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13 Feb 2018

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Additional objection to my submission submitted electronically 12 Feb 2018

Development Application 1274 2017 at 52 Cabbage Tree Rd, Bayview.

CEO Northern Beaches Council

Attention of Lashta Haidari.

Dear M/s Haidari,

In ABC news of today's date comes reports from the US National Academy of Sciences of an acceleration in global sea level rise, measured by four satellites, that indicates a global sea rise of 61 cm by 2100.

I ask this specific question in regard to the operation of the tidal gates on the outlet side of the Cahill Creek box culvert under Pittwater Rd.

It is a question that has never been addressed to the best of my knowledge and certainly not in the application documents:

"Sea level rise of this order also carries with it the inevitable fact that the entire tidal prism is also elevated by the same amount. Would tidal prism elevation inevitably in consequence mean that the one-way outward flows may in future be retarded and ultimately prevented by tidal waters impeding/preventing the opening of the gates against storm water outflow, therefore bringing a whole new dimension as an increasing limiting effect upon Cahill Creek flood calculations which have to date not been addressed.

In light of this new information on sea level rise investigation I ask: What will be the changes in flood prediction for this site as a result of elevation of tidal prism as a consequence of increasing restriction of opening of the tidal surge gates".

David James OAM

Attachment: ABC report.



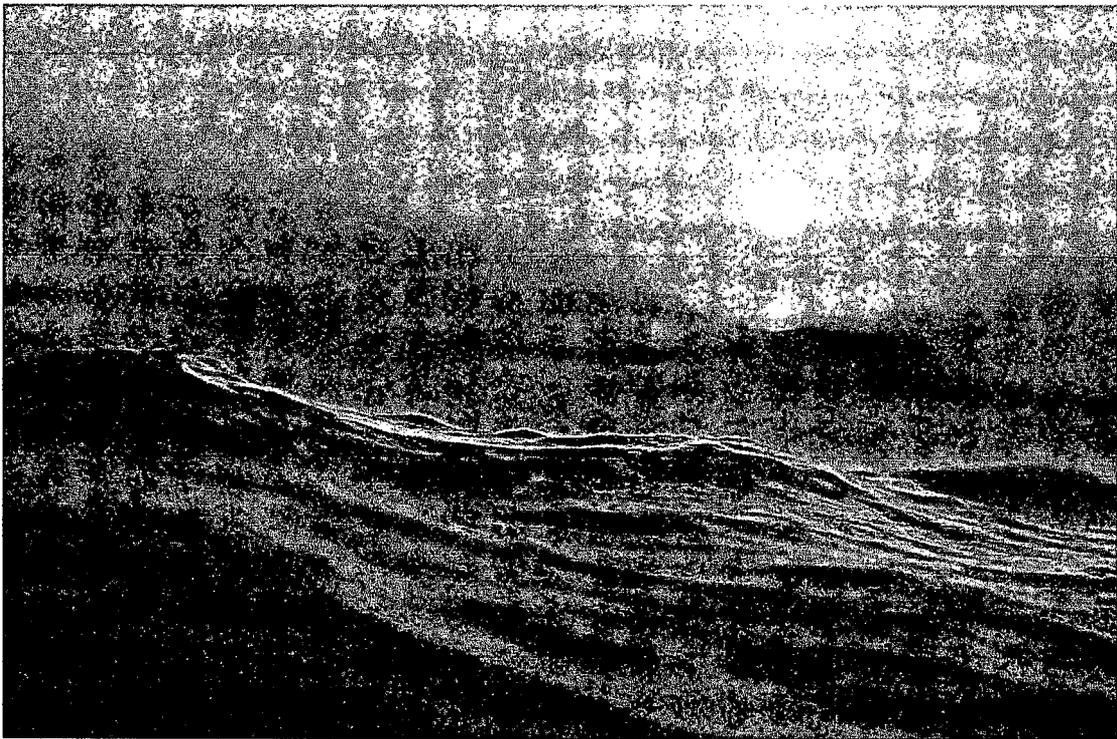
Science

Global sea level rise rate speeding up, 25 years of satellite data confirms

ABC Science By [Genelle Weule](#)

Updated about 2 hours ago

First posted about 9 hours ago



Satellite data indicates sea levels will rise around 61 cm between now and 2100. (Pexel: Sebastian Voortman)

The rate of global sea level rise is accelerating as ice sheets in Antarctica and Greenland melt, an analysis of the first 25 years of satellite data confirms.

The study, by US scientists, has calculated the rate of global mean sea level rise is not just going up at a steady rate of 3mm a year, but has been increasing by an additional 0.08mm a year, every year since 1993.

Key points

If the rate of change continues at this pace, global mean sea levels will rise 61 centimetres between now and 2100, they report today in the journal Proceedings of the National Academy of Sciences.

"That's basically double the amount you would get if you only had 3 mm a year with no acceleration," said the study's lead author Steven Nerem of the University of Colorado.

But that figure, which is broadly in line with climate modelling, is likely to be a conservative estimate of global mean sea level rise in the future, said Professor Nerem.

"When you try to extrapolate numbers like this you're assuming sea level change and acceleration are going to be the same as they've been over the past 25 years.

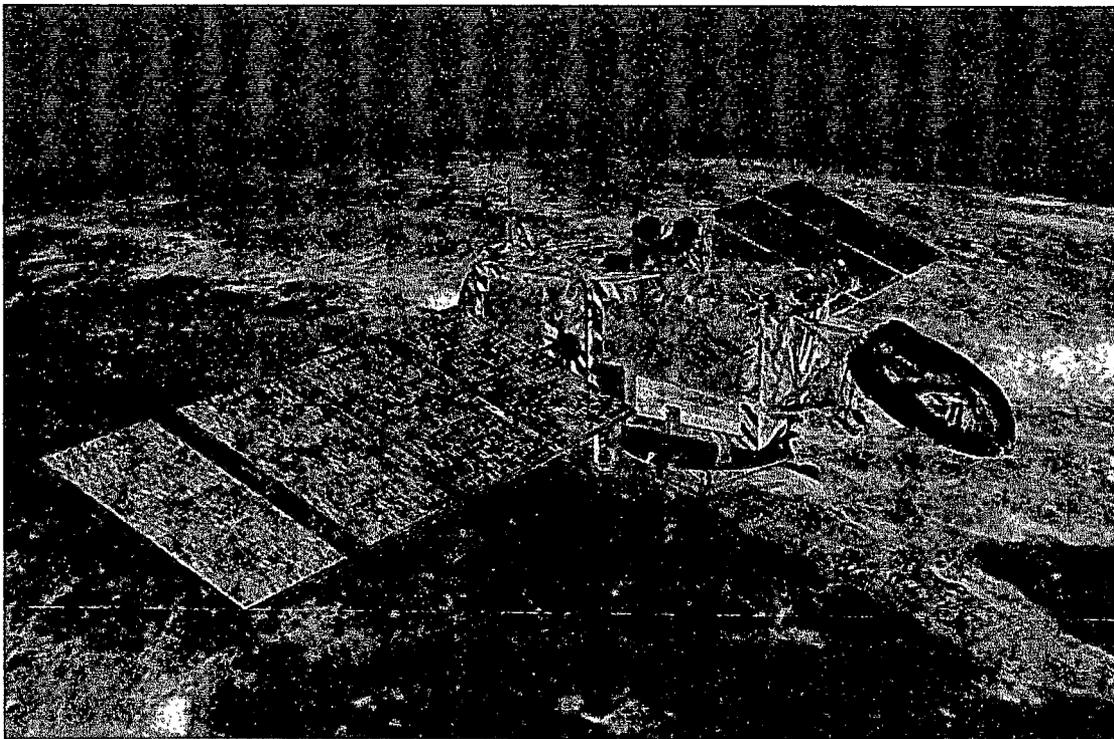
"But that's probably not going to be the case.

- It was thought sea level rise was accelerating at steady 3mm a year
- Analysis of first 25 years of satellite data shows rate going up by 3mm a year, plus 0.08mm a year, every year.
- Acceleration largely being driven by melting of Antarctic and Greenland ice sheets and likely to increase in future, say scientists

Putting a number on sea level rise

Global warming drives sea level rises in two ways: by melting land-based ice sheets, and heating up ocean water causing it to expand.

Sea levels have been recorded by a series of four satellites, starting with the 1992 launch of the TOPEX/Poseidon satellite, in addition to long-term data captured by tidal gauges.



The Jason-3 satellite is the most recent in a series of four satellites to measure sea levels since 1993.
(Supplied: NASA)

Professor Nerem said analysis of tidal gauge records and decadal changes in satellite data in the past had indicated global mean sea level rise was accelerating, but it had been hard to pin down a number.

To arrive at their number, Professor Nerem and colleagues adjusted the satellite data for short-term factors such as the El Niño/La Niña climate patterns, as well as the 1991 eruption of Mount Pinatubo, which caused sea levels to drop just before the launch of the TOPEX satellite.

They also cross-referenced tide gauge and satellite data to correct anomalies in the TOPEX satellite record proposed in an earlier research co-authored by John Church of the Climate Change Research Centre at the University of New South Wales (UNSW).

"This is the first satellite-based estimate of an acceleration number," Professor Nerem said.

"The number is useful because you can take the rate of sea level change and the acceleration, and extrapolate it in the future and see how it agrees with climate models."

The figure calculated by Professor Nerem's study is similar to those predicted by the Intergovernmental Panel on Climate Change (IPCC) under its upper 8.5 scenario, which assumes increasing greenhouse gas emissions.

UNSW's Professor Church is the co-convening lead author of chapters on sea level rise in the most recent IPCC assessment report.

He said the length of the new study and the correction of the satellite data was important.

"This is very solid confirmation ... there is an acceleration and it's the right magnitude to be consistent with IPCC, Professor Church said.

Ice sheet melting is a real concern

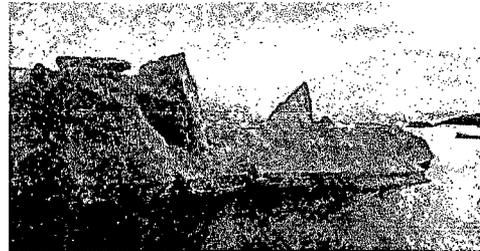
Professor Nerem's team also looked at data from the Gravity Recovery and Climate Experiment (GRACE) satellite, which monitored changes in Earth's gravitational field, to determine where the figure was coming from.

They found the bulk of the acceleration was caused by the melting of the Greenland and Antarctic ice sheets, which contributed 0.02mm and 0.03mm a year, every year, to the overall acceleration rate.

Professor Church said the Antarctic was contributing more to acceleration than previous estimates.

"I think that's a real concern. The ice sheets are contributing measurably to this acceleration," he said.

On top of the world



Big nations might be struggling to avoid a two-degree temperature rise, but the Arctic island of Greenland is welcoming it, Foreign Correspondent finds.





Aerial image of rivers and meltwater lakes on the Greenland ice sheet. (Supplied: Maria-Jose Vinas)

Professor Nerem said the next step was to continue looking at the satellite data to get a longer-term picture.

"This was a first detection in the satellite altimeter record, so we just barely have enough time series to feel comfortable publishing an estimate of acceleration," Professor Nerem said.

"In addition, we'll certainly be watching our data to see if there are any rapid changes in the ice sheets that might be detected."

One of the important tools that will enable them to do that will be the launch of a new GRACE satellite in April.

"That allows us to directly observe the ice sheets," he said.

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