



Increased snowfall over the Antarctic Ice Sheet mitigated 20th century sea-level rise



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Background. Snowfall is the only source of mass input over ice sheets and is balanced by melting and iceberg calving

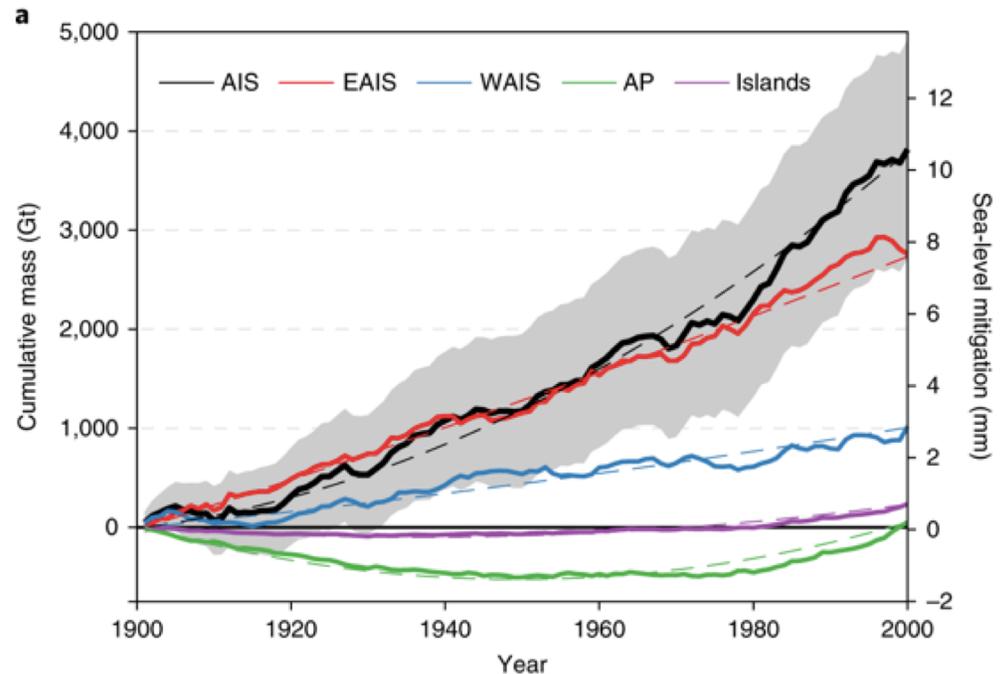
What is the science question? How and why has Antarctic-wide snowfall changed? What is its impact on global sea level?

What were your findings?

- Increased snowfall mitigated 20th century sea level by 10 mm
- A warming atmosphere is the likely force behind the increase
- Local trends are influenced by changes in westerly winds

What was the impact? Modern-day snowfall gains are a mere 1/3 of Antarctic mass losses, indicating that atmospherically-driven gains are not keeping pace with oceanic-driven ice losses.

Why does it matter? These estimates fill in a critical gap in our knowledge of the sea-level budget.



AIS = Antarctic Ice Sheet, EAIS = East Antarctic Ice Sheet, WAIS = West Antarctic Ice Sheet, AP = Antarctic Peninsula