

1 Supplementary Information for “There is a 7% risk that the
2 first ice-free day in the Arctic Ocean could occur before 2030”

3 Céline Heuzé^{1*†} and Alexandra Jahn^{2*†}

4 ^{1*}Department of Earth Sciences, University of Gothenburg, Box 460, 405 30, Göteborg,
5 Sweden.

6 ^{2*}Department of Atmospheric and Oceanic Sciences and Institute of Arctic and Alpine
7 Research, University of Colorado at Boulder, Boulder, CO, USA.

8 *Corresponding author(s). E-mail(s): celine.heuze@gu.se; alexandra.jahn@colorado.edu;

9 [†]These authors contributed equally to this work.

Model name and experiment	data doi and citation
ACCESS-CM2 piControl	10.22033/ESGF/CMIP6.4311 [1]
ACCESS-CM2 historical	10.22033/ESGF/CMIP6.4271 [2]
ACCESS-CM2 SSP1-2.6	10.22033/ESGF/CMIP6.4319 [3]
ACCESS-CM2 SSP2-4.5	10.22033/ESGF/CMIP6.4322 [4]
ACCESS-CM2 SSP3-7.0	10.22033/ESGF/CMIP6.4323 [5]
ACCESS-CM2 SSP5-8.5	10.22033/ESGF/CMIP6.4332 [6]
BCC-CSM2-MR historical	10.22033/ESGF/CMIP6.2948 [7]
BCC-CSM2-MR SSP1-2.6	10.22033/ESGF/CMIP6.3028 [8]
BCC-CSM2-MR SSP2-4.5	10.22033/ESGF/CMIP6.3030 [9]
BCC-CSM2-MR SSP5-8.5	10.22033/ESGF/CMIP6.3050 [10]
CanESM5 piControl	10.22033/ESGF/CMIP6.3673 [11]
CanESM5 historical	10.22033/ESGF/CMIP6.3610 [12]
CanESM5 SSP1-1.9	10.22033/ESGF/CMIP6.3682 [13]
CanESM5 SSP1-2.6	10.22033/ESGF/CMIP6.3683 [14]
CanESM5 SSP2-4.5	10.22033/ESGF/CMIP6.3685 [15]
CanESM5 SSP3-7.0	10.22033/ESGF/CMIP6.3690 [16]
CanESM5 SSP5-8.5	10.22033/ESGF/CMIP6.3696 [17]
CNRM-CM6-1-HR historical	10.22033/ESGF/CMIP6.4067 [18]
CNRM-CM6-1-HR SSP1-2.6	10.22033/ESGF/CMIP6.4185 [19]
CNRM-CM6-1-HR SSP5-8.5	10.22033/ESGF/CMIP6.4225 [20]
EC-Earth3 piControl	10.22033/ESGF/CMIP6.4842 [21]
EC-Earth3 historical	10.22033/ESGF/CMIP6.4700 [22]
EC-Earth3 SSP1-1.9	10.22033/ESGF/CMIP6.4870 [23]
EC-Earth3 SSP1-2.6	10.22033/ESGF/CMIP6.4874 [24]
EC-Earth3 SSP2-4.5	10.22033/ESGF/CMIP6.4880 [25]
EC-Earth3-Veg-LR historical	10.22033/ESGF/CMIP6.4707 [26]
EC-Earth3-Veg-LR SSP1-1.9	10.22033/ESGF/CMIP6.4873 [27]
EC-Earth3-Veg-LR SSP1-2.6	10.22033/ESGF/CMIP6.4877 [28]
EC-Earth3-Veg-LR SSP2-4.5	10.22033/ESGF/CMIP6.4883 [29]
IPSL-CM5A2-INCA historical	10.22033/ESGF/CMIP6.13661 [30]
IPSL-CM5A2-INCA SSP1-2.6	10.22033/ESGF/CMIP6.15711 [31]
IPSL-CM5A2-INCA SSP3-7.0	10.22033/ESGF/CMIP6.15714 [32]
MIROC6 historical	10.22033/ESGF/CMIP6.5603 [33]
MIROC6 SSP1-1.9	10.22033/ESGF/CMIP6.5741 [34]
MIROC6 SSP1-2.6	10.22033/ESGF/CMIP6.5743 [35]
MIROC6 SSP2-4.5	10.22033/ESGF/CMIP6.5746 [36]
MIROC6 SSP3-7.0	10.22033/ESGF/CMIP6.5752 [37]
MIROC6 SSP5-8.5	10.22033/ESGF/CMIP6.5771 [38]
MIROC-ES2H historical	10.22033/ESGF/CMIP6.5601 [39]
MIROC-ES2H SSP1-1.9	10.22033/ESGF/CMIP6.15656 [40]
MIROC-ES2H SSP1-2.6	10.22033/ESGF/CMIP6.15657 [41]
MIROC-ES2H SSP2-4.5	10.22033/ESGF/CMIP6.15658 [42]
MIROC-ES2H SSP3-7.0	10.22033/ESGF/CMIP6.15658 [42]
MIROC-ES2H SSP5-8.5	10.22033/ESGF/CMIP6.15664 [43]
MIROC-ES2L historical	10.22033/ESGF/CMIP6.5602 [44]
MIROC-ES2L SSP1-1.9	10.22033/ESGF/CMIP6.5740 [45]
MPI-ESM1-2-HAM historical	10.22033/ESGF/CMIP6.5016 [46]
MPI-ESM1-2-HAM SSP3-7.0	no citable DOI
MPI-ESM1-2-LR piControl	10.22033/ESGF/CMIP6.6675 [47]
MPI-ESM1-2-LR historical	10.22033/ESGF/CMIP6.6595 [48]
MPI-ESM1-2-LR SSP1-1.9	10.22033/ESGF/CMIP6.6688 [49]
MPI-ESM1-2-LR SSP1-2.6	10.22033/ESGF/CMIP6.6690 [50]
MPI-ESM1-2-LR SSP2-4.5	10.22033/ESGF/CMIP6.6693 [51]
MPI-ESM1-2-LR SSP3-7.0	10.22033/ESGF/CMIP6.6695 [52]
MPI-ESM1-2-LR SSP5-8.5	10.22033/ESGF/CMIP6.6705 [53]
NorESM2-LM historical	10.22033/ESGF/CMIP6.8036 [54]
NorESM2-LM SSP2-2.6	10.22033/ESGF/CMIP6.8248 [55]
NorESM2-LM SSP2-4.5	10.22033/ESGF/CMIP6.8253 [56]
NorESM2-LM SSP3-7.0	10.22033/ESGF/CMIP6.8268 [57]
NorESM2-LM SSP5-8.5	10.22033/ESGF/CMIP6.8319 [58]

Table S1 Data references for the CMIP6 models that met the selection criteria (see the Methods section 4) and are used for the analysis in this article

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