

You part of a mountain climbing club that wants to be recognized as climbing the highest mountain peak in both Greenland & Antarctica. Your group used 2 maps for planning.

Touch on the interactive map to get information

**Overview of topics**

- Why does sea level change? >
- What about contributions from ice sheets? >
  - [Greenland Ice Sheet elevation](#) >

Your team used this Greenland elevation map to select the highest mountain peak to climb. Locate the place to climb. How high is it?

Touch on the interactive map to get information

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- Why does sea level change? >
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Now plan for Antarctica. Use this map to locate the highest place to climb for Antarctica. How high is it?

Touch on the interactive map to get information

**Overview of topics**

- Why does sea level change? >
- What about contributions from ice sheets? >
  - **Antarctic Ice Sheet elevation** >

NSIDC Antarctic Ice Sheet elevation

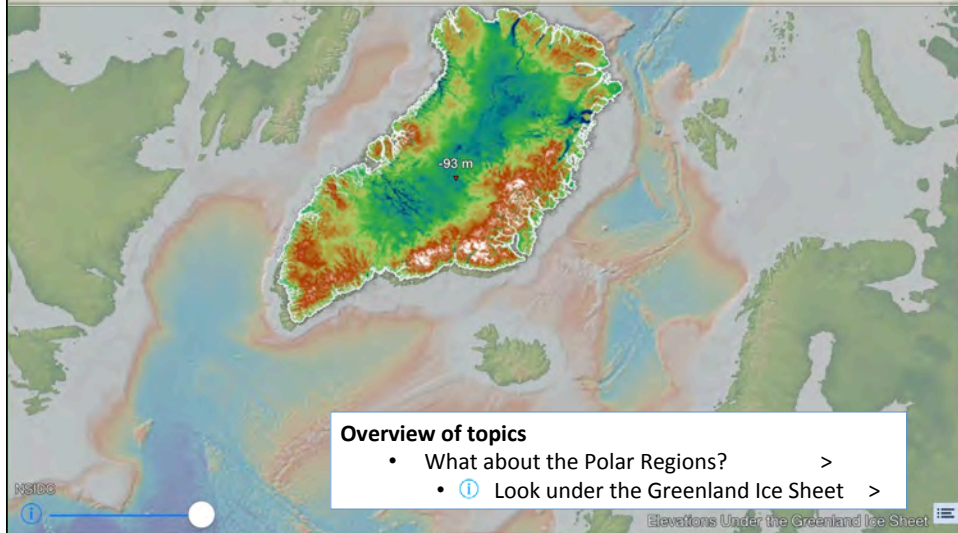
Your team completed their two climbs based on the maps and are thrilled to have climbed the highest mountains in the poles!...But then a challenge is raised, claiming your group did not climb the highest mountain peak. How can that be???

**Overview of topics**

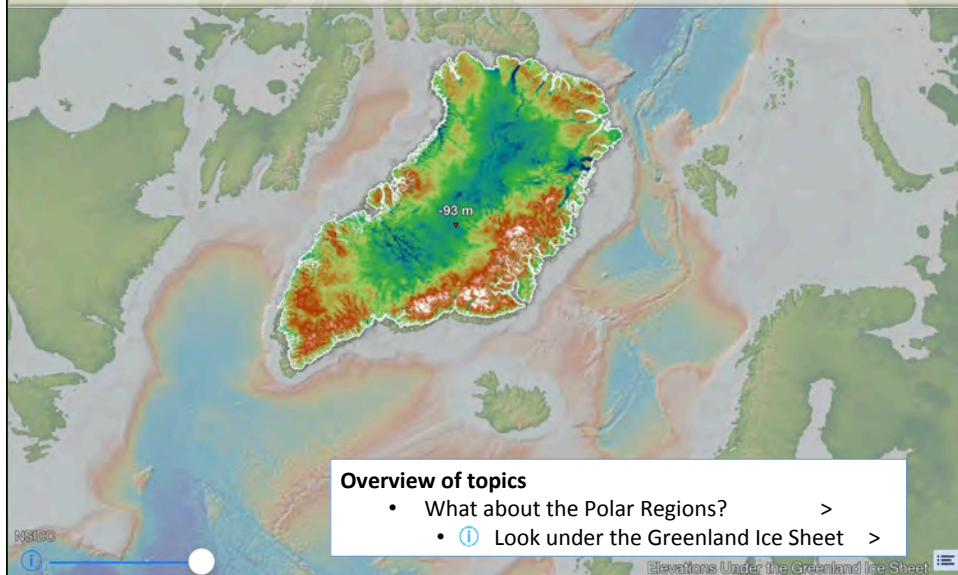
- Why does sea level change? >
- What about contributions from ice sheets? >
  - **Greenland Ice Sheet elevation** >

NSIDC Greenland Ice Sheet elevation

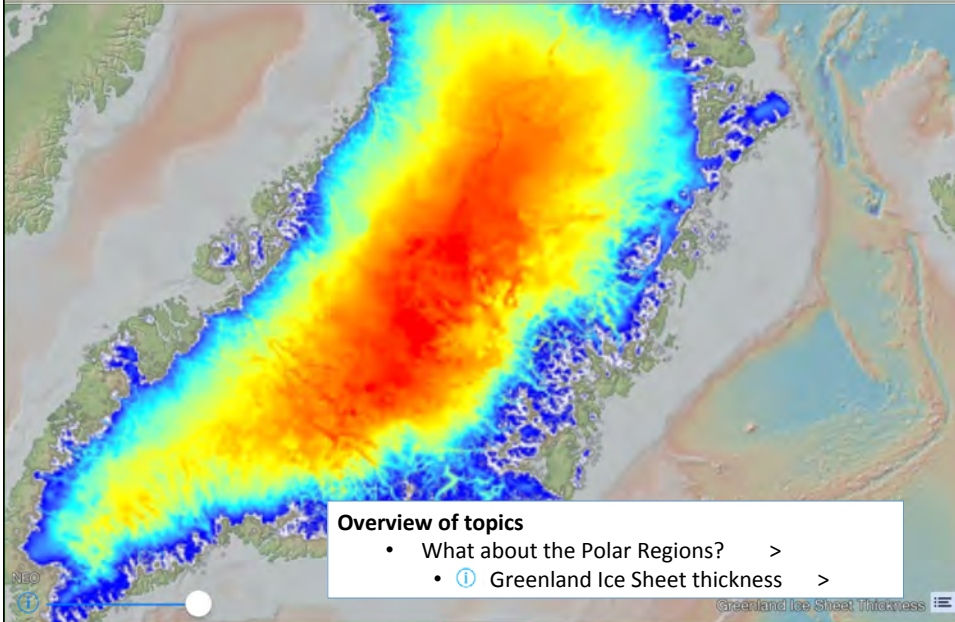
The challenging group provides this map of the actual land surface of Greenland beneath the ice. Where did you and your team climb? Is there a mountain there? How can this be? Find where you should have climbed in Greenland.



What do you think is going on? Underneath the hard outside layer the earth is soft, and the large amount of ice is so heavy it pushes the land down.



So just how much ice is on top of Greenland? See if you can find the thickest part of the Greenland ice sheet.

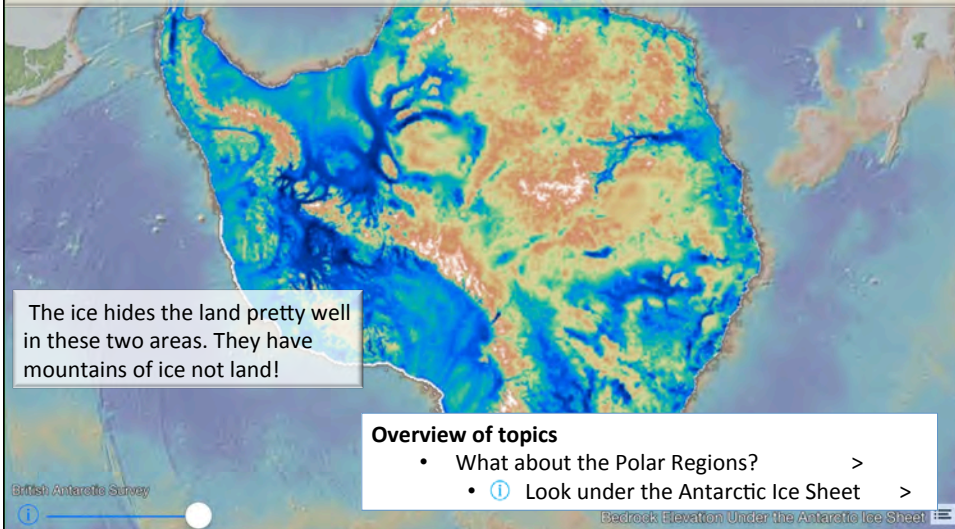


**Overview of topics**

- What about the Polar Regions? >
- [Greenland Ice Sheet thickness](#) >

Greenland Ice Sheet Thickness

The challenging group provides this map of the actual land surface under the ice of Antarctica. Where did you and your team climb? Is there a mountain there? Is this the highest point? or where should you have climbed in Antarctica?

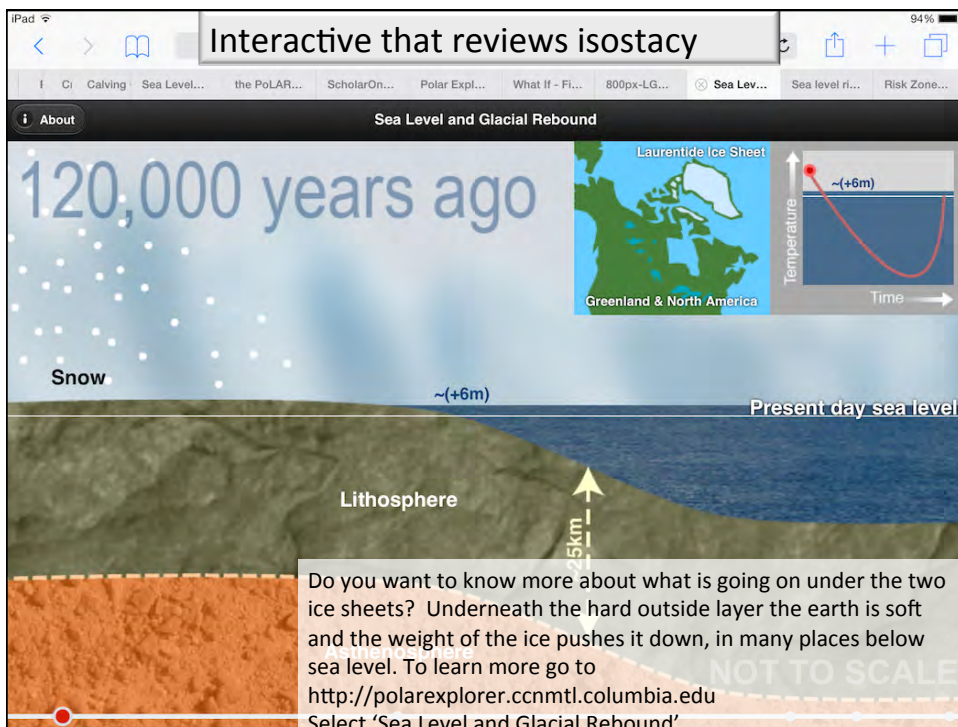
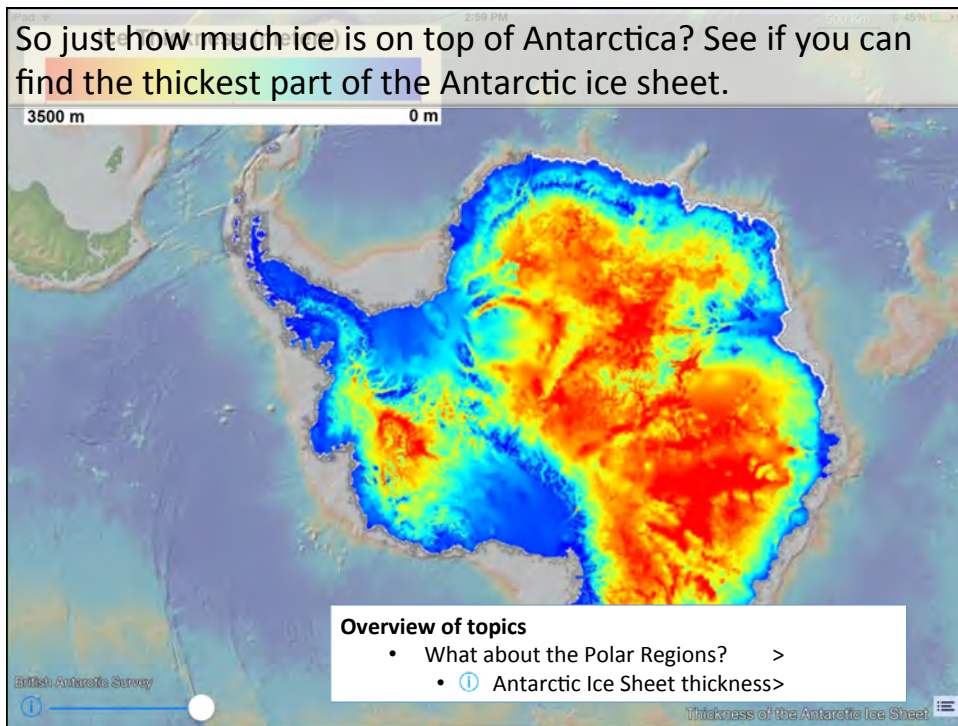


The ice hides the land pretty well in these two areas. They have mountains of ice not land!

**Overview of topics**

- What about the Polar Regions? >
- [Look under the Antarctic Ice Sheet](#) >

Bedrock Elevation Under the Antarctic Ice Sheet



**21,000 years ago**

Laurentide Ice Sheet  
Greenland & North America

Temperature  
Time  
~(-120m)

Ice sheet  
Peripheral bulge  
Present day sea level  
Burden  
Lithosphere subsidence  
Asthenosphere

peripheral bulge rises higher

Do you want to know more about what is going on under the two ice sheets? Underneath the hard outside layer the earth is soft and the weight of the ice pushes it down, in many places below sea level. To learn more go to <http://polarexplorer.ccnmtl.columbia.edu> Select 'Sea Level and Glacial Rebound'