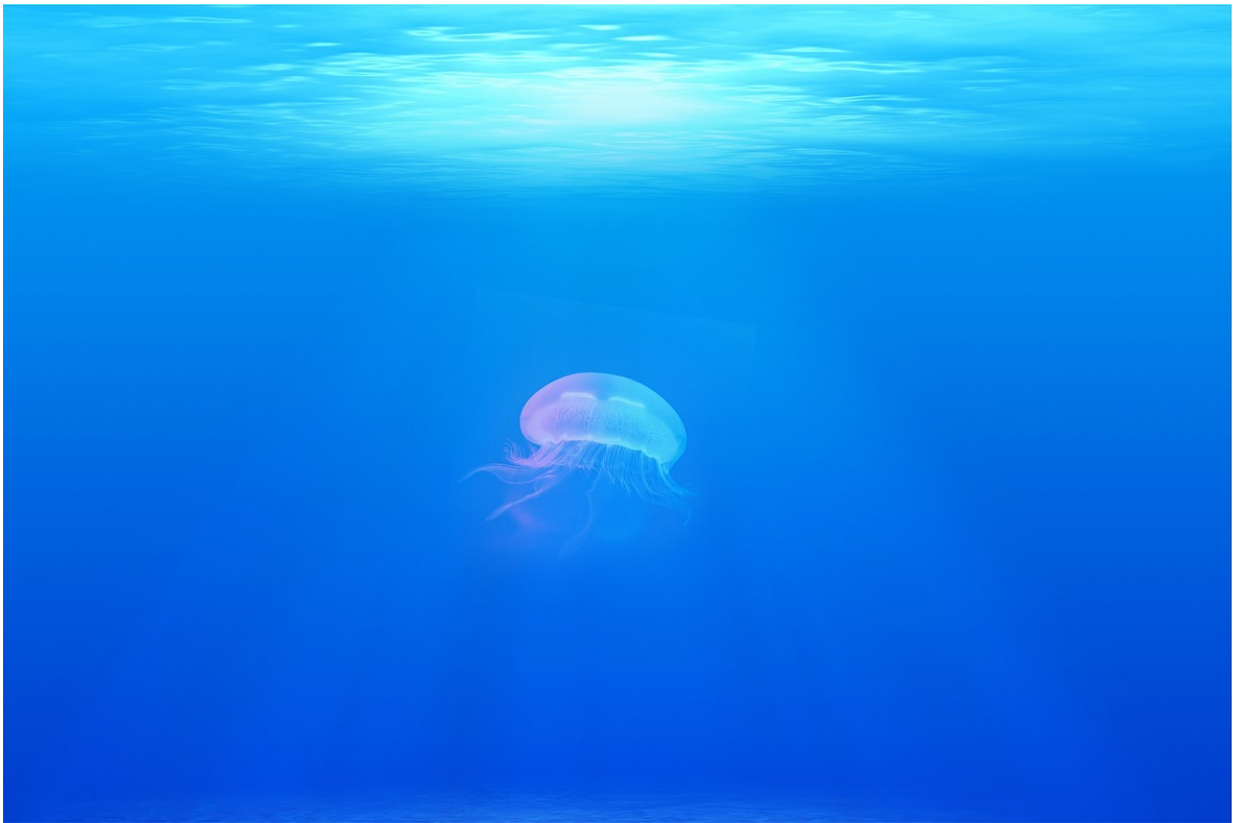


The world's wet regions are getting wetter and the dry regions are getting drier

December 12 2016



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Research from the University of Southampton has provided robust evidence that wet regions of the earth are getting wetter and dry regions are getting drier but it is happening at a slower rate than previously

thought.

The study, published in *Scientific Reports*, analysed the saltiness of the world's oceans.

More rain and outflow from rivers in a region of an ocean means sea water gets diluted and therefore becomes less salty. More evaporation in another region takes away fresh water and leaves salt behind making that region more saline.

The researchers used measurements of salinity throughout the global and deep oceans over the last 60 years to estimate how much global rainfall is changing.

The researchers found that the regions, which are relatively wet, like Northern Europe are getting wetter and dry regions are getting drier both by about 2 per cent over the last 60 years. This process is called amplification of the water cycle.

Previous research indicates that amplification of the water cycle, is happening at 7 per cent per 1°C of [global warming](#). The new study estimates that amplification happens at about three to four per cent per 1°C. The research team believe this is probably due to a weakening of the atmospheric circulation which transports freshwater from the dry to wet regions of the globe.

Dr Nikolaos Skliris, a Research Fellow at the University of Southampton who led the study, said: "Our findings match what has been predicted by models of a warming climate; as the world gets warmer wet regions will continue to get wetter and dry regions will continue to get drier.

"Although we have found that this process is happening slower than first thought, if global warming exceeds 3°C, wet regions will likely get more

than 10 per cent wetter and dry regions more than 10 per cent drier, which could have disastrous implications for river flows and agriculture."

Dr Skliris added "The agreement between climate models and observations over the recent past is another important finding of this study because it adds confidence to climate model projections of [water cycle](#) amplification under [greenhouse gas emission](#) scenarios."

More information: Nikolaos Skliris et al. Global water cycle amplifying at less than the Clausius-Clapeyron rate, *Scientific Reports* (2016). [DOI: 10.1038/srep38752](https://doi.org/10.1038/srep38752)

Provided by University of Southampton

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