

Volcanoes

Written background, about volcanoes, for this talk is provided for your information; as are lesson plans for teachers.

This interactive talk took place on October 23rd, 1998. It has been edited and re-ordered here for your convenience.

Psyndi, 90 Miles South of Mount St. Helen's (13: 59, October 23):

I didn't live in Oregon when Mt. St. Helen's blew, but I can see it from where I live now. Even with blowing a big chunk off the top, it's still a very impressive mountain!

Ed Klimasauskas, Cascade Volcano Observatory (14: 04, October 23):

Good afternoon. I guess we're ready to start. I work at the Cascade Volcanoes Observatory in Vancouver, Washington, as the Public Information Scientist.

Ed Klimasauskas, Cascade Volcano Observatory (14: 05, October 23):

Peter Frenzen will also be joining us from the US Forest Service. He will probably introduce himself. He spends a lot of time studying how the plants and animals at Mount St. Helens were affected by the eruption and how they are recovering.

cody, On the 'Net (14: 07, October 23):

I've been wondering if St. Helens will blow again, ed.

Ed Klimasauskas, Cascade Volcano Observatory (14: 09, October 23):

Cody, the answer is YES. Unfortunately, we don't know exactly when. Over the past 4000 years MOUNT ST. HELENS (Mount St. Helens) has erupted on average about every 150. She is right in the middle of a very active eruptive period.

cody, On the 'Net (14: 14, October 23): so, its totally random??

Michelle, On the 'Net (14: 26, October 23):

Ed-- I would assume that geologists are aware of potential eruptions -- how far in advance are they certain? and how far in advance would they issue a public warning?

Ed Klimasauskas, Cascade Volcano Observatory (14: 19, October 23):

Cody, the time between eruptions varies, but can give us some idea of when to expect one. Before 4000 years ago, MOUNT ST. HELENS slept for about 6000!

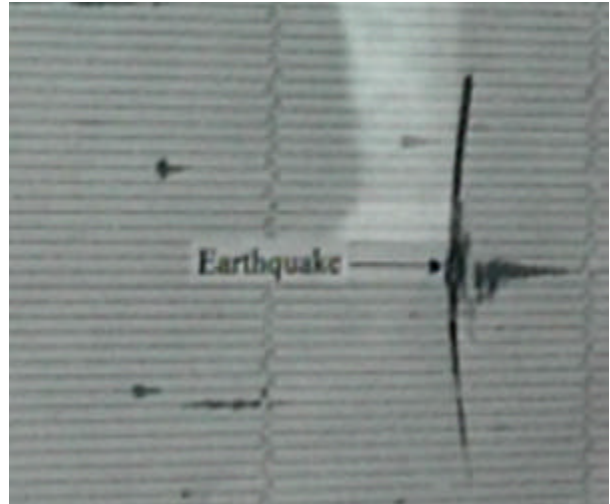
Shawn Steele, Terra.org (14: 07, October 23):

I here that there was an earthquake near Mount St. Helens recently, is that related to the volcano?

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Ed Klimasauskas, Cascade Volcano Observatory (14: 11, October 23):

Earthquakes can be used to predict eruptions in some cases. When magma or molten rock moves through the earth, it causes the rock to break, generating certain types of earthquakes. By measuring these we can tell whether or not the magma is near the surface. The latest big earthquake (3.2) a few days ago was on the ST. Helens Seismic Zone, but NOT related to the magmatic system beneath the volcano.



Michelle, On the 'Net (14: 10, October 23):

I recently read that volcanoes actually increase species diversity. I am curious about how this might happen, and also how long it takes for initial growth to be reestablished after an eruption?

Peter Frenzen, USGS, CVO (14: 12, October 23):

Michelle-- Good question. Yes, volcanoes can increase species diversity by changing the growing conditions. For example, if you had a dark forest with one type of plant life and a volcano created a large opening the resulting landscape might be changed into a mix of both forest plants and the plants that established in the opening. More different types in total than occurred before the eruption.

Peter Frenzen, USGS, CVO (14: 14, October 23):

Michelle-- This alpine lupine is an example of a plant that established after the 1980 eruption of Mount St. Helens. The pen in the picture gives an idea of size. It's a small but important colonizing plant species



Leah, Richard and Becky, On the 'Net (14: 09, October 23):

Is there any pattern of time between eruptions?

person #2, On the 'Net (14: 40, October 23):

When, do you predict, will MOUNT ST. HELENS erupt again?

Ed Klimasauskas, Cascade Volcano Observatory (14: 13, October 23):

No, there doesn't appear to be any pattern of time between eruptions.

Ed Klimasauskas, Cascade Volcano Observatory (14: 49, October 23):

person 2, Since Mount St. Helens has erupted about every 150 years or so during the recent eruptive cycle, we can probably expect another one in the next 150! Volcanoes can sleep for thousands of years showing no signs of activity. When they do wake up, it can happen pretty rapidly. We look for signs of this activity in earthquakes.

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person #2, On the 'Net (14: 49, October 23):
Thanks Ed.

person #2, On the 'Net (14: 09, October 23):
What is the closest town to Mt. St. Helens?

Ed Klimasauskas, Cascade Volcano Observatory (14: 16, October 23):
There are several towns near MOUNT ST. HELENS. Toutle and Kid Valley are located about 30 miles from MOUNT ST. HELENS along the Toutle River (which was affected by 1980 lahars). ON the south side, the town of Cougar is at the foot of the volcano. There are also larger communities down river (Longview and Kelso) along I-5, which were affected to a lesser degree by the 1980 lahars.

Raina and Marcy Heaton, Cincinnati (14: 10, October 23):
Ed, Have people whose homes were destroyed wanted to move back? Can they move back?

Ed Klimasauskas, Cascade Volcano Observatory (14: 17, October 23) I don't know about the people whose homes were destroyed. Many of those who had land which is now in the Monument were traded allotments elsewhere, typically outside the monument boundaries.

Psyndi, 90 Miles South of Mount St. Helen's (14: 15, October 23):
I was especially encouraged by the return of habitat and wildlife that was documented following the eruption of MOUNT ST. HELENS. How on earth do scientists figure the trout survived in Spirit Lake. I thought it was sloshed around pretty badly.

Peter Frenzen, USGS, CVO (14: 18, October 23):
Psyndi -- Biologists believe that trout survived in an ice covered high mountain lake that was on a mountain above Spirit Lake. Even though all life was killed in Spirit Lake the surviving fish reproduced in the high mountain lake and the baby fish were washed downstream to recolonize Spirit Lake. The picture at the top of the talk is looking across Spirit Lake at the volcano.

Nilfamily, Our basement (14: 12, October 23):
Where did the rest of the volcano around Devil's tower go?

person #2, On the 'Net (14: 15, October 23):
What is Devil's tower?

Nilfamily, Our basement (14: 18, October 23):
Devil's tower is the remaining "tunnel" or outlet from an old volcano. We are curious about why only the center is still standing.

Ed Klimasauskas, Cascade Volcano Observatory (14: 20, October 23):
In response to the Devil's Tower questions: It is actually made up of columnar basalt, which are cracks that form in the rock as it cools and contracts. It was actually part of a thick lava flow, rather than a volcanic neck.

Martin house, Ohio (14: 18, October 23):

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Is there any nutrients in the volcanic ash? If so, what are they and how do plants grow in it?

Peter Frenzen, USGS, CVO (14: 20, October 23):
Martin house -- The St Helens ash is like sand. It has plenty of potassium and phosphorous but is lacking in nitrogen. In time as plants grow on the deposits like the alder trees shown in this picture they will drop leaves and add nitrogen to the deposits. Just like you'd add mulch to your garden.



Lara Steele, Terra.org (14: 22, October 23):
Peter tells me that this is actually a willow not an alder. We will have to get a picture of an alder to you later. Willow does NOT add nitrogen like an alder does.

person #2, On the 'Net (14: 18, October 23):
Could any of these towns be affected by MOUNT ST. HELENS?

Ed Klimasauskas, Cascade Volcano Observatory (14: 22, October 23):
Person #2, several of the towns I mentioned lie near or within hazard inundation zones. This means that they could be affected by future eruptions. Also, large explosions can produce volumes of ash which can affect communities hundreds of miles downwind. Spokane and Yakima had day turn to night from the 1980 ashfall of MOUNT ST. HELENS.

Michelle, On the 'Net (14: 21, October 23) it just dawned on me -- 18 yrs for that growth to establish -- abundant -- but such tiny plants. What would indicate secondary growth beginning?

Peter Frenzen, USGS, CVO (14: 24, October 23):
Good question Michelle. Yes 18 yrs seems like along time but the environment is harsh. First the tiny plants adapted to harsh conditions establish and then with time other plants can establish. The evergreen tree seedlings and shrubs like the willow that are establishing are examples that secondary stages of succession are occurring.

Psyndi, 90 Miles South of Mount St. Helen's (14: 19, October 23):
Thank you Peter. It's really encouraging to know that the earth is much more resilient than we suspected.

Martin house, Ohio (14: 22, October 23):
Are there any volcanoes that you know of that r erupting or going to erupt soon?

Ed Klimasauskas, Cascade Volcano Observatory (14: 24, October 23):
Martin house, yes, there are volcanoes erupting NOW! A good place for updates is the Volcano World website (<http://volcano.und.nodak.edu>).

megan, On the 'Net (14: 22, October 23):
is there any place that we can write to get pictures of the volcanic action? For instance, before and

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after and possible during to track the progress of the eruption?

cody, On the 'Net (14: 26, October 23):

hey, are there any photographs of the mountain that we could get that are from 1980?

Ed Klimasauskas, Cascade Volcano Observatory (14: 25, October 23):

Megan, pictures of the eruption, before and after are available on our website here: [http:](http://vulcan.wr.usgs.gov)

[//vulcan.wr.usgs.gov](http://vulcan.wr.usgs.gov)

My husband lived in Oaxdale WA at the time, he says there was ash falling everywhere. Did the falling ash impact any other areas negatively? Or could you just turn it into the soil and start planting? : -)



Peter Frenzen, USGS, CVO (14: 28, October 23):

Psyndi -- Ash fell all across the northwest in a northeasterly direction from the volcano. It temporarily damaged some crops but actually benefited them later when it acted as a mulch on the soil surface.

Over the long-term when plant material (mulch) is added it becomes rich soil. We have beautiful well developed forests that grow near Mount St. Helens because of the richness of the soil that has developed on ancient ash deposits.

Ed Klimasauskas, Cascade Volcano Observatory (14: 28, October 23):

Psyndi, I don't know exactly where Oaxdale is, but throughout eastern WA the ashfall created numerous problems. It is a respiratory hazard (imagine breathing tiny fragments of broken glass!). It also conducts electricity when wet, and was responsible for power failures around the Ritzville area. It is very abrasive, affecting anything mechanical. It also takes time to be converted to useful nutrients, which Peter can field.

Psyndi, 90 Miles South of Mount St. Helen's (14: 30, October 23):

Ed, thank you. You reminded me that at the time he was working as a John Deere mechanic, and the machines took a terrible beating from the abrasive ash they were exposed to.

Tricia, Davey, Helena, Katie, On the 'Net (14: 26, October 23):

Hi- Are there still any areas that look like the desert? How about the lakes, are there many fish? What kind? Have the coniferous trees made their comeback?

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*Ed Klimasauskas, Cascade Volcano Observatory
(14: 29, October 23):*

Tricia, some places still look somewhat like the desert. They certainly don't look like what you see elsewhere in W. WA.



*Peter Frenzen, USGS, CVO
(14: 30, October 23):
Tricia and co*



-- The valley immediately N and W of the volcano still looks open and desert like but really will eventually become a forest. This picture shows what it looks like. You can see the clouds and mist that are hiding the volcano. It's not like a desert at all because we get so much rain (150-200 inches per year) that someday it will be more like a temperate rain forest than a desert.

Peter Frenzen, USGS, CVO (14: 33, October 23):

Tricia and co -- Douglas fir, Hemlock and cedar will eventually dominate the forests in front of the volcano like they did a few hundred years after the previous eruptions.

cody, On the 'Net (14: 34, October 23):

wow, that's defenitally. NOT a desert.

Martin house, Ohio (14: 28, October 23):

What is the biggest volcanic mountain in the world? Is Mount St. Helens a large volcano?

Ed Klimasauskas, Cascade Volcano Observatory (14: 31, October 23):

Martin house, the largest volcano is actually in Hawaii (counting that it rises from the seafloor). MOUNT ST. HELENS is actually pretty small by comparison.

megan, On the 'Net (14: 28, October 23):

my brother, in the 4th grade, was recently studying volcanoes in his class. The teacher showed them the movie...Dante's Peak.. How do you fell about the accuracy of the information portrayed in this movie for children just entering into exploring volcanoes and their authenticity?

Ed Klimasauskas, Cascade Volcano Observatory (14: 33, October 23):

Megan, Dante's Peak had it's share of problems. There are a pile of frequently asked questions on Volcano World and our website. Sorry, the briefest answer I can give you.

Raina and Marcy Heaton, Cincinnati (14: 28, October 23):

Peter, Is anyone following the genetic changes in the plant populations in response to the changing environmental conditions? There probably wasn't baseline data, but perhaps you have found new

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species arising.

Peter Frenzen, USGS, CVO (14: 35, October 23):

Raina -- The only genetic study I'm aware of is about the genetic drift among isolated lupine populations. These small newly established populations show the finger print of the one plant that established them and are somewhat distinct from neighboring populations that are located several hundreds of meters away.

Leah, Richard and Becky, On the 'Net (14: 32, October 23):

How much time is a lot of time for the ash to be converted into soil nutrients? A year? Many years?

Nilfamily, Our basement (14: 29, October 23):

I've heard that volcanic landscapes are rich in minerals. how long does it take for it to turn into soil?

Peter Frenzen, USGS, CVO (14: 37, October 23):

Nil family -- Volcanic ash can develop into good soil in only a few hundred years. That seems slow but is actually quite fast because of all of the rainfall we get which carries organic acids from leaf material into the soil and speeds the process of soil development.

Ed Klimasauskas, Cascade Volcano Observatory (14: 35, October 23):

For ash to turn into soil depends on a lot of factors. Humidity, rainfall, vegetation, grain size. The smaller the particles of ash, the more subject they are to physical and chemical weathering. Heavy rains, humidity and soil acids can increase breakdown of these particles to useful nutrients in a shorter time span.

Benefiel's House, On the 'Net (14: 34, October 23):

Are there any active volcanoes in Colorado presently?

Ed Klimasauskas, Cascade Volcano Observatory (14: 37, October 23):

Benefiel's house, I don't know if they are considered active or not, but there are a few volcanoes (near Dostero, CO) and at Capulin National Monument. I think one of those has erupted in the last few thousand years or so.

cody, On the 'Net (14: 36, October 23):

so , ed. What is a volcano observatory like, anyway?

Ed Klimasauskas, Cascade Volcano Observatory (14: 39, October 23):

Cody, a volcano observatory is pretty much like an office building. Most of the work (reduction of data) is done on computers. Besides keeping track of the earthquake activity, we have people who study volcanic gases, deformation (how the shape of a volcano changes) and water related hazards like lahars (volcanic mudflows).

Michelle, On the 'Net (14: 38, October 23):

what happens with other wildlife and smaller creatures like insects?

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Peter Frenzen, USGS, CVO (14: 40, October 23):

Michelle -- This picture shows an northern pocket gopher. It survived in its underground burrow sheltered from the forces of the eruption that toppled the forests above. It's biggest problem after the eruption was finding enough food to eat. Because it is "fossorial" and lives its entire life underground if it didn't have enough surviving plants within digging distance it eventually perished.



Martin house, Ohio (14: 33, October 23):

Will that cone that's building up in the middle of the crater eventually make the mountain as it was originally?

Ed Klimasauskas, Cascade Volcano Observatory (14: 42, October 23):

Martin House, the lava dome in the crater of Mount St. Helens has not grown since 1986. If it had continued to grow at the same rate between 1980 and 86, it would have taken around 225 years to rebuild the mountain to it's former stature. It is anyone's guess if this lava dome will survive the next eruption.

Michelle, On the 'Net (14: 18, October 23):

thank you for the information. What happens then to animals and insects?

Peter Frenzen, USGS, CVO (14: 42, October 23):

Michelle -- This is a picture of a Pacific Jumping Mouse which is an example of a "generalist". An animal that is able to live in a wide array of habitats and eat whatever types of food are available at the time. Seeds when they are abundant, insects when they are not and so forth.



The Boys, in Cincinnati (14: 42, October 23):

Can you predict if a volcano will erupt with ashes or lava?

Ed Klimasauskas, Cascade Volcano Observatory (14: 44, October 23):

The boys, It is pretty difficult to determine exactly what will happen in an eruption. We study the past eruptive behavior of a volcano to try to determine what it will do in the future. Mount St. Helens has had numerous explosions, so it is more likely to produce ash than it's neighbor, Mt. Adams, which has produced numerous lava flows.

Raina and Marcy Heaton, Cincinnati (14: 41, October 23):

How many eruptions has MOUNT ST. HELENS had since the beginning of the Earth?

Ed Klimasauskas, Cascade Volcano Observatory (14: 46, October 23):

Raina, Mount St. Helens has only been around about 40,000 years, as far as we can tell. It has had

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dozens of eruptions during that time, some much more explosive. About 3500 years ago there was an eruption that produced about 18 times as much ash as May 18, 1980.

cody, On the 'Net (14: 42, October 23):

peter, did the eruption effect any thing in Oregon, because if it inflicted death on 60 sq. miles.....

Peter Frenzen, USGS, CVO (14: 47, October 23):

Cody -- Since most of the ash drifted to the NE it really didn't affect Oregon much except for the mudflows that flowed into the Columbia River, filling it and blocking it to ocean going shipping. The Port of Portland remained closed until they could dredge millions of cubic yards of sediment to restore the 40 ft deep shipping channel. To answer the rest of you're question...actually the amazing thing about St. Helens is that so much survived. see the picture of the gopher above and this picture of the frog...many frogs survived under logs in lake bottoms, etc and came back into the area to breed in ponds and lakes created by the eruption.



megan, On the 'Net (14: 41, October 23):

is there a demand for the type of work that you perform or are there always openings in this field?

Peter Frenzen, USGS, CVO (14: 49, October 23):

Megan -- the job I do is very unusual one. To my knowledge I am the only staff scientist attached to a special area managed by the US Forest Service. I went to school for at least 18 years to learn ecology. There are many different jobs that use ecology and they tend to be quite competitive so you'll need to focus and study hard. The key to success is to love what you do...and I DO!!!

Ed Klimasauskas, Cascade Volcano Observatory (14: 50, October 23):

Megan, the only real positions for volcanologists are with the government volcano observatories and universities. Unfortunately many are not well funded these days and positions are scarce.

megan, Cincinnati (14: 51, October 23):

thanks, Peter, for the response. what hours did you have to take not only in school, but college to prepare you for this line of work?

Peter Frenzen, USGS, CVO (15: 05, October 23):

Megan -- I've always been interested in and have taken a great number of biology courses. Depending upon what specific area you're interested in the specific course needs will change. Think about what interests you most and then talk to your local guidance counselor.

cody, On the 'Net (14: 47, October 23):

did they find any carbonized people or animals , like Pompeii??

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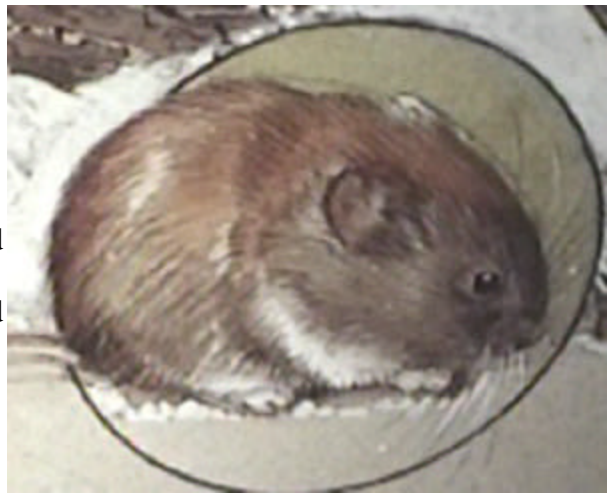
Ed Klimasauskas, Cascade Volcano Observatory (14: 51, October 23):
Cody, no. The people caught closest to the eruption have not been found.

Benefiel's House, On the 'Net (14: 48, October 23):
Approximately, how long does it take for lava to cool into igneous rock?

Ed Klimasauskas, Cascade Volcano Observatory (14: 52, October 23):
Benefiel's House, Lava is magma that reaches the earth's surface. If it doesn't, it can cool much more slowly in the earth, sometimes over millions of years.

The Boys, in Cincinnati (14: 50, October 23):
Where there any life forms left after the eruption and if so, were they mutated by the ash?

Peter Frenzen, USGS, CVO (14: 53, October 23):
The Boys -- I don't know of any mutations that happened. Although many animals did survive there were many millions that didn't. This picture shows a red backed vole which is an example of a forest animal that even if it survived initially wasn't able to adapt to the harsh, open environment left after the eruption. Red backed voles won't return in great numbers until the forests return which will probably take another hundred years or so...



Martin house, Ohio (14: 49, October 23):
What is the difference between lava and pyroclastic flow?

Ed Klimasauskas, Cascade Volcano Observatory (14: 54, October 23): Lava is molten rock that flows on the surface of the earth at up to a few tens of mph. A pyroclastic flow is a hot (up to 1500 F) avalanche of rock, ash and gases that flows down slope at high speeds (100 mph). The main difference is that lava flows are very fluid, where pyroclastic flows are made up of more viscous magma that cannot easily flow.

Michelle, On the 'Net (14: 52, October 23):
I saw something on Nova about insects after volcanoes changing their breeding habits (out of necessity) -- but this gave rise to new species of the insects. Is there any evidence of something like this occurring for survival with the small creatures that managed to survive at MOUNT ST. HELENS?

Peter Frenzen, USGS, CVO (14: 56, October 23):
Michelle -- The best example of an animal that changed its habits out of necessity is the N American elk. They normally don't spend all of their time out in the open. But the elk that returned to St. Helens changed their habits to feed in the cool of the night and lay down on the ground to dissipate waste heat during the day.

Michelle, On the 'Net (14: 58, October 23):

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fascinating -- thank you Peter. Is anyone out at MOUNT ST. HELENS actually studying the insects and their habits?

Peter Frenzen, USGS, CVO (15: 01, October 23):

Michelle -- There have been some zoologists at the Univ. WA (Dr. John Edwards and students) that have done some really interesting studies. This garter snake is one example of animals that are making their living so to speak eating the insects that fly and blow into the blast zone.



cody, On the 'Net (14: 52, October 23):

u know the ring of fire in the pacific ocean? Well, is there any pattern that includes Mount St. Helens?

Ed Klimasauskas, Cascade Volcano Observatory (14: 56, October 23):

Cody, the Ring of Fire encircles the Pacific Ocean basin and is a result of plate tectonics. It just so happens that there is a lot of oceanic crust being dragged down beneath continents which generates magma and volcanic activity. Mount St. Helens is a result of this process

The Boys, in Cincinnati (14: 55, October 23) Did the ash effect the weather?

Peter Frenzen, USGS, CVO (14: 59, October 23):

Boys -- Volcanic ash can change the weather but only really after a really huge eruption that ejects large amounts of fine dust and sulfur gases high into the atmosphere. The 1980 eruption was very small in comparison to something like Pinatubo in the Philippines, or the huge historic eruption of Krakatoa. St. Helens really didn't effect the weather much.

Ed Klimasauskas, Cascade Volcano Observatory (14: 59, October 23):

the Boys, The ash from MOUNT ST. HELENS didn't affect the weather. However, in explosive volcanic eruptions sulfur dioxide can be injected into the stratosphere in large quantities, which can result in atmospheric cooling for a year or two. The low sulfur content of MOUNT ST. HELENS magma means it had a pretty small impact.

Benefiel's House, On the 'Net (14: 55, October 23):

How do you know what happened millions of years ago, when man has only been around thousands of years? How can you prove your theory?

Ed Klimasauskas, Cascade Volcano Observatory (15: 01, October 23):

Benefiel's, many ways. Check out the USGS general interest publication on geologic time on the web: <http://geology.usgs.gov/gip.html>

Psyndi, 90 Miles South of Mount St. Helen's (14: 58, October 23):

I understand the Kimberly Diamond Mine is the remains of volcanic activity. Do the volcanoes of the

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NW/Cascades possess the correct chemistry to produce any valuable deposits of metal, etc?

Ed Klimasauskas, Cascade Volcano Observatory (15: 03, October 23):

Psyndi, No, the Cascades don't have the right type of volcanic activity to produce Kimberlites (which sometimes contain diamonds). They do have active hydrothermal systems (hot water) that can produce gold and copper deposits over millions of years. Many precious gold and copper reserves are actually the roots of ancient volcanoes.

Benefiel's House, On the 'Net (14: 29, October 23):

How has the bird population changed since 1980?

Peter Frenzen, USGS, CVO (15: 03, October 23):

Benefiel's -- The birds have increased in numbers (both different types and total number of birds) over time. As plants have returned there is more food, shelter (both for hiding cover and nesting)...so as time has passed bird life has increased.

Benefiel's House, On the 'Net (15: 07, October 23):

We are studying birds in homeschool presently, do you have specifics? Thanks for the website and the information.

Peter Frenzen, USGS, CVO (15: 12, October 23):

Benefiels -- There is specific information in the displays at our Coldwater Ridge Visitor Center. They have a list of birds that have been observed in the area, you can call Coldwater Ridge VC and ask them to mail you a list. The technical details of bird research are contained in published scientific papers which can be found through your local reference librarian.

cody, On the 'Net (14: 55, October 23):

hey, Ed, have u ever tried to send Dantae 2 into Mount St. Helens?

Ed Klimasauskas, Cascade Volcano Observatory (15: 04, October 23):

Cody, yes.

Raina and Marcy Heaton, Cincinnati (15: 01, October 23):

What can you tell us about the MOUNT ST. HELENS gemstone?

Ed Klimasauskas, Cascade Volcano Observatory (15: 04, October 23):

Raina, I think you are talking about the company that re-melts some of the ash to produce jewelry. Other than that I am not sure what you are referring to.

Raina and Marcy Heaton, Cincinnati (15: 07, October 23):

Ed, We've seen a deep greenish gemstone at a jewelry show and advertised for sale in a public radio or television catalogue.

Ed Klimasauskas, Cascade Volcano Observatory (15: 10, October 23):

Raina and Marcy Heaton, I am not sure, but I think that is the one. It is not a true gemstone, but made from re-melted ash and sold commercially. The ash is made up in large part of volcanic glass with some

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very small mineral grains in it.

Martin house, Ohio (15: 04, October 23):

Is the elk the largest animal that has returned to Mount St. Helens and do you have any wolves there?

Peter Frenzen, USGS, CVO (15: 06, October 23):

Martin house -- Yes elk is the largest. We don't have any wolves yet although I hear they are spreading down this way along the cascade range from Canada. Our biggest predator is the coyote.

Peter Frenzen, USGS, CVO (15: 07, October 23):

Martin house -- We also have mountain lions (cougars) that although quite rare have been seen chasing the elk around the valley.

Michelle, On the 'Net (15: 05, October 23):

if the volcano can be predicted, can people be warned and can anything be done to help protect and/or replace the existing habitat with more expedience?

Ed Klimasauskas, Cascade Volcano Observatory (15: 08, October 23):

Michelle, volcanic eruptions can be predicted in some cases. Part of our job is to monitor active volcanoes and issue eruption warnings wherever possible. Check out our volcano hazards program website section on Monitoring Volcanoes (<http://volcanoes.usgs.gov>) - there are actual cases documented there.

Davey Bowling, On the 'Net (15: 05, October 23):

Have any other species of fish besides trout come into Spirit Lake?

Peter Frenzen, USGS, CVO (15: 09, October 23): Davey -- The only fish other than rainbow trout that I'm aware of in Spirit Lake is the sculpin. This small, minnow sized fish is a bottom feeder (like the catfish you see cleaning people's aquariums).

Martin house, Ohio (15: 08, October 23):

we watched a national geographic video last night with a French couple the Kraffts (I think) we heard they were later killed in a volcano is that true???

Ed Klimasauskas, Cascade Volcano Observatory (15: 12, October 23):

Martin House, yes, Maurice and Kattia Krafft were a couple of French film makers who have probably the best collection of eruption footage in the world. They were killed at Unzen Volcano in Japan in 91 while trying to film pyroclastic flows. Much of their footage is available on a video titled Understanding Volcanic Hazards.

Michelle, On the 'Net (15: 08, October 23):

will the return of the coyote be a help or detriment to the regeneration of the ecosystem?

Peter Frenzen, USGS, CVO (15: 14, October 23):

Michelle -- It depends on who you are...if you're a field mouse it could be fatal. If you are a huckleberry bush you might be lucky enough to have your seeds spread into the area in coyote droppings...

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Psyndi, 90 Miles South of Mount St. Helen's (15: 12, October 23):

While living in Klamath Falls, we were aware of Mt Shasta, our neighbor to the south. How closely is Shasta being watched? Is it considered and active, dormant or dead volcano?

Ed Klimasauskas, Cascade Volcano Observatory (15: 15, October 23):

Psyndi, Mount Shasta has the potential to be a real problem. There is evidence that it had a debris avalanche about 15 times larger than the one at St. Helens about 300,000 years ago. It has since rebuilt it's cone. It is also the second most active volcano in the Cascades behind St. Helens.

Davey Bowling, On the 'Net (15: 13, October 23):

Are there any other snakes besides garter snake in the area? Is there any danger walking over the blast zone as far as the earth giving way?

Peter Frenzen, USGS, CVO (15: 17, October 23):

Davey -- Garter snakes are our most common snake. My knowledge of reptiles is limited so I couldn't say specifically what the others are... Most of the deposits have settled and compacted at this point although early on it was quite exciting walking in some areas where there were quicksand like slurries of volcanic material and water. I personally was buried up to my waste a few times. Not dangerous but a bit embarrassing and mucky when you had to slither you're way out...

Ed Klimasauskas, Cascade Volcano Observatory (15: 18, October 23):

Davey Bowling, for weeks after the eruption the pyroclastic flow deposits were still very hot. From time to time steam eruptions would occur without warning as these hot deposits interacted with groundwater. Two week after the eruption some of these deposits were still several hundred degrees. They are still slightly warm today: warm seeps and springs are all over, a result of rain percolating through the somewhat still warm deposits in the deepest parts.

Ed Klimasauskas, Cascade Volcano Observatory (15: 21, October 23):

Time for lunch. Thanks for all the great questions and if you want more, check out some of the other websites on Terra's reference list.

Editor's note: This is the end of the chat. Attached below this are the compliments and the messages from the beginning of the chat.

Lara Steele, Terra.org (15: 21, October 23):

A special thanks to Ed and Peter for their time and their valuable information.

Michelle, On the 'Net (15: 18, October 23):

Thank you for all your time and the detailed answers you have provided. Peter, Ed, and the Terra.Org Family -- thank you for your enthusiasm and encouragement in sharing your knowledge for us to learn. I am grateful.

Psyndi, 90 Miles South of Mount St. Helen's (15: 17, October 23):

Thanks to Ed, Peter, Lara and Shawn. This has been interesting. And with that last answer, I'm glad I live near St. Helens and not Shasta now.

Volcanoes

Martin house, Ohio (15: 16, October 23):

Ed and Peter- many thanks for your time and excellent answers. It has been a great learning experience. And thanks, Lara, for all your work getting this together. I have really enjoyed "chatting" with you and will continue to do so! And please- give us more fieldtrips!!!

Raina and Marcy Heaton, Cincinnati (15: 16, October 23):

Peter, Ed and Lara, We appreciate getting to participate. Thanks for your time and efforts!

Benefiel's House, On the 'Net (15: 15, October 23):

Thanks for the interesting information. Signing off, Benefiels.

Wenck House, Ohio, On the 'Net (15: 12, October 23): We learned a lot and enjoyed the questions and answers. Many thanks.

Michelle, On the 'Net (15: 01, October 23):

these have been fascinating questions -- thanks all -- and thanks peter and Ed and terra.org for taking the time to answer!!

Michelle, On the 'Net (14: 47, October 23):

thank you Peter and Ed the pictures are a wonderful help in conjunction with your answers!!

Psyndi, On the 'Net (13: 44, October 23):

Good Morning! I'm looking forward to this chat. Hope to learn a few things!

cody, On the 'Net (13: 52, October 23):

hi

Nicole Martin, Somewhere in Ohio (13: 56, October 23):

There r four of us here at the Martin's and we're ready!

Joseph Maile, On the 'Net (13: 58, October 23):

This is Joseph Maile in Raleigh, North Carolina and I'm also ready.

Raina and Marcy Heaton, On the 'Net (14: 01, October 23):

Hello Linda! We've been enjoying the study materials, and are happy we made it on-line!

Leah, Richard and Becky, On the 'Net (14: 02, October 23):

Hello everyone. This is Becky, Leah and Richard from Cincinnati, Ohio.