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Rising seas 'to beat predictions'

Kangerdlussuaq Glacier, East Greenland. (J A Dowdeswell)

Sea level rise is fuelled by melting ice in Greenland and Antarctica

The world's sea levels could rise twice as high this century as UN climate scientists have previously predicted, according to a study.

The Intergovernmental Panel on Climate Change proposes a maximum sea level rise of 81cm (32in) this century.

But in the journal *Nature Geoscience*, researchers say the true maximum could be about twice that: 163cm (64in).

They looked at what happened more than 100,000 years ago - the last time Earth was this warm.

The results join other studies showing that current sea level projections may be very conservative.

Sea level rise is a key effect of global climate change. There are two major contributory effects: expansion of sea water as the oceans warm, and the melting of ice over land.

In the latest study, researchers came up with their estimates by looking at the so-called interglacial period, some 124,000 to 119,000 years ago, when Earth's climate was warmer than it is now due to a different configuration of the planet's orbit around the Sun.

That was the last time sea levels reached up to 6m (20ft) above where they are now, fuelled by the melting of ice sheets that covered Greenland and Antarctica.

'Robust' work

The researchers say their study is the first robust documentation of how quickly sea levels rose to that level.

"Until now, there have been no data that sufficiently constrain the full rate of past sea level rises above the present level," lead author Eelco Rohling, of Britain's National Oceanography Centre in Southampton, said in a statement.

Rohling and his colleagues found an average sea level rise of 1.6m (64in) each century during the interglacial period.

Back then, Greenland was 3C to 5C (5.4F to 9F) warmer than now - which is similar to the warming period expected in the next 50 to 100 years, Dr Rohling said.

Current models of ice sheet activity do not predict rates of change this large. However, they also do not include many of the dynamic processes already being

observed by glaciologists, the researchers said.

"The average rise of 1.6m per century that we find is roughly twice as high as the maximum estimates in the IPCC Fourth Assessment Report, and so offers the first potential constraint on the dynamic ice sheet component that was not included in the headline IPCC values," explained Dr Rohling.

Last year, a separate study found sea level rise projections could be underestimating the impact of human-induced climate change on the world's oceans.

Stefan Rahmstorf, from the Potsdam Institute for Climate Impact Research, Germany, and colleagues plotted global mean surface temperatures against sea level rise, and found that levels could rise by 59% more than current forecasts.