

# Melting of the Arctic Region and the Impact on Polar Bears

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## Glacier Melting is Even Worse Than What is Thought



Figure 1. The Sólheimajökull glacier in Iceland has shrunk 50m since 2010. (Photograph by Xipeng Yang)

If the Greenland ice sheet were melt, the volume of ice would cause 7.2m of global sea-level rise. (Masson-Delmotte et al., 2012).

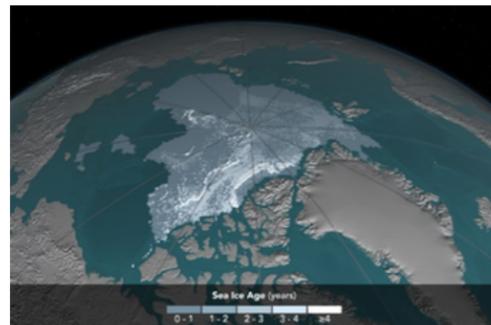
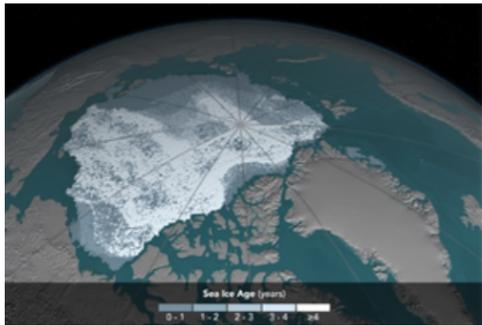
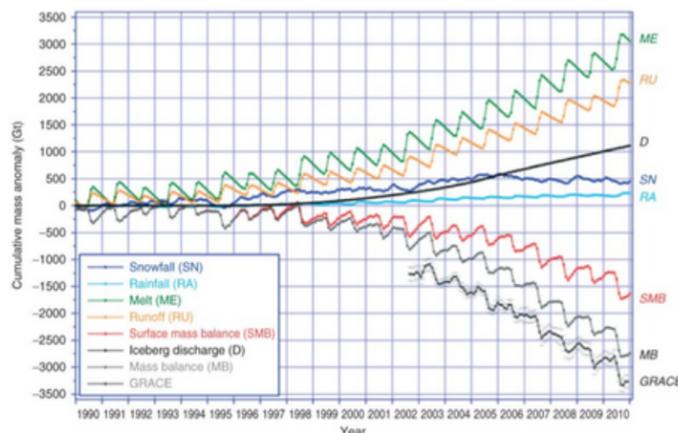


Figure 2. The amount of old ice in the Arctic: 1984 (left) and 2016 (right). (Photographs from NASA)

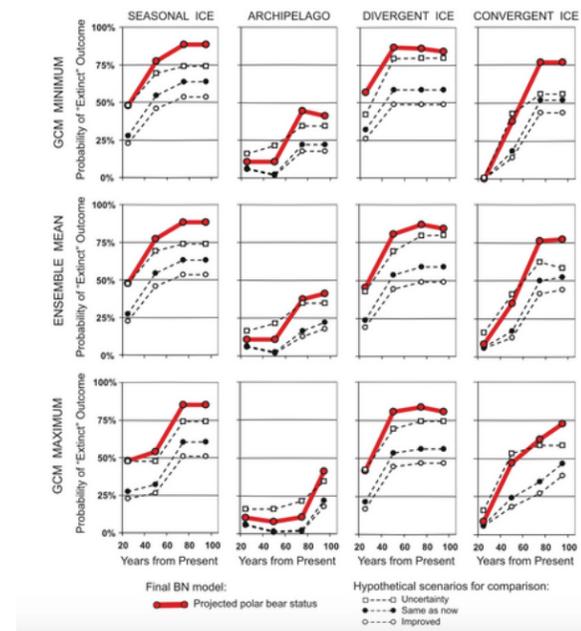
“More old ice is melting within the Arctic Ocean during the summertime...we’re seeing relatively smaller chunks of old ice interspersed with younger ice. These isolated floes of thicker ice are much easier to melt.” - Walt Meier, NASA

## Climate Change Accelerates Ice Melting



- a) Global warming
- b) Rising sea temperatures

Graph 1. From 1990 to 2010, the GrIS has lost approximately 2750 Gt (Gigatons) of ice, with a significant acceleration in the rate of mass loss. (from Masson-Delmotte et al., 2012)



Graph 2. Probability of “extinct” outcome projected by Bayesian network (BN) model of worldwide polar bear populations. (from Amstrup et al., pg. 234)

As of 2015, the IUCN has placed the polar bear as a vulnerable species on their Red List of Threatened Species.

“Rising global temperatures mean that polar bears increasingly are exposed to marginal ice or open water... The future population impacts of more prolonged periods... are projected to be severe.” (Hunter et al., 2010)

## We Could Lose Two Thirds of Polar Bears by 2050



Figure 3. A polar bear jumps between ice floes near the island of Spitsbergen in 2010. (Photo by Ralph Lee Hopkins, National Geographic)



Figure 4. A polar bear and her cubs are stranded on an iceless shoreline in Svalbard [Norway]. (Photograph by Paul Nicklen, National Geographic)

### References:

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