



Plenary session

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Climate change impacts on marine ecosystems: what scenarios for the 21st century?

In recent years, climate models have evolved towards higher spatial resolution, but also towards the inclusion of new components and processes. Many climate models used in the last IPCC assessment report now include a representation of marine biogeochemistry and of lower trophic levels in the ocean. In this presentation, I will review how these climate models can be used to project the evolution of multiple stressors of marine ecosystems (warming, acidification, deoxygenation) under contrasted future climate scenarios. I will also show how these models can be used to study the potential impact of anthropogenic climate change on upper trophic levels and associated ecosystem services. A comparison of a scenario that follows the current path of CO₂ emissions and a scenario with very low emissions demonstrates how marine ecosystems and the services they provide are sensitive to the trajectory of the climate system. I will conclude by proposing some avenues that allow more effective use of these models and results in the context of a better management of marine ecosystems in face of climate change.

Keynote's short bio

Laurent Bopp is a CNRS Senior Scientist at the Institut Pierre-Simon Laplace, and Adjunct Professor at the Ecole Normale Supérieure, in Paris. He is currently the head of the Geosciences Department at the Ecole Normale Supérieure. He received his PhD from the University of Paris in 2001. His research focuses on the links between climate, climate change and marine biogeochemistry. In particular, he has been among the first to use global climate models to explore how anthropogenic climate change might affect marine productivity & ecosystems as well as ocean air-sea fluxes. He has been involved in the last IPCC assessment report as a lead author for the chapter on Biogeochemical Cycles. He has received the Medaille de la Societe d'Océanographie de France in 2011, and the AGU Ocean Section Voyager Award in 2016.

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