



Model simulation of climate change impact in the Arctic Ocean

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A study of the present and future ocean climate in the Arctic Ocean is done using OGCM simulations. Atmospheric parameters from the IPCC scenarios studies are used to force a coupled ocean/sea ice model (NEMO-OPA/ NEMO-LIM). The model grid is tri-polar at 2° horizontal resolution.

Comparison between the model solutions forced with IPCC climate simulations for year 2000 and IPCC A2 scenario for 2100 is made for the Arctic Ocean. This analysis shows that in the IPCC A2 scenario model results there is an increase in sea surface temperature and a decrease in sea surface salinity, sea ice cover and sea ice thickness in both summer and winter across the whole ocean. One of the most notable changes in the model temperature and salinity is observed at depths between 100 and 1000m below the surface. In this region there is a 3°C warming and a salinity increase of about 1 PSU. The position and strength on the halocline and thermocline also change. The variations in the structure of the salinity and temperature in this region and related changes in strength of vertical mixing are discussed.