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Experts call on international climate change panel to better reflect ocean variability in their projections

Press release issued: 9 November 2016

Ocean variability and realistic marine regional projections should be included in Intergovernmental Panel on Climate Change (IPCC) reports to better inform policy-makers, state researchers from the University of Bristol and University of Tasmania.

A commentary on what should be included in the next IPCC special interdisciplinary report on oceans and the cryosphere has been released today in *Nature* by Daniela Schmidt, Professor of Palaeobiology from the University of Bristol and Philip Boyd, a professor of marine biogeochemistry from the Institute for Marine and Antarctic Studies, University of Tasmania.

The IPCC is an international body which was set up in 1988 to assess the science related to climate change.

Currently on its sixth assessment cycle, the goal of the IPCC is to inform policymakers of the science on climate change, the impacts, future risks and potential options for adaption and mitigation.

The latest IPCC report had for the first time chapters dedicated to the Oceans. This year, the IPCC are going one step further with a special interdisciplinary report on the ocean and the cryosphere which will be published in 2019.

In December, a panel of experts will discuss what should be included in this special report.

Professors Schmidt and Boyd think that changes need to happen in three key areas:

- The first area to consider is ocean variability. Current climate change projections are based on global averages, but in reality ocean data is extremely noisy due to local, regional and global variability. Therefore projections need to incorporate ocean variability, especially when natural climate variability currently has the potential to temporarily offset and or amplify trends driven by anthropogenic climate change
- Another area to consider is moving projections from the global to the regional scale, and where possible to local scales. This is most important for effectively managing marine resources. The current regional projections created from global climate models don't always agree and ignore human stressors such as fishing. Regional and local stressors, along with local know-how, need to be incorporated to fully-inform policymakers on how local marine ecosystems and services will be affected by climate change
- A final area to consider is how marine organisms will be affected by climate change. Our knowledge is based on experiments on individual species, often not considering multiple factors all acting at the same time and place. Research, therefore, needs to be designed to incorporate multiple and variable stressors and lead to fundamental understanding how these organisms react to climate change and ocean acidification. Researchers should also consider the effect of fluctuating and extreme conditions on an organism's physiology. This will help gain a better insight into how marine organisms will face a changing and variable ocean.

Professor Schmidt said: "IPCC projections are focussed on the mean state of change in the year 2100. Governments have accepted that climate change is happening. However, global action takes years to be negotiated while local action can be much faster implemented and really have an impact."

Professor Boyd added: "A series of interim projections, on the joint effects of anthropogenic climate change and natural variability, on a decadal or shorter timescale would provide invaluable touchstones for marine resource managers.

"Ultimately, the IPCC needs to shift their approach. The talks in December must acknowledge the variability of the oceans whilst focussing more on the effect of regional scale pressures to aid in creating practical policy solutions of the future."

Further information

Paper:

[‘Forecast ocean variability’](#) by Daniela Schmidt and Philip Boyd in *Nature*



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