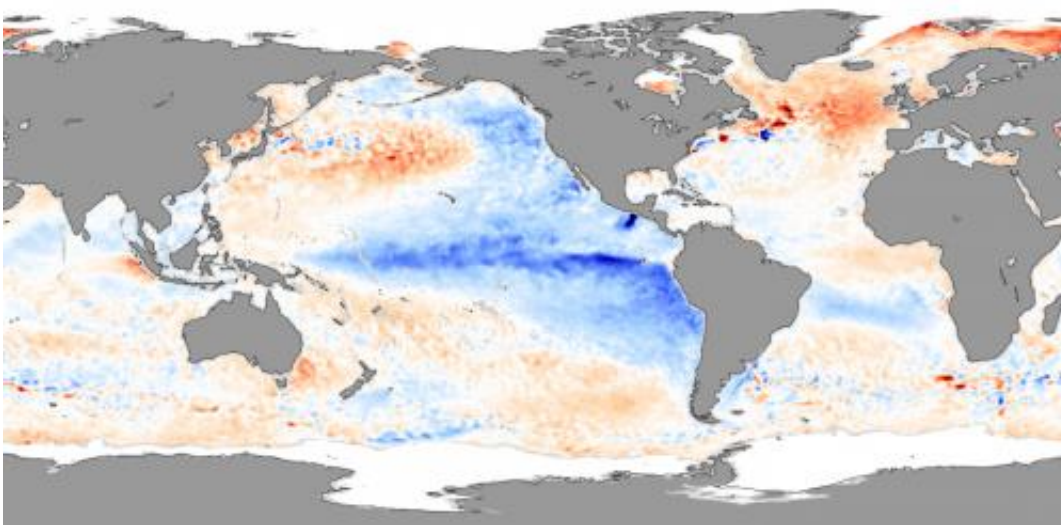


Global warming doubles risk of extreme La Nina event, study shows

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Sea surface skin temperature anomalies in November 2007 showing La Niña conditions. Credit: NASA Earth Observatory

The risk of extreme La Niña events in the Pacific Ocean could double due to global warming, new research has shown.

The projected twofold increase in the frequency of this potentially devastating weather phenomenon across the globe could lead to increased droughts in south-western United States, floods in the western Pacific regions and Atlantic hurricanes.

Furthermore, with around 70 per cent of these increased La Niña events

projected to follow immediately after an extreme El Niño event, parts of the world could experience weather patterns that switch between extremes of wet and dry.

The latest collaborative international research saw scientists, including Professor Mat Collins from the University of Exeter, use state-of-the-art climate modelling to determine how global warming will influence the frequency of future extreme La Niña events.

The findings are published in the leading scientific journal, *Nature Climate Change*.

El Niño and La Niña events are opposite phases of the natural climate phenomenon, the El Niño/Southern Oscillation. Extreme La Niña events occur when cold sea surface temperatures in the central Pacific Ocean contrast with the warming land areas of Maritime Southeast Asia in the west and create a strong temperature gradient.

The new research suggests that increased land warming, coupled with an increase in frequency of extreme El Niño events, will mean extreme La Niña could occur every 13 years, rather than the 23 years previously seen.

Co-author Professor Collins, from Exeter's College of Engineering, Mathematics and Physical Sciences explained: "Our previous research showed a doubling in frequency of extreme El Niño events, and this new study shows a similar fate for the cold phase of the cycle. It shows again how we are just beginning to understand the consequences of [global warming](#)."

The new research was led by scientist Dr Wenju Cai, from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and featured scientists from Australia, China, the US, France

and Peru.

Dr Cai indicated the potential impact of this change in climate. He said: "An increased frequency in extreme La Niña events, most of which occur in the year after an extreme El Niño, would mean an increase in the occurrence of devastating weather events with profound socio-economic consequences."

More information: Research paper: [DOI: 10.1038/nclimate2492](https://doi.org/10.1038/nclimate2492)"
target="_blank">nature.com/articles/[DOI: 10.1038/nclimate2492](https://doi.org/10.1038/nclimate2492)

Provided by University of Exeter

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