Supplement of

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)

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Figure S1: 1980-2018 Arctic and Antarctic winter mean sea ice concentration (SIC) and variance for the low-resolution experiments and 1980-2018 mean SIC from passive microwave satellites (top right and bottom left).
Figure S2: 1980-2018 Arctic and Antarctic winter mean sea ice concentration (SIC) and variance for the high-resolution experiments and 1980-2018 mean SIC from passive microwave satellites (top right and bottom left).
Figure S3: 1980-2018 Arctic and Antarctic summer mean sea ice concentration (SIC) and variance for the low-resolution experiments and 1980-2018 mean SIC from passive microwave satellites (top right and bottom left).
Figure S4: 1980-2018 Arctic and Antarctic summer mean sea ice concentration (SIC) and variance for the high-resolution experiments and 1980-2018 mean SIC from passive microwave satellites (top right and bottom left).
Figure S5: 1980-2018 Arctic and Antarctic winter mean sea ice thickness (SIT) and variance for the low-resolution experiments and 2003-2007 mean SIT from ICESat (top right and bottom left).
Figure S6: 1980-2018 Arctic and Antarctic winter mean sea ice thickness (SIT) and variance for the high-resolution experiments and 2003-2007 mean SIT from ICESat (top right and bottom left).
Figure S7: 1980-2018 Arctic and Antarctic summer mean sea ice thickness (SIT) and variance for the low-resolution experiments and 2003-2007 mean SIT from ICESat (bottom left; Arctic summer not available).
Figure S8: 1980-2018 Arctic and Antarctic summer mean sea ice thickness (SIT) and variance for the high-resolution experiments and 2003-2007 mean SIT from ICESat (bottom left; Arctic summer not available).
Figure S9: (Top panel) 2003-2007 winter Arctic and Antarctic sea ice thickness (SIT) from ICESat. (Bottom panels) 2003-2007 modeled Arctic and Antarctic winter mean SIT.
Figure S10: (Top panel) 2003-2007 summer Antarctic sea ice thickness (SIT) from ICESat (not available for the Arctic). (Bottom panels) 2003-2007 modeled Arctic and Antarctic summer mean SIT.
| 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 |

Table S1: Input4MIPS datasets