

## Supplementary Materials

**Table S1 CMIP5 GCMs for four Representative Concentration Pathways (RCPs), used to generate future Köppen climate map series.**

Model	Institute	RCP2.6	RCP4.5	RCP6.0	RCP8.5
BCC-CSM1.1	Beijing Climate Center, China Meteorological Administration	√	√	√	√
BCC-CSM1.1(m)	Beijing Climate Center, China Meteorological Administration	√	√	√	√
BNU-ESM	Beijing Normal University	√	√		√
CCCMA-CanESM2	Canadian Centre for Climate Modeling and Analysis	√	√		√
CESM1-BGC	National Science Foundation, Department of Energy, National Center for Atmospheric Research		√		√
CESM1-CAM5	National Science Foundation, Department of Energy, National Center for Atmospheric Research	√	√	√	√
CNRM-CM5	Centre National de Recherches Meteorologiques and Centre Europeen de Recherche et Formation Avancees en Calcul Scientifique	√	√		√
CSIRO-ACCESS1.0	Commonwealth Scientific and Industrial Research Organization (CSIRO) and Bureau of Meteorology (BOM), Australia		√		√
CSIRO-ACCESS1.3	Commonwealth Scientific and Industrial Research Organization (CSIRO) and Bureau of Meteorology (BOM), Australia		√		√
CSIRO-Mk3.6.0	Queensland Climate Change Centre of Excellence and Commonwealth Scientific and Industrial Research Organization	√	√	√	√
EC-EARTH	European Centre for Medium-Range Weather Forecasts (ECMWF)				√
FIO-ESM	The First Institute of Oceanography, State Oceanic Administration, China	√	√	√	√
GFDL-CM3	NOAA Geophysical Fluid Dynamics Laboratory	√	√	√	√
GFDL-ESM2G	NOAA Geophysical Fluid Dynamics Laboratory	√	√	√	√
GFDL-ESM2M	NOAA Geophysical Fluid Dynamics Laboratory	√	√	√	√
GISS-E2H	NASA Goddard Institute for Space Studies USA	√		√	√
GISS-E2HCC	NASA Goddard Institute for Space Studies USA		√		
GISS-E2R	NASA Goddard Institute for Space Studies USA	√	√	√	√
GISS-E2RCC	NASA Goddard Institute for Space Studies USA		√		
INM-CM4	Institute of Numerical Mathematics of the Russian Academy of Sciences		√		√
IPSL-CM5A-LR	Institut Pierre Simon Laplace	√	√	√	√
IPSL-CM5A-MR	Institut Pierre Simon Laplace	√	√		√
IPSL-CM5B-LR	Institut Pierre Simon Laplace				√
LASG-FGOALS-G2	Institute of Atmospheric Physics (LASG) and Tsinghua University (CESS)	√	√		

MIROC-ESM	University of Tokyo, National Institute for Environmental Studies and Japan Agency for Marine-Earth Science and Technology	√	√	√	
MIROC-ESM-CHEM	University of Tokyo, National Institute for Environmental Studies and Japan Agency for Marine-Earth Science and Technology	√	√	√	
MIROC-MIROC5	University of Tokyo, National Institute for Environmental Studies and Japan Agency for Marine-Earth Science and Technology	√	√	√	√
MOHC-HadGEM2-CC	UK Met Office Hadley Centre		√		√
MOHC-HadGEM2-ES	UK Met Office Hadley Centre	√	√	√	√
MPI-ESM-LR	Max Planck Institute for Meteorology	√	√		√
MPI-ESM-MR	Max Planck Institute for Meteorology	√			√
MRI-CGCM3	Meteorological Research Institute	√	√	√	√
NCAR-CCSM4	US National Centre for Atmospheric Research	√	√	√	√
NCC-NorESM1-M	Norwegian Climate Centre	√	√	√	√
NIMR-HadGEM2-AO	National Institute of Meteorological Research and Korea Meteorological Administration	√	√	√	√