Increased snowfall will offset sea level rise from melting Antarctic ice sheet

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A new study predicts that any sea level rise in the world's most southern continent will be countered by an increase in snowfall, associated with a warmer Polar atmosphere. Using modern methods to calculate projected changes to sea levels, researchers discovered that the two ice sheets of Greenland and Antarctica respond differently, reflecting their very distinct local climates.

The paper, published today in *Geophysical Research Letters*, is based on the new generation of climate models which are used in the newly published Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, reviewing scientific, technical, and socio-economic information regarding climate change.

The recent findings suggest that society should plan for higher sea levels, and match with virtually all previous estimates of sea level rise, in that scientists expect sea levels to continue to rise well beyond 2100, most likely at an accelerating rate.

"There is little change, however, in projected sea level rise from the Antarctic ice sheet. This is because increased mass loss triggered by warmer oceans is countered by mass gain by increased snowfall which is associated with the warmer Polar atmosphere."

Prof Payne added: "Predicting the mass budget of the ice sheets from estimates of global warming is difficult and a great many of the processes involved require further attention."

"Discovering that warmer climates do not affect Antarctic mass budget, in particular, warrants further examination because this is based on large changes in snowfall and marine melt balancing."

"One of the main things to take away from this, interestingly, is that the response of two ice sheets and what impact global heating has on them is different and depends heavily on their local..."
conditions," said Prof Payne.


Provided by University of Bristol