

God's Grand Design
Class #11
How did the Grand Canyon form?
Genesis 5:28 – 9:19
Josh Whitney
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The Rock Church

INTRODUCTION

Good evening everyone. Welcome to our next **God's Grand Design**. After tonight, we just have 3 classes left. My name is Josh Whitney. I am one of the pastors at the Rock.

This is part 11. We will be digging into this question, **How did the Grand Canyon form?**

Two housekeeping things.

The Ark and the Darkness. How many of you saw the Ark and the Darkness last week? My family and I did. We liked it. I thought it was well done. I took a page and a half of notes. If you have questions or comments on the movie, I would love to discuss afterward.

After watching the movie, I decided we need to do a lecture on catastrophic plate tectonics. So next class, we will get into earthquakes, volcanos, plate tectonics, and the flood. Answering the question how did the mountains form?

One more housekeeping thing, like always, if you are new and not on my email list, **send me an email** and I will add you to the class list.

So let's start with prayer.

One general comment before we get into our topic tonight. I want you to **understand the difference between the verses and a model**. What do I mean?

Here is a verse: **Genesis 6:15 This is how you are to make [the ark]: the length of the ark [450 feet], its breadth [75 feet], and its height [45 feet].**

Model: What did the ark actually look like? All kinds of takes on that.

Another example.

Verse: **Genesis 7:11 In the six hundredth year of Noah's life, in the second month, on the seventeenth day of the month, on that day all the fountains of the great deep burst forth, and the windows of the heavens were opened.**

Model: Canopy theory. Hydroplate theory. Catastrophic plate tectonics theory. Next class.

Another example.

Verse: **Genesis 7:24 And the waters prevailed on the earth 150 days.**

Model: The formation of the geological column. Flood boundary. Super continent models. Lots of different models.

Final example.

Verse: **Genesis 8:2 The fountains of the deep and the windows of the heavens were closed, the rain from the heavens was restrained, 3 and the waters receded from the earth continually. At the end of 150 days the waters had abated.**

Model: Erosional models. The formation of the Grand Canyon.

All of the young earth creation scientists agree that the flood waters drained off the continents based on this verse.

But they have different models to explain how different features may have been formed as the waters receded.

Clearly the Bible teaches the earth was flooded by God in a yearlong global judgment. But the specifics of how it exactly worked, people have different models.

It's important to keep that in your mind.

OVERVIEW

Let's look at our key overview slide. In this class, we are comparing two different views of origins, where did everything come from.

View #1 – God created the heavens and the earth. (in six days, thousands of years ago)

View #1 makes the most sense, biblically and scientifically.

And **View #2. The heavens and earth evolved without God. (millions and billions of years ago)**

View #2 is the dominant view in our world.

WAS THERE A GLOBAL FLOOD?

And this is our summary paragraph for season 2, all about the flood. We covered the scriptural basis for this in part 9.

Flood. There was a time when the entire world was covered with water as the result of a year-long Flood. This was a judgment from God on all human and land dwelling life. It resulted in the death of all humans (and animals) who were not in the Ark during the Flood (Genesis 6-9).

GEOLOGY

So I am going to quickly review a number of slides from the last two classes. Because we all need to be on the same page on this topic. And it's important to hear these topics multiple times to understand them.

We are continuing to dig into geology tonight. What is geology?

Here is a simple definition. **Geology the study of the earth's physical structures, it's history and the processes that form them.**

Here is a map of the surface geology of Utah. All of these different colors are different kinds of rock. We see evidence of massive deposition and erosion. And they are telling us a story. What happened to make all of this.

So does geology show evidence of a yearlong global flood (God's judgment) or slow and gradual processes over millions of years (without God)?

That's geology and it links directly to our understanding of the God's watery judgment as presented in Genesis 6 through 9.

This chart adds more details to our two views.

View #1 - Creation View

A one year Global Flood happened about 4,500 years ago.

The earth's surface was shaped by sudden, violent, and catastrophic processes.

Catastrophism

The past (the Flood) is the key to the present.

Lots of water, little time

View #2 - Evolutionary View

A Global Flood never happened.

The earth's surface was shaped by slow, gradual processes over 4.5 billion years.

Uniformitarianism

The present is the key to the past

Lots of time, little water

We discussed this last time. But look at the illustration on the bottom there. It is helpful for understanding the difference between these two view. The creation view and the evolution view both look at the river at the bottom.

The evolutionary view assumes that river has done its thing for millions and billions of years to carve out that canyon. Slow, gradual processes.

The young earth creation view says, no, something catastrophic happened in the past, God's flooding the earth, and that is a better explanation for the surface of earth. Rapid, catastrophic process.

GEOLOGICAL LAWS

Again power review.

Geological Laws

A. Super position. Which layer was laid down first? G. And then F, and then E. And so on. Makes sense?

B. Lateral Continuity. What does that mean? At one point, these layers were connected across this canyon and a lot of material was washed away in the middle. Makes sense?

C. Original Horizontality. Sediment that settled out of water would originally be horizontal. So if it is tilted or bent. That happened after it was deposited. Makes sense?

D. Cross-cutting relationships. If something cuts through layers, that would have happened after the layers were deposited. Makes sense?

So last class, we talked about how the global flood would have deposited the geological column. We talked about how $\frac{3}{4}$ of the continents are covered with a mile of sedimentary rock or water deposited rock. Remember our sediment **demonstration**?

And then last class, we looked at these 5 Evidence for a Global Flood in the geological column:

- A. Lack of erosion between layers.
- B. Continental wide layers.
- C. Cross bedding.
- D. Large cobbles and boulders.
- E. Soft sediment deformation.

That was all in class10.

Now in this class, we are talking about how **the pancakes got cut or eroded**. Last class, how the pancakes got stacked. This class, how the pancakes got eroded.

Global flood model. The waters advanced for 150 days. The flooding stage. Scouring the earth and depositing the sedimentary rock. And then the 220 days for the retreating stage. The flood water is draining off of the continents. Eroding the earth. So the flood can be broken into 4 phases or 4 main segments. 1. The deposition of sedimentary rock. 2. The plate tectonics. 3.

The sheet flow erosion. 4. The channelized erosion. We talked about #1 last class. #2 is next class. We will explain #3 and 4 now. Not the best order. ☺

When we talk about plate tectonics. I am talking about the plates crashing into each other. Sliding past each other. Sliding over each other. Under each other. Mashing up. There is a whole lecture on catastrophic plate tectonics, earthquakes, volcanos, ocean floors, mountains.

I was going to skip it. But Dr. Snelling inspired me in the movie. But plate tectonics explains how the mountains rose, the continents rose, the valleys sank, and the ocean basins sank. Why you have marine fossils on top of mountains.

OK, back to this slide. Let's focus in on #3.

Sheet flow: wide sheets of water eroding the earth's surface.

We should define erosion. Erosion is the geological process in which earthen materials are worn away and transported by natural forces such as water or wind.

So let's look at the surface of the earth and ask ourselves do we see evidence of slow and gradual erosional processes or sudden catastrophic erosional processes.

So let's talk about sheet flows or planation surfaces. In the receding stage of the flood. So if the water drained off the continents in huge sheets the first result would be...

Planation surfaces. Mountains and hills have been "planed off" into flat features by the retreating flood waters.

So visualize the time when the flood waters were receding off the earth. The water is draining off the continents back into the oceans in huge sheets of water eroding things flat.

Here are some examples from all over the world. Canada.

Here are some examples from all over the world. Wyoming.

Here are some examples from all over the world. Ethiopia.

Here are some examples from all over the world. Australia.

Here are some examples from all over the world. Arizona.

Here are some examples from all over the world. Montana.

Here are some examples from all over the world. Another Wyoming.

Planation surfaces are all over the planet. You would assume the old earth geological community has a good explanation for these surfaces?

Let's read their words.

“Such landscape as flat-topped hills or high plateau shows no process in action that might favor or maintain its flatness. Consequently, one cannot say that any geological work now observable has made it as flat as it is. The completion of its flattening appears to have been in the past. All this evidence tends to indicate unity and simple design among these flat surfaces, and to encourage the hope that the business of seeking their origin is not little problems, but one major problem.” Geomorphologist, C.H. Crickmay, 1974

Quite the quote. Geo mean earth. Morph mean change. So he has studied how the earth's surface changes.

Or this quote. From their book.

“The existence of planation surfaces is asserted by a host of writers, yet few attempt any serious explanation of their development. It is perplexing that after a century of argument and observation of the continents, no generally accepted mechanism for planation has been forthcoming.” Thomas and Summerfield, Geomorphologists, 1987

In other words, we are not sure what made these. And that might be a big problem.

But for the flood geologist, planation surfaces make perfect sense.

We looked at 5 [Evidence for a Global Flood: Planation surfaces](#).

Men and women, as you drive around our state you see these planation surface everywhere! What took the top off that mountain? What planed hill flat?

This is exactly what you would expect in the flood model. As flood waters drained off the continents, you would expect to see things that have been cut flat by receding flood waters.

I want to play a clip for you of [Del Tackett](#) interviewing Dr. Steve Austin. Krista and I randomly met Del Saturday morning. It was pretty cool.

You might be wondering is water powerful enough to cut the top off a mountain.

I want you to see the power of water in catastrophe. [Mount St. Helen. 1980](#) volcanic eruption. Lots of debris and water flow. First Dr. Austin is going to talk about how much sediment was deposited. Listen for the depth. 4-minute video.

https://www.youtube.com/watch?v=kjdZ3Gs-PTk&ab_channel=IsGenesisHistory%3F

1:18-5:09

Did you hear that? 600 feet of sediment laid down in this catastrophic event!

Let's watch another clip Dr. Austin talking about the erosion specifically. Listen for how much erosion this event did. 2-minute video.

https://www.youtube.com/watch?v=kjdZ3Gs-PTk&ab_channel=IsGenesisHistory%3F

18:17 – 19:51

Did you hear that? 600 feet of erosion in this catastrophic event!

Mt. St. Helen is a gift to us because it shows the power of catastrophic processes both to deposit and erode material.

That is one volcano in one state. Imagine if the entire planet had catastrophic flows all over it. Water, debris, volcanic. What would it erode away?

OK, let's move onto our next evidence. 2nd piece of evidence.

We looked at 5 **Evidence for a Global Flood: B. Massive planetary erosion** all over the earth. 2nd evidence.

We are talking about erosion across the earth on a scale that boggles the mind. I want to show you six examples from our neck of the woods, Utah and Arizona.

I want you to get an idea of the magnitude of the erosion that has occurred on our planet.

First this is the **San Rafael Swell** in near Green River, Utah. Here is a geological cross section. We know a few things. The layers were deposited horizontal. Then lifted by plate tectonics. And then eroded away. Here is a view from an airplane. We drive by in our car and we don't notice what happened. Where is all of the rock? It's swept away.

Second this is **Waterpocket Fold** in Capitol Reef. Again the cross section. Layers deposited horizontal. Then tilted. And then eroded away. The volume of rock deposited, tilted and then eroded away screams catastrophe. Here is the road. Where is all of the rock? It's swept away.

Third this is the **Virgin anticline** by St. George. An anticline is a bend. Deposited horizontally. Lifted in the middle. And then eroded away. We only get an idea of the scale of what is happening when we get a perspective from an airplane. Where is all of the rock? It's swept away. The arrows show the matching layers on each side.

Fourth, this is the general structure of our **Wasatch mountains**. What we look at every day. Notice the horizontal deposition of layers. The folding, bending, faulting and uplift. And then the unbelievable erosion. This rock is sedimentary and metamorphic.

Here is a dramatic photo Zac shared with me of the Alps. Notice the incredible folding that occurred as these mountains lifted. Powerful forces.

Fifth, this is the general structure of our **Uinta Mountains**. Notice the sedimentary rock deposited. The continental basement rocks that pushed up through it. The fault line breaks. And then the incredible erosion. All of the rock on the top is missing. Where is all of the rock? It's swept away.

And then sixth, the **Grand Staircase**. This cuts across southern Utah in to Arizona. You see Bryce and Zion and the Grand Canyon. Our minds don't understand the magnitude of sedimentary rock that was deposited and then eroded away. All of these layers here, they are washed away. Like 10,000 feet of sediment. Gone. Where is it? Where is all of the rock? It's swept away.

Last class, we talked about the stacking of the pancakes, now we are talking about eroding the pancakes.

But where is all the material?

Let's compare our two models. This is the Utah hydrological map. It maps all of the rivers and drainage basins in our state. In the slow and gradual model, **networks of rivers** like this for millions and billions of years have eroded and carried all of this sediment away. That is the conventional model.

What we just saw in those photos was transported away one sand grain at a time over millions and billions of years.

But in the catastrophic, **global flood model**, we are talking about a yearlong flood. 150 days of rising water. 220 days of receding water. That pulverizes the surface of the earth in dramatic planet altering ways. God's watery judgment of the earth permanently altered our planet's surface.

Again, the water would have flowed off the continents in 2 phases. The sheet flow phase. That made the planation surfaces. And then the channelized phase. That would have made the various canyons we see.

But let's go back to our **Monument Valley** photo. Utah/Arizona border. So the global flood deposits all of these massive layers of sediment and then erodes a good chunk of it away. Notice the black lines connecting the layers. And where is the rock? It's gone. As far as the eye can see, it's gone. It's not some valley filled in like this. That is a thousand feet of rock and it's gone.

Water is that powerful. Let's talk about the power of water, specifically cavitation. This kid's video is great. Talking about the **1983 flooding at Glenn Canyon dam**. 3 minute video.

https://www.youtube.com/watch?v=v98omCq1kRA&ab_channel=AwesomeScienceMedia

0:23 – 3:02

Erosion can happen quicker than we think. Here are a few more examples.

Providence Canyon State Park. Georgia's Little Grand Canyon. Massive gullies as deep as 150 feet were caused by poor farming practices during the 1800s. It is pretty to look at. But farmers running water made that.

Or what about **Burlingame Canyon** in Washington, a small-scale analogy to Grand Canyon, which formed in less than six days. It measures 1,500 ft. long, up to 120 ft. deep, winding through a hillside. In 1904, the Farming District constructed a series of irrigation canals. Mistakes were made and this canyon eroded out in 6 days!

This is from **my 2017 trip to the Grand Canyon with Dr. Snelling.** This was a side canyon we hiked up to. You see these unusual fracture patterns. Dr. Snelling called this conchoidal fracture.

Basically this side canyon was eroded down so quickly that it caused this unusual fracture pattern, which is caused by sudden confining pressure release. I can explain more after class.

Let's talk some more about channelized flow. Water clearly has incredible power when it is confined and moving quickly. Another evidence. 3rd evidence. **Channelized flow. Narrow currents formed our major land features.**

So again, as the water was flowing off the continents, initially, it moved in massive sheets, planing surfaces off. But as the water levels continued to drop, the flow started to get channelized and created many of the canyons and land features we see around us.

I need to make a comment. Remember my introductory thought about verses and models. Some young earth geologists believe the Canyon was formed as the waters ran off the continent with no lake. And other young earth geologists believe the **Grand Canyon** was formed by a temporary inland lake that was trapped and then catastrophically eroded the canyon after the flood.

That is the video we are about to watch. Del Tackett and Dr. Steve Austin again.

https://www.youtube.com/watch?v=f9cYWZ2UU1M&t=309s&ab_channel=IsGenesisHistory%3F

2:21 – 4:55

So that is one model to explain the formation of the Grand Canyon. I think it is a reasonable model. But there is no verse that says the Grand Canyon was formed by a lake failing years after the flood.

And again, other creation geologists argue that the Grand Canyon was formed during the receding stage of the flood.

They both agree the flood created and eroded this canyon. But their models disagree on the how.

No if you are paying attention, there is a question, that should be in your mind. All of this sheet flow and channelized flow carried all of this sediment away. Where is it? Where is the sediment?

In the continental shelves. Off the edge of the continents, out in the oceans. So as the water was sheeting off the continents. It deposited all of this sediment on the continental shelves.

We are going to get into the continental shelf more when we talk about the ice age in a couple classes. But a few comments. One the vertical scale is greatly exaggerated so we can see what is happening off the coast. Second you see the different components. The shelf, the slope, the rise.

The continental shelves were built during the sheet flow of the flood. It's a major feature. All under water. Off all the continents. You see the submarine canyon. Those are pretty cool. We will return to those. Continental shelf sediments 9 to 12 miles deep and 300 miles wide.

And this sketch. Youtube knows I am really into geology right now. So it is suggesting all kinds of geology videos. This is a sketch by a geologist, to give us an idea of the depth of material deposited in the ocean. That is Mount Everest, 5.5 miles. It would be totally buried in this sediment off the coast of the continents.

So where is the sediment? **In the continental shelves.** Off the edge of the continents. You see it there around North America, but it's everywhere.

Another evidence for the global flood is the **rounded boulders.** 4th evidence.

Another evidence for the global flood is the **rounded boulders.** If the earth was old and you had slow and gradual processes, you would expect that the hard layers would be eroded slower. And the soft layers quicker. Like on the left.

But what do we often find. Both the hard and soft sedimentary layers have been planed off. And across the surface there are rounded boulders.

These **rounded boulders** indicates water action. Secular theories don't work. Percussion marks on the boulders, where they collided, provide evidence for rapid currents.

Rising mountains carried the rounded boulders up to high altitudes. Their size, shape, and impact marks indicate massive turbulent fast moving water. There are valleys in the Rocky Mountains thousands of feet deep were filled in with rounded boulders.

Billions of them, very hard, hard well rounded boulders. Some were transported as much 800 miles. Moving over 60-70 mph. You need a lot of water moving fast to move rocks like this.

A brief aside. Let's talk about secular erosion rates. Old earth geologists calculate that the current erosion rates are about 40 feet per million years off the continents. Which is slow. But we are talking about land features that are supposedly hundreds of millions of years old. They shouldn't be here anymore. **Utah is about 4000 feet** above sea level. At that rate, Utah and all of America should be eroded to nothing in way less 100 million years. And yet, we are told Utah is much older than that.

This is illustrated in this short video **about Hawaii**. This is Dr. Tim Clarey. And the current estimated erosion rates for the Hawaii islands is about 5 inches per year. 1 minute clip.

https://www.youtube.com/watch?v=aj3RMK-ciPU&ab_channel=InstituteforCreationResearch%28ICR%29

0:00-0:57

Here is another example of how time is erasing these features. This is **Chimney Rock** in western Nebraska. Pioneers traveled by this back in the day. Utah pioneers. Here is a modern photo on the right and an old photo on the left. And notice the dramatic change to the top of this rock. Erosion is happening too quickly.

Our final piece of Evidence for a Global Flood: Water and Wind Gaps. 5th evidence.

Why do rivers cut through mountains?

A water gap is where a river or stream runs through mountains where it should have easily gone around it in a different direction. Wind gaps are higher up. Only wind goes through it now.

Diagram. Water and wind gaps are not unique, they are found throughout the world and can be very deep. The deepest water gaps are in the Himalayas, some as deep as 21,000' deep.

Water and wind gaps are major mysteries of Uniformitarianism. Why would water cut that gap in the mountain?

The Flood can easily explain water and wind gaps at the receding stages of the Flood.

So we have these gaps or passes way up here where water didn't flow. Supposedly. But it did, during the flood.

Here are some examples.

Here is the **Devil's gate in Wyoming**. Why wouldn't it just flow around?

Here is the **Cody, Wyoming**. It's 2,500 feet deep. Why wouldn't it just flow around? River could have easily gone around. And yet it cut through the mountain?

Here is the **Split Mountain, Utah**. Aiden and I rafted through this. Why wouldn't it just flow around? River could have easily gone around. And yet it cut through the mountain?

Here is the **Delaware**. Why wouldn't it just flow around? River could have easily gone around. And yet it cut through the mountain?

These are water and wind gaps. Features that are difficult to explain from an uniformitarianism perspective. But make perfect sense from a receding flood water perspective.

If you loved this topic, here is a great book to study. **Flood by Design. Mike Oard**. Looking at how the receding water shapes the earth's surface.

But here are five evidences for a global flood as found in the planet's erosional features.

Evidence for a Global Flood:

Planation surfaces.

Massive planetary erosion.

Channelized flow

Rounded Boulders

Water and Wind Gaps

CONCLUSION

Let's end with this.

What are these? **Sand ripples**. Like you would find on a beach.

What are these? Or I would say where is this? This is **western Nebraska**. Do you see the sand ripples?

Let's zoom in and rotate our perspective. Looking north into South Dakota. Look at the **sand ripples**.

Here are both image. A beach on the left. And western Nebraska on the right. Nebraska has sand ripples across it? Whoa!

We can see the Ark and Darkness movie last week. We can listen to this lecture. And think wow, the earth was flooded. That's wild. But we should not miss the main point.

This is from the New Testament. Written by Peter the apostle. Another New Testament reference to the flood. We are going to pick it up midstream.

1 Peter 3:20 because they formerly did not obey, when God's patience waited in the days of Noah, while the ark was being prepared, in which a few, that is, eight persons, were brought safely through water.

In the same way, that the ark kept Noah and his family alive through this water judgement. Jesus Christ and his death on the cross, burial and resurrection, and believing in that. Putting your trust in that, is how you will safely pass through the next judgment.

It is very encouraging to me that so many of you are growing in your confidence in the Bible. But if you haven't accepted Jesus as your Lord and Savior, that's the next key step. Jesus isn't just the creator. He is your savior.

Let's get in our groups and discuss till 800. Thank you!

Discussion Questions:

What did you learn tonight? What stood out to you?

What did you enjoy about the Ark and the Darkness movie?

What erosional feature is the most powerful evidence for the flood?

We have three lectures left. What is your most pressing question? Send those questions to Josh.

801.520.5534 josh@trc.life

What do the flood waters from which Noah and his family were saved teach us (1 Peter 3:19-21)?

Have a few people pray.

See you in 2 weeks.