

Séminaire de Alexey Fedorov

Nom : Séminaire de Alexey Fedorov

Titre : How Arctic sea ice decline and Indian ocean warming affect the AMOC

Laboratoire :

Nom du conférencier :

Son affiliation :

Date et heure : 21-05-2019 11h00

Lieu : Campus Pierre et Marie Curie - Sorbonne Université - salle de réunion LOCEAN, tour 45/55, 4eme étage

Résumé :

It is generally expected that the Atlantic meridional overturning circulation (AMOC) will weaken or even collapse with the future climate change. However, the extent of this weakening varies across climate models as many different factors can affect the AMOC strength. Here we describe how two salient features of global warming ? Arctic sea ice decline and accelerated warming of the tropical Indian ocean (TIO) can modulate the AMOC. Specifically, Arctic sea ice decline leads to a significant warming and freshening of the upper Arcticocean. On multi-decadal timescales the generated positive buoyancy anomalies spread from the Arctic to the North Atlantic thus weakening the AMOC. In contrast, the TIO warming leads to a reorganization of the Walker circulation such that the tropical Atlantic ocean becomes more saline. The enhanced salinity anomalies are advected to the north eventually strengthening the AMOC. Thus, the interplay between high and low latitude processes may ultimately decide the fate of the AMOC.

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