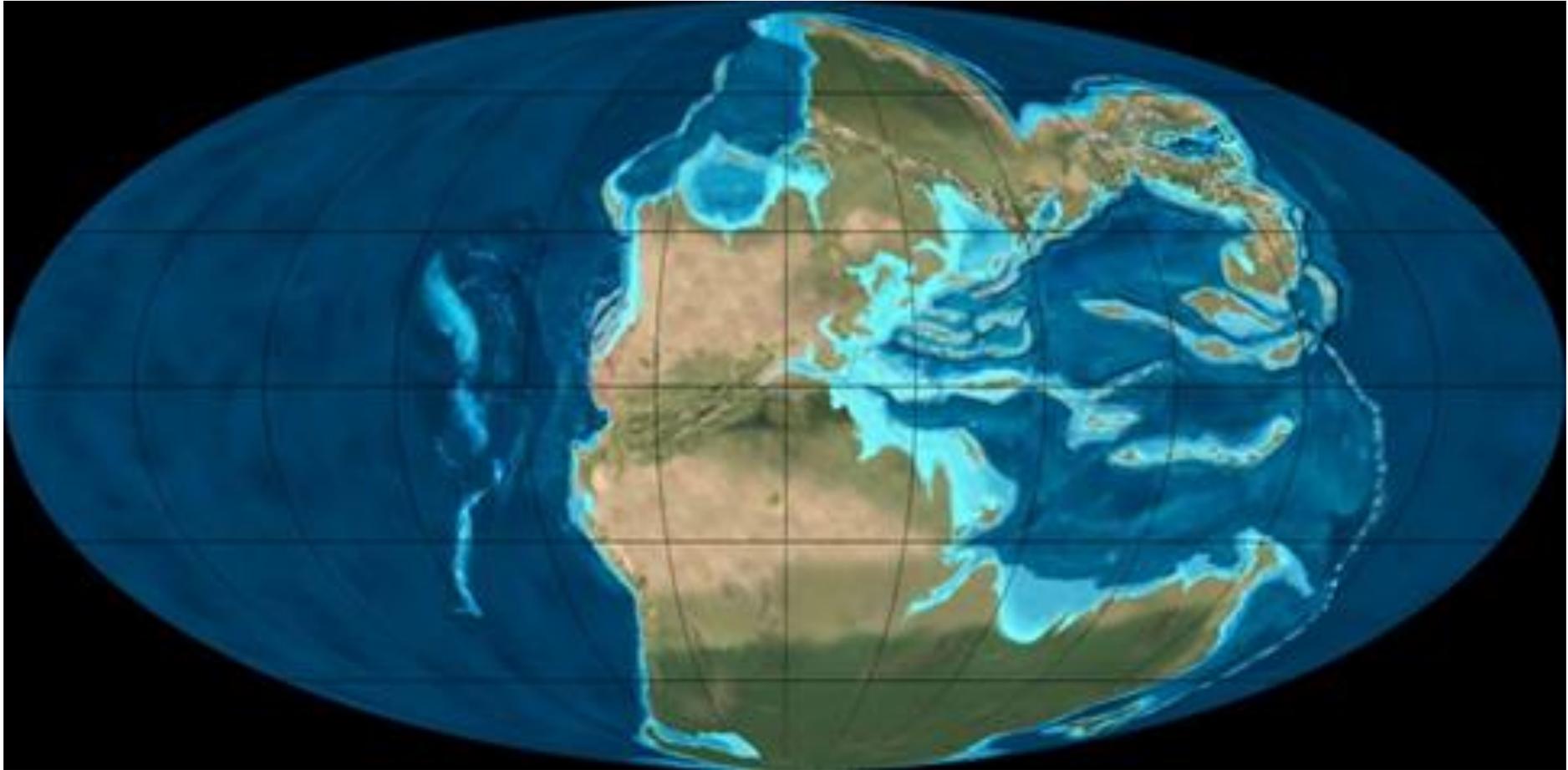
Catastrophic plate tectonics is similar to conventional plate tectonics except that the **plate velocities** are about billion times higher (~5 mph instead of about ~2 inches/year).

How is this possible? Laboratory experiments show that mantle rock weakens dramatically under stress, at stress levels that can exist inside the earth. This weakening provides the potential for runaway catastrophe.

## Just how much continental motion occurred during the Flood?

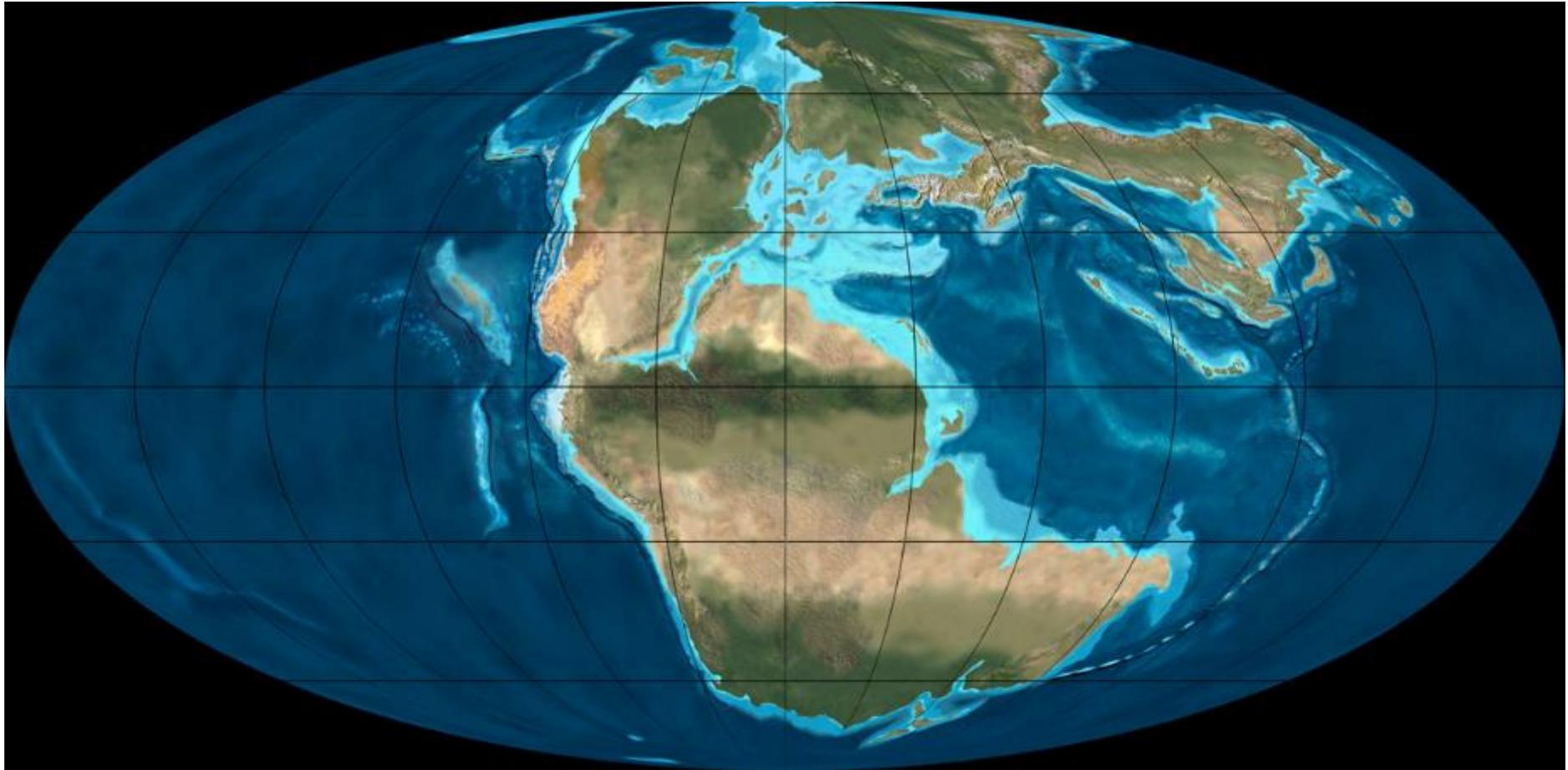
The following images summarize how the continents have moved just since the time when the supercontinent Pangea existed—as reconstructed by the secular earth science community.

They were produced by Prof. Ron Blakey of Northern Arizona University and are available at <http://jan.ucc.nau.edu/~rcb7/mollglobe.html>.

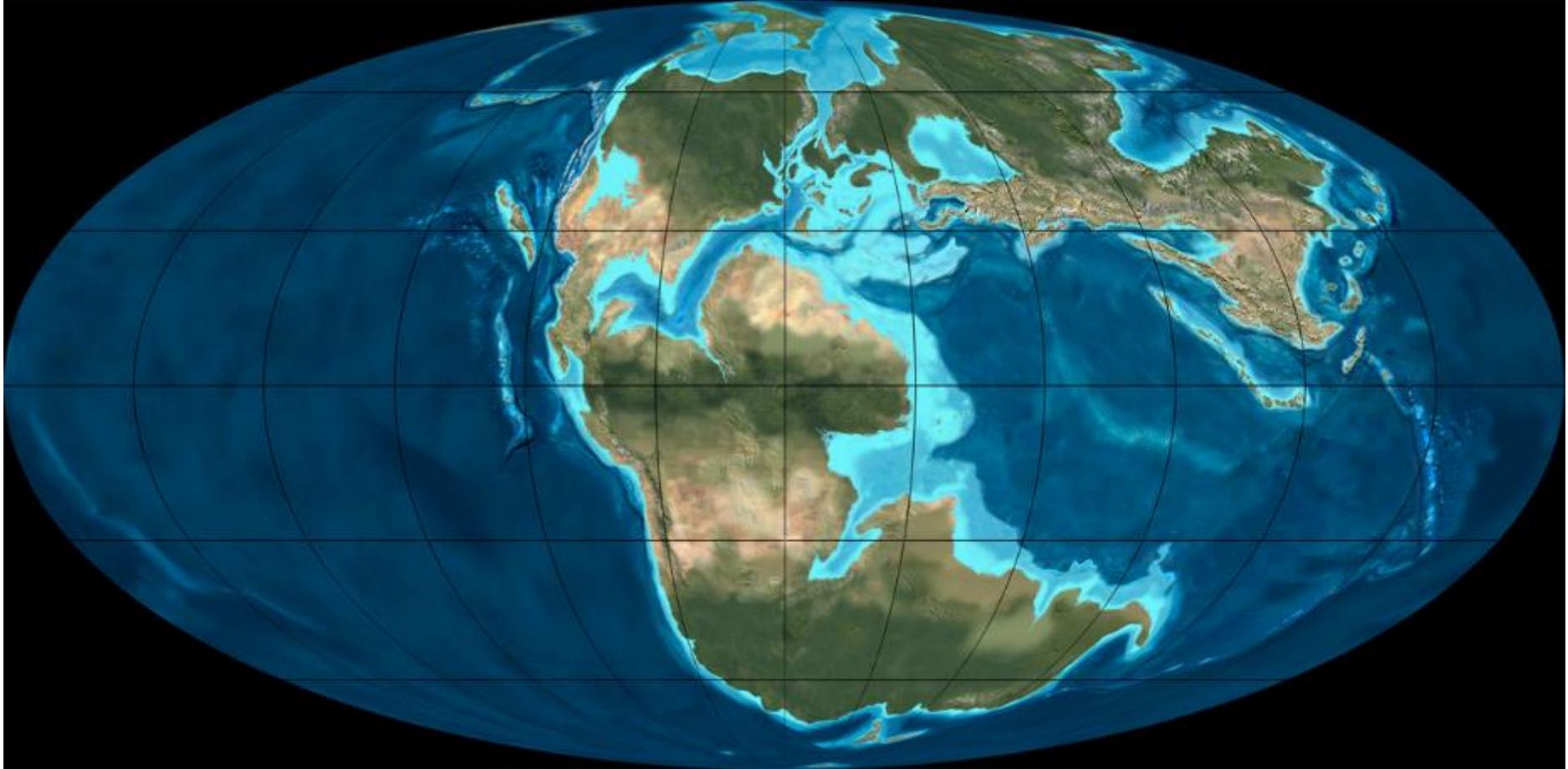


Pangea

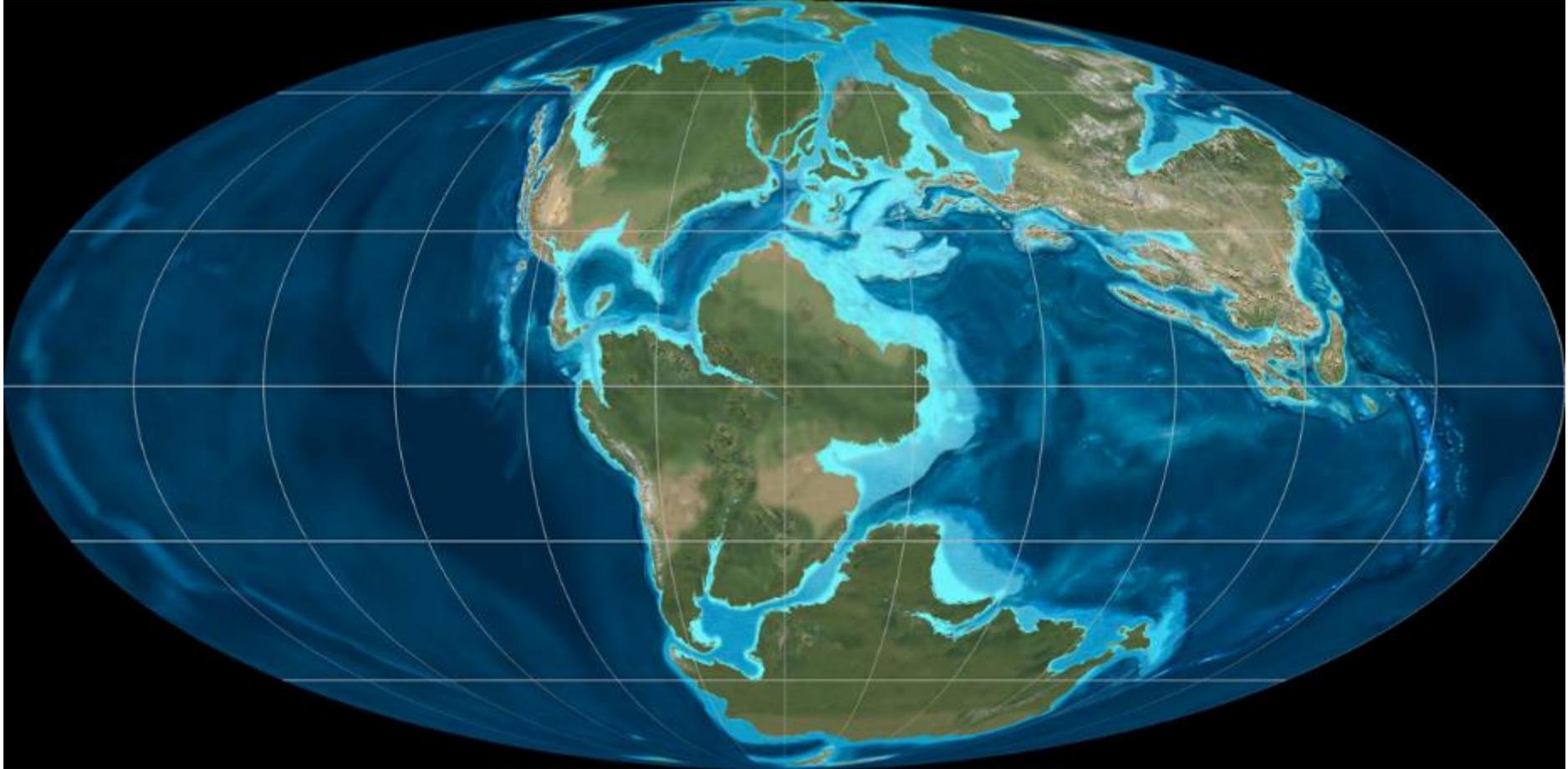
Early Triassic



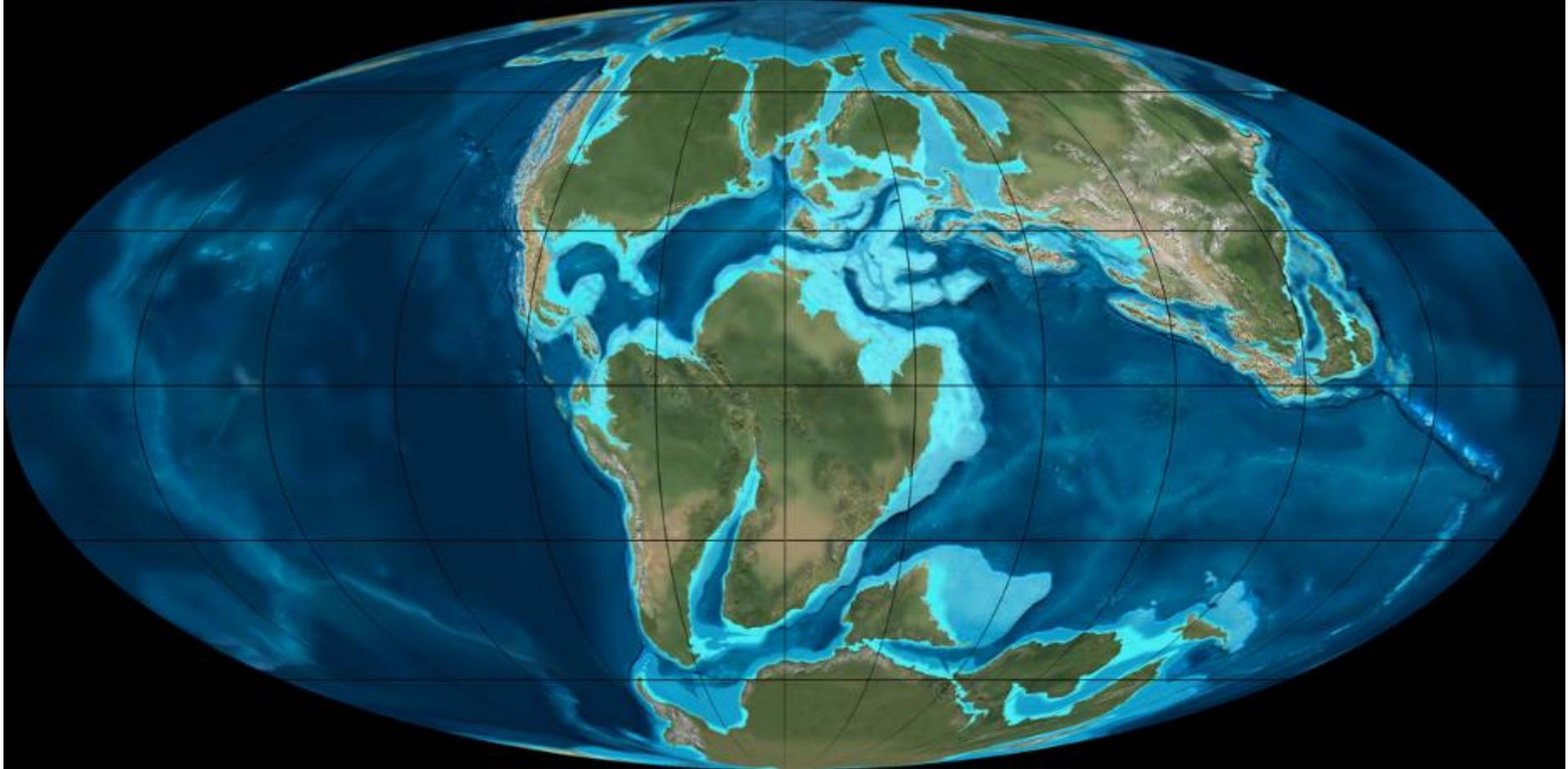
**Early Jurassic**



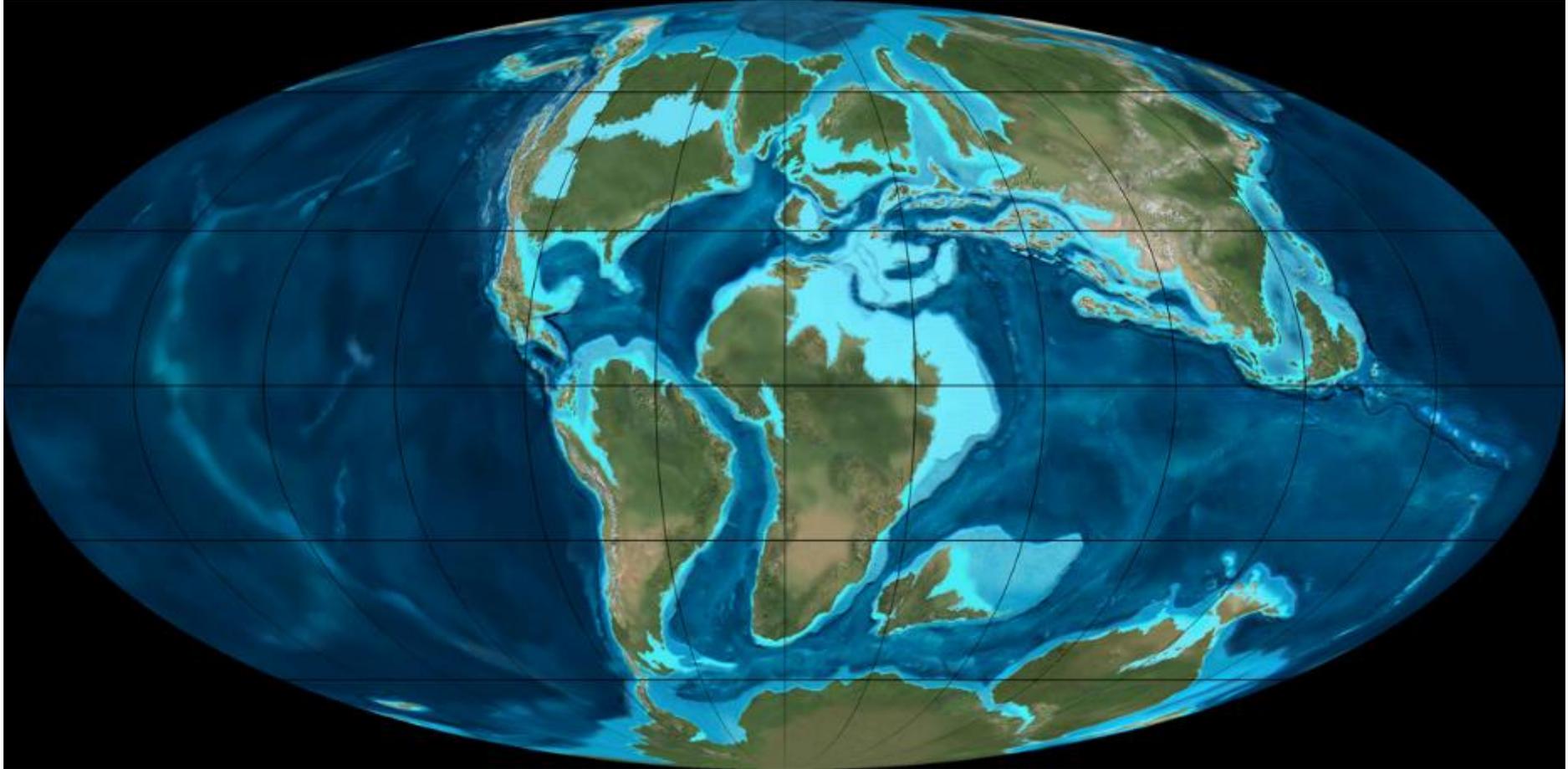
**Mid-Jurassic**



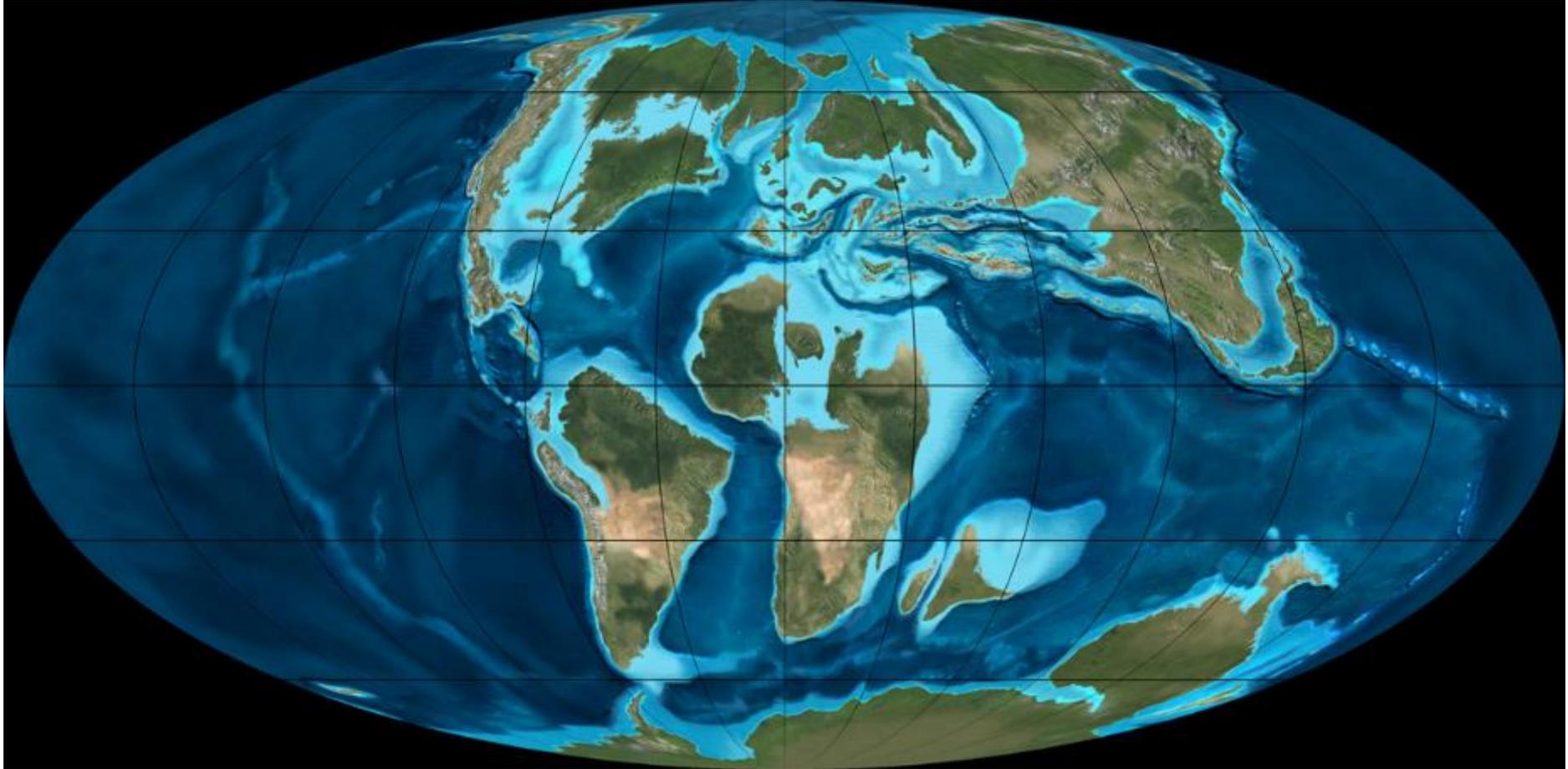
**Late Jurassic**



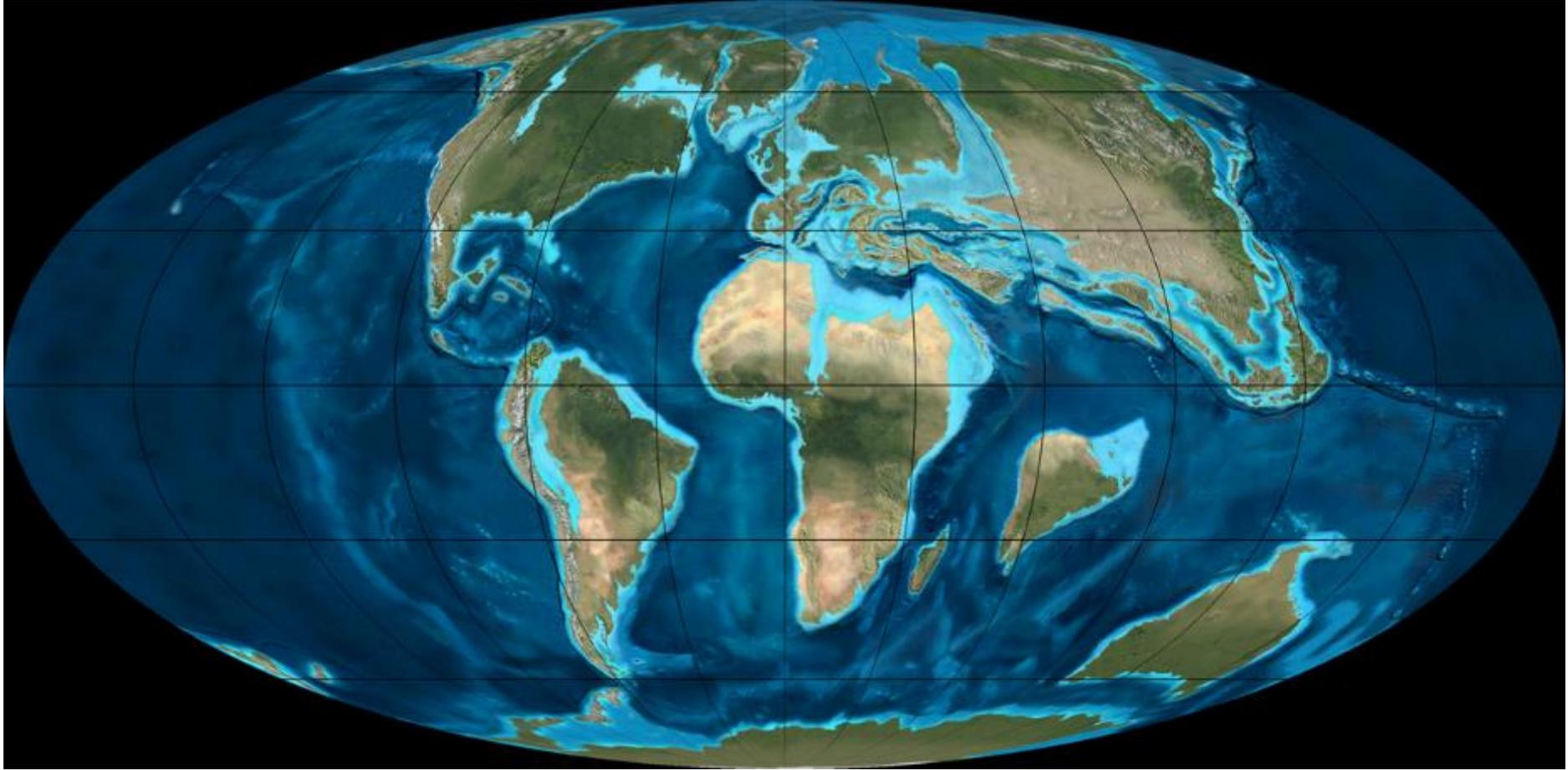
**Early Cretaceous**



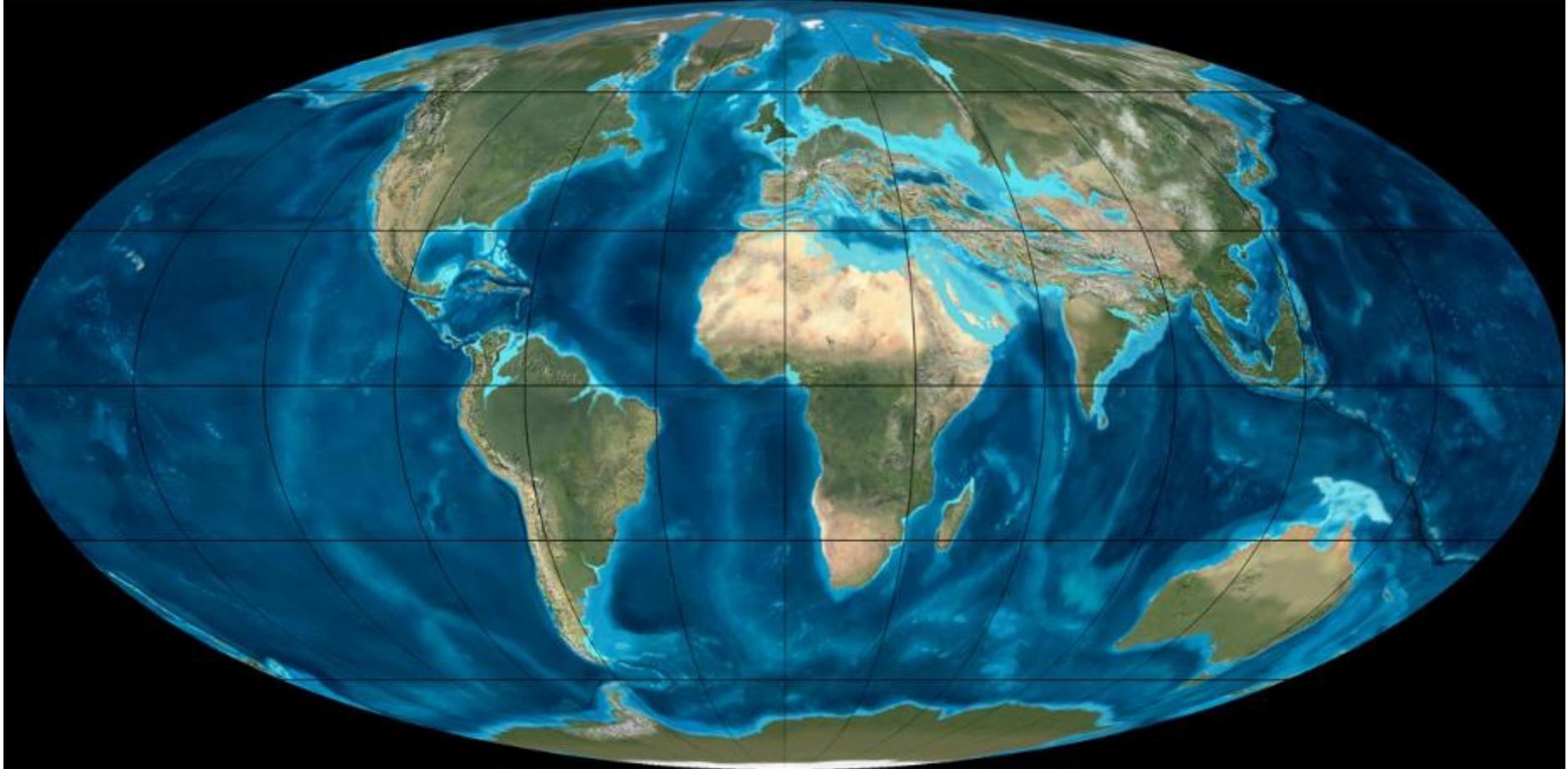
**Mid-Cretaceous**



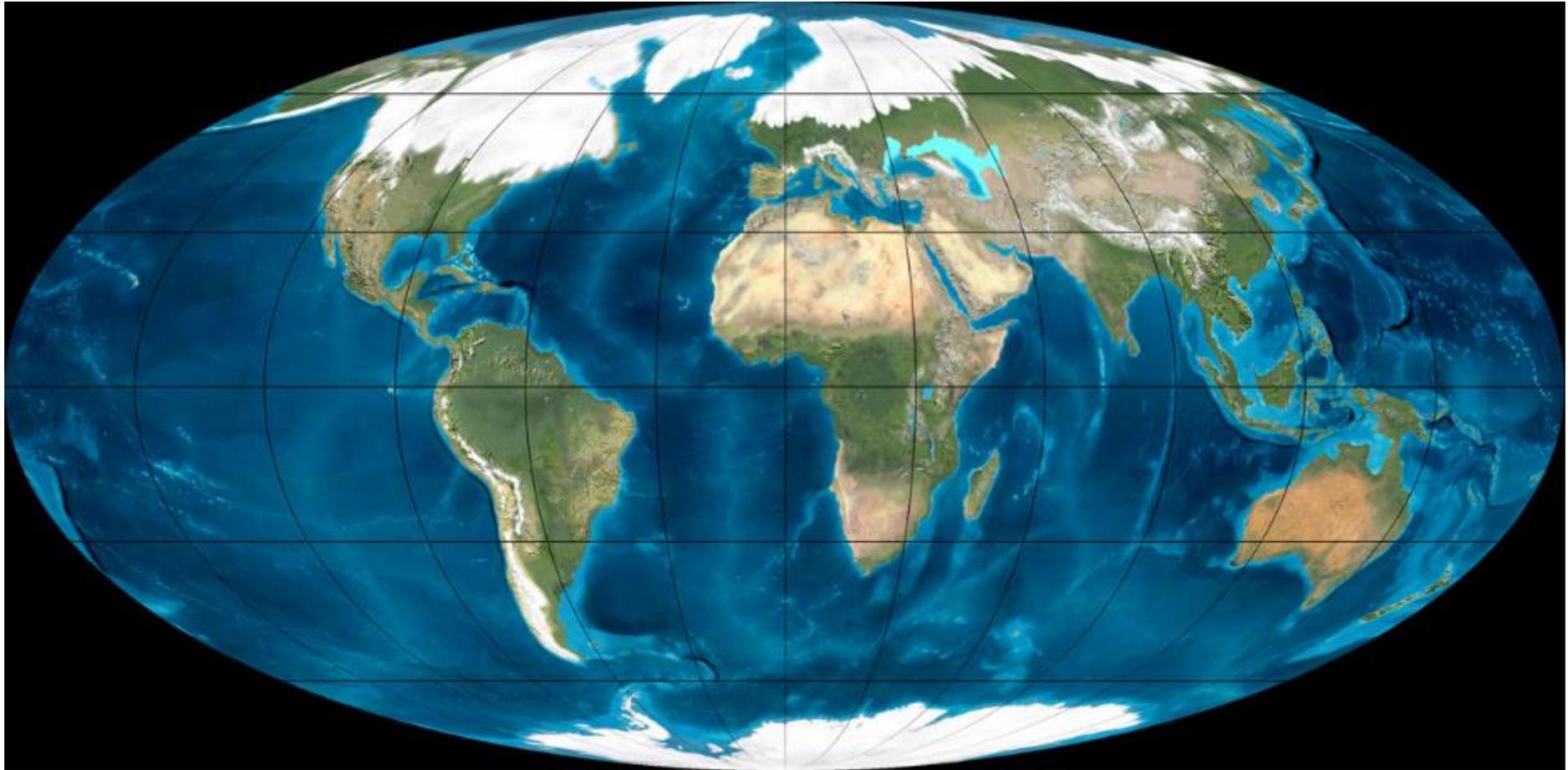
**Late Cretaceous**



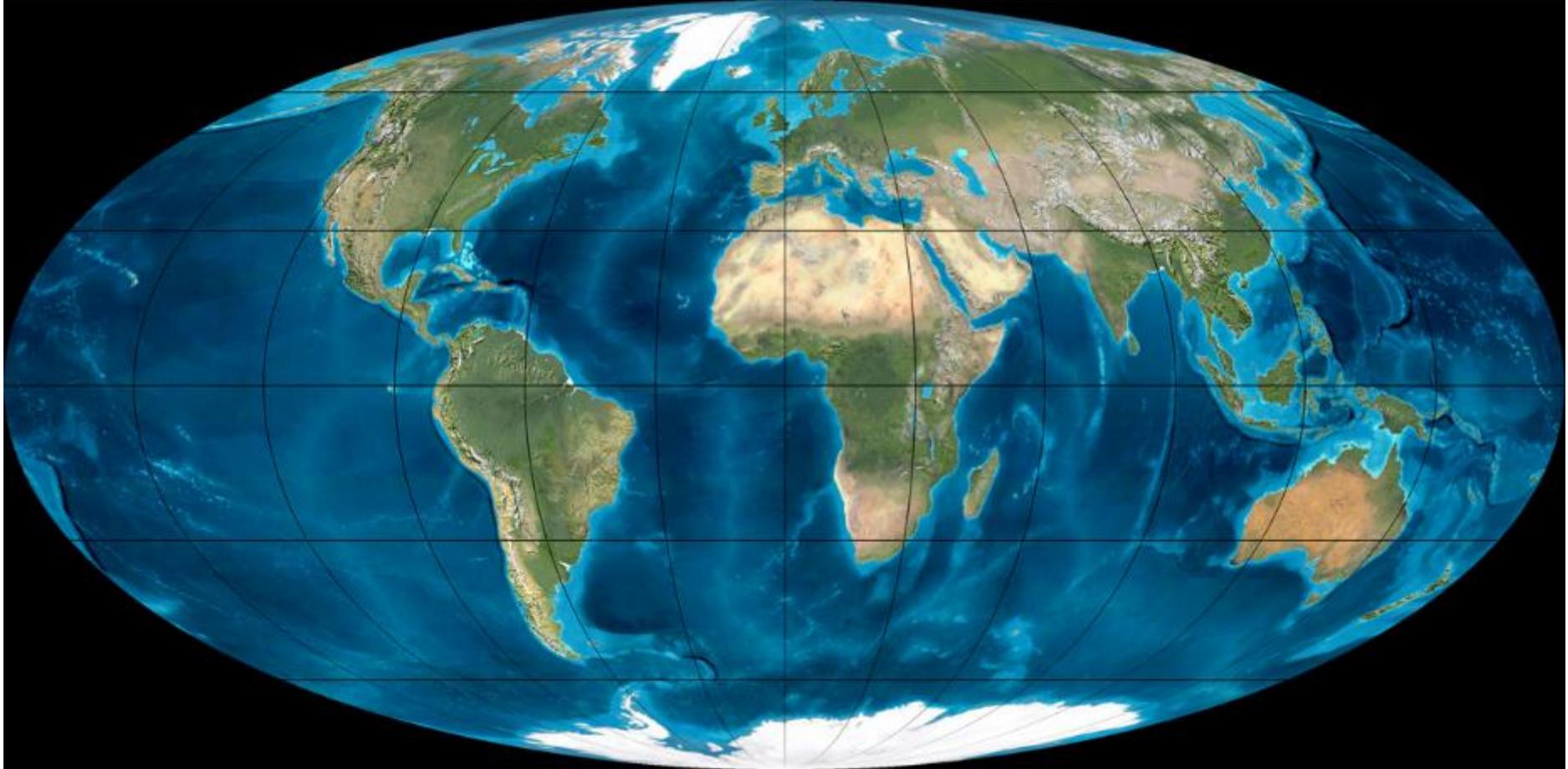
**K/T boundary**



**Oligocene**



**Ice Age (following the Flood)**



**Present**

Because fossils are indicative of the geological record associated with the Flood, all the plate motion shown in the preceding sequence must logically have accompanied the Flood and unfolded in the span of a few month's time.

Catastrophic plate tectonics, like conventional plate tectonics, accounts for many of the earth's physical features including:

- the mid-ocean ridges
- deep ocean trenches
- global distribution of earthquakes
- volcanism adjacent to trenches

# Seafloor spreading

New ocean crust forms at a mid-ocean ridge where plates are moving apart.

Mid-oceanic Ridge

Transform fault

High heat flow

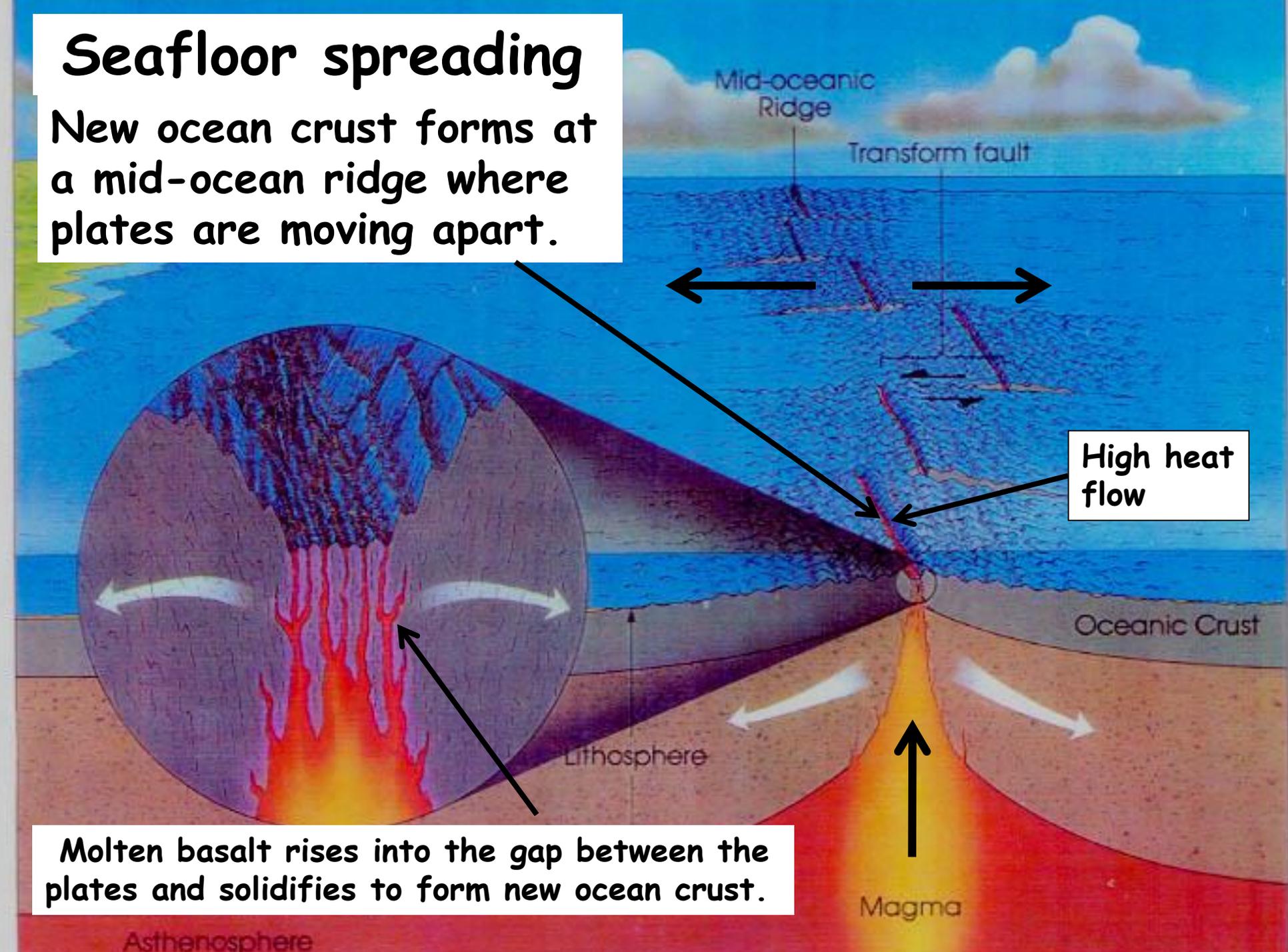
Oceanic Crust

Lithosphere

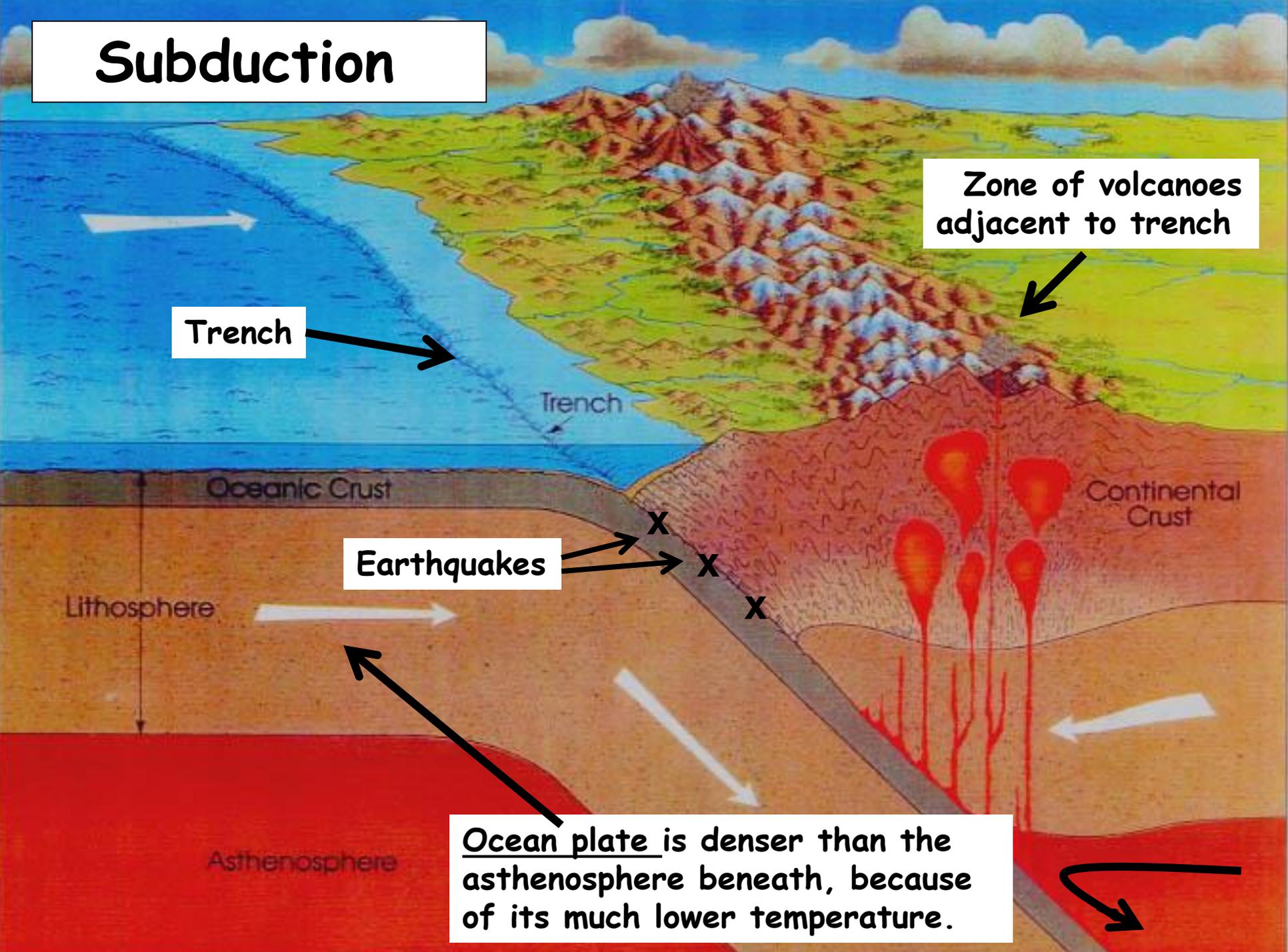
Magma

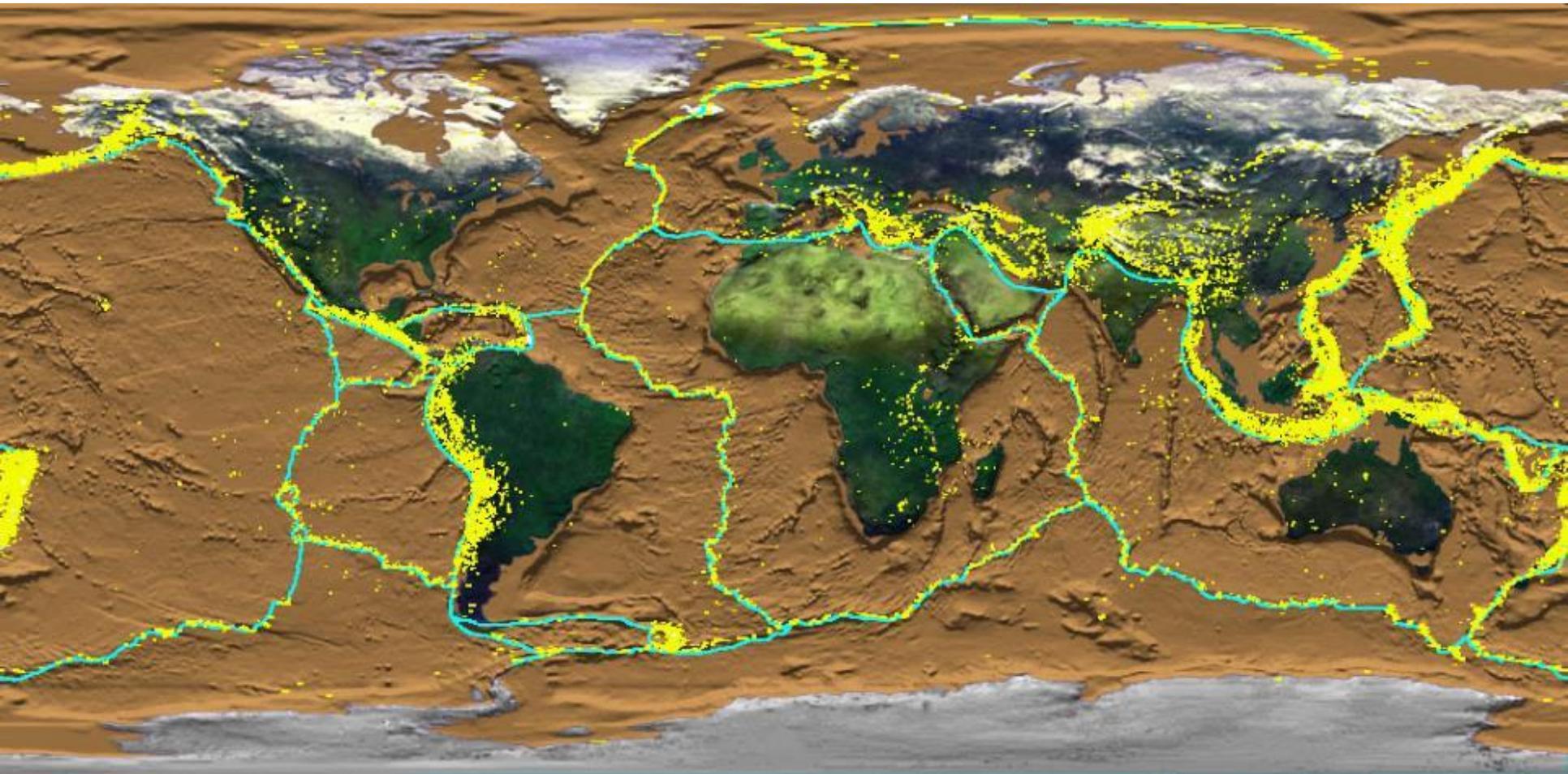
Asthenosphere

Molten basalt rises into the gap between the plates and solidifies to form new ocean crust.

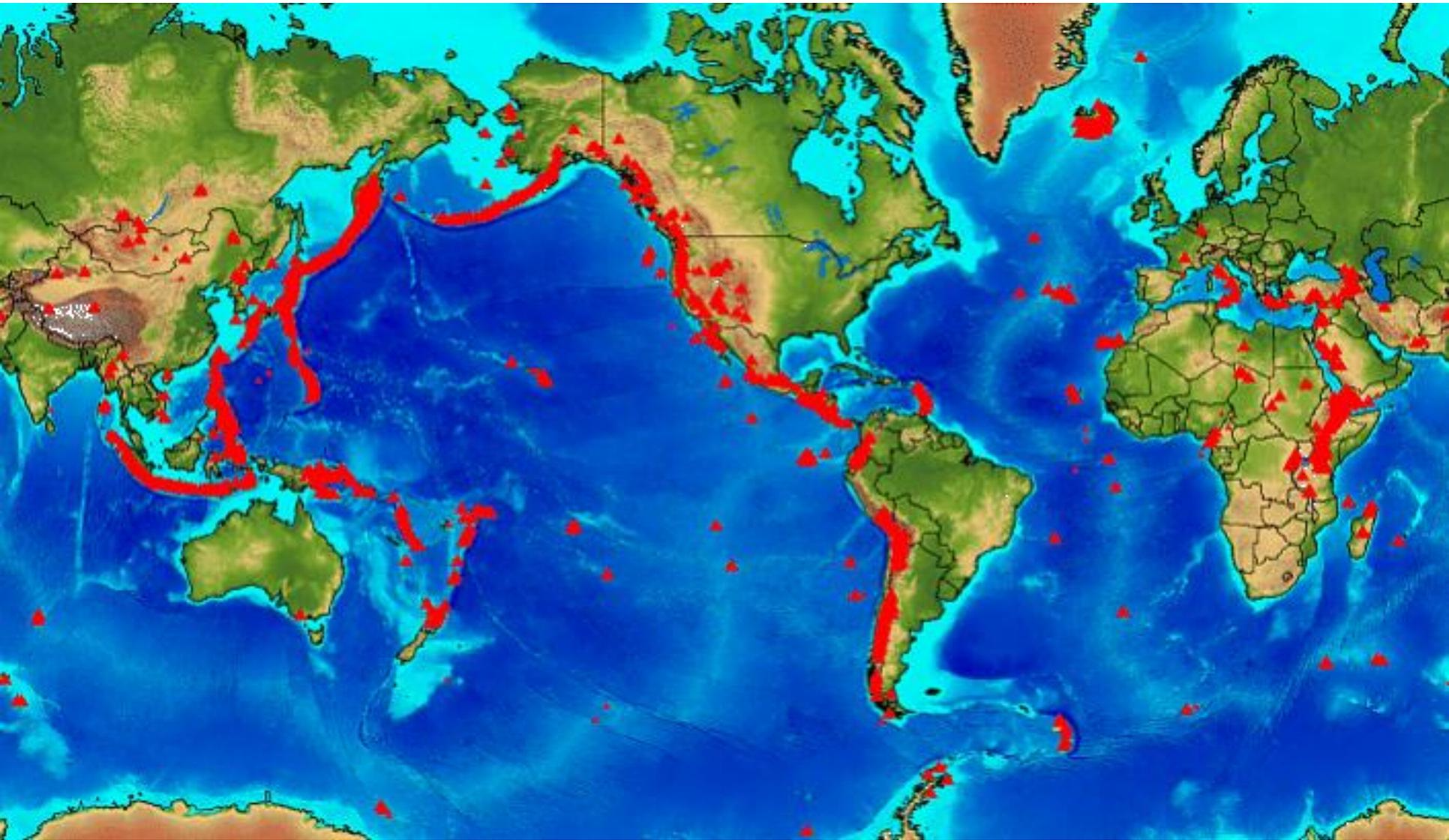


# Subduction





Location of earthquakes (yellow dots) with magnitudes greater than 4.5 that occurred between 1980 and 1995. Note that the earthquakes are concentrated along plate boundaries (blue-green lines). Source: NASA/GSFC



Locations of the world's active volcanoes (red triangles).

Some geological processes  
distinctive to  
catastrophic plate tectonics

- **Supersonic steam jets**, emerging from the seafloor along 60,000 km of rapidly spreading mid-ocean rift zones
- **Intense global rain** from entrained ocean water lofted above the earth by the steam jets

# Rapid Seafloor Spreading

torrential rain

← steam jets

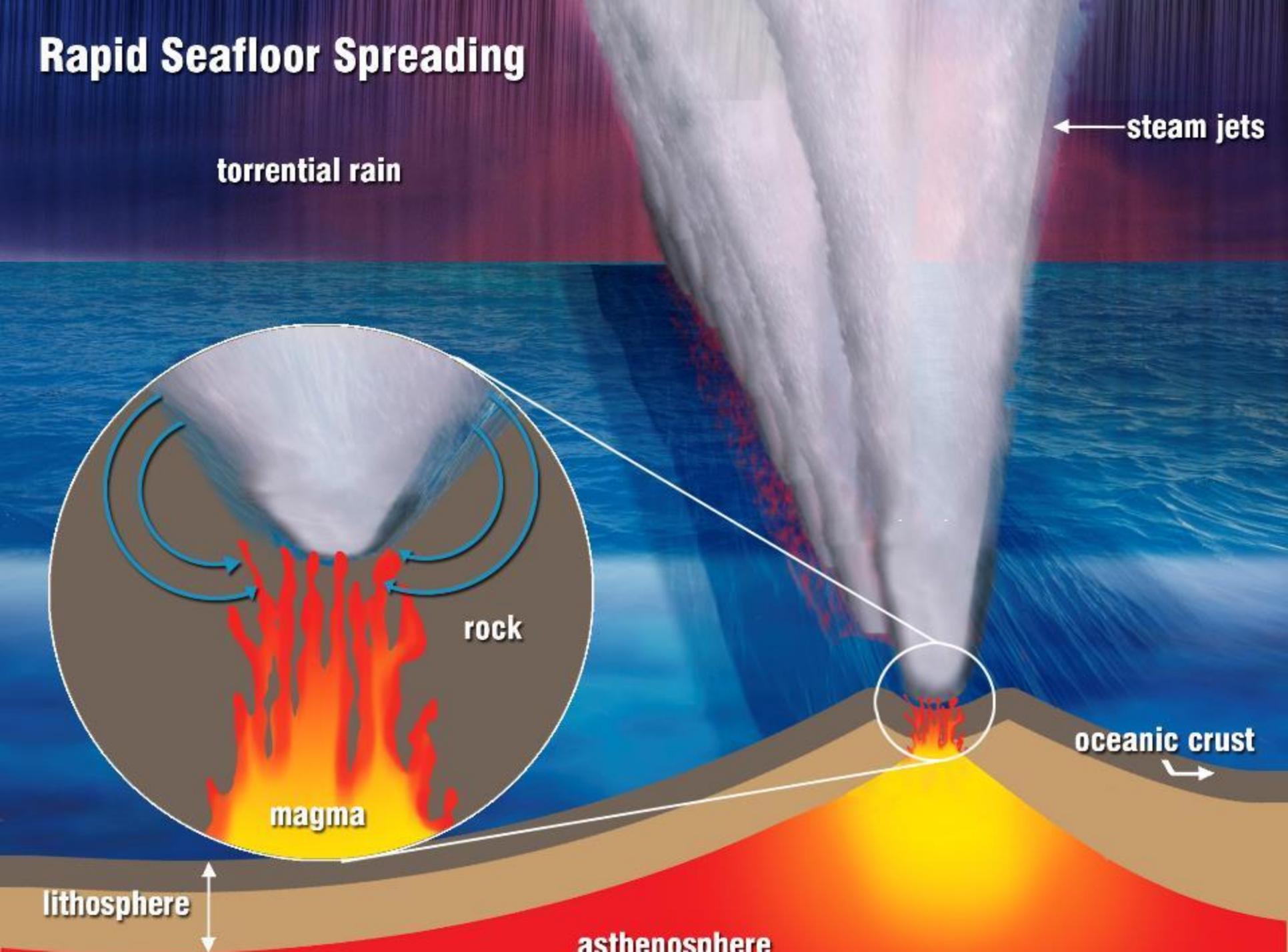
rock

magma

oceanic crust

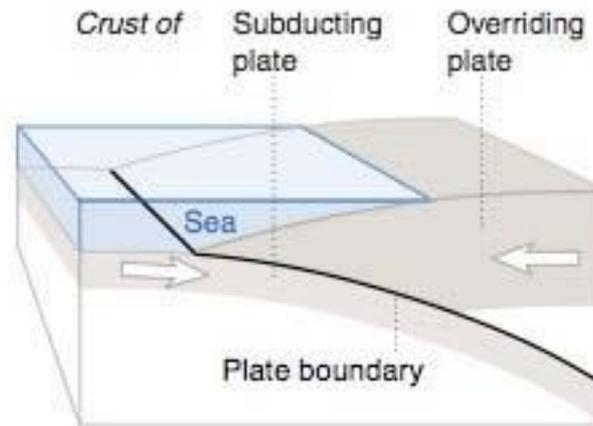
lithosphere

asthenosphere

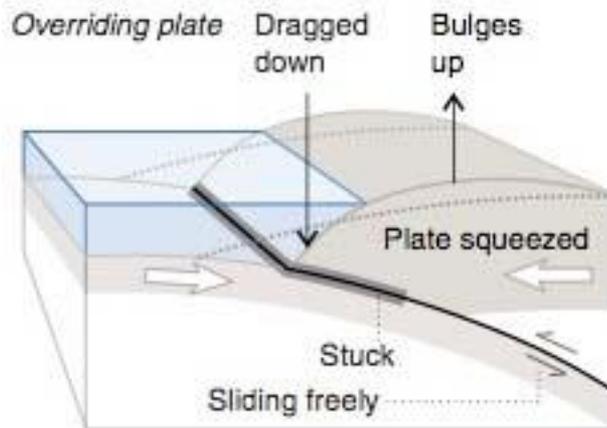


- Giant tsunamis as rapidly subducting ocean plates temporarily stick and then release via large earthquakes
- Significant up and down motions of earth's surface because of rapid flow of rock inside the earth
- Dramatic uplift of today's mountain belts at the end of the cataclysm.
- An Ice Age following the Flood

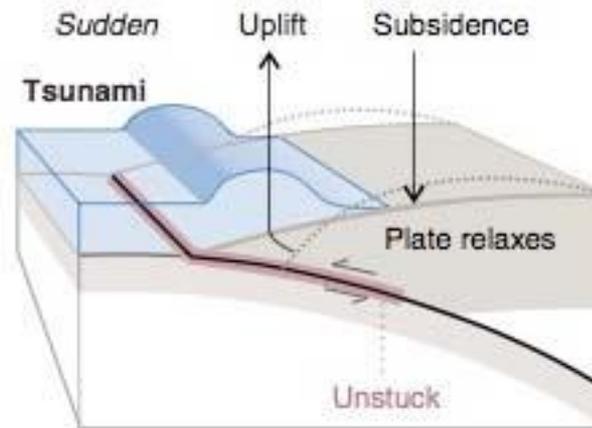
# Making a Tsunami



OVERALL, a tectonic plate descends, or "subducts," beneath an adjoining plate. But it does so in a stick-slip fashion.



BETWEEN EARTHQUAKES the plates slide freely at great depth, where hot and ductile. But at shallow depth, where cool and brittle, they stick together. Slowly squeezed, the overriding plate thickens.

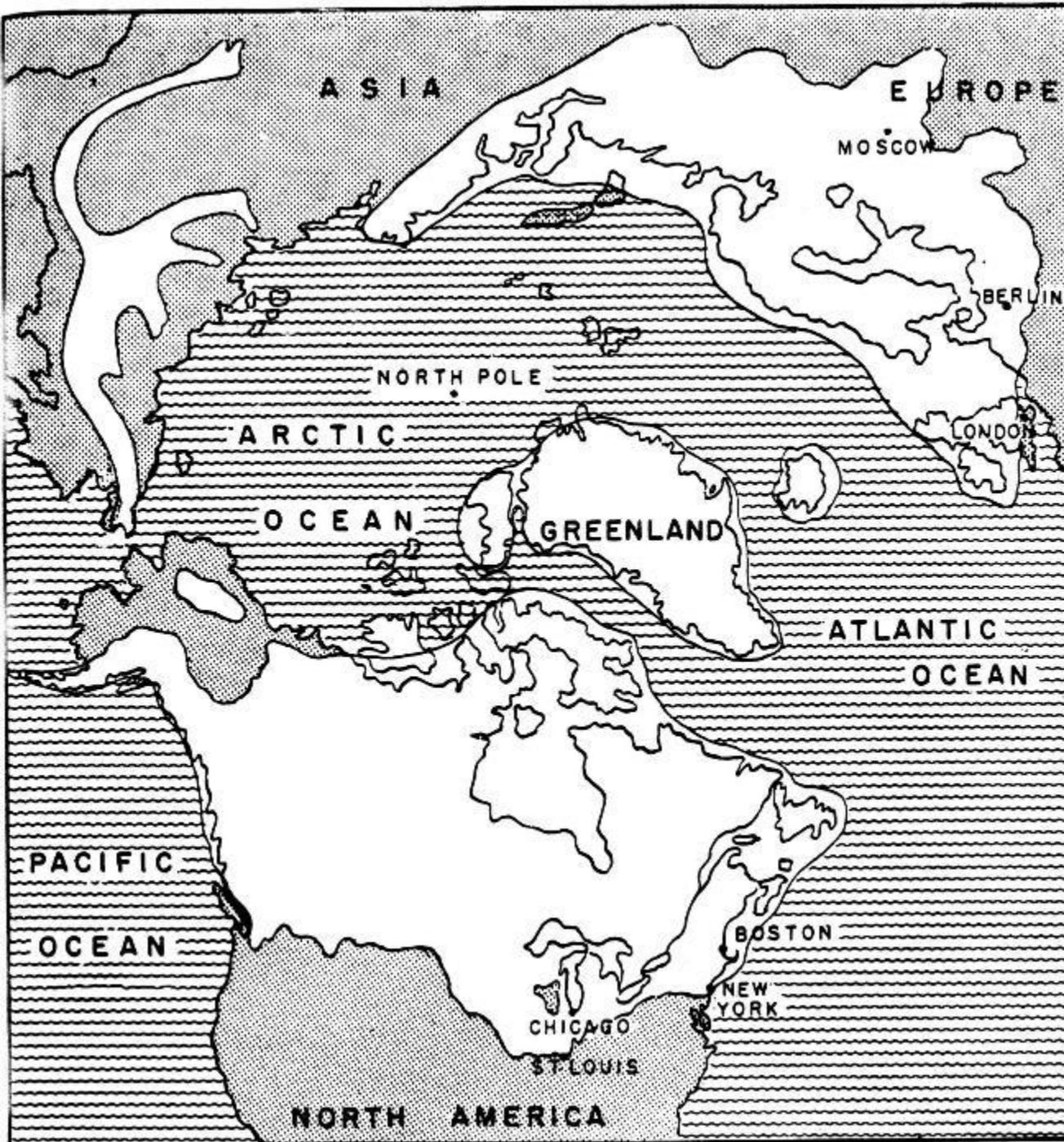


DURING AN EARTHQUAKE the leading edge of the overriding plate breaks free, springing seaward and upward. Behind, the plate stretches; its surface falls. The vertical displacements set off a tsunami.

# Chilean Andes

*Photo by Robert Morrow, Wikipedia,  
distributed under Creative Commons  
Attribution ShareAlike 3.0 License.*



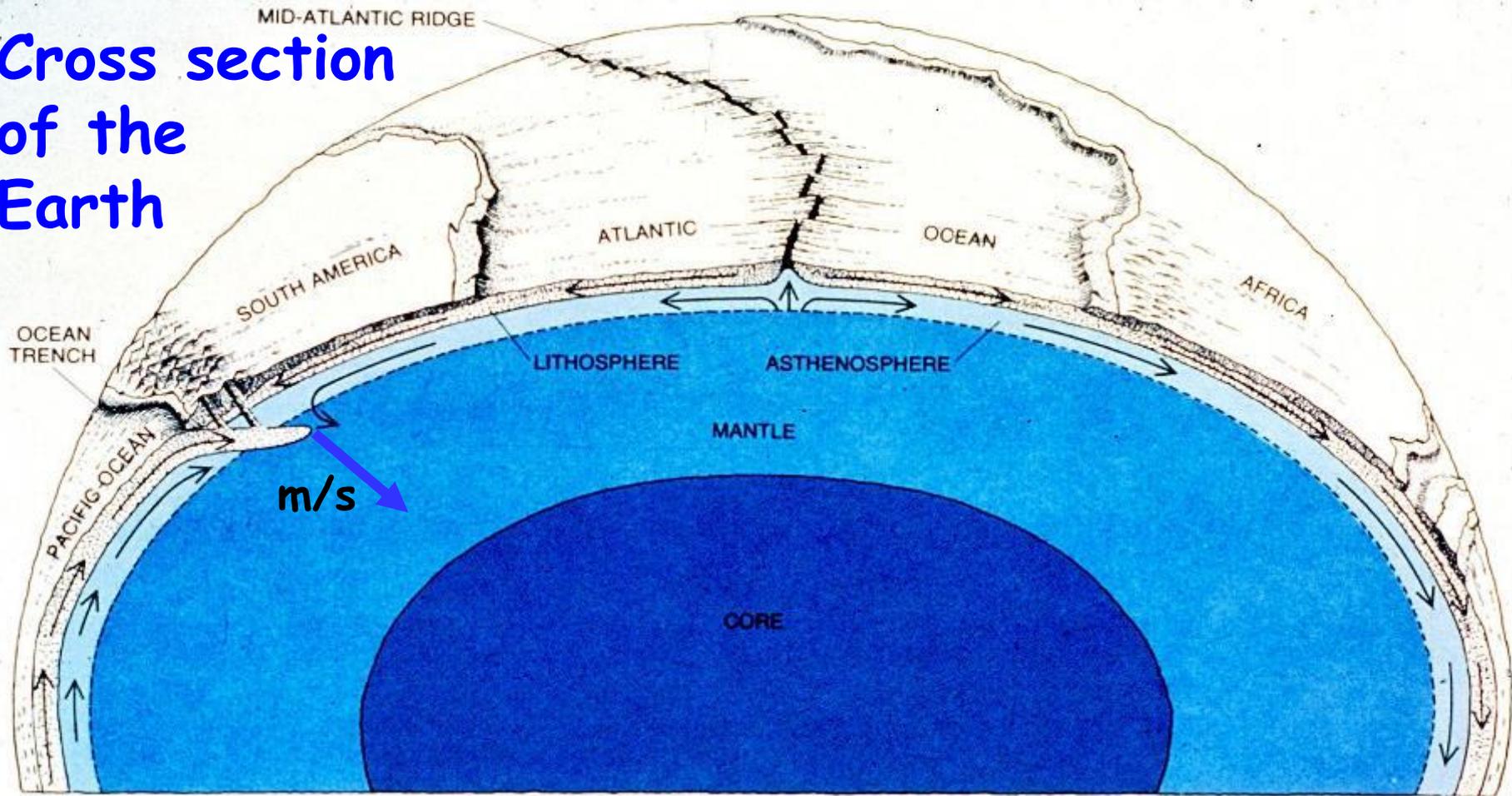


The warming of the oceans during the Flood led to high rates of evaporation, precipitation, and rapid buildup of polar ice sheets and mountain glaciers in the following centuries.

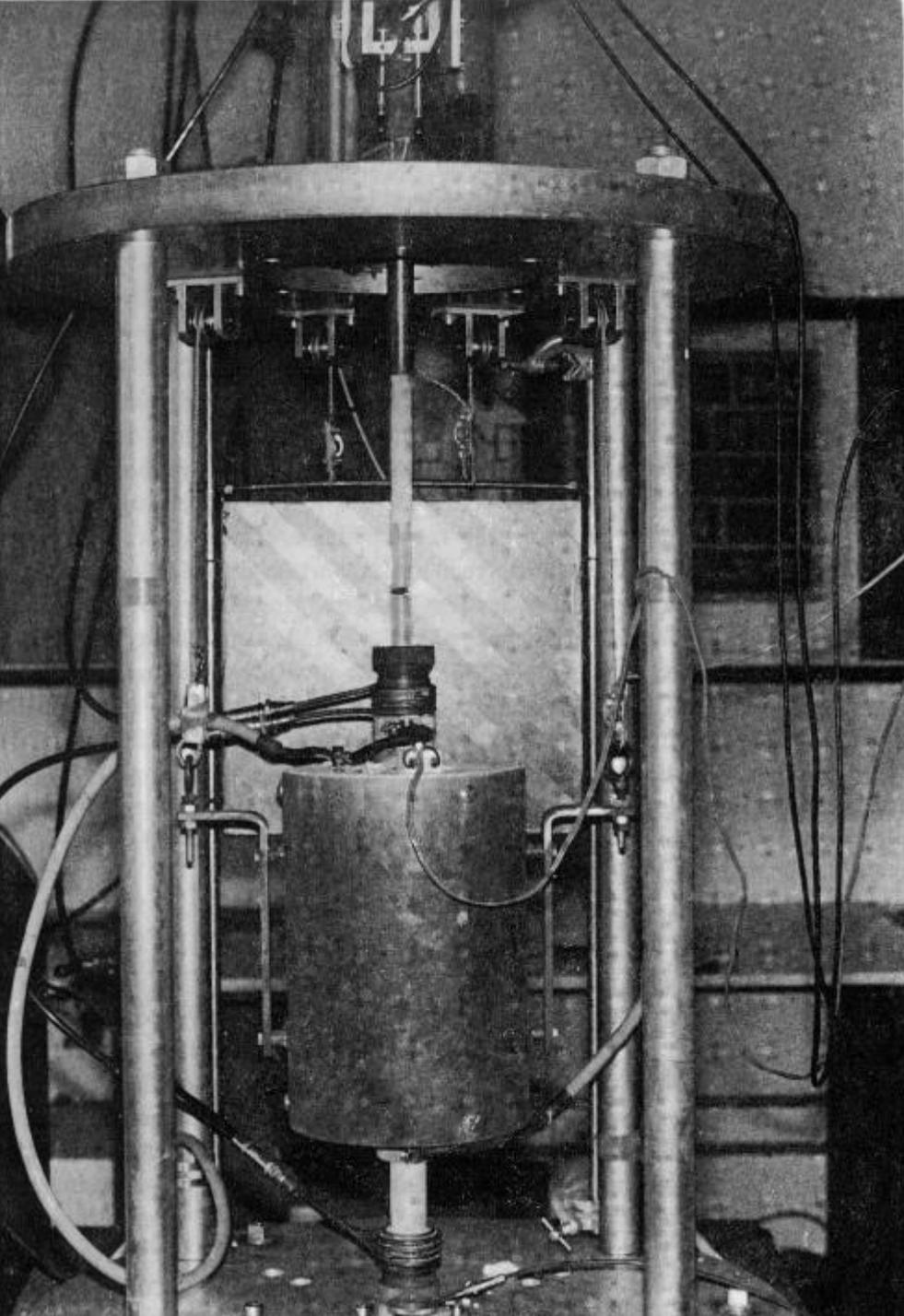
## A crucial issue

Can ocean plate actually sink vertically through 2900 km of mantle rock in a few weeks' time?

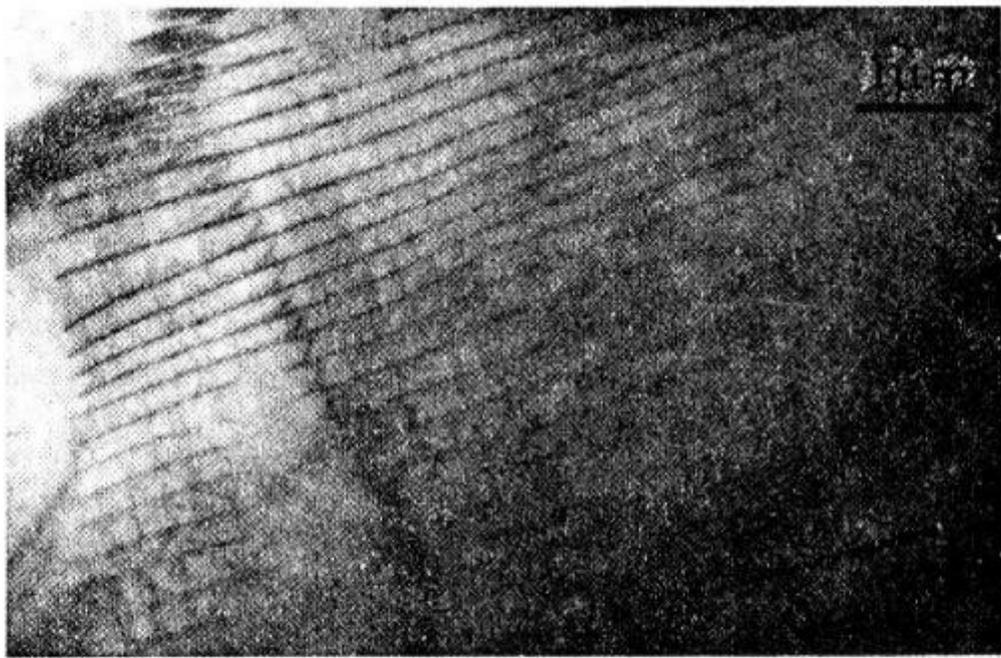
# Cross section of the Earth



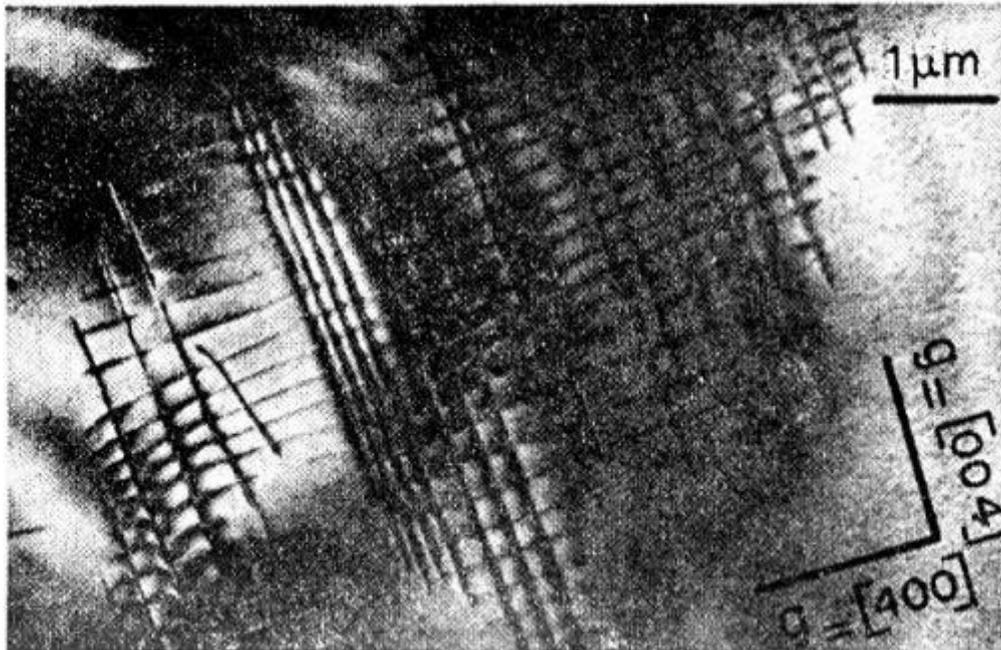
**Catastrophic plate tectonics:** Ocean plates can slide into the mantle and sink because they are cooler and denser than the mantle rock beneath. Rapid plate motion can occur because mantle rock weakens under stress.



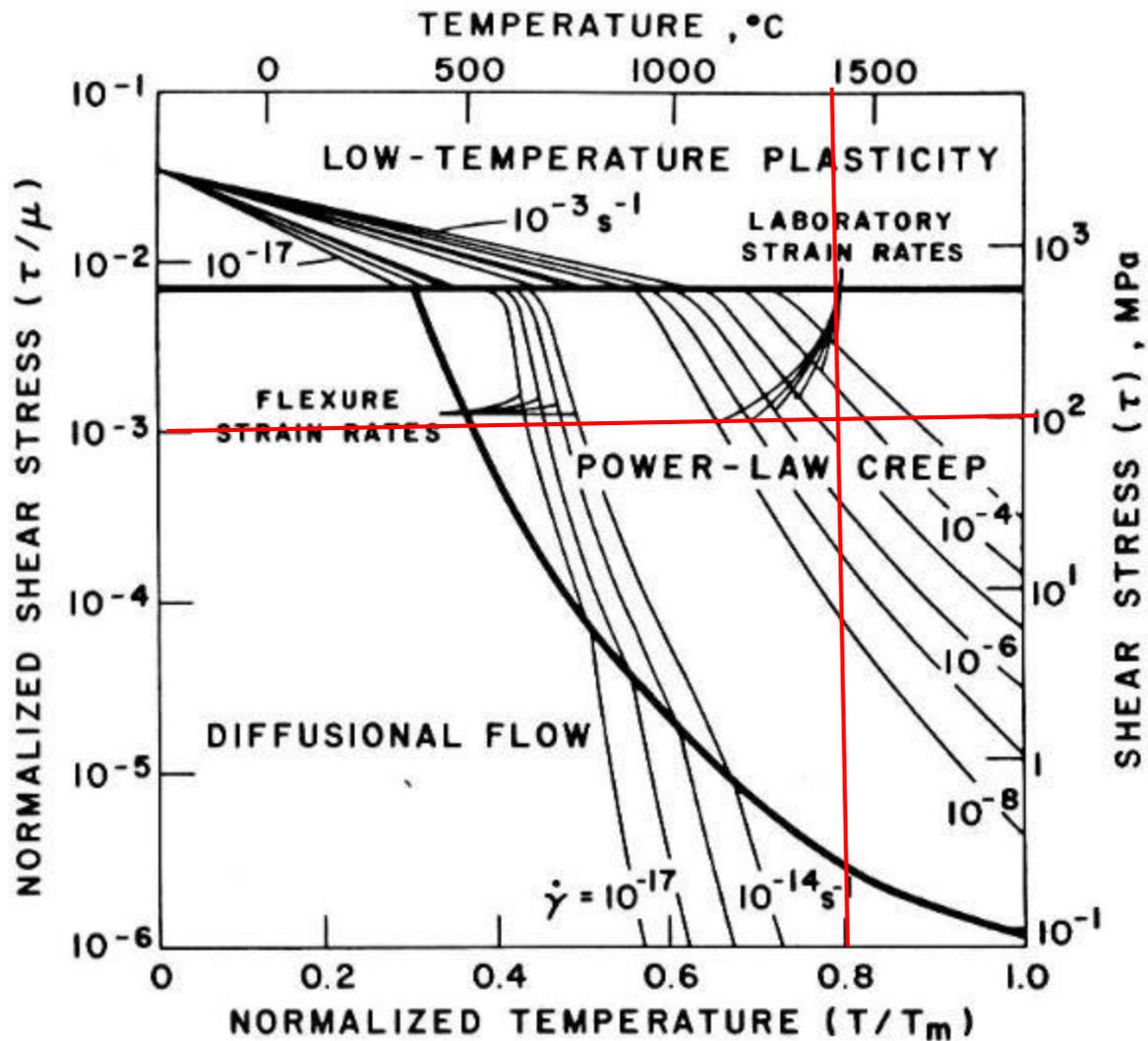
**Apparatus  
for measuring  
deformational  
properties of  
mantle minerals.**



Electron microscope images of deformed olivine crystals.



When the crystal is subjected to shear stress, deformation occurs as planes of atoms, like cards in a deck of cards, slide past one another.



Experimentally measured deformation rates for the mineral olivine as temperature and stress are varied.

Fig. 1. Deformation mechanism map for olivine with a 1 mm grain size. Shear strain rates  $\dot{\gamma}$  (in s $^{-1}$ ) are contoured over shear stress  $\tau$  normalized by shear modulus  $\mu$  and absolute temperature  $T$  normalized by temperature of melting  $T_m$ .

2-D computer calculation using  
experimentally determined rock  
deformation properties

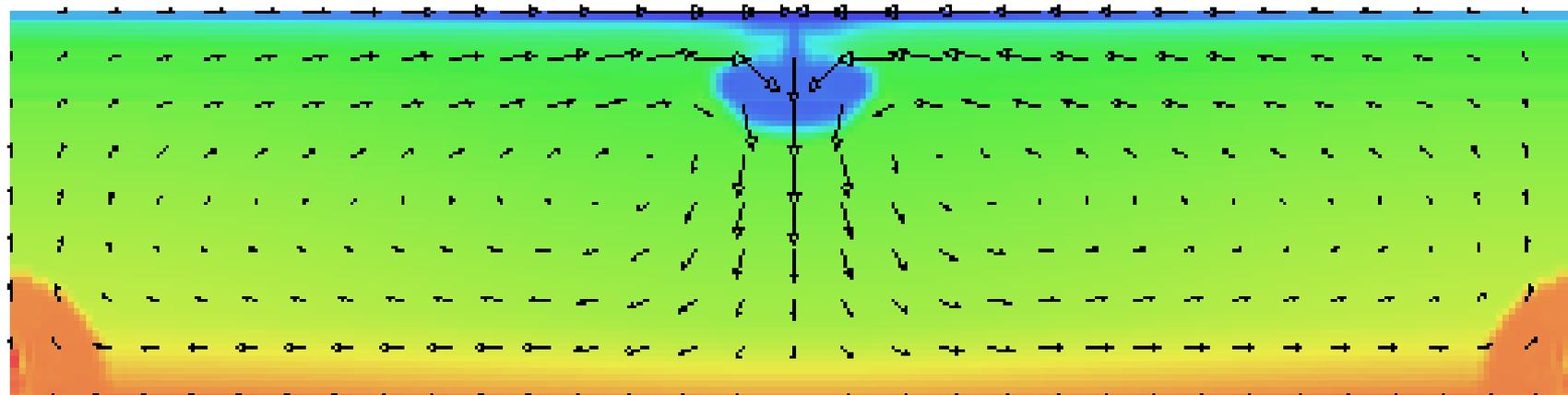
—shows runaway catastrophe!

CASE 205 MANTLE RUNAWAY STUDY  
B-M EOS REF EDOT = 1.E-14

YIELD STRESS = 90 MPA  
04 DECEMBER 2007

MAX VELOCITY = 3.99E+00 M/S

TIME = 2.00E+00 DAYS



TEMPERATURE RANGE

299.6 - 3844.9 K

CASE 205 MANTLE RUNAWAY STUDY

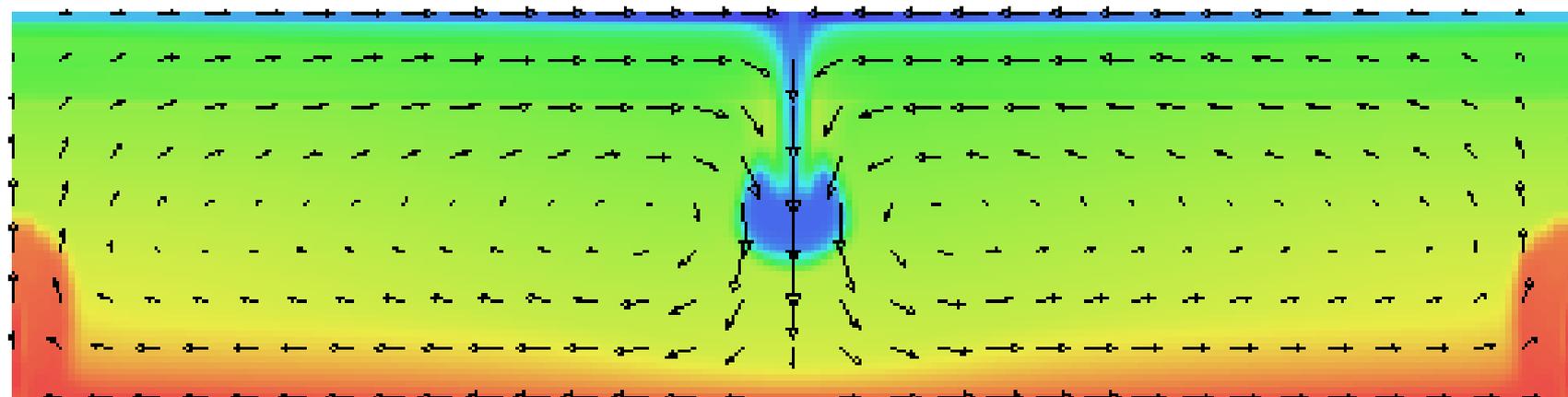
B-M EOS REF EDOT = 1.E-14

MAX VELOCITY = 3.60E+00 M/S

YIELD STRESS = 90 MPA

04 DECEMBER 2007

TIME = 5.00E+00 DAYS



TEMPERATURE RANGE

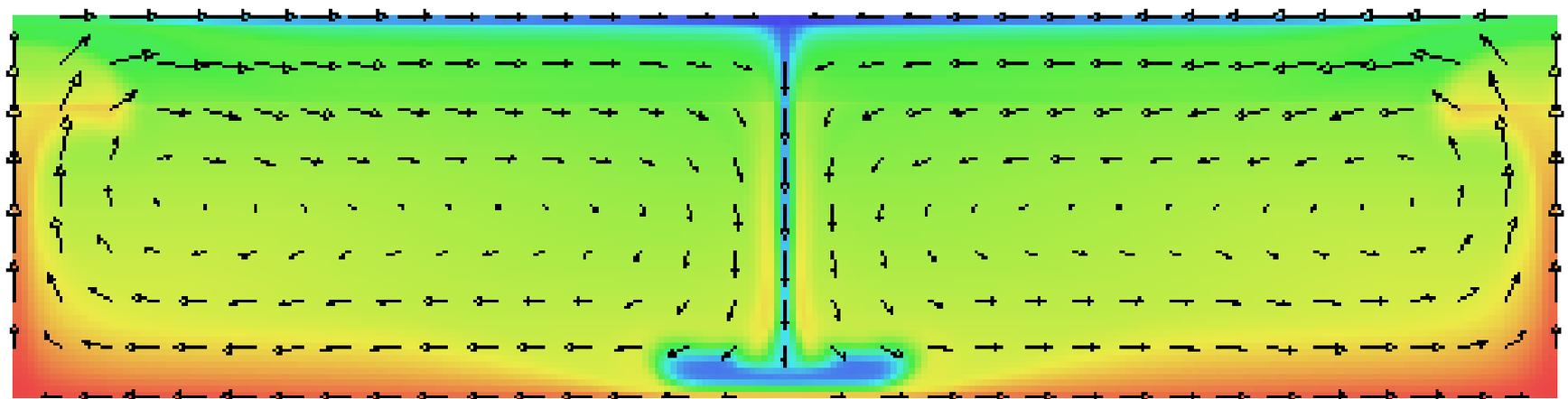
365.5 - 3575.7 K

CASE 205 MANTLE RUNAWAY STUDY  
B-M EOS REF EDOT = 1.E-14

YIELD STRESS = 90 MPA  
04 DECEMBER 2007

MAX VELOCITY = 2.36E+00 M/S

TIME = 1.50E+01 DAYS



TEMPERATURE RANGE

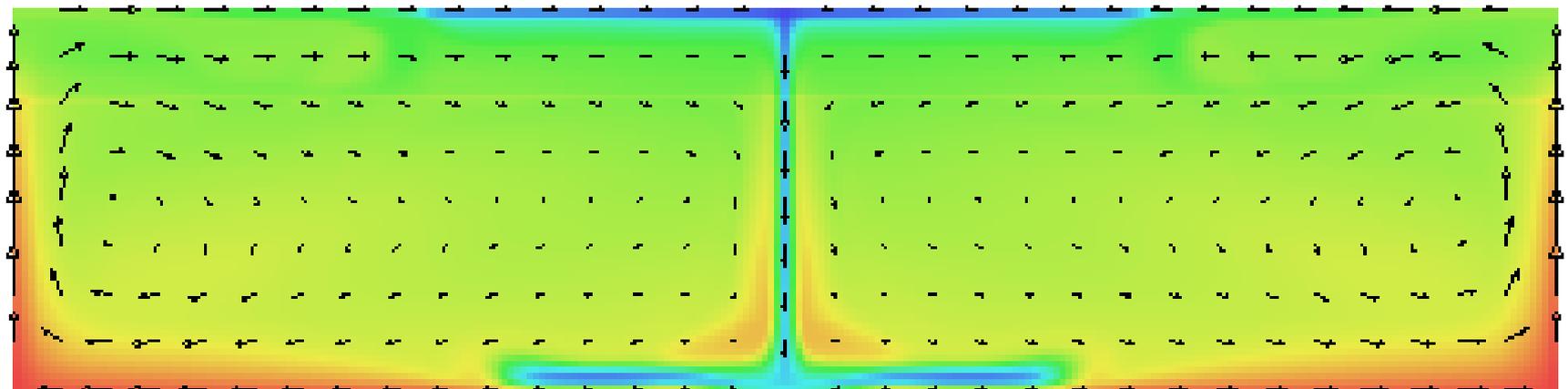
415.0 - 3573.7 K

CASE 205 MANTLE RUNAWAY STUDY  
B-M EOS REF EDOT = 1.E-14

YIELD STRESS = 90 MPA  
04 DECEMBER 2007

MAX VELOCITY = 1.06E+00 M/S

TIME = 4.00E+01 DAYS



TEMPERATURE RANGE

477.3 – 3544.6 K

**Note:** The energy driving this process is simply the gravitational potential energy associated with the initial temperature differences.

CASE 205 MANTLE RUNAWAY STUDY

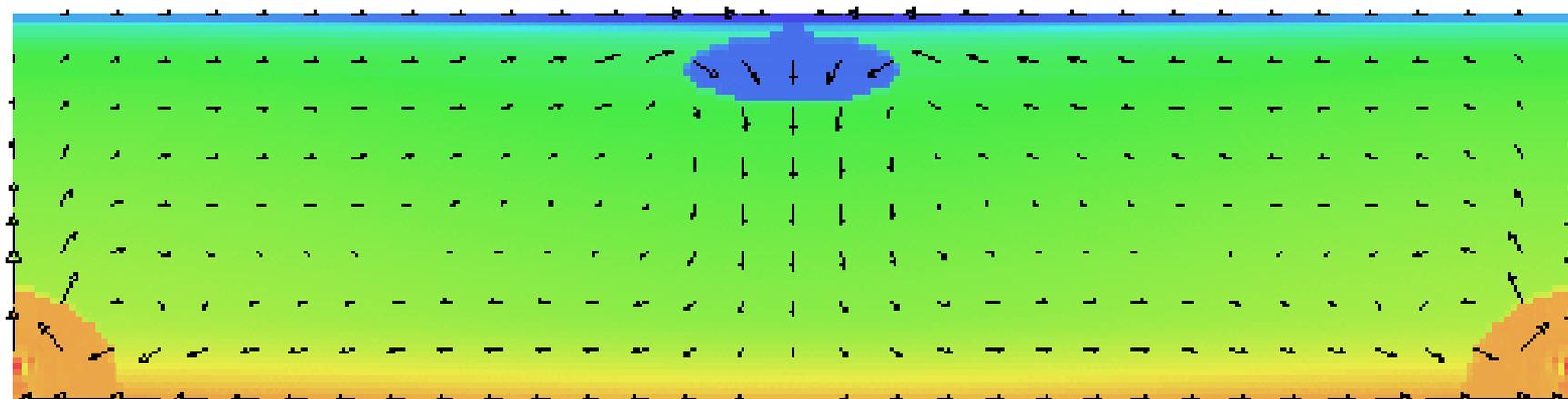
B-M EOS REF EDOT = 1.E-14

MAX VELOCITY = 1.84E-01 M/S

YIELD STRESS = 90 MPA

04 DECEMBER 2007

TIME = 1.00E+00 DAYS

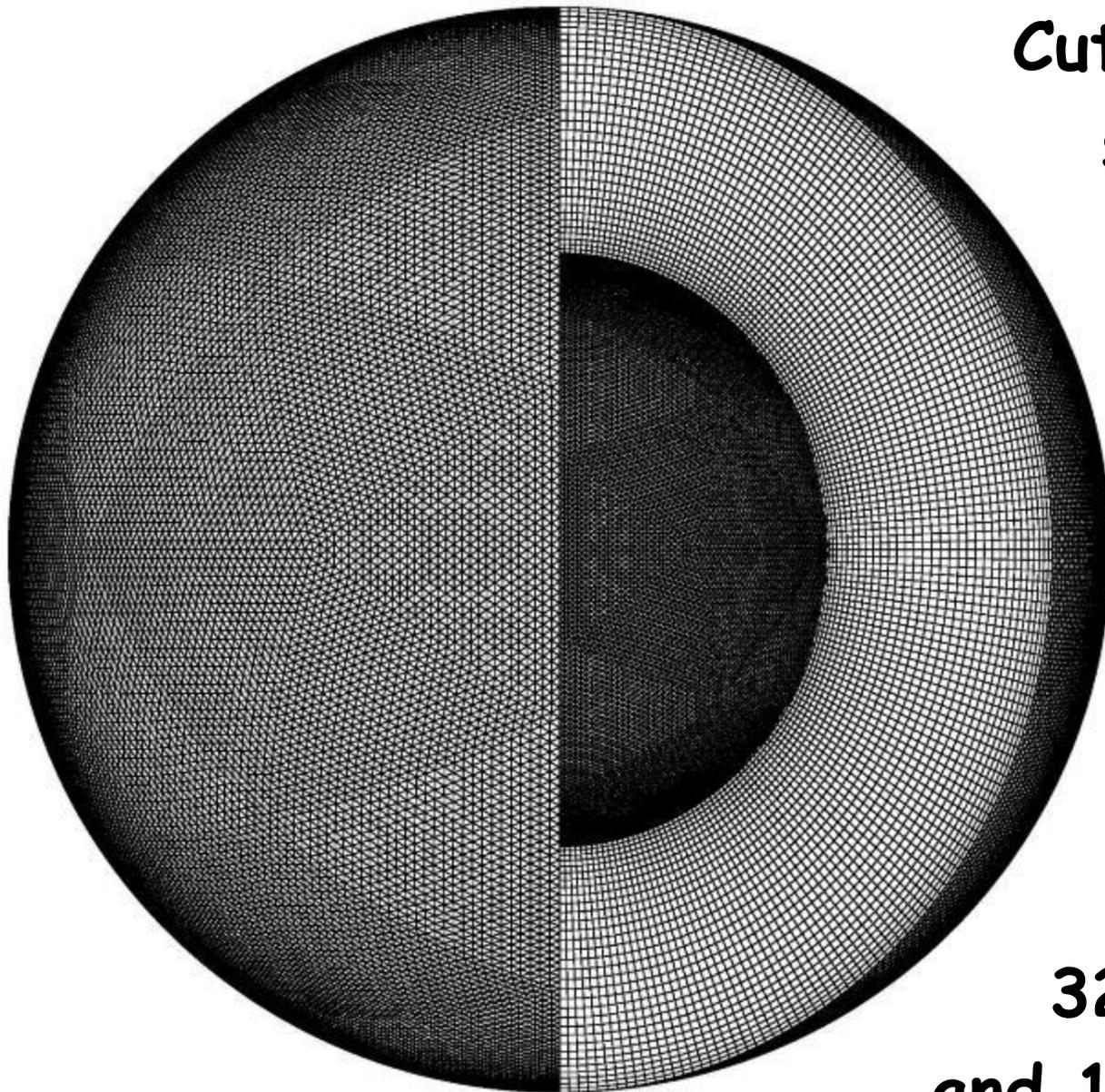


TEMPERATURE RANGE

261.0 - 4071.3 K

This 2D simulation, although it may not seem that complex or impressive, demonstrates that the physics indeed works, specifically, that stress-weakening in rocks can produce catastrophic consequences in a planet with the gravity field of the earth.

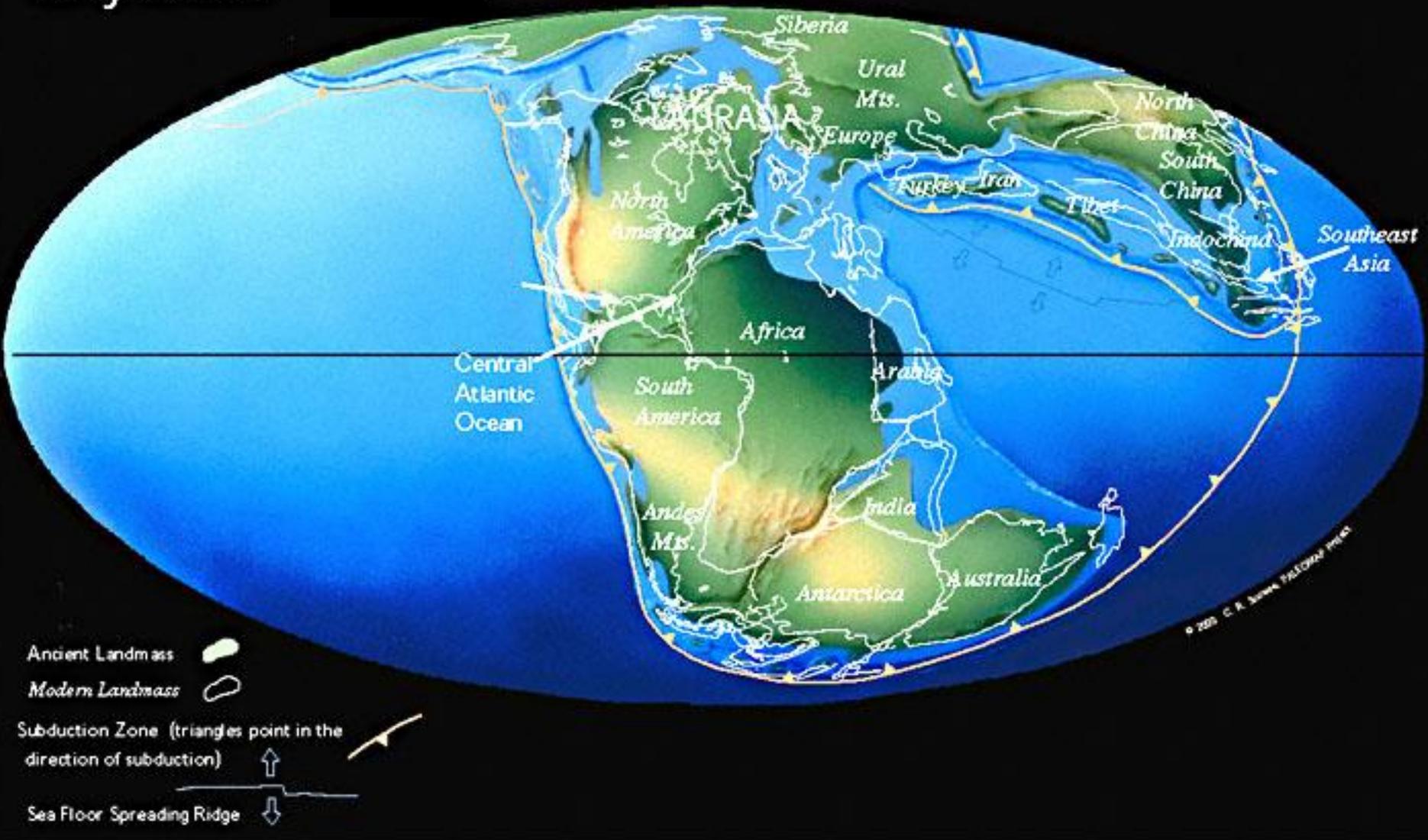
# Modeling plate motions in 3D spherical geometry



**Cutaway view of  
spherical grid**

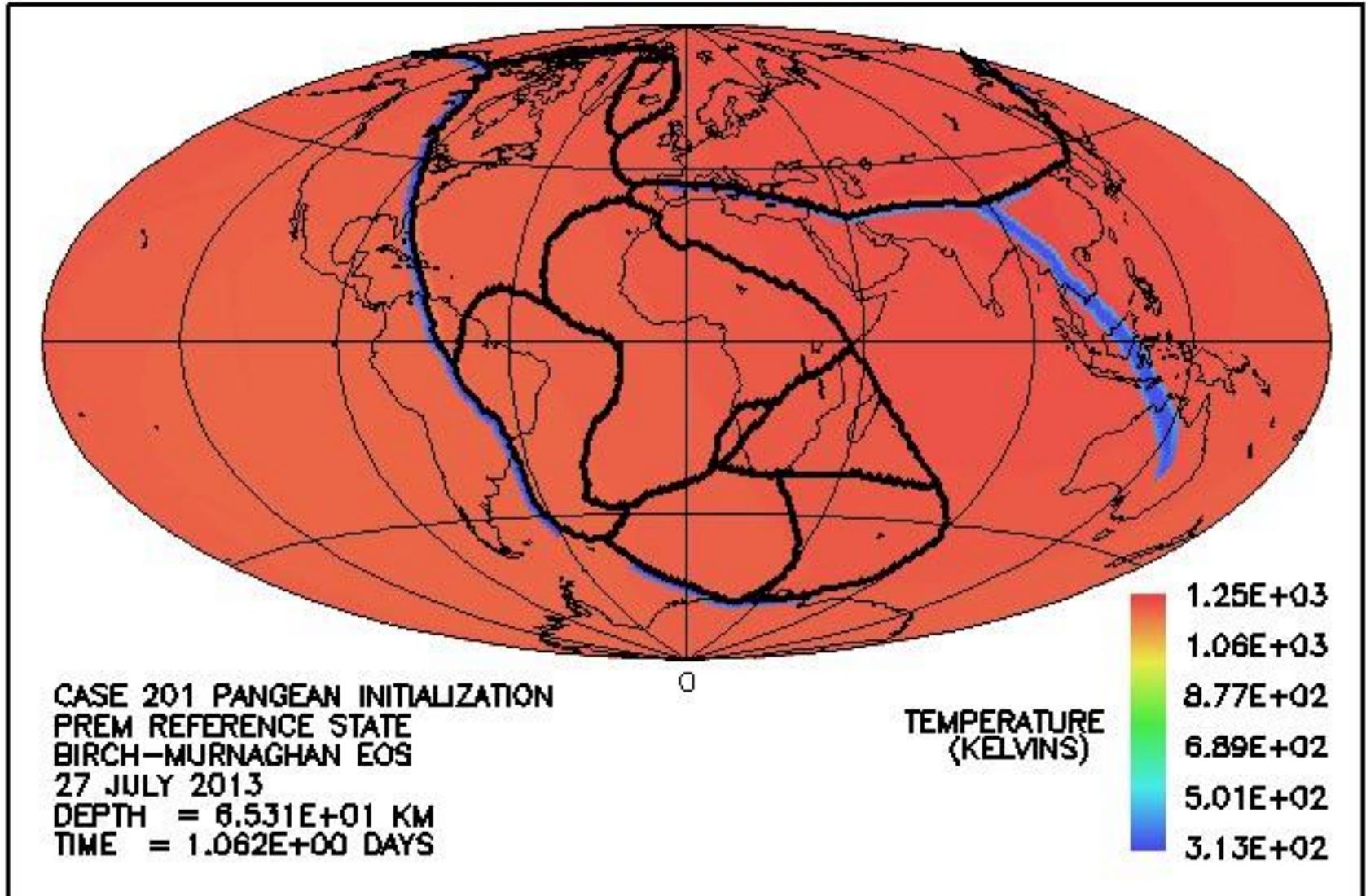
**This grid has  
32 radial layers  
and 1,351,746 cells.**

# Early Jurassic

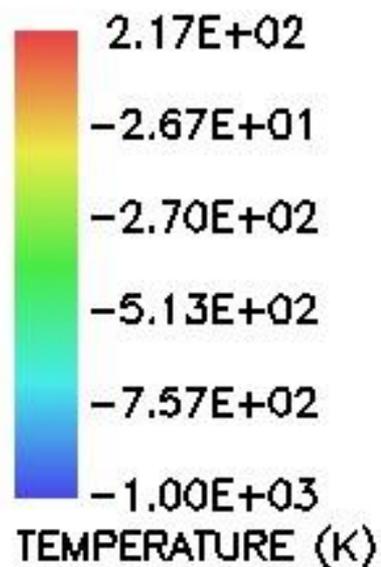


Calculation begins from a continent configuration from roughly the mid-way point in the Flood cataclysm similar to that shown above.

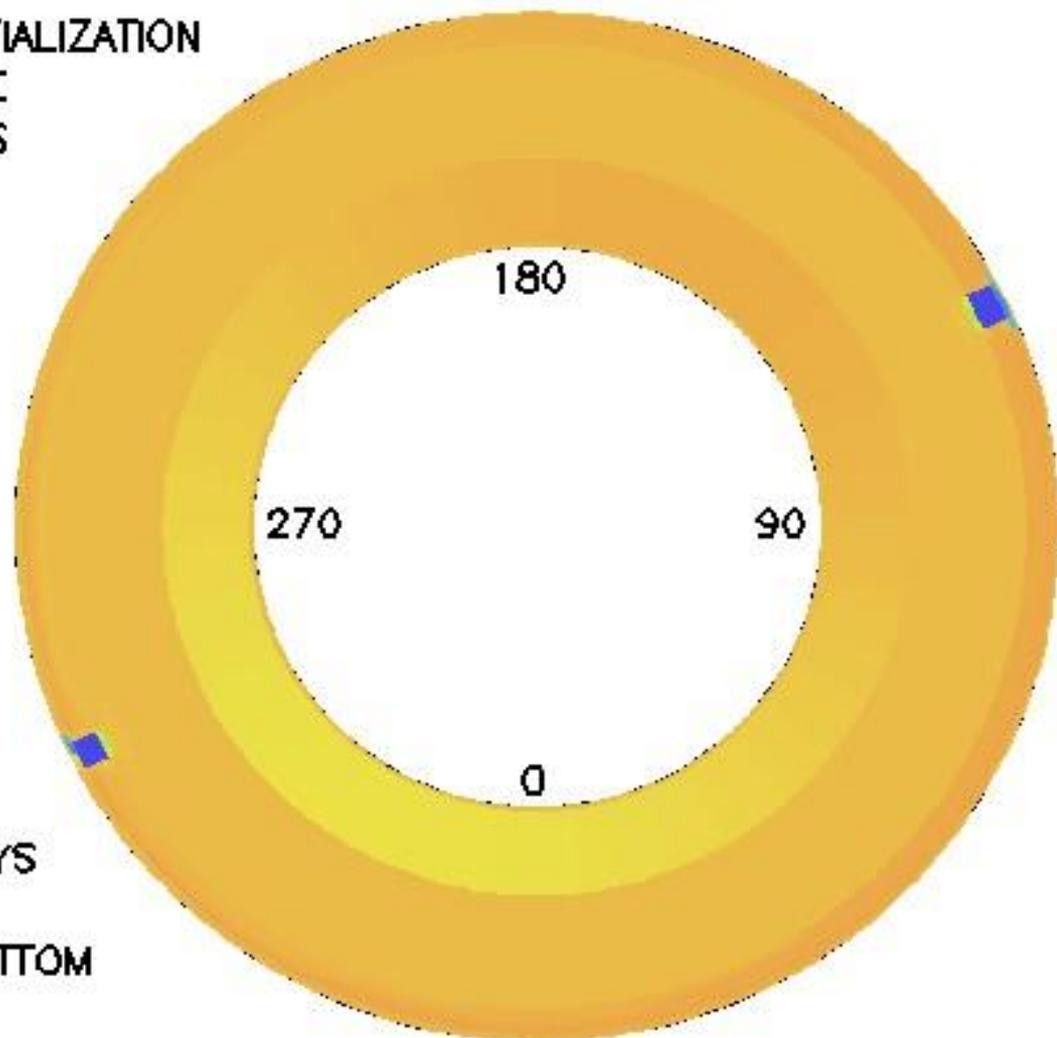
# Modeling the portion of the Flood starting with the breakup of Pangea



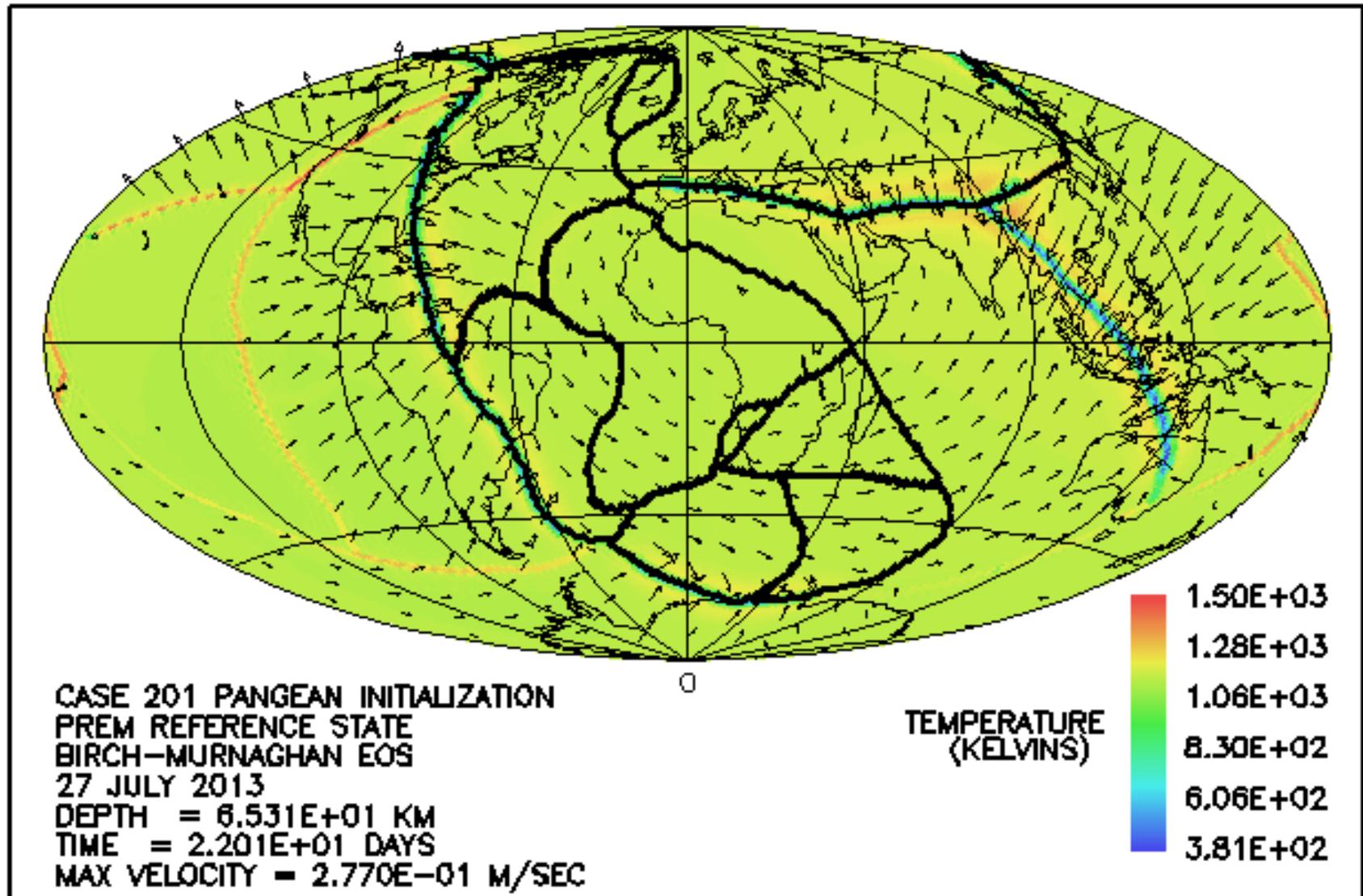
CASE 201 PANGEAN INITIALIZATION  
PREM REFERENCE STATE  
BIRCH-MURNAGHAN EOS  
27 JULY 2013



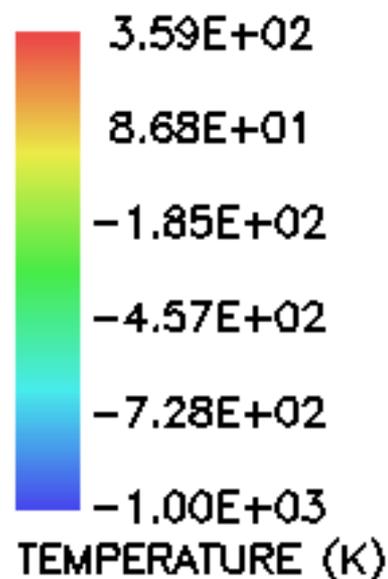
TIME = 1.062E+00 DAYS  
EQUATORIAL SECTION  
ZERO LONGITUDE AT BOTTOM



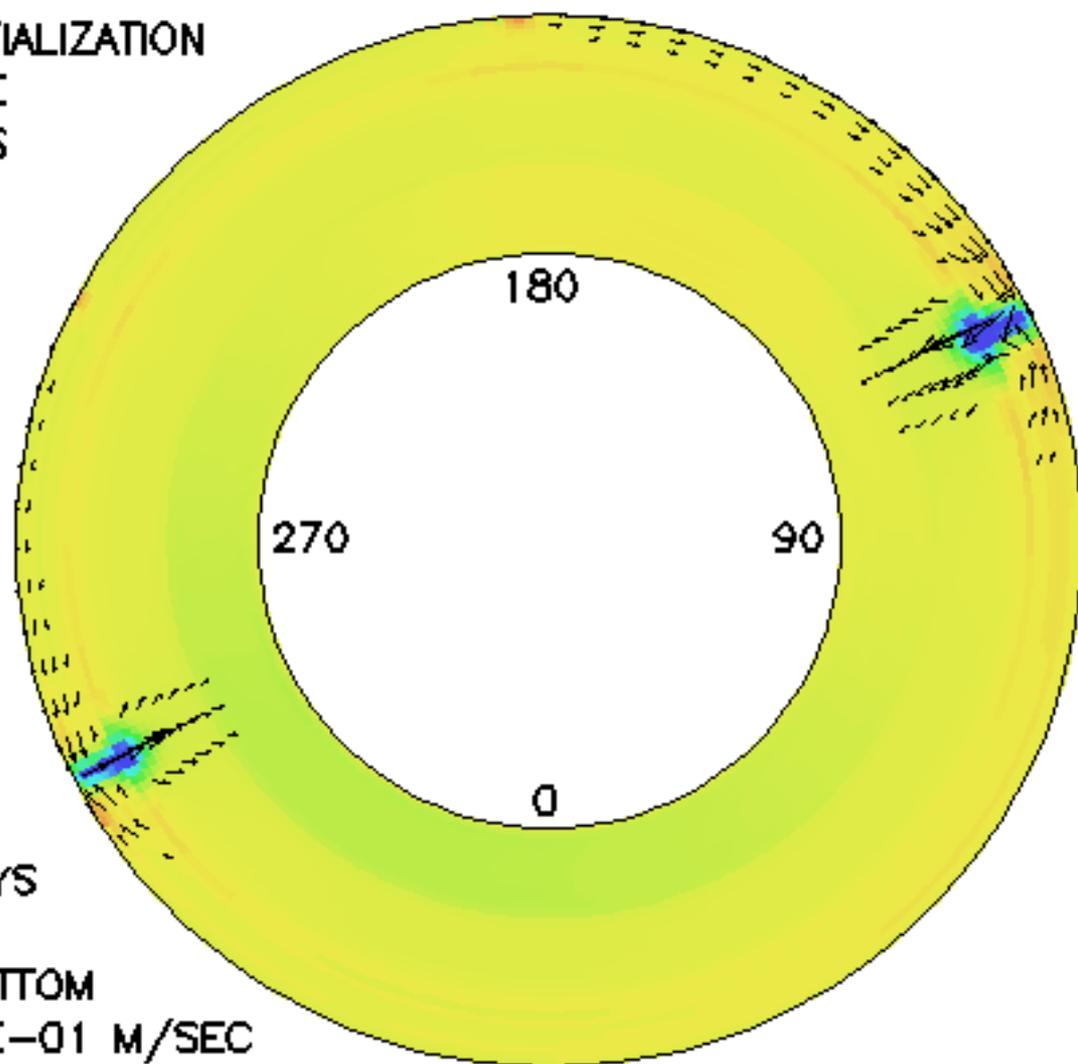
# Modeling the portion of the Flood starting with the breakup of Pangea



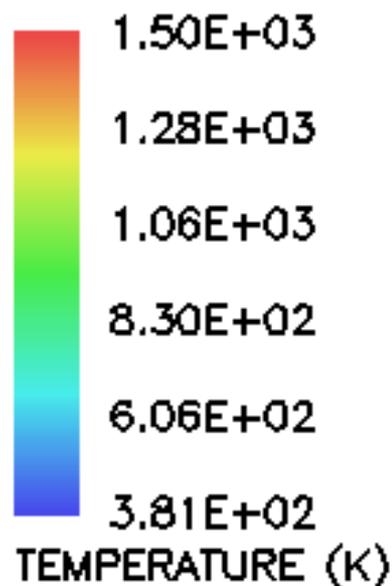
CASE 201 PANGEAN INITIALIZATION  
PREM REFERENCE STATE  
BIRCH-MURNAGHAN EOS  
27 JULY 2013



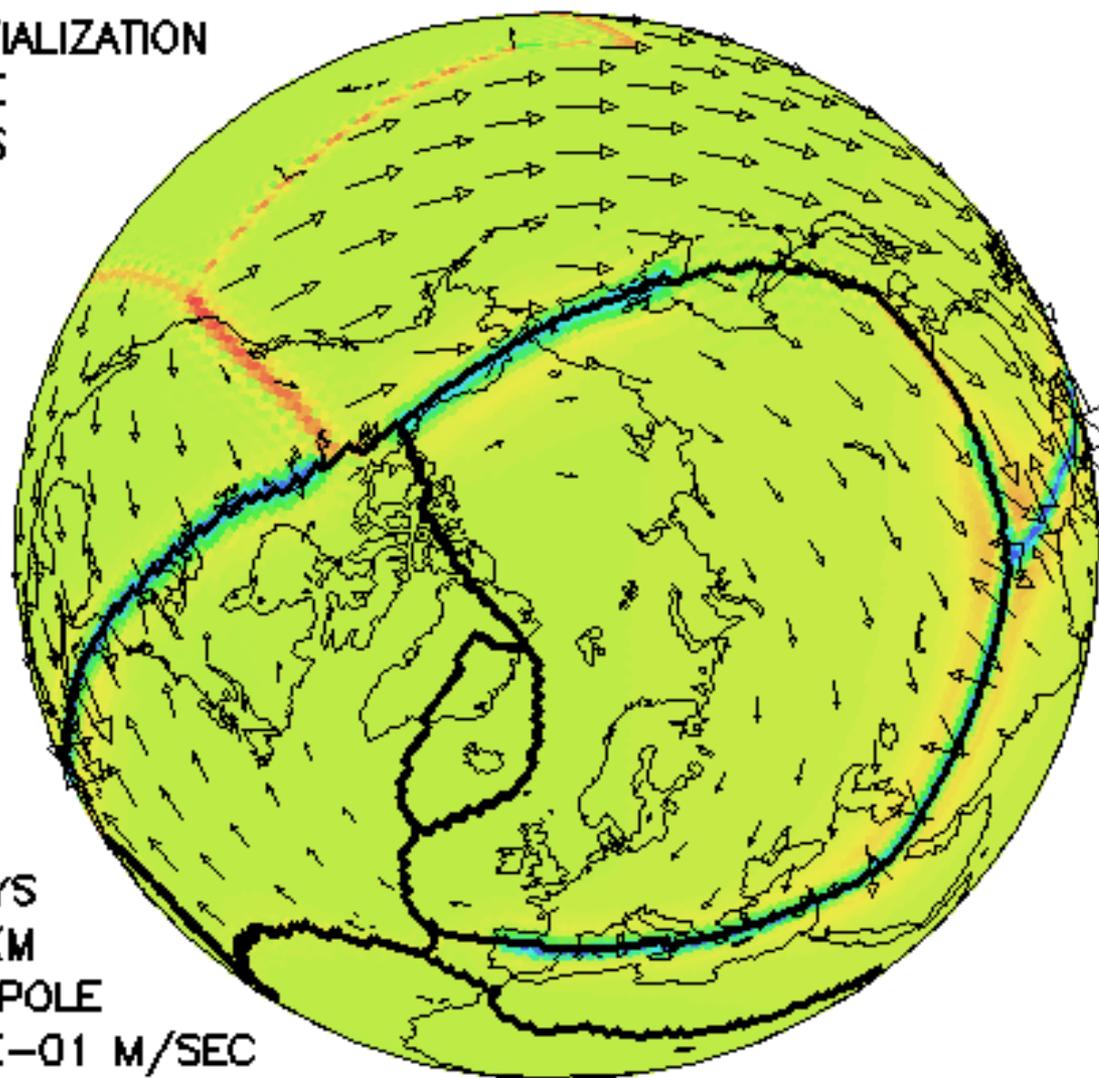
TIME = 2.201E+01 DAYS  
EQUATORIAL SECTION  
ZERO LONGITUDE AT BOTTOM  
MAX VELOCITY = 5.781E-01 M/SEC



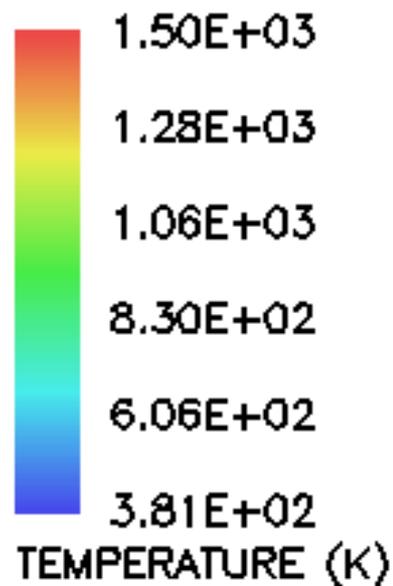
CASE 201 PANGEAN INITIALIZATION  
PREM REFERENCE STATE  
BIRCH-MURNAGHAN EOS  
27 JULY 2013



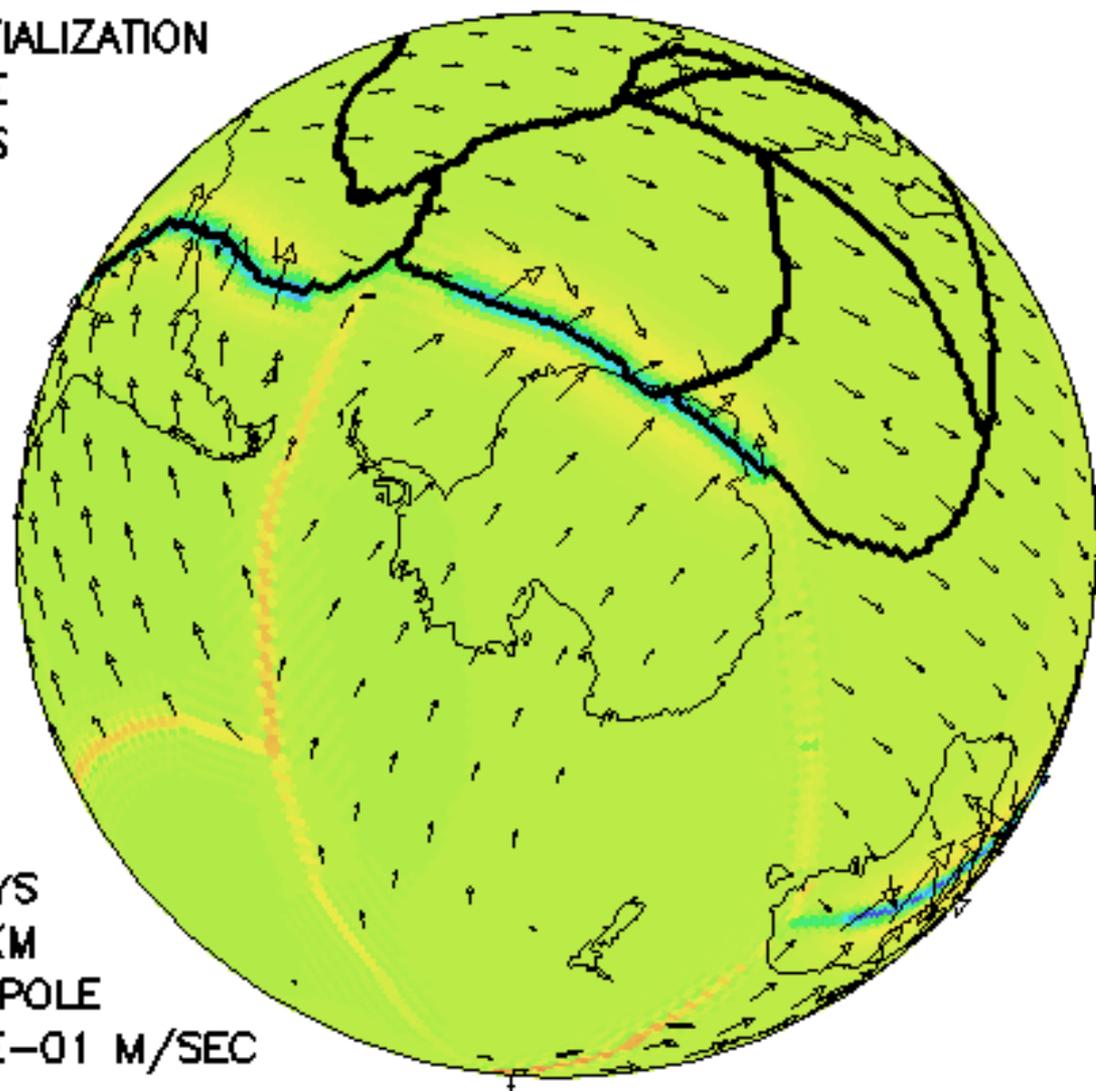
TIME = 2.201E+01 DAYS  
DEPTH = 6.531E+01 KM  
VIEW FROM THE NORTH POLE  
MAX VELOCITY = 2.770E-01 M/SEC

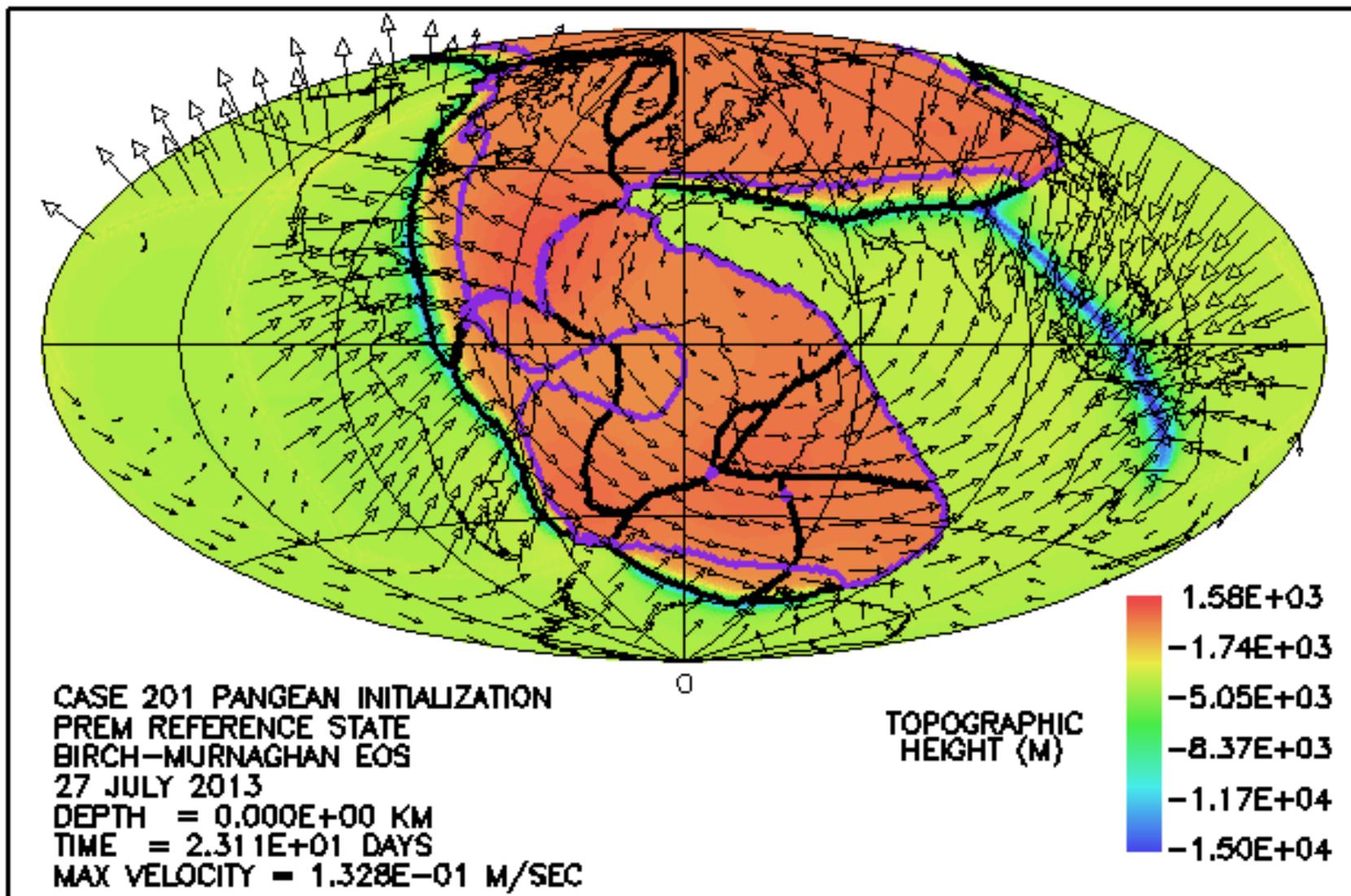


CASE 201 PANGEAN INITIALIZATION  
PREM REFERENCE STATE  
BIRCH-MURNAGHAN EOS  
27 JULY 2013



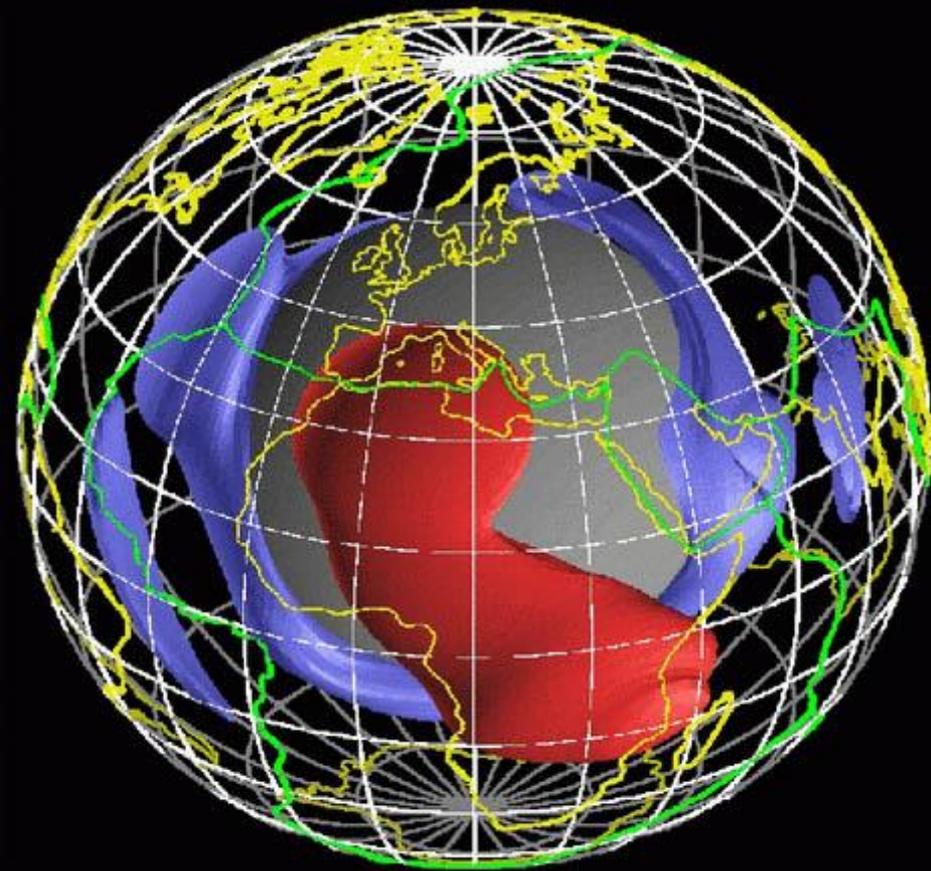
TIME = 2.201E+01 DAYS  
DEPTH = 6.531E+01 KM  
VIEW FROM THE SOUTH POLE  
MAX VELOCITY = 2.770E-01 M/SEC



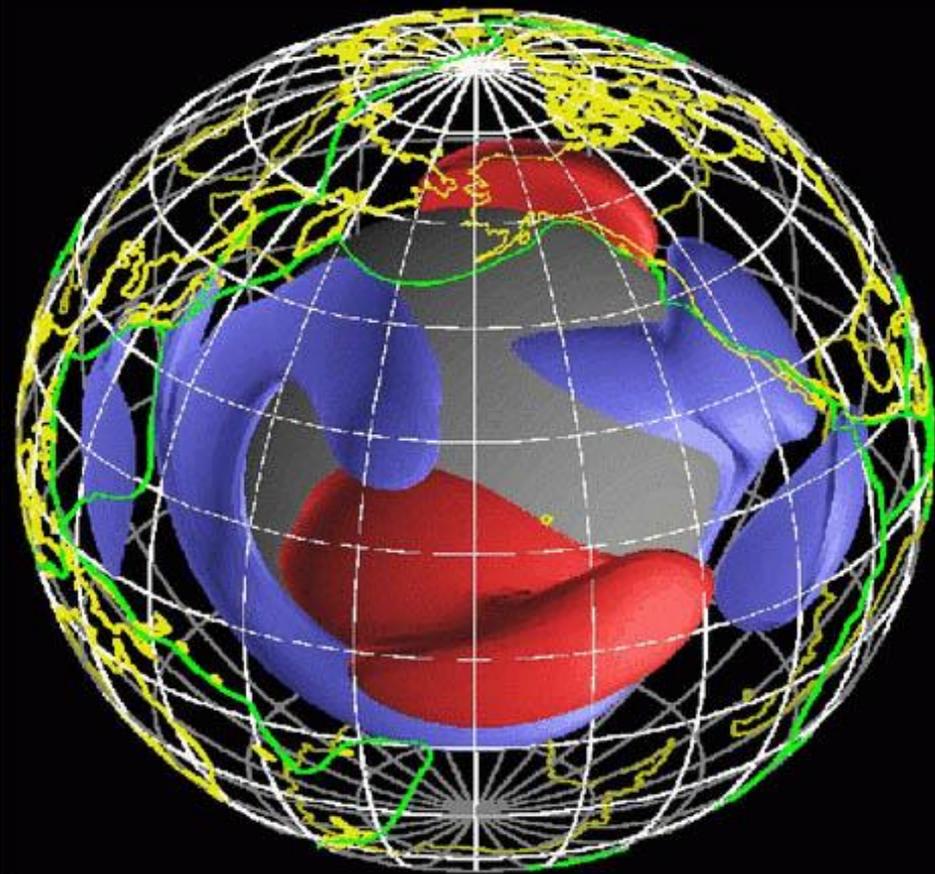


Is there **evidence**  
supporting a recent  
episode of catastrophic  
plate tectonics?

Seismic images of the mantle reveal a ring of unexpectedly cold rock at the bottom of the mantle, beneath the subduction zones that surround the Pacific Ocean.



Eastern Hemisphere



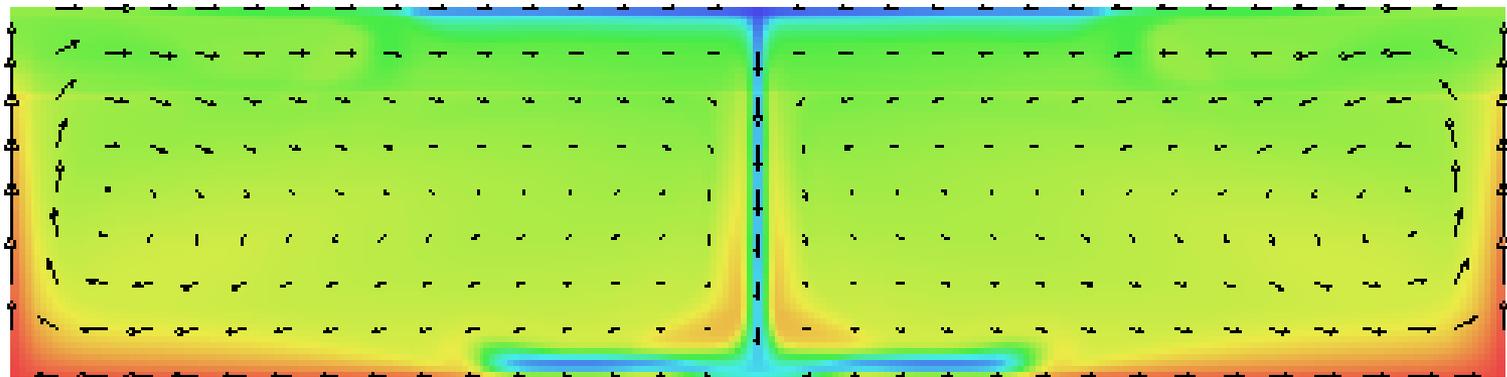
Western Hemisphere

Striking temperature features in today's mantle. Blue represents low temperature and red high temperature. Inferred temperature difference is about  $3000^{\circ}\text{C}$ !

# The Energy Source

CASE 205 MANTLE RUNAWAY STUDY  
B-M EOS REF EDOT = 1.E-14  
MAX VELOCITY = 1.06E+00 M/S

YIELD STRESS = 90 MPA  
04 DECEMBER 2007  
TIME = 4.00E+01 DAYS



TEMPERATURE RANGE

477.3 – 3544.6 K

The energy driving this process is simply the gravitational potential energy associated with the initial mantle temperature differences.

# Some major remaining issues

How were the continents flooded and by what means was the huge volume of sediment, with its fossils, transported and deposited?

The leading explanation in my opinion is that of giant tsunamis generated by rapid subduction of ocean plates into the mantle. This possibility was discovered through numerical studies undertaken in 2015.

These numerical studies reveal that **giant tsunamis** account for many of the main features of the Genesis Flood exceedingly well. For example, they explain how the continents were flooded, where the water came from, and where the water went afterward.

They also account for the erosion, transport, and deposition of great thicknesses of sediment we observe on the continents today in a striking way.

Why is the issue of the Flood and a solid defense of its reality so important today?

- The truthfulness of the Bible depends on it.
- The truthfulness and authenticity of Jesus depends on it.
- The relevance of the gospel depends on it.

**Jesus was quite clear as to the reality of the Flood.**

“For the coming of the Son of Man will be just like the days of Noah. For as in those days before the flood they were eating and drinking, marrying and giving in marriage, until the day that Noah entered the ark, and they did not understand until the flood came and took them all away; so will the coming of the Son of Man be.”

**Matt. 24:37-39**