

Meteorite Impact as a Possible Initiation of the Noachian Flood



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Outline

- Genesis and Enoch
- Flooding of Pangaea by Runaway Subduction
 - ✓ Pangaea
 - ✓ Subduction
 - ✓ Subduction Initiation
- Subduction Initiation by Meteoritic Impact
 - ✓ Simulation
 - ✓ Results
- Summary

It is important to allow Scripture to set the constraints on what is possible and physics to set the constraints on what is plausible. -- Wayne Spencer

Biblical Account

Genesis 7:11-12

In the six hundredth year of Noah's life, on the seventeenth day of the second month—on that day all the springs of the great deep burst forth, and the floodgates of the heavens were opened. And rain fell on the earth forty days and forty nights.

Genesis 7:17-20,24

For forty days the flood kept coming on the earth, and as the waters increased they lifted the ark high above the earth. The waters rose and increased greatly on the earth, and the ark floated on the surface of the water. They rose greatly on the earth, and all the high mountains under the entire heavens were covered. The waters rose and covered the mountains to a depth of more than twenty feet. The waters flooded the earth for a hundred and fifty days.

Genesis 8:2-5

Now the springs of the deep and the floodgates of the heavens had been closed, and the rain had stopped falling from the sky. The water receded steadily from the earth. At the end of the hundred and fifty days the water had gone down, and on the seventeenth day of the seventh month the ark came to rest on the mountains of Ararat. The waters continued to recede until the tenth month, and on the first day of the tenth month the tops of the mountains became visible.

Enoch's Vision

Enoch 67:5-6

And I saw that valley in which there was a great convulsion and a convulsion of the waters. And when all this took place, from that fiery molten metal and from the convulsion thereof in that place, there was produced a smell of sulfur, and it was connected with those waters

Enoch 89:3-4

And I saw again, and behold fountains were opened on the surface of that great enclosure, and that water began to swell and rise upon the surface, and I saw that enclosure till all its surface was covered with water. And the water, the darkness, and mist increased upon it; and as I looked at the height of that water, that water had risen above the height of that enclosure, and was streaming over that enclosure, and it stood upon the earth.

Enoch 89:7-8

And again I saw in the vision till those water torrents were removed from that high roof, and the chasms of the earth were leveled up and other abysses were opened. Then the water began to run down into these, till the earth became visible

Global Evidence

- Polystrate fossils
- Marine fossils found on every mountain range
- Large fossil beds
- Global coal deposits
- Extensive erosion

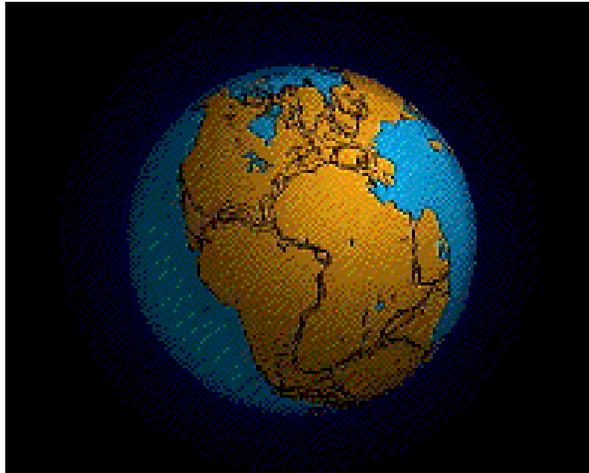


Vertical fossil tree with base in coal seam (Tennessee)

Pangaea

Pangaea

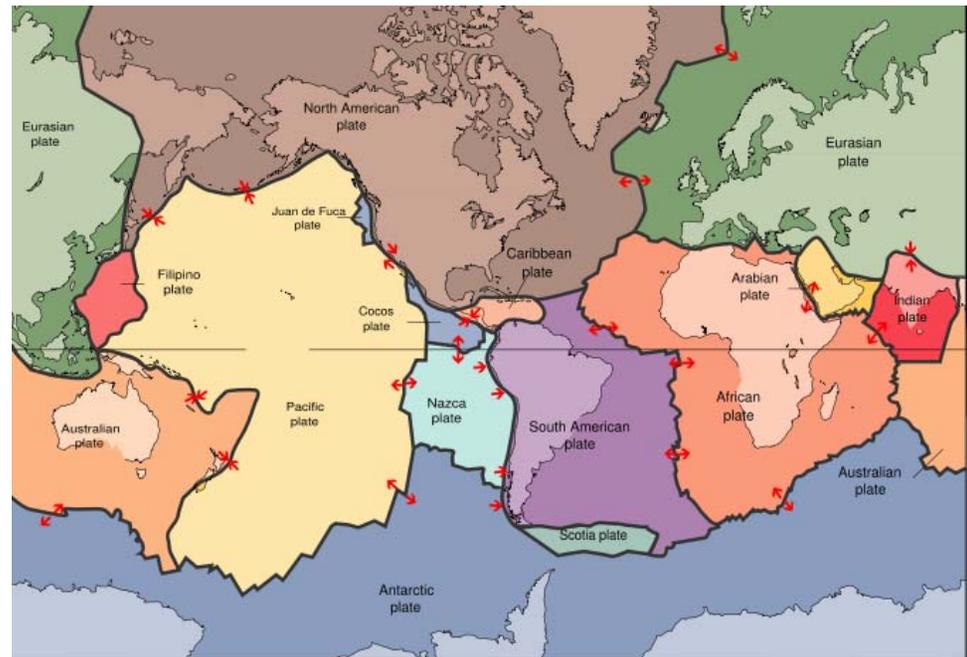
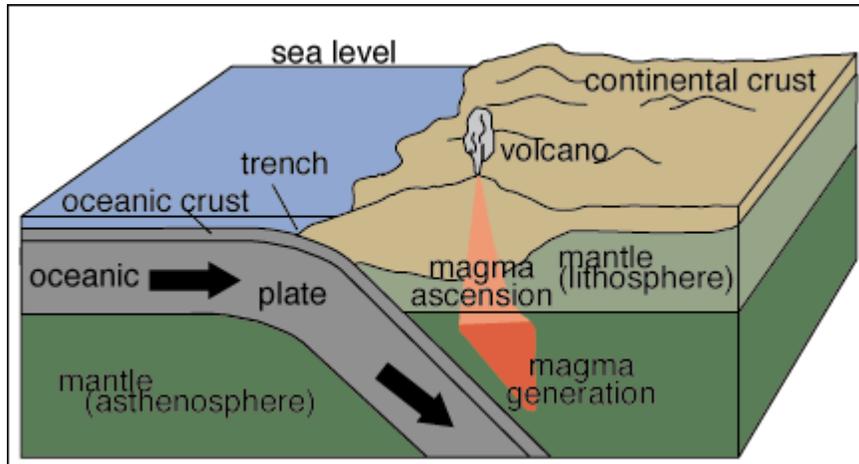
supercontinent that existed before the process of plate tectonics separated each of the component continents into their current configuration



Subduction

Subduction results from the difference in density between lithosphere and underlying asthenosphere.

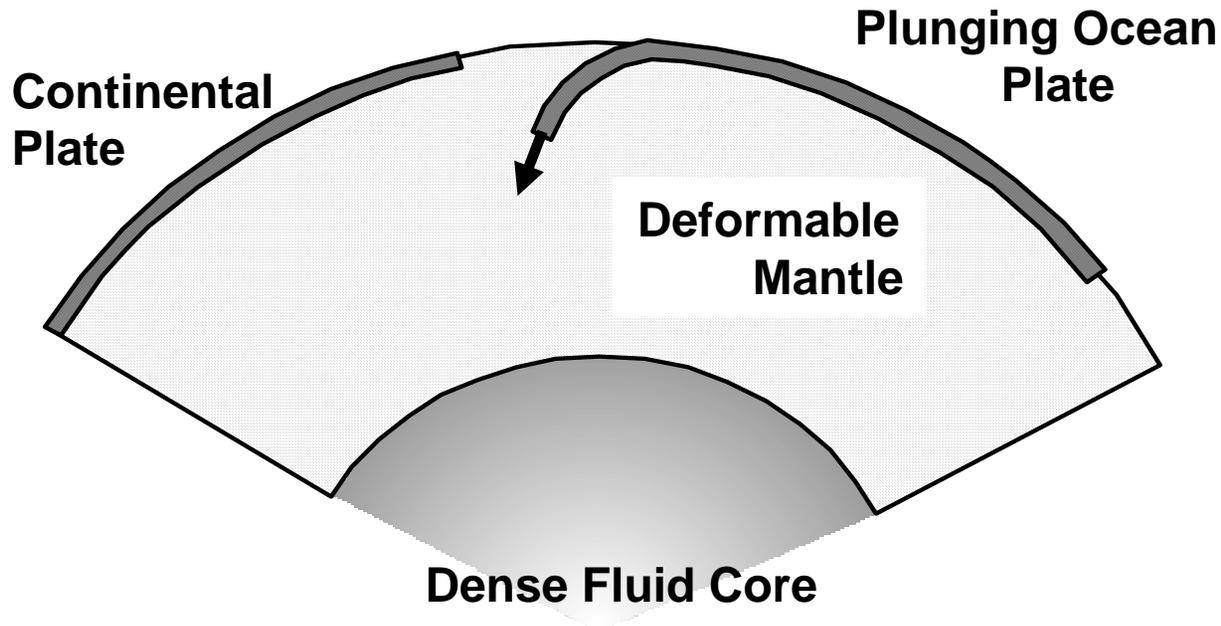
Where lithosphere is denser than asthenospheric mantle, it can easily sink back into the mantle at a subduction zone.



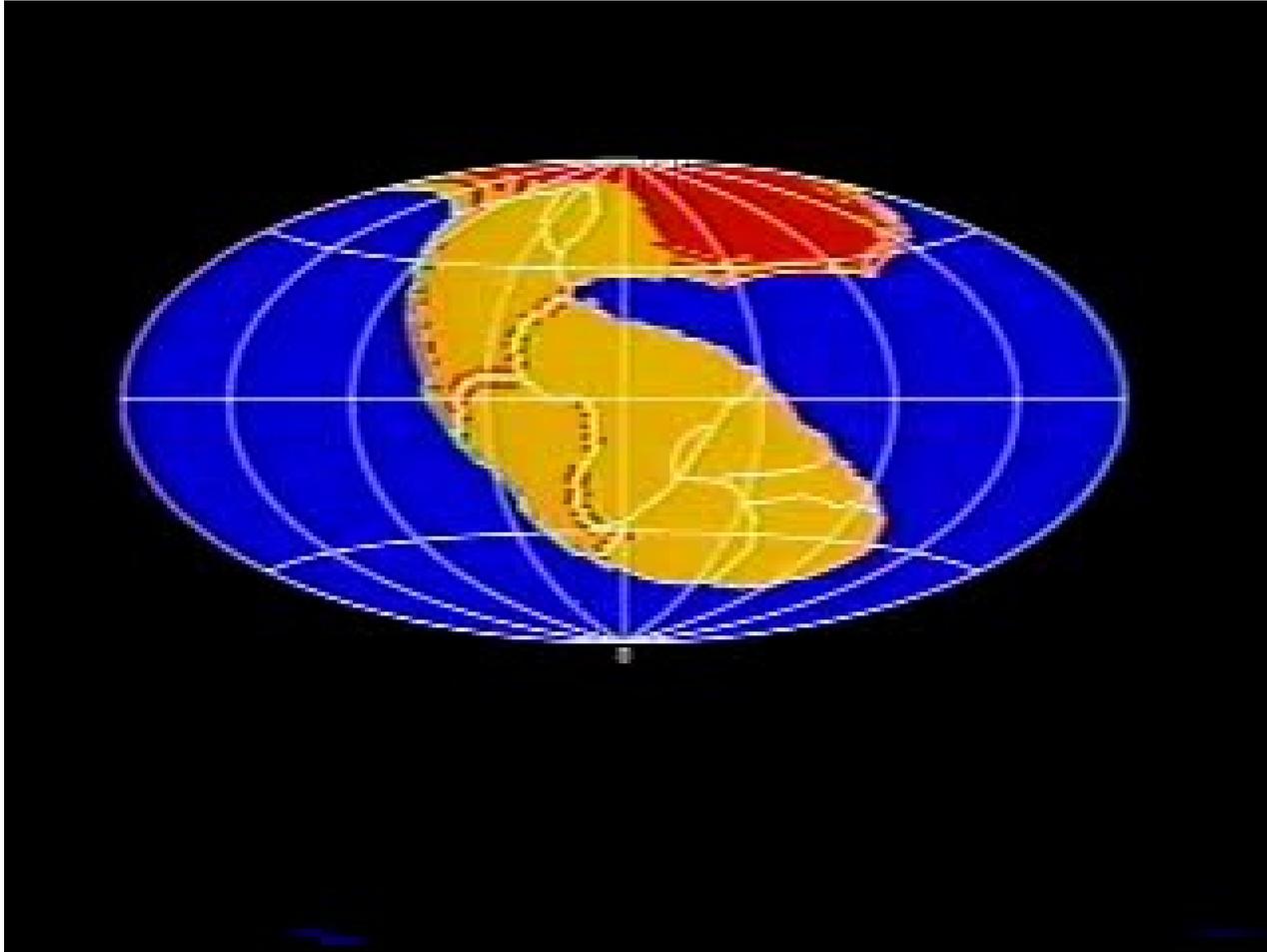
Runaway Subduction

Presented by Dr. John Baumgardner as the driving mechanism of the Genesis flood

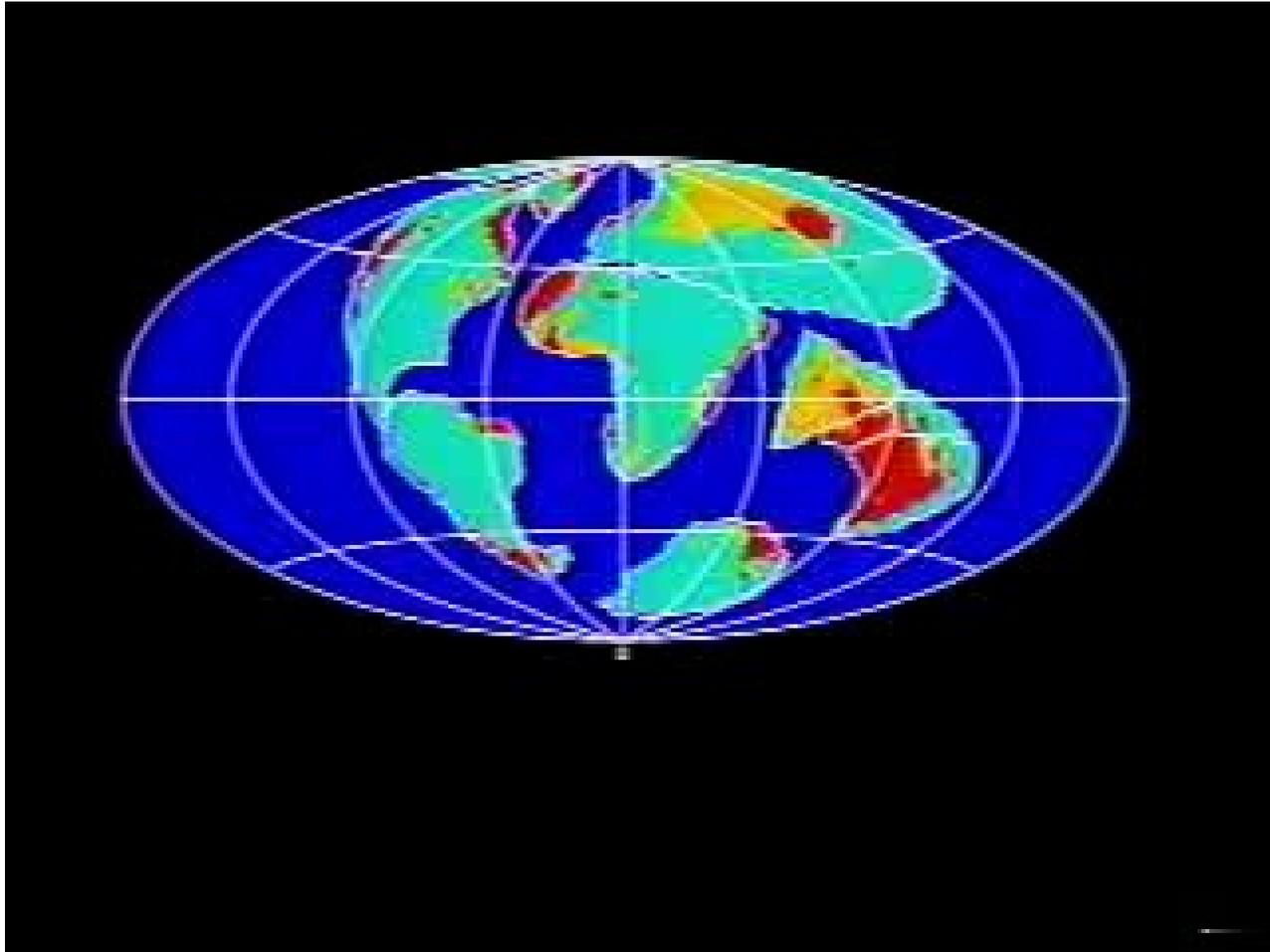
Theory and computer simulations verify that tectonic plates are capable of subduction at rates of meters per second as compared to current velocities at centimeters per year. At these high rates, the subducting oceanic plate is capable of pulling the continental plate downward and toward the ocean.



Flooding By Runaway Subduction



Flooding By Runaway Subduction

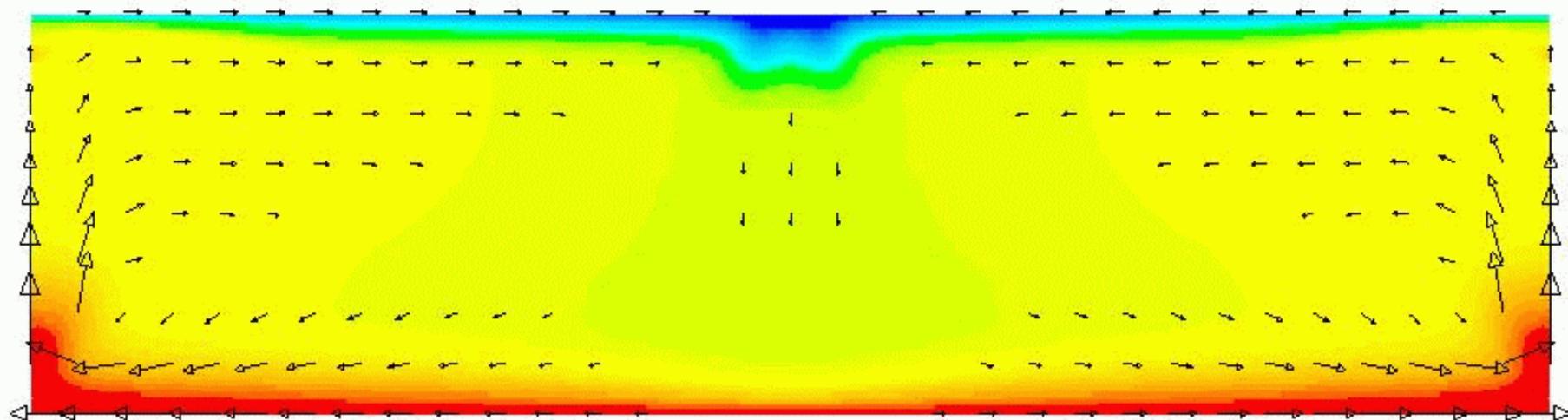


CASE 301 MANTLE RUNAWAY STUDY
POWER-LAW REF EDOT = 5.E-14

YIELD STRESS = 75 MPA
29 OCTOBER 2001

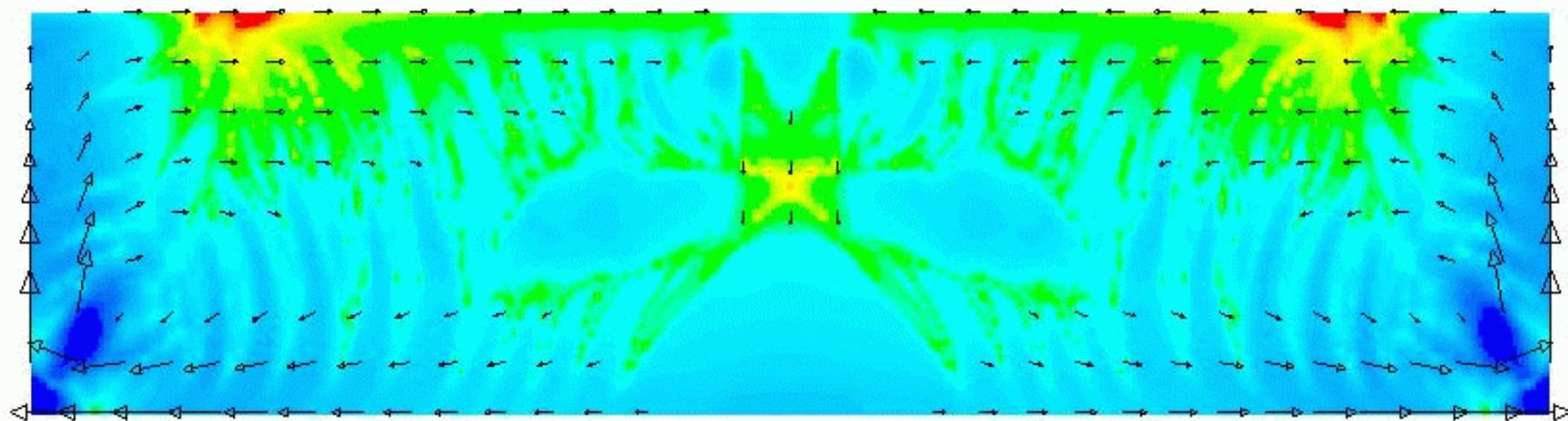
UMAX = 2.600E-01 M/SEC

TIME = 6.007E-01 DAYS



TEMPERATURE RANGE

300.0 - 2700.0 K



LOG VISCOSITY

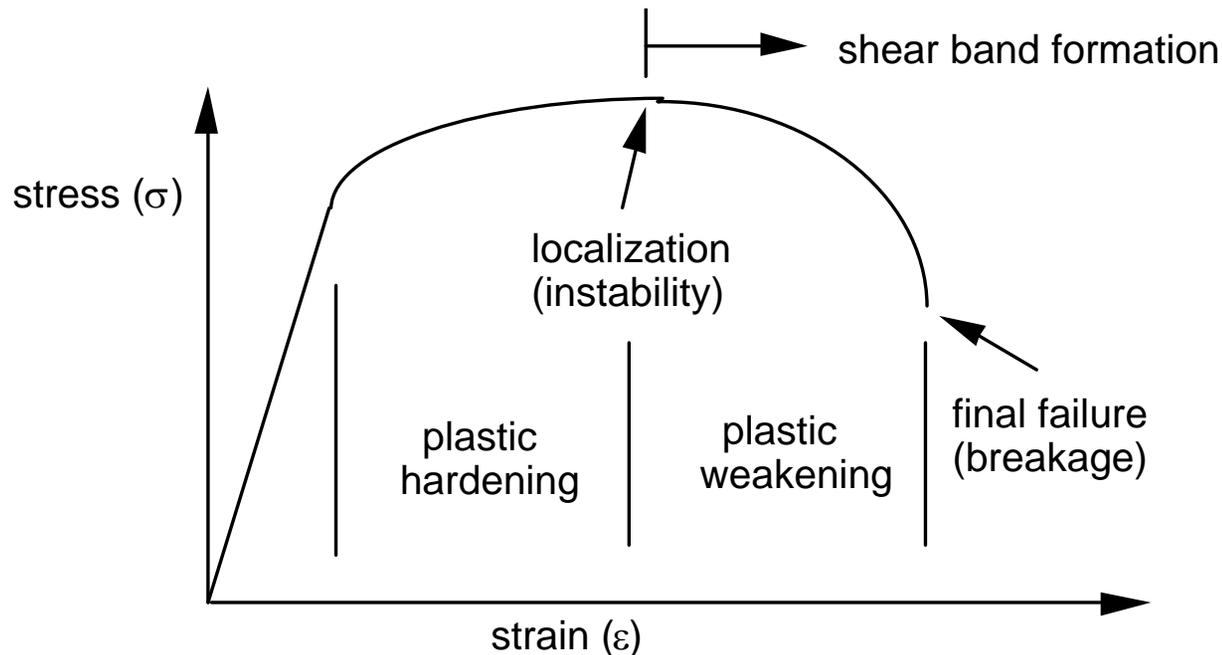
13.000 - 18.000

Subduction Initiation

Runaway subduction could have been initiated by a weakening of the tectonic plates themselves. This weakening could occur by localization which can be induced by shock. (Horstemeyer, Baumgardner)

Runaway subduction could also have been initiated by a weakening of the mantle below the tectonic plates. This weakening could occur by a mineralogical solid state phase change; a large mechanical shock would create such a phase change. (Spencer, Baumgardner)

To achieve the initiation pressure, either the Earth must have been producing a pressure growth, or an extraterrestrial interference occurred.



Terrestrial Impacts

Just this month, researchers at Ohio State University released news of a 300-mile-wide crater under the Antarctic ice sheet. This impact is suggested to have created a rift tearing Australia away the original land mass.

174 Confirmed Impact Structures (Craters)

21 have diameters of at least 40 kilometers

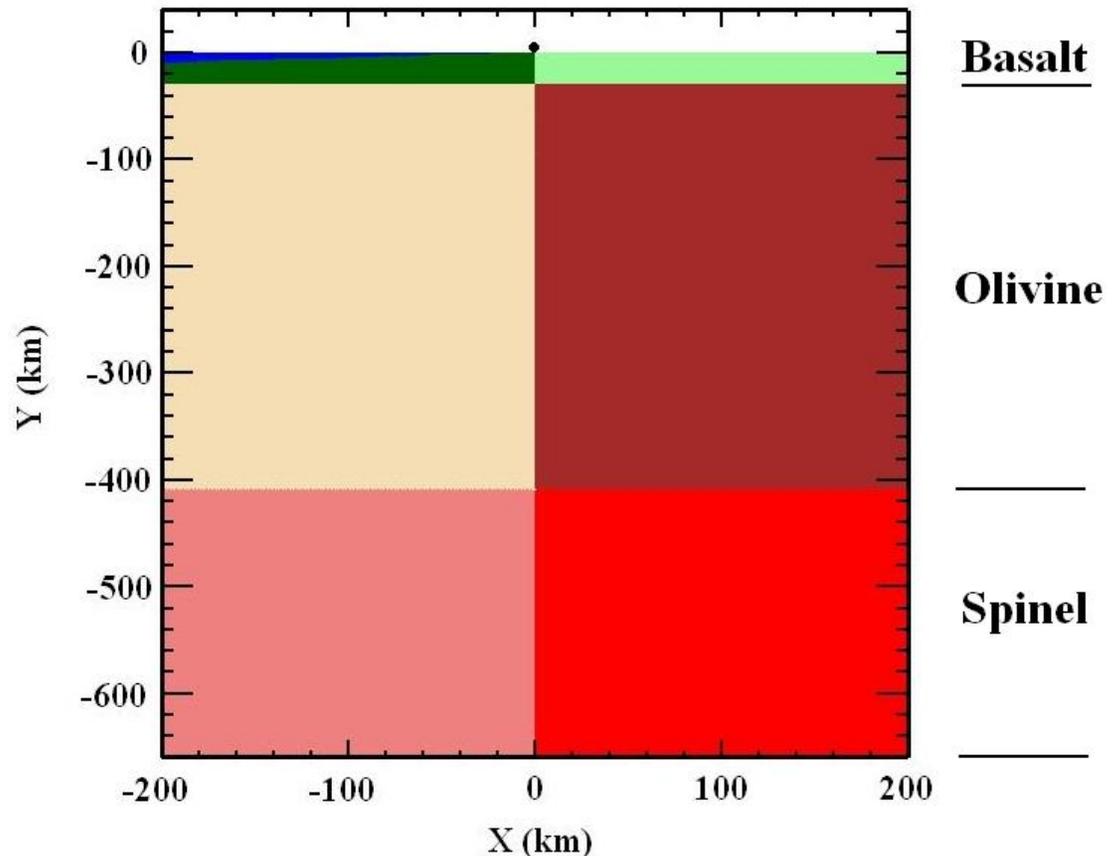


Meteorite Impact Simulation

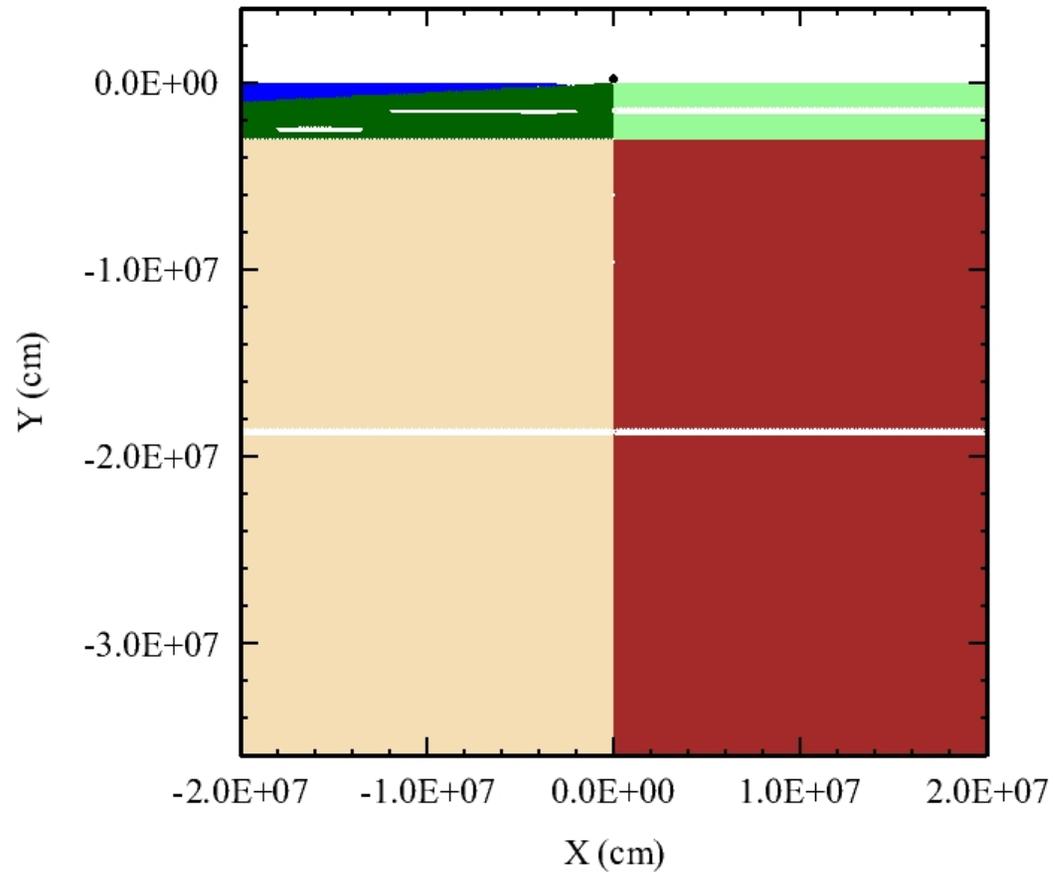
Impact simulations were ran to determine if the pressure wave would be sufficient to create a phase change or localization

A 5-km iron meteorite impacts the border of an oceanic plate and continental plate at 10 and 40 km/s. The plates are similar in material but differ slightly in density.

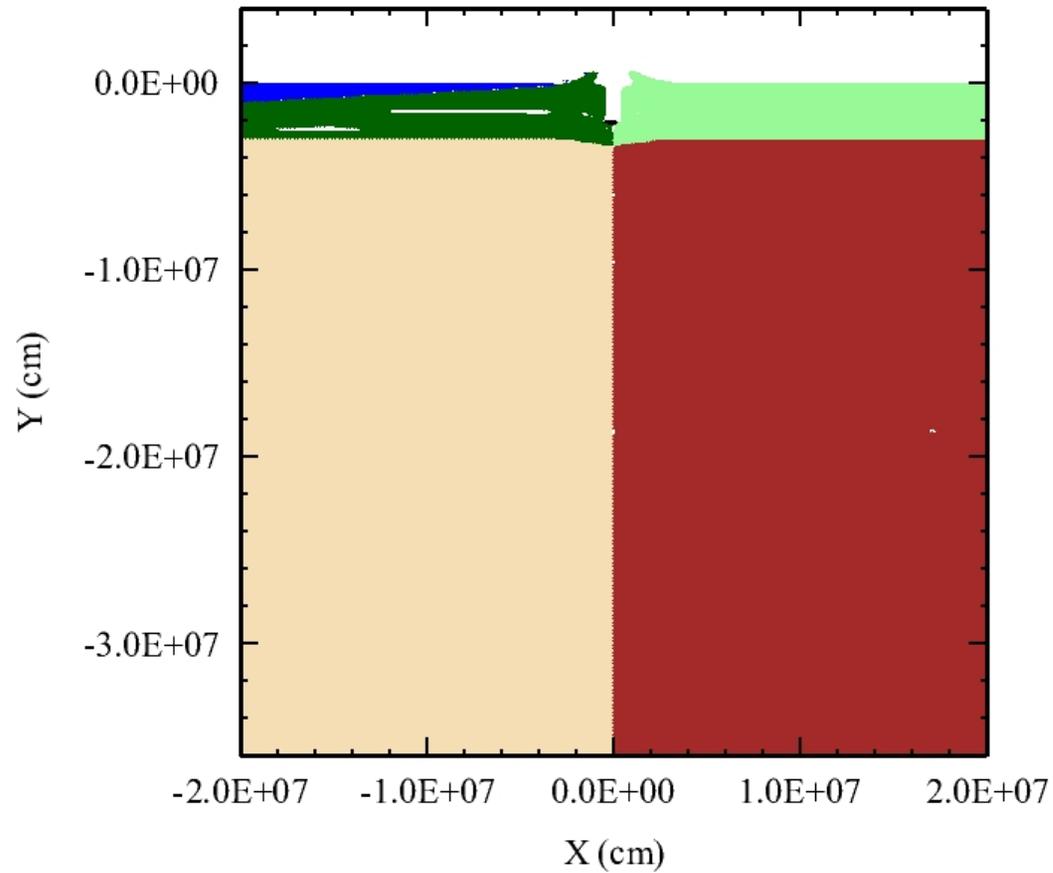
The mineralogical phase change would occur in spinel (410 to 660 km).



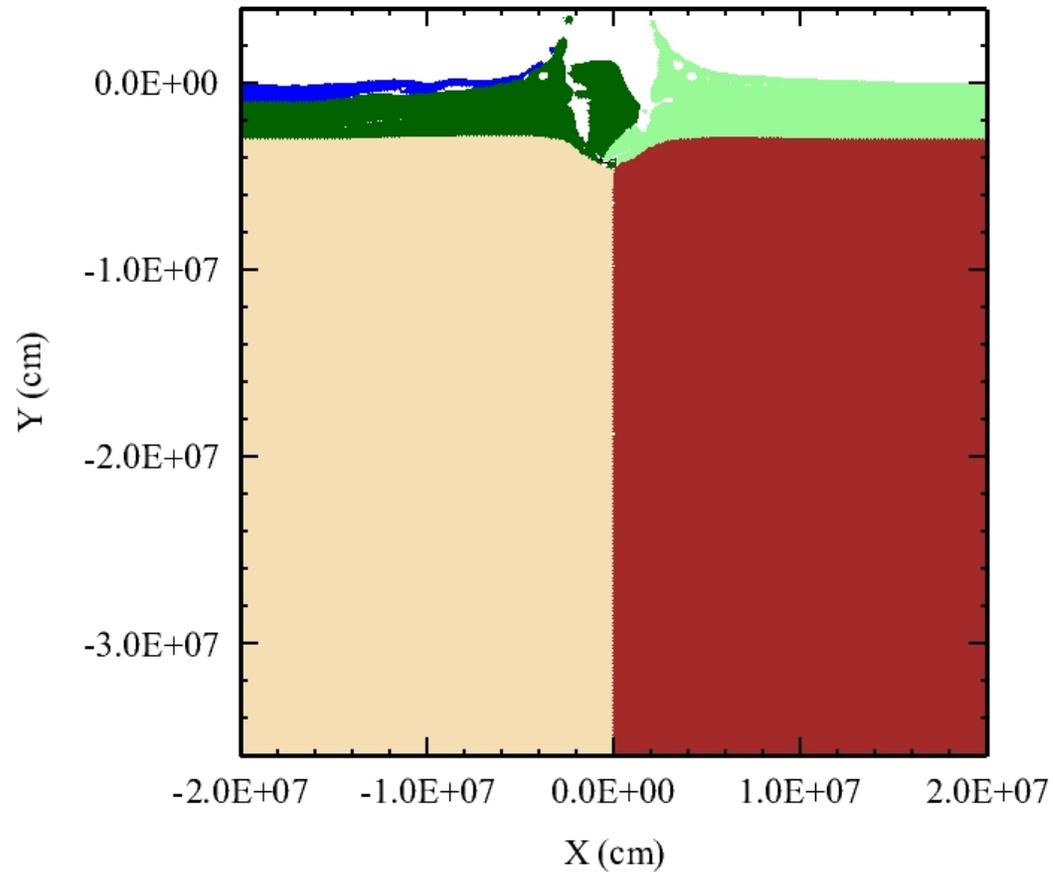
Material Behavior



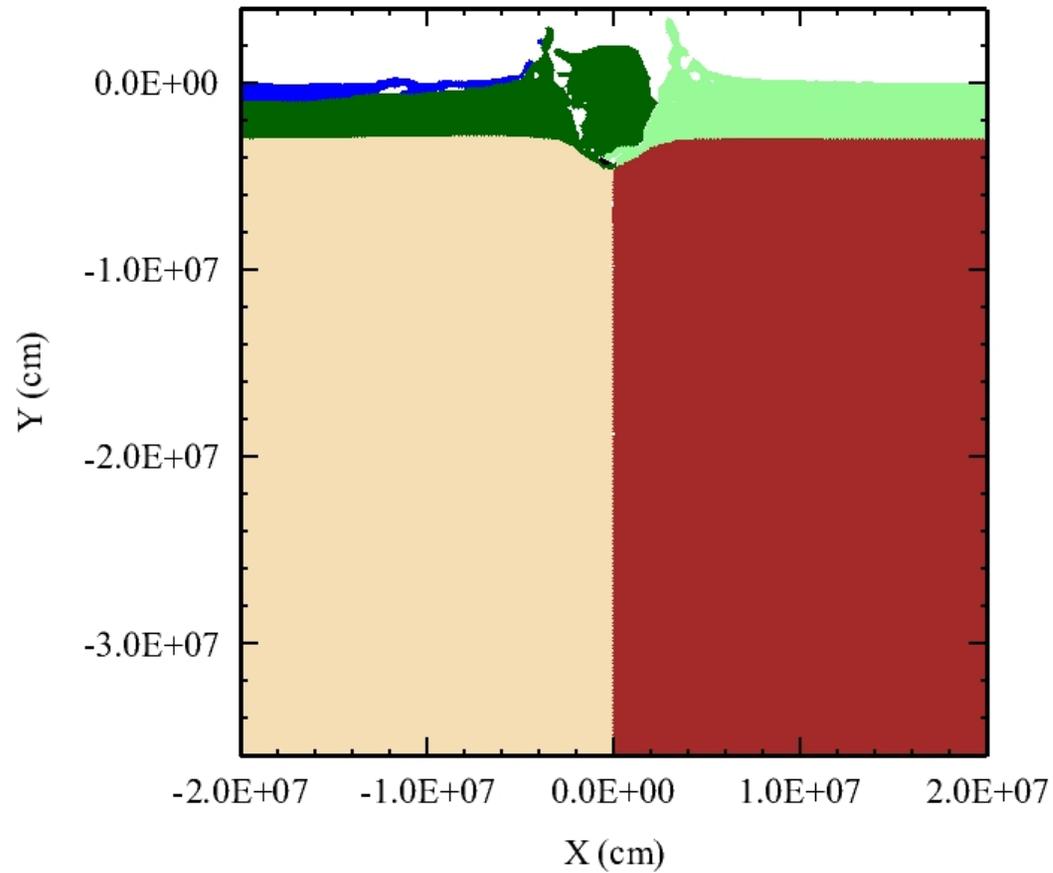
Material Behavior



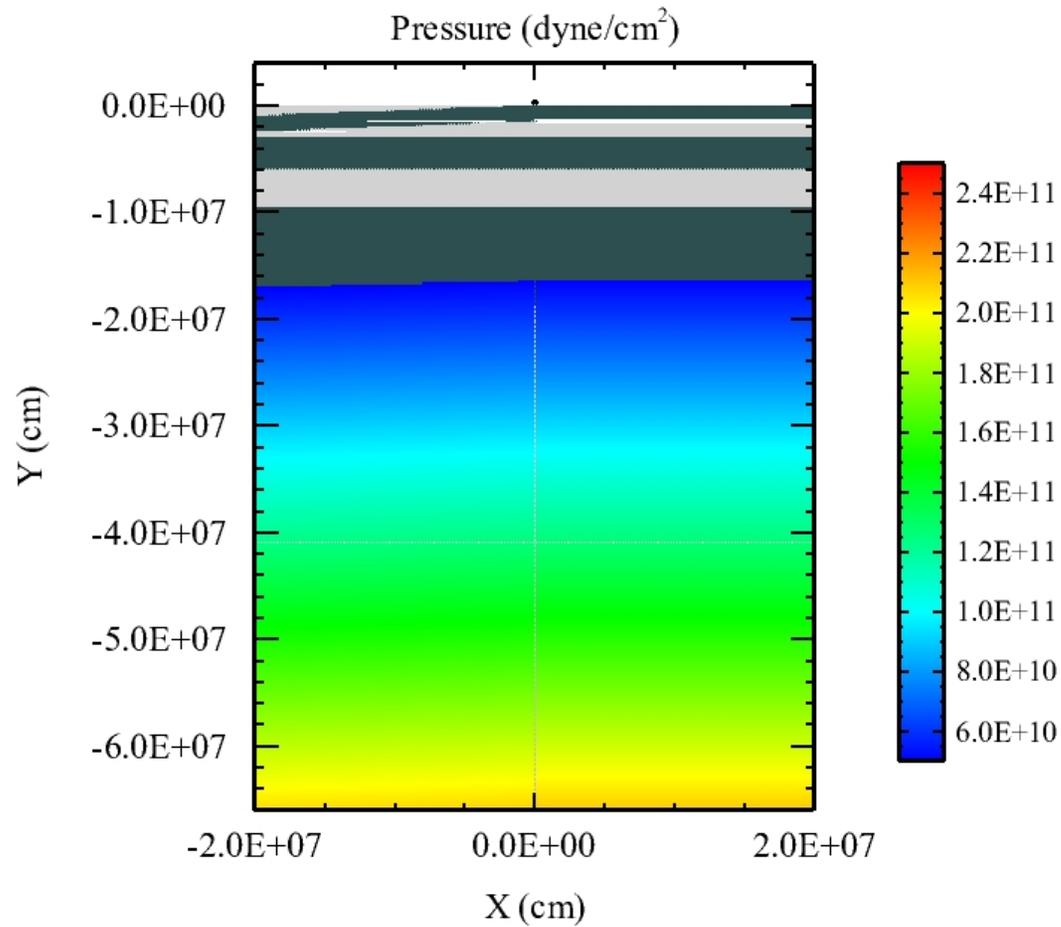
Material Behavior



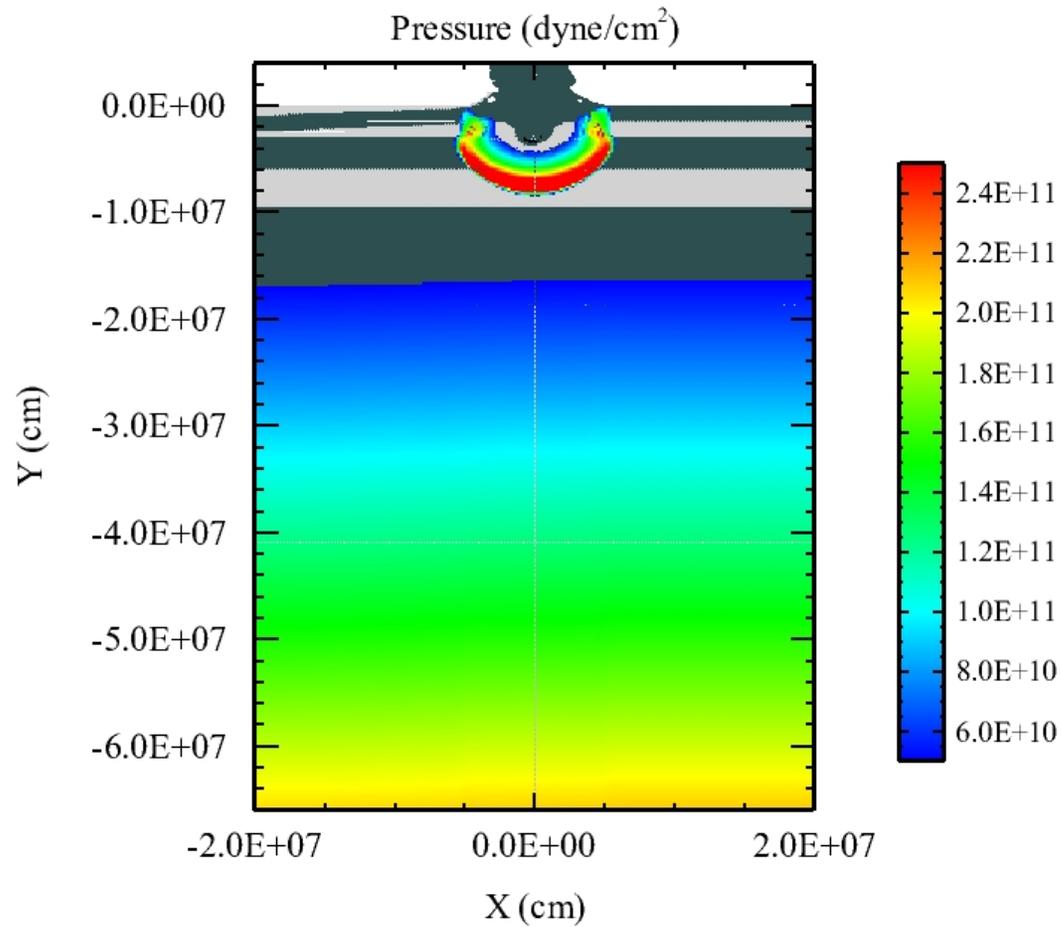
Material Behavior



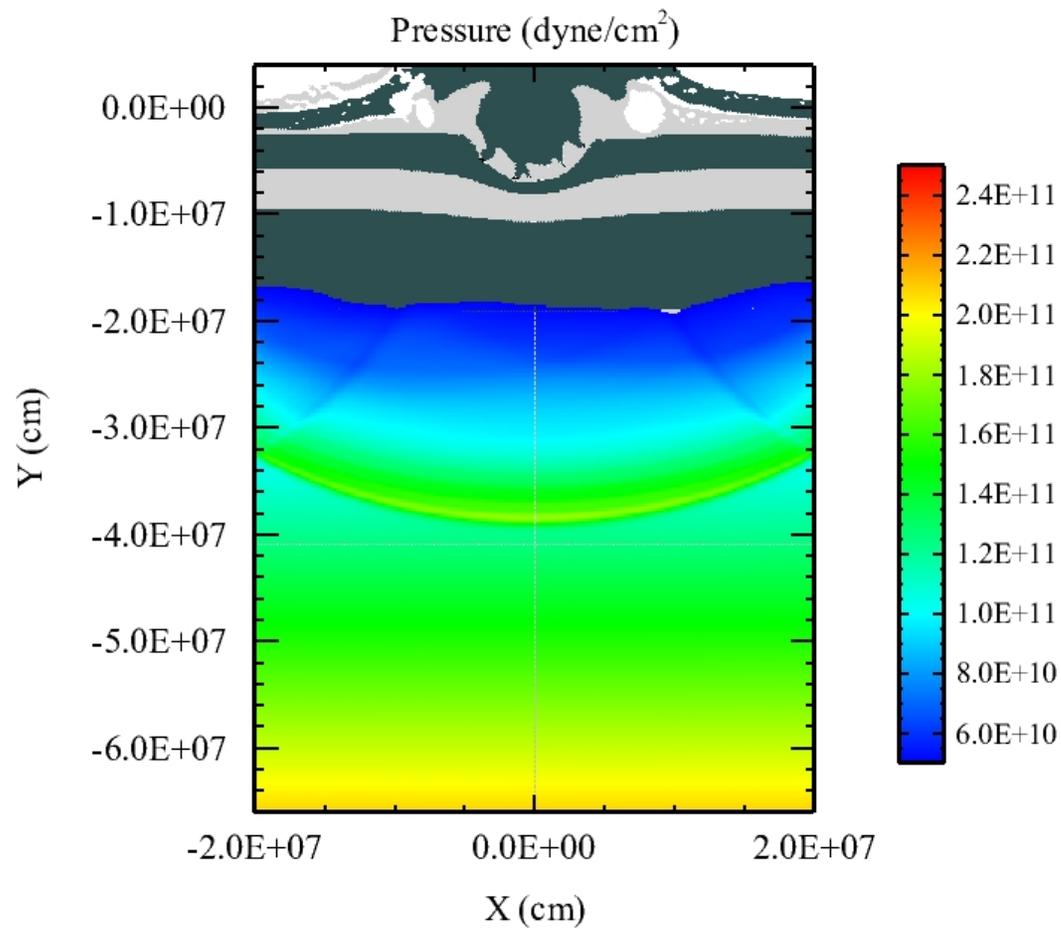
Impact Shock Wave



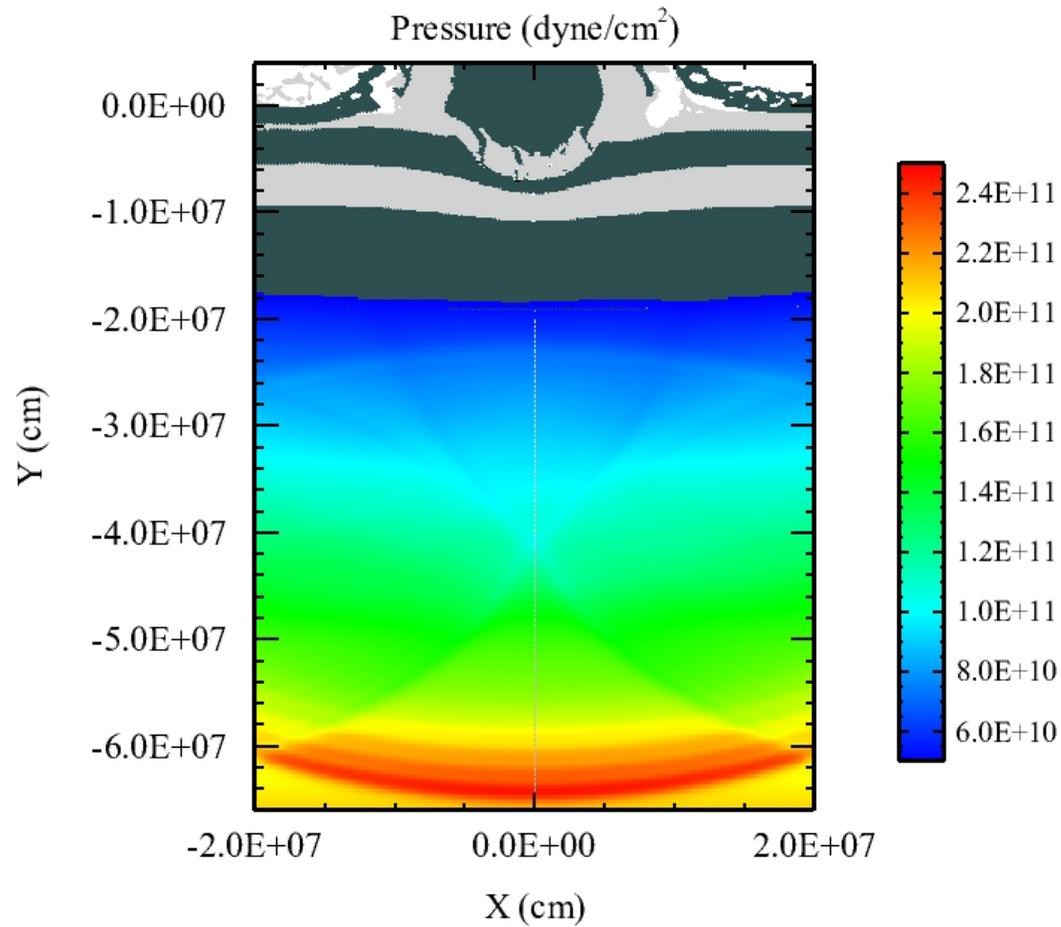
Impact Shock Wave



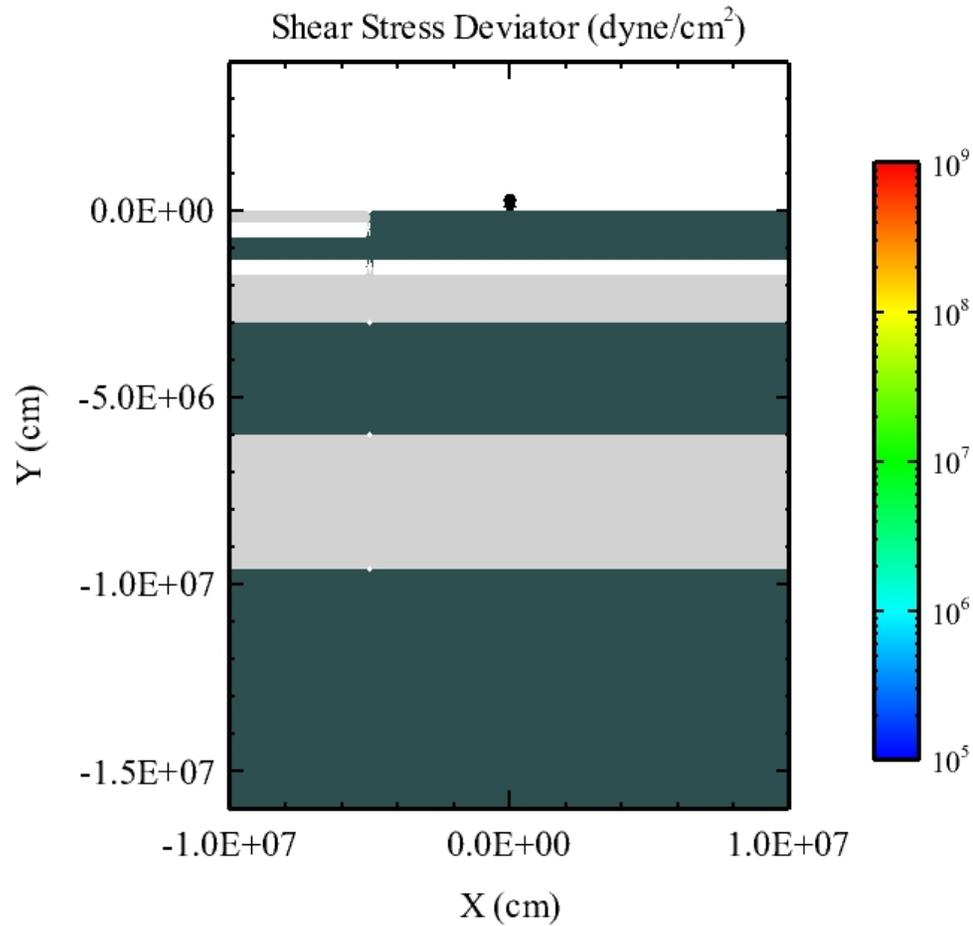
Impact Shock Wave



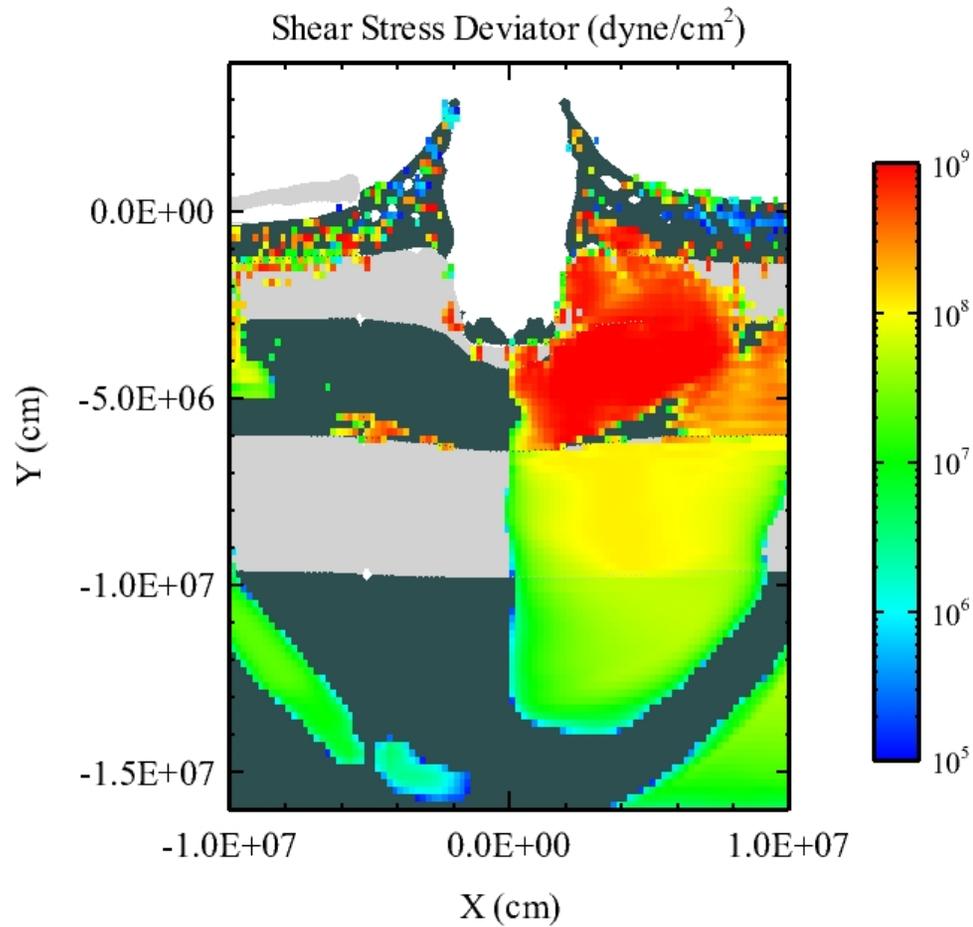
Impact Shock Wave



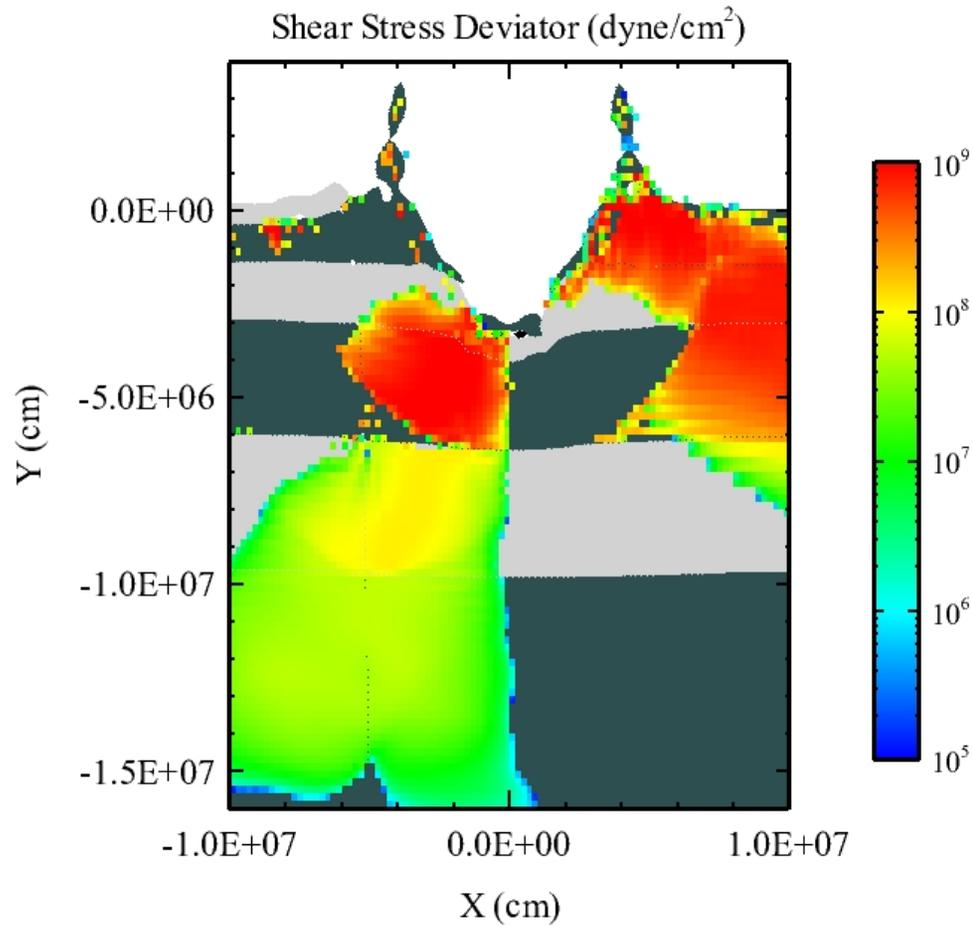
Shear Stress



Shear Stress



Shear Stress



Parametric Results

Meteor Diameter* (km)	Impact Velocity (km/s)	Shock Pressure at 420 km Depth (MPa)
5	40	360
5	10	90
4	10	60
3	10	50

*Pure Iron Meteorites (density = 7.85 g/cc); other meteorite types are approximately half as dense.

According to Wayne Spencer, the phase transformations can occur at this depth with a mechanical shock of approximately 10 to 100 MPa.

An iron meteor with a 0.3-km diameter traveling at 70 km/s is capable of producing this shock magnitude.

Summary

**The Noachian Flood is scientifically possible by runaway subduction.
This theory does not contradict the Biblical account.**

Could runaway subduction be initiated by a meteorite impact?

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MAYBE

Mississippi State
UNIVERSITY

CAVS

Questions



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Enoch

- The **Book of Enoch** is a title given to several works that attribute themselves to Enoch, the great-grandfather of Noah; that is, Enoch son of Jared (Genesis 5:18).
- The book is referred to, and quoted, in Jude, 1:14–15
- Seven fragments from the *Book of Enoch* in Aramaic have also been identified in the Qumran Cave 4, among the Dead Sea scrolls
- Whilst this book does not form part of the Canon of Scripture for the larger Christian Churches, various groups, including the Ethiopian Orthodox Church, regard parts or all to be inspired Scripture.
- The currently known texts of this work are usually dated to Maccabean times (ca. 160 BC).

CTH

- Developed by Sandia National Laboratories
- Flexible software system designed to treat a wide range of shock wave propagation and material motion phenomena in one, two or three dimensions
- The finite-difference analogs of the Lagrangian equations of momentum and energy conservation are employed with continuous rezoning to construct Eulerian differencing.
- The material equation-of-state models allow description of most states of matter normally encountered in shock physics.