A New Picture of the Global Impacts of El Nino-Southern Oscillation: Supplementary information

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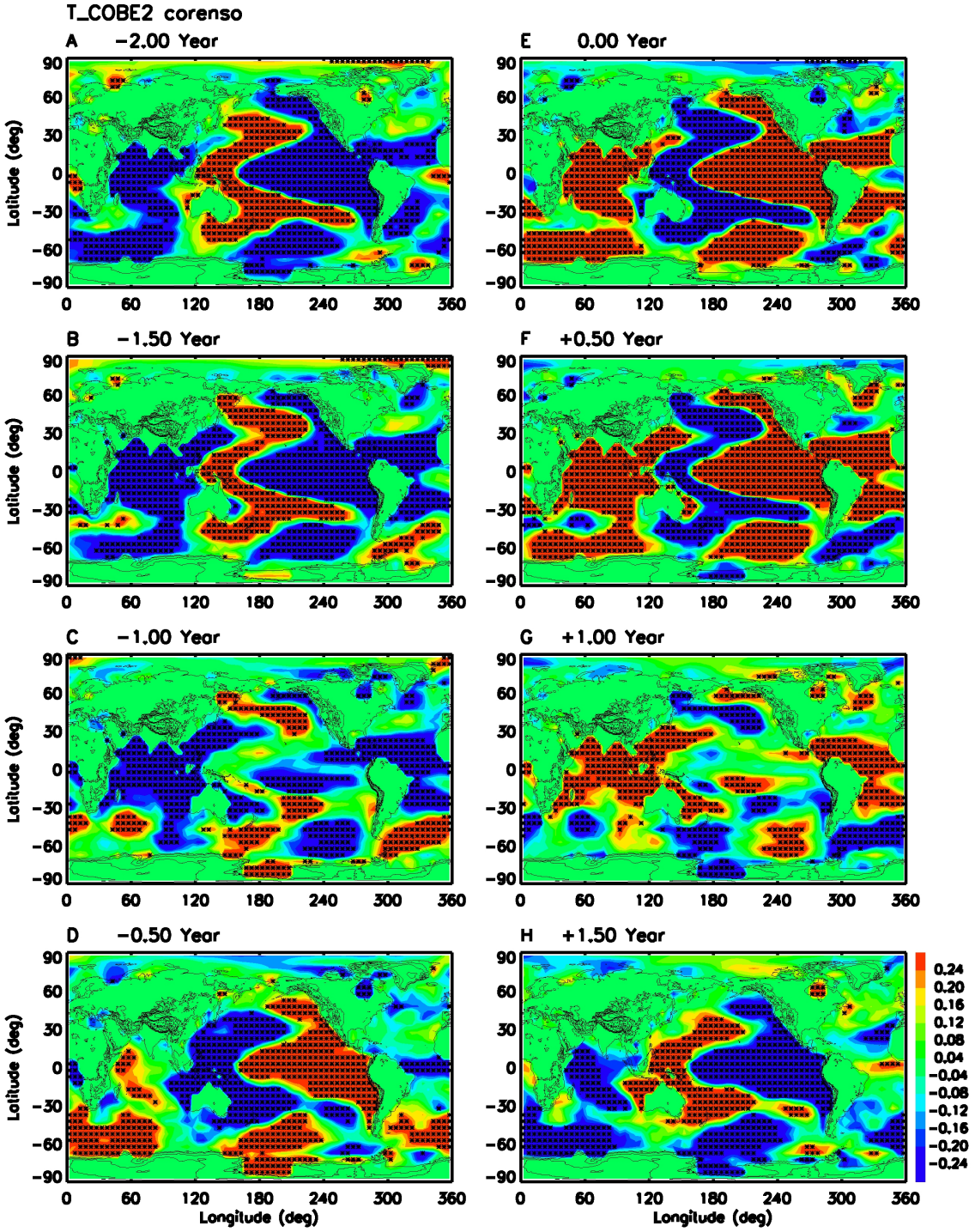
Supplementary Table 1

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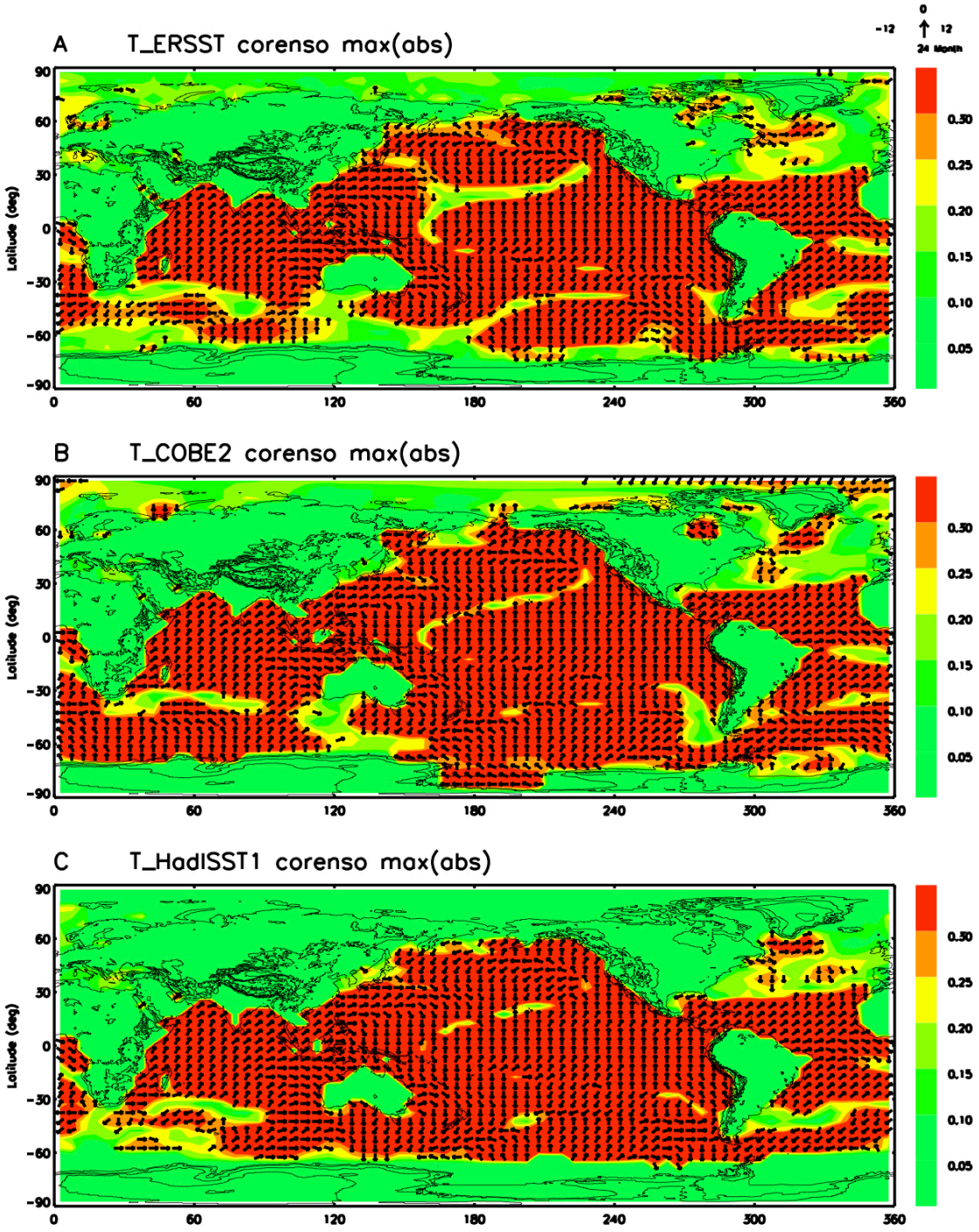
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Supplementary Table 1. **Datasets used in this study**

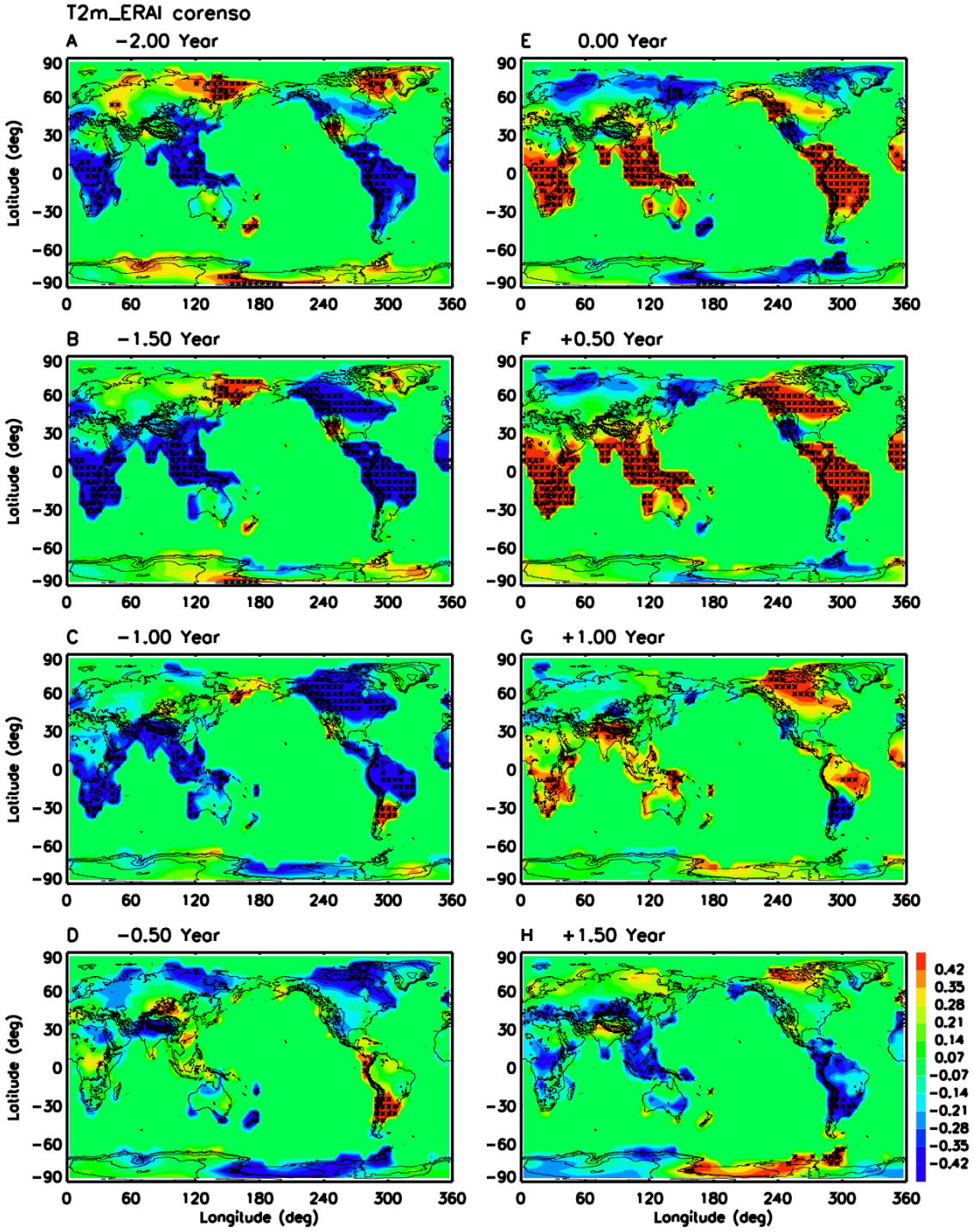
VARIABLES	DATASETS	TIME PERIOD	REFERENCE
Sea Surface Temperature	Extended Reconstructed Sea Surface Temperature (ERSST) v4	1880-2016	Huang et al. (2015)[41]
	Hadley Centre Sea Ice and Sea Surface Temperature (HadISST1)	1880-2016	Rayner et al. (2003)[42]
	Centennial In Situ Observation-Based Estimates (COBE2)	1880-2016	Hirahara et al. (2014)[43]
Land Surface Air Temperature	Climatic Research Unit Surface Air Temperature (CRUTS)	1901-2014	Harris et al. (2014)[44]
	University of Delaware Surface Air Temperature (UDEL)	1900-2014	Willmott and Robeson (1995)[50]
	European Centre for Medium-Range Weather Forecasts (ECMWF) ERA-Interim Reanalysis	1979-2016	Dee et al. (2011)[47]
Surface Precipitation	Global Precipitation Climatology Centre (GPCC)	1901-2013	Schneider et al (2017)[51]
	Climatic Research Unit Precipitation (CRUTS)	1901-2014	Harris et al. (2014)[44]
	Global Precipitation Climatology Project (GPCP)	1979-2016	Adler et al. (2003)[52]
Sea Level Pressure and Upper Level Geopotential Height	National Oceanic and Atmospheric Administration (NOAA) 20Cv2 Reanalysis	1880-2012	Compo et al. (2011)[45]
	National Center for Environmental Prediction (NCEP) Reanalysis	1948-2016	Kalnay et al. (1996)[46]
	European Centre for Medium-Range Weather Forecasts (ECMWF) ERA-Interim Reanalysis	1979-2016	Dee et al. (2011)[47]



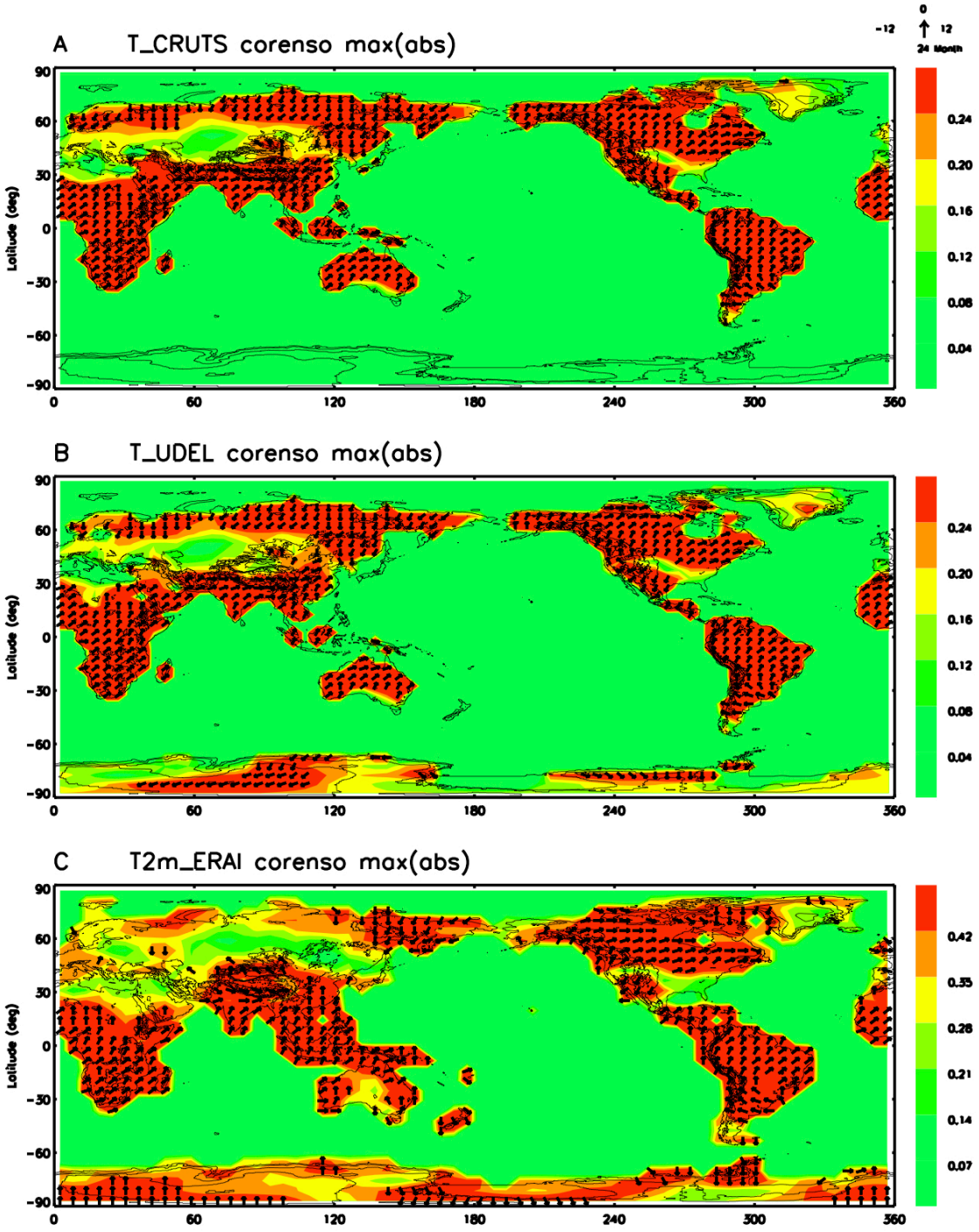
Supplementary Figure 1. Same as Figure 1 but for COBE2 SST for 1880-2016.



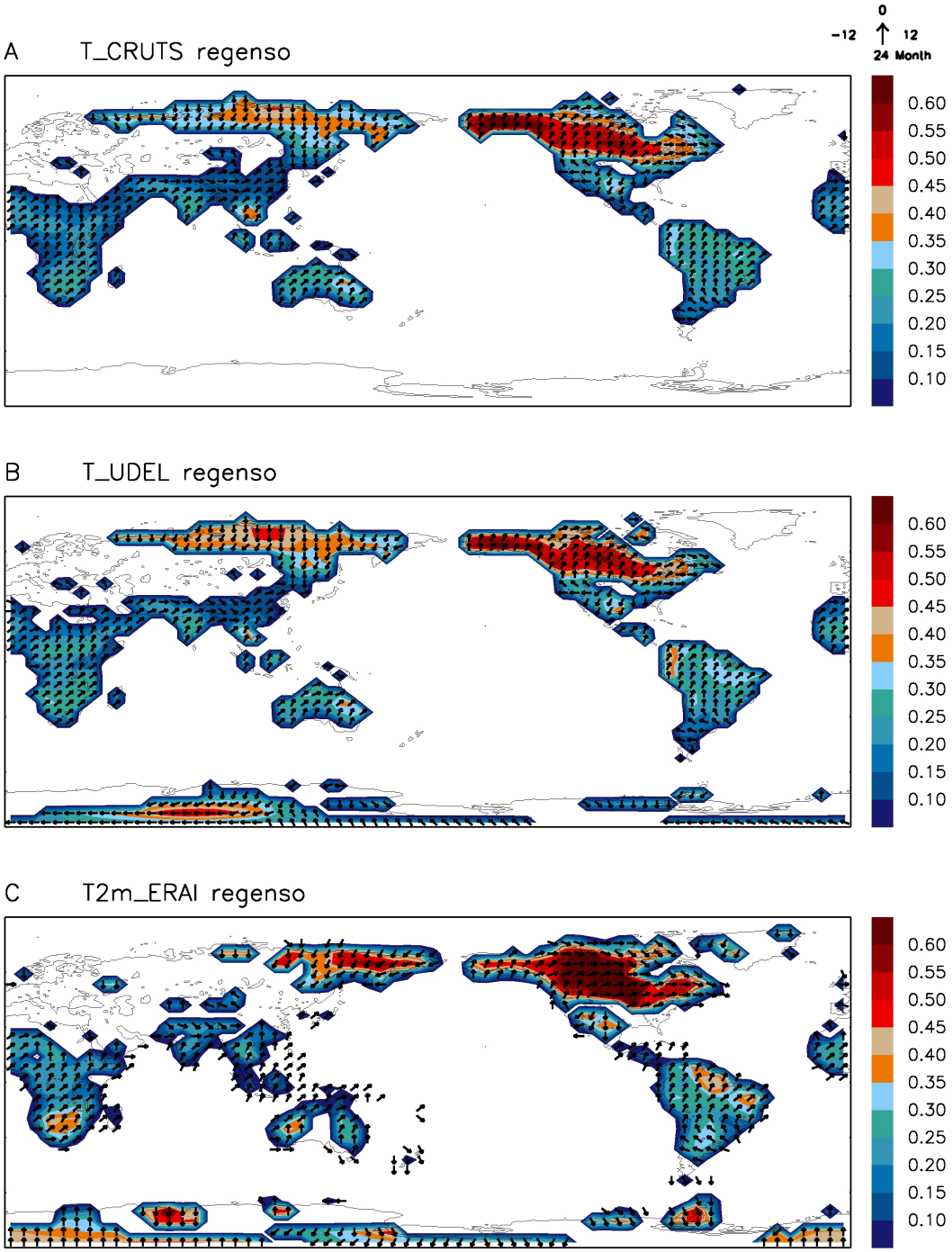
Supplementary Figure 2. Summary of impact of ENSO lifecycle on global SST for different datasets. (A) ERSST, (B) COBE2, and (C) HadISST1. Shadings show the maximum lag-correlation with Nino3.4 SST anomaly at each grid. Arrows denote the grids with maximum lag-correlation above 95% confidence level, and arrow directions represent the time lag of maximum correlation with respect to Nino3.4 SST anomaly. Phase clock is shown on upper-right corner.



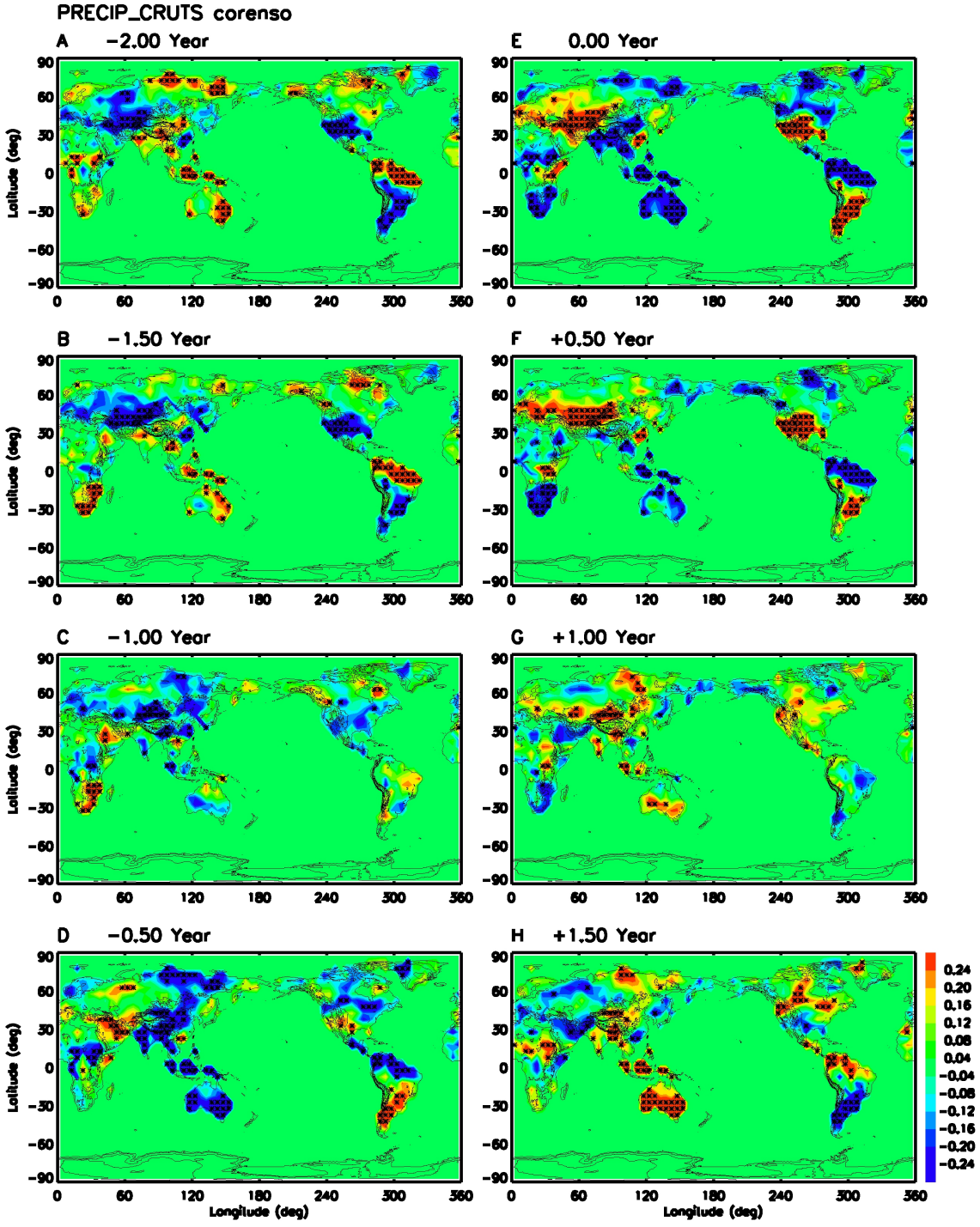
Supplementary Figure 3. Same as Figure 2 but for ERA-Interim 2m temperature for 1979-2016.



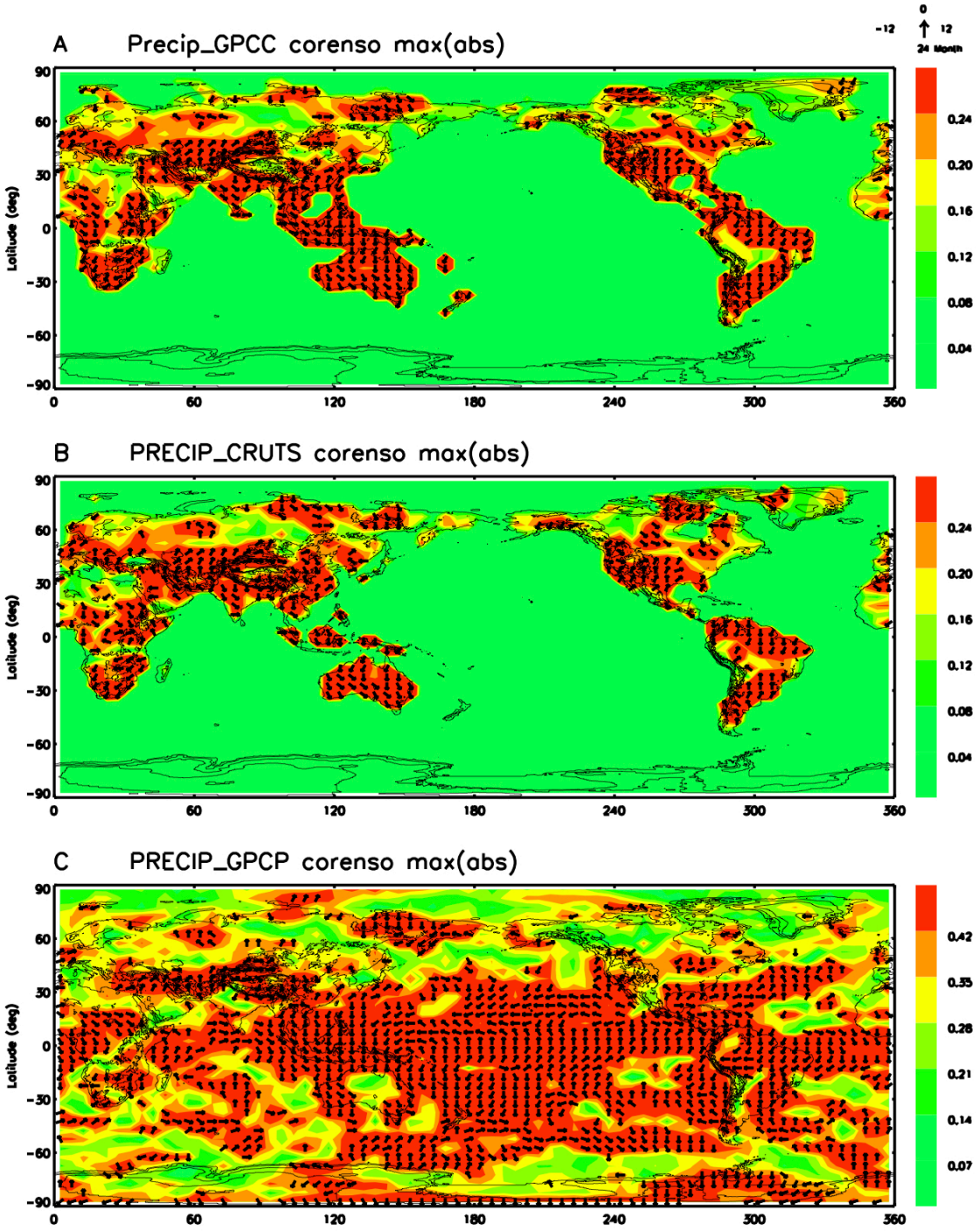
Supplementary Figure 4. Same as Supplementary Figure 2 but for global land surface air temperature for different datasets. (A) CRUTS, (B) University of Delaware, and (C) ERA-Interim reanalysis.



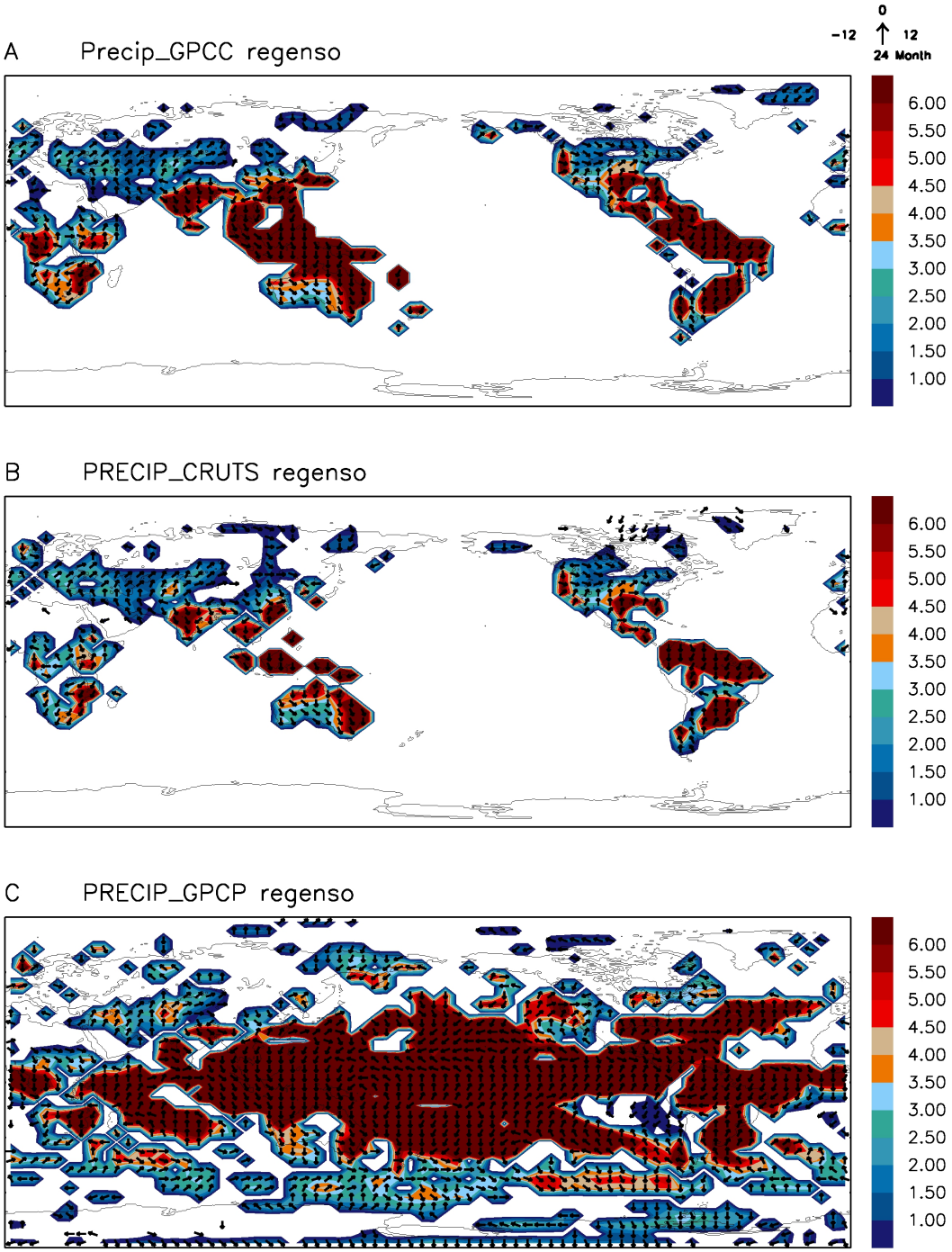
Supplementary Figure 5. Same as Supplementary Figure 4 but for the maximum lag-regression coefficient between land surface air temperature anomaly and Nino3.4 SST anomaly (unit: ºC/ºC).



Supplementary Figure 6. Same as Figure 3 but for CRUTS precipitation for 1901-2016.



Supplementary Figure 7. Same as Supplementary Figure 2 but for global precipitation for different datasets. (A) GPCC, (B) CRUTS, and (C) GPCP.



Supplementary Figure 8. Same as Supplementary Figure 7 but for the maximum lag-regression coefficient between land surface precipitation anomaly and Nino3.4 SST anomaly (unit: mm/month/^{o}C).

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