The Flood: The Big Picture of its Mechanism and the Resulting Evidences

The Flood

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Well, thanks for your faithfulness in being here tonight and before I start, I want to pick up where we finished last week and we talked about rock layers and fossils and I described to you some of the evidences that we see in the world around us that confirm what we read in the Scriptures, are in alignment with what we read in the Scriptures, and I want to emphasize tonight again that even if we didn't have any evidence, if the Bible taught a global flood, that's what we would believe, but in so saying, we're not surprised when we read what we do in God's word and then we go to look at the world around us, that what we see does match what we read in the Scriptures. So the problem is that many scientists today aren't reading the Scriptures and taking it as truth and so they are, in effect, wearing a different pair of glasses when they look at the world and that's why you can have two scientists standing on the edge of the Grand Canyon, one says millions of years of slow erosion by a river, the other says, "No, I see the evidence of a global flood, a lot of water in a little bit of time." So you have to realize that perspective.

The other thing I want to say in beginning tonight is that when we look at the world around us and we are trying to understand how things may have happened, scientists put together ideas that they then test. Now the ideas are not necessarily the final truth. If you know anything about the history of science, the textbooks that we had 50 years ago have changed because science is an ongoing enterprise; scientists don't know everything and, therefore, because they are finite and fallible, they are always learning new things. So we can have ideas about how to fit the evidences together and that's what I'm going to talk about tonight, looking at how we take the evidences that we see, the things that we see in the world, and try to understand how did the flood operate, how did the flood occur, what mechanisms were happening that would produce the evidence that we see. How is it that we get, for example, at the top of Mount Everest marine fossils that are buried in sedimentary layers, how did they get there? This is up on a high mountain up on the continent. What forces were at work during the flood to produce the end result that we see today. We need to remind ourselves that we're looking at the present and we're trying to understand the past. We build ideas, it's just like a scientist who is investigating a crime, he gathers the evidence and he proposes ideas as to what happened but then, of course, he might find some new evidence and he has to change those ideas. He might get in the court and an eyewitness might come forward and he's completely wrong. So I want you to understand that. I don't want you to go away tonight thinking that this is the last

word, that we've somehow proven this is the way the flood occurred. Not at all. These are man's ideas but we are always testing them against what God's word says, and because we have that rock-sure confidence, we note the flood did occur no matter whether we understand it completely or not.

Let's begin and I want to be careful how I explain things carefully to you tonight because sometimes this might appear a little bit technical, but hang on for the ride and I'm sure that you will be enlightened and encouraged by what we share tonight. So the Himalayas, you've got to remember to translate in your head when I speak, but they consist of folded marine fossil bearing sedimentary rocks that were deposited during the flood on the continents, and that's the case everywhere we go, and the Himalayas were only recently elevated. Parts of the Himalayas are still rising today and so that occurred at the end of or soon after the flood to reach their present height. So that's an observation in terms of the fact that the mountains are still rising. So to produce that situation, what we see in the Himalayas today, this required that the ocean waters flooded over the continents, had to carry the marine creatures and the sediments because, you see, the continents ended up being covered with these marine fossil bearing sedimentary layers. In fact, over 70% of the world is covered by those sorts of layers. Remember what I said last week, the marine creatures live in the ocean. They are not buried in the ocean, they are buried up on the continents, and to produce the Himalayas, those sedimentary layers have to be buckled. There would have to be ways of producing that buckling, the key word here is colliding as we we'll come to a little bit later.

Now some further observations. We're going to set the stage for putting the pieces of the puzzle together. As I just said, most of the earth's sedimentary rocks are on the continents and the tragedy is that most geologists recognize that but they don't see the significance of it because they are not looking at the evidence in the light of God's word, but here's the point: their absence on the floor, the floors of the ocean basins, the Pacific Ocean, the Atlantic Ocean, we don't find marine fossils down there but that's where the creatures live today, that implies that the current ocean floors are younger, are younger than most of the fossil bearing sedimentary rocks on the continents. Why do I say that? Well, if the ocean floor wasn't younger, wouldn't you expect some of those sediments and some of those fossils to have ended up on the ocean floor? In other words, the ocean floor formed after most of those fossils, the present ocean floor that is, formed after those fossil bearing, marine fossil bearing sedimentary rocks formed.

Now, here is the key: the ocean floor rocks are different and denser, that is heavier, than the continental rocks. Most people don't realize that and it has a number of implications. One is that that's the reason why the ocean floors are lower than the continental land surfaces. I'll illustrate this in detail in a moment but just so you see the difference, I put this up on the screen. There you see the ocean floor on the left is made up of basalt, and you're familiar, it's the black lava rocks that you see flowing out of the volcano in Hawaii, and that's what it looks like under the microscope there on the left. And continental crust, if you were to grind up all the rocks on the continents, the average composition would be that of a granite. So I've illustrated that with a granite in Yosemite National Park, and you can see the two rocks are radically different. The black rock,

basalt, has heavier, denser minerals in it. The granite has lighter, less dense minerals. So you get a difference in the density means a difference in the weight, so that means the continents are able to float, as it were, whereas the ocean floor can sink and that's important for the way we can live on the earth.

Now, furthermore, we can observe that the continents were once joined together as a single supercontinent. There's a lot of evidence for that but there is a hint in Scripture. In Genesis 1 we read that on the third day of creation, God gathered the waters into one place and he called them seas. By inference, we can't be dogmatic remember, where the Scriptures make a definite statement we can be dogmatic, where we are inferring, we have to be very careful, if we're speculating, we have to be even more careful. But we can infer the possibility that if all the water was in one place, then maybe the continents were in one place joined together as a supercontinent, and that makes sense. Why? Well, how did the animals get to Noah on the boat? Did they have to wade from different continents, swim across water to get there? If they all lived on the same landmass before the flood, then it was easy for God to direct the animals to Noah to take onto the ark.

Here's the next observation: if the present ocean floors are younger, the rocks on the ocean floor are younger than the rocks on the continents, that means the earlier ocean floors, the ocean floor that existed in the pre-flood world that surrounded that original supercontinent has disappeared. It disappeared. It's been displaced. You're starting to scratch your head, "Where is this going? What does all this mean?" Well, hang on. We'll get there. We're building up the pieces of the puzzle. Remember what the earth's internal structure looks like. You might not realize this but every time there is an earthquake in any part of the world, it's detected and recorded all around the globe. You're familiar with going into the hospital and maybe getting an ultrasound. Okay, the sound waves go through your body and it produces an image on the screen like it is with an x-ray. Well, so it is when an earthquake goes off, the seismic or sound waves travel through the earth and the denser the material, the different speed of the waves and they bend, and as a consequence, geologists, their specialty is called seismology, are able to piece together the density structure of the inside of the earth. We know it has an inner core and an outer core. The inner core is solid. The outer core is molten. Then we have a mantle which is a rocky mantle. The core is made up of probably iron nickel. By the way, this is confirmed also by pieces of space rock, meteorites. They come in the same categories as the internal structure of the earth. So the waves go through the earth and give us an idea of the internal structure and this shows the density differences. The inner core and outer core are very dense. The outer core is less dense because it's the same material but because it's molten, it actually expands so the same amount of material is in more space so it becomes less dense. The mantle, notice that the mantle is denser than the crust of the earth.

Now as we've said before, the oceanic crust is different and denser than the continental crust. It's actually thinner as well. When they wanted to try and drill and they are still planning to do this, to try to drill right through to the mantle because the earth's outer skin, you've got this crust, it's like the skin of an onion, they want to drill through that and the best place to do it is on the ocean floor because it's thinner there but, of course, you've got the logistical difficulties of positioning a drilling rig on the ocean waves. Efforts are

being to drill on land but, of course, the thicker the continental crust, the hotter it gets as you go down. So for example, in Australia where there is a mine, an underground mine that's less than two miles deep, it's so hot down there you have to wear gloves to touch the rock.

So what does this mean in terms of denser and heavier versus lighter and less dense? Well, it's like these pieces of wood floating in water, and notice, too, that the more that there is above the surface of the water, the more there is below. So for example, that means that the continental crust is thicker where you've got mountains like the Himalayas. It's got a root. It's thicker, double thickness, for a good reason in a moment. What does that mean? It means that if you, for example, put more onto one of those blocks, it's going to sink because it's going to float relative to the weight and density of these surrounding blocks. If you cut a piece of wood off, it's going to rise. Think about that in terms of the earth. If you've got the continents are like floating corks on the crust, if you're going to start to erode things off or add things on, you're going to get these sorts of vertical adjustments and because the ocean floor sinks to produce the ocean basins, it's the reason we have sea level where we have it. The continents rise relative to the ocean floor and that keeps sea level at the boundaries of the continents today and that's very important. It's obviously God designed these rocks and the structure for exactly that purpose.

Now, we're not the first to observe. Back in 1859, Antonio Snider-Pellegrini saw the jigsaw puzzle fit of the continents. If you close up the Atlantic Ocean basin, you actually put the continents together in a roughly jigsaw puzzle fit. And being a geologist who read the Scriptures, he proposed that rather than the continents drifting apart, they actually sprinted apart during the Genesis flood. We'll come back to that in a moment.

Today there is a term or an idea, a model, a scientific idea for explaining a lot of this observable data called plate tectonics. Anyone in the room who has been at school and looked in their geology textbooks, this is a unifying idea in modern geology. It wasn't always so, by the way. A century ago if you believed that the continents drifted, you were considered a crackpot. The geologists insisted the continents were stable and were fixed, but a change took place in the 1960s as a result of submarine warfare during the second world war. Governments had charted the ocean floor and they started to investigate the oceans, and lo and behold because of things that were observed, there was a total change in thinking. There was what we call a whole paradigm or worldview shift, that instead of the continents being stable and fixed, they actually move relative to one another, and we can actually check that out today by using satellites. With stations on different continents, with a satellite, you can actually survey and show that there is movement and so North America is moving westward towards the Pacific and that has consequences, and the Pacific is moving towards the North American continent. More of that in a moment. But the modern scientific idea is that this plate tectonics, why I use the term uniformitarian, that's the terminology for believing that the present is the key to the past and everything occurs at uniform rates through time, and it's spoken of in the Scriptures because in 2 Peter 3, God says through Peter that in the last days there will come scoffers who will say all things continue as they were from the beginning. Nothing has changed. Things go on

and on the way they always have and as they are doing today. So because the movement of the continents today is at the rate of which a fingernail grows, if you're going to open up the Atlantic Ocean basin thousands of miles, then obviously it took hundreds of millions of years for that to occur, in their thinking.

Now in their model, their idea is that sea level has to rise to flood the continents. How are you going to get the marine fossils, the marine creatures buried up in the continents? Well, they say, you have to raise the sea level. It has to come down again. In fact, in the Grand Canyon area, they have the sea coming in and out, in and out, in and out, to produce each of the various rock layers, something like 7 to 10 times with millions of years between the layers, but that has another problem. Why? That requires either the ocean floor to rise and fall or the continents to rise and fall many times. How do you do that? Remember the pieces of wood floating? You've got to have some force above that pushes the land down so the ocean can come in, or some force that pushes the ocean floor up so the sea level comes up, and you've got to do that many many times if you're going to do this over millions of years. So in other words, this idea that pervades modern geology cannot explain ultimately what we see in the rock record. You see, as I said, it's at the rate of a fingernail, a snail's paced process. The term we use is tectonic meaning earth movements. It cannot physically achieve what we see in the rock record.

Let me just backtrack for a minute. This is how the earth's surface is divided up today. We call it plate tectonics. Why? Because the earth's crust, outer skin, is divided up into these plates that are moving relative to one another. Some of these plates have just ocean floor, as in the case of the Pacific Ocean plate, or some of them have continents such as the African plate or the North American plate. They also sometimes have a bit of ocean floor with them. How is it that we understand that this is what's going on? Well, if you live in California, you dread the next big earthquake. Why is that earthquake, why are the earthquakes occurring along the San Andreas Fault? Because the Pacific plate is sliding past the North American plate in that area, so when the Pacific Ocean floor moves that way, the San Andreas Fault is the point of witness where it is moving. By the way, that means Southern California is actually attached to the Pacific plate and some people are hoping if it happens long enough, that Southern California will disappear. But if you go to the Pacific Northwest, what's happening? In the Pacific Northwest, you've got the North American plate being pushed underneath the North American continent. When that goes down, what's going to happen? The ocean floor rocks are going to get heated up and rock material is going to melt, when it melts it expands and it is buoyant because it's less thick. Where is it going to rise? It's going to rise up through fissures and conduits, and what do we see there in the Pacific Northwest? The Cascade volcanoes. And you see on this map those plate boundaries are often connected to where you've got earthquake zones, where you've got volcano zones. This is where there is the interaction. In some places, the plates are pushing apart as is happening down the center of the mid-Atlantic Ocean. In some places they are pushing together and the ocean floor is going down under the continent because it's heavier and it sinks, but if you get continent plate colliding with continent plate, as you have when India collided with Asia, what are you getting? You're getting the rock layers buckled to produce the Himalayan mountains.

So here's a three dimensional depiction of this idea. You can see there an ocean basin. You can see the mid-Ocean Ridge, and you can see that there is a rift zone there. There is a rifting of the ocean floor. It's splitting and molten material comes up and it pushes apart the ocean floor which starts to move, and when it moves towards the continent, what's going to happen? It sinks down under the continent or we call it subducting. It goes under and it will melt down there and it will produce molten material.

So this idea seems to connect a lot of observations. It explains where we have earthquakes, where we have volcanic erections. So for example, on the left here, Japan is an island arc. Japan, the Japanese island is an island arc. The Pacific plate goes down underneath Japan so what happened in March, 2011? The pressure was building up and suddenly the ocean floor gave way and it went like that, and what did it do? It pushed the water up which surged onto the coast with a tsunami. It was about 50 feet of movement, over 50 feet of movement produced a wave 130 feet high that devastated the Japanese coast. Then you've got volcanoes in Japan. Why? Because they are fed from the material that is being pushed down and melted.

So we've got this cycle process of material moving around inside the earth, hot molten material coming up in what we call plumes and coming up through volcanoes and through rift zones. So we can actually with a study of the internal structure of the earth, visualize some of these things that are going on and we see the results of it. Well, let's remind ourselves again the thousands of feet that these marine fossil bearing sedimentary layers have been deposited only up on the continents, and the less dense continental crust floats high and dry above sea level so the sea today isn't flooding the continents. I'm hammering these concepts because it will help you understand where we're going to go to next. The lighter dense continents float on the denser mantle beneath. They only sink if more rock material is added on top of them.

So the only way, again, for sea level to rise, remember we're going to try to flood the continents. That's what happened during the flood. Marine creatures were buried up on the continents. So sea level has to rise to flood over the continents. It means the ocean floor has to move upwards relative to the continents. It's hard to push the continent down so somehow you've got to get the ocean floor to come up. Of course, during the flood we only need for it to happen once. Over millions of years, it's got to happen up and down, up and down many times.

So do we see sea level rising today due to the ocean floor rising and flooding the continents? No, we don't see that today at all. The only reason they give for potential sea level rise is supposed climate change, global warming. Do we today see vast sediment layers being deposited all the way across continents? No, and we don't see marine creatures buried in these vast fossil graveyards in these rock layers that go right across the continents. So the answer to those questions is no, no, no, and yet that's what we see. The Grand Canyon is carved into marine fossil bearing sedimentary rocks that are now over a mile above sea level. Down at the bottom of the Grand Canyon, that last little cliff you see, we talked about this last week, this is revision, we sea cliffs of a sandstone called the Tapeats Sandstone. It's sitting on an erosion surface. I didn't show you this last week.

That's the erosion surface. The rocks underneath have all been sheared off, totally eroded down, and the sediments containing the fossils laid on top. The first of those is this sandstone.

You can see in this photograph here that man for scale, and I've circled two boulders that are in that sandstone. Now when you think of boulders the size of cars and houses, it means you've got to have fast-moving water and so you had to have fast-moving water with boulders that eroded everything else that was there, and that makes sense. When the flood came, God was going to utterly destroy the surface of the earth and totally reshape it and this is a mechanism for doing that. But we also found last week that the Tapeats Sandstone and its equivalent can be traced right across North America. They can also be traced right across Africa, north Africa to the Middle East. So in southern Israel, in the Negev, we see exactly the same sandstone, with exactly the same erosion surface, with exactly the same crystalline basement rock beneath it.

Last week we saw that there is this red cliff in the Grand Canyon called the Red Wall Limestone. It looks small there but it varies between 400 and 800 feet thick. Here we see it down at the Colorado River level and it's full of fossils like this squid-like nautiloid fossil that had a long cigar-shaped shell with a squid-like head on it. Some of these grew up to six feet long and they are buried en masse. Lamp shells like this, a little like clams, broken up sea lilies or Crinoids. We find these around Cincinnati just as we do these corals. They are all found in this Red Wall Limestone in the Grand Canyon and the heads of these corals.

We can then go from the Grand Canyon across North America to Pennsylvania and see the same limestone. We can go across the other side of the Atlantic and see exactly the same limestone. How is it that you have exactly the same limestone on the other side of the Atlantic? The two were connected. The Atlantic Ocean separated after this limestone formed. The same limestone is found in Yorkshire in northern England. And the same limestone is found in the Himalayas, again, with marine fossils.

So if this process of a supercontinent splitting up, we can still see the residual slow movement today, if it didn't happen over millions of years, could it have happened catastrophically during the flood? Yes. And so we have an idea that helps us understand all this data and much more, all these observations and much more during the flood. In fact, it's the only viable model for understanding the mechanics of the flood that doesn't conflict with real-world observational data, and it explains more real-world observational data and integrates the big picture evidences for the flood that we've been elaborating on. Not only does it explain real-world observational data that the slow and gradual model explains, it explains even more data that that model can't explain.

So when you have an idea, a model, a scientific idea for understanding things, the more things that it can explain, the more powerful does that idea become but, of course, it's not set in concrete. As I said, it's not dogma. It's an idea. It's subject to revision. It's subject to development and refinement and that's an ongoing task, but when it comes to the flood, we need to remind ourselves that it was not just a global, watery cataclysm, it was an

earth-shattering, catastrophic, tectonic event. What do I mean by tectonic? I mean by that: earth movements must have occurred. The pre-flood supercontinent had to break apart and separate into today's continents and this required an enormous vertical and horizontal earth movement, vertical movements based in miles and horizontal movements thousands of miles. So for example, if you take a drive out to the Southwestern United States, you'll drive below sea level down into Death Valley. You drive out of Death Valley going to the west, and you immediately climb thousands of feet. You've got some of the highest mountains in the continental US juxtaposed with areas that are almost below sea level, and so there has been an enormous movements of rock units up and down in that part of the country measured in miles. Of course, as we've said before, the pre-flood ocean floor must have disappeared during these processes. Why? Because the present ocean floor is newer and its younger. It's younger than the fossil bearing rocks.

Well, let's start with an earth that God creates that consists of the structure that we see today, the core, mantle, and trust internal structure. That makes sense. If God is going to lay a foundation to prepare the earth to be man's home, he's going to structure it in a way where all the elements are in place to make it operate the way he wants it to operate. As I said before, if we start with everything, all the land in one, essentially in one supercontinent, it means animals can move around and they can get to the ark when God wants them to go to the ark. But here's the next point: the ocean floor rocks or crust was cold and dense and, therefore, it was actually denser than the warmer mantle rock beneath. Why do I say that? Well, basalt, like you see coming up through the volcanoes in Hawaii, only comes from the mantle. You don't get basalt by melting continental rocks. You get a granite from melting continental rocks. So that means the ocean floor produced the basalt, it's similar to the material below it, but cold ocean floor is actually going to be denser than the warmer mantle beneath. So it's, in a sense, already poised precariously in that position. It's like having a metal needle sitting on water. You know the metal is actually denser than the water but you've got surface tension that holds the needle in place. As soon you disturb that surface tension and break the surface tension at one point, what happens? The needle sinks. So that's potentially what it was like in the pre-flood world, that the ocean floor was colder and denser and it was sitting there in a precarious position.

Also, because of the heat of the outer core, the mantle just above the outer core was probably hotter and, therefore, less dense than the section of the mantle above it. Why do I say that? Well, it was all set there for when God chose to trigger the flood. There were five things that happened simultaneously, five things must have happened simultaneously. Why do I say that? Well, first of all we read in Genesis 7:11 that the flood began, when? When the fountains of the great deep broke up, and then the windows of heaven were opened. Notice it was not the other way around. The fountains of the great deep broke up. The deep in Scripture is the ocean, and this suggests that the ocean floor immediately started to break up and rupture. Also, that rupturing would have spread onto the continent to start breaking it up as well. By the way, most of you don't realize but Africa is breaking apart today. You've got the East African rift valley, it's actually moving like that, it's pulling apart. It's like the middle of the Atlantic Ocean, pulling

apart. Well, we're suggesting this was triggered on a ginormous scale when God initiated the flood.

Secondly, as a result of that rifting, what happened? At the boundaries of the cold ocean floor crust up against the supercontinent, what happened? It caused a rupturing, a break at that point, and so you've broken the surface tension of your iron needle, so that means the heavier denser ocean floor is now going to start to sink. At this point in the middle of the ocean, it's breaking apart, it has transmitted that across, it's going to break off at the edge of the continent, and it's going to start to sink.

So here's the same diagram again. If you've got rifting in the middle of the ocean breaking up the fountains of the great deep, then you're going to start to move the ocean floor away. When it gets to the continent, it's going to break off from where it meets the continent and it's going to start to sink because it's colder and denser than the mantle rock beneath.

So before rupturing, the ocean crust was joined to the continental crust as it is today, but after rupturing, the edge of the heavy oceanic crust sank and it starts to dive down or subduct under the continental crust. So here we can see if you get rifting of a continent, what happens? A rift zone opens up, molten material comes up, you've got volcanism, volcanic activity East African rift zone happening today. If that continued into the future, you would open up a new ocean basin. The same thing is happening, the rifting in the Dead Sea rift zone up through the Jordan Valley. It's a continuation of the East African rift zone.

A third process, this all happened at the same time. As soon as it started, it triggered a cascade of events. As a result of rifting here, moving material here, and diving down here, it's going to start to push and move the mantle material. So the material starts to circulate inside the mantle and it's going to build up this conveyor belt type motion that causes the continents, that takes the continents away with it. So we build up this kind of structure here. I'll illustrate this more graphically in a moment.

Fourthly, when you produce that molten rock coming up through that rift zone, what's going to happen? Well, the molten rock is going to release steam that is dissolved in the molten rock, but the hot rock is also going to interact with the ocean water and effectively you'll get supersonic steam jets shooting up from these rift zones, and what will they do? They will carry not only steam but carry ocean water up with them, and once they get to a certain height, what's going to happen? The jet is going to slow down and all that water is going to start falling down, the windows of heaven were opened, and you get torrential rainfall.

The other thing that's going to happen to complete the cycle, the mantle material is going to come around, it's going to keep on pushing aside the cold ocean floor and cause the seafloor to spread, and the new rock material, the new ocean floor is still going to be warm because it is being produced rapidly. Because it's warm, it's less dense, it will rise, and so it pushes up the water and it pushes up sea level, and that's how you raise sea

level. I'll illustrate this again in a moment. So again, just these diagrams to help reinforce the picture that I'm painting here.

So if we wanted to view this in schematic form, you've got there on the right-hand side of the screen the hot material coming up producing the steam jets that sends water up into the atmosphere that comes down as rainfall. You've got hot new ocean floor that is less dense that rises, pushes up sea level. The cold ocean floor, the old ocean floor starts to sink. Actually at the edge it pulls the continent down, and so the rising sea level is now able to flow over the continent and take the marine creatures and bury them up on the continent.

Now, this idea is verified not only from theory but experiments and also computer simulations, and I'll get to that in a moment. It shows that, it demonstrate that this process can only happen rapidly. Only happen rapidly. It cannot happen slowly. We're talking about meters per second. In other words, rather than the growth of a fingernail, it's at fast walking pace. Fast walking pace. The crucial rock physics involves an instability in the way hot but solid silicate rock deforms under stress. Silicate rock. Rock is made up of the elements silicon, the atom silica, just like you've got carbon for organic materials, rocks are primarily made up of the silicon atom combined with oxygen and other atoms. So rocks are made up of silicate minerals. And they are nonlinear, that is, they don't just go in a straight line type motion, they exponentially increase in the way that they are affected by heat and pressure. It's been confirmed by laboratory experiments. And what does this do? We're trying to explain how rock can move like that inside the earth. You're putting it under heat and pressure, what does that do to the rocky materials? It causes them to deform and the rate of deforming or being bent out of shape, is another way of putting it, increases exponentially as the stress is applied. But it also generates friction. Okay, when you try to rub two materials together, what happens? You get a resistance. That's called friction. That generates heat which helps to make the material softer and more able to release the friction, which makes the process go faster, which generates more friction, which generates more heat, and so you get this feedback loop that causes the speed to increase.

So we actually do this in the laboratory. We can actually put materials under pressure and temperature, heat them up and apply stress them to see how they will behave, and under the microscope at the electron scale, we can see that the minerals actually move within the crystalline structure. I know this is very complicated. Just bear with me. I'm just trying to show you that this is based on good scientific documentation.

So once the cold dense ocean floor slab starts sinking into the warm mantle, the resulting friction generates heat around the slabs. This makes the surrounding mantle rock more plastic and decreases the friction so the sinking slabs move faster, which generates more friction, more heat, and therefore more speed, and we get what is called a thermal runaway condition. You get a feedback loop and it keeps going faster and faster and faster, and so you could almost estimate that the pre-flood ocean floor would sink totally within about 40 days.

So because you've got these sinking slabs accelerated to that meters per second or tens of feet per second speed, fast walking pace, that means the continents will start moving at that speed as well and so we can simulate this in a computer. Now just bear with me because I want to illustrate this for you. This work was done initially in the 1980s by a creationist, a Christian creationist who was doing his PhD work at the University of California, Los Angeles. What he'd do is in the computer, you put this grid into a globe and within the inside, and you develop all these little cells because you've divided everything up inside, and then you assign physical values to those, and then what you do is you start changing the condition in one location and that will affect everything around it, so the computer starts calculating what happens. Now that sounds horribly complicated but let's put it down to something that's more concrete. You will remember that, back to super storm Sandy, you would have heard them on the news saying the American model didn't predict the path of super storm Sandy accurately. The European model actually did a better job. Do you remember hearing that? You'd hear them talk about the American model and the European model. Well, the European model actually uses this computer software. Dr. John Baumgardner, the creationist, was actually sent by Los Alamos National Laboratory, because you can use the same simulation for the atmosphere, and the Europeans actually use this model here that you see on the screen to predict the path of that storm cell far more accurately than the computer simulations that American weather forecasters were doing.

So how does this model work? Well, here we've got obviously blue is cold, red is hot, and so at the beginning you're going to have, just look at the top diagram, don't worry so much about the bottom diagram. You've got hot molten material rising, cold material sinking, the blue, and so you can actually time how quickly this happens. So we've got it into a feedback loop here to just give you an idea. It's pushing aside that cold material which sinks to the bottom as the hot material rises. You can actually simulate this in real time in a computer.

So these five simultaneously occurring catastrophic geological processes triggered by the onset of this catastrophic plate movement at the beginning of the flood, automatically resulted in the following seven outcomes during the flood.

The first one: the ocean floor and continental plates moved relative to one another at a rate of meters per second, that's 10+ feet per second, separating, moving apart, subducting, going under one another, sliding past one another or colliding with one another to produce mountain belts. So these processes can be simulated and have been, but I need to introduce a bit of terminology here because some of you might have heard of the supercontinent Pangaea, but in actual fact our ability to construct the pre-flood world is severely limited due to its destruction by the flood, but if we compared different rock types, the different rock types on different continents and also magnetic patterns in the rocks, magnetic patterns that have been preserved, it is possible to show that the pre-flood supercontinent was of a configuration like you see on the screen which has been called Rodinia, and so that during the flood, we had a pre-flood earth that looked something like that with a supercontinent that broke apart and continental fragments moved around, and they recombined in them middle of the flood to produce a

supercontinent called Pangaea but it was under water and then that broke apart to the present configuration. The bottom diagram shows you some of the rocks that were in the pre-flood world, how they eventually got eroded and covered up by the flood layers.

Well, let's see if this works for us. This is a video clip that tries to simulate, again, some of these processes just to reinforce it in your mind. So you've got a mantle plume coming up. What's it going to do? It's going to break up the deep. It's going to produce a steam jet, which produces your rainfall. Your ocean floor is being pushed apart. The new ocean floor, of course, is thicker because it's warmer and it's going to push. Do you see how the sea level is being pushed up over the continent?

Okay, the Appalachians. Let's get practical. The Appalachians formed as a result of this collision in the middle of the flood when Africa collided with Eastern North America, and as a result of the flood. Why do I say that? Well, the Appalachians are made up of fossil bearing, marine fossil bearing sedimentary rock layers that were deposited by the flood, and yet there are younger layers, layers higher up in the sequence than what we see in the Appalachians. So we have this sequence. Early in the flood, Africa is coming after the break up of that supercontinent, Africa is coming toward the US. They collide. They produce the Appalachian Mountains and then the Atlantic Ocean basin opens up, the present configuration. By the way, as I'll come to later, the Rocky Mountains are younger which is why they are higher and less eroded. There was more time during the flood to erode down the Appalachian Mountains, so actually you get to the core of the Appalachian Mountains, it's the Blue Ridge area is the crystalline core of the Appalachian Mountains.

Here's the sequence. On the North American continent, we've got the pre-flood crystalline basement rocks. The flood comes and deposits marine fossil bearing sediments on the Eastern United States, on that basement rock. You have the collision with Africa. It buckles those rocks to produce the Appalachians. Then what happens? Well, as a result of the opening up of the Atlantic Ocean basin, part of the northern part of the Appalachians stays in Europe and actually ends up to the mountains over in Europe, the Caledonides that are in Scotland and across into Scandinavia. You actually when you close up the Atlantic Ocean basin, they all line up. Those mountains would have been higher than the Himalayas are today. So again, here's the sequence. You've got that red stripe is that mountain belt, it starts to break apart, and you can see how it splits onto the different continents today. You can see other rock layers there that are matched across the continent, different continents. It's not just based on that mountain.

So here are some snapshots of what was going on at the latter part of the flood until we get to the present which can be simulated in a computer, that midpoint supercontinent Pangaea breaking apart. It's harder to go back to the earlier phase but we can show that this works.

Here we have another simulation where the Pangaea continent is covered in water and it breaks apart. You also get the situation where India, the Indian plate collides into Asia, and as a result of that collision, you'll get the Himalayas. I like to say to people if you get

two cars colliding each doing one mile an hour, how much damage are you going to get? But if they are colliding at 100 miles per hour each, you get the buckling. So if you've got these continental plates moving with the fossil bearing sedimentary layers and they collide, it's going to buckle up and it's going to produce those mountains for you.

So the earthquakes then produced by these earth movements generate devastating tsunamis, that together with the rising ocean waters crash onto the continents, and it's going to start to erode the continents, it's going to start to bring up the marine fossils. So remember these steam jet going up, the new ocean floor, these earth movements are going to generate tsunamis, there are going to be surges along with the tides that go up onto the continents, and you can actually simulate the speed at which those, you're talking about tsunamis and waves that are traveling at hundreds of miles an hour with tidal differences of hundreds of feet.

So what is it going to do? It's going to pick up the marine creatures and it's going to dump them up on the continents. By the way, most people say, "But what about the ark in all of this?" Well, what you've got to realize is that most of the action occurs down at the ocean floor level, and a tsunami in the open ocean, you don't even notice it at the surface. It only becomes a huge wave when it gets to the seashore. That's because the energy builds up and it heats the water up. Out in the ocean, the energy can dissipate within the whole water column. Most of the sediment is not carried through the whole water column, it's actually carried in the last 100 to 50 feet near the ocean floor. So that means the ark is riding up there perfectly safely with all the action happening down well underneath it. By the way, Noah couldn't see much anyhow because there was only one window at the very top.

So what we're saying is before the flood, we've got these shallow water, marine creatures living on the edge of the pre-flood continent in the pre-flood ocean basins just before the flood happens. We've got this molten material comes up. The new ocean crust expands. It lifts up the water level and sea level moves with all those surges. It picks up that marine life and buries it up on the continents. Then when the new ocean floor cools down, it gets denser, it sinks and it leaves the marine creatures buried up there on the continents. So as we've just elaborated, you get successive sediment laden water surging up onto the continents driven by these tsunamis and tidal surges so it results in this continuous deposition. So rather than the ocean floor of the continent going up and down in the slow and gradual model, you've got the ocean floor comes up once, you've got these surges that keep successively building these sediment layers. And it's interesting that when we study these layers, we actually find it comes in groups of layers that represent some of these cycles of backwards and forwards motion. We don't have time to go into that tonight.

You also get massive volcanic eruptions. Most people don't realize that volcanic eruptions are decreasing in intensity and scale even in historic times. The last eruption at Yellowstone, Mount Saint Helens by comparison is a firecracker. The dust from the last eruption in Yellowstone went down as far as Mexico, and we know from historical times. So in other words, the earth is still recovering from the flood. If you go back in the

geologic record, you've got huge outpourings of basalts. Now up in the Pacific Northwest, you've got the Columbia River basalts. Some of you may be aware of those. But if you go to India, a third of the subcontinent is made up of these basalt layers, over a thousand feet in total thickness. So you have to have ginormous volcanic eruptions to produce volcanic layering on a continent scale like that. You can't explain it by present day processes. You have to ramp up the scale and that's exactly what would have been happening during the flood because of these rapid movements and melting of rocks and movements of molten material inside the earth coming up through fissures.

So as you produce this sloshing across the continents as the material goes up under the continents, you are destroying progressively, we dealt with this last week, the rising floodwaters would progressively destroy pre-flood habitats, groups of animals and plants and bury them together up on the continents, and that's what we find. The fossil record begins with the abrupt appearance of multicellular shallow ocean floor and continental shelf creature: clams and corals, those types of creatures, Trilobites. Finally later in the fossil record as we go higher, that's where we get the fish, the amphibians, the reptiles, then the birds and mammals as the floodwaters rise higher and gradually conquer more and more of the pre-flood world. So it's a dramatic documentation of the progress of the Genesis flood. As I said last week, here at the Dinosaur National Monument, people focus on all the dinosaur bones but the most prolific fossil there is actually a clam, a water fossil, a water creature buried with these land creatures. Finally, where the collisions occurred, the sedimentary layers were buckled, folded and uplifted and, of course, the heat and pressure can also transform the rocks. We call it metamorphosing the rocks or even melting them to produce the granites. So for example, as I said before, in India, plats collides with Asia to produce the Himalayas. In the middle of that mountain belt, some of the rocks were so compressed and deformed that they started to melt and so you've got granites. The same happened off the coast of North America. The Pacific plate gets pushed down under the coast of California, what happened? Some of that heat melted some of the rocks and that's why you've got all the granites through Yosemite and through the Sierra Nevadas late in the flood.

So these processes continued until all the pre-flood ocean floor crust had disappeared, had subducted. The resulting mantle conviction, the movement of the mantle had moved all that cold ocean floor and it had fallen all the way down through the mantle down to the core mantle boundary. That's important as I'll show you in a moment. The warmer material previously heated up by the outer core has now been transferred up to the surface to form the new ocean floor crust, and this thermal runaway episode ended when you had all that cold ocean floor had sunk, so the motion started to slow down. How do I know that? Well, for example, Hawaii. Why is there a volcano in the middle of the Pacific Ocean that has produced the Hawaiian Islands? Well, it's because the Pacific plate is moving over a place where hot material is coming up and that's why we are getting the volcanic eruption where we are today. But earlier on if the Pacific plate is moving quickly over that, the volcanoes don't shoot off for long enough to build a big enough island, and then it slows down and what do you have? The last island to form is the biggest island because the plates slowed right down so more material got dumped and it's actually growing even today as we speak as a result of the present eruption. We can

explain the increase in the size of the Hawaiian Islands by the fact that the Pacific plate slowed down to the snail's pace that it is today after the rapid progress during the flood.

So we have this transfer of the hot material to the surface to make the new, the red, the cold sinks. The transfer to form new ocean floor, the old ocean floor sank to the bottom and as the new ocean floor progressively cooled, it became denser, sank, causing sea level to drop. So what happened? The floodwaters came back off the continents into the new ocean basins. Do you get the point? The new ocean floor was warm, it pushed sea level up, when it cooled, it sank, the water came back and stayed in the ocean basins. It ran off and stayed in the new ocean basins. At the same time because you had the edge of the continent being pushed down by the ocean floor sinking, when it slowed down, the edge of the continent could rise and, in fact, most of the high mountains today are found on the edges of continents: the Andes, the Rockies, the Sierra Nevadas, the Cascades. Even in Australia, the highest mountains are along the East Coast of Australia where you had the last effects of the changing vertical adjustments at the end of the flood as these processes slowed down. As I've said before, the Rockies were formed later. They got more of the fossils higher in the sequence in them, and it had less time to erode than the Appalachians that were formed earlier, because after the Appalachians were formed, the Atlantic Ocean opens this way, North America starts heading towards the Pacific, so the Pacific is now interacting with the West Coast of North America that builds the Rocky Mountains later in the flood.

So the falling sea level and rising mountains caused the floodwater to drain rapidly off the continents and it starts to catastrophically erode to produce canyons and all the sediment gets dumped out on the continental shelves, which we see today. So canyons like the Grand Canyon get eroded and the features that we see left over floodwaters, erode out these canyons as the waters retreat. Now, here's a consequence because a question comes up. You have all this heat that's transferred from inside the earth, the fountains of the great deep, the steam, what's it going to do? It's going to heat up the ocean waters. Everyone agrees that the ocean waters were warmer in the recent past, as much as 27 degrees Fahrenheit warmer than what they are today. What will that do? Well, it will result in more moisture being evaporated. Warmer ocean means more evaporation and it increases the humidity and moisture content in the air, which then circulates towards the poles where it is cooler and particularly if you have volcanic dust still left in the atmosphere at the end of the flood, what's going to happen? It's going to fall as snow on the continents. You're not going to have a summer to melt it all. It's going to keep on piling up more snow until you actually build up an ice sheet. By the way, which book of the Bible mentions snow and ice more than any other book? Job. When did Job live? About the time of Abraham or slightly before. Why would God talk to Job about snow and about the surface of the ocean being frozen if Job wasn't familiar with what he was talking about? The ice age, there was an ice age because we've still got the polar iced caps, was a consequence of what happened during the flood.

And so we can see in these white areas, we show the extent of the ice sheets. In fact, they came all the way down to the Cincinnati area. Because of all that moisture being transferred up onto the continents, sea level dropped and that means animals and people

could walk from Asia to North America across what is now the Bering Strait. It wasn't there before. And notice that along the Pacific coast, the ice sheets didn't quite get to the ocean water because the ocean water was warm. There is actually an ice free corridor where animals and people would walk along the coast all the way down into North America and down to Central America and down to South America. It makes sense. It's a mechanism for animals and people to move from the mountains of Ararat and get down around the earth as commanded by God.

Now here's an interesting point. There is also scriptural clues. When you have that ice age, what happens? The ice sheets because they move towards the equator, move the climate zones towards the equator, and with all that moisture, the equatorial zone was very moist with lots of storms. You can simulate the sorts of storms there may have been, 100 inches in a week. That's why, for example, the Great Salt Lake at Salt Lake City, you can actually see the shorelines of a huge lake system that was there, so it's dried out since. There were big lakes under the Sahara, under central Australian deserts. There is evidence that things were much lusher in the recent past and it has only dried out and become desert since. Yes, the climate changed. How do I know that that's in Scripture? When Abraham and Lot looked down at the cities of the plain, what did Lot observe? It was well watered, it was lush. It's a desert today. The climate zone had changed and it was well watered and so Lot chose to go down to the city of the plains. By the time of David, he could slay a lion and a bear. By the time of Jesus, no more lions and bears. The climates changed and so did the ecology change, it became a desert. We had drying out around the equator; as this ice age finished, the climate zones moved north and south. So yes, climate has changed. We believe in climate change, we just don't believe that man has produced it. God's in charge.

Right, we're nearly there. Thanks for your patience. Okay, because of this global scale overturn, what do I mean by that? Mantle material got brought to the surface, the surface ocean floor crust went to the bottom, we should still find evidence of that. Why do I say that? Well, it was predicted in 1994 when some of us got together to work on this idea, that if the cold ocean floor from the pre-flood world had sunk rapidly during the flood, it had sunk all the way down to the bottom of the earth's mantle, couldn't go any further, couldn't go into the core, because it happened recently, there wouldn't have been time for it to melt and mix in with the material down there at the bottom. So if we were right, you'd expect to find evidence of undigested pre-flood ocean floor rock down there at the bottom of the mantle, and in 1997, that's exactly what the seismologists found. They can't explain it. There is cold rock down at the base of the mantle directly below where the ocean floor is diving down in subduction zones today, and it's exactly what we would predict based on this happening catastrophically rapidly during the flood. Slow and gradual, you can't produce that. So here's a real-world prediction based on that idea for the flood mechanism that is verified by the evidence.

Well, let's wrap up. You've been very patient. This is very technical but I hope it will help you to see that when we take God's word seriously and we look at the world around us, we can explain the evidence that we see based on God's word. So conventional slow and gradual plate tectonics cannot explain how the ocean water flooded over all the

continents to deposit the sediments bearing the marine fossils in layers that stretch right across the continents and are found even today in the high mountains. All models of how the flood might have operated that others have proposed but one, all models cannot explain how the enormous vertical and horizontal earth movements during the flood occurred as a supercontinent broke apart and separated into today's continents. Only this idea of catastrophic plate movements, earth movements, explains real-world observational data where we've got earthquakes, where we've got volcanoes, why we've got cold slabs of rock at the bottom of the mantle, and at the same time it integrates all these evidences of the layers across the continents with the marine fossils up there, why we've got the mountains where they are. It all starts to make sense and it was an inevitable consequence of a pre-flood cold dense ocean floor surrounding a supercontinent and floating on warm less dense mantle.

Five catastrophic processes occurred together, the rift of the ocean floors in the supercontinent, the breaking up of the fountains of the great deep, rupturing of the ocean crust at the edges of the continental crust so that it started to sink beneath the continents, the mantle starting to flow and up-well in a cycle to make a conveyor belt system, these supersonic steam jets producing the intense global rain, the windows of heaven opening as a result of water coming inside the earth. By the way, I neglected to tell you that based on our knowledge of the minerals that formed the mantle rock, it can store water in it, they believe that there is up to 10 times more water in the mantle still today than in the ocean. And the new warm or ocean floor that was produced raised sea level and that had automatic outcomes: tens of feet per second plate motion; earthquakes generated the tsunamis advancing right over the continents; fossil bearing sediment layers were rapidly deposited right across continents; successive tidal surges and tsunamis rapidly deposited whole strata sequences. I said the rising levels last week. You could leave, animals could leave footprints and lay eggs during the flood when land surfaces, mud surfaces were temporarily exposed between some of these surges. Massive volcanic activity on a scale that we never see today with huge volcanic layers between those fossil bearing layers. The order in the fossil record progressively explained in a pattern that matches the concrete of the land by the ocean waters. Then the collisions of these moving masses that produce the mountain belts and melted rock with the granites of the melted rock.

So when all the pre-flood ocean floor disappeared, all these processes are slowed down, sea level fell as the new ocean floor crust cooled and sank, the waters retreated off the continents rapidly eroding canyons as they went and the flood ended. The warmer ocean waters left over by the flood inevitably generated that ice age. You see, the scientific community says an ice age means cold conditions. No, cold air won't hold the moisture necessary to produce snow. Do you notice that? When it's below 30 degrees here, we don't get snow. If it's 34 degrees, we get snow because the warmer air can hold the moisture. And we would predict that the cold material that went down rapidly should still be there today and is, and it can only be explained by happening recently and catastrophically during the flood.

And of course, this is only an idea, folks. It's not the last word. We always have to go back to God's word but when we read God's word and we look at the world around us and

the way it operates, we can see overwhelmingly that a mechanism like this will produce exactly the results that we see and it matches exactly the record that we read for the Genesis flood in Scripture.

Well, thank you very much. Let's close with a word of prayer.

Father, this is a lot of information and it is technical and yet, Father, it shows us that the world that you created, the world that you destroyed, is open to investigation. Father, you have given us minds to explore your world and to understand it so that we can better utilize it, so that we can better serve you. Father, I pray that this presentation tonight will have helped your people to further grasp the reality of the flood judgment, the reality of our sin that caused you to go to such lengths to destroy the world and to totally reshape it. Father, thank you that you provided mercy, you provided a way of escape. Your word tells us about Noah and the ark. Father, may you help us to be equipped as a result of the things that we learn so that we can better give the reason for the hope that we have in Jesus Christ our Lord and Savior and it is in his name that we pray these things. Amen.