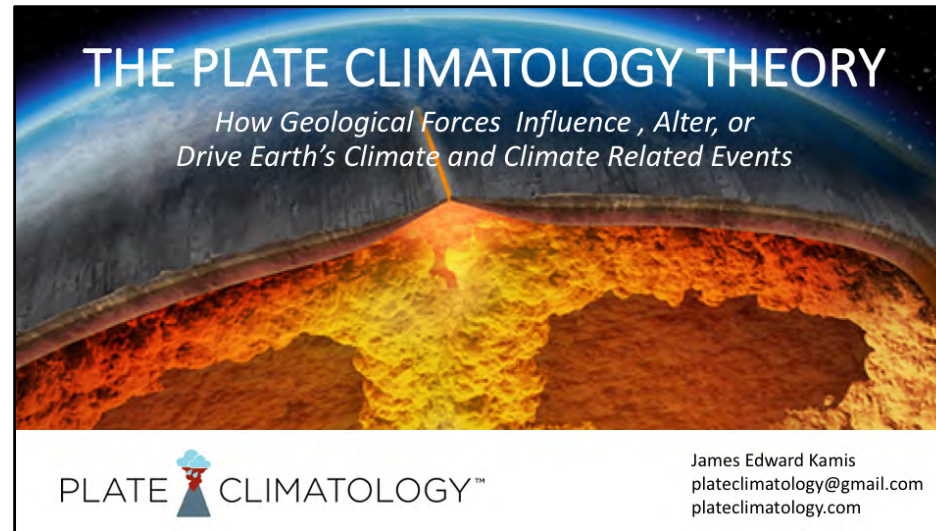


THE PLATE CLIMATOLOGY THEORY

How Geological Forces Influence , Alter, or Drive Earth's Climate and Climate Related Events



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I am here today to present a plausible alternative explanation concerning what forces generate and control earth's climate and climate related events. Specifically the contribution of powerful geological forces which have a far greater influence, and some cases completely control earth's climate and climate related events as per my Plate Climatology Theory. I am not here to convince you that the theory is correct. Nor am I here to disprove the theory of Global Warming / Climate Change, however in my opinion this theory is not 100% proven and therefore is still open to discussion and scientific review.

I am here to present a geologists perspective of the power and climate influence of geological forces.

The founding ideas of the Plate Climatology Theory came to me in 1977 when I was struck by discoveries from the deep ocean dive of the Alvin submarine onto the seafloor of the volcanically active Galapagos Island Rift System. What they found opened my eyes to a vast new world right here on earth. A world driven by powerful geological forces that could move entire continents 2-3 centimeters per year and support a new non-sun related animal and plant system, the Chemosynthetic System.

As a young geologist who had just completed a masters degree in geology and studied the theory of Continental Drift / Plate Tectonics this idea captured my imagination. I realized that geological forces must have a far greater influence on the interworking's of our oceans and therefore our planet than realized.

Since 1977 I have spent significant amounts of my free time refining that basic tenets of the Plate Climatology Theory by incorporating information and thoughts from many geological, geophysical, oceanographic, and climatic studies. These studies were great work by dedicated folks. I glued all of this information together with my own observations and thoughts. The theory was formerly introduced on October 7th, 2014 and presented at the Annual American Metrological Society Conference in New Orleans on January 13th, 2016.

The theory website, plateclimatology.com, contains; 78 articles and a hyperlink to the 2016 AMS Poster session. This information documents the numerous ways geological heat and chemically charged heated fluid flow affects climate and climate related events.

What you will see today is a very short summary of more than 40 years of developing and confirming the strong connection between geological forces and climate.

The Hidden Power of Geological Forces



Photo Credit: Culturing science



The powerful and significant climate effect of geological forces has been greatly underappreciated and remained hidden for several reasons:

First Remoteness.

71 % of earth is covered by deep largely inaccessible Oceans with an average depth of 14,000 feet. Most plate boundaries, especially powerfully heat and fluid flowing spreading center / divergent plate boundaries, reside in oceans.

Another 11% of earth is covered by Sub-Polar Ice caps with an average ice thickness of 5,000 feet. Major Rift System or divergent plate boundaries are present beneath both Polar Ice Caps.

In Total 82% of earth is remote and until recently largely inaccessible.

Second lack of Monitoring.

95% of earth's estimated 1,000,000 volcanoes and hydrothermal vents reside in our oceans or beneath our polar ice caps. Virtually none of these geological features are regularly monitored for their known emissions of CO₂, methane, phosphorous, mercury, iron, and heat. Rare trips to these remote features prove they emit huge volumes of heated and chemically charged fluid.

Third "Human Atmospheric Bias".

Lacking large amounts of data from remote regions of earth, scientists have looked for the root cause of anomalous climate and climate related events in the massive pool of atmospheric data. They did in fact find correlations between atmospheric data and climate anomalies.

However, in many cases they were correlating what I believe are atmospheric side affects. Geological forces affect the climate which alter atmospheric conditions and ocean currents such as; trade winds, rainfall, storm patterns, ocean flow directions, etc.

Incorrectly assuming side affects are root causes is a natural human reaction. Find an answer in the largest pool of very accurate data, especially if you live in it and breathe it.

Theory Premise

Increased tectonic activity, either locally or globally, equates to more faulting and volcanic activity, which leads to more heat and chemically charged heated fluid release from active geological features into oceans, sub-glacial polar areas, and atmosphere. This altered heat and fluid input has in past, and still to this day acts to effect Earth's climate and climate related events.

Many connections between Geology and Climate are explored and explained in this theory such as how Geological Forces:

- **Melt the Base of Polar Ice Sheets**
- **Generate all El Nino / La Nina Events**
- **Alter Ocean Currents, Chemistry, and Temperatures**
- Infuse Earth's Atmosphere with Methane, CO2, Particulate Matter, and Oxygen
- Act Like Deep Ocean "Forest Fires" to Rejuvenate, Diversify, and Spread Coral Reefs
- Influence Migration Patterns, Extinctions, and Habits of Marine and Terrestrial Animals including Humans
- Affect the Beginnings and Endings of Glacial Periods
- **Act in Concert with Normal Atmospheric Forces to Control Earth's Climate**

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PLATE CLIMATOLOGY

The overall theory contends that..."Increased tectonic activity, either locally or globally, equates to more heat and chemically charged heated fluid release from active geological features into oceans, sub-glacial polar areas, and atmosphere. This altered heat and fluid input has in past, and still to this day acts to effect Earth's climate and climate related events".

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- Influence Migration Patterns, Extinctions, and Habits of Marine and Terrestrial Animals including Humans
- Affect the Beginnings and Endings of Glacial and Interglacial Periods
- Are Quite possibly the Cause of the Well Documented Atmospheric "CO₂ Lag" Effect
- Act in Concert with Normal Atmospheric Forces to Control Earth's Climate

THEORY SUPPORTING EVIDENCE

- ★ Antarctica
- ★ Arctic Ocean Region
- ★ Western Pacific Ocean El Nino/La Nina Event
- ★ Continental Volcanic Emissions

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Today's presentation of evidence supporting the Plate Climatology Theory will be broken into four segments; Antarctica, the Arctic Ocean Region, the Western Pacific Ocean El Nino / La Nina Event, and Continental Volcanic Emissions.

First Antarctica.

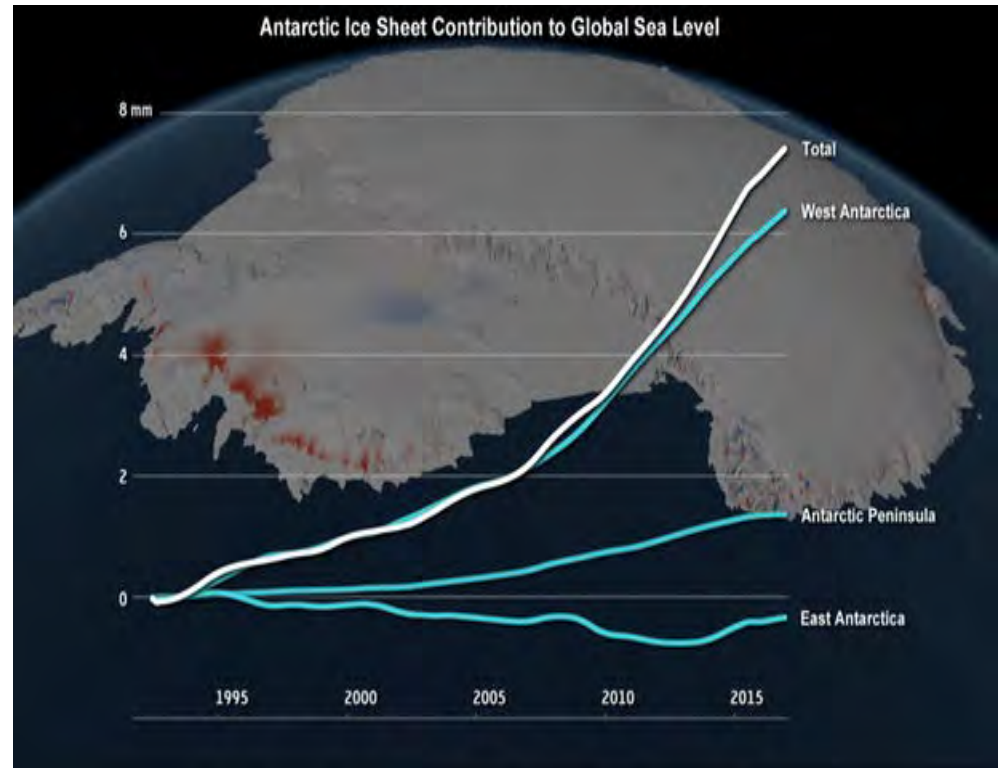
★ ANTARCTICA

Antarctic Continent vs USA

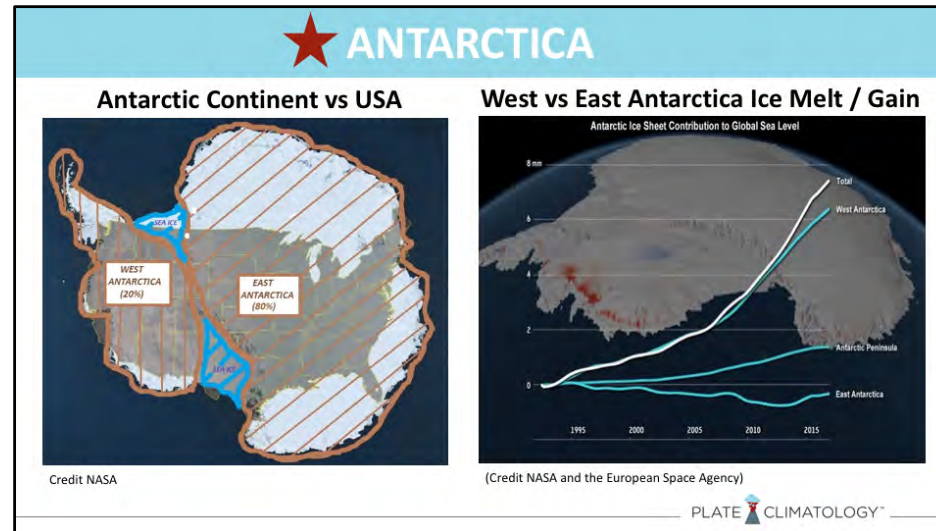


Credit NASA

West vs East Antarctica Ice Melt / Gain



(Credit NASA and the European Space Agency)



Continent wide characterization of Antarctica can not be stated in absolute fashion, because this remote area is still in the discovery phase. However, the following points are from the most recent research studies. Therefore, they are considered to be the latest understanding:

- As per the left image, Antarctica is larger than the United States of America and is divided into two Segments. West 20% by land mass, and East the remaining 80%. Note that the outlined West Antarctica includes it's a peninsula termed the West Antarctica Penninsula.
- On the right is a graph showing that West Antarctica, the smaller 20% segment, accounts for 100% of the continents ice loss, here expressed as a proxy, millimeter sea level rise per year. This graph also shows that East Antarctica, the much larger segment, is gaining ice mass. The graph is substantiated by 2015 and 2018 (soon to be released) NASA research studies by their senior Glaciologist Jay Zwally.

Other research proven regional characterizations of the Antarctic Continent not represented in the above images are as follows:

- Overall East Antarctica ice gains have outpaced West Antarctica ice loses, as a result the Antarctic Continent has been gaining, not loosing ice mass continuously for many years.
- The atmosphere above the Antarctic Continent has been cooling, NOT warming for many years
- All Ocean waters immediately adjacent to West Antarctica are dramatically warming while ocean waters adjacent to East Antarctica are only mildly to not warming.
- Existence of huge subglacial geologically heat flow induced and interconnected system of liquid lakes and streams.
- Finally, the base and not the top of the West Antarctic Ice Sheet is melting.

Next lets dig a little deeper into evidence supporting the above general characterizations Antarctica. First, a discussion of why Antarctica's smaller 20% segment is responsible for 100% of this Continents ice loss?

Antarctica Historical Surface Temperature Map

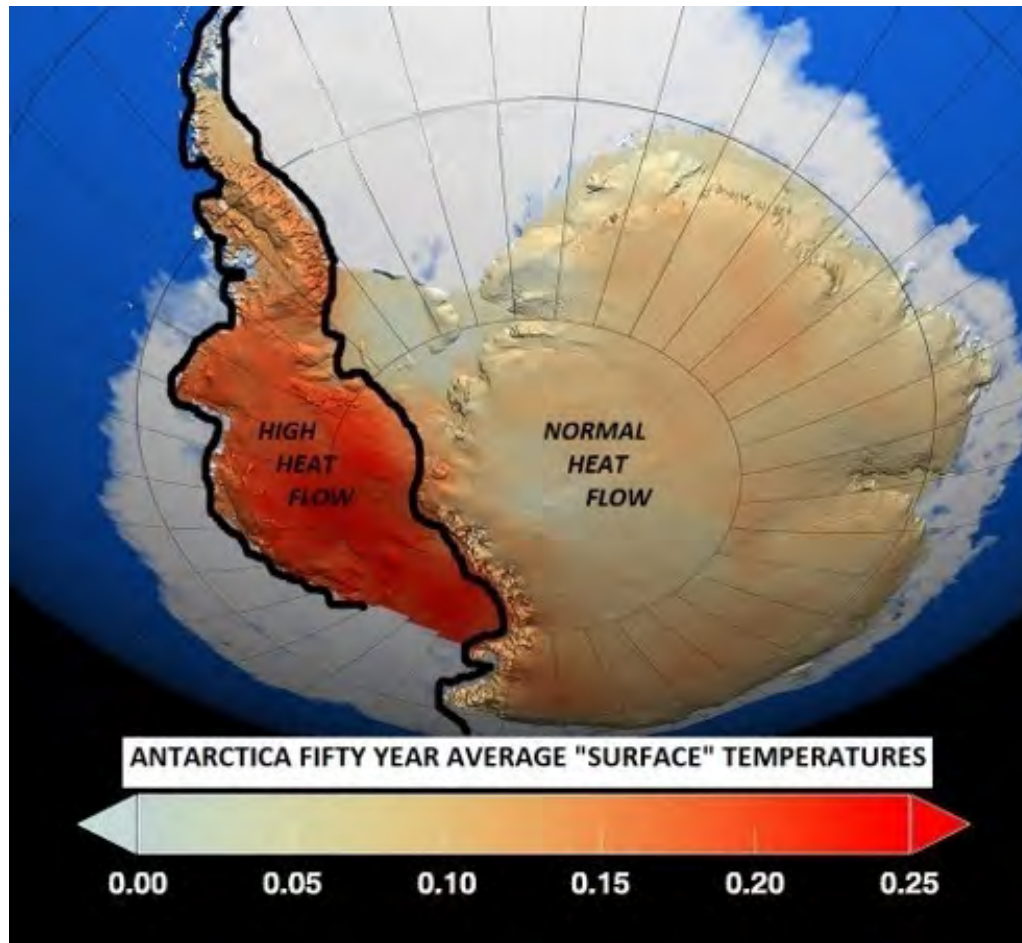
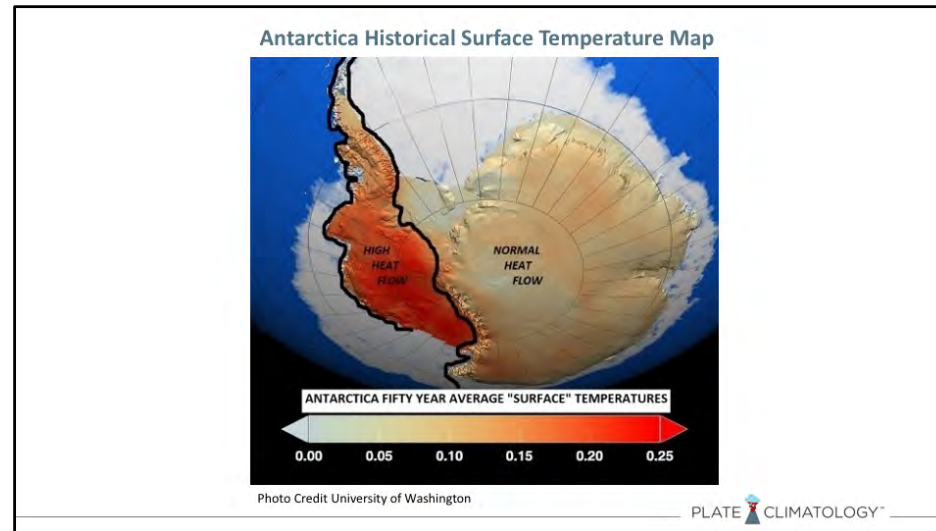


Photo Credit University of Washington



This is the University of Washington's Antarctica 50 Year Average Surface Temperature Map.

It illustrates near ground surface temperatures and does not include overlying atmospheric temperatures. The map was generated in early 2009 by Dr Eric Steig. Its validity was hotly debated for many years, however it has since been proven correct by two more modern research studies; NASA's "Skin Temperature" map and the British Antarctic Survey's Surface Temperature Map.

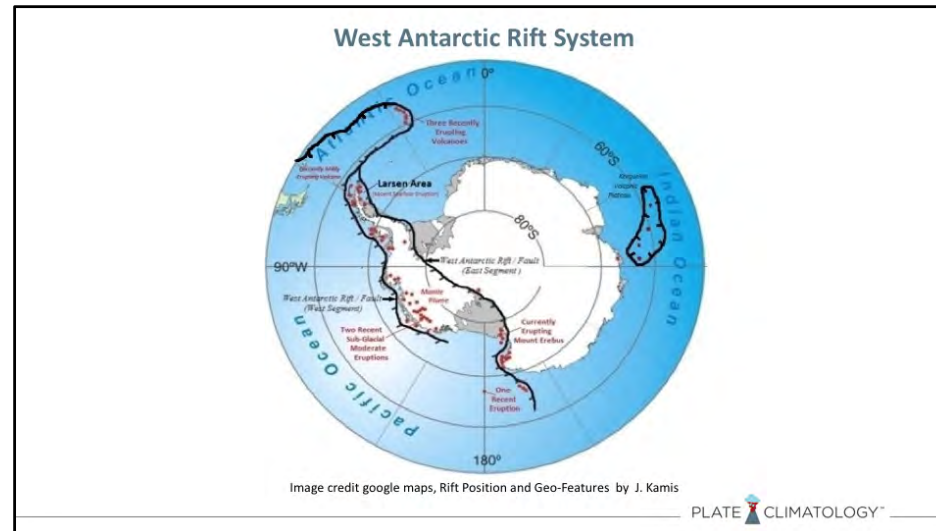
Dr Steig's map was controversial because it did not show the expected uniform melting of the entire Antarctic Ice sheet as predicted by scientists advocating uniform global atmospheric warming. Rather it showed a very well defined West Antarctic warm area adjacent to a non-warming to slightly warming Eastern Antarctic area.

Scientists were shocked to realize that the outline of the warm area perfectly matched the a known geological feature.

West Antarctic Rift System



Image credit google maps, Rift Position and Geo-Features by J. Kamis



This is that geological feature, the West Antarctic Rift System.

The West Antarctic Rift System is a 4,000 mile long and 700 mile wide geological feature that has a long and complicated history of plate boundary subduction, transform movement, and rifting. The intent of this presentation is not to describe the geological history or complexities of this huge system, rather to describe the effects of its proven widespread high heat flow.

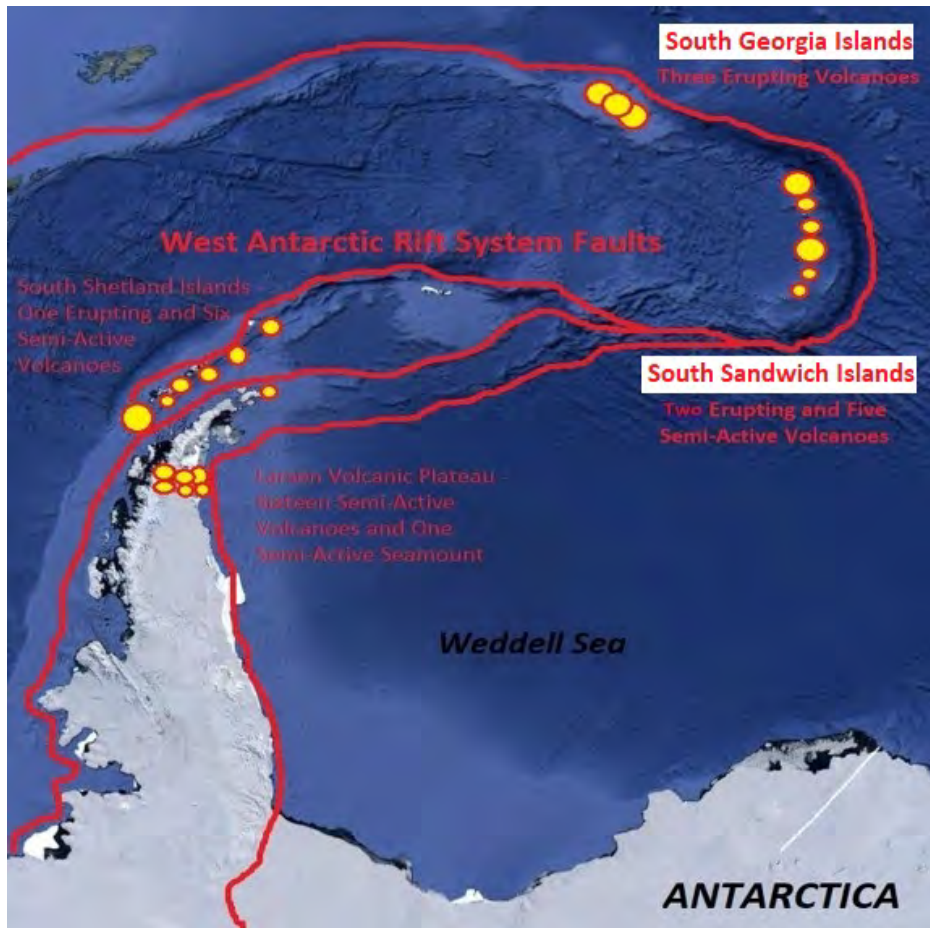
The system is home by latest count to; 149 land volcanoes, a 620,000 square mile mantle plume, thousands of deep inner earth reaching faults, numerous seamounts, and a countless number of hydrothermal vents.

Recent research studies by NASA, the University of Texas, and many other organizations confirm that staggering amounts of heat and chemically charged heated fluid flow are currently being emitted from the rift's thousands of geological features.

Today we will discuss specific / local and very telling examples of the West Antarctic Rift Systems heat flow to help convince you that this geological feature emits massive amounts of regional heat flow.

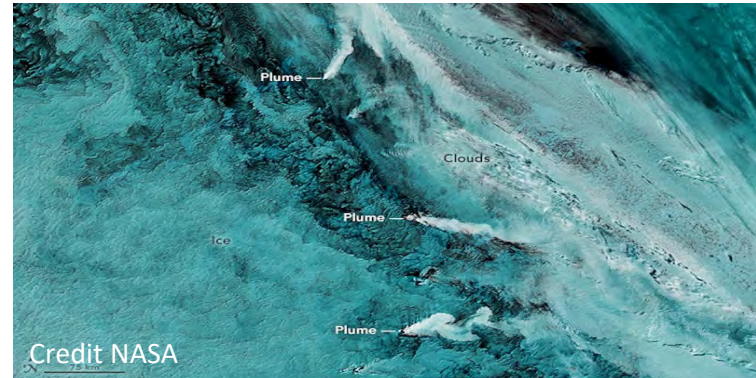
We will begin by discussing geological features located on the upper / top of slide examples. Then progressively down rift to discuss other examples. We begin by discussing the South Georgia and South Sandwich Islands.

South Georgia and South Sandwich Islands Recent Volcanic Eruptions



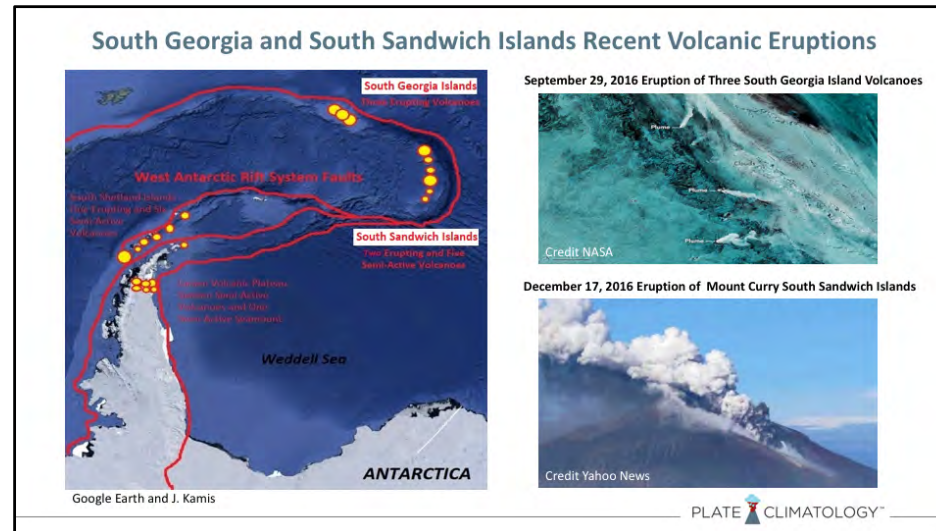
Google Earth and J. Kamis

September 29, 2016 Eruption of Three South Georgia Island Volcanoes



December 17, 2016 Eruption of Mount Curry South Sandwich Islands





The Left image shows the upper extension of the West Antarctic Rift and its major fault traces as they continue into the ocean. This portion of the rift has been very volcanically active during the last few years. Evidence is as follows.

The upper right satellite image captures the simultaneous eruption of three South Georgia Island volcanoes on September 29, 2016. These multiple eruptions indicate that this segment of the rift is geologically active, heating ocean waters and covering and glacial sea ice surfaces with volcanic ash.

Lower right is the eruption of the South Sandwich Island's Mount Curry which occurred on May 1, 2016. Ash from this large eruption affected one million penguins residing in this area and likely acted to warm ocean waters surrounding the eruption. The eruption have since subsided and the penguins are fine, they adapted.

Recent research has shown that numerous ash layers within this regions glacial ice contain natural methyl mercury which is emitted from ocean floor hydrothermal vents and incorporated into sea and glacial ice. The presence of numerous methyl mercury layers indicates that numerous historical eruptions have occurred in this area. Additionally, the South Sandwich Islands are home to 5 other known seamounts and active volcanoes.

Next we move down rift to the South Shetland Islands.

South Shetland Islands Heat Flow

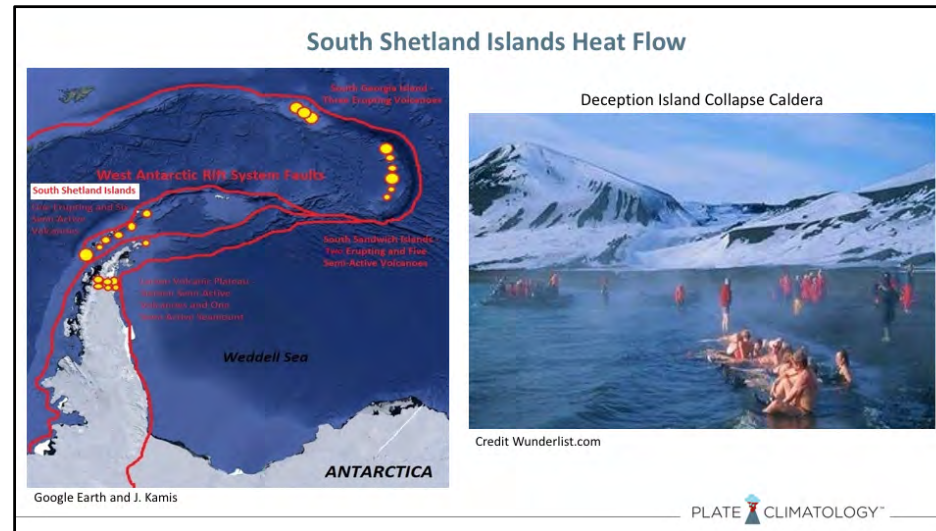


Google Earth and J. Kamis

Deception Island Collapse Caldera



Credit Wunderlist.com



Location of the South Shetland Islands as per the left image, are home to one erupting and six semi-active volcanoes all fueled by the West Antarctic Rift System.

On the right is this areas very mildly erupting or some would say semi-active volcano. Here tourists are pictured soaking in steaming hot ocean water in one of Antarctica's highest heat flow geological features...the Deception Island Collapse Caldera. The Deception Island volcano has erupted ten times from 1827 to 1995. The heated and ice free sauna like waters of the two and one half mile wide Deception Island's Caldera Bay are proof enough that this volcano is currently very active.

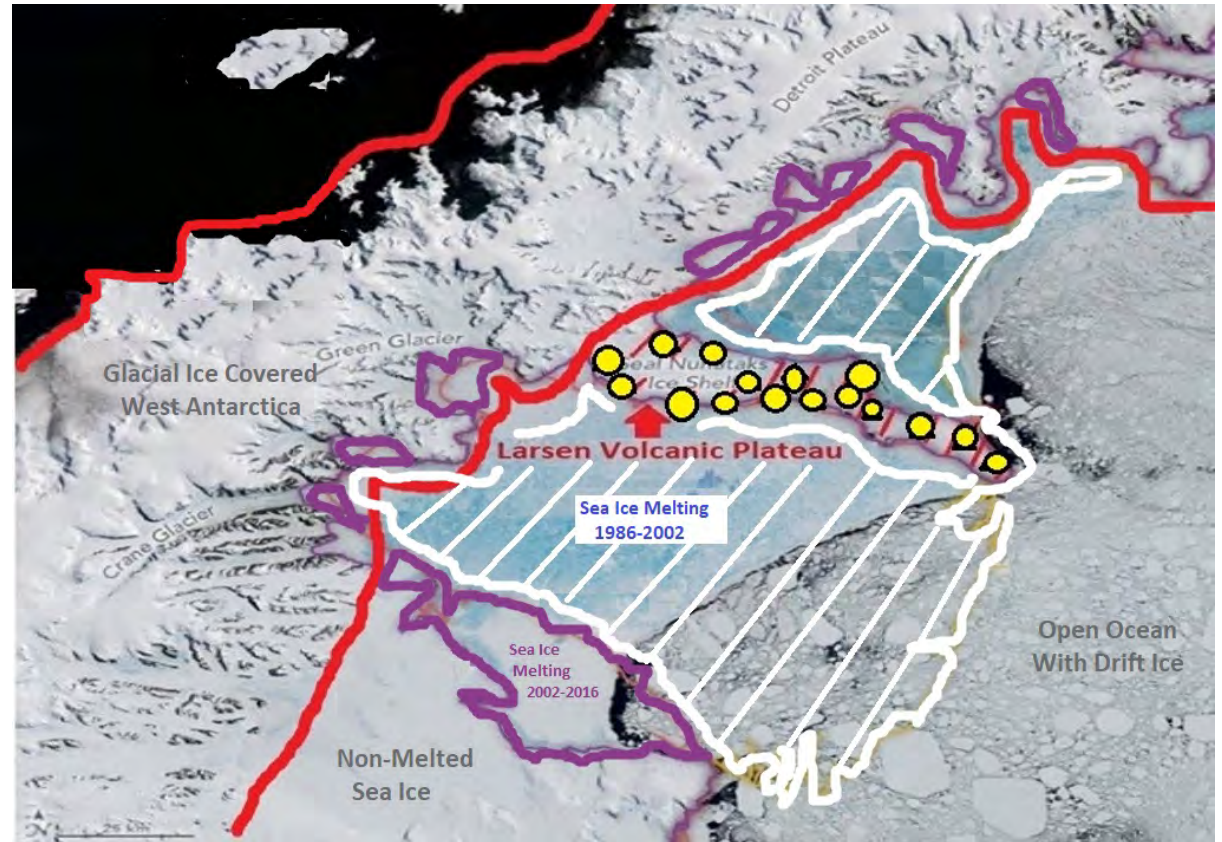
Personally I might be a bit nervous about soaking in an active caldera and being ferried back to the main ship in a rubber raft.

Now we move across the rift to the Larsen Volcanic Plateau.

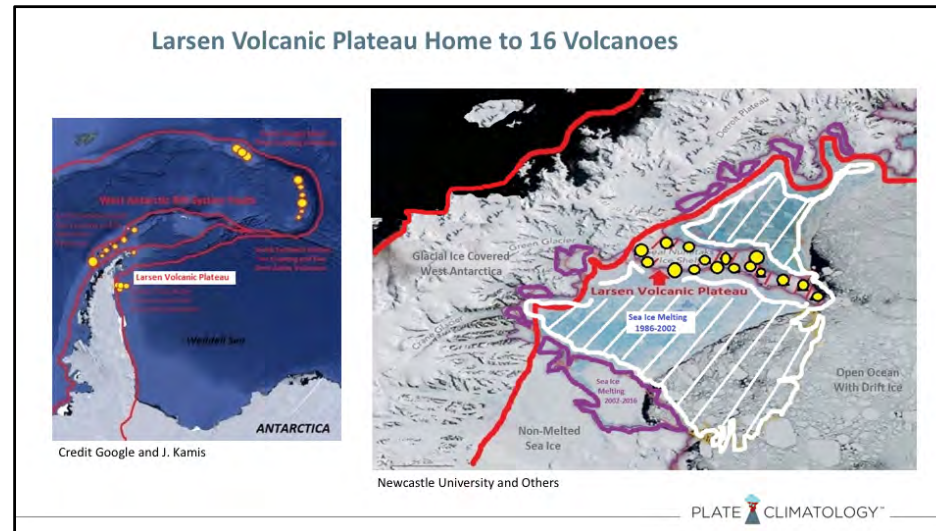
Larsen Volcanic Plateau Home to 16 Volcanoes



Credit Google and J. Kamis



Newcastle University and Others



Left is the location of the Larsen Volcanic Plateau relative to the rift. The Larsen Volcanic Plateau has been the focus of many media articles describing the breakup of sea ice adjacent to this feature. This sea ice break-up has been characterized as being proof that human atmospherically generated global warming. Is at work here.

An alternative, and more plausible explanation is warming of the oceans by geologically induced heat flow.

The right image illustrates the extent of this 50 mile long and 10 mile wide volcanic plateau. It is home to 16 semi-active volcanoes here shown as yellow circles. The volcanoes punch through the ice forming prominent cone shapes. Many of them are void of snow and ice which is a direct indication of ice melting heat flow.

Other evidence of high heat flow is that breakup of sea ice occurs progressively through time farther away from the volcanic plateau. This is almost certainly the result of progressive outward warming of the ocean waters adjacent to the Plateau from bedrock heat flow which results in ocean warming, and subsequent sea ice melting.

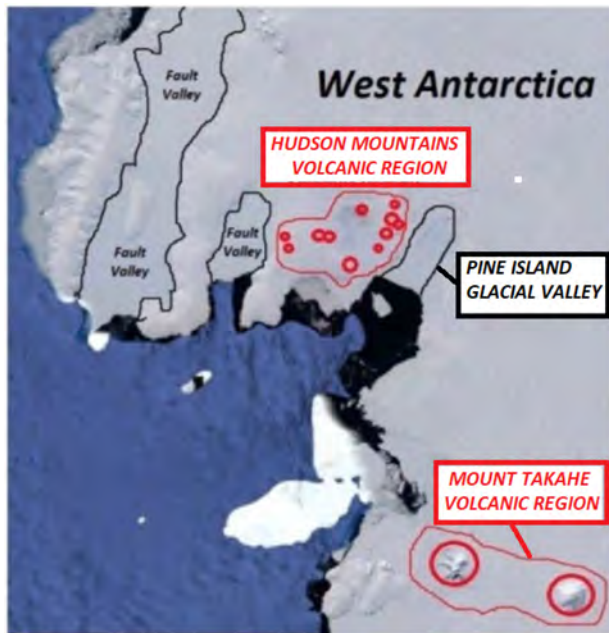
Visits by early Antarctic Explorers to the Larsen Plateau mentioned the presence of fresh volcanic ash. A recent visit by University of Chile geologists noted fresh volcanic ash on several areas of the plateau. One other recent visit by researchers recorded warmed seawater in and around a portion of the plateau likely indicative of a the presence of a seamount.

We move farther down rift to another currently and historically active geological area.

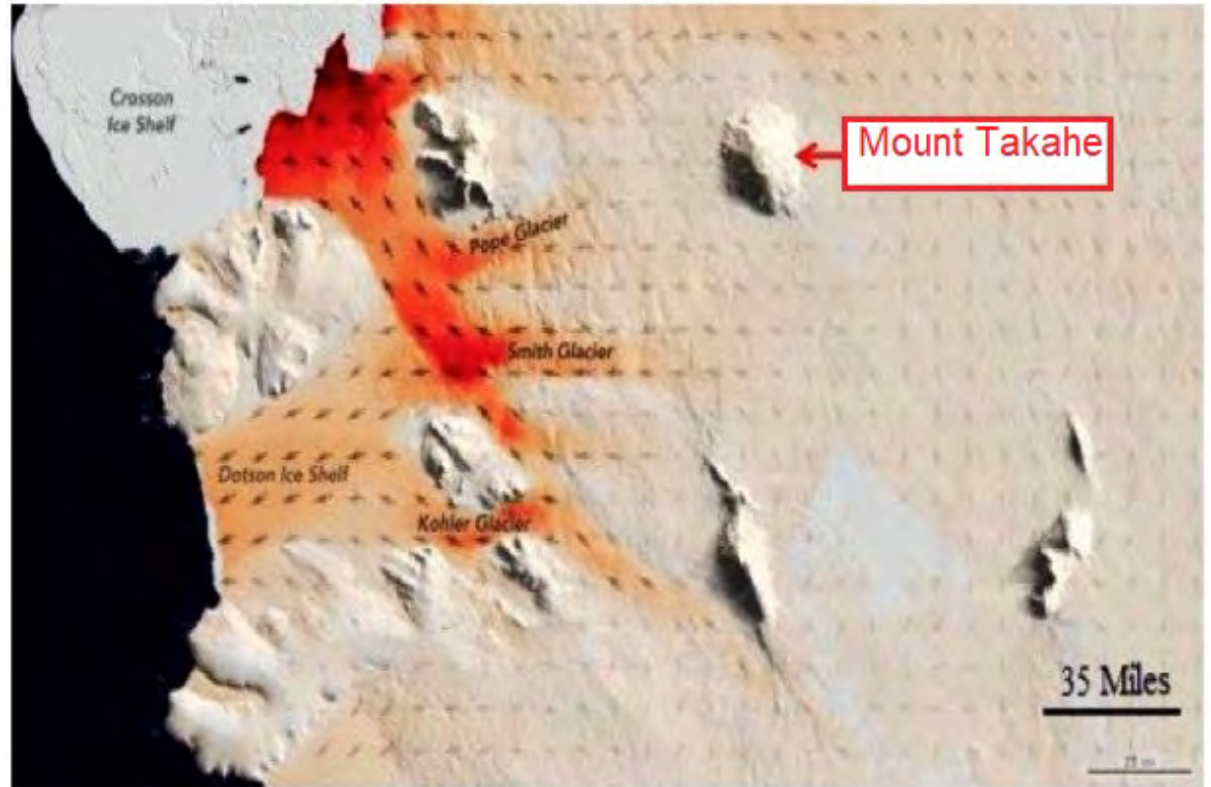
Mount Takahe and Hudson Mountain Sub-Glacial Volcanic Regions

Glacial Velocity Reflective of Bedrock Heat Flow

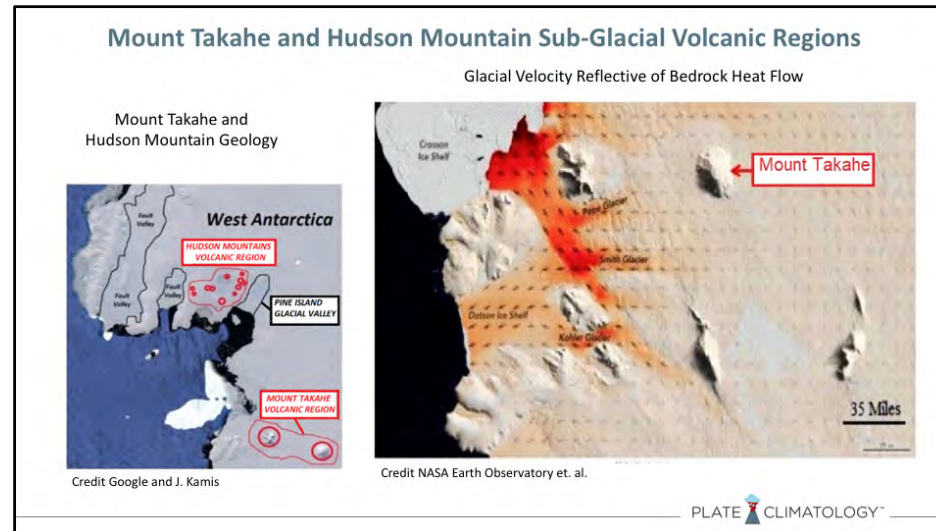
Mount Takahe and Hudson Mountain Geology



Credit Google and J. Kamis



Credit NASA Earth Observatory et. al.



The left image shows the Hudson Mountain volcanic complex, the Mount Takahe Volcanic complex, and the long linear likely down faulted Pine Island Glacial valley. All of these features are immediately adjacent to one of the major rift bounding faults. For many years this area was the Poster Child example of how manmade atmospheric warming was acting to melt Antarctic Glaciers. Just a few years ago most scientists cited ice melting in this area as absolute proof that the theory of Global Warming / Climate Change was 100% correct and there fore no longer upon to debate.

Research by NASA, the University of Texas, Nevada's DR Institute, and many others has since shattered this widely media reported misconception based in large part on the following evidence.

First on the left map is the position of the long linear fault down dropped Pine Island Glacial Valley. In June of 2018 researchers from the National Science Foundation made a stunning discovery. They confirmed the presence of a currently erupting volcano beneath the Pine Island Glacier. Turns out eruptive heat flow is melting this valleys glacial ice.

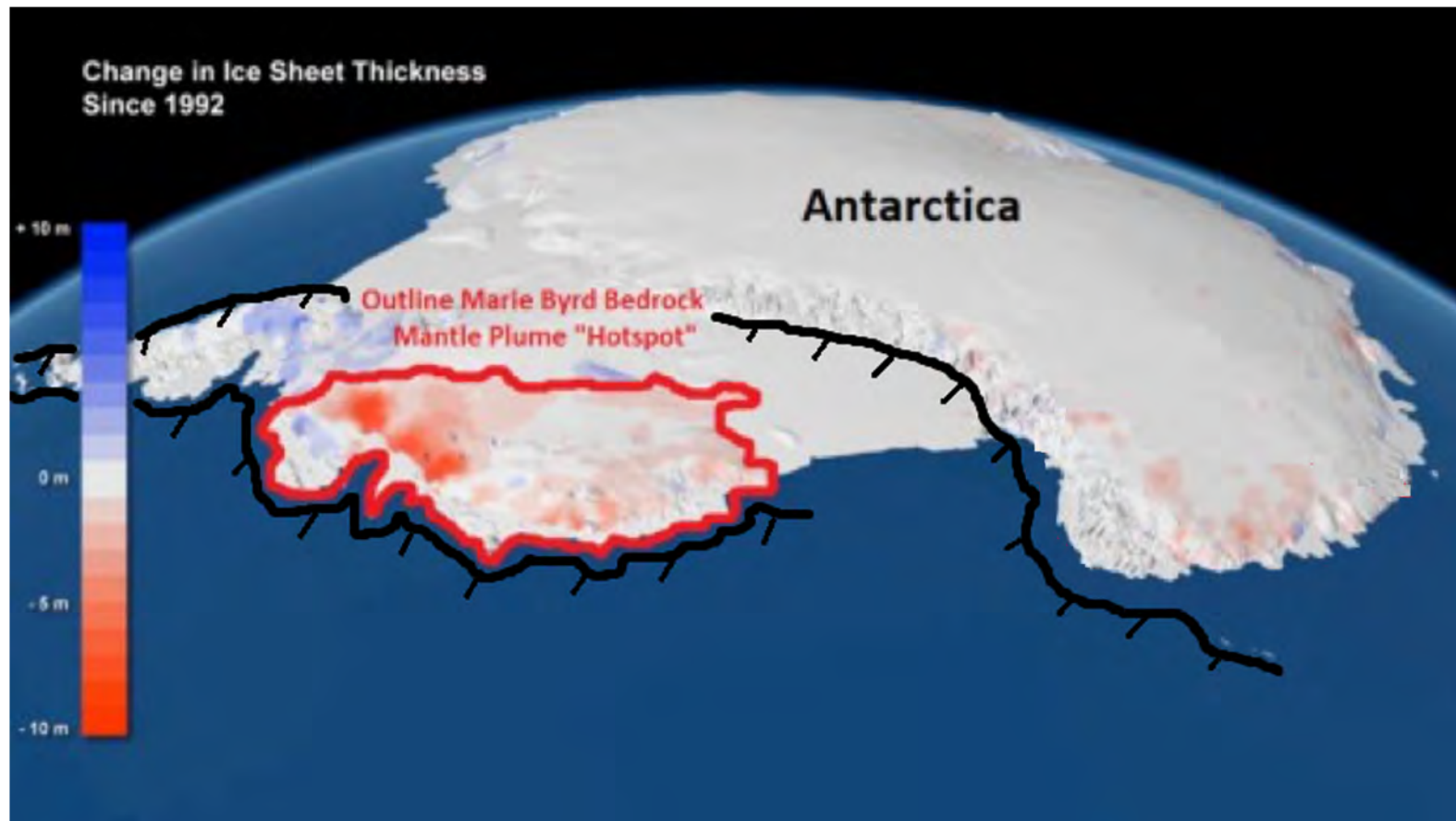
Concerning the Hudson Mountain Volcanic Area, in 2008 research by the British Antarctic Survey proved that 2,200 years ago a massive sub-glacial volcanic eruption covered this ancient glacial ice area with a thick layer of volcanic ash. Post eruption glacial ice accumulations buried the ash layer. Based on the extent and thickness of the ash layer researchers described this event as one of the largest Antarctic eruptions in 10,000 years.

The right image illustrates two prominent elevation highs that punch upward into the overlying ice cover. These are sub-glacial volcanoes Mount Takahe and an unnamed volcano to the left on the image. On September of 2017 research by Nevada's DR Institute showed that 17,700 years ago Mount Takahe erupted on multiple occasions during a 192 year span. This world class eruptive phase acted to alter ocean currents, ice extent, and climate of the entire southern hemisphere in an area extending from the South Pole to the sub-tropics.

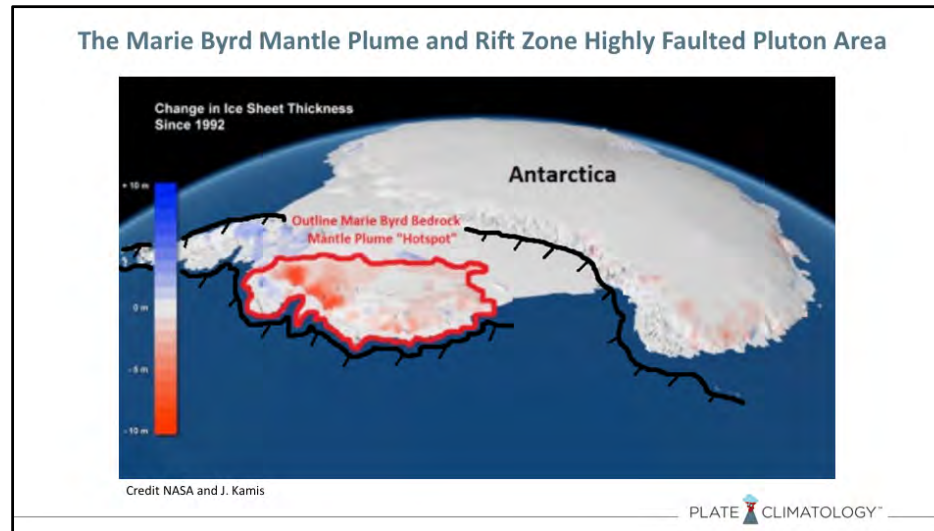
The present day heat flow of this area has been calculated by two recent studies. First on the right image, red shading indicates anomalous glacial velocities which are here considered to be a proxy for high bedrock heat flow. Secondly, University Texas researchers measured three times normal heat flow in this area, especially in and around the volcanoes.

Next we move farther down rift to the main portion of West Antarctica.

The Marie Byrd Mantle Plume and Rift Zone Highly Faulted Pluton Area



Credit NASA and J. Kamis



This image illustrates West Antarctic ice sheet melting from 1992 to present shown as varying red shades. Superimposed on this map is the red outlines of the 620,000 square mile surface trace of The Marie Byrd mantle Plume. The close match of red shaded ice melting and the surface projection of the deep earth reaching mantle plume, red outline, is strong evidence that mantle plume heat flow is melting the overlying ice.

A recent NASA study confirmed what many geologists have suspected before, the mantle plume hotspot existed in this area. This plume fuels and is home to 100 semi-active or active sub-glacial volcanoes. Several of these volcanoes are currently erupting beneath the glacial ice.

Other very recent research has proven that the surface area above the mantle plume is rising at a very rapid rate. A rate much greater than can be accounted for by glacial isostatic rebound. Uplift is here thought to be related to upward movement of deep earth magma chambers fueling the plume.

Clearly ice sheet melting in this portion of West Antarctica is related to bedrock heat flow.

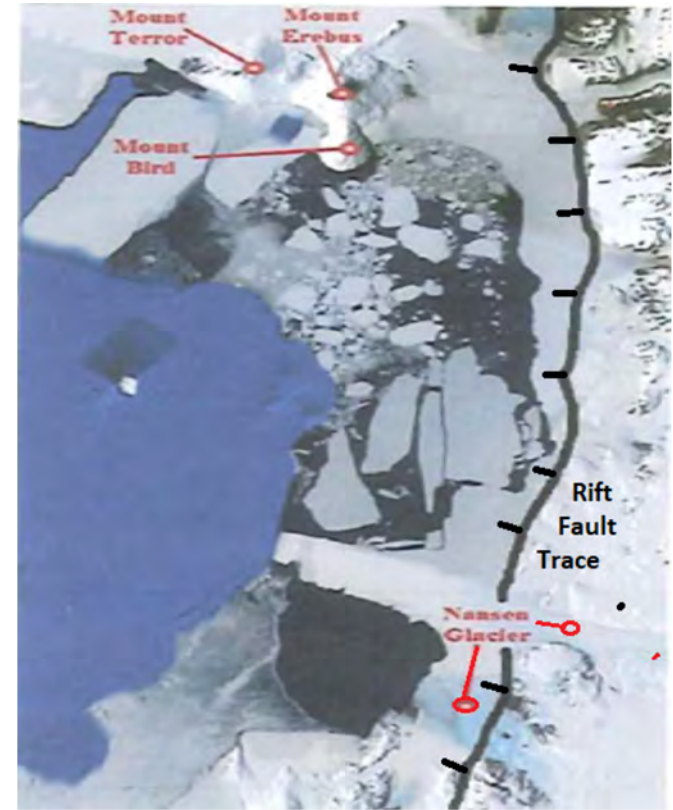
Mount Erebus: Eruption, Ocean Warming, and Ice Melting

Erupting Mount Erebus and Distant Mount Terror

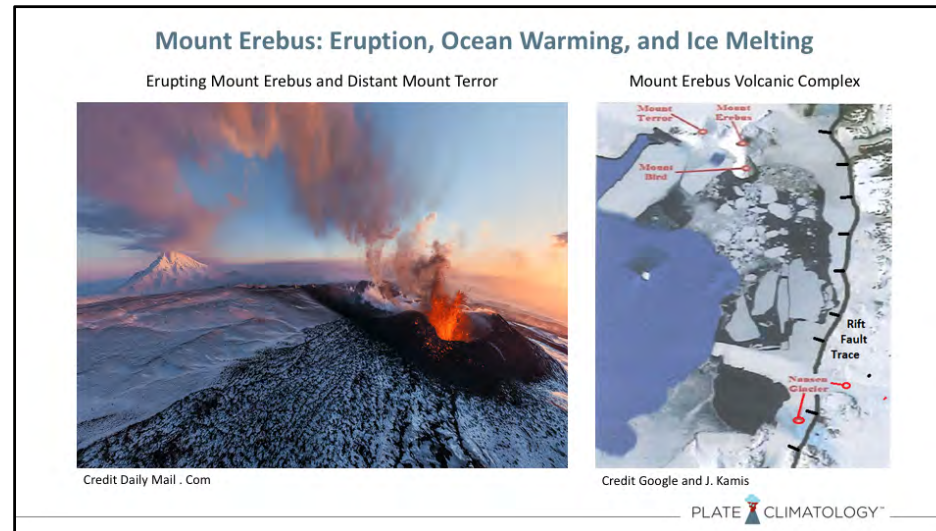


Credit Daily Mail . Com

Mount Erebus Volcanic Complex



Credit Google and J. Kamis



Farther south along the West Antarctic Rift is the 50 mile long Mount Erebus Volcanic Complex.

As per the left image Mount Erebus is a 12,433 feet high stratovolcano that is currently erupting, and has been mildly erupting for many years. Recently acquired seismic data confirmed that the magma chamber fueling Mount Erebus has moved upward and now resides at 4000 feet below the summit.

As per the right image, other semi-active volcanoes that are part of the Mount Erebus Volcanic Complex include Mount Terror, Mount Byrd and Mount Morning. Mount Erebus, Mount Byrd, and Mount Terror jut into, and are positioned along an ocean bay. These active volcanoes are also close to the rift's eastern bounding fault trace.

The positioning of this volcanic complex and its known heat flow are almost certainly the cause of observed breakup of the bays sea. Supposedly unnatural recent retreat of the Nansen Glacier is also very likely the result of volcanic or rift fault heat flow.

Inexplicably media and climate change advocates never mention the likely influence of high heat flow sea water warming and glacial ice melting. Instead focusing attention on the supposedly unnatural retreat of the Nansen Glacier.

Omission of this geological heat flow evidence is not consistent with normal scientific procedures.

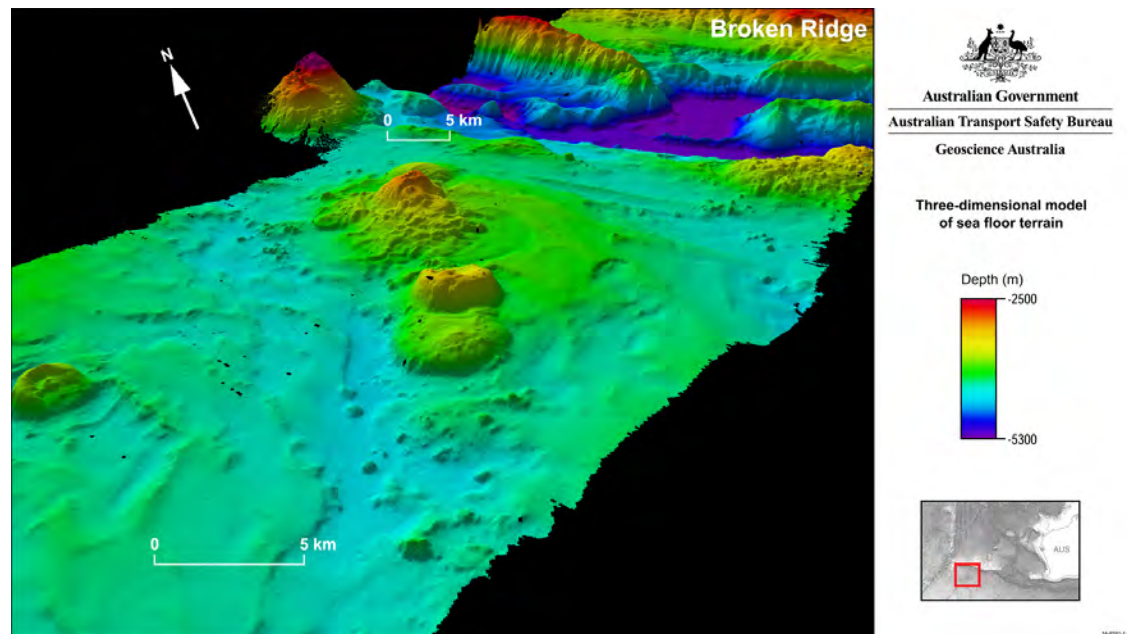
Antarctica's Kerguelen Volcanic Plateau

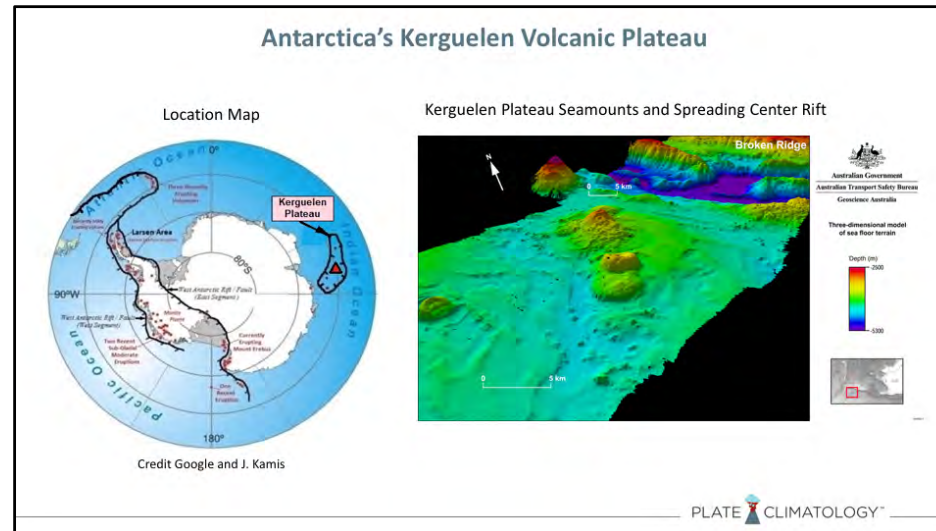
Location Map



Credit Google and J. Kamis

Kerguelen Plateau Seamounts and Spreading Center Rift





As per the left locator map is Eastern Antarctica's offshore Kerguelen Volcanic Plateau. One of the largest igneous provinces in the world. This ocean floor plateau covers 480,000 square miles and rises 6,600 ft above the surrounding ocean basins.

In 2016 a study of the Kerguelen Plateau by the Australian Antarctic Research Institute concluded the following:

- This areas extensive reoccurring plankton blooms are strongly influenced by iron enrichment of the seawater from thousands of hydrothermal vents.
- Sudden alteration of marine animal migrations patterns were related to volcanic activity
- This area is considerably more geologically active than previously thought.

How they arrived at this conclusion is an interesting story.

The original mission of their research project was to investigate reports from fisherman that marine animal migration patterns had dramatically changed in waters surrounding the Kerguelen Plateau. Prior to setting sail researchers hypothesized that these changes were a clear sign of Climate Change terming them "Ecological Hotspots".

However, upon arrival at the Kerguelen Plateau region they were witness to a volcanic eruption on the plateau's McDonald Island volcano. Subsequent launching of the vessel's self guided mini-sub's discovered hundreds of active ocean floor hydrothermal vents emitting massive

volumes of iron rich fluid into Kerguelen Plateau ocean water.

Researchers quickly realized that volcanically induced chemically charged heated fluid flow, and not Climate Change was the cause of alterations to marine animal migration patterns. Additionally the researchers concluded that this areas reoccurring strong plankton blooms were fueled in part by iron from hydrothermal vents.

April 2016 research by Durham University is here interpreted to prove that faults associated with the Kerguelen Plateau extend westward onto a portion of East Antarctica. These faults have created several long linear subglacial valleys. One of these is home to a subglacial lake implying bedrock heat flow.

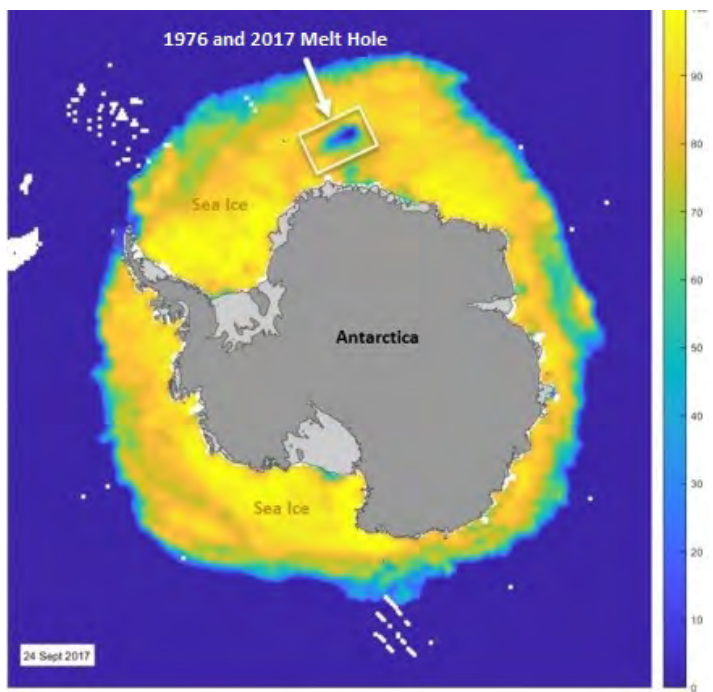
Other research studies indicate minor glacial ice loss in and around this area. Again likely caused by bedrock heta up and along the faults. It is important to note that these minor losses of glacial ice do not affect the overall large gain of ice in East Antarctica.

The story of research at the Kergulen Plateau have far reaching implications. It is an example of how atmospheric bias negatively influences scientists who investigate earth's climate, oceans, and marine animal behaviors. These researchers had decided ahead of time that the areas anomalous occurrences were the result of a Climate Change. However to their credit that was not a completely incorrect way to approach a research study, just a little biased in my opinion. Also to there credit they adapted and got things correct in the end.

Finally this story also demonstrates how very little we know about powerful ocean floor geological features.

The 2017 Weddell Sea Ice Melt Hole

Locator Map

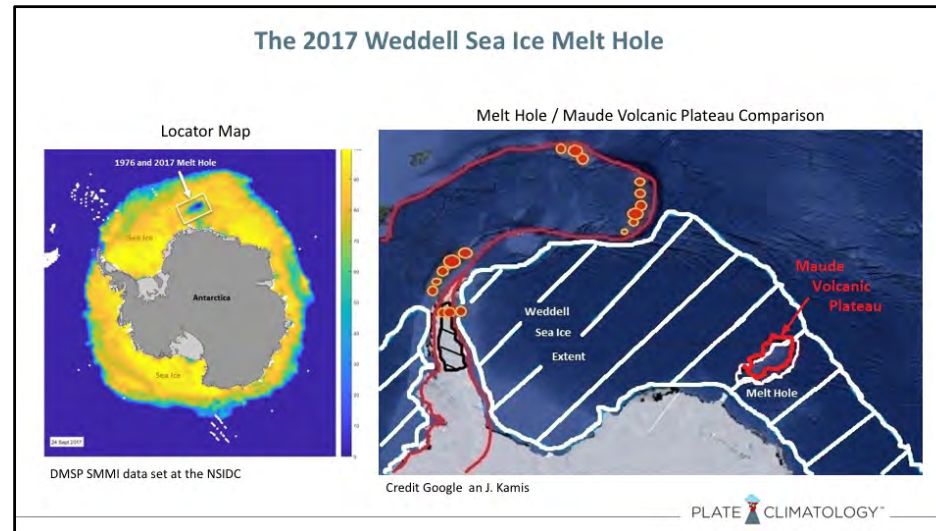


DMSP SMMI data set at the NSIDC

Melt Hole / Maude Volcanic Plateau Comparison



Credit Google an J. Kamis



As illustrated on the left image, in 2017 a huge sea ice melt hole formed in a very thick portion of Antarctica's Weddell Sea ice. Scientists hypothesized that this event was caused by upward deflection of very warm bottom hugging seawater. The deflection was supposedly the result of a bathymetric seafloor high area called the Maude Rise.

The right image illustrates the position of the melt hole with the Maude Rise. This Rise was formed by lava flows and other volcanism possibly including four prominent cone shaped seafloor mountains here interpreted to be seamounts.

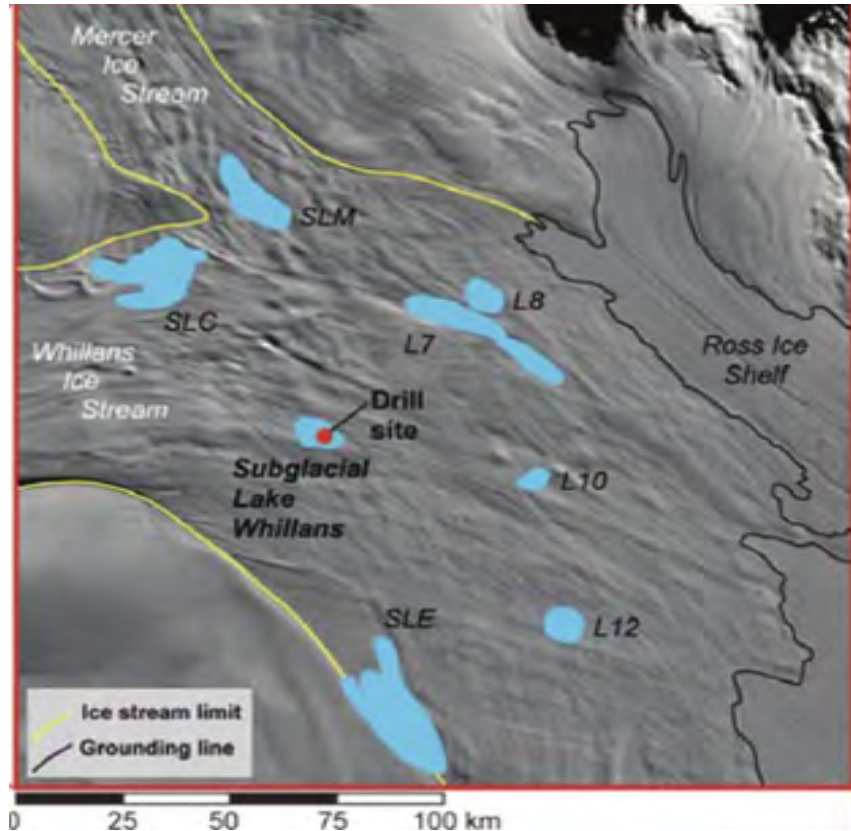
The melt hole lies directly above and is closely conformable to the seafloor trace of the Maude Rise which is in geological terms referred to as the Maude Volcanic Plateau.

It is difficult to attribute this prominent and isolated melt hole to either atmospheric or ocean current heat flow. The atmosphere above Antarctica is not warming and the Maude Plateau is one of many bathymetric highs in the Weddell Sea. None of these other highs are associated with melting sea ice. Most importantly the melt hole appeared in 1976 and then did not reappear until 2017. This is characteristic of the erratic nature of volcanic heat flow pulses.

Next we review two significant pieces of Antarctic regional geology.

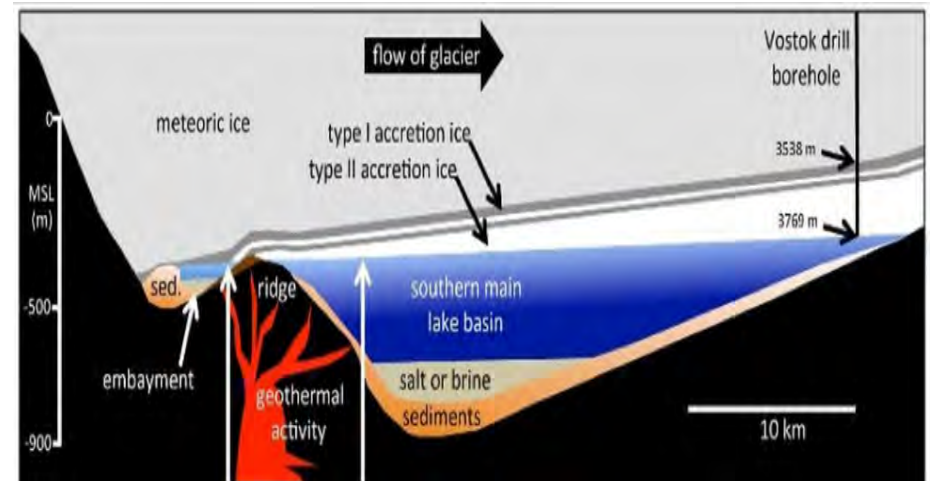
Antarctica's Massive Subglacial Hydrologic System

System of Interconnected Subglacial Lakes and Streams

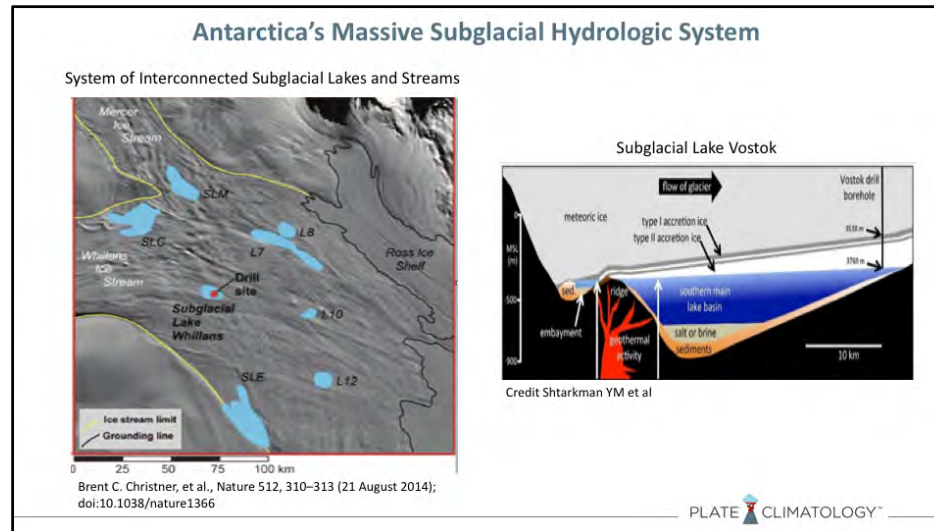


Brent C. Christner, et al., Nature 512, 310–313 (21 August 2014);
doi:10.1038/nature1366

Subglacial Lake Vostok



Credit Shtarkman YM et al



These two images illustrate Antarctica's amazing continent wide subglacial flowing liquid freshwater system of interconnected lakes and streams. I believe that this world class hydrologic system is the result of bedrock heat flow.

On the left an image from remote sensing devices that show subglacial lakes and connecting streams in the West Antarctic Rift system area. Many of the lakes and streams are proven to be associated with down faulted grabens.

The right image is one such fault related subglacial lake. It is Lake Vostok. This research generated cross section illustrates the 30 mile width of the 160 mile long Lake Vostok. Drilling through the 13,000 feet of overlying ice and into Lake Vostok encountered lake water indicative of hot spring chemistry and biology.

Researchers concluded that this high was fault induced and home to hydrothermal vents that were acting to chemically charge and heat lake water.

The West Antarctic Rift System and The Pacific Ring of Fire



volcanicisabel.wordpress.com and J. Kamis



Geological theory states that the Pacific Ring of Fire, the most geologically active region on the planet, forms a horseshoe shape around the Pacific Ocean. A horseshoe shape that supposedly does not include the West Antarctic Rift System. This is thinking not correct, because I here contend that the West Antarctic Rift System is the final piece of the Horseshoe of fire, thereby making it the Ring of fire.

This idea as far as I know has not been proposed by any one else. My ides is supported by four key pieces of information.

The West Antarctic Rift:

- Contains an impressive number of active volcanoes. On a per square mile basis the same distribution as the Pacific Ring of Fire.
- Next, It is home to an impressive number of active faults. Again on par with the Pacific Ring of Fire.
- It connects in a geologically seamless fashion onto the two currently defined horseshoe ends of the Pacific Ring of Fire.
- Lastly the West Antarctic Rift has now been proven to be very geologically active.

Summary of Antarctica



Credit Daily Mail.Com

Summary of Antarctica



Credit Daily Mail.Com

PLATE CLIMATOLOGY™

I'm guessing that this is not the image that springs to mind when thinking of Antarctica. However a huge portion, to be exact 20%, of this continent, is in fact very geologically active.

Research during the last few years has demonstrated that long standing supposedly proven dogma concerning the geological heat flow of Antarctica is totally incorrect! Instead and as per the original tenets of the Plate Climatology Theory Antarctica, especially West Antarctica is very actively influencing this continents oceans, glaciers, animals, and sea ice.

Next let's review the Arctic Ocean Region.

★ ARCTIC OCEAN REGION

Most Intense 2010 Phase of Iceland's Eyjafjallajökull Volcanic Eruption



Credit Earthsky.org

Initial Eruption of the Eyjafjallajökull Volcano



Credit earthice.hi.is



Imaged on the left is the most intense phase of Iceland's Eyjafjallajökull Volcano eruption. The eruption began on April 14, 2010.

This single eruption: lasted for 37 days, emitted 330 million cubic yards of sulfuric dust into the atmosphere, resulted in air traffic cancellations and disruptions, caused human and animal health problems, and acted to alter weather conditions.

Most importantly, this massive eruption was a dramatic visual confirmation that the Arctic region is significantly more geologically active than the public imagined and has a much greater influence on the areas ice and ocean. The right image is an example. Here the Eyjafjallajökull volcanic eruption is acting to melt and fracture glacial ice atop the volcano.

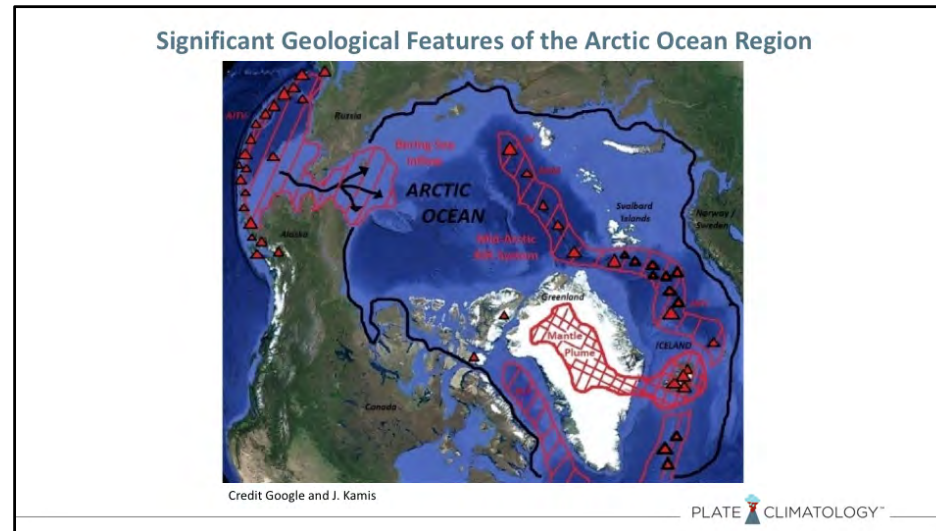
All of Iceland's volcanoes are fueled by the Mid-Arctic Rift System spreading center which is the northern most portion of the Mid-Atlantic Rift. The Mid-Arctic Rift extends north from Iceland for 3,800 miles along the seafloor of the Arctic Ocean.

Next we review the salient regional geological features in the Arctic Ocean Region.

Significant Geological Features of the Arctic Ocean Region



Credit Google and J. Kamis



Large scale geological features of the Arctic Region include the:

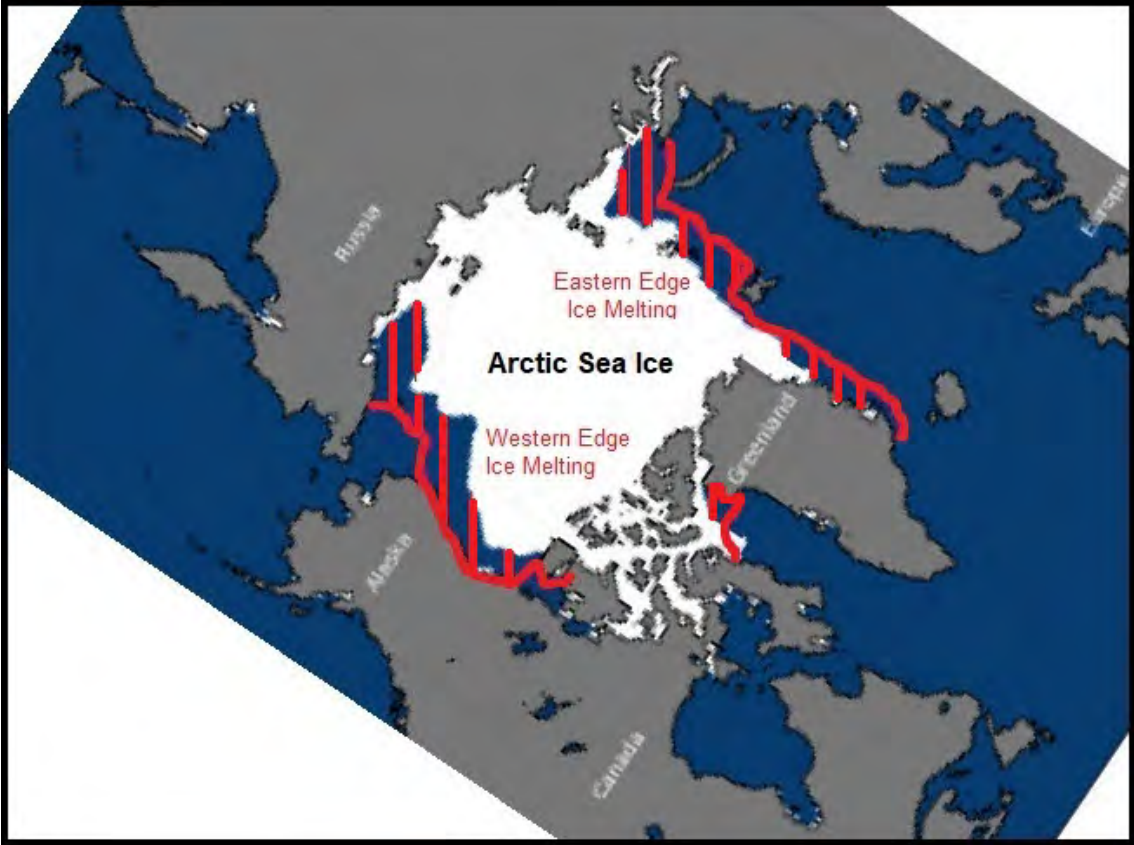
- Greenland / Iceland Mantle Plume
- The 3,800 mile long Mid-Arctic Rift System and it's associated active volcanism.
- The Baffin Bay / Labrador Rift System.
- The Aleutian Island Convergent Plate Boundary and its associated active volcanism.
- And the Kamchatka Convergent Plate Boundary and its associated active volcanism

All of these geological features, are proven emitters of geological heat and chemically charged heated fluid flow into adjacent oceans, overlying atmosphere, or onto the base of Ice accumulations.

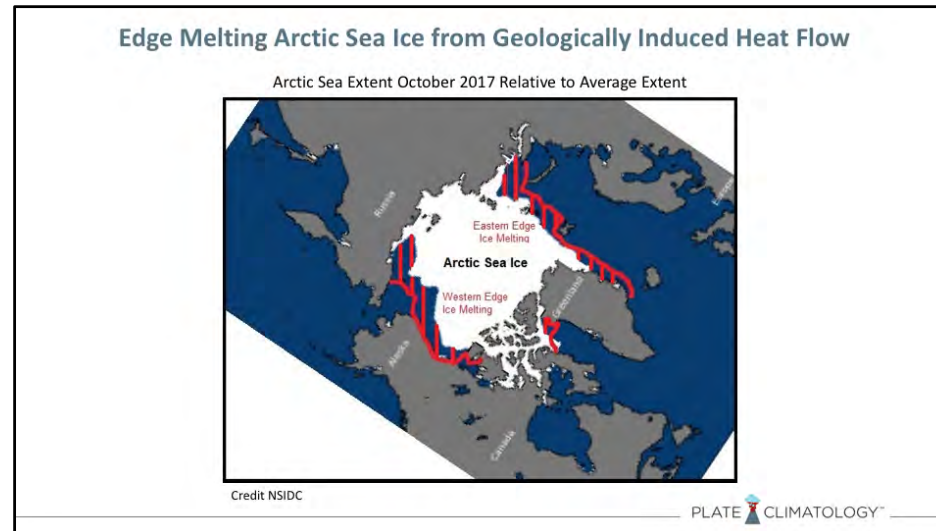
As we did with Antarctica, lets review specific examples of geological heat flow and chemically charged heated fluid flow within the Arctic Ocean Region.

Edge Melting Arctic Sea Ice from Geologically Induced Heat Flow

Arctic Sea Extent October 2017 Relative to Average Extent



Credit NSIDC



This image illustrates the extent and position of Arctic Sea Ice during October of 2017. The historical average sea ice extent for all Octobers is represented by the outer red lines. So red hatched areas represent that the October 2017 sea ice extent is less than average in two areas, east side and west side.

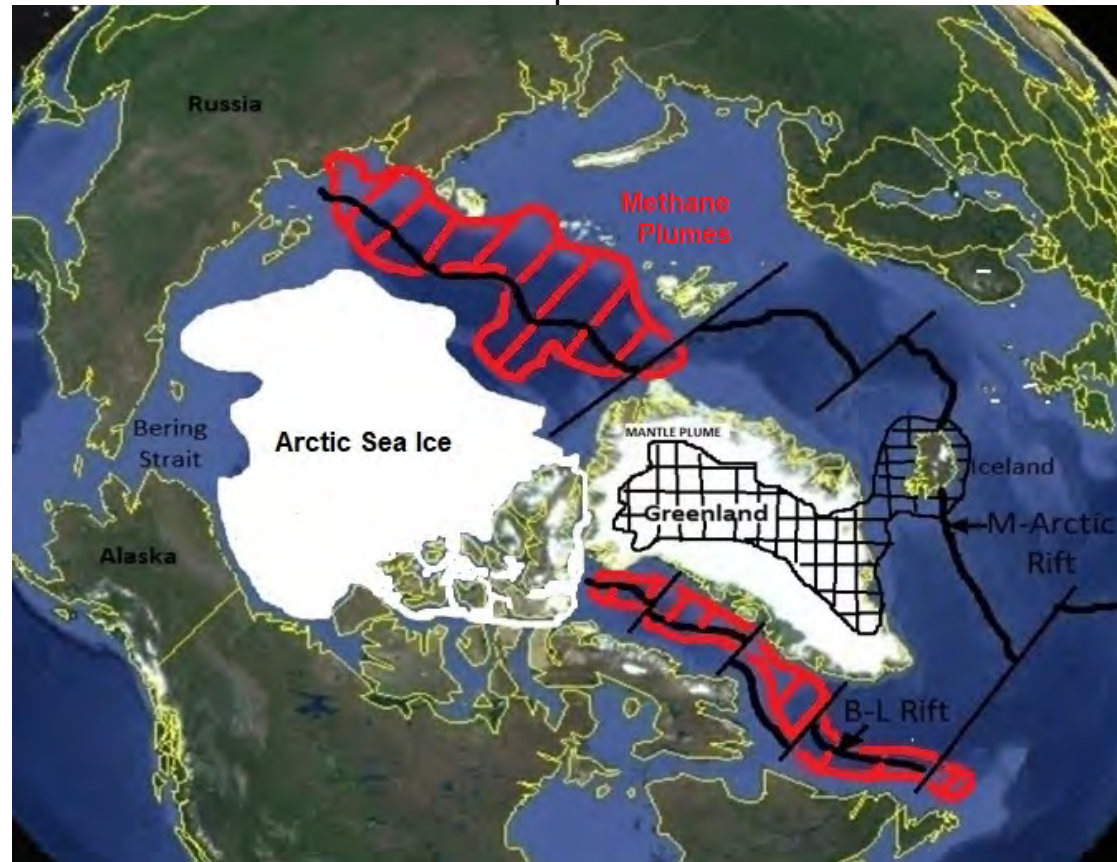
Note that anomalous melting of the Arctic Sea Ice does not occur along other edges.

For many years now the east and west edges of the Arctic Sea Ice have been the primary melting portions of the Arctic Sea Ice. This peripheral edge melting is not what would be expected if global atmospheric warming were uniformly melting the sea ice. In that case sea ice melting would be more evenly distributed, or at the very least occur around all edges of the sea ice. This is not the case.

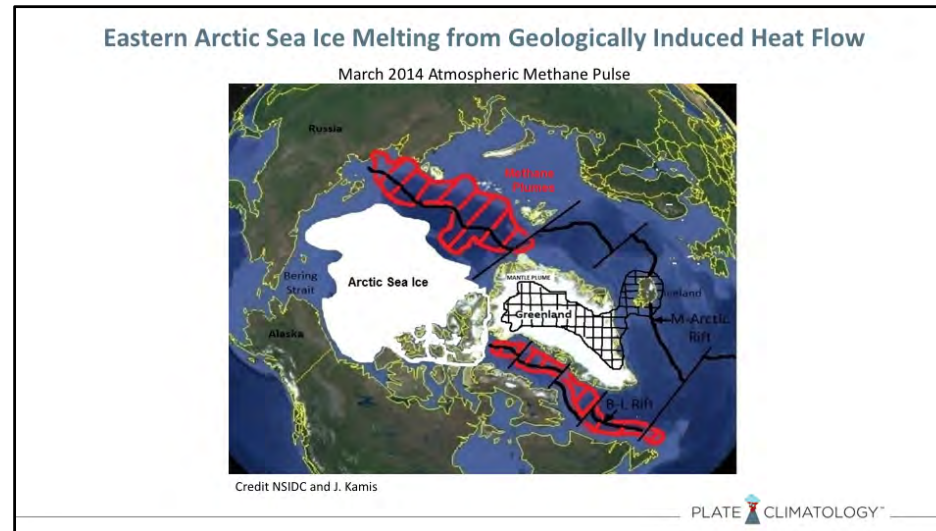
So why east and west edge melting?

Eastern Arctic Sea Ice Melting from Geologically Induced Heat Flow

March 2014 Atmospheric Methane Pulse



Credit NSIDC and J. Kamis



This image portrays one example of how geological heat flow acted to melt the eastern edge of the Arctic Sea Ice. On April 2014 a short lived geological event released heat from the Mid-Arctic Rift and Baffin Bay / Labrador Rifts. These rifts are located along the eastern edge of the sea ice.

The beginning of this event was signaled by an April 2014 moderate earthquake located along the Mid-Arctic Rift. The earthquake was the result of shifting within deep spreading center magma chambers associated with the rifts. The shifted magma chambers released heat and hydrothermal methane into deep portions of certain segments of the rifts. This heat and methane moved upward along the faults and the process acted to melt additional shallow layers of frozen methane locked in methane clathrate beds adjacent to the faults. The upward migrating heat and methane was released into the overlying ocean, rose upward through the ocean column. The heat warmed the ocean and is here considered to be a contributor, possibly significant contributor, to eastern edge melting of the Arctic sea ice during this time frame. The methane rose into the atmosphere, here denoted by red hatched areas, where it was picked up by NASA satellites.

This event is an example of regional Arctic heat flow associated with thousand mile long segments of seafloor rifts.

Eastern Arctic Sea Ice Melting from Geologically Induced Heat Flow

Arctic Sea Extent October 2017
Relative to Average Extent

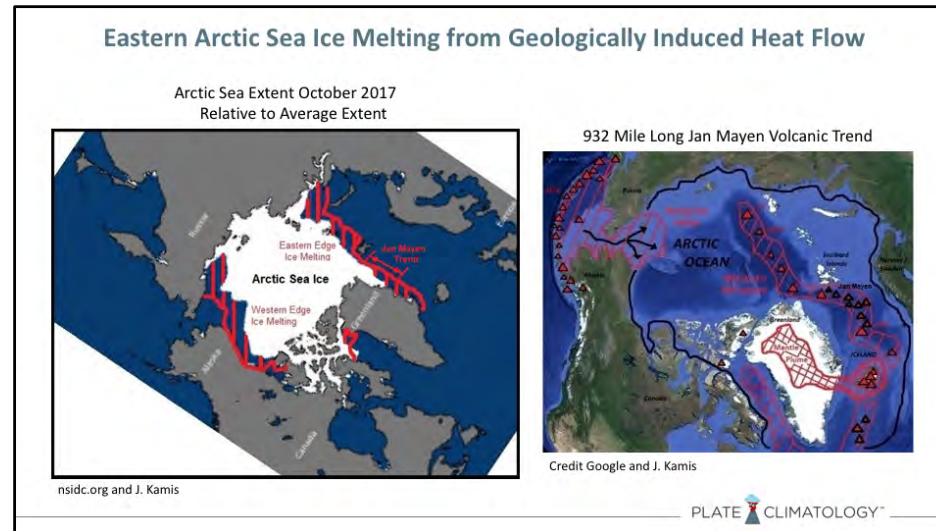


nsidc.org and J. Kamis

932 Mile Long Jan Mayen Volcanic Trend



Credit Google and J. Kamis



Another example of how heat flow effects the eastern sea ice is located on the left image. The Jan Mayen seafloor Volcanic Complex. This volcanic complex stretches south from the Svalbard Islands for 932 miles and is research proven to be rereleasing massive amounts of heat and chemically charged heated fluid flow in to overlying ocean.

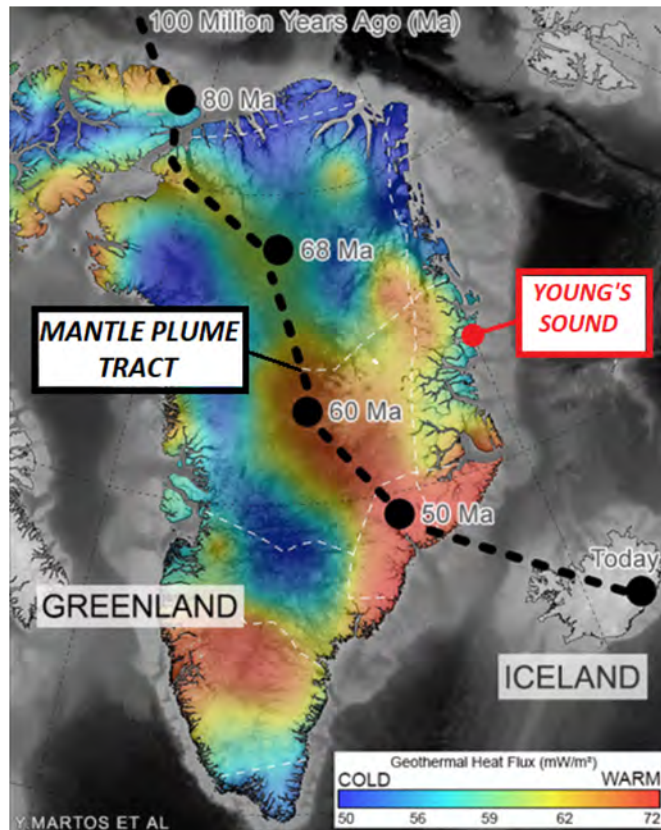
Dr Pedersen from the University of Bergen had this to say about his teams research of the Jan Mayen ocean floor volcanic complex.

*“2,200 F magma pouring into the seas from hundreds of submarine volcanoes – and we wonder why the seas are warming. We have found volcanoes at such a shallow level and they could break the surface at any time and form a new island group. Just for the record, I’ve been talking about underwater volcanoes for years. In fact, there’s an entire chapter in my book **“Not by Fire but by Ice”** that discusses the importance of underwater volcanoes, and how they’re heating the seas”.*

Interestingly the northern end of this trend, the Svalbard Islands, is also currently very active indicated by long linear seafloor fault traces of rift faults which are releasing large volumes of methane into the overlying ocean.

Greenland / Iceland Mantle Plume Heat Flow

Heat Flow and Path of the Greenland / Iceland Mantle Plume

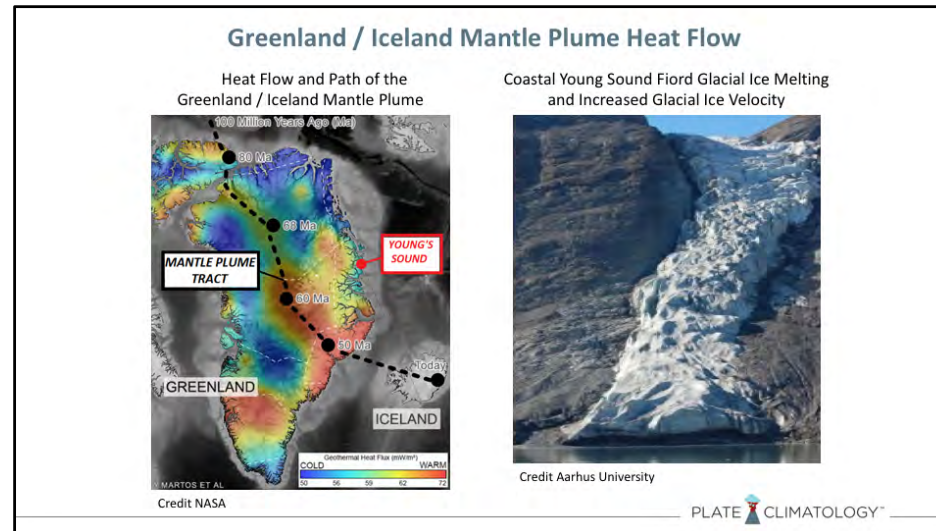


Credit NASA

Coastal Young Sound Fjord Glacial Ice Melting and Increased Glacial Ice Velocity



Credit Aarhus University



Switching to Greenland, the left map is taken from an August 1, 2018 NASA research study. It documents the geological time frame movement of Greenland across the so-called Greenland / Iceland Mantle Plume. The heavy black dashed line illustrates the movement of Greenland across the stable plume. Black dots mark the position and geological date of the plume as Greenland moved NNW across it.

Map color shading portrays present day heat flow, red as anomalously hot. Clearly the plume is still greatly affecting Greenland heat flow. Four other research studies confirm the results of this NASA Study, with one exception two of the other studies show a greater area of present day high heat flow.

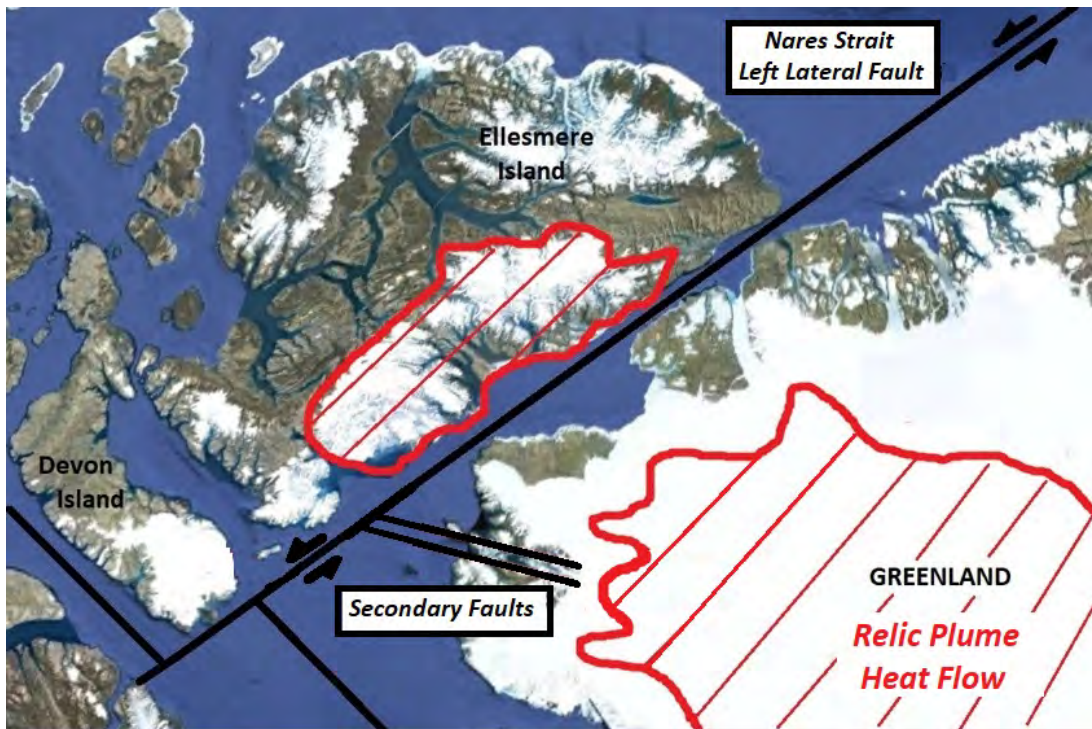
As per the right image pictures a glacier flowing into the Arctic Ocean. Researcher by the Arctic Research Centre of Aarhus University concluded the following.

Greenland's ice sheet is becoming smaller and smaller. They state that the melting takes place with increased strength and at a speed that no models have previously predicted. They also concluded that the deep bottom water of the north-eastern Greenland fjords is being warmed up by heat gradually lost from the Earth's interior and that this heat loss triggers the sliding of glaciers from the ice sheet towards the sea.

No onto northwest Greenland.

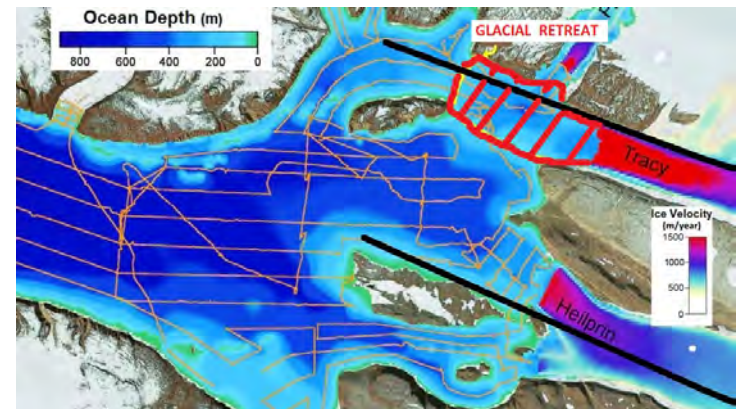
NW Greenland Fault Associated Heat Flow

Northwest Greenland Locator Map

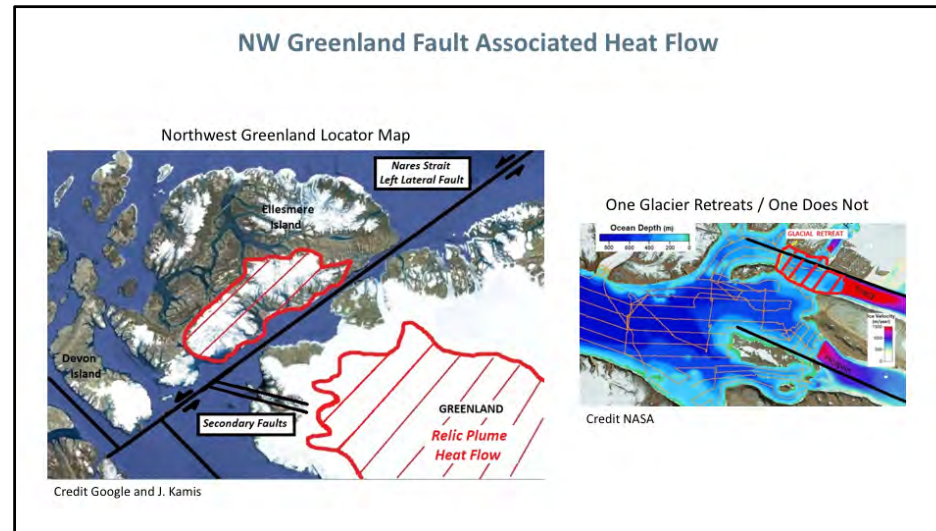


Credit Google and J. Kamis

One Glacier Retreats / One Does Not



Credit NASA



On the left is a Geological map of NW Greenland's major geological features, most notably the Nares Strait 150 mile left lateral Fault. Recent research by NASA and others indicates that the entire NW Greenland Region emits high amounts of bedrock heat flow.

Two specific examples are from recent research studies as follows.

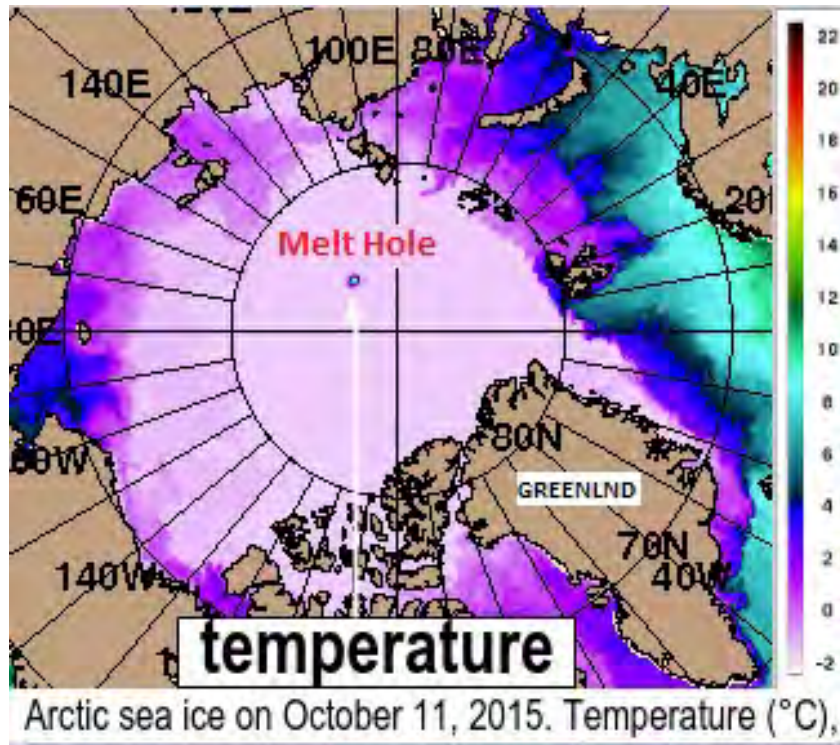
Lower right a geological map illustrating the discovery of two Devon Island long linear and very salty sub-glacial lakes. The orientation of these lakes perfectly matches the trend of known surface faults. The salty nature and fault orientation of the sub-glacial lakes strongly implies a high heat flow cause for lake development.

Upper right is a map of two large glaciers which are only seven miles apart. Recent NASA research showed that the Tracy Glacier has been bottom melting and retreating to the SW, while the adjacent Helprin Glacier has not retreated. The NASA study also showed that the bay water beneath the Tracy Glacier is anomalously warm, while the bay water beneath the Helprin Glacier is of normal temperature.

The linear orientation trend of the Tracy Glacial Valley, Helprin Glacial Valley, and the two Devon Island sub-glacial lakes are identical, WSW. This is strong evidence that stresses associated with the left lateral movement of the Nares Strait fault controls the orientation of these sub-glacial features. The Nares Strait fault is and its associated faults are here thought to be conduits of varying amounts of heat flow.

“Jessica’s Hill” Sea Ice Melt Hole

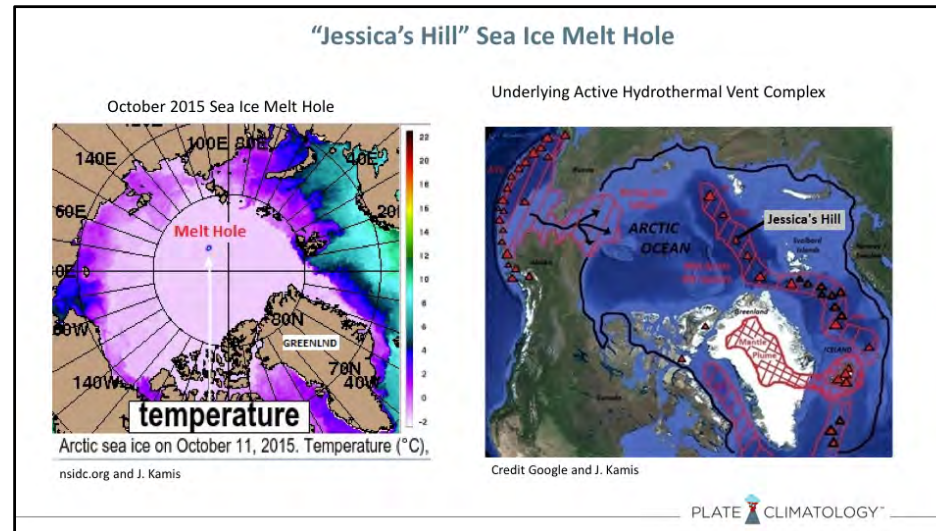
October 2015 Sea Ice Melt Hole



Underlying Active Hydrothermal Vent Complex



Credit Google and J. Kamis



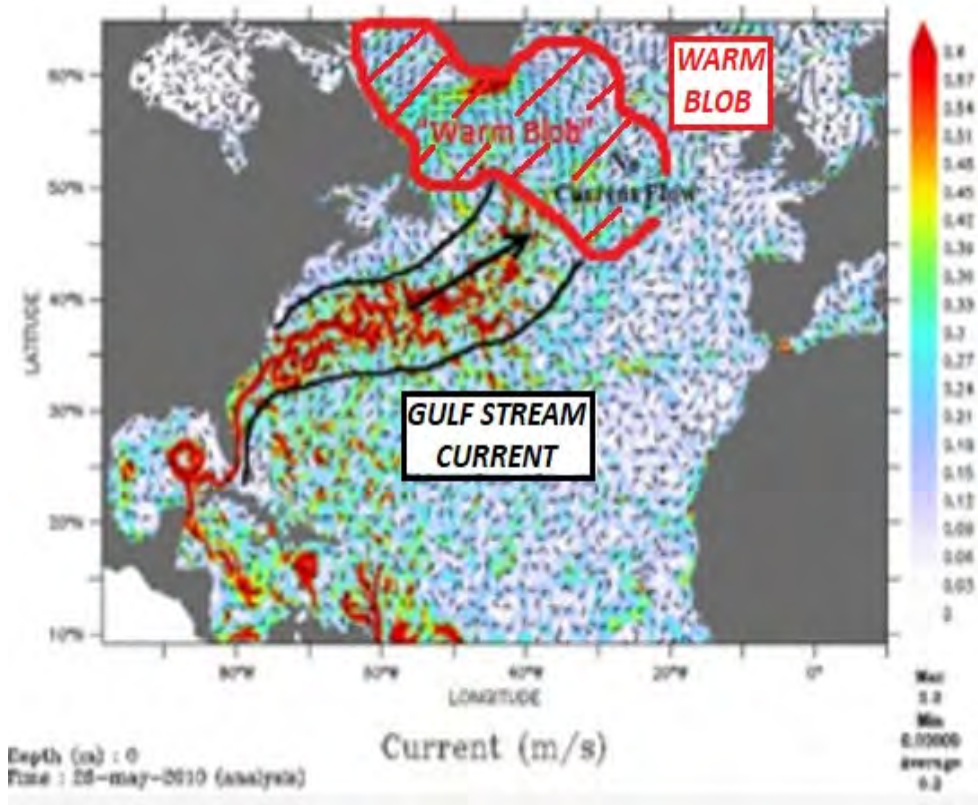
Another dramatic example of a heat flow pulse from a specific segment of the Mid-Arctic Rift occurred on October 11, 2015 when a melt hole was rapidly punched through a very thick portion of the Arctic Sea Ice. The position of this hole is illustrated on the left temperature map.

The right image illustrates the seafloor position of the Jessica’s Hill / Duque’s Vent Complex which lies directly beneath the melt hole. The limited size, rapid occurrence, and position above a known hydrothermal vent complex of this melt hole is strong evidence that it is geological in origin.

Now onto a dramatic example of how heat flow significantly influences one of earths’ major ocean currents.

May 2010 Gulf Stream Ocean Current “Shutdown”

May 2010 Northern Atlantic Ocean Currents



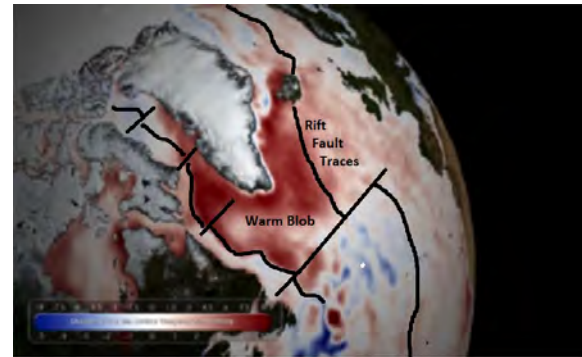
Credit Mercator Ocean Forecasters and J. Kamis

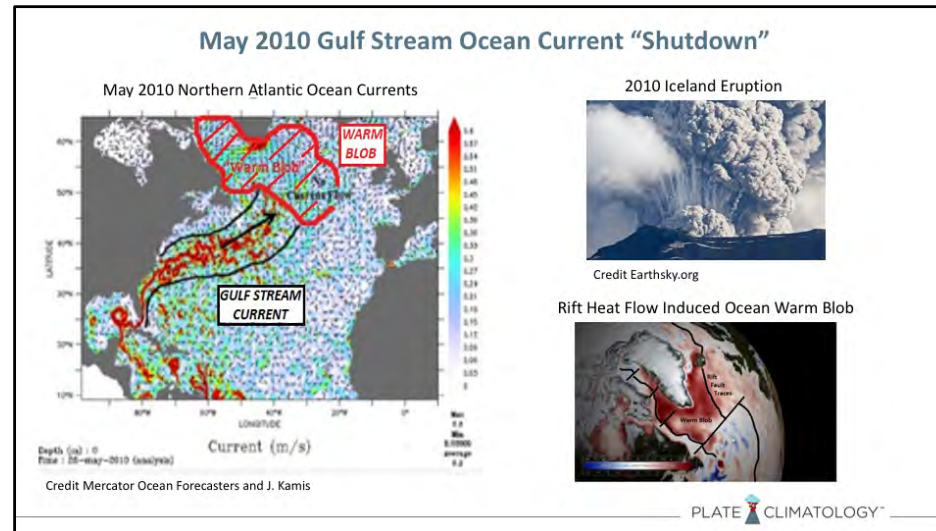
2010 Iceland Eruption



Credit Earthsky.org

Rift Heat Flow Induced Ocean Warm Blob





The left map shows ocean current flow of the mighty Gulf Stream Current on May 26 of 2010. It illustrates that the mighty Gulf Stream ocean current was blocked and nearly stopped by a blob of very warm ocean water. This event was nicknamed the “2010 Gulf Stream Shutdown”.

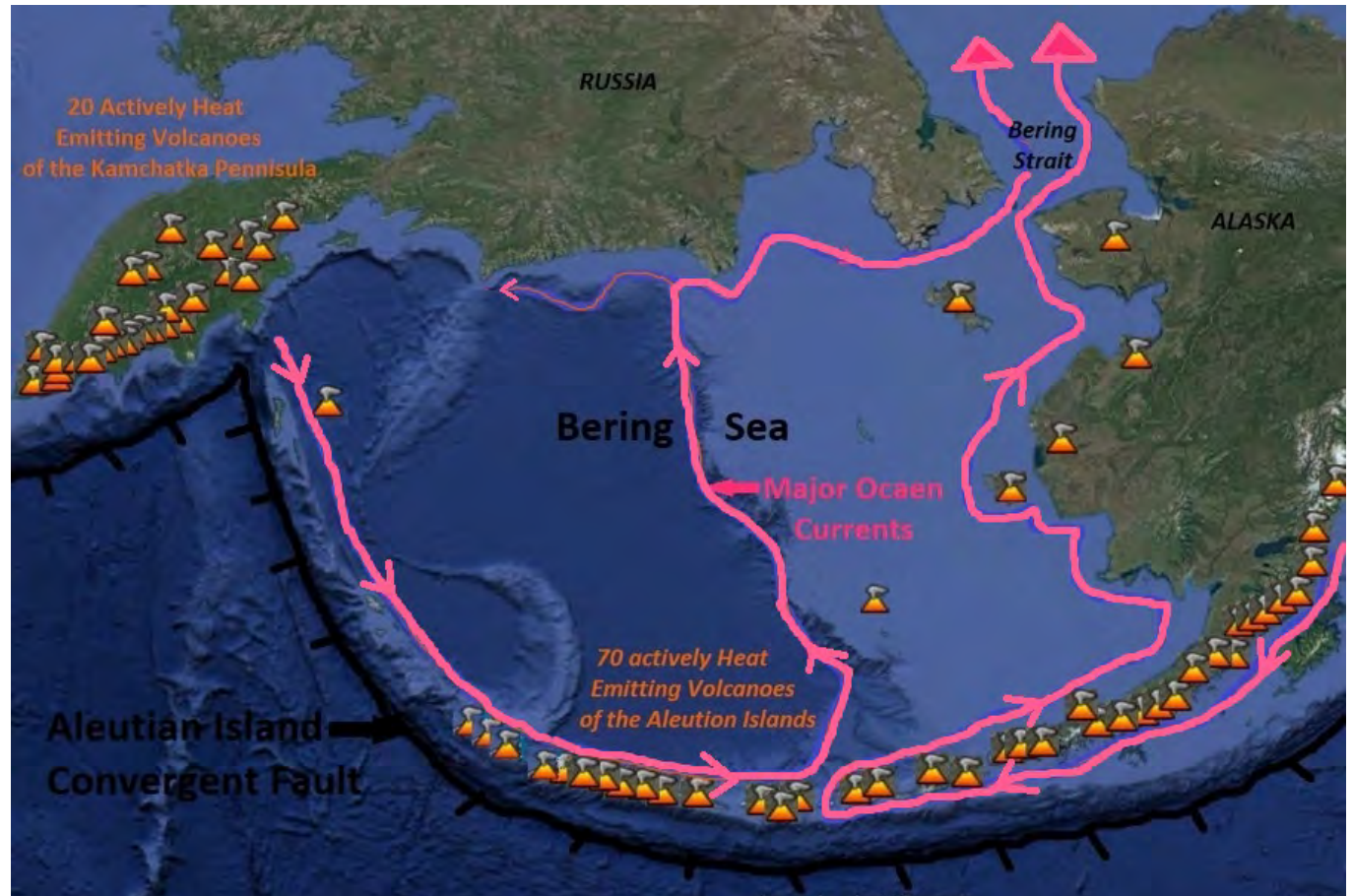
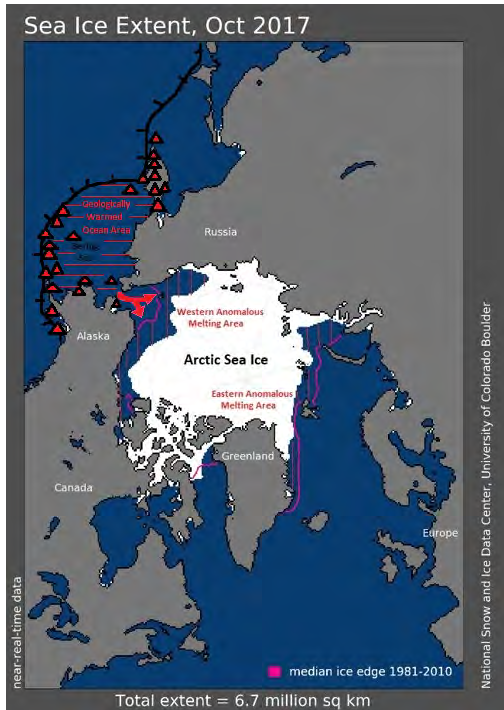
Here I show how the warm blob was generated by heat flow from ocean floor rift faults.

The lower right image shows the lateral extent of the blob of warm water in relation to the northern extent of the Mid-Atlantic Rift, Baffin Bay Rift, and Labrador Rifts. The warm blob extended vertically from the seafloor bottom to the seafloor atmosphere boundary. The highly coincident match of the warm blob with the rifts is compelling evidence of a cause and effect relationship.

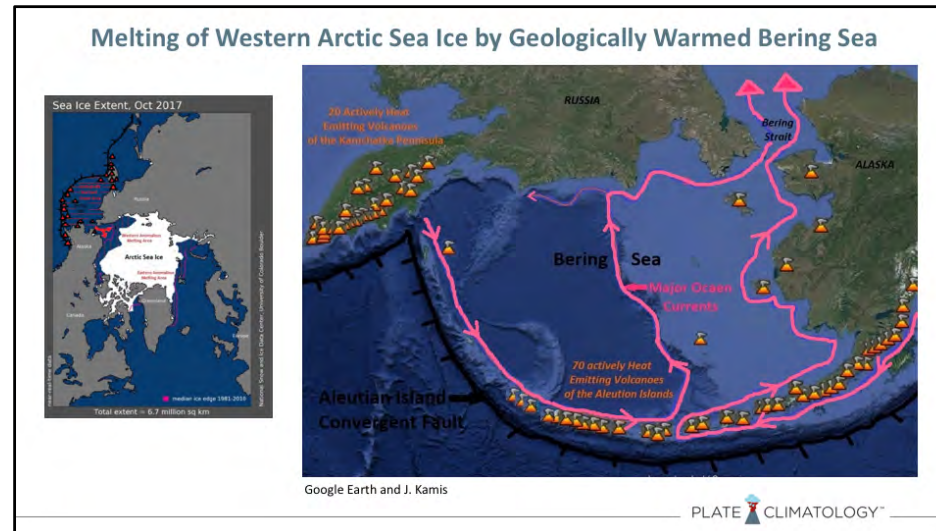
The predicted world-class unnatural manmade atmospheric climate disaster supposedly involving the death of the Gulf Stream Current never occurred because the warm blob diminished and the Gulf Stream picked up speed.

As would be expected from the erratic nature of geologically induced heat flow pulses the rifts still act on occasion to expulse heat and slowdown the Gulf Stream Ocean Current.

Melting of Western Arctic Sea Ice by Geologically Warmed Bering Sea



Google Earth and J. Kamis



Now onto a discussion of how geological heat flow is melting the western edge of the Arctic Sea Ice.

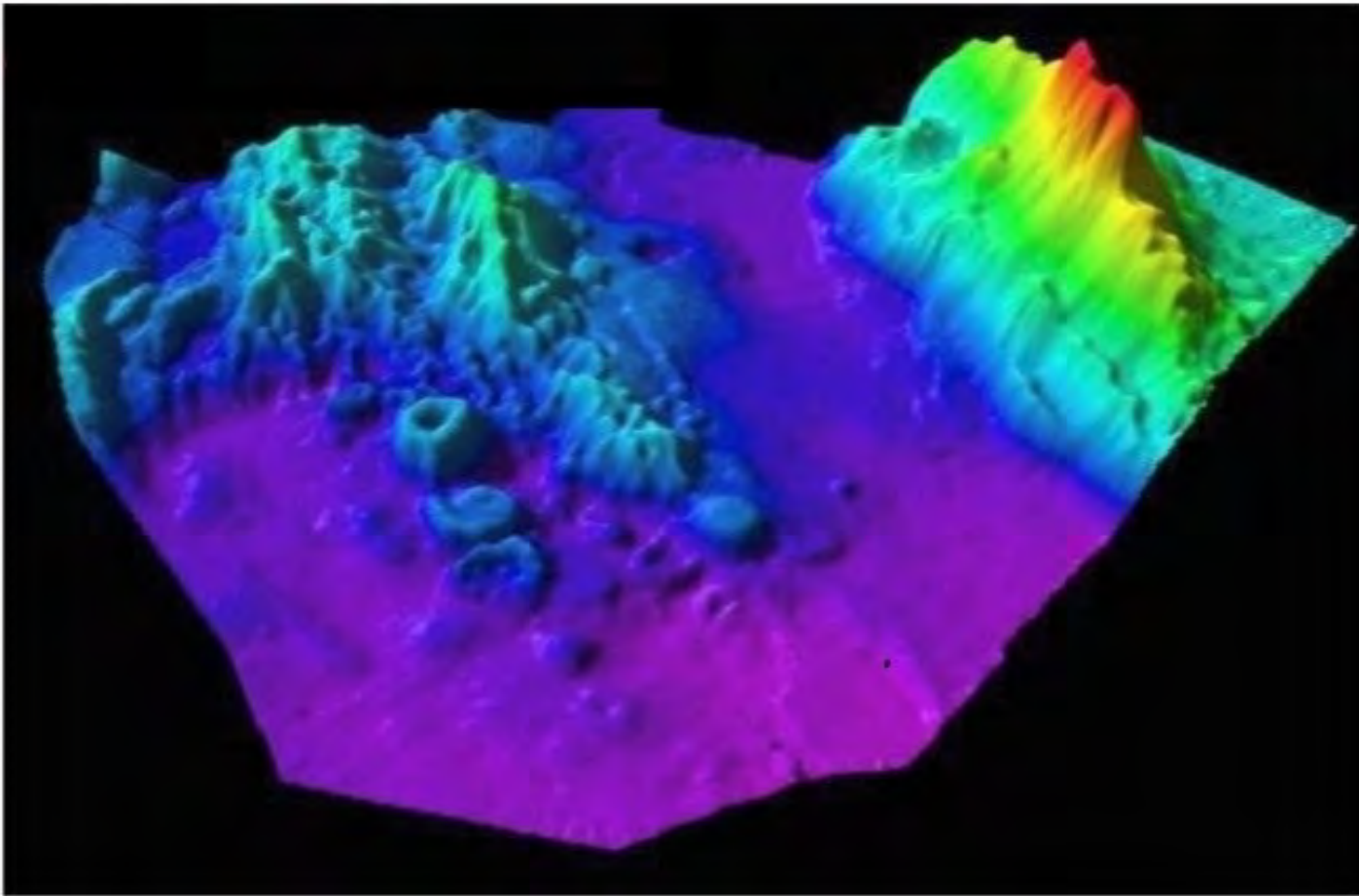
The left image illustrates the major geological features and ocean currents of the Bering Sea. The Aleutian / Kamchatkan Subduction Faults and their 90 associated volcanoes which form an extremely active heat flowing swath that surrounds much of the Bering Sea.

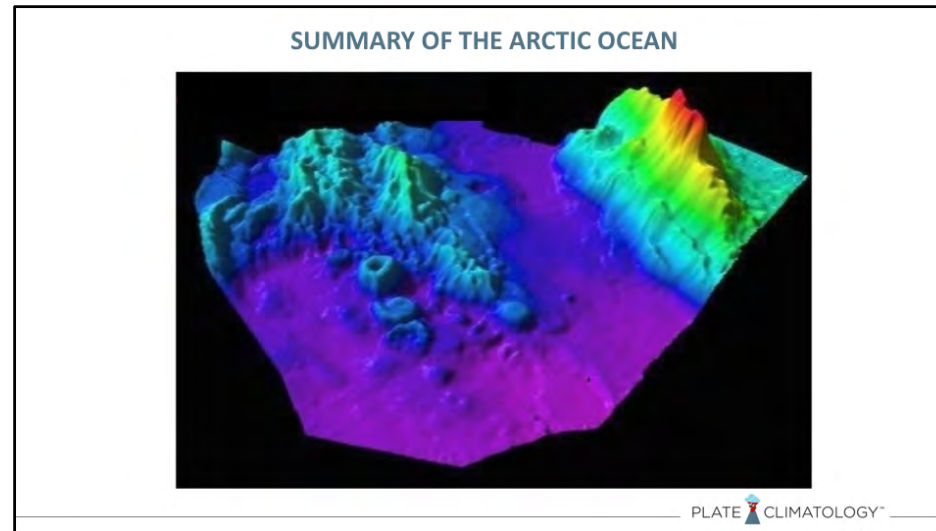
Heat flow from these geological features acts to warm Bering seawater. Ocean currents carry this warmed seawater northward eventually funneling it through the Bering Strait and into the western Arctic Ocean. Here it acts to melt the western edge of the Arctic Sea Ice.

Ocean temperature maps utilizing ARGO Ocean Buoy data confirm anomalous temperature increases in the Bering Sea, Bering Strait, and western Arctic Ocean during the last five years. In addition to melting Arctic Ocean and Bering Sea ice this warming has altered migration patterns of Walrus, seal, bird, and fish migration patterns.

Finally, recent research by Yale is here interpreted to support a Bering Sea heating source for a just discovered very large bottom hugging warm pool located in the western Arctic Ocean.

SUMMARY OF THE ARCTIC OCEAN





In summary, like Antarctica, Arctic Ocean Region geological features are significantly more geologically active than given credit. Heat flow and chemically charged heated fluid flow from this regions many geological features contributes to or are the root cause of:

- Bottom melting of the Sea Ice.
- Temperature and chemical changes to seawater.
- Alteration of marine and land animal migration patterns.
- and alteration of major ocean currents, of note the Gulf Stream Curent.

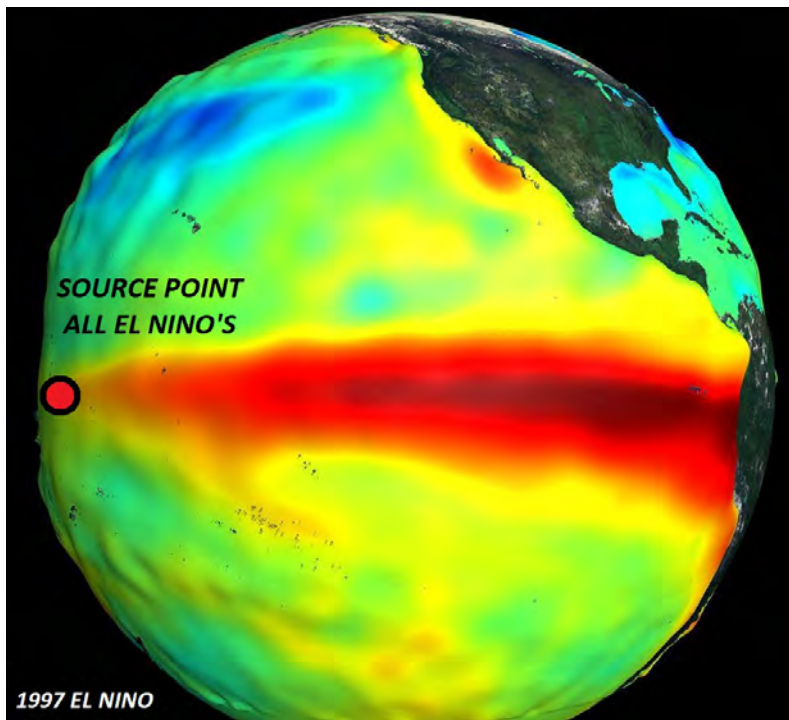
Other evidence supporting the significance of the Arctic's geological heat flow comes from numerous recent studies which indicate that:

- Segments of the Mid-Arctic Rift experience a large numbers of deep inner earth reaching micro-quakes.
- Other segments expulse significant amounts of methane.
- Still other segments capture and circulate massive amounts of seawater to depths of 15 kilometers. Here the seawater is warmed and chemically charged prior to being expulsed back into ocean.
- Lastly the recent discovery of an immense young Yellowstone size collapse caldera on the north end of the Rift.

Now on to how geological forces affect the Western Pacific Ocean.

★ WESTERN PACIFIC OCEAN EL NINO/LA NINA EVENT

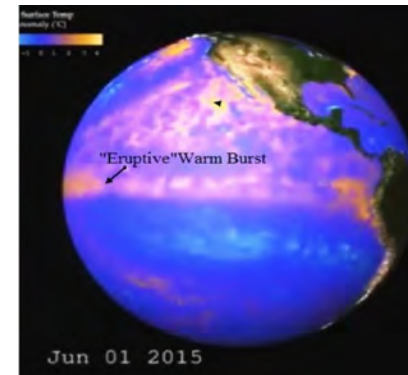
1997 El Nino

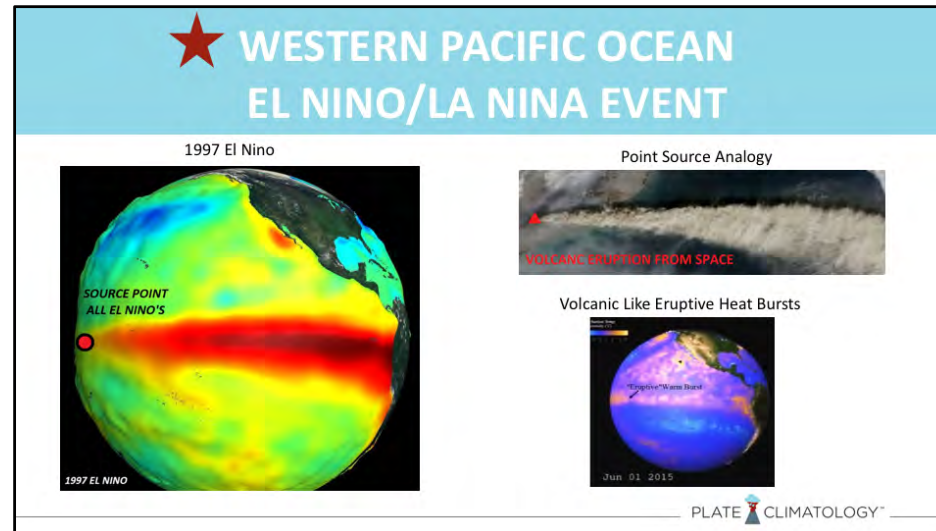


Point Source Analogy



Volcanic Like Eruptive Heat Bursts





I believe that heat and chemically charged heated fluid flow from geological features acts in some cases to directly affect earth's climate. An excellent example is the El Nino / La Nina warming and subsequent cooling event.

In fact the El Nino / La Nina event is one of the most influential climate phenomenon on earth. This event has the power to generate extensive draughts, major floods, alter crop patterns, and force entire human civilizations to migrate. Evidence that El Nino's are the result of geological heat flow is as follows:

The left image shows that:

- All El Niño's have originated at the exact same deep ocean fixed heat point source located east of the Papua New Guinea / Solomon Island area. This is one of the most volcanically and seismically active areas on earth.
- The El Niño sea surface temperature anomalies have linear and intense boundaries inferring that the energy source is not moving and very powerful.
- The shape of El Niño sea surface temperature anomalies are unique and one of a kind.

- La Nina's originate at the same fixed point source as El Niño's.

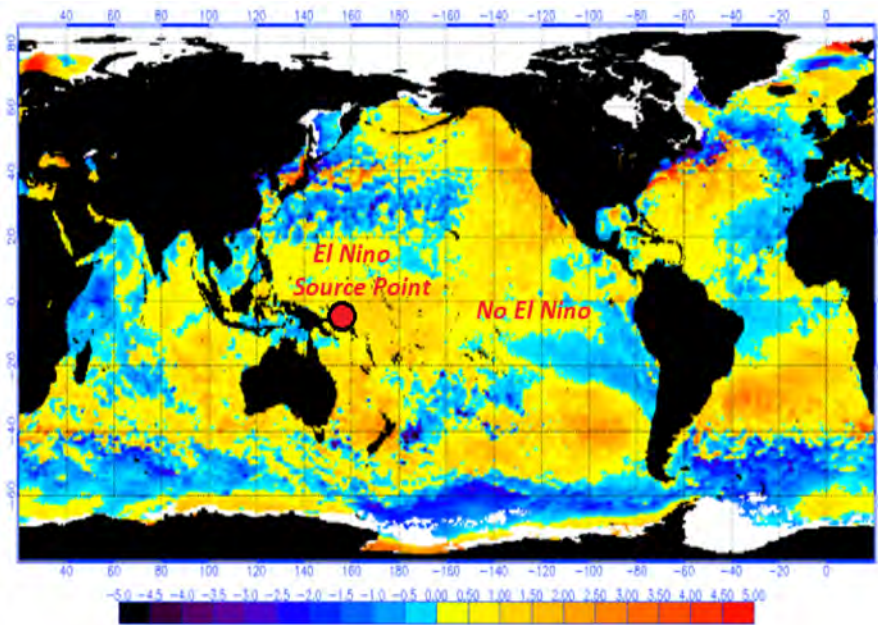
The upper right image shows that:

- The fixed heat source point nature and lateral distribution outline of land based volcanic eruptions is an excellent analog to what we observe with El Niño's. Additionally, deep-ocean geological hydrothermal vents are another very good mini-analogy of the larger El Niño's.
- Other facts indicating that El Niño's are geological in origin include:Recent deep-ocean temperature data proves that a hot spot exists in the point source area. Additionally, very new data from a National Science Foundation study shows that thousands of heretofore unrecognized seamounts have been identified in the Papua New Guinea / Solomon Island area.
- The geology of deep ocean regions in the Papua New Guinea / Solomon Islands area is known to be a very complex and active deep-ocean geological region. It is the conjunction of 5 major plate boundaries and the proven lava emission source point for earth's second largest seafloor volcanic plateau, the Ontong Java Plateau
- El Niño's do not occur in an atmospherically predictable or correlatable fashion.
- El Niño-like events do not occur elsewhere in Pacific. Why? If they are atmospheric in origin, there should at least be other mini-El Niño's. There are none.
- Atmospherically based El Niño prediction models consistently fail, likely because they are modelling the "effects" of geologically warmed oceans and not the "cause" of the El Niño's.
- Historical records indicate that the first "recorded" El Niño occurred in 1525 as observed by Spanish explorers. Other studies suggest strong ancient El Niño's ended the Peruvian civilization. The main point here is that strong El Niño's are natural, and that they are not increasing in relationship to man-made atmospheric global warming as contended by many climate scientists.

The lower right Image shows that El Niño warming is not uniform, rather it occurs as dramatic bursts. I believe these bursts are indicative of volcanic bursts.

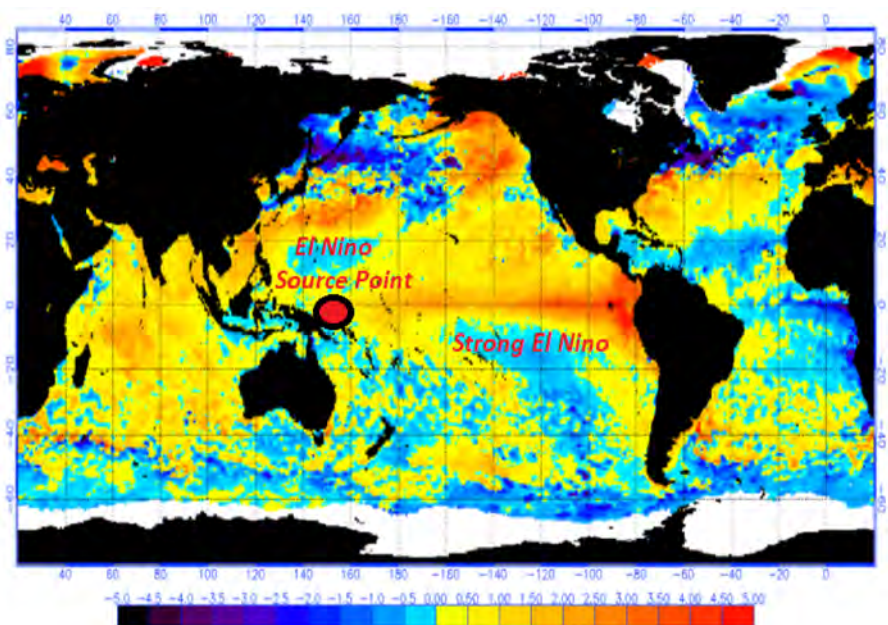
Seismicity Initiates El Nino's

Shallow Sea Surface Temperatures 2/2/2015
Pre-Earthquake "Swarm"

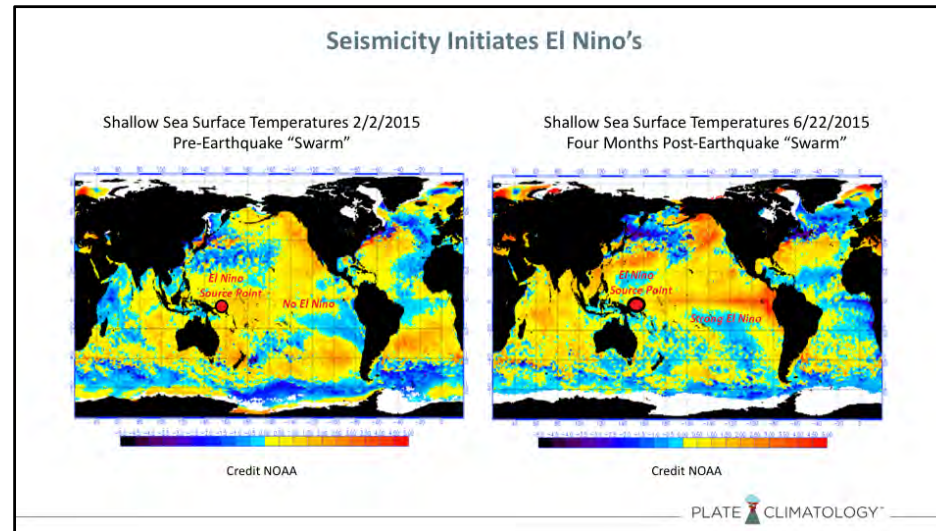


Credit NOAA

Shallow Sea Surface Temperatures 6/22/2015
Four Months Post-Earthquake "Swarm"



Credit NOAA



Further proof that the E Nino/La Nina event is geological in nature comes from it's association with tectonic activity in the point source area.

The left image shows shallow ocean temperatures at the time of a major earthquake swarm at the point source, on February of 2015. Red shades are heated ocean areas, blue cooler areas. There is no anomalous Pacific Ocean El Nino warming.

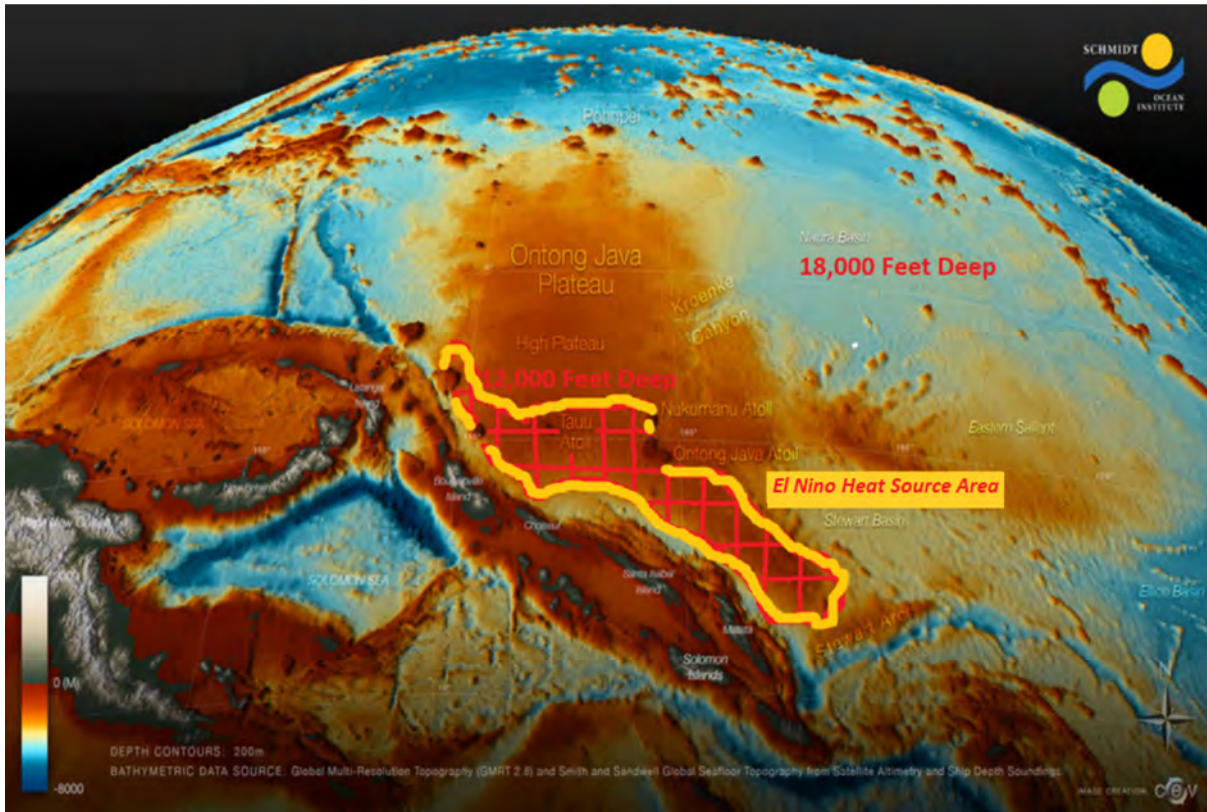
The right image shows the development of an El Nino four months later on June 22, 2105. By reviewing the correlation between tectonic activity in the western Pacific point source area with el Nino I found as per my September 30, 2016 article that there is a correlation. The correlation involves 4 month time lag between seismicity/ tectonic activity and El Nino's. Note that not all western Pacific seismicity forms El Nino's but all el Nino's are associated with seismicity.

Very recent research has confirmed my 2016 hypothesis.

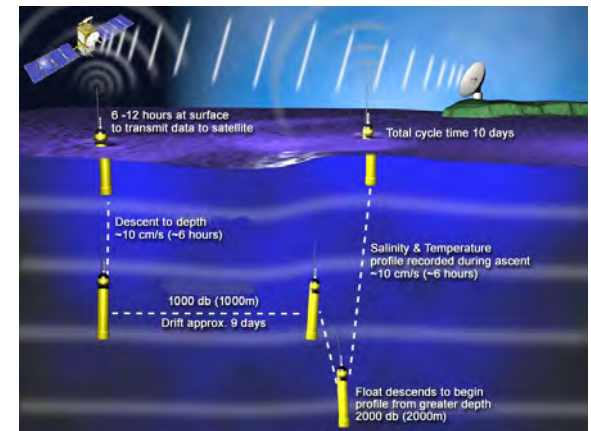
So exactly how and where do ocean floor geological forces generate El Nino's and La Nina's.

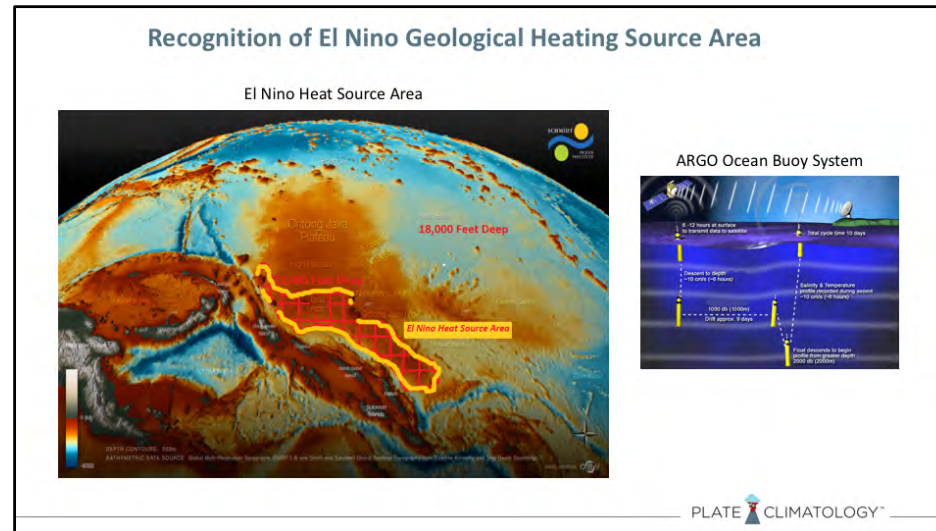
Recognition of El Nino Geological Heating Source Area

El Nino Heat Source Area



ARGO Ocean Buoy System





The question arises, why have scientists failed to recognize or locate the fixed seafloor geological heat source point of El Niño's? After all we have a worldwide ocean buoy system.

The short answer is a combination of insufficient data and a bit of "Atmospheric Bias".

Concerning Insufficient data, earth's oceans cover 139,700,000 square miles of our planet's surface, however there are only 3,881 ARGO ocean buoys that record temperature. This equates to one buoy every 36,000 square miles.

Furthermore the oceans can be generally divided into three depth range layers; shallow, mid-level and deep. So at any particular time the buoys may be stationed at different ocean levels. Therefore the weekly or monthly amount of buoy measurements per square mile within a specific ocean layer may be less dense than the 36,000 per square mile average.

Many deep-ocean geological heat and fluid sources are located at depths greater than 6,000 feet which is beneath the ARGO Buoy depth limits. The Pacific ocean has an average depth of 14,000 feet. Therefore the buoys are incapable of locating or precisely measuring heat flow from deep Pacific Ocean geological features.

Concerning "Atmospheric Bias", in absence of sufficient deep ocean temperature data, scientists have searched for El Nino generation causes in the vast amounts of atmospheric and shallow ocean data. What they found were correlations between what are here thought to be side effects of the deep geological ocean warming such as; changes in trade winds, alteration of shallow ocean currents, etc. Its human nature to look for answers from easily obtained and

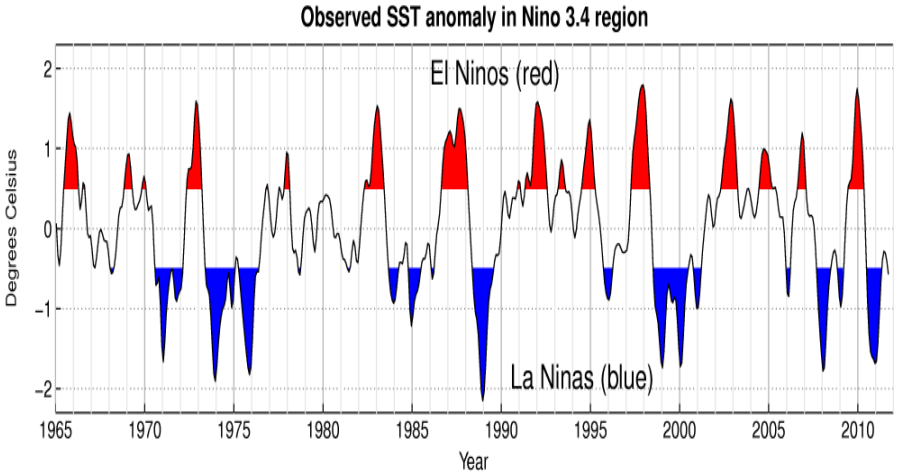
large amounts of data, especially if you live in it day to day. Several climate scientists have recently stated that the root cause of El Nino's is an unknown natural force.

Looking for a geological generation cause of El Nino's is limited by lack of data. The very few pieces of information I found estimate that heat energy from a 2,500 square mile area could provide enough energy in a short time frame to generate an El Nino. This would roughly be equivalent to the size of Yellowstone's high heat flow Pitchstone Plateau.

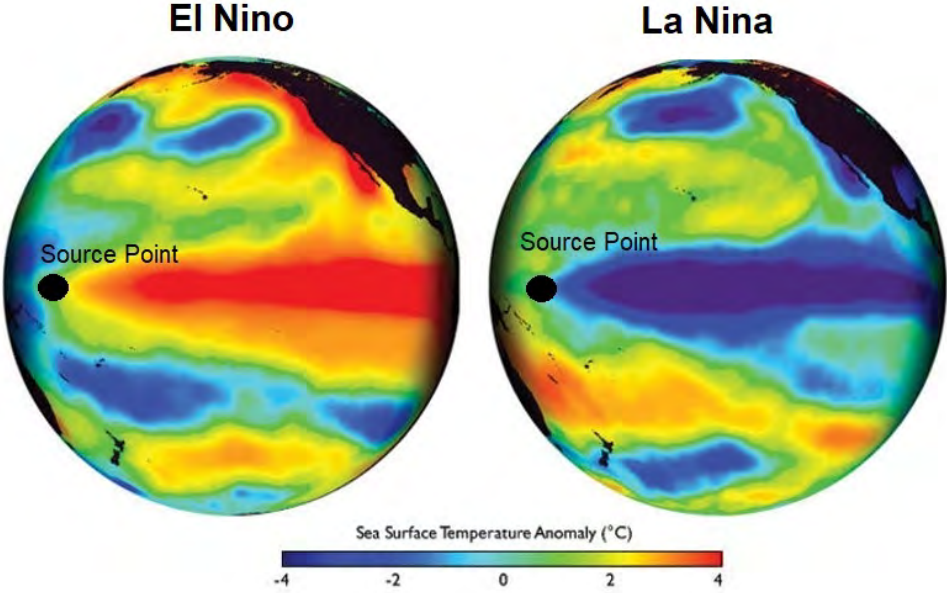
The right image illustrates my estimation of the location of the geologically induced El Nino Heat Source Area /Point. Its northwestern extent is located east of Papua New Guinea. From there it trends southeast to the Solomon Islands region. This area represents 90,000 square miles which is 0.01 percent of the Pacific Ocean's 64,000,000 square mile area. The Argo Buoy System could easily miss this 0.01 percent 12,000 foot deep area.

Lastly, deep mini-sub data collected by the University of Washington and funded by NOAA shows that the heat source area is a deep ocean hot spot.

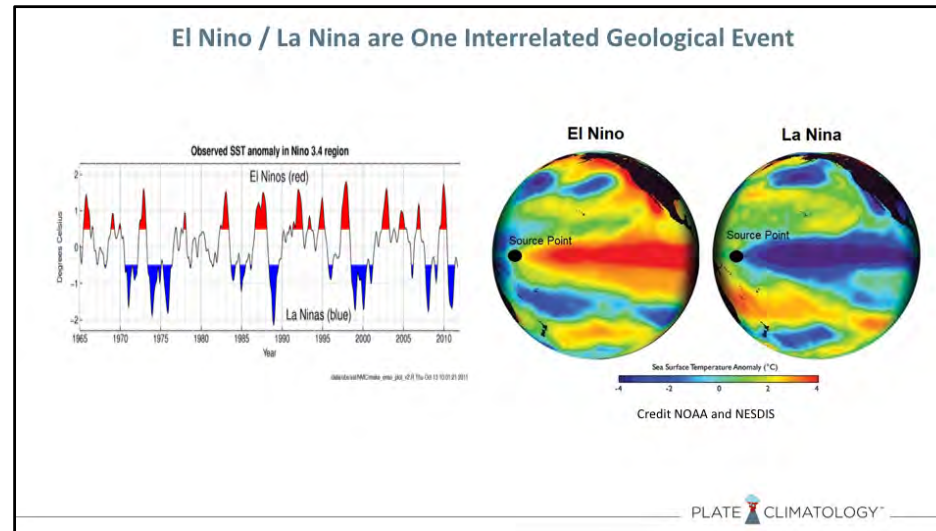
El Nino / La Nina are One Interrelated Geological Event



/data/obs/sst/NMC/make_enso_plot_v2.R Thu Oct 13 10:01:21 2011



Credit NOAA and NESDIS



El Niño's and La Niña's are amazingly similar in many ways. I believe that they are generated by the same continuous geological event. Evidence supporting this idea is presented in the next two slides.

Imaged on the left is a graph that illustrates Pacific Ocean temperatures through time. Red shades indicate anomalously warm El Niño's, black lines indicate normal ocean temperature times, and blue shades indicate cooler La Niña's. Researchers have concluded the following by analyzing these types of graphs:

- El Niño's and La Niña's are anomalous events that can not be explained by typical ocean and atmospheric processes.
- La Niña's frequently occur immediately after El Niño's, especially after intense El Niño's

Imaged on the right is the ocean temperature map of the 1998 El Niño and La Niña. Same color shading scheme. Note the strong pattern similarity and identical origin point of these events which implies that they are one continuous event.

Geologically induced El Nino's are Natures Deep Ocean "Ocean Forest Fires"

Great Barrier Reef 2014 Recovery



1988 Yellowstone Forest Fire



2016 Yellowstone Forest Recovery





Now on to one of my favorites. Discussion of what I consider to be a perfectly natural, and in fact necessary geologically induced heating event, so-called Coral bleaching.

Research proves that many of the reefs and corals of Australia's Great Barrier Reef complex were damaged by the 1998 El Niño ocean warming eventually recovered to a strong and healthy state by the year 2012. They did not as predicted completely die off.

I believe El Niño's are Mother Nature's cleaning agent which act to: promote reef species diversity, "seed" corals to other locations, recharge minerals and nutrients into oceans, reduces coral overpopulation, and naturally selects the strongest corals.

Consider the U.S. Forest Service's long standing "Forest Fire Suppression Policy" that reigned supreme from the early 1900's until 1995. During this time period, forest fires were considered extremely dangerous and harmful to both the public and the forests. These monstrous walls of destruction raged through our beautiful forests, killing humans, animals, and plants, and destroying homes and property built in remote areas of woodlands.

In 1995 the Forest Service realized forest fires helped clean and rejuvenate aging and mature woodlands. The "Forest Fire Suppression Policy" was dumped and replaced by a controlled burn and containment policy.

It's time to realize that El Nino warming events are natures deep ocean forest fires.



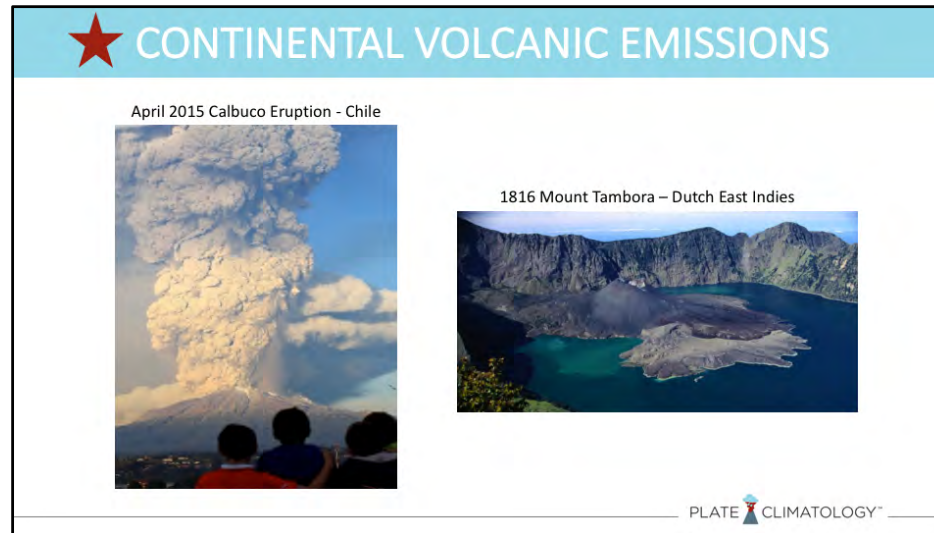
CONTINENTAL VOLCANIC EMISSIONS

April 2015 Calbuco Eruption - Chile



1816 Mount Tambora – Dutch East Indies





It is impossible to do the next subject justice in one slide or even one lecture, however here is an attempt to discuss the very obvious and well documented climate affect of chemically charged volcanic ash infused into the atmosphere.

Here are two specific examples. On the left is the April 22, 2015 eruption of Chile's Calbuco volcano which infused the atmosphere with massive amounts of volcanic ash thereby noticeably lowering the planets atmospheric temperature for one and one half years.

On the right is the caldera from the 1816 eruption of Mount Tambora in the Dutch East Indies that resulted in the *Year Without a Summer*. Severe climate abnormalities included an average global temperature decrease of 0.7 to 1.3 °F. There were major food shortages across the Northern Hemisphere.

Research now proves that large scale eruptions can have worldwide effects such as:

- nuclear winters as per the one hundred year Little Ice Age.
- initiation of thousand year Ice ages.
- Major plant and animal extinction events such as the Permian age extinction, Triassic extinction, and K/T Boundary extinction. Recent research shows that massive volcanic eruptions in the Deccan Traps area caused the K/T boundary extinction and that the Chixulub asteroid strike just finished off the job.

So the historical and very significant effect of volcanic eruptions of earth's atmosphere is well established. It is very difficult for me to understand why scientists do not appreciate the effect of geological heat flow on earth's other fluid, ocean water.

Lets wrap up today's presentation with some final thoughts.

FINAL THOUGHTS





Thanks for hanging in there with me. Certainly a lot of information.

Hopefully today we accomplished the stated goal...to present evidence supporting a plausible alternative explanation concerning what forces generate and control earth's climate and climate related events. Specifically how powerful geological forces have a far greater influence, and some cases are the dominant force effecting earth's climate and climate related events.

Many years ago a young geologist was inspired by the knowledge that geological forces had the power to; move entire continents 2 to 3 CM per year, and greatly alter earth's oceans.

Since that time it has been easy for that person to envision that geological forces also have the power to; warm and chemically charge some ocean water, melt a little polar ice, and alter the atmosphere thereby affecting earth's climate.

THANK YOU !!!



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