S1 Introduction of supplement

This document contains supplemental materials of the paper by Chassignet et al. “Impact of horizontal resolution on global ocean-sea-ice model simulations based on the experimental protocols of the Ocean Model Intercomparison Project phase 2 (OMIP-2)” submitted for possible publication in Geoscientific Model Development.

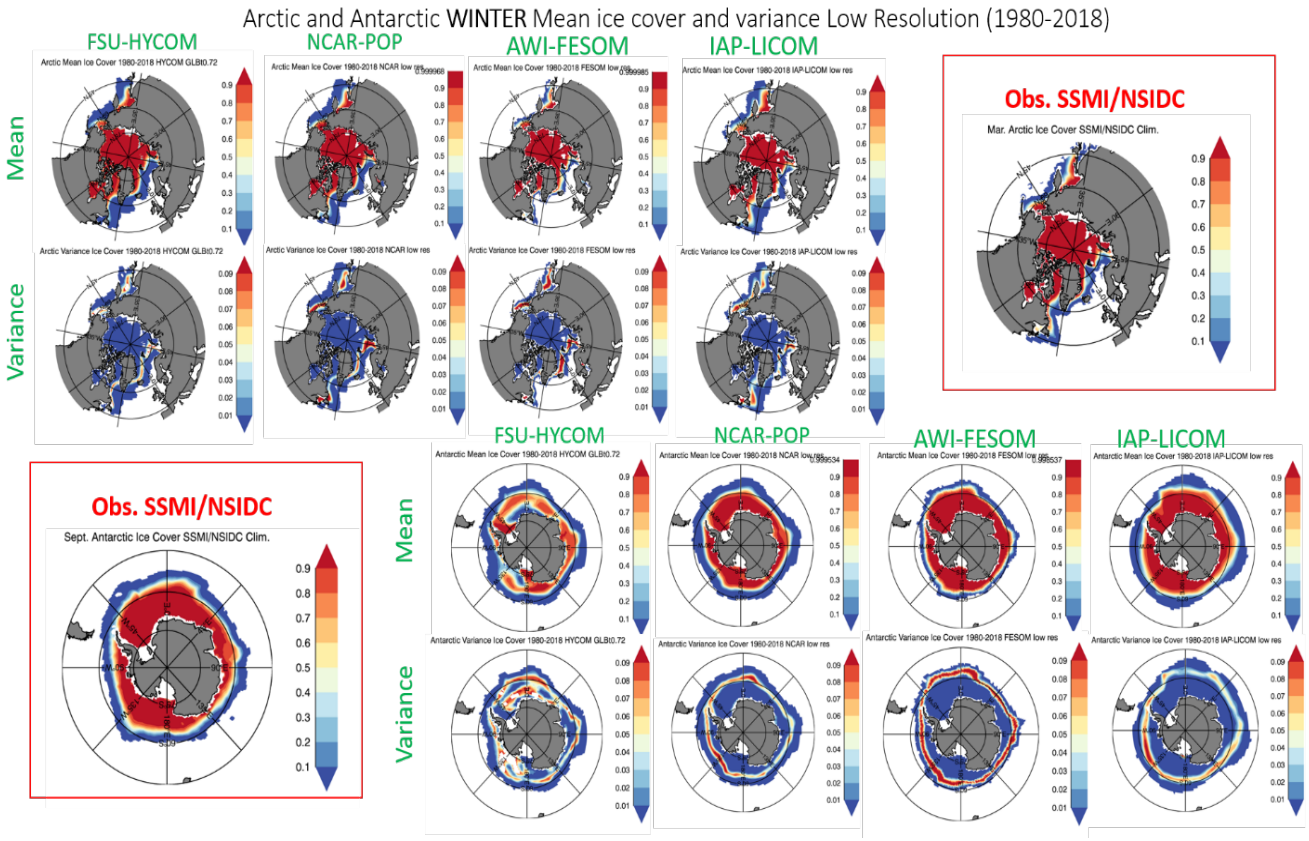


Figure S1: Arctic and Antarctic winter mean ice cover and variance for the low-resolution experiments

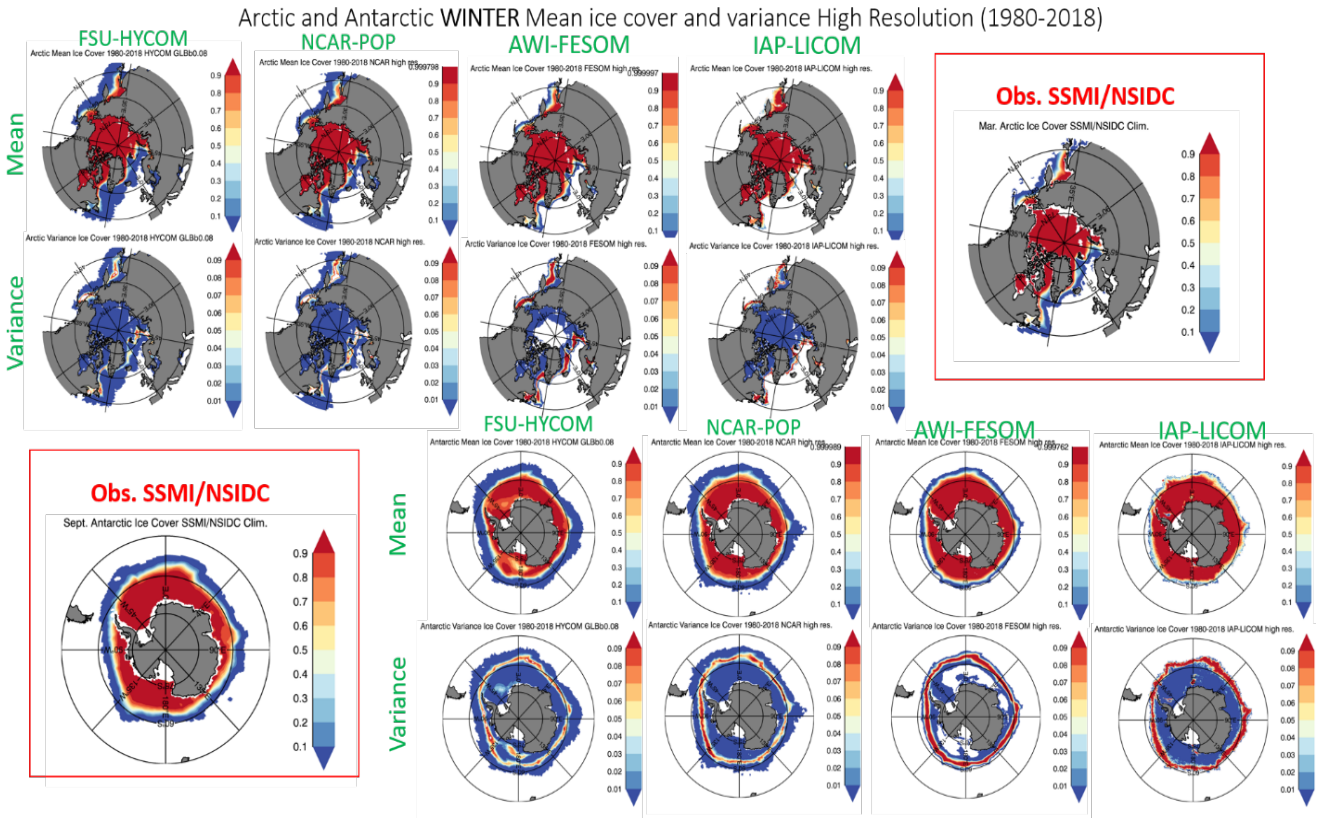


Figure S2: Arctic and Antarctic winter mean ice cover and variance for the high-resolution experiments

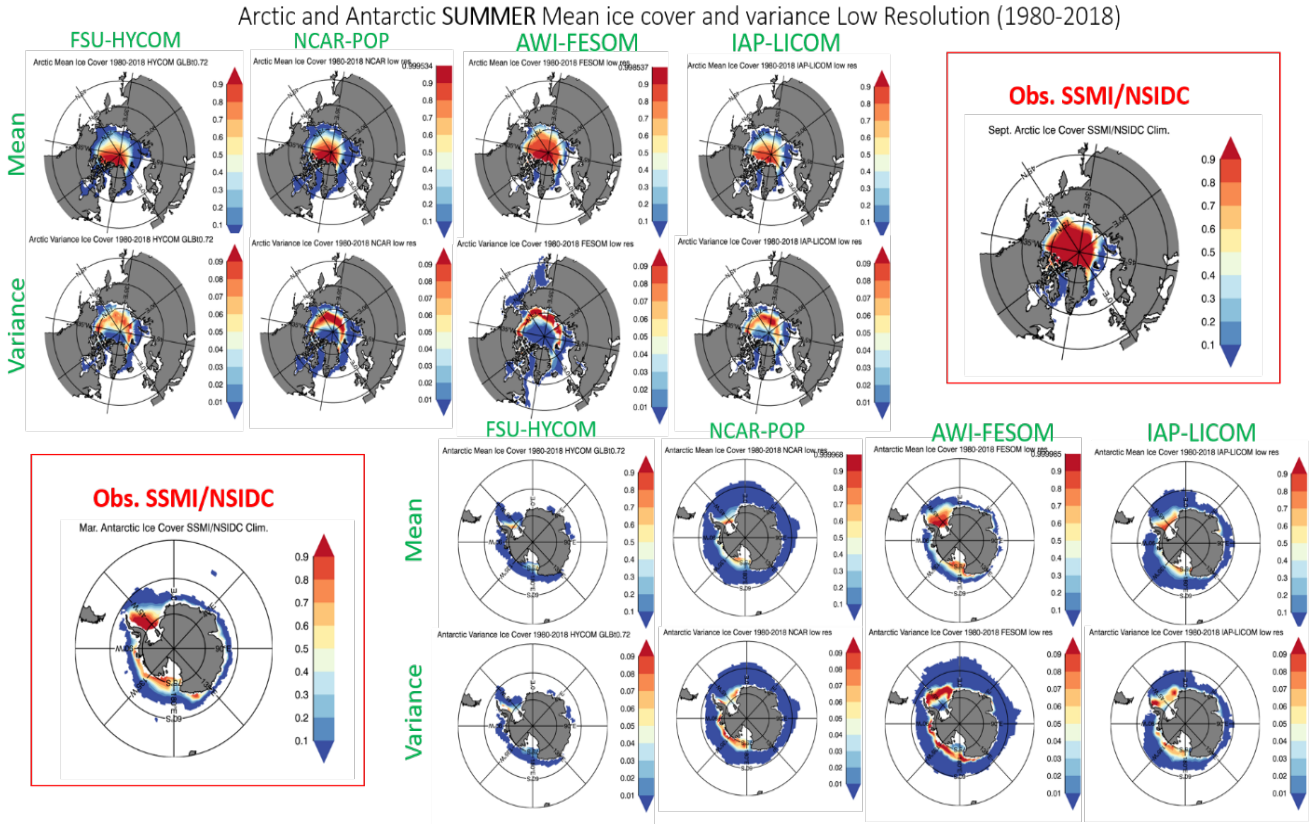


Figure S3: Arctic and Antarctic summer mean ice cover and variance for the low-resolution experiments

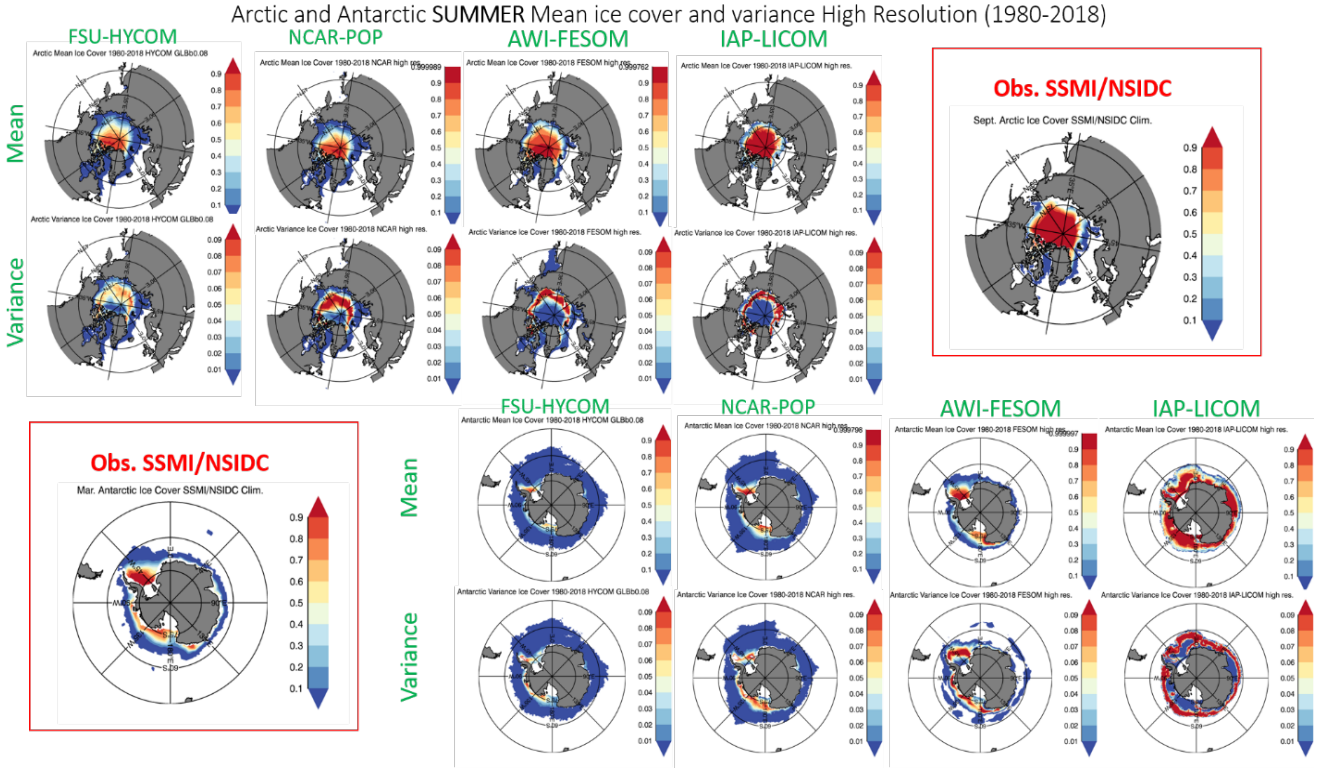
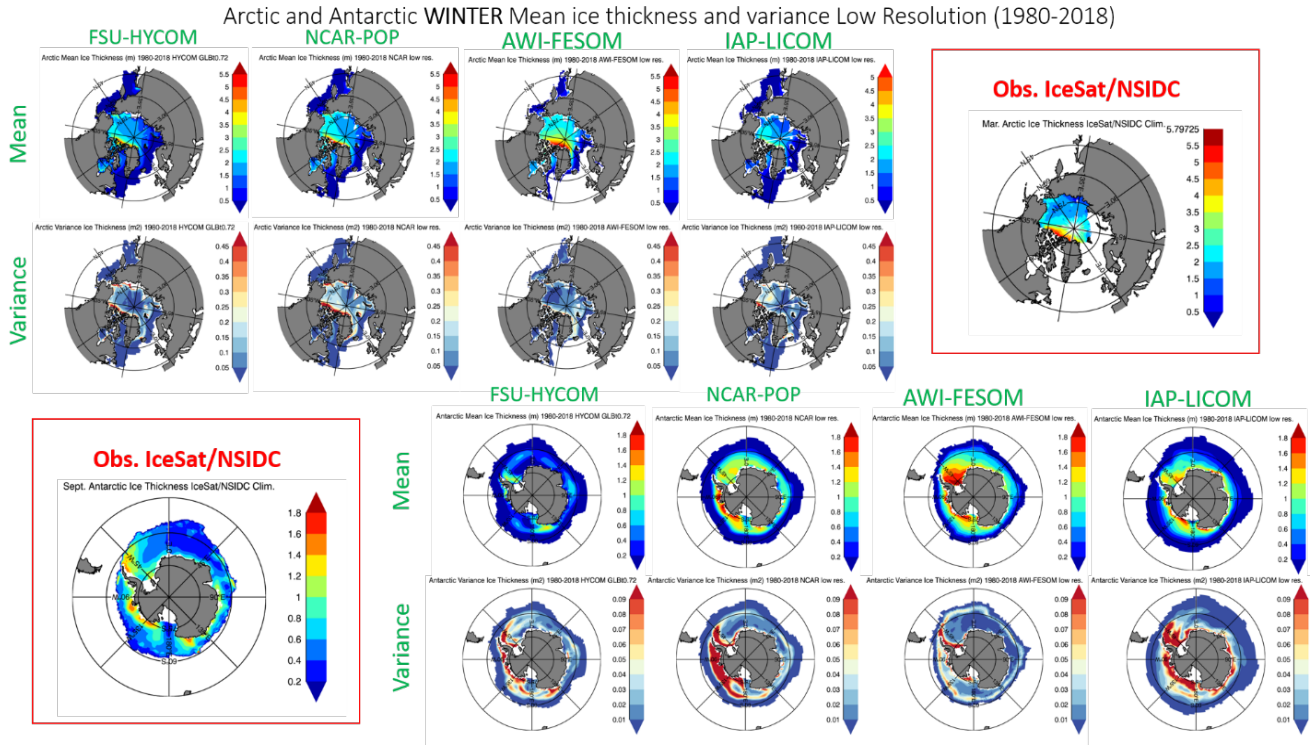
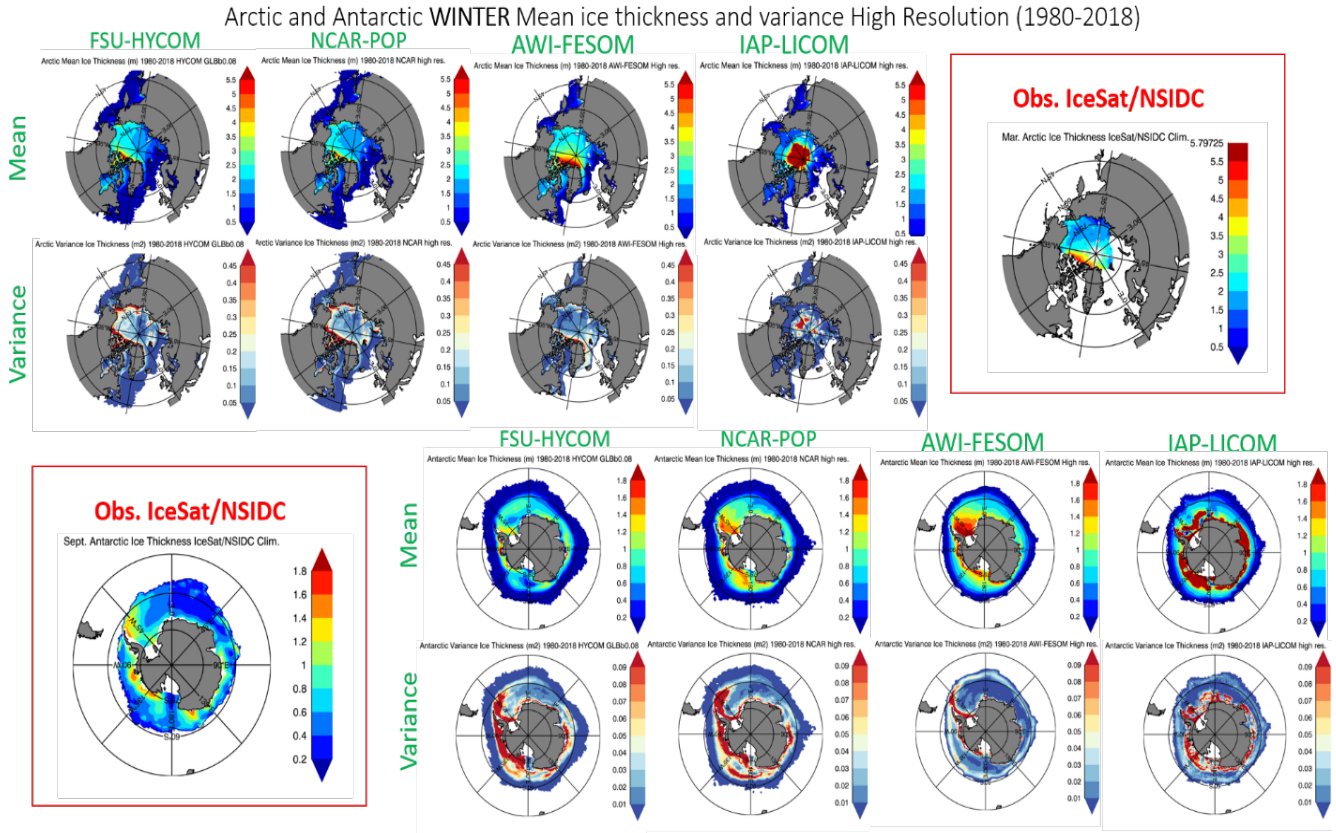


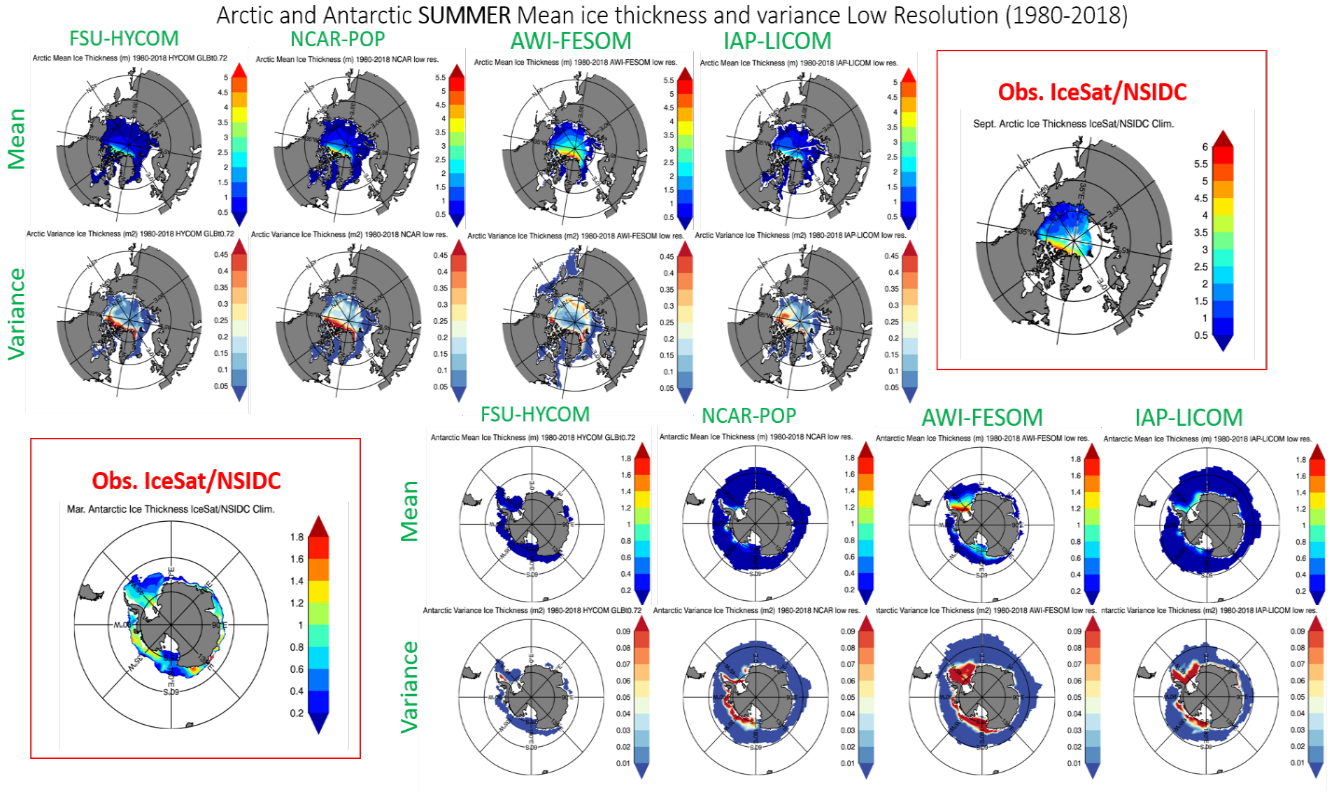
Figure S4: Arctic and Antarctic summer mean ice cover and variance for the high-resolution experiments



25 **Figure S5: Arctic and Antarctic winter mean ice thickness and variance for the low-resolution experiments**



30 **Figure S6: Arctic and Antarctic winter mean ice thickness and variance for the high-resolution experiments**



35 **Figure S7: Arctic and Antarctic summer mean ice thickness and variance for the low-resolution experiments**

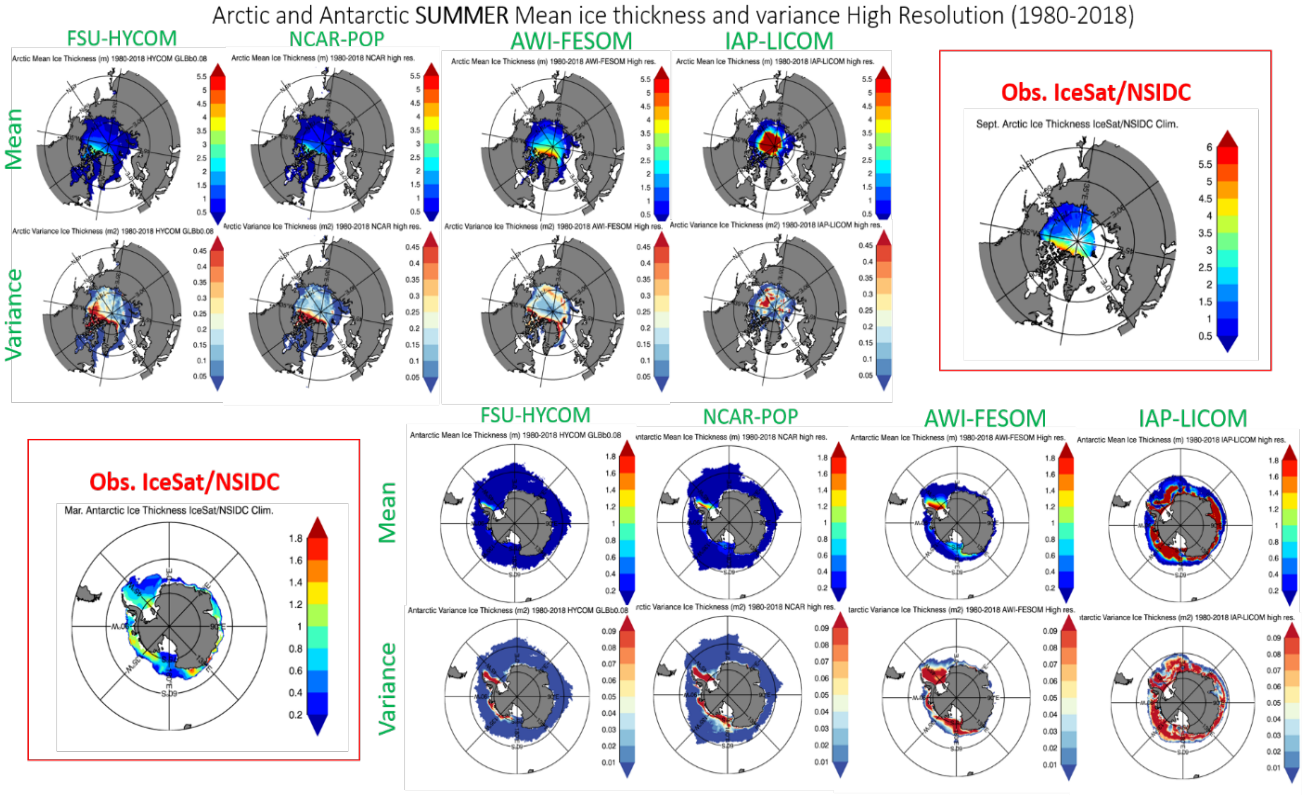


Figure S8: Arctic and Antarctic summer mean ice thickness and variance for the high-resolution experiments

Variables	Input4MIPS datasets
Specific Humidity	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hrPt.huss.gr**
Precipitation solid	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hr.prsn.gr**
Precipitation liquid	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hr.prra.gr**
Longwave down radiation	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hr.rlds.gr**
Shortwave down radiation	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hr.rsds.gr**
Air temperature	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hrPt.tas.gr**
U10	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hrPt.uas.gr**
V10	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.atmos.3hrPt.vas.gr**
Rivers	**input4MIPs.CMIP6.OMIP.MRI.MRI-JRA55-do-1-4-0.land.day.friver.gr**

Table1: Input4MIPS datasets