

Scientists find spi

Research looking back 2800 years says 20th-century the turning point

Chris Mooney

A group of scientists says it has now reconstructed the history of the planet's sea levels arcing back over some 3000 years – leading it to conclude that the rate of increase experienced in the 20th century was "extremely likely" to have been faster than during nearly the entire period.

"We can say with 95 per cent probability that the 20th-century rise was faster than any of the previous 27 centuries," said Bob Kopp, a climate scientist at Rutgers University who led the research with nine colleagues from several US and international universities. Kopp said it's not that seas rose faster before that – they probably didn't – but merely that the ability to say as much with the same level confidence declines.

The study was published in the *Proceedings of the National Academy of Sciences*.

Seas rose about 14cm from 1900 to 2000, the new study suggests, for a rate of 1.4mm a year. The current rate, according to Nasa, is 3.4mm a year, suggesting that sea-level rise is still accelerating.

Unsurprisingly, the study blames the anomalous 20th-century rise on global warming – and not just that.

It also calculates that, had humans not been warming the planet, there's very little chance that seas would have risen so much during the century, finding that instead of a 14cm rise, we would have seen somewhere between a 3cm fall and a 7cm rise.

The new work is particularly significant because, in effect, the sea-level analysis produces a so-called "hockey stick" graph – showing a long and relatively flat sea-level "handle" for thousands of years, followed by a "blade" that turns sharply upwards in very recent times.



Rising sea levels contributed to the level of destruction in New Jersey caused by

The discovery of such patterns goes back to a 1998 study by climate researcher Michael Mann of Penn State University and two colleagues – who found a "hockey stick" graph for the planet's temperature, rather than for its

sea level. Since then the "hockey stick", in its various incarnations, has come in for voluminous criticism from sceptics and doubters of human-caused climate change – even as multiple scientists have continued to af-

ke in sea-level rise



Sea change
1.4mm
per year sea rise from 1900 to 2000
3.4mm
per year current sea rise

Superstorm Sandy.

Picture / AP

firm the conclusion that the last 100 years or so are way out of whack with what the planet has seen in the past thousand or more.

The new research also forecasts that no matter how much carbon dioxide

we emit, 21st-century sea-level rise will still greatly outstrip what was seen in the 1900s. Nonetheless, choices made today could have a big impact. For a low emissions scenario, it finds that seas might only rise between 24cm and

61cm. In contrast, for a high emissions scenario – one that the recent Paris climate accord pledged the world to avert – they could rise as much as 52cm to 131cm, or, at the very high end, 1.3m. – *Washington Post* – Bloomberg