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## Rising seas threaten west Antarctic

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There's a 'big gorilla hiding the closet' whose collapse could have a dramatic effect on sea levels, according to Australian researchers.

Dr Bradley Opdyke, a paleoceanographer from the [Australia National University \(http://www.anu.edu.au/ \)](#) (ANU) believes the West Antarctic Ice Sheet (WAIS) could partially collapse within 20 years, resulting in a dramatic jump in sea levels.

His talk on glacial cycles and the WAIS was presented earlier this month at the [Imagining the real: life on a greenhouse earth conference \(http://www.anu.edu.au/anuie/index.php?pid=332 \)](#) held in Canberra.

"The 900-pound gorilla hiding in the closet is Antarctica. We have evidence that it is not a stable beast," Opdyke says.

He says the WAIS is inherently unstable, and the current rate of sea level rise is placing it at risk.

"It is pinned on the spines of a few mountains, with ice sheets draped off them," Opdyke says. "If sea level rise unpins these sheets, it is plausible that there will be dramatic ice collapse in the West Antarctic."

### Rapid collapse

According to Opdyke, data from deep sea sediment cores suggests that Antarctic ice sheets have collapsed several times in the last 75,000 years.

Some warming periods were probably only decades long, yet may have corresponded to a sea level rise of many metres.

"When ice melts, it tends to melt in a hurry," Opdyke says.

He believes the WAIS collapse "could take months, even weeks."

By examining conditions during previous events, Opdyke predicts that a sea level rise of 50 to 100 centimetres above the 1920 level may be enough to "unpin" the ice sheets, leading to a collapse of the WAIS.

"Since 1920, sea levels have risen about 23 centimetres," he says.

"We're now experiencing an annual sea level rise of 3.3 millimetres, from alpine and Greenland glacier ice melt and thermal expansion of the oceans.

"In 10 years time we expect the rise to be over 6 millimetres per year and by 2028, over 1 centimetre per year."

Professor Malcolm McCulloch, also from the ANU, agrees that a WAIS collapse is a key threat.

"Satellite images have revealed there's already melt-water beneath some of the ice sheets" he says. "If the WAIS collapses, sea levels will rise between four and six metres."

McCulloch believes the collapse of the WAIS can be averted if the world community becomes "open minded" in its search for alternatives to fossil fuels.



A sea level rise of 50 to 100 centimetres above the 1920 level may be enough to 'unpin' the west Antarctic ice sheets, says an Australian researcher (iStockphoto)

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