

ANTENNA



Issue 21 - 2005



Greetings,

This issue we are running hot and cold – at the same time. It has been asked, with global warming how can that cause an Ice Age? Let us delve deeper into this dilemma of dichotomies.

Don't forget to put your name forward for Youth ANZAAS

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Have a great Christmas and an Excellent new year

Global warming ...

The following text is mostly a direct cut from the source site.

If you look at a globe, you'll see that the latitude of much of Europe and Scandinavia is the same as that of Alaska and permafrost-locked parts of northern Canada and central Siberia. Yet Europe has a climate more similar to that of the United States than northern Canada or Siberia. Why?

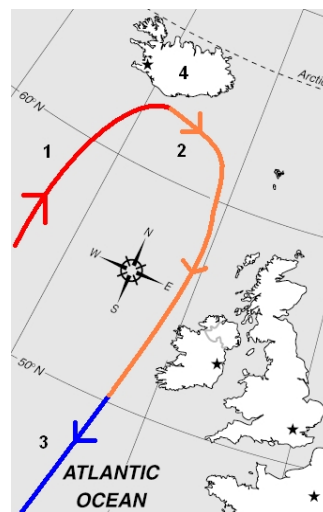
It turns out that the warmth is the result of ocean currents that bring warm surface water up from the equator into northern regions (1) that would otherwise be so cold that even in summer they'd be covered with ice. The current of greatest concern is often referred to as "The Great Conveyor Belt," which includes what we call the Gulf Stream.

The Great Conveyor Belt, while shaped by the Coriolis Effect of the Earth's rotation, is mostly driven by the greater force created by differences in water temperatures and salinity. The North Atlantic Ocean is saltier and colder than the Pacific, the result of it being so much smaller and locked into place by the Northern and Southern American Hemispheres on the west and Europe and Africa on the east.

As a result, the warm water of the Great Conveyor Belt evaporates out of the North Atlantic leaving behind saltier waters, and the cold continental winds off the northern parts of

North America cool the waters. Salty, cool waters settle to the bottom of the sea, most at a point a few hundred kilometres south of the southern tip of Greenland (4 **This is actually Iceland, but pretend it is Greenland**), producing a whirlpool of falling water (2) that's 5 to 10 miles across. While the whirlpool rarely breaks the surface, during certain times of year it does produce an indentation and current in the ocean that can tilt ships and be seen from space (and may be what we see on the maps of ancient mariners).

This falling column of cold, salt-laden water pours itself to the bottom of the Atlantic, where it forms an undersea river forty times larger than all the rivers on land combined, flowing south down to and around the southern tip of Africa (3 – **eventually**), where it finally reaches the Pacific. Amazingly, the water is so deep and so dense (because of its cold and salinity) that it often



doesn't surface in the Pacific for as much as a thousand years after it first sank in the North Atlantic off the coast of Greenland.

.. Not entirely accurate but gives an idea of The Great Conveyor Belt in action..

The out-flowing undersea river of cold, salty water makes the level of the Atlantic slightly lower than that of the Pacific, drawing in a strong surface current of warm, fresher water from the Pacific to replace the outflow of the undersea river. This warmer, fresher water slides up through the South Atlantic, loops around North America where it's known as the Gulf Stream, and ends up off the coast of Europe. By the time it arrives near Greenland (4 – Iceland in this case), it's cooled off and evaporated enough water to become cold and salty and sink to the ocean floor, providing a



continuous feed for that deep-sea river flowing to the Pacific.

These two flows - warm, fresher water in from the Pacific, which then grows salty and cools and sinks to form an exiting deep sea river - are known as the Great Conveyor Belt.

Amazingly, the Great Conveyor Belt is only thing between comfortable summers and a permanent ice age for Europe and the eastern coast of North America.

The graphic shows a thin stream going past the various land masses. This is equivalent to a creek in width, the actual stream would be (by comparison) as wide as the Murray / Darling river in flood.

Also use your imagination in that the stream at (1) is near the top of the ocean and is quite warm. At (2) much of the heat has been lost to the region, and thus has warmed it up to a point where ice doesn't form as readily as it otherwise would. Also at this point the stream is falling deeper into the ocean, as cooler water is denser. At (3) We are now at the bottom of the ocean and flowing back towards the equator, to in time be reheated – in 1500 years or so give or take a decade.

Reference Site.

<http://www.commondreams.org/views04/0130-11.htm>

... and the Ice Age

So far we have The Great Conveyor Belt bringing in warm water to make the region warmer then it otherwise would be. Enter Global warming, the northern Ice Caps are melting faster in places then the annual snowfall replaces. More ice melts, more fresh water enters The Great Conveyor Belt system, thus diluting the stream. This has the effect of stopping The Great Conveyor Belt and the current stops bringing in warmer waters. This is because the diluted waters are less dense and 'fall' slower thus slowing and eventually stopping The Great Conveyor Belt. Without the warmer waters, the region gets cooler and an Ice age starts. The snowfall now becomes greater then the thaws and the thaws slow dramatically, reducing the amount of fresh water in the system, in time The Great Conveyor Belt will start up again to This process is on a 1500 year cycle.

Youth ANZAAS

Adelaide this year for the 60th anniversary of Youth ANZAAS.

Date and location:

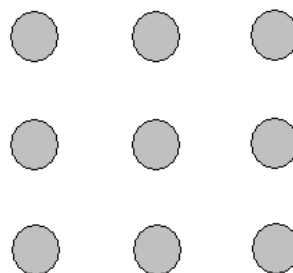
January 9th to January 13, 2006
St Marks Collage, North Adelaide.

Link for further information and Registration form
<http://www.anzaas.org.au/youth.html>

Hurry as spaces are limited. Remember ANZAAS pays to transport you to the conference. Your hosts for Youth ANZAAS 2005 are:

Rebecca
Peter (That's me folks)
Robert
David

Going Dotty



1. Connect all the dots
2. Using only 4 lines
3. Without taking your pen off the paper

Answer elsewhere in issue. If you figure that out (or you peeked) try it with 3 lines – yes it can be done, trust me. Remember not to take pen off paper. A hint this is at least **theoretically** possible, due to the way it is done.

Farwell to 2005

Have a great Xmas and a Fantastic New Year in 2006. We at Antenna wish you well. Eat, feast, and be merry. Remember to keep an open mind to new theories, no matter how strange they first seem. Take care and be safe. **Peter Toomer**

