

Re: WI: Antarctica was on the North Pole –

Source: <http://sci.tech-archive.net/Archive/sci.geo.meteorology/2005-03/0026.html>

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Alfred Montestruc wrote:

> *chornedsnorkack@hushmail.com* wrote:

>> *Alfred Montestruc* wrote:

>>> *chornedsnorkack@hushmail.com* wrote:

>>>> *Alfred Montestruc* wrote:

>>>>> *doktorf* wrote:

>>>>>> *This effectively makes North America, oh, let's call it "Arctica"*

>>>>>>> *and Eurasia a supercontinent. There might be narrow seaways*

>>>>>>> *between the land masses, but we could reasonably expect them to be*

>>>>>>> *frozen for a good part of the year. It is also reasonable to expect >>>>>> that the presence of Arctica would make the existence of the Bering*

>>>>>>> *land bridge irrelevant.*

>>>>>>

>>>>>> *Depends, even in summer stone age people traveling north of the*

>>>>>> *arctic circle will need supplies. Nothing exists to supply travelers*

>>>>>> *using stone age technology to travel across far from the sea.*

No

>>>>>> *food for 500+ miles and very real danger from exposure will make use >>>>> of this land for travel by stone age people impractical.*

>>>>>>

>>>>>> *What can they hunt? Anything that lives on that land must have plant*

>>>>>> *food to eat. What plants will grow in a place that sees 6 month*

>>>>>> *long winters of serious hard freezes and mostly no light, with a very*

>>>>>> *short growing season? Yes some plants will grow in the far arctic,*

>>>>>> *but this is near the sea which moderates temperature, and assures*

>>>>>> *rain/snow fall and so fresh water.*

> > > > >
> > > *Er, vice versa!*
> > > >
> > > *In summer, which is what matters for the plants (in winter they will*
> > > *hibernate no matter whether it is –5 or –50), the Arctic as it*
> > > *now*
> > > *exist makes the climate harsher, not more moderate!*
> > >
> > > *No. The proximity to the sea and the fact that open water, or the water > > > under the sheet of ice, acts as a huge heat sink/source that when the*
> > > *temperature drops below 0 C, it has an enormous reserve of heat to give > > > up to keep temperatures at or near 0 C, will moderate temperature.*
> > >
> > *Er, no.*
>
> *Er yes -- learn some basic thermal physics.*
>
> *Heat flows from higher to lower temperature, the phase change from water to ice*
>
> <http://www.physchem.co.za/Heat/Latent.htm#fusion>
>
> *The latent heat of fusion of ice is 334 kJ/kg (kiloJoules per kilogram*
> *converted)*
>
> *While the heat needed to raise one kilogram of water one degree C is*
> *4.186 Joules/gram or 4.186 kJ/kg.*
>
> <http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/spht.html>
>
> *The temperature at which pure water at sea level pressure freezes is*
> *0*
> *degrees C, while salt in the water depresses that a bit (not much) it*
> *clearly takes a hell of a lot of heat removal from the water to get*
> *it*
> *to freeze.*
>
> *The salt sea water acts during winter as heat *source* that tends to*
> *keep the air and ground in contact with it near zero degrees C.*
>
> *Temperature on the antartic plane far from the sea can sink very far*
> *below zero. The lowest recorded was at Vostok station on 24 August*
> *1960 of –88.3 degrees C (see first below web site),*

Er, yeah. And the minima are about –70 at the top of the Greenland ice sheet. But they are also –70 in the Oimyakon and Verhoyansk valleys – which are forested and inhabited areas.

> and can average –55 degrees C in the winter

My impression is that this is the yearly average.

> far from the sea, while near the sea averages of –5 C are seen
(second below > web site).

>

> <http://ireland.iol.ie/south-aris/climate.htm>

> <http://www-das.uwyo.edu/~geerts/cwx/notes/chap03/antarctica.html>

>

>

> > The ice on sea acts as a huge heat sink, it has enormous

> > reserves of cold to give up to keep the temperatures at or near 0
C.

>

>

> That is during the spring, and temperatures of about 0 C are not all

> that flipping dangerous to living things.

To warm-blooded mammals, that is.

But they are very important for green plants – in that region, every degree counts. If you have 0...–5 Celsius, soil snow-covered and more wet snow falling, people may find it easy to manage, but plants just can't grow. At 0...+5 Celsius after the snow has melted, some plants can grow, but not very well.

It will make a huge difference if eliminating the sea ice heat sink in spring/summer allows temperatures of 10...15 Celsius, or more.

> –55 C will kill you, fast even with good personal gear if you are
stuck

> outdoors. That is what happened to the first british expedition to
the south > pole, the weather turned colder than predicted for a week
or more and they

> died on the march back as a result.

>

One thing is that they ran out of fuel. Yes, –55 C is dangerous. But there is a difference between –55 on top of Antarctic or Greenland ice sheet, or on the barren grounds of Canadian Arctic, and –55 C in the forests of inland Yukon or Mackenzie valley or Yakutia. Warm-blooded mammals like muskoxen, reindeer, elks and wolves easily endure –55 degrees outdoors. And so do humans prepared for the situation, even Stone Age hunter-gatherers. All that is required is that there should be enough summer warmth to support plants to last herbivores through the winter, and trees to provide firewood.

>

> > >

> > > Contrast this to Antarctic land far (say 100 miles +) from the
sea, and

> > > at elevations of several hundred, to several thousand feet. In

that

> > > *case the soil*

> >

> > *But there is little soil in inland Antarctica.*

>

> *Depends on your definition of soil, if you mean soil like in north*

> *america, then no. If you mean not very organic rocks sand and dirt,*

> *then that is a bunch of crap.*

>

Well, yes, there are some nunataks, mountaintops projecting out of the ice in Antarctic. But they are small patches surrounded by extensive glaciers. I expect that in summer, the heated surface would serve as a heat source, but that due to small area of individual nunataks, the maxima would still stay low because of cooling influence of surrounding glaciers. I also expect that larger areas of bare ground, if they existed, would support even warmer climate.