A MLD in Winter 2020-30

Ocean mixed layer depth (m)

B Projected MLD change by winter 2040-50

Change in ocean mixed layer depth (m)
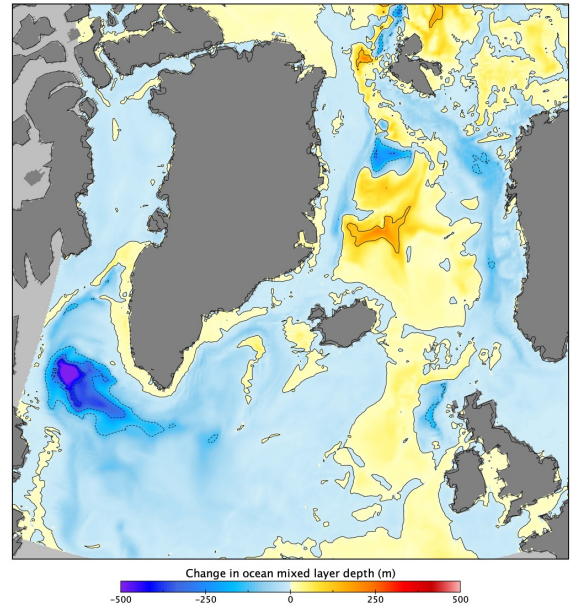
C SST in winter 2020-30

sea surface temperature (degC)
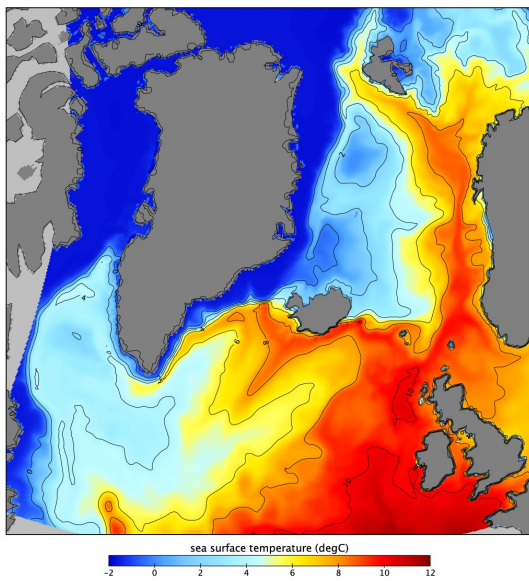
D projected SST change by winter 2040-50

sea surface temperature increase (deg C)
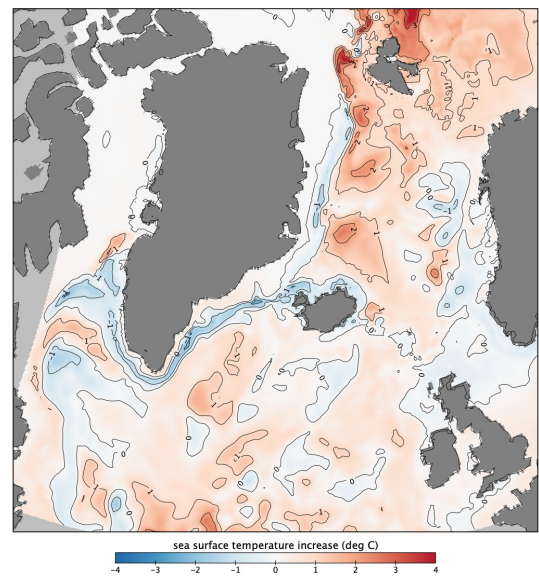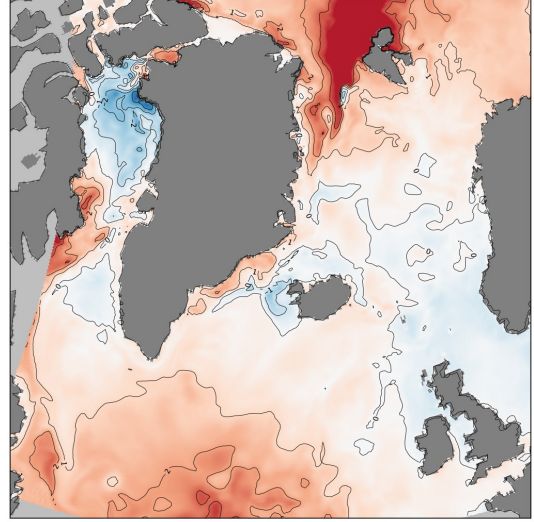
E SST in summer 2020-30

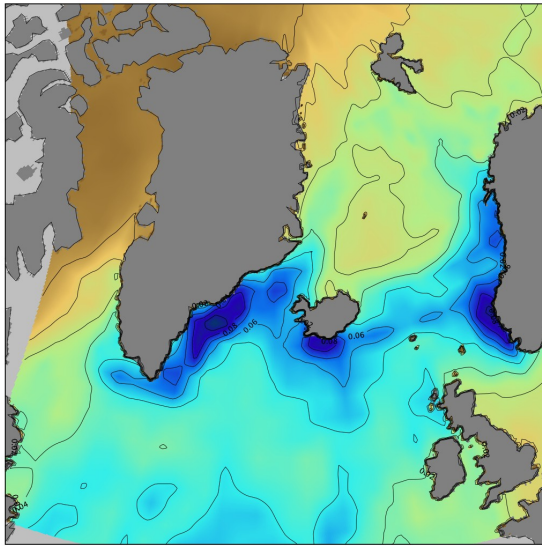**F** Projected SST change by summer 2040-50
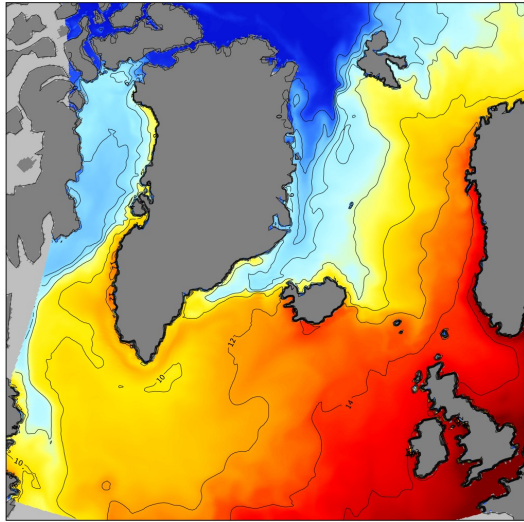
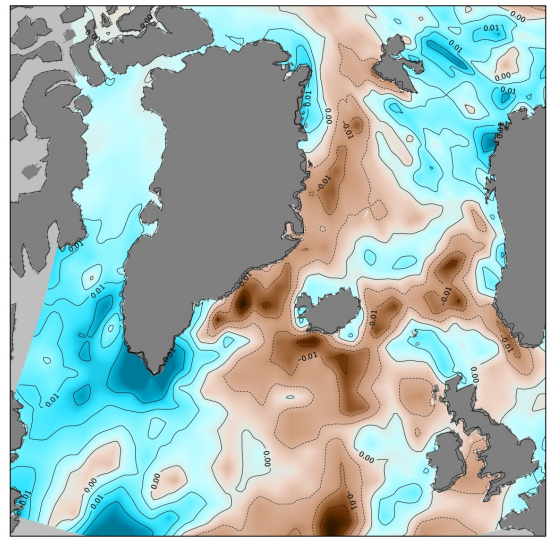sea surface temperature (degC)
-2 0 2 4 6 8 10 12 14 16 18

sea surface temperature increase (deg C)
-4 -3 -2 -1 0 1 2 3 4
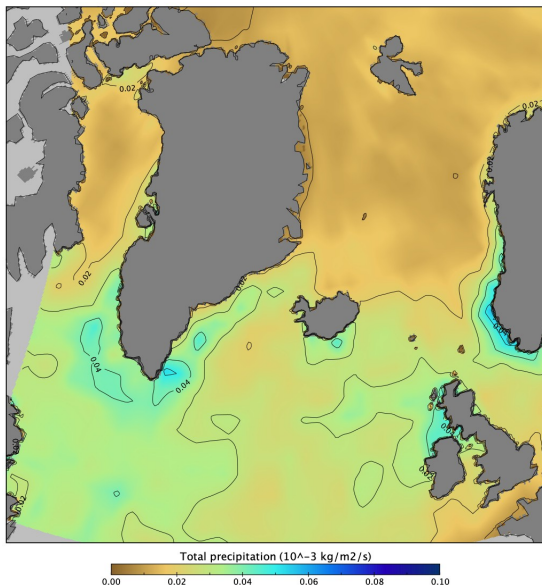
G Precipitation in winter 2020-30

H Projected precipitation change
by winter 2040-50

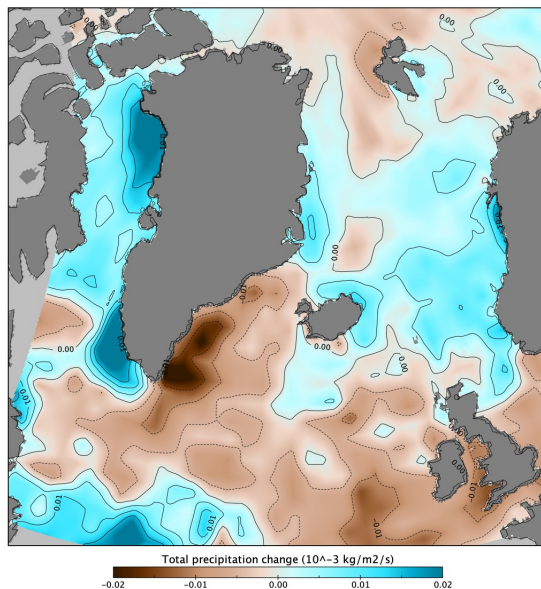Total precipitation (10^-3 kg/m2/s)
0.00 0.02 0.04 0.06 0.08 0.10

Total precipitation change (10^-3 kg/m2/s)
-0.02 -0.01 0.00 0.01 0.02

2

I Precipitation in summer 2020-30

J Projected precipitation change by summer 2040-50

Figure SI1. Additional analysis of SPG. A in winter 2020-30 (January-March) and **B** changes in the projected ocean mixed layer depth (MLD) by winter 2040-50. **C** and **D** - the same as above but for sea surface temperature (SST) and **E and F** for SST in summer (June-August); **G-I** are the same as above but for total atmospheric precipitation. NEMO-MEDUSA 1/4 degree high resolution model results using ssp370 CMIP6 scenario 2015-2099. High-resolution simulations are courtesy of Drs Andrew Coward, Andrew Yool, Katya Popova and Stephen Kelly, NOC.