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## Decadal climate sensitivity of contouritic sedimentation in a dynamically coupled ice-ocean-sediment model of the Pan-Arctic region

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Ocean sediment drifts contain important information about past bottom currents but a direct link from the study of sedimentary archives to ocean dynamics is not always possible. To close this gap for the North Atlantic, we set up a new coupled Ice-Ocean-Sediment Model of the entire Pan-Arctic region. In order to evaluate the potential dynamics of the model, we conducted decadal sensitivity experiments. In our model contouritic sedimentation shows a significant sensitivity towards climate variability for most of the contourite drift locations in the model domain. We observe a general decrease of sedimentation rates during warm conditions with decreasing atmospheric and oceanic gradients and an extensive increase of sedimentation rates during cold conditions with respective increased gradients. We can relate these results to changes in the dominant bottom circulation supplying deep water masses to the contourite sites under different climate conditions. A better understanding of northern deep water pathways in the Atlantic Meridional Overturning Circulation (AMOC) is crucial for evaluating possible consequences of climate change in the ocean.