



# Mix and Match – Arctic Climate Trends

**Work in pairs or small groups.**

**Can you match each image with its correct caption to find out more about Arctic climate trends/patterns?**

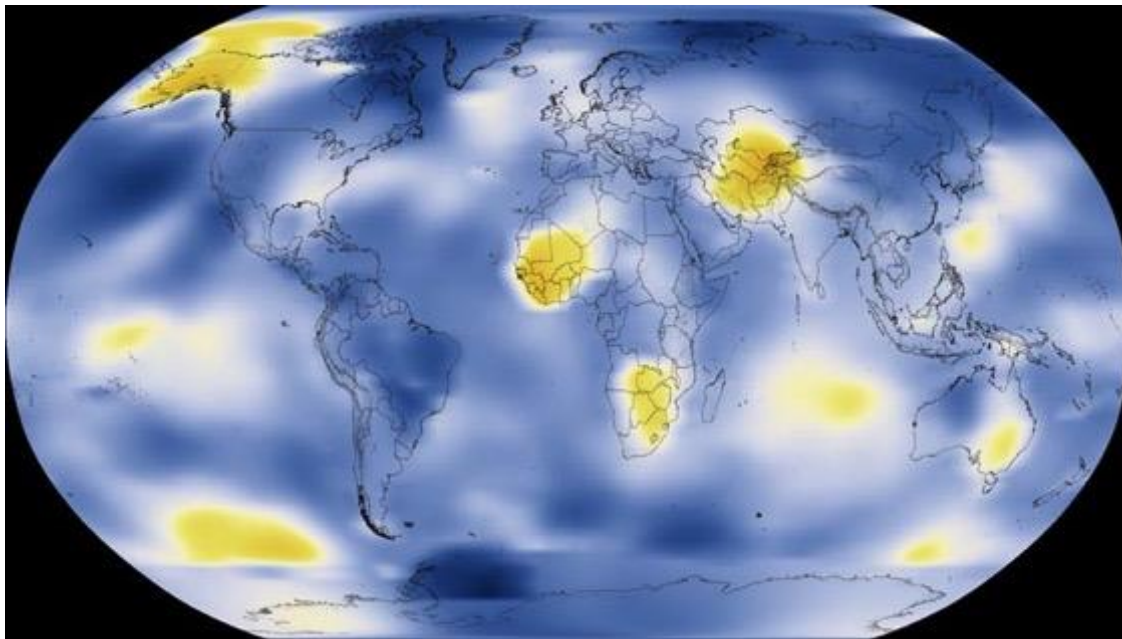
Text based on and some photos courtesy of ACIA, Impacts of a Warming Arctic: Arctic Climate Impact Assessment; and ACIA Key Findings, Cambridge University Press, 2004.



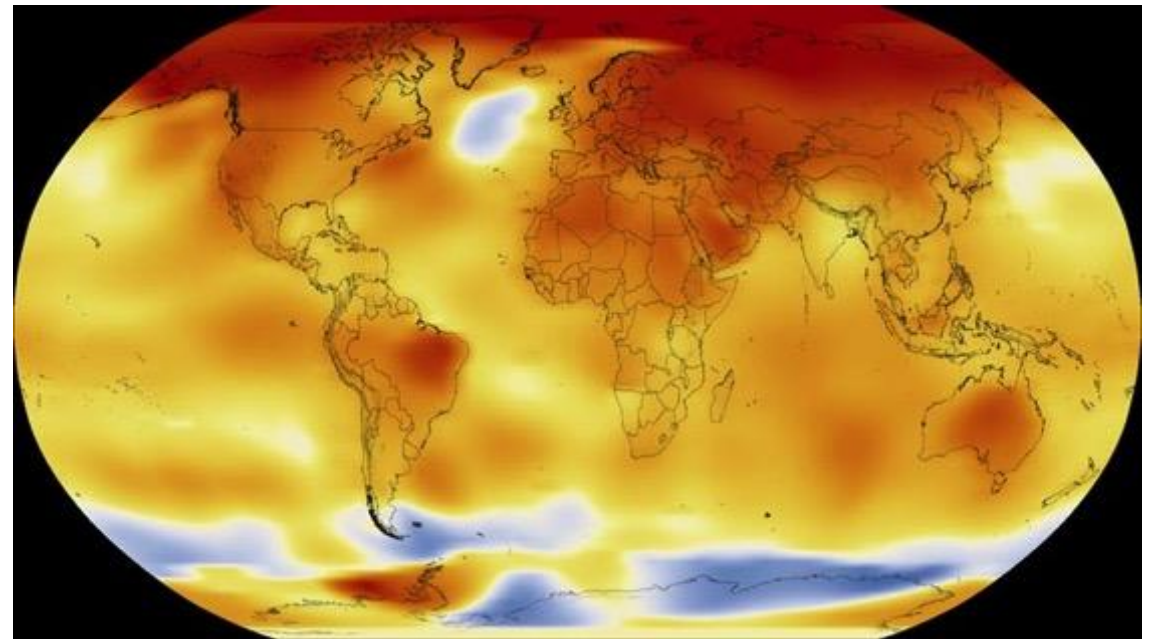
# Rising Temperatures

In the Arctic region, temperatures have increased a lot, especially in winter. In Alaska and western Canada, the temperature in winter has risen by around 3-4°C over the past fifty years. Even bigger increases are expected over the next fifty years.

1916



2016





# Thawing permafrost

**Permafrost** is frozen soil, rock or sediment under the ground.

Permafrost has warmed by up to 2°C in recent decades, loosening the soil, causing trees, building foundations, pipes and roads to become unstable.

Picture by Vladimir Romanovsky, courtesy of *Interact*







## Rising river flow

The amount of water that flows into rivers from melting ice and glaciers, and then from rivers into the ocean (river run off) has increased over much of the Arctic during the past few decades. Rivers are reaching their peak flows (when there is the most water in the river) earlier each spring.



Yli-nuortti river. Picture by Aleksu Mikola, 2014,  
courtesy of *Interact*



## Sea ice cover

The area and depth of sea ice cover in summer has decreased by 15-20% over the past thirty years. This decline is expected to quicken, with almost no sea ice in summer expected by the end of this century.



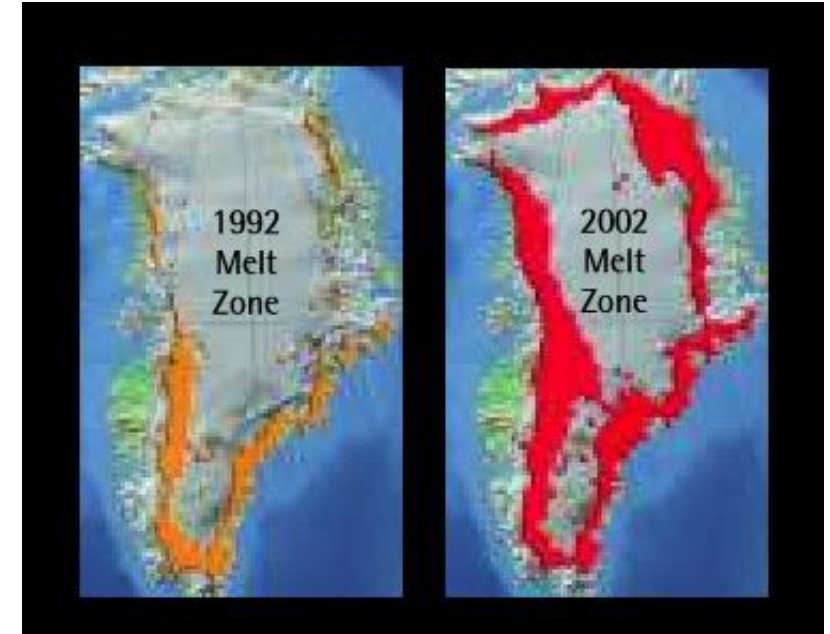




## Melting glaciers and Greenland ice sheet

Glaciers throughout the Arctic are melting, contributing to sea level rise.

The area of the Greenland ice sheet that melts each year has increased by about 16% between 1979 and 2002. In 2002 the area of ice that melted broke all previous records.





# The sea is getting fuller

Global and Arctic sea level has risen by 10-20 cm in the past 100 years. The sea level is expected to continue to rise by about 50cm during this century.



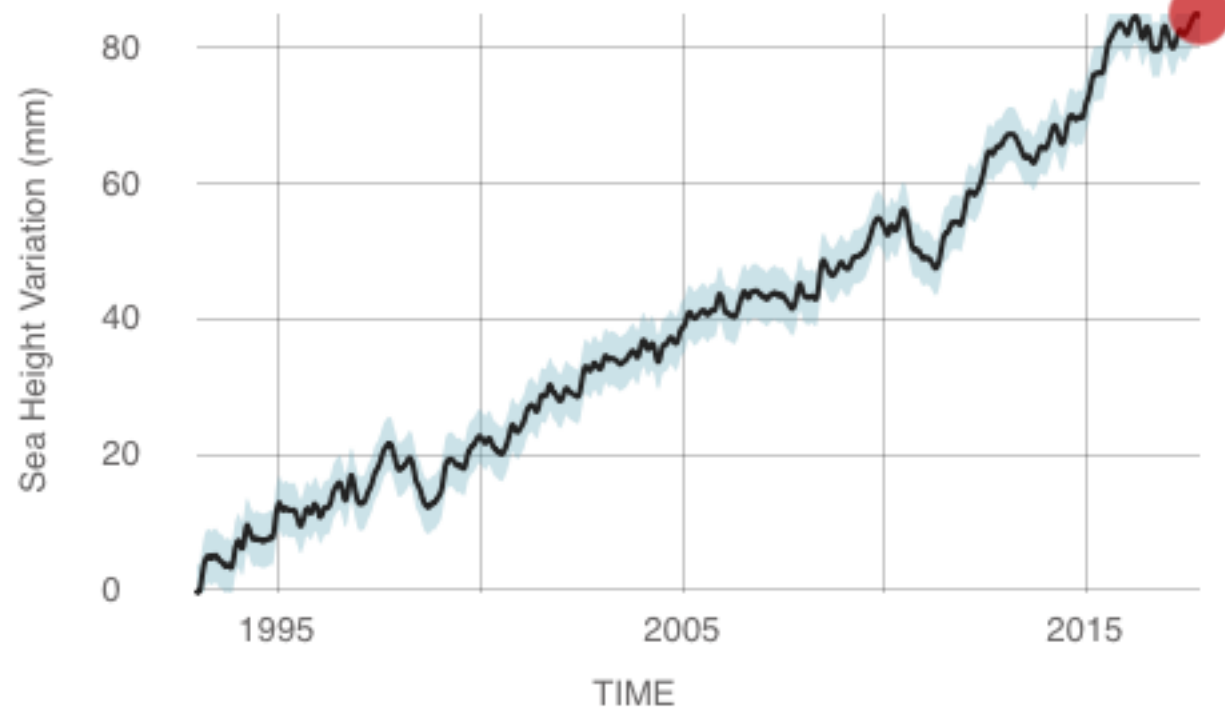
## SATELLITE DATA: 1993-PRESENT

Data source: Satellite sea level observations.  
Credit: NASA Goddard Space Flight Center

### RATE OF CHANGE

↑ 3.2

millimeters per year  
margin:  $\pm 0.4$







# The Arctic is getting greener

Forests are likely to replace some of the ice and Arctic tundra and it will be possible to farm more land. But this may create more insect outbreaks and forest fires.





# Arctic animals threatened

Many animals and birds who live on or near the ice face losing their homes and sources of food.







# Indigenous communities at risk

Changes such as fewer animals to hunt for food and clothing and more unpredictable weather could greatly affect indigenous communities' way of life.







## Further information

More details on these impacts of climate change can be found in two other key resources, both available on the WWW website:

- [Key Findings for Kids](#): What will happen to the Arctic over the next 100 years?
- [Arctic Climate Trends for Kids](#): Impacts of a warming Arctic.

Both based on the Arctic Climate Impact Assessment 2004.