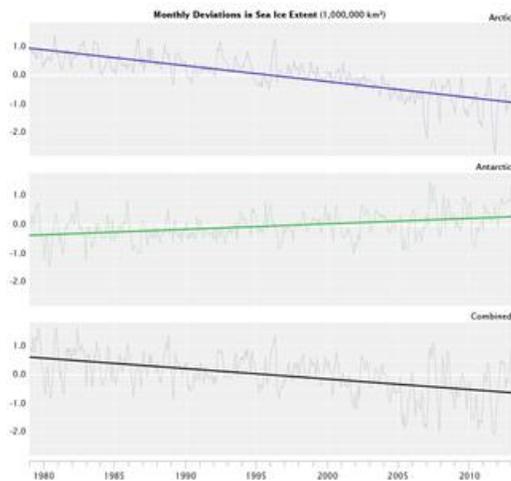


Melting ice caps and glaciers case study

Quantification of current melting

Credits: NASA's Earth Observatory/Joshua Stevens and Jesse Allen



<https://www.nasa.gov/feature/goddard/2017/nasa-s-aerial-survey-of-polar-ice-expands-its-arctic-reach>

“Sea ice increases in Antarctica do not make up for the accelerated Arctic sea ice loss of the last decades, a new NASA study finds. As a whole, the planet has been shedding sea ice at an average annual rate of 13,500 square miles (35,000 square kilometers) since 1979, the equivalent of losing an area of sea ice larger than the state of Maryland every year.”

<http://www.nationalgeographic.com/environment/global-warming/big-thaw/>

“So far, the results have been positively chilling. When President Taft created Glacier National Park in 1910, it was home to an estimated 150 glaciers. Since then the number has decreased to fewer than 30, and most of those remaining have shrunk in area by two-thirds. Fagre predicts that within 30 years most if not all of the park's namesake glaciers will disappear.”

<https://www.theguardian.com/environment/2014/sep/01/new-satellite-maps-show-polar-ice-caps-melting-at-unprecedented-rate>

“Dr Veit Helm and other glaciologists at the Alfred Wegener Institute's [Helmholtz Centre for Polar and Marine Research](#) in Bremerhaven, Germany, report in the journal [The Cryosphere](#) that, between them, the two ice sheets are now losing ice at the unprecedented rate of 500 cubic kilometres a year.”

http://www.regentearthscience.com/index.php?option=com_content&view=article&catid=66&id=1074:how-does-the-melting-ice-affect-the-environment

Causes

“Antarctica accounts for 90 percent of the world's ice, which is where many icebergs come from. Icebergs are formed when ice breaks off from these glaciers. It is one theory that rising temperatures cause more ice to break off from these glaciers and fall into the ocean displacing water, which could cause sea levels to rise. But even this could not account for all the change in Earth's sea level.”

Consequences

“Antarctica is covered in ice about 2,133 meters of ice. If this were all to suddenly rise the ocean could rise about 200 feet. But that could never happen in the near future, because the temperature of Antarctica is about -37 degrees Celsius. Another organization, the Intergovernmental Panel on Climate Change, estimated in their report that the oceans could rise 90 centimeters by the year 2100. Which could have a profound effect on cities on the oceans, especially during storms.

But there are also people and places affected by the melting. For instance, in Bangladesh, over one million people have been displaced do to the rising sea and the rising rivers: the Ganges and the Bramaputra. It is expected that if no action is taken, that thirteen million more people will lose their homes in the near future. There is also a vital rice crop there, which would be lost. This would only take one meter of rising to do all this damage. There are also many island nations; like Tuvalu, that is no more than fifteen feet above sea level in any place, but most of it isn't even a meter high. Much of the island is already extensively flooded.”

<http://news.nationalgeographic.com/news/2011/12/1112-melting-glaciers-mean-double-trouble-for-water-supplies/>

Glacier melting will mean large amounts of water being released. This means that when glacier have melted completely after some time, people reliable on this source of water will be in drought.