THE OTHER SIDE OF NOVARUPTA

A photogeologic tour of Katmai Valley and Canyon

A presentation by

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- Ph.D. Limnology, Texas A&M University
- Current research interests: Flood geology, origin of Palo Duro Canyon, hypoxia in the Gulf of Mexico.

What we will cover

- Why do I believe in a global cataclysm?
- Volcanism basics and how they relate to the Flood
- The June 6-8, 1912 eruption of Novarupta
- The other side of Novarupta
- Summary, Q & A

I believe

- in 6 days and a rest.
- the Earth and Universe are really old, about 6,000 years old!
- natural history research is different from testable, repeatable science.
  - It is about studying historical events, and therefore logically requires inputs from other areas like history, philosophy, and theology.
- God's word can be used to direct scientific inquiry, and can help us understand past events.

Scripture warns us about accepting uniformitarian ideas of Earth history.

- "…scoffers will come in the last days, walking according to their own lusts, and saying, 'Where is the promise of His coming? For since the fathers fell asleep, all things continue as they were from the beginning of creation.' For this they willfully forget: that by the word of God the heavens were of old, and the earth standing out of water and in the water, by which the world that then existed perished, being flooded with water."

2 Peter 3: 3-6

Why do I believe in a global cataclysm?

- I believe God's word.
- Noah and his family believed in it.
- Moses believed in it.
- Jesus Christ believed in it.
- Peter believed in it.
- The Earth is still mostly covered with water.
- Water-deposited sedimentary rock layers averaging 1-mile thick exist worldwide.
- Ocean bottoms are now mountain tops.

Flood facts

- The Flood was much more than 40 days and nights of rain (Genesis 7:4, 12).
- Climate research suggests that the atmosphere cannot hold enough water vapor to produce more than 30 feet of water.
- Genesis 7:11 describes “fountains of the deep”, where most of the water probably came from.
- After continuous rainfall ceased on Day 40, waters kept rising until Day 150.
- Earth had dried and Noah opened Ark after about 1 year and 10 days.

It is difficult for us to imagine the Flood

- Can you imagine the Earth being completely flooded?
- Can you imagine the forces that caused mountains to rise and valleys to sink (Psalm 104:8) with displacements exceeding 45,000 ft?
- Can you imagine 26,000 ft of continuous sediment deposition to form sedimentary rock layers like the Naknek formation?
- Can you imagine ice-cold megastorms that buried mammoths so quickly that, when uncovered today, still have undigested grass in their mouths?

Present-day catastrophism, not stasis, helps us think about historic events shaping Earth's surface.

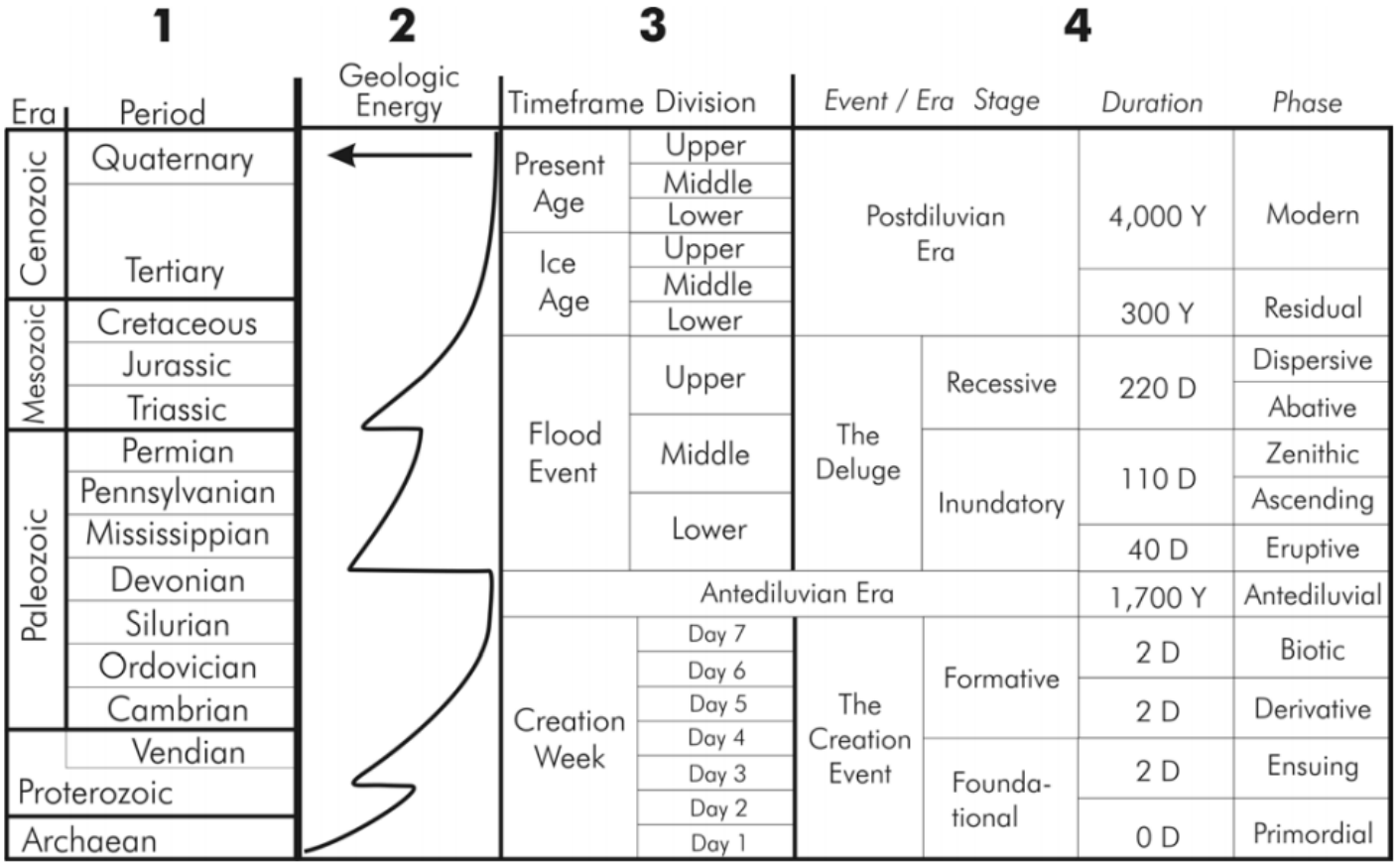
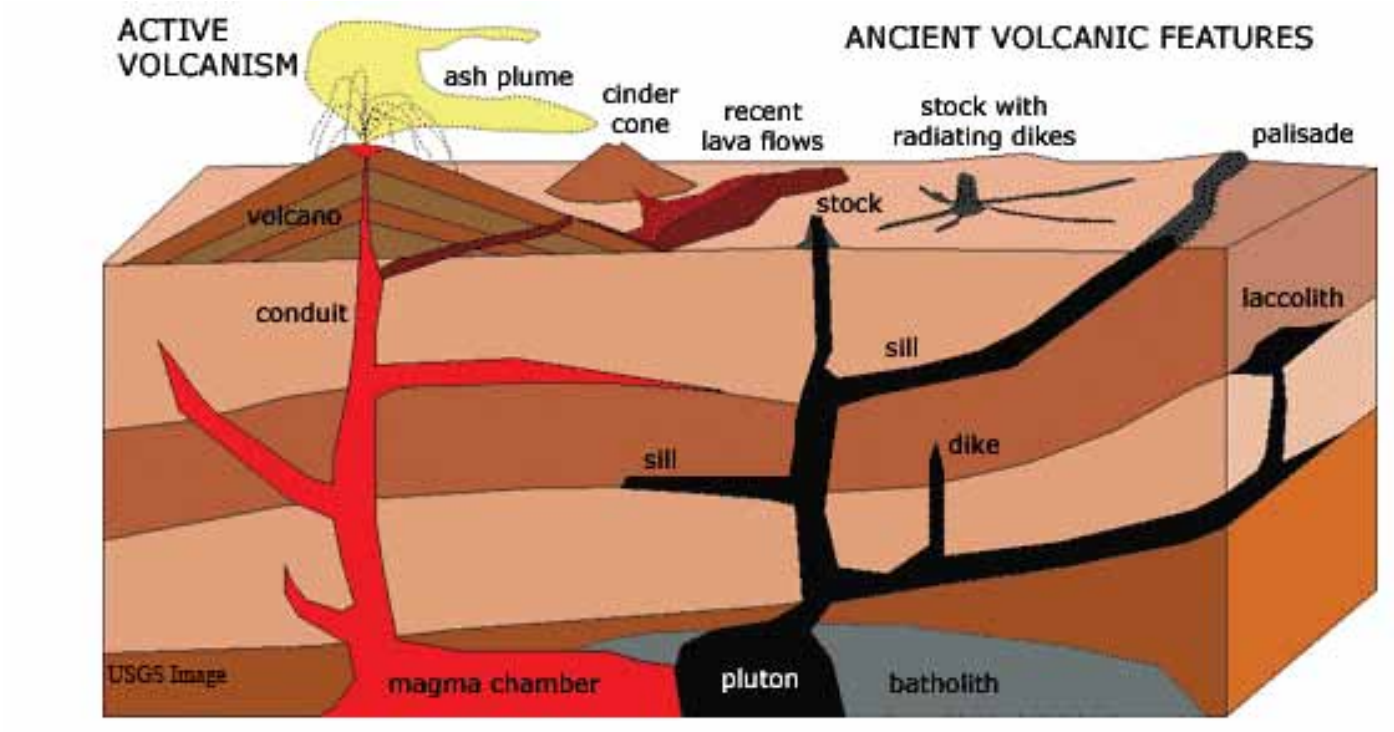


Figure 2. *Comparison of stratigraphic interpretive frameworks. They include: (1) the uniformitarian stratigraphic column, (2) geologic energy vs time;[22] (3) Froede's creationist column;[21] and (4) Walker's creationist column.[20] Please note that there is no specific correlation between (1) and the other columns, nor is there exact correlation between the various creationist proposals.*

Reed, J. K. 2005. *Strategic Stratigraphy, Reclaiming the Rock Record*! TJ 19(2).

Volcanism basics

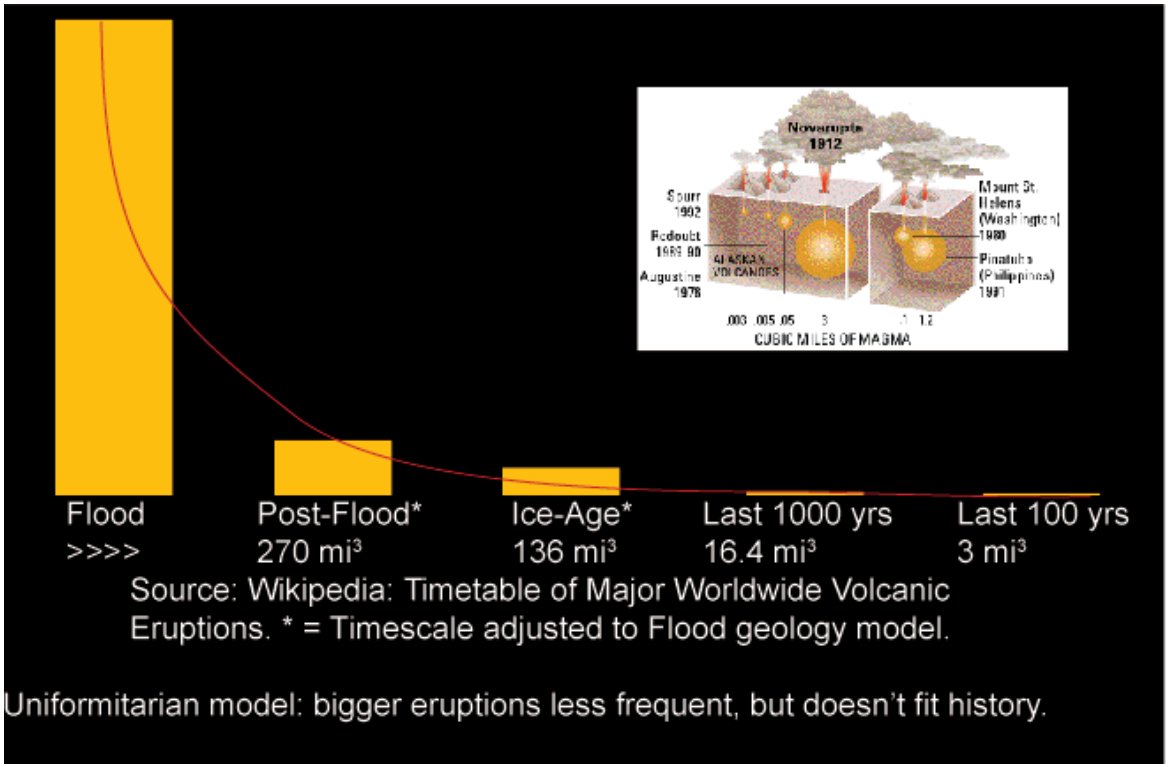
Volcano cross-section



Volcanoes were bigger in the past

- VEI = Volcano Explosivity Index
- Historic trend fits one of two patterns:
  - Catastrophism=Volcanoes were more explosive in past
  - Uniformitarian =

More explosive volcanoes are less frequent



Magmas form a variety of rocks

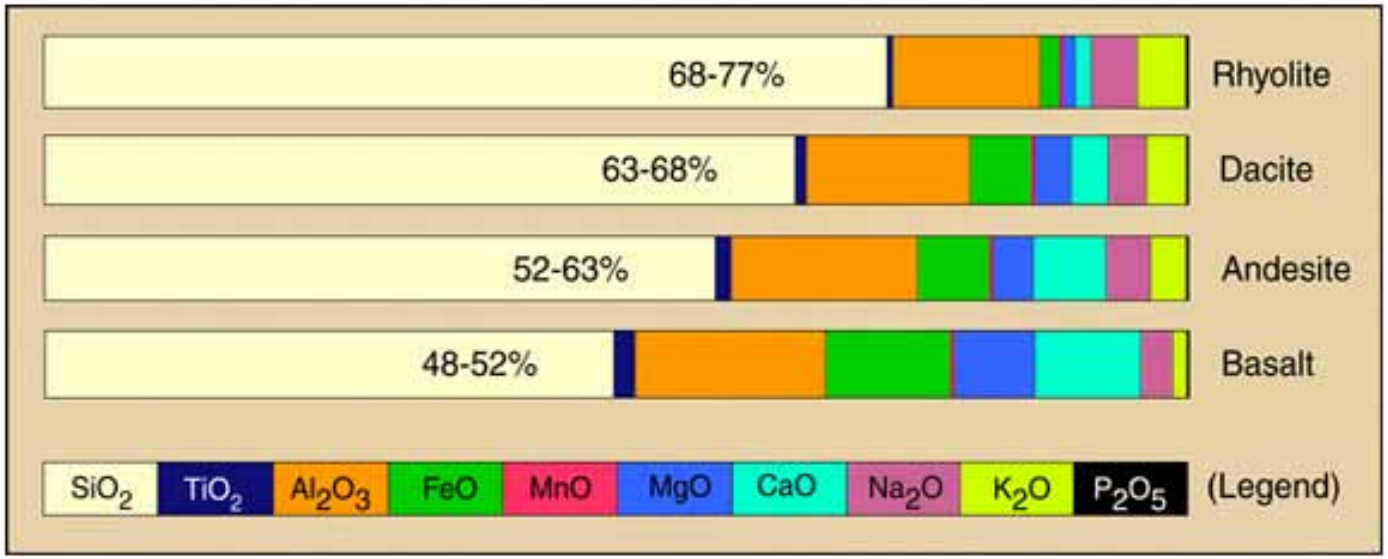


Illustration by J. Johnson

USGS Volcano Hazards Program Photo Glossary

Magmas vary in flow characteristics

Classification and Flow Characteristics of Volcanic Rocks

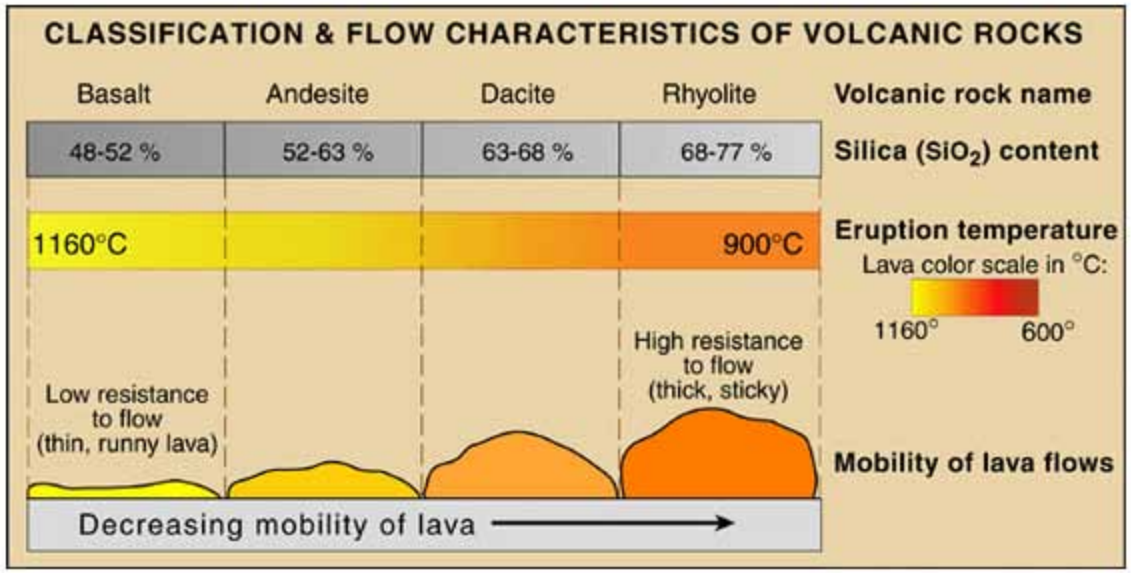


Illustration by J. Johnson

USGS Volcano Hazards Program Photo Glossary

Igneous rocks are “easy” to identify!

- Basalt

USGS Volcano Hazards Program Photo Glossary

Igneous rocks are “easy” to identify!

- Andesite

USGS Volcano Hazards Program Photo Glossary

Igneous rocks are “easy” to identify!

- Dacite

USGS Volcano Hazards Program Photo Glossary

Igneous rocks are “easy” to identify!

- Rhyolite

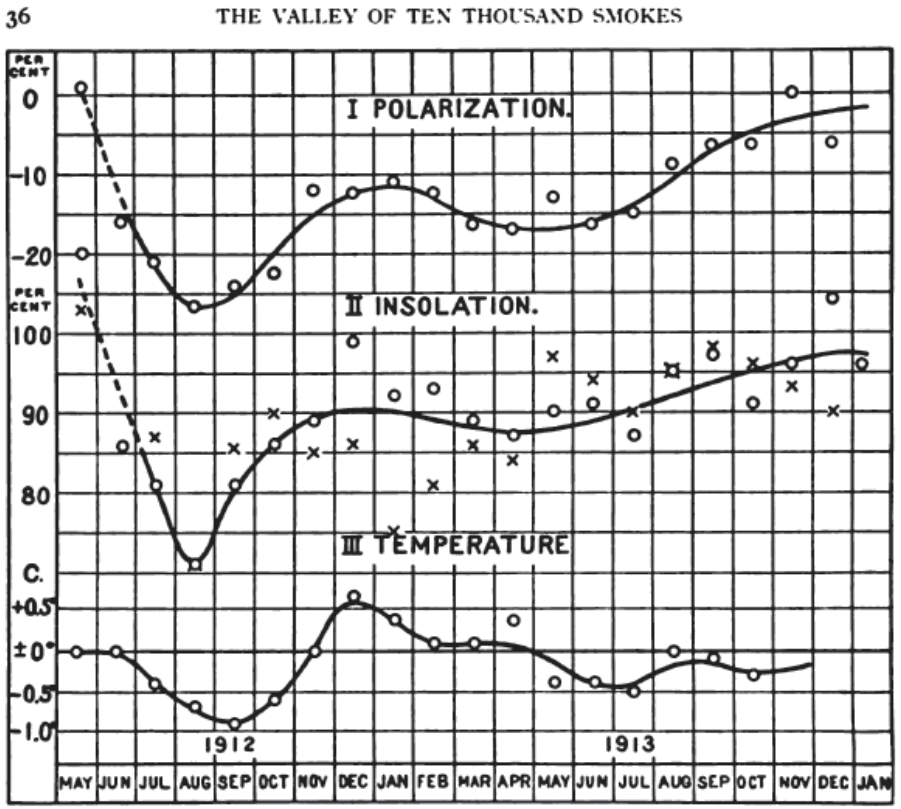
USGS Volcano Hazards Program Photo Glossary

Volcanoes release lots of H_2O

- Rhyolite contains 4-5% water when it crystallizes.
- As magma rises to the surface, pressure is reduced, and water (and other gases) come out of solution. This makes it difficult to determine how much water a volcano originally contained.
- Some researchers believe there is more water beneath Earth's crust than at the surface.
  - This is **supercritical water**, T= 374°C, P=218 atm, ρ=0.3 g/mL. Phase changes can cause violent eruptions and earthquakes.
- Other volcanic gases include CO_2, HCl, HF, HNO_3, H_2SO_4, H_2S, SO_2, CH_4

Sulfur dioxide gas and volcanic ash reflect sunlight

- Did volcanic activity trigger the Ice Age?



CURVES SHOWING THE EFFECT OF THE DUST FROM KATMAI ON:

I. Skylight polarization at Mount Weather, Virginia.
II. Insolation at Mount Weather, Virginia (O) and Madison, Wisconsin (X).
III. Temperature Departures in the Northern Hemisphere, for the period following the eruption. (After Kimball.)

Volcanic activity is an important part of Earth history

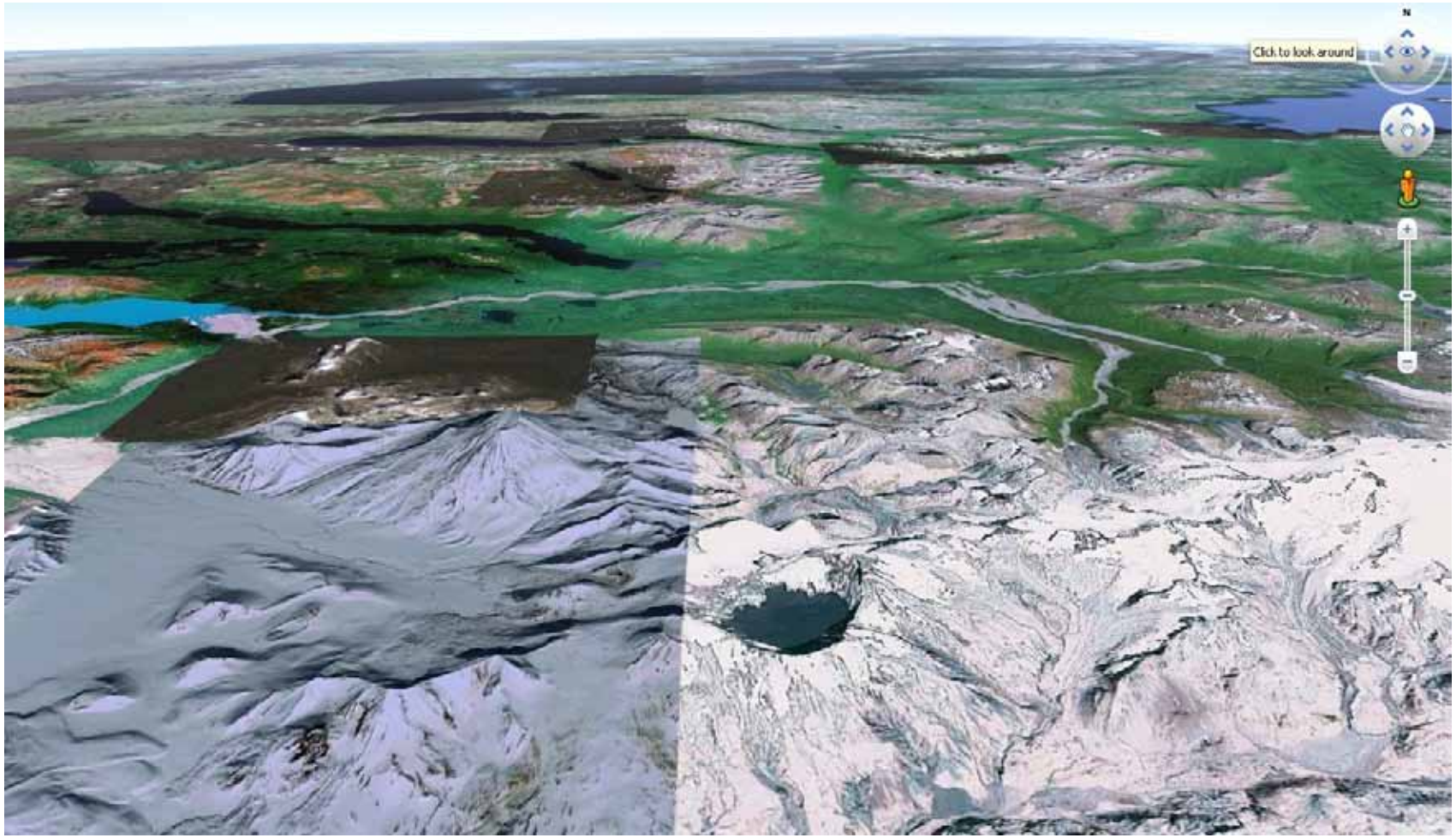
- Creation- Like Jesus Christ's virgin birth, it was a miraculous event.
- We should not pretend that the Flood can be explained by purely naturalistic mechanisms.
- Flood-fountains of deep released not just water, but other gases and solids.
- Ice Age- triggered by warm seas releasing water vapor and cool atmosphere filled with ash and SO_2.
- Stasis- reduced volcanic activity. No more flood basalts, Yellowstone-size eruptions, etc.

Novarupta

The June 6-8, 1912 eruption

Google Earth

- A good way to study Earth's surface features.



Mt. Katmai collapsed, and two magma chambers blew out Novarupta.

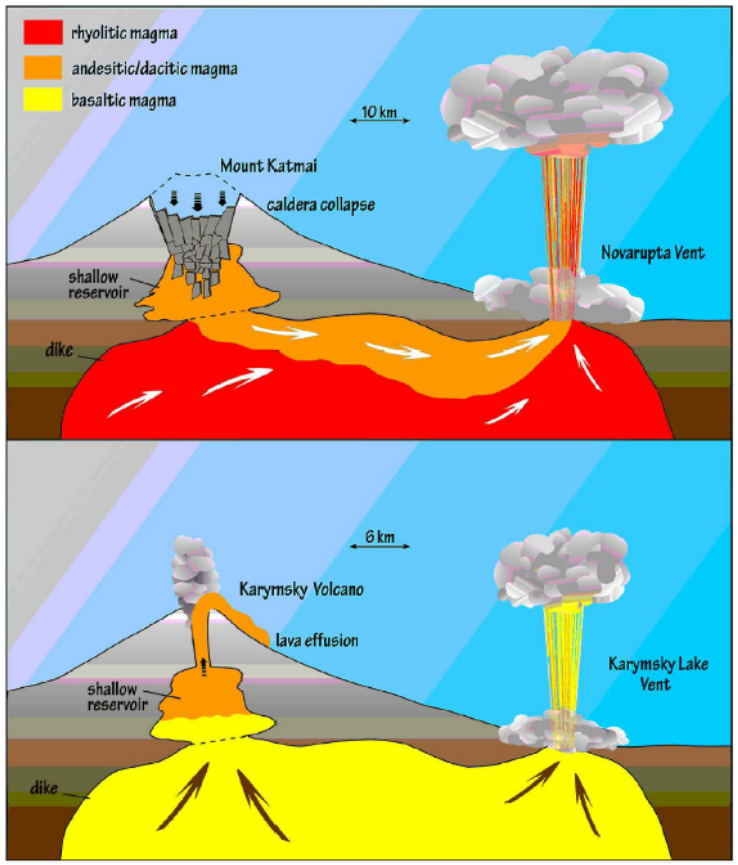
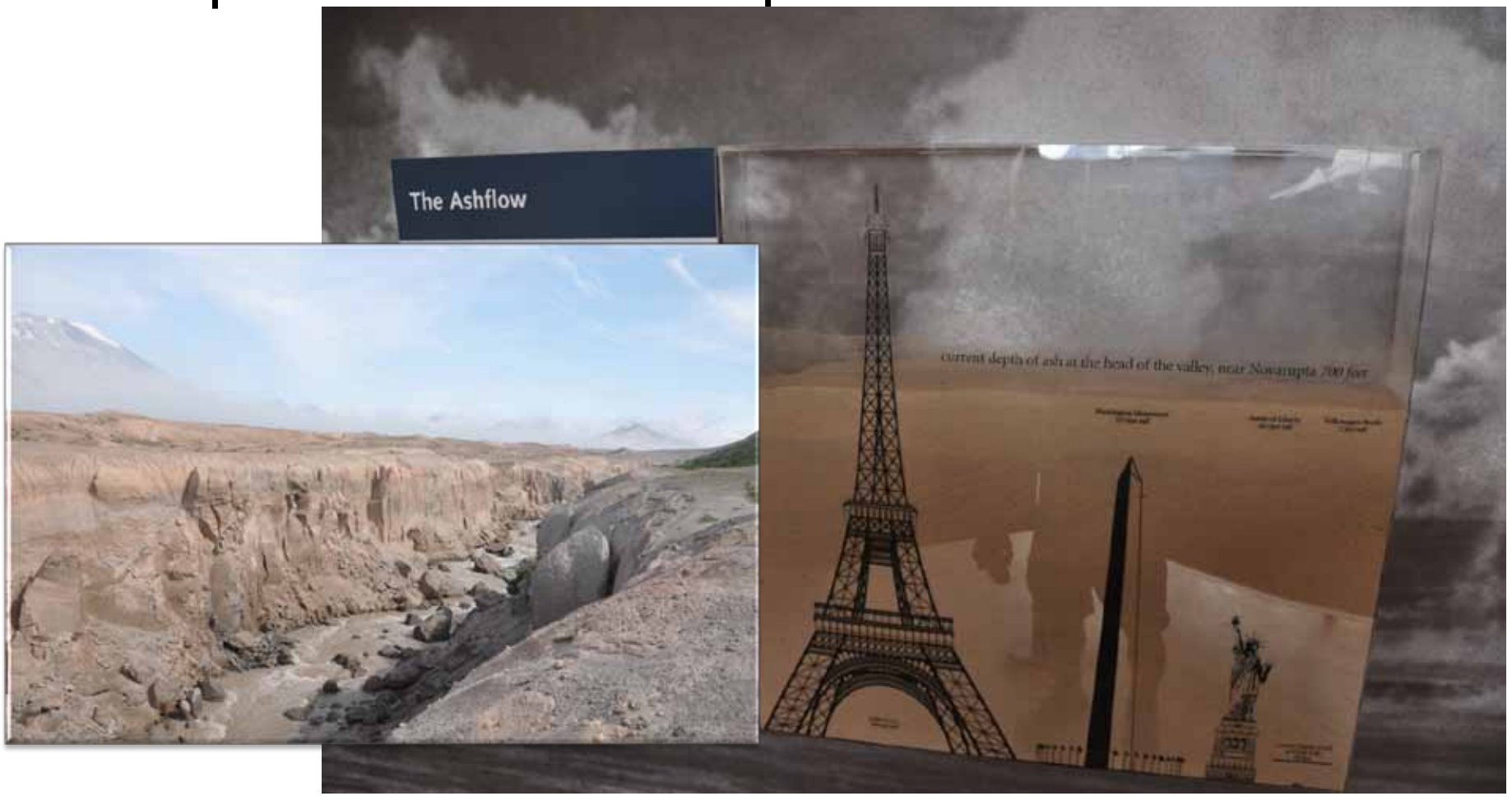


Figure 6. Cartoon depicting the triggering of eruption from a stagnant shallow andesitic reservoir by dyke injection. In the Katmai case (top), the dyke drains the reservoir because the dyke magma is less dense than the reservoir magma. In the Karymsky case, the dyke causes reservoir magma to be expelled upward because the dyke magma is denser than the reservoir magma. Note that the dyke, shown in plan view, may be only a few metres thick, whereas the reservoir is likely to be a kilometre or more in extent in the direction of view. As the Katmai–Novarupta dyke crosses the former base of Falling Mountain (figure 2), its emplacement may have played a role in that dome's collapse on the first day of eruption.

June 6-8, 1912

- Up to 700 ft. of ash deposited in 60 hours!



Novarupta lava dome, then and now

- "Then" pictures from *The Valley of Ten Thousand Smokes* by Dr. Robert F. Griggs (1922).

The Valley of 10,000 Smokes, then and now

- "Then" pictures from *The Valley of Ten Thousand Smokes* by Dr. Robert F. Griggs (1922).

The extreme weather, then and now

- "Then" pictures from *The Valley of Ten Thousand Smokes* by Dr. Robert F. Griggs (1922).

Photograph by L. G. Folsom

SORTING OUT THE WRECKAGE AFTER THE STORM AT BAKED MOUNTAIN

We looked and felt very much like rag-pickers on the dumps, but among the wreckage were many of our most cherished possessions.

How does Novarupta compare?

- About 30x larger than Mt. St. Helens 1980 blast
- Over 75x smaller than Yellowstone!

Eruption	Year	Volume of Magma Ejected, km^3
Yellowstone Caldera	unknown	1000*
Krakatoa	1883	18*
Novarupta	1912	13**
Mt. St. Helens	1980	<1*

Comparison of magma ejected from several volcanoes. *Austin, 1998; **Eichelberger and Izbekov, 2000. Mt. St. Helens photos by USGS.

Other Novarupta facts

- Generated over 100 earthquakes magnitude 5 or greater.
  - On June 7, 115 miles away in Iliamna “the earth never ceased to move for nearly 12 hours.”
- Ash cloud seen as far away as Algeria.
- Explosion heard over 750 miles away in Juneau, AK.
- Sulfuric acid rain tarnished brass as far away as Seattle.

Other Novarupta facts

- Over 1 ft of ash covered Kodiak Island, 100 miles away.
- No loss of life reported.

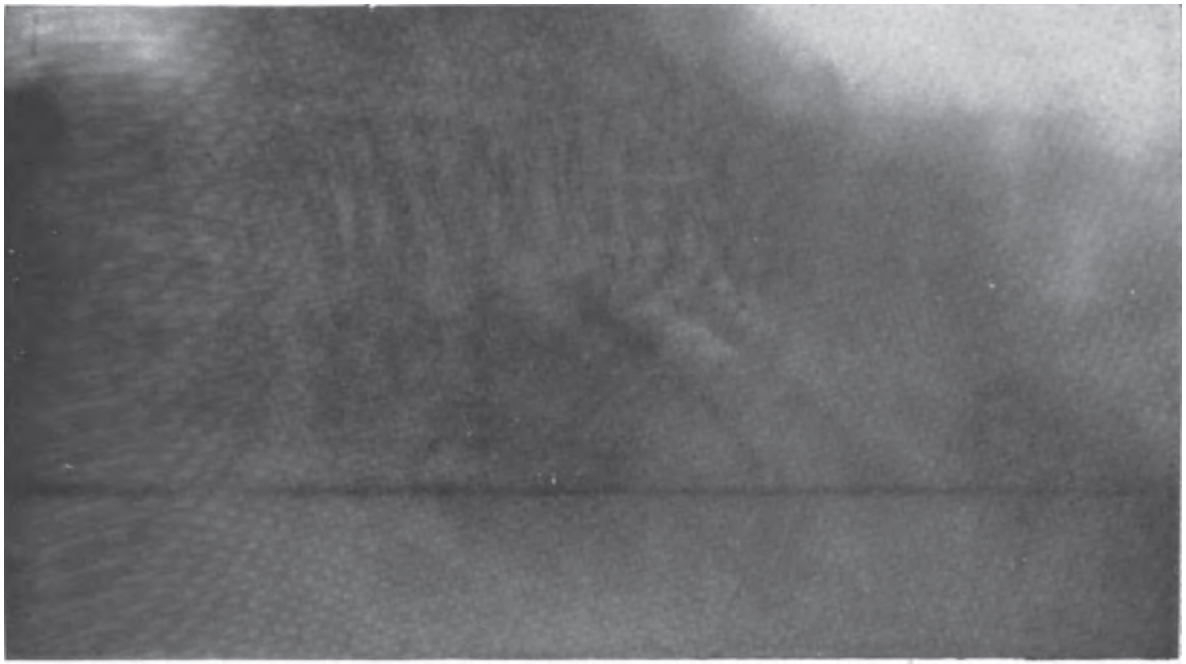


Photo and copyright by John E. Thwaites

VOLCANIC ASH APPROACHING KODIAK ISLAND

Photograph taken straight up from deck of the *Dora*, June 6, 1912

The other side of Novarupta

2011 Explorations

Novarupta is the most-researched place in Alaska.

- But the other side of Novarupta is a different story.
  - There is no USGS research cabin.
  - There are no man-made trails.

So why go to the other side?

- To learn more about the story of Novarupta.
- Areas that are little-known and poorly researched are great for creation researchers to study and present a better interpretation than researchers who need to stretch the evidence to fit a uniformitarian model.
- Creation researchers can “take dominion” of these places, providing a better interpretation that fits a Biblical model.
- To have a family adventure and fulfill John 10:10!

The location

- Find me SPOT!
  - spotadventures.com/trip/view?trip_id=272260

How to get there

- Seahawk Air Service from Kodiak, AK

How to get there

- Kodiak Island looks like Hawaii

How to get there

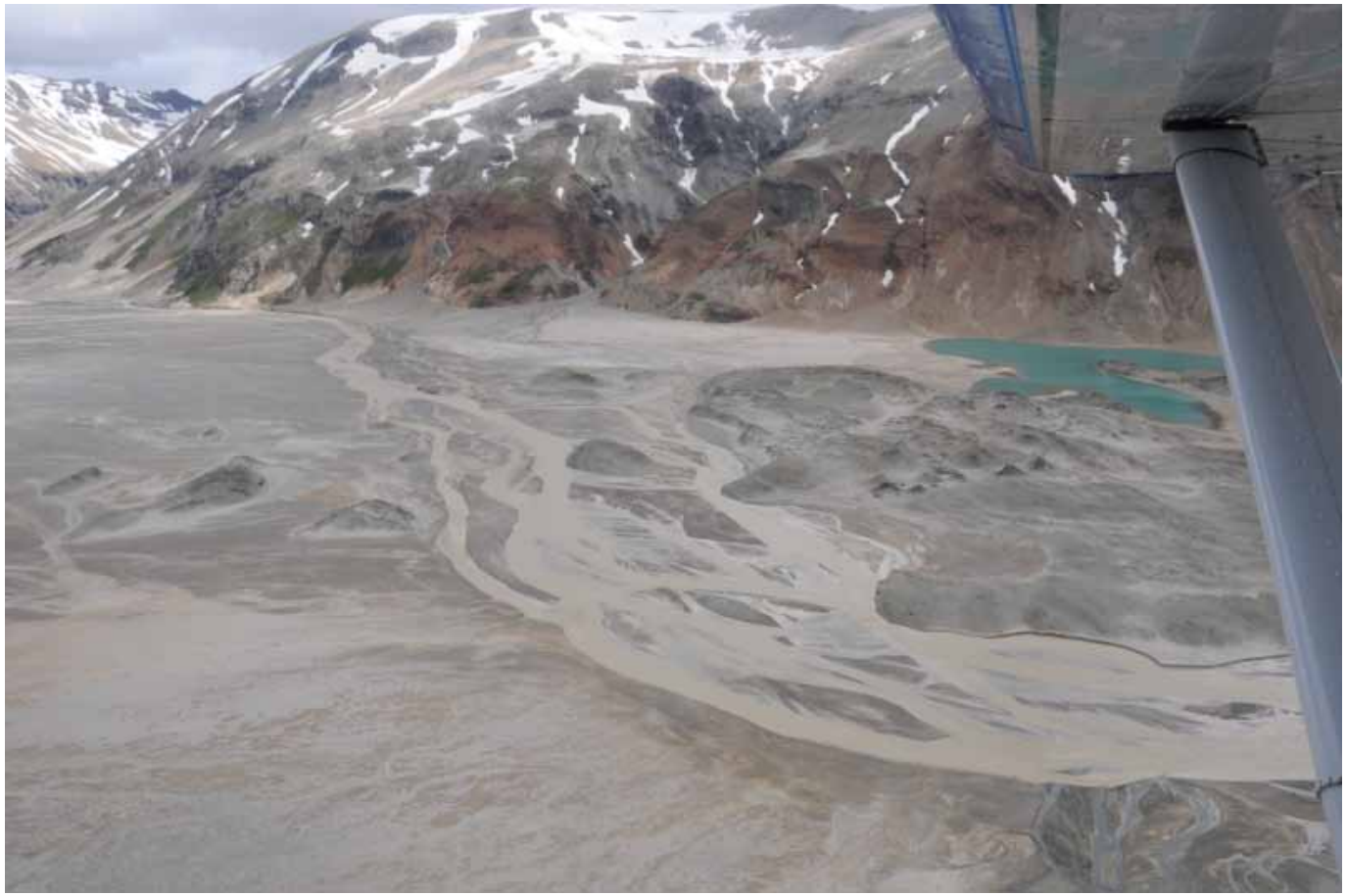
- Dakavak Lake
  - Notice the outflow comes out as groundwater

How to get there

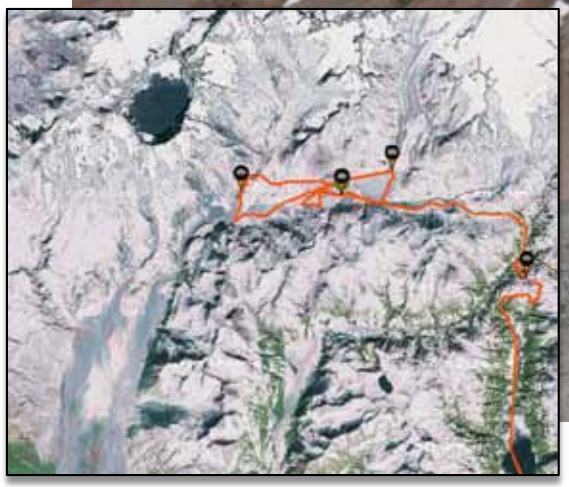
- “Circle Lake”, a great landmark in an unmarked land.

How to get there

- The blessing of an experienced pilot

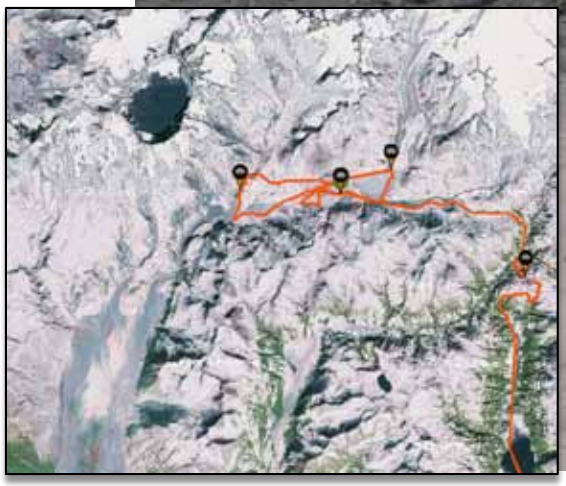


Setting up camp



First hike

First hike



First hike

First hike

First hike

First hike

First hike

First hike

First hike

Day 2

- Crossing the Katmai River

Day 2

- Rhyolite in a sea of andesite

Day 2

- Massive rocks on top of landslide material

Day 2

- Purest springs in the world

Day 2

- This spring has a different bottom, smooth and darker-colored rocks

Day 2

- Noisy glacier

Day 2

- Uplift between Mt. Katmai and Noisy Mountain

Day 2

- Evidence of lahars

Day 2

- Lots of ash on top of thick snow

Day 2

- Gorge at end of Noisy Glacier Creek

Day 2

- Back down into Katmai Valley

Day 2

- View looking back at Noisy Glacier Creek from across the Katmai River.

Day 2

- Crossing the Katmai River has never been easy!

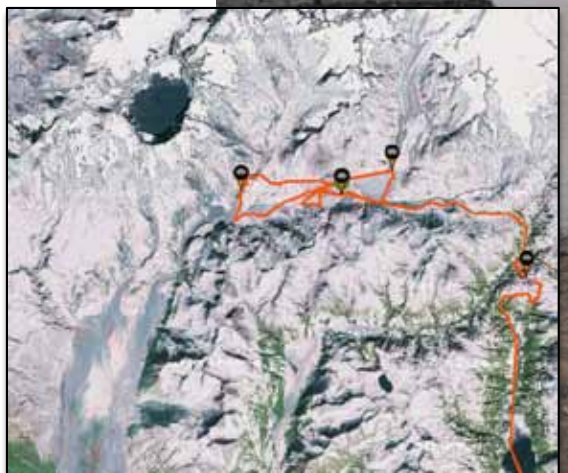
University of Alaska Anchorage. Archives & Manuscripts Dept.

Day 2

- Where the upper Katmai River cuts through landslide debris.

Day 2

- Princess Glacier

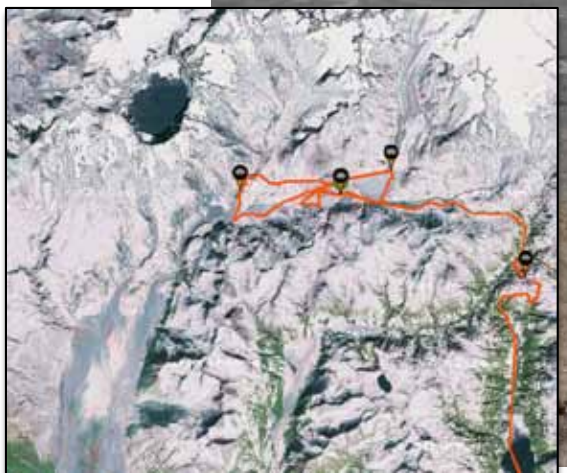


Day 2

- Princess Glacier, view from the top

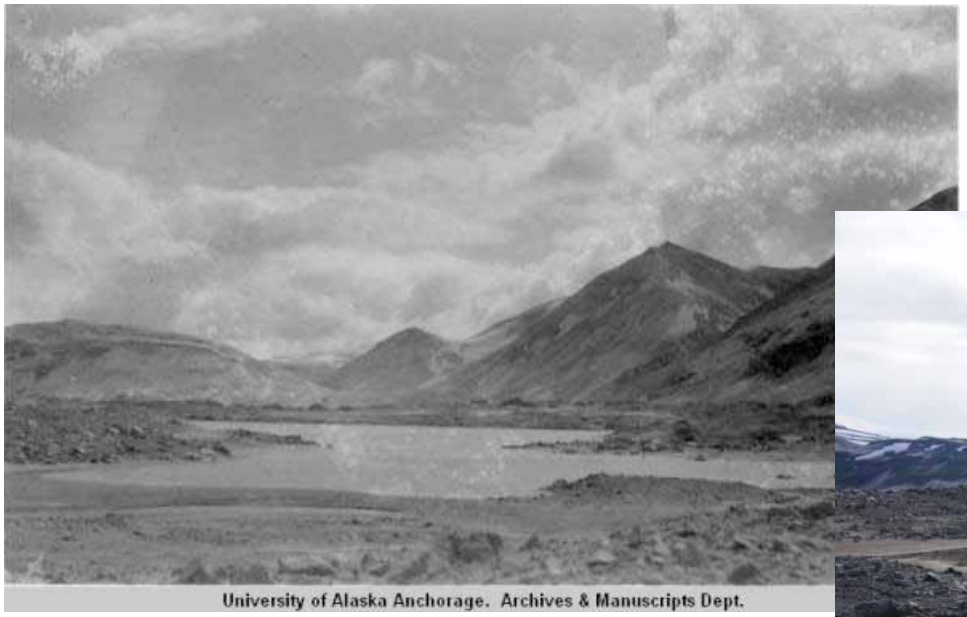
Day 2

- Chased off a big grizzly



Day 3

- Stasis, then and now

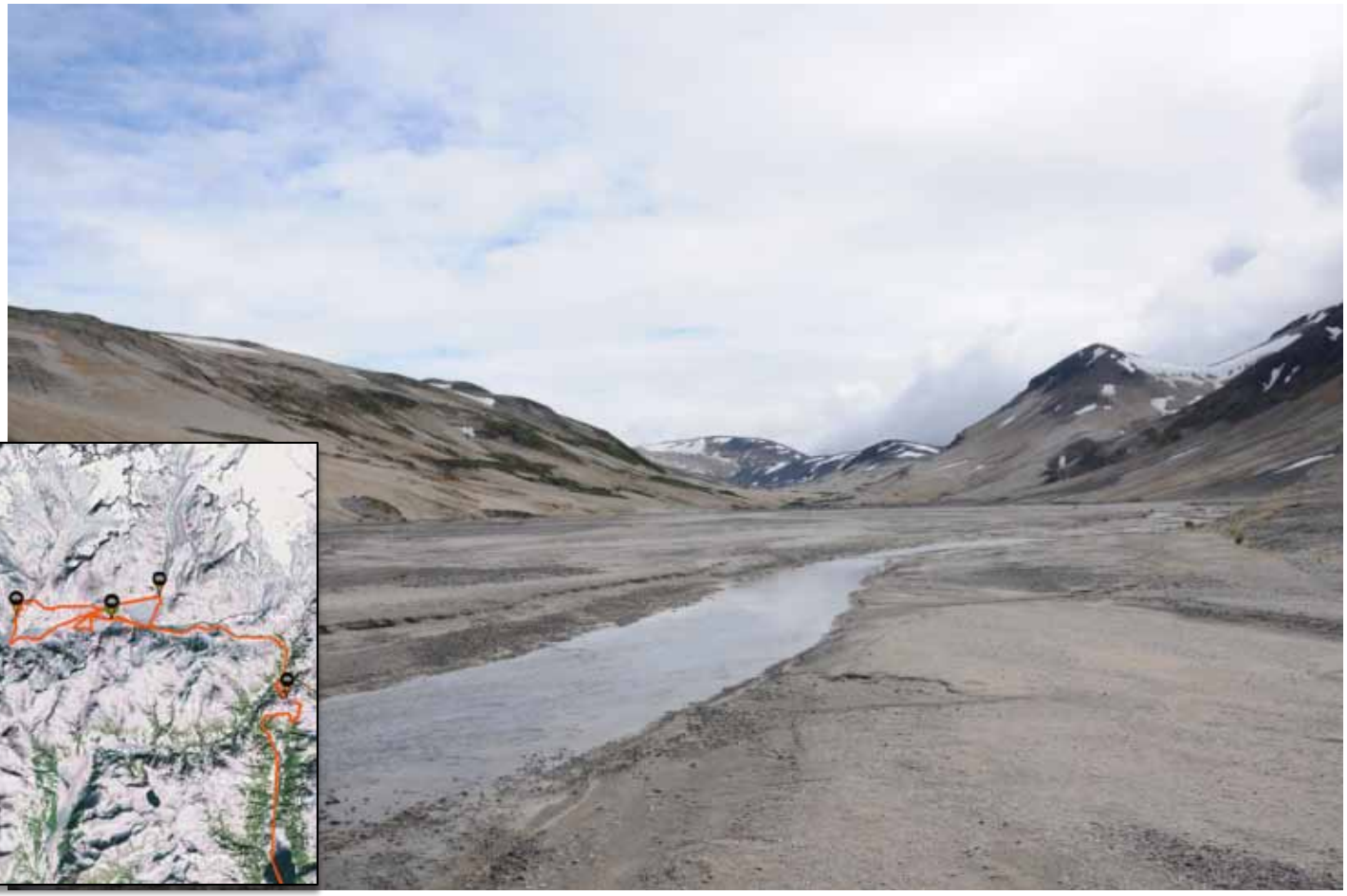


Day 3

- Heading to Dakavak Lake

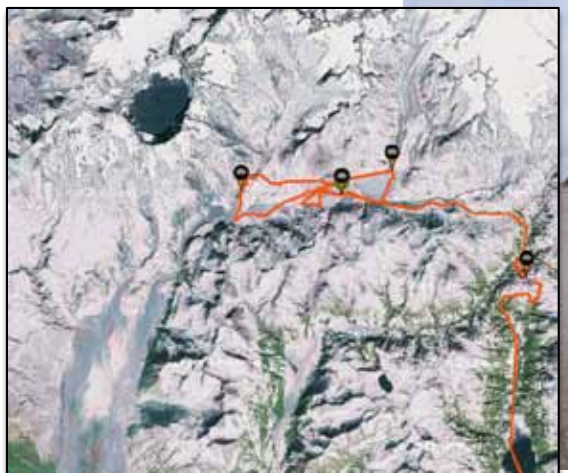
Day 3

- Following an unnamed creek



Day 3

- Pumice dunes are not easy hiking!



Day 3

- Snow tunnel

Day 3

- “Circle Lake” we saw from the air

Day 3

- Now where?

Day 3

- Campsite in the clouds
  - Chased by a grizzly!

Day 4

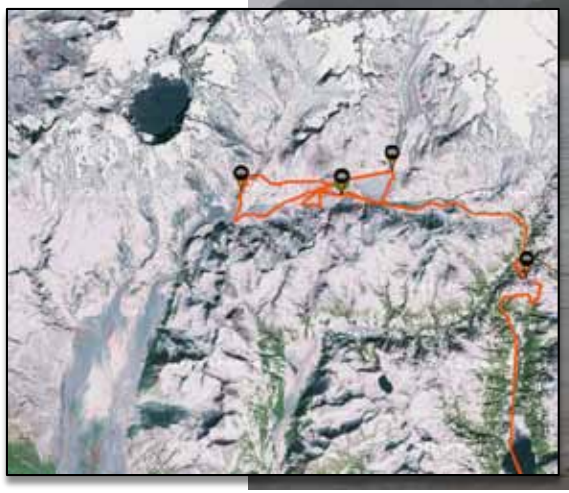
- It looked easier on Google Earth

Day 4

- Made it with 1 hour to spare!

Day 4

- A welcome sight

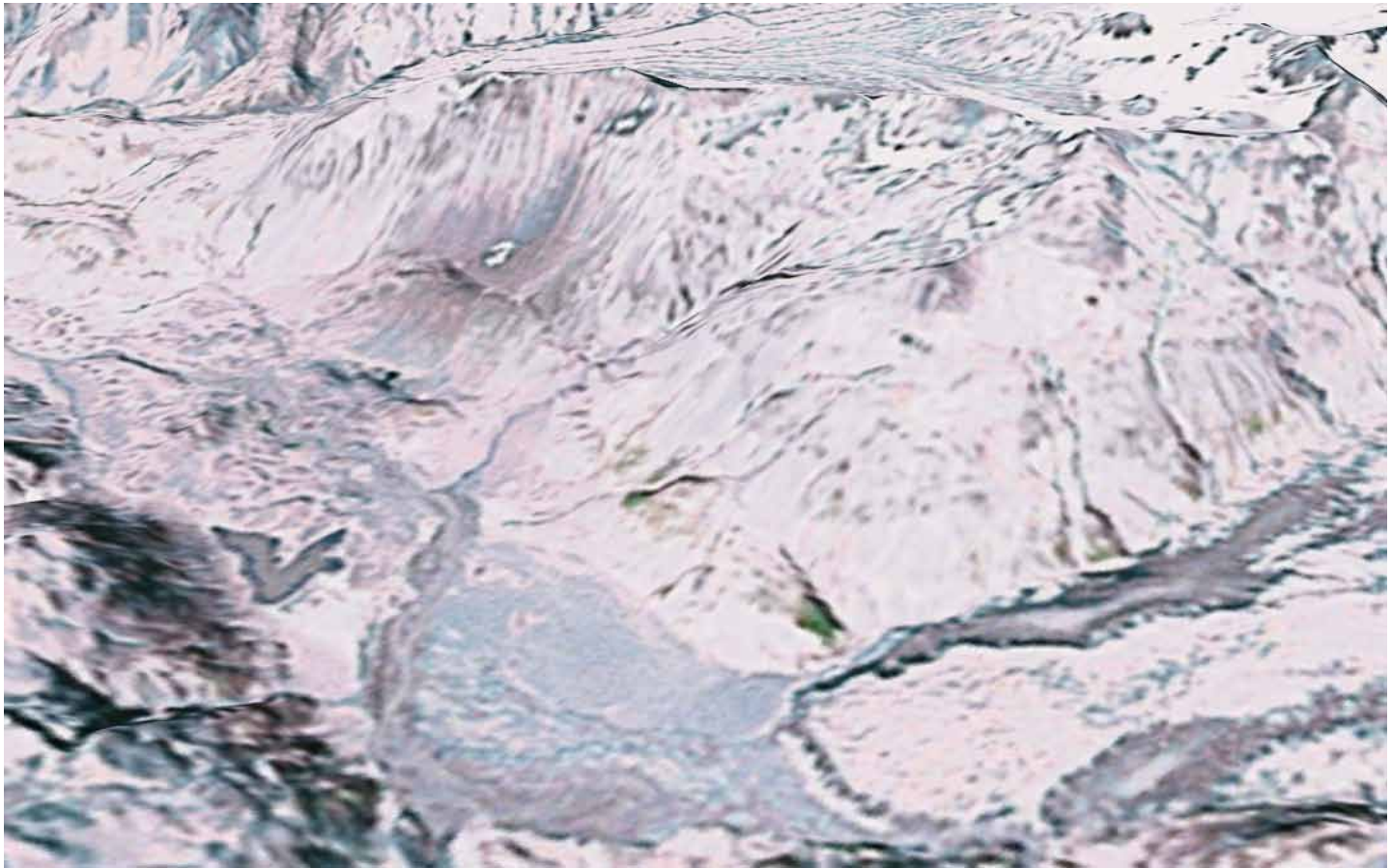


Day 5

- Back in civilization on Kodiak Island

Observations

- Noisy Mountain Landslide
  - Around 2 km^3 of rock released from the mountainside



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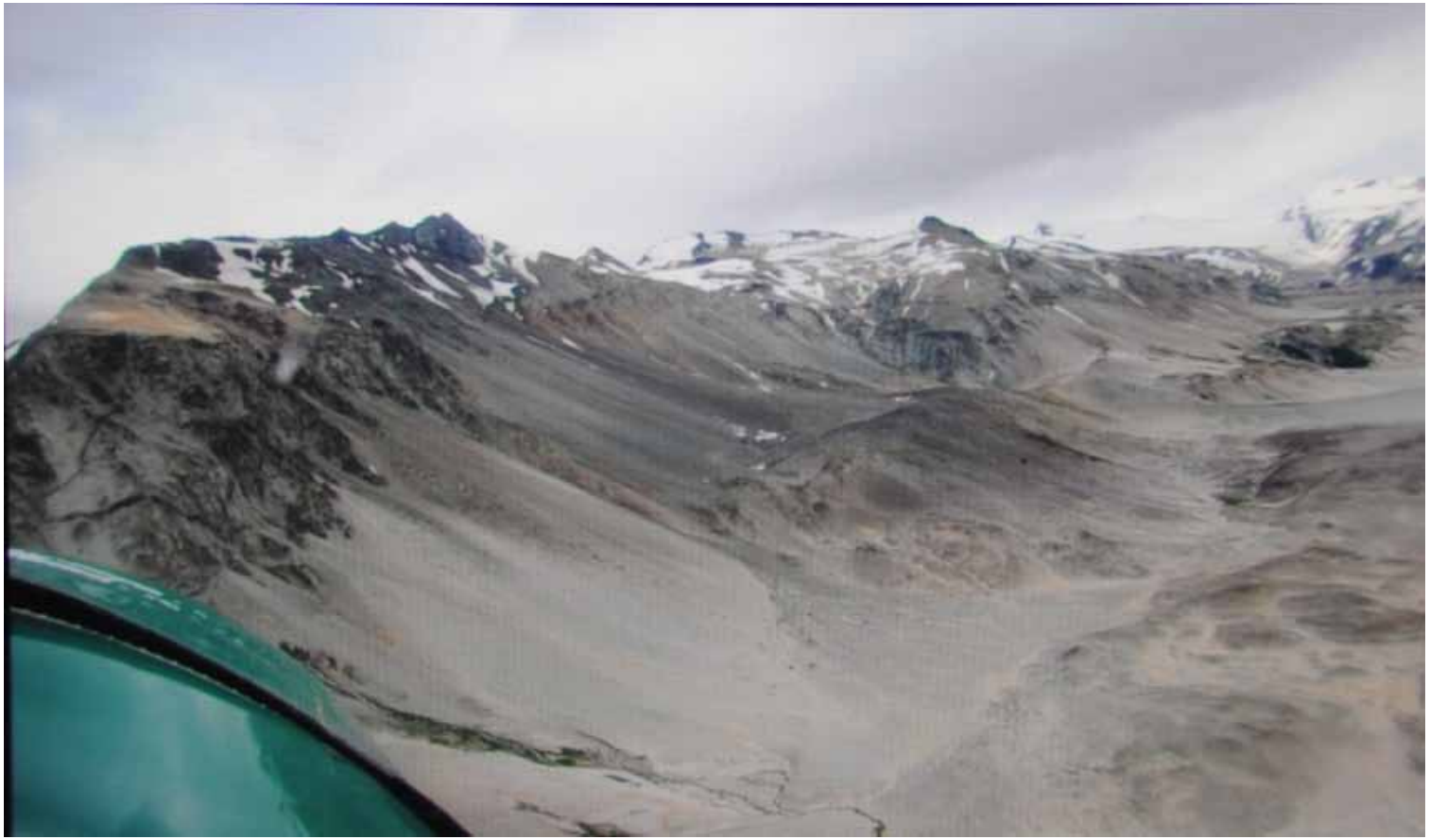


Observations

- Noisy Mountain Landslide
  - Landslides make unexpected conical mounds

Observations

- Noisy Mountain Landslide
  - Landslides make unexpected conical mounds
  - But so do ash and rock-covered glaciers

Observations

- Is Noisy Mountain a tuya?

Herðubreið, Iceland

Noisy Mountain

Observations

- Tuya: A flat-topped, steep-sided volcano that forms when lava erupts beneath a thick glacier or ice sheet. Can form pillow lava, which is a type of basalt formed underwater.

Observations

- Uplift between Mt. Katmai and Noisy Mountain
  - Did Mt. Katmai side collapse and Noisy Mt. side rise?

Observations

- Uplift between Mt. Katmai and Noisy Mountain
  - Evidence uplift was post-glacial. Only 1 Ice Age.

Observations

- Princess Glacier, then (1917) and now

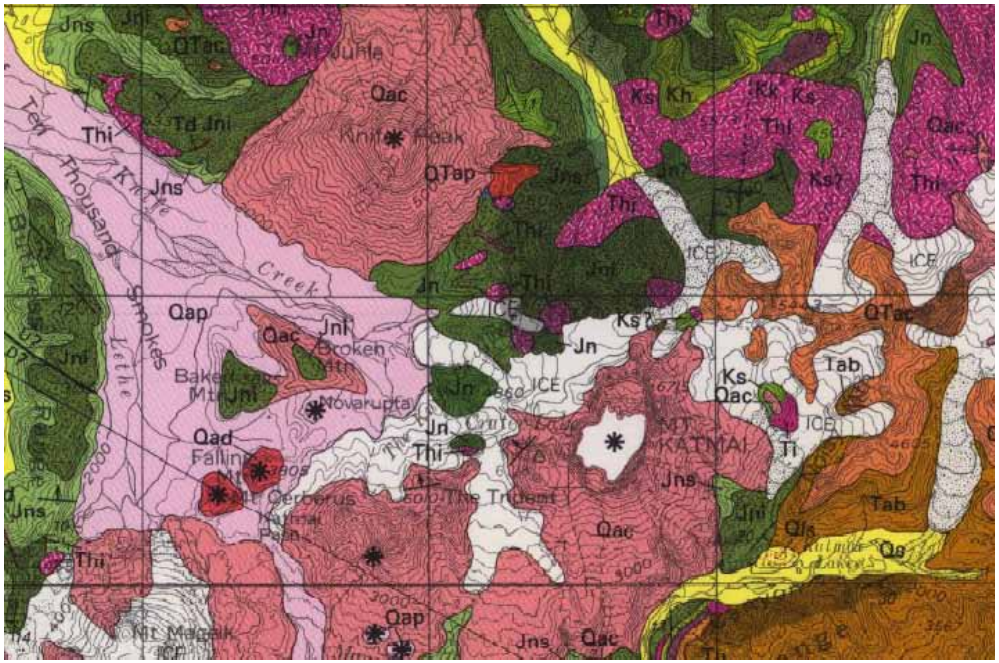
Observations

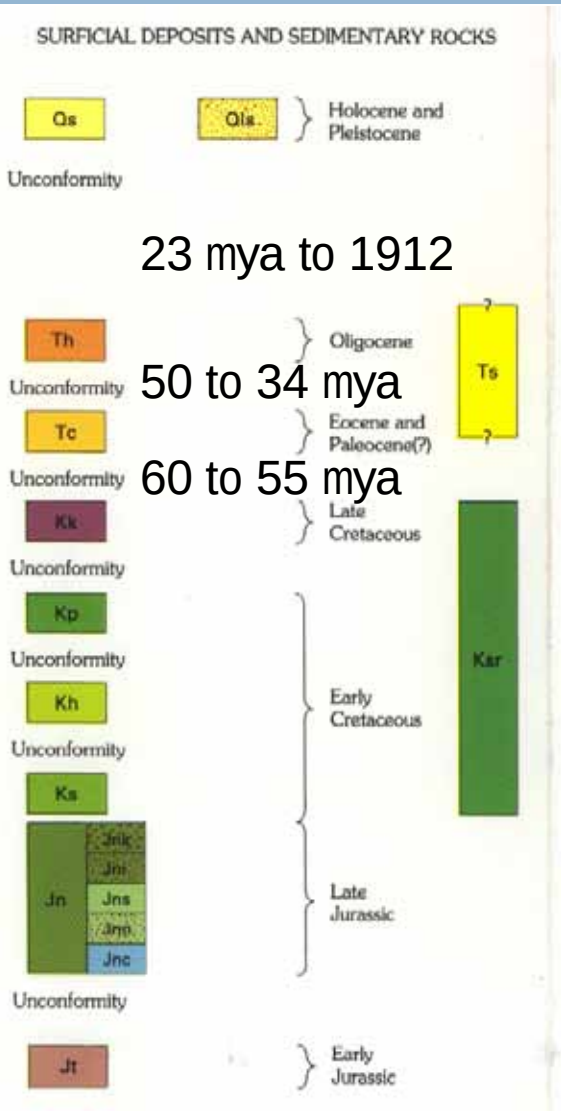
- Almost no movement of Princess Glacier
  - About 7 ft of recession per year since 1951
  - Ash has a high albedo, insulating the ice
  - Did volcanic ash in air after the Flood trigger the Ice Age?

Observations

- High number of unconformities on maps.

1993 USGS

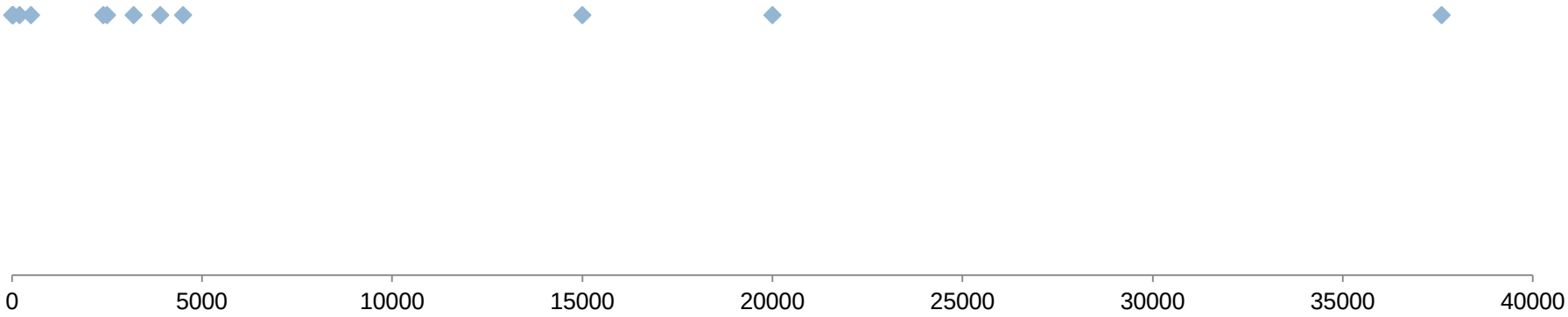




Observations

- Dormant/Active pattern gets more closely-spaced with time, similar to Mt. St. Helens
- What if instead it has been relatively active since the Flood, about 4,500 years ago?

Mt. St. Helens eruption pattern, stretched to fit uniformitarian model using radiometric dating



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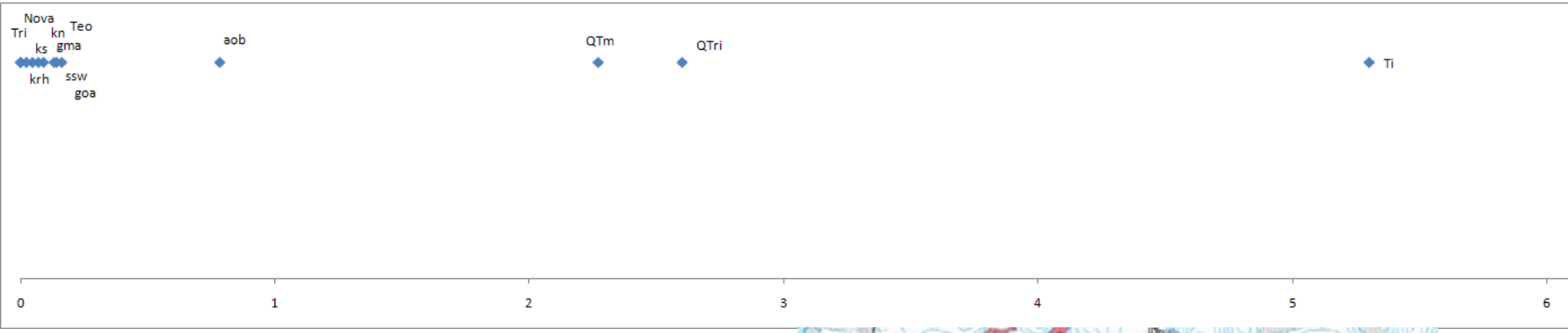

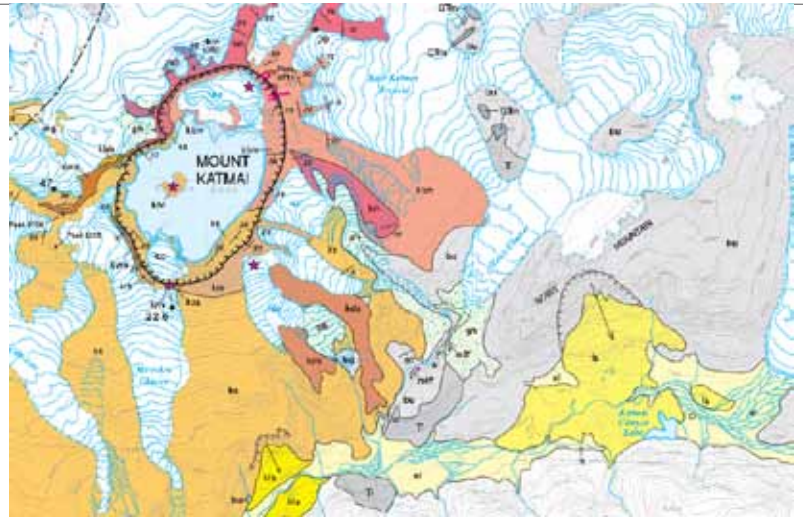

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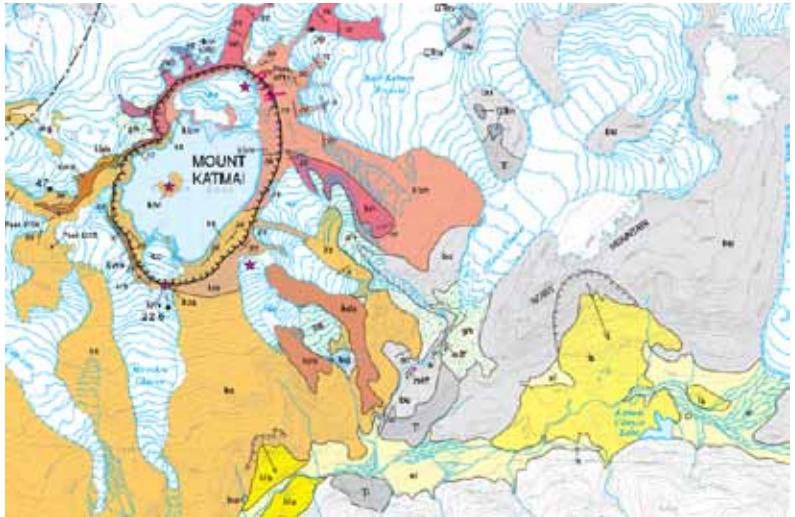

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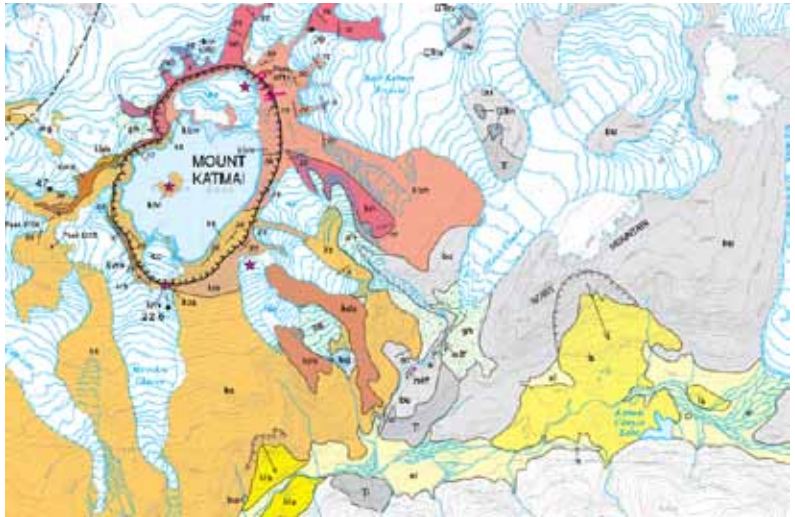

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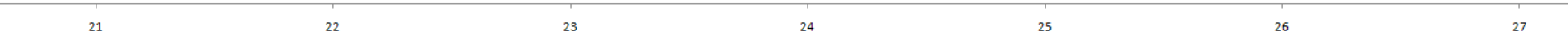

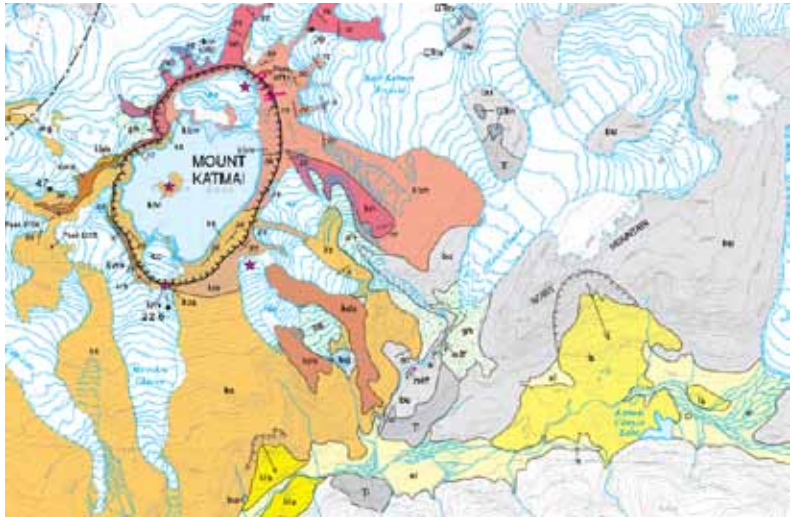

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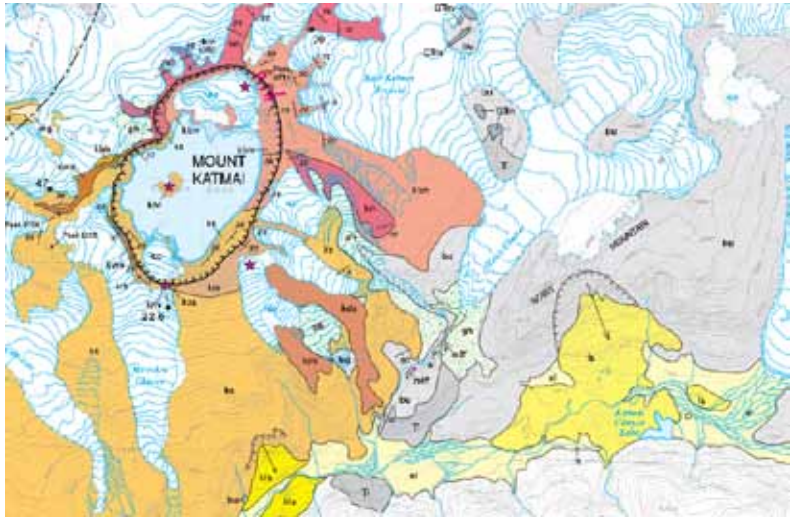

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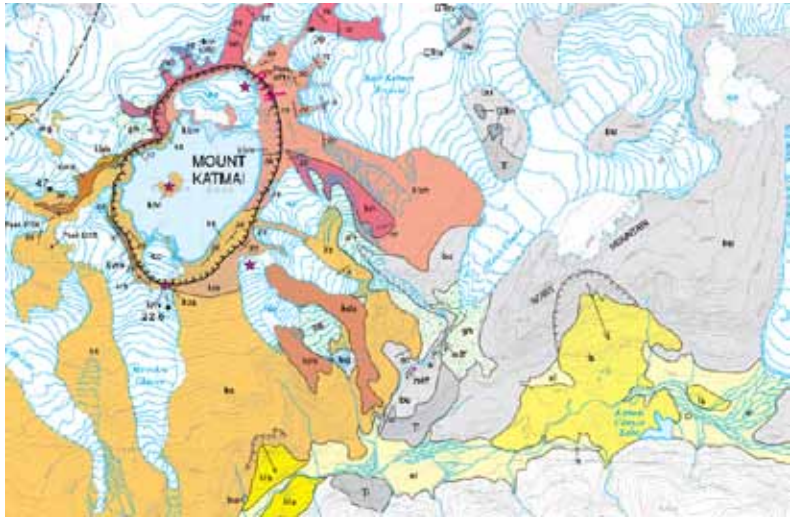

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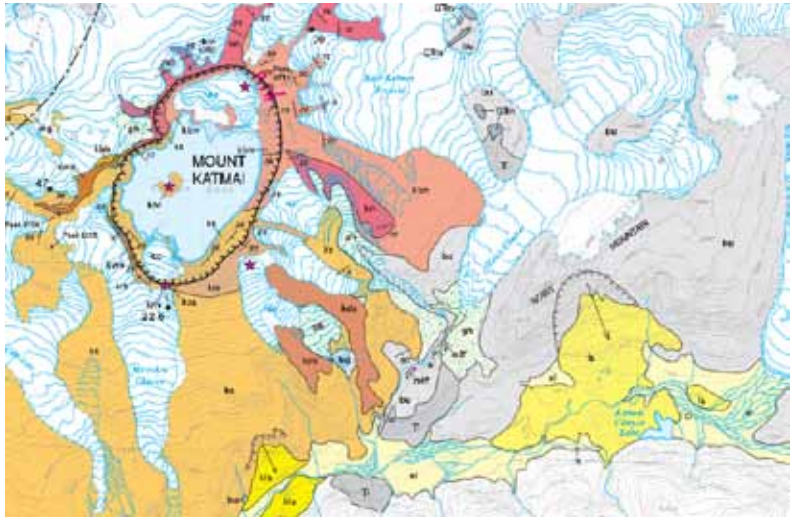

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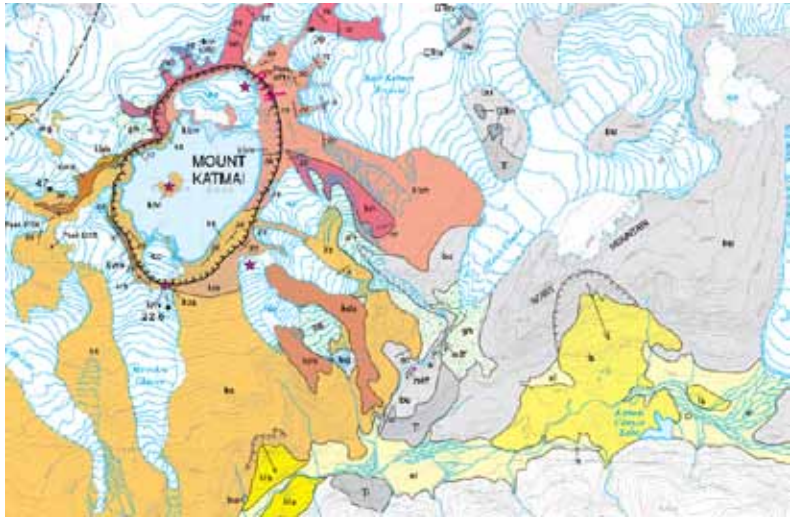

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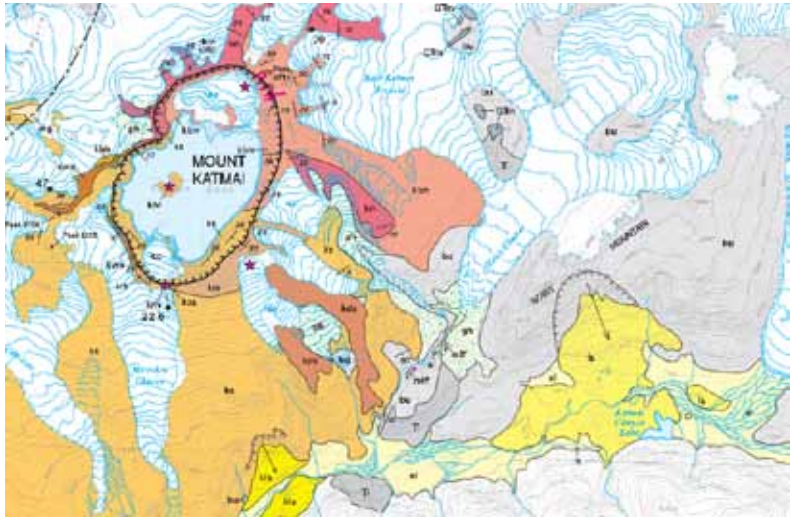

Observations

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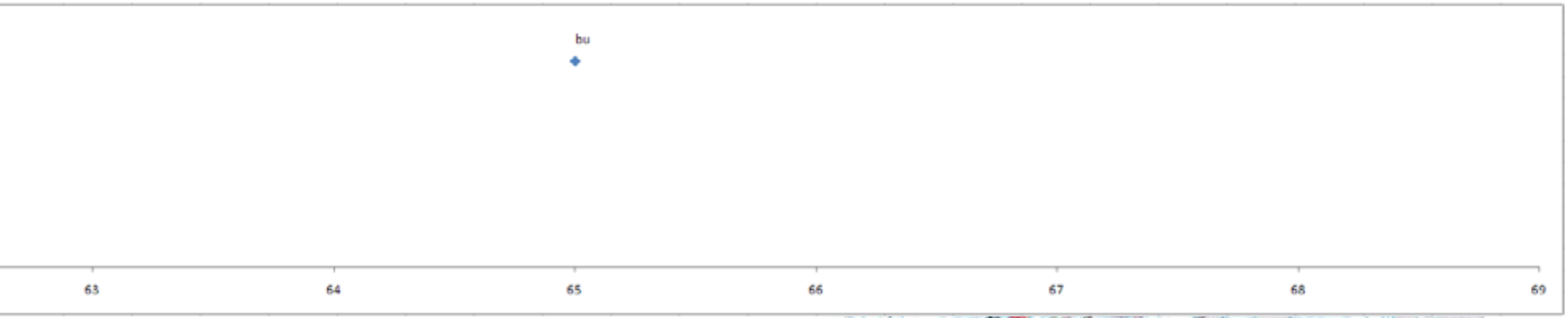


Observations

- Since records were kept beginning in 1760, Alaskan volcanoes erupt on average of 2 times per year.
- Alaska has over

12,000 earthquakes

per year!

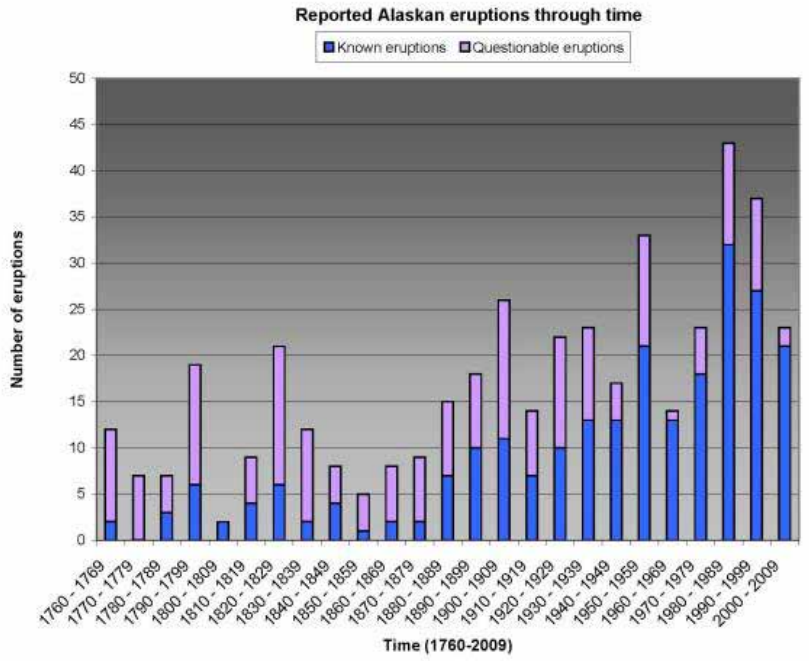
- Actual historic records

contradict long periods

of dormancy required

to fit a uniformitarian

model.



Observations

- Since Novarupta, at least one volcano within sight of Novarupta has been spewing something out!
- There is no good reason to believe K/Ar radioisotopes do anything more than distinguish between different lava flows.
- There is no good reason

to believe bigger eruptions are less frequent; it is a speculation used to stretch geologic models out to fit a uniformitarian time scale.

Observations

- Some uniformitarian researchers complain that Dr. Steve Austin's Mt. St. Helen's lava dome data are unreliable because he only used one method (K/Ar) to get a radiometric age of about 3 million years for a 25-year old Mt. St. Helens lava dome, and for using a method on rocks that are too young (less than 2 million years).
- But how do

you know a sample's

age before it is tested?

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—2003

Geology mapped by Wes Hildreth and Judy Fierstein, 1996-2001

K-Ar dating by M.A. Lanphere

GIS by J.E. Robinson, D.W. Ramsey, and T. J. Felger

Edited by Jan Zigler; digital cartography by Kathryn Nimz

Manuscript approved for publication September 30, 2002

Observations

- Assumption: Radiometric dating does not work

Creation Science Issues
Radiometric Dating – A Christian Perspective

by Dr. Roger C. Wiens

This article appears on the American Scientific Affiliation website. You may preview it in the window below. For best viewing of the entire article, please click here (opens a new browser window). This page is large (376 KB) so please allow a minute to load on a dial-up connection.

Report a broken link

Did you know that you can be a Christian, and believe that the earth is billions of years old? You can even believe in evolution and be a Christian. There is no conflict between science and the Bible...all one needs is a proper understanding how to merge science and the Bible. To learn more about old earth creationism, see Old Earth Belief, or check out the article Can You Be A Christian and Believe in an Old Earth?

where t is the time in years, $t_{1/2}$ is the half-life, also in years, and $\ln$ is the natural logarithm.

page 5

However, in reality there is often a small amount of argon remaining in a rock when it hardens. This is usually trapped in the form of very tiny air bubbles in the rock. One percent of the air we breathe is argon. Any extra argon from air bubbles may need to be taken into account if it is significant relative to the amount of radiogenic argon (that is, argon produced by radioactive decays). This would most likely be the case in either young rocks that have not had time to produce much radiogenic argon, or in rocks that are low in the parent potassium. One must have a way to determine how much air-argon is in the rock. This is rather easily done because air-argon has a couple of other isotopes, the most abundant of which is argon-36. The ratio of argon-40 to argon-36 in air is well known, at 295. Thus, if one measures argon-36 as well as argon-40, one can calculate and subtract off the air-argon-40 to get an accurate age.

One of the best ways of showing that an age-date is correct is to confirm it with one or more different dating

> Some young-Earth proponents recently reported that rocks were dated by the potassium-argon method to be a several million years old when they are really only a few years old. But the potassium-argon method, with its long half-life, was never intended to date rocks only 25 years old. These people have only succeeded in correctly showing that one can fool a single radiometric dating method when one uses it improperly. The false radiometric ages of several million years are due to parentless argon, as described here, and first reported in the literature some fifty years ago. Note that it would be extremely unlikely for another dating method to agree on these bogus ages. Getting agreement between more than one dating method is a recommended practice.

method(s). Although potassium-argon is one of the simplest dating methods, there are still *some* cases where it does not agree with other methods. When this does happen, it is usually because the gas within bubbles in the rock

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Observations

- Apparently, rocks from Novarupta were erroneously dated at 4 million years old.

GEOSCIENCE REPORTS

SPRING 1996
No. 20

RADIOISOTOPE AGE: PART I

R. H. Brown (Retired), Geoscience Research Institute

Introduction

"Lucy, we can now confidently say, lived 3.18 million years ago, plus or minus 10,000 years." [*National Geographic*, Mar 1996, p 114 ("Face to Face with Lucy's Family," p 96-117).] On what basis can anyone affirm that humanoids existed on Earth 3.18±0.01 million years ago? Such claims are based on radioisotope dating. The assignment of Lucy's age was made from potassium-argon dating of the rock in which her skeleton was found. The conflicting testimony of the Bible concerning the amount of time since Creation Week requires a critical evaluation of radioisotope dating.

Figure 1. 1993 lava fountain, Kilauea Volcano, Hawaii. Photo courtesy of the U.S. Department of the Interior, U.S. Geological Survey.

What is a Radioisotope Age?

The radioisotope age of a specimen is obtained from a calculation of the time that would be required for unstable parent atoms [P] to spontaneously convert to daughter atoms [D] in sufficient amount to account for the present D/P ratio in the specimen. For the dating of Lucy, P was the unstable isotope 40 of potassium [^{40}K] and D was the stable isotope 40 of argon [^{40}Ar].

Ar ages as great as 43 million years. Obviously these K-Ar ages do not represent the time of eruption, or the age of the lava flows. The ages must reflect other characteristics of the lava.

K-Ar ages from a volcanic deposit at Katmai, Alaska, suggest volcanic activity four million years ago. Historical records establish that the eruption which produced these deposits occurred in AD 1912.

A dominant feature of the topo-

fossil trees indicates burial less than 300 years ago! (The trees contain over 96% as much radioactive carbon-14 as found in living trees. The amount of ^{14}C in living material will diminish to 50% in 5715 years after death.)

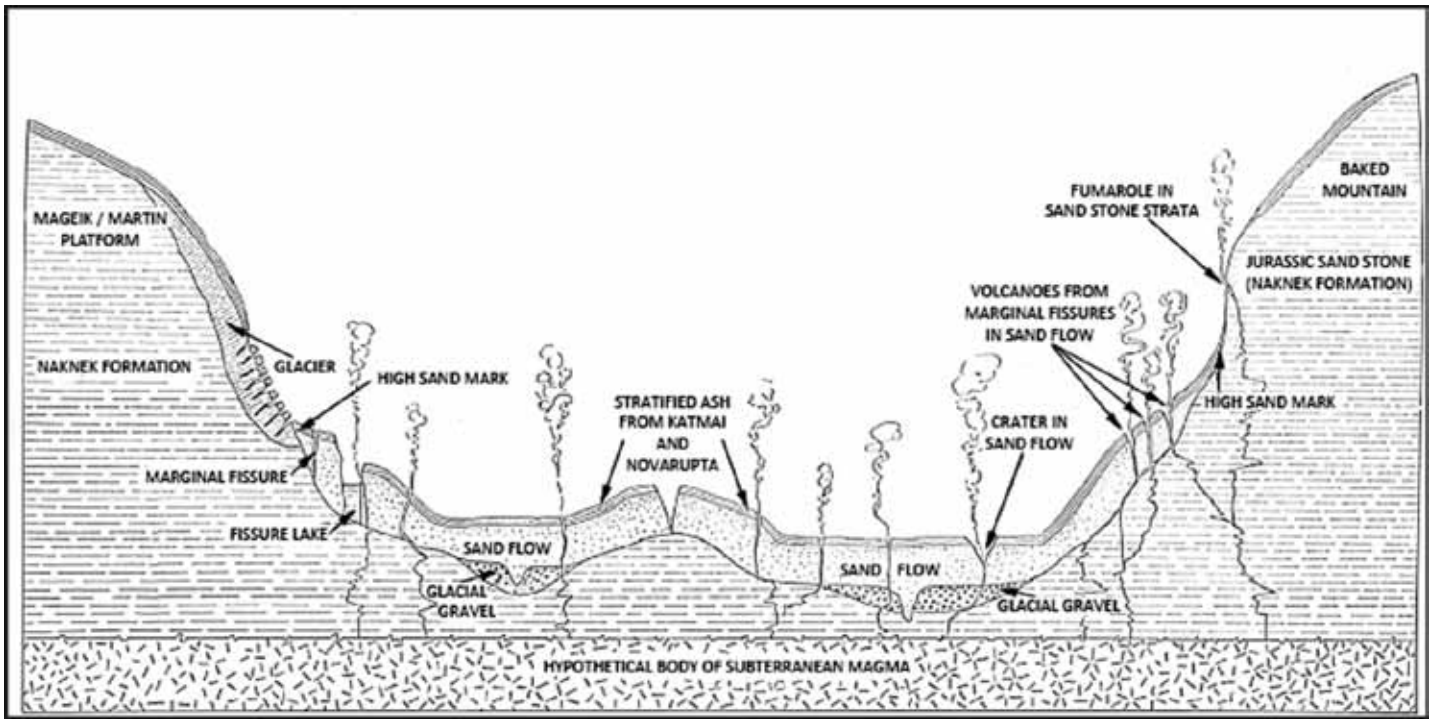
These examples† adequately establish that a radioisotope age does not necessarily have a real-time significance. A relationship of a radioisotope age with real-time must be based on an interpretation. A

A better interpretation

- Naknek Formation is a Flood deposit.
  - Uplifted towards end of Flood and into Ice Age.
- Mountain ranges formed post-Flood and continued through Ice Age
  - As ice melted, pressure released, allowing magma to rise and mountains to build.
- Recent uplift near Noisy Glacier is post Ice Age.
- Observations from 1760 to present give us no reason to believe in long dormant periods.
- Catastrophism, not uniformitarianism, describes landscape changes best.

A better interpretation

- God created. Man fell. He brought a Flood. The Flood caused an Ice Age. He sent His Son. And He will return. There is evidence for all of this in His word and His works.



Do you have a creation story to tell?

- You do not need to be an “expert” to do scientific research or natural history research
- Do you have a favorite place, plant, or animal?
  - Study it for 1 or 2 years, then present your findings.

Stay tuned for…..

- Reforming the Story of Palo Duro Canyon

Learn more at

- drshormann.wordpress.com
- spotadventures.com/trip/view?trip_id=272260