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More losers than winners in a century of future Southern Ocean seafloor warming

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Supplementary Table 1. Models represented in the ensemble for present day and 2099 (RCP8.5). * = Models used for 2200 ensemble (RCP8.5).

Modeling Center	Model	Institution
BCC	BCC-CSM1.1*	Beijing Climate Center, China Meteorological Administration
	BCC-CSM1.1(m)	
CCCma	CanESM2	Canadian Centre for Climate Modelling and Analysis
CSIRO-QCCCE	CSIRO-Mk3.6.0*	Commonwealth Scientific and Industrial Research Organisation in collaboration with the Queensland Climate Change Centre of Excellence
INM	INM-CM4	Institute for Numerical Mathematics
IPSL	IPSL-CM5A-LR*	Institut Pierre-Simon Laplace
	IPSL-CM5A-MR	
	IPSL-CM5B-LR	
MOHC (additional realizations by INPE)	HadGEM2-CC	Met Office Hadley Centre (additional HadGEM2-ES realizations contributed by Instituto Nacional de Pesquisas Espaciais)
	HadGEM2-ES*	
NASA GISS	GISS-E2-H*	NASA Goddard Institute for Space Studies
	GISS-E2-H-CC	
	GISS-E2-R*	
	GISS-E2-R-CC	
NCAR	CESM1-CAM5	National Center for Atmospheric Research
NCC	NorESM1-M	Norwegian Climate Centre
	NorESM1-ME	
NOAA GFDL	GFDL-ESM2G	Geophysical Fluid Dynamics Laboratory
	GFDL-ESM2M	

Supplementary Table 2. Groupings of seafloor invertebrates from south of 40 °S, grouped by >80% similarity in their thermal distribution patterns.

Group	Minimum Temperature	Maximum Temperature	No. of Species	Example Species
1	7.4	10.3	3	*Thaumatometra alternata, Tawera sphaericula*
2	2.4	18.5	135	*Lithodes santolla, Mytilus edulis, Henricia compacta*
3	2.4	5.9	20	*Lithodes murrayi, Sterechinus diadema, Admete specularis*
4	-1.8	16.7	262	*Bathybiaster loripes, Chorismus antarcticus, Colossendeis megalonyx*
5	-1.8	8.0	78	*Ammothea longispina, Rossella racovitzae, Sterechinus neumayeri*
6	-1.8	4.8	83	*Munna antarctica, Laternula elliptica, Rossella antarctica*
7	-0.3	1.6	32	*Paralomis formosa, Caryophyllia eltaninae, Chlanidota paucispiralis*
8	-1.8	1.6	334	*Adamussium colbecki, Glyptonotus antarcticus, Cellarinella nutti*
9	-1.2	0.4	5	*Epimeria rubrieques, Falsimargarita thielei*
10	-1.6	0.1	11	*Abatus (Pseudabatus) nimrodi, Carditella mawsoni*
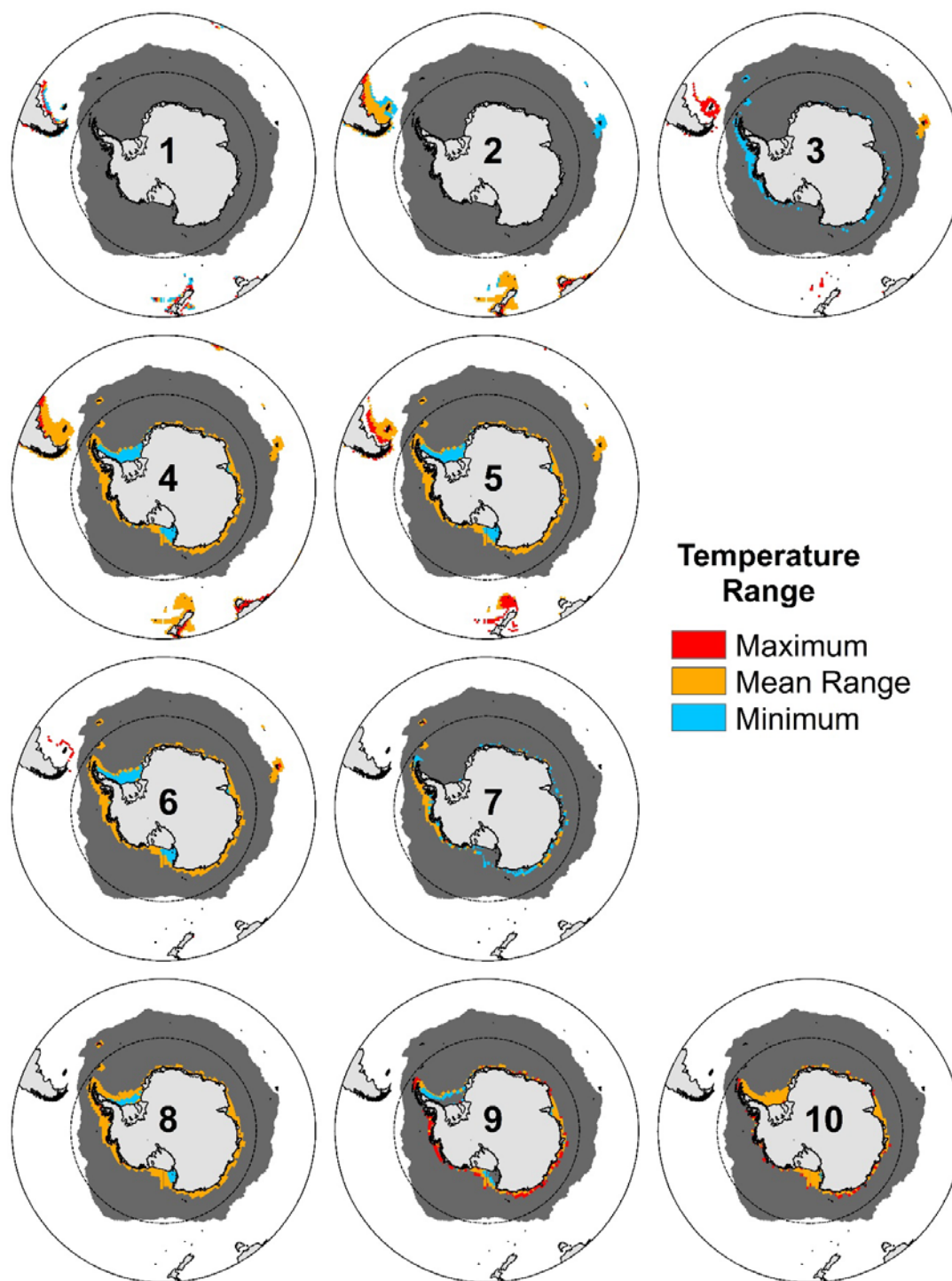
Supplementary Figure 1. Present-day potential range for groupings of seafloor invertebrates from south of 40 °S, grouped by >80% similarity in their thermal distribution patterns. Groupings are those illustrated in Figure 2 and Supplementary Table 2. Dashed line is 60 °S, grey area is south of the Polar Front (as defined by Moore et al., 1999).
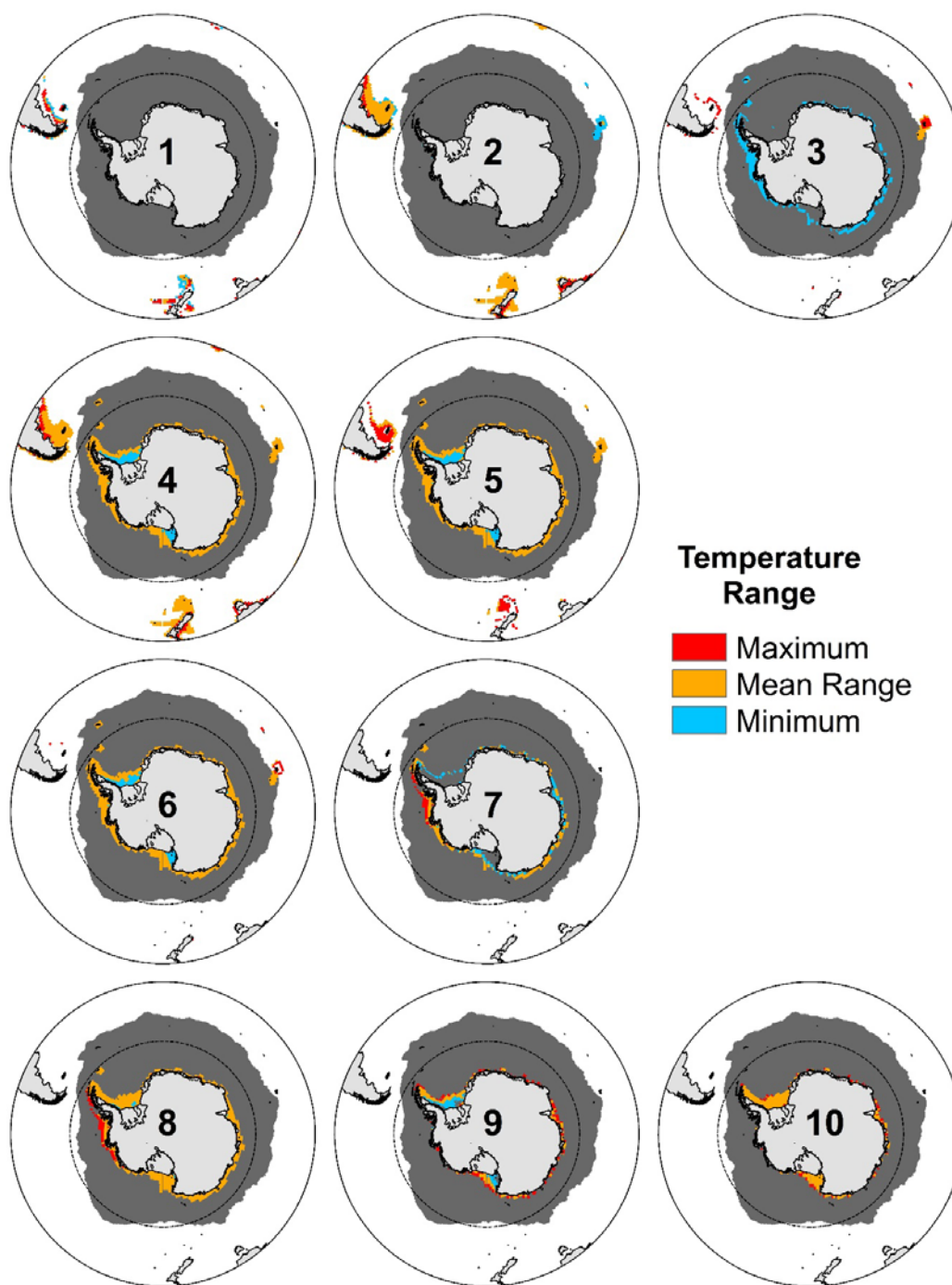
Supplementary Figure 2. 2099 potential range for each grouping of seafloor invertebrates from south of 40 °S, grouped by >80% similarity in their thermal distribution patterns (based upon suitable present day temperature ranges, using RCP8.5 mean ensemble projections). Groupings are those explained in Figure 2 and Supplementary Table 2. Dashed line is 60 °S, grey area is south of the Polar Front (as defined by Moore et al., 1999).
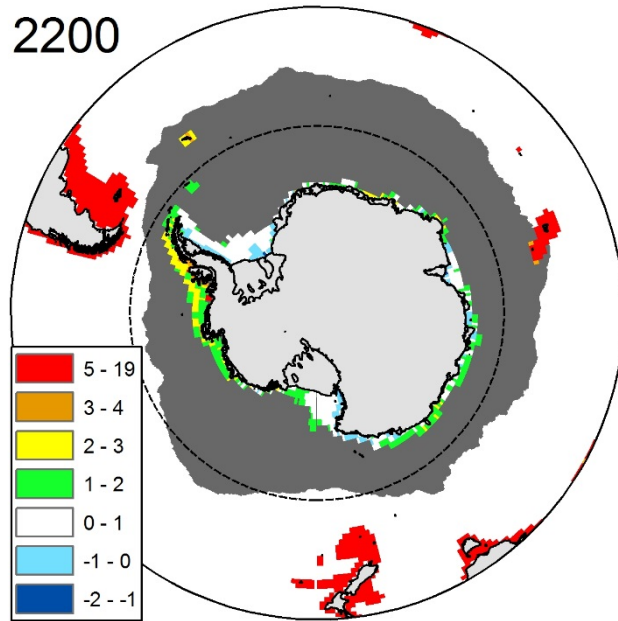
Supplementary Figure 3. Mean ensemble seafloor temperatures (ºC) for 2200 under

RCP8.5projections. Dashed line is 60°S, grey area is south of the Polar Front (as defined by Moore et

al., 1999).