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Sea level change due to Greenland ice sheet melting

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One major source of global and regional sea level change in the recent past is the mass loss of continental ice sheets. Therefore, the contribution of Greenland ice sheet melting to the sea level change in the North Atlantic is investigated within this study. Several melting scenarios, which are derived from different studies, are included into the Finite Element Sea-Ice Ocean Model (FESOM, Timmermann et al., 2009) to estimate changes in ocean circulations. The self-gravitational effect is implemented into the mass conserving FESOM model, to more realistically simulate the response of the ocean. The loss of Greenland ice mass also results in a decrease of gravitational attraction of the ice sheet, which has to be taken into account as it affects the regional sea level. First results are presented, showing a global sea level change of about 0.6mm if 200Gt of Greenland ice is molten. Simulations using different melting scenarios show similar patterns of regional sea level change in the North Atlantic.