



Multidecadal variability and large events in MOC strength: HadCM3 and a perturbed physics ensemble..

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Large, multidecadal changes (events) in the meridional overturning circulation (MOC) are examined in a coupled GCM (HadCM3) with constant greenhouse gas concentrations. These changes are strongly related to salinity anomalies in the sinking regions and hence may help us understand possible mechanisms behind a rapid shutdown of the MOC. The drivers of the large multidecadal changes and coupled feedbacks associated with the changes are investigated. These involve the propagation of anomalies into the region as well as remote and local feedbacks.

A perturbed physics ensemble based on HadCM3 (where physics of the atmosphere, land and sea-ice is perturbed) is also examined. The ensemble members have different MOC strengths and variability due to the different surface forcings caused by the different physics perturbations. The drivers and feedbacks of MOC changes in the ensemble are also analysed, and are compared to those in the control HadCM3 simulation, with the aim of understanding what causes the relative strength of these factors.