

# 2018-04-22 Earth Day Grand Canyon

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## SPEAKERS

Gil Fronsdaal

So today is Earth Day. And this is a very happy coincidence for me, because I spent the last came back on Thursday evening from spending 23 days nights, living on the earth, living outdoors under the stars, sleeping on the ground and far from any place where there is Wi Fi and cellular connections. And it was quite remarkable to doing that. And I was I spent the time rafting down the Grand Canyon with a group of friends, but about 14 of us and it was a phenomenal encounter with the earth and so that's what's mostly on my mind is come here today. And so I get to kind of bring together these to Earth Day and my own experience of these last month. And one of the fortunate things about many things fortunate about this trip, but one of them was, we had three geologists with us, coincidentally. And to go down the Grand Canyon with geologists made it just come alive, or how to fly is the right word. But you know, you've got to see and what we see in the Grand Canyon in terms of the earth and the geologic, geology and geological time and, and the power of the earth, the energies that go into forming and shaping and molding this planet of ours. It's just astounding to see and, and then where we are us as human beings in geological time of it all, is also kind of astounding. So here's a wonderful little kind of way of understanding something about geological time in our place in it. If the age of the Earth could be viewed as one year, the earth formed on January 1. during January and part of early February, the earth became organized into core mantle and crust. On about February 21, life evolved. During all of spring, summer and early fall, the earth evolved to continents and ocean basins something like those if today, and plate tectonics became active on October 25, at the beginning of the Cambrian period, complex organisms including those with shells arrived. On December 7, reptiles evolved. And on Christmas Day, the dinosaurs became extinct. modern humans Homo sapiens appeared on the scene at 11pm on New Year's Eve. And the last glacial age ended at 1158 and 45 seconds pm on New Year's Eve. Three hundredths of a second before midnight. On New Year's Eve 300th of a second before midnight, Columbus landed on a West Indian Island and about a few thousandths of a second seconds ago. You were born As someone else that uses the analogy of age of the Earth, if you spread it out, spread your arms out wide straight. And that became the spectrum the scale at which you've looked at human life, you know, the Earth's geology, geology, geological time. And, you know, maybe on the far, you know, tip of your right hand is, is the beginning of it all and, and, you know, more or less today is coming, you know, as a far left hand stretched out, then human life on the planet would be less wide, less long than the clippings of your fingernail. And that's kind of you know, just if you don't know what, what do we do our fingernails we just clip them off and throw away They clip things right. In you know, you know, maybe we can wear that dispensable. Maybe

So, you know, we went to a place in the Grand Canyon called elves chasm place you side Canyon you walk up in, and it's the oldest part of the Grand Canyon. It's 1.8 million 1.8 billion years old. That's remarkable to be in any place like that. And it was a beautiful place and it had a pool of beautiful pool of waters and little cave you go in and kind of nice and beautiful hiking and climbing. We did a lot of

climbing, kind of climbing. We had melting climbers with us. So they kind of spotted us as we went to these amazing places. And they taught us little techniques of how to, I guess stay alive. A lot of the trip was learning how to stay alive. The remarkable they just go back and touch rock that's 1.8 billion years old. See it? It's impressive to see in some of these places where it's settled, you can almost kind of see the formation of it. You can kind of see how it was this very soft Play Doh kind of stuff that was kind of being cooled and shaped and pressed. And then at some point, the Play Doh kind of gets frozen in time. And you kind of see the swirling the twirling, that that you know that was existing back then. So you can always remarkable, but this place called the elves chasm. Not only was it formed 1.8 billion years ago, it was formed 13 miles under the surface of the earth. Not only was it formed one point 13 months On the surface of the earth, it was formed south of the equator. Before there was a North American continent before there was pen G. And pen g eyes, which is a German pronunciation for pen Gaia is the name of the, one of the times and the last time I don't think the last time even maybe the last time Yes, where there was there was a super competence when all the landmass in the world was one big continent. And this has happened periodically over time, different super continents. And, and we're I guess we're on that track to do that again eventually. Right now, I learned that Australia is rushing to crash into Asia. And just like we're in the middle of the crash of India and Asia. Australia is moving one inch a year. So You know, be sure you're not standing in the way when it comes but it is elf chasm this you know this the Grand Canyon wasn't even part of North North America didn't even exist at that point. And then you know you get you see these layers of rock and sediment and see that that hole what we call Grand Canyon that area was for long periods of stretch was underwater and then it came out of water and came underwater and then most recently, which was only some 40 no only some few million years ago there were volcanoes there and you see the love us, you know, frozen in time kind of coming down the edges of the granite or the sandstone and just kind of like dripping down and getting cold and it's just the energy of it all is phenomenal. And then you have the Grand Canyon itself, which is not so old nowadays. Then kind of It's about 6 million years old. And you know, it's a mile deep and probably mostly created during the melting of the ice age. And there was just so much water that came down from the Rockies or if during the end of the ice age, I mean the amount of water there were, they believe that there are boulders, they were 100 feet in diameter. They were rolling like little toys down the Grand Canyon, because the water was so great just carving it out. And, and so anyway, there's a lot of I came down parts of it, and created big dams. And in there over, you know, some hundreds of thousands of years ago. And so the dams and lakes were formed and then they got washed away and you know, nothing stands. You know, the, the river just kind of washes everything away the time you know, to the oil changes and flows. And now, we have

The Glen Canyon Dam upriver from the Grand Canyon, and that Hoover, Lake Powell is being created. And it's now I think it's about I think it's about I think was made in, in the 1950s. Is that right? Someone? No, that's old. But it's still thing up, because you can't stop the silt coming down from the Rockies and everything. So it's still thing up, and it's not gonna last very long. Just like all these lava dams that created big lakes in the Grand Canyon, this tune is going to go and who knows, maybe it'll just kind of suddenly break. One of the geologists told me that. I guess the area maybe of Idaho there used to be this huge many years ago, a huge huge lake maybe at the end of one of their ice ages and at some point One of the walls that was holding that lake in first. And just a matter of week it created the Columbia Gorge. You know, just all this water pouring down carving away the sand and rocks carving away. So we were there, you know, so it's phenomenal this earth they were living on that started with just gas and Stardust, just a little over four, just a little over 4.5 billion years ago. And then there was this supernova that somehow sent out a shockwave that spun this gas and dust apparently, and as it spun, it formed the Milky Way or our solar galaxy. And then that gas and dust kind of start organizing itself and, and, and here we are. So this geological time was quite something to experience. And we were rafting down the rapids of the Grand Canyon. And going down these rapids some of them are

notorious. I didn't know these names some of you so there's the people I know these names are, you know, some people cower. I didn't know that. With You know, there's Hans badger bedrock and it's one called upset. And the most famous one is called lava. And I was reading Henry Wesley Paul's stories of going down and he was the first person to go down the river and our boat successfully. And he named some of these and you know, it was harrowing to read about his experience with the rapids and bedrock, that was where we had we had trouble and some of these not just ideas there. And so these these rapid You know, maybe I mean, forget about your logical time. It this moment is all there is. You know, everything gets reduced. And now what? So this this, this fullness of just now being here and having to be so attentive and caring, you're focused on just the whole experience of now and reading the river and the boats and staying on track and it's quite something. And then one of the first significant, I had never done any rafting like this. So in the first significant rapids went down. They have some called a hole in rivers, and I didn't know what hole was, I didn't know rivers had holes. And it's where the water goes over kind of a ledge. The beginning of the rapids usually are the rapids, but the water comes out over their life so strongly that as it comes down, it curls back on itself. So it makes a whole And curls back. And if you can get stuck in those so you can get stuck for a long time and then and so the first significant rapid we went in my wife and I were the passengers on the raft at that point. And we knew to if you start going up the wave to to, you know, to getting tipped over you supposed to high side go against the high side to keep flipping over. So, you know, it seemed to me like we're just going up one wave and down up the next wave and down and we were kept high sighting. But actually, we were in a hole we weren't going up into here, which is going up and down the same way. So we were doing that for a while. And then I happen to look it down to my left off the side of the boat into the water. And the person who is behind me wrong. The boat, his head popped up in the water. What are you doing? And we didn't have we didn't have a pilot. There was no one behind us. He'd fallen in. So I pulled him up and And then we figured out what to do.

So, you know, so the present moment. And so it was quite something to meditate in the Grand Canyon with this given the scale of time and power of the valley and the earth. And then also to and then, and then the moment and the danger that's there and the power of the earth and, and, you know, it can live with third kind of complacency sometimes about the power of the earth here. You know, you know, living so close to this ndarray asphalt. One of the things I learned from these geologists is that it isn't most of these big geological changes don't happen gradually. They happen to tend to happen in big spurts and like the like the Owens Valley earthquake in the 1870s, the earth move 30 feet And San Andreas Fault in many feet as well. So, and this can make a little bit of a problem for property rights. You know, who owns what then. But you know, so these big changes that can come anytime, any moment. So how do we live with this earth of ours? How do we live in this world that this, you know, is actually so fluid, amazing. I mean, you get a sense of the fluidity and the change at what's going on. The and then I had an interesting experience. There's a lot of erosion in the Grand Canyon Mets house, one of the ways it was formed is tremendous amount of erosion and went away is the erosion is formed visit the softer rocks on the lower layer and they get worn away. And then this, this the, this harder rocks that are above that will collapse. And so you have these huge rubble fields of you No we came across one huge you know big kind of square blocks of rubble of you know fix huge granite I don't know what they were just huge things and I thought it looks like you know the construction workers gonna just dump their pick their their a dump truck full of construction material just made a mess and left and left for a few hundreds of thousands of years. And then I still don't like Miss and I wondered, is there a mess in nature and I had no maintenance it doesn't make a mess doesn't exist in nature or mess is just something that you know, human projection, you know, idea that should be a certain way it should be neat or something. So that seemed kind of obvious some way. But then the corollary of that is their beauty and nature because it you know, so inspired by the beauty of it all so meaningful and created so much sense of peace and harmony and inspiration. Is there beauty and nature. You know, it's easy

enough to say there's no mess but we want to say there's no beauty maybe beauty but beauty and mess exists in the eyes of the beholder and us. And, you know, we're important as well. And so what is it that put us so one of the meditations I had sitting on the river was after kind of imbuing invite, absorbing this experience for days on end. I was sitting meditating and, and my mind kind of pulled itself inward almost. And I had a sense going inward, deeper and deeper inside of myself, still learns quieter, still are still still there, that I was going through geological layers in my own mind. You know, we know we have, you know, we're, we've evolved out of creatures for these many billions of years. And some of the, you know, the remnants of all that history of evolution still exists in us, right? killian brains and there are all kinds of things. And so we have layers and layers as well, you know, because I got a sense while there's a grand canyon in me, wow, it's like going in it's like an off, you know, Grand Canyon outside Grand Canyon inside. And. And then I was reflecting something I've learned about. Apparently they average, I don't know, the ordinary human brain better if any of us are ordinary. But the ordinary human brain has 86 billion neurons. That's a lot of neurons. And then if you consider the number of connections between those neurons, you know, getting up into trillions of neural connections. There are something like 100 billion galaxies in the universe. No, no, no, it was 100 billion hundred trillion. Me the astounding some of these galaxies Like the Milky Way has some like, it's kind of smallish galaxy apparently. But it only has something like

to the one to 200 billion stars. You know if that has, you know, that many stars and there's so many galaxies, how many stars are there? And so this scale of, you know, of neural connections inside of us this scale of these stars beyond us. I don't know if this is accurate, you know. But I kind of had the sense that we sit in the, with our eyes, our ears, our nose, our tongue, our tactile sensations, we see it at this kind of interface, like this very thin veil of interface, between the vastness beyond us, and this vastness within and we tend to live right there and that interface, make a whole universe of ourselves our concerns preoccupations of the day and everything. But, you know, what we're consciously aware of usually as we go about our life is such a small, teeny little sliver. You know, it's less than, I don't know, it's less than a fingernail clipping, it's less than maybe it's the amount of if you rub your fingers together, it's the amount of skin that gets worn off and floats away in this little world that we live in and caught up in and preoccupied in and so it's an amazing kind of, you know, you know, we're amazing product of this earth. We're completely made up of recycled material. You know, and one point I was marveling at the Grand Canyon and the water and I wondered how many times some of those water particles had taken the same trip. Because, you know, there's in one square centimeter of water, there's something like, I don't know, I don't know some astounding number of water particles. And you know, as they get evaporate and spread around the earth and we know it's guaranteed that some of its going to come back to where it was sooner or later where it was before. And so for us, you know, what, all the all the physical materials that make us up as human beings, and they were completely were Stardust, they say, right, but we're all this physical. I mean, you know, it now this material is us. But it's been others. It's been other things. It's been grand canyons, it's been in the rivers, it's been everywhere. It's been molten lava, the first geological period or the name for it. The Earth, some of you probably know, is the Hadean period. from the Greek word hated hate us. Help. Because it was so hot, and there was no oxygen and there was all these. Apparently they think there's lots of meteorites that came down and just you know hellish kind of environment. So we went through that too, or at least our stuff, all the stuff that we have that, you know, we live with. And in somehow out of that soup and that mix, came, these creatures that could be aware, could be self reflective. I love the idea that human beings are nature aware of itself, that we're part of nature and intimately part of it. And how do we live in this natural world? How do we live as human beings in the world that is us? Do we have this capacity to remove ourselves from the earth from nature, as if we're different than independent of it and live completely independent of any kind of concern for our intimate connection that we Have with the planet with the earth with the natural world. without, you know, we were so intimate with it. And, and be so



disconnected from it. You know, I suspect, you know, there's probably a mathematical formula that can be made up that correlates screen time with losing the connection with this planet to the nature and the earth. And the greater the screen time, the less the natural time that people have. But we're definitely it's a part of, you know, we're intimately part of this natural world, and how to and so how do we live with it. And one of the things that Buddhism offers is to be really careful to understand

what goes on inside of us. And so I made this an example of the mess and the beauty to see how the In beauty that we see in the natural world, is something that's constructed by human ideas and thoughts and feelings and emotions. And that's not to dismiss the value of that. It's a wonderful to see beauty. It's very inspiring and very meaningful. But we have a built part of this way I think we're built is to, is to be an interaction be in relationship with each other with a world with nature, and these capacities for empathy and capacity for attention, capacity for feelings and emotions. These are all you know, things that arose in relationship to living in this natural world. And how do we live with it in a way that's meaningful and important, caring, valuable? Is it valuable for it to be more connected to the earth? Is it valuable to feel that we're part of the Earth is it valuable to Not to exploit the world to avoid creating harm to these creatures of the Earth to the world itself. That, you know, in some one point of view, it doesn't matter some of this stuff. I mean, I read one, one of the Park Service geologists wrote this thing saying, you know, this Glen Canyon Dam she was the one who wrote about the Grand Canyon Dam. And so you know, silt is coming up, and it's probably going to last maybe another 50 years. And, and the river will claim it again. And, and, you know, in the in the scale of the Grand Canyon, it's just a little blip, like for the sake of the Grand Canyon, it doesn't really matter. This, you know, just, it'll be not even noticeable. That's this dam and its destruction. So does that mean it doesn't matter when we shouldn't be unconcerned with it. I don't think that human beings are constructed to be unconcerned with it and They were constructed to have a sense of empathy and care and, and sense of commonality, to all kinds of things. One of the things that was very present for me and going down the Grand Canyon was the Native American communities that lived there for thousands of years. And apparently, the Grand Canyon was a sacred place for the Hopi Indians and other Indian Navajo Indians. And, and they would make pilgrimages to it. And, you know, for hundreds of years, and so for me, hearing that, I feel a certain reverence. I feel like that that's, that's very meaningful and deep, deep in the hearts of these native people who live there and are connected to it and a lot of it was taken away from them and, and so when I'm in the Grand Canyon, you know, that's part of the my care and attention Didn't want to take anything from the Grand Canyon, you weren't supposed to actually, you weren't supposed to leave anything either. And I didn't know about this thing, but I want to explain what this is. But as some of you know, about groovers a big part of the trip was taken care of groovers. And rivers is the way that you take your poop out of the river. And, you know, so you just always, you know, always you know, this caring for the caring for the natural environment, not creating any unnecessary damage. And admit a lot of sense to me, it made a lot of sense, I could feel a sense of reverence, without all these oldest layers of the canyon. The oldest layers most people refer to geologically as Vishnu schist. schist is a kind of metaphor metamorphic rock, but it's named after the god Vishnu. And there's also Ramesh Just and there's Brahma schist. And I thought that's curious and tried to find out the geologists. Why is it called that? Knowing the geology the trip can answer my question. That's what it's called. But I found out last night that the first geologists who really write down the studied the Grand Canyon, the 1880s, he named a lot of the buttes and mountain tops of the valley. And he felt that given the age and the time of the end, in the sacred of specialness of the Grand Canyon, he felt it belong to all humanity to everyone. And so he went around and named the mountains out of the

gods and mythologies of people from all over the world. And so there's a there's a Brahma temple, which is a beaut. There's a Vishnu temple, which is another beauty or Aspire. There's even a Buddha temple in the Grand Canyon and All these you know, things, but this idea that kind of belongs to all of

us, you know, it was formed before the North American continent existed. So to sit, sit with a reverence to sit with and we have a capacity for feeling connected, feeling moved, feeling caring, we have the capacity to understand the harm that's caused to individuals to people, to creatures, and perhaps also your sense of interfering with the natural order of things that how things are. Which humans have a tremendous capacity because there's so many of us and we're so technologically and industrially capable to doing so many, you know, create so much damage on the planet you know, in some so you're getting the scale of it all, you know, it just probably the damage we're doing. To what exists, you know, probably doesn't. I don't know what how it compares to that. You know, the Ice Age is nothing's changed then. And you know, there were times when we had mass extinctions in the history of the planet that 90% of life disappeared. Apparently, you know, we started off with more anaerobic life and then the aerobic life kind of took over. That's kind of cool. You know, I think the anaerobic anaerobic life with life was here first, and they had to be bumped aside. And so you know, all this stuff happens. You can say, human as humans tend to kind of go through its thing. It's just part of the natural process. And the scale of time, it doesn't matter and another billion years, the sun is going to disappear. And a few more billion years that our galaxy is going to crash into the Andromeda galaxy. That'll be a great experience. Put the Austria Australia crashing into Asia perspective. And so you could do that and kind of be dismissive of it all doesn't matter the scale of things. But I don't think human beings are created to say it doesn't matter, I think to say it doesn't matter is to be disconnected. I think again, probably can make an equation I apologize for this. If this is offensive to anyone, between, you know, screen time, and the sensitivity did attitude it doesn't matter and, or just connection. I think that we're built in a way that if we're, if we are settled on ourselves, if we're attentive if we're not swirling in the fires and molten lava is of fear and greed and hatred, and have kind of been able to settle this down. That these wonderful capacities of caring and empathy and And then non greed, non hate, become predominant. And then I think it's natural, to not want to damage, natural not to want to Lord over. It's natural to want to be careful and caring and reverence for this world, this nature, this natural world we're in. And so coming through this experience of three weeks and four weeks in the Grand Canyon, the sense of reverence for this life reverence for this earth, reverence for a natural world seems to be one of the one of the really precious human capacities that we have. I don't know why we have this possibility for a sense of sacredness or reverence, or respect or all. But we do and it's a wonderful thing to be settled. Enough and quiet enough and still enough, peaceful enough for non agitated enough to allow these to bubble up and be there and to sit there and meditate and have a reverent feeling for the Grand Canyon within Reverend feeling for this amazing thing that we're part of amazing power and amazing flow amazing unfolding that we're all kind of

stardust on one hand insignificant, little specks and on the other hand something amazing and phenomenal and valuable how do we negotiate how do we find our way between awesomeness in reverence of this experience of this universe that we are blessed to be part of and then negotiate the rapids of our daily lives than moment to moment experience of how we find our way and stay safe. So last thing I'll say that one of the

absolute rules of rafting down the Grand Canyon is wearing a personal floatation device. I think the fine for not wearing one was like \$5,000. And so I don't know if it's a rule, but the comparable personal floatation device in rest outside of the ground Canyon is mindfulness. If you keep buying if you're mindful, no matter what rapids you fall into, you'll float. And if you're not in the rapids, and you're mindful, maybe there's half a chance that you will appreciate the awesomeness and the reference of this life, this world, the earth. And that as you go, especially today, going around Earth Day, it's a good day to appreciate the power and beauty and appreciation for what some people call our Great Mother Mother. powder which would come and out of which we are and that of which we will return. We're all recycled material from this earth. Take good care of it. soon Thank you