

Supplementary material

Evaluation of the influence of El Niño–Southern Oscillation on air quality in southern China from long-term historical observations

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Table S1. Selected periods of ENSO winter events (DJF) from 2002 to 2020: El Niño, La Niña, and Neutral.

El Niño (8)		La Niña (6)		Neutral (4)	
2002-2003,	2004-2005,	2005-2006,	2007-2008,	2003-2004,	2012-2013
2006-2007,	2009-2010,	2008-2009,	2010-2011,		
2014-2015,	2015-2016,	2011-2012,	2017-2018	2013-2014,	2016-2017
2018-2019,	2019-2020				

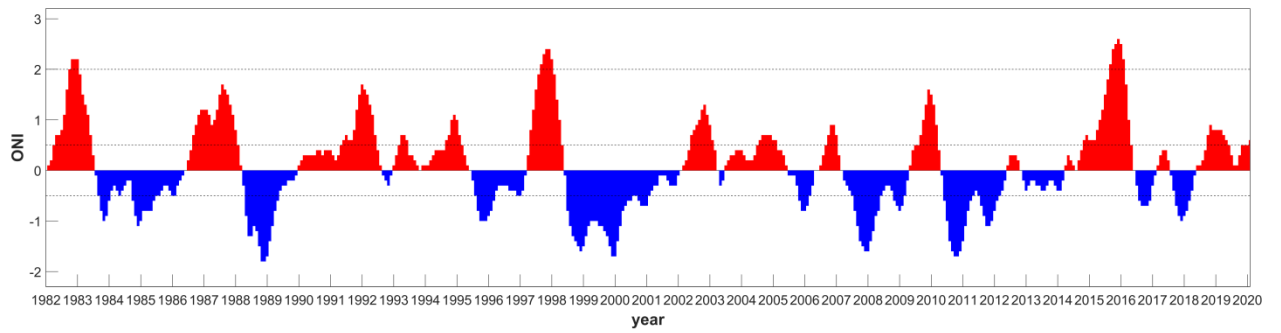


Fig. S1. Same as Figure 1, the ONI during ENSO development from 1982 to 2020 (unit: $^{\circ}$ C) (Above 0.5° C is defined as an El Niño event, below -0.5° C is defined as a La Niña event, between -0.5° C and 0.5° C is defined as a neutral event)

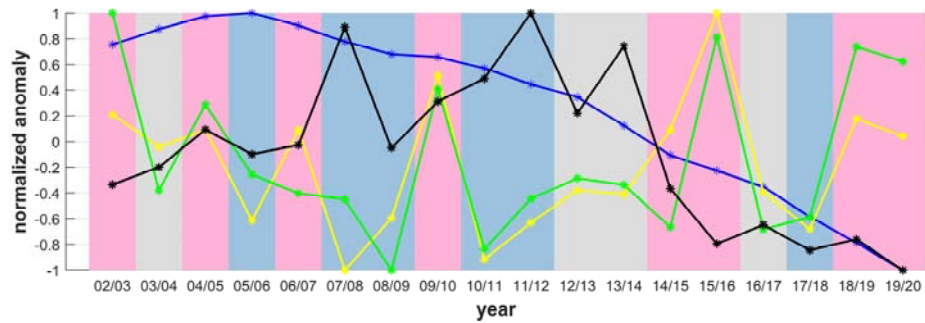


Fig. S2. Same as Figure 3, add precipitation (green) provided by ERA5 monthly reanalysis dataset from 2002 to 2020 (all are processed as standardization data ranged from -1 to 1 interval).

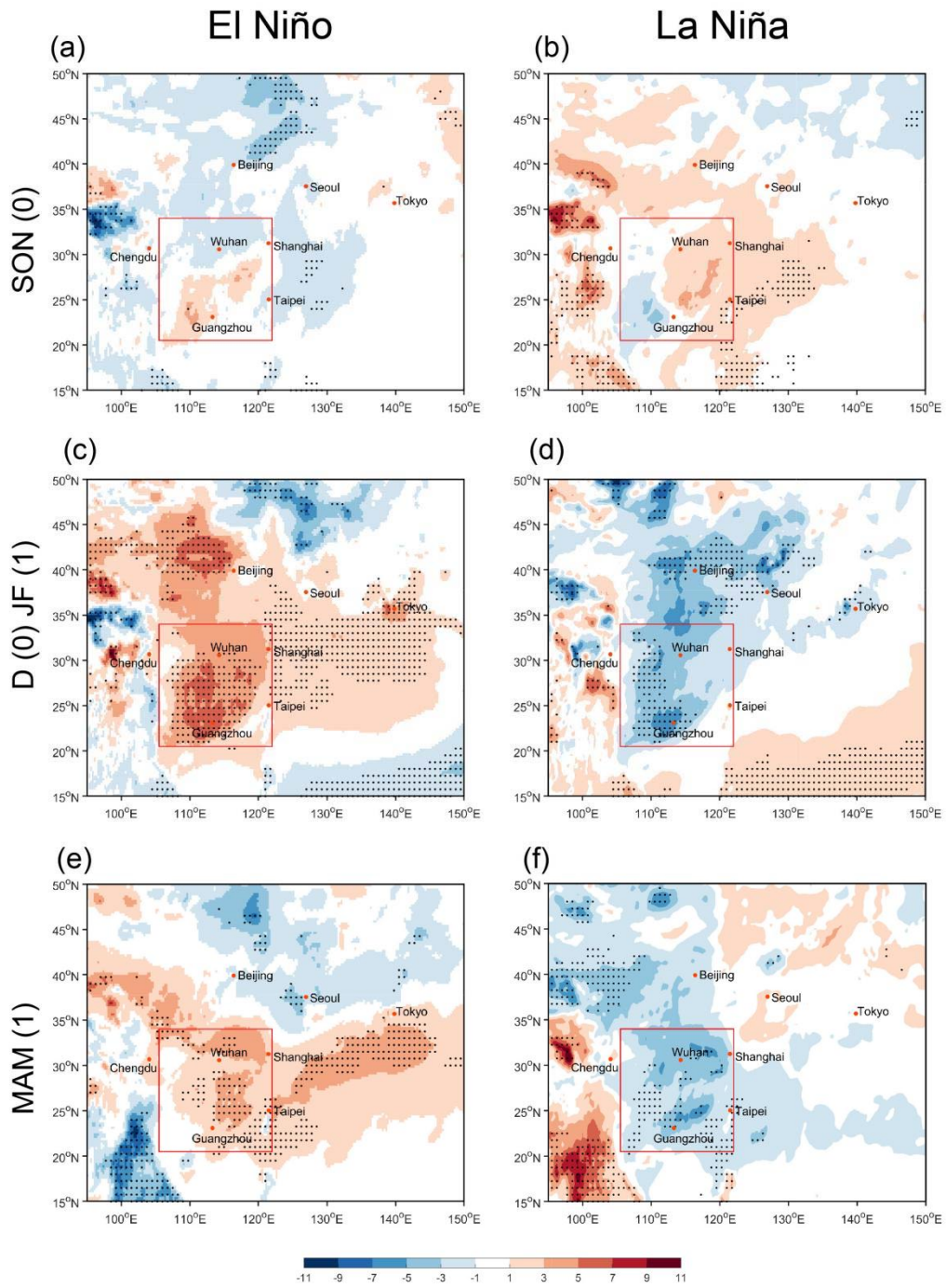


Fig. S3. Same as Figure 4, except for composite spatial patterns of anomalous surface relative humidity (%). Dots indicate relative humidity anomalies that exceed the 95% confidence level.

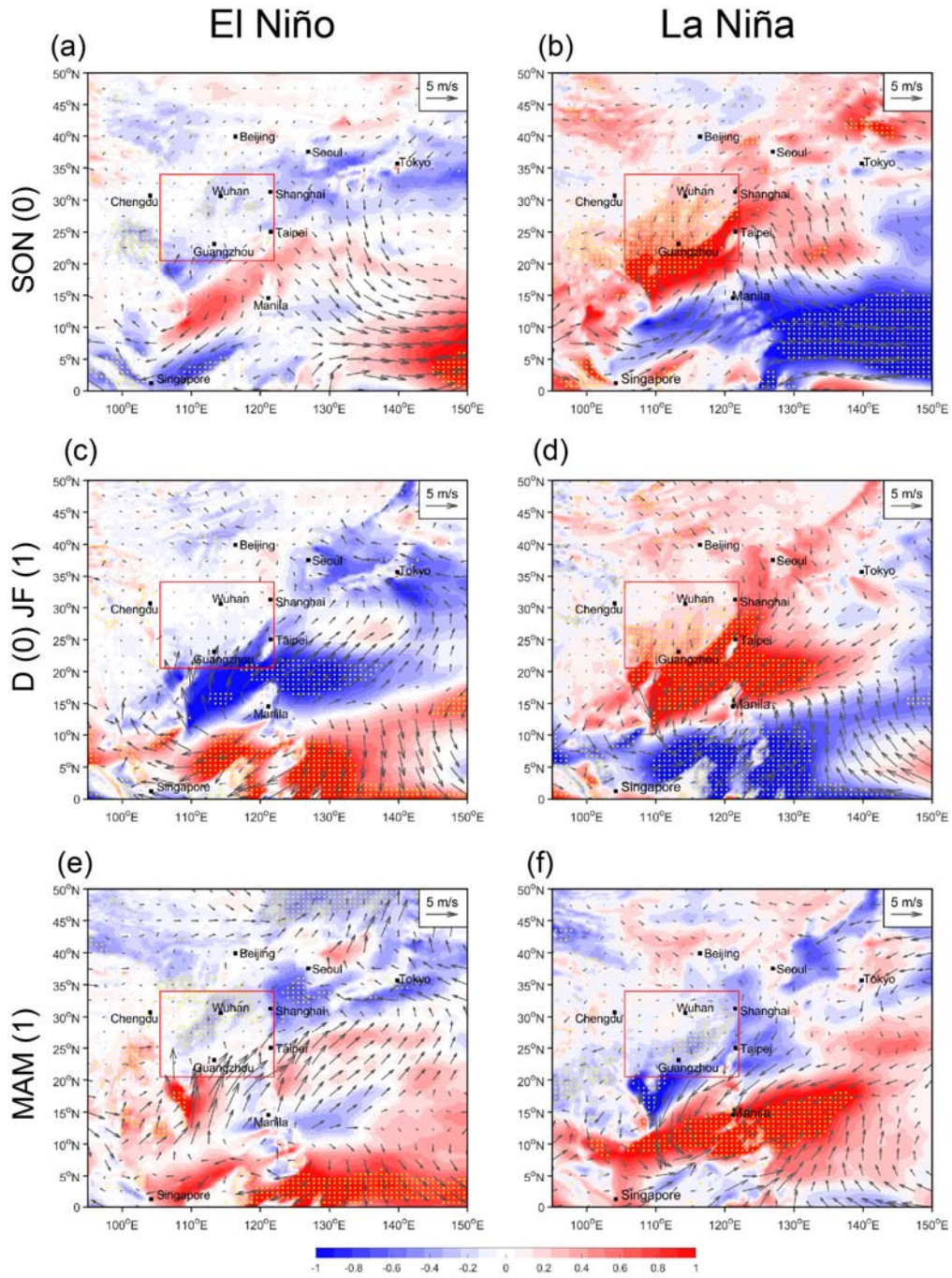


Fig. S4. Same as Figure 4, except for wind speed at 10m above ground level (AGL) anomalies composite (direction: vector plot & size: color shading). Dots indicate wind anomalies that exceed the 95% confidence level.

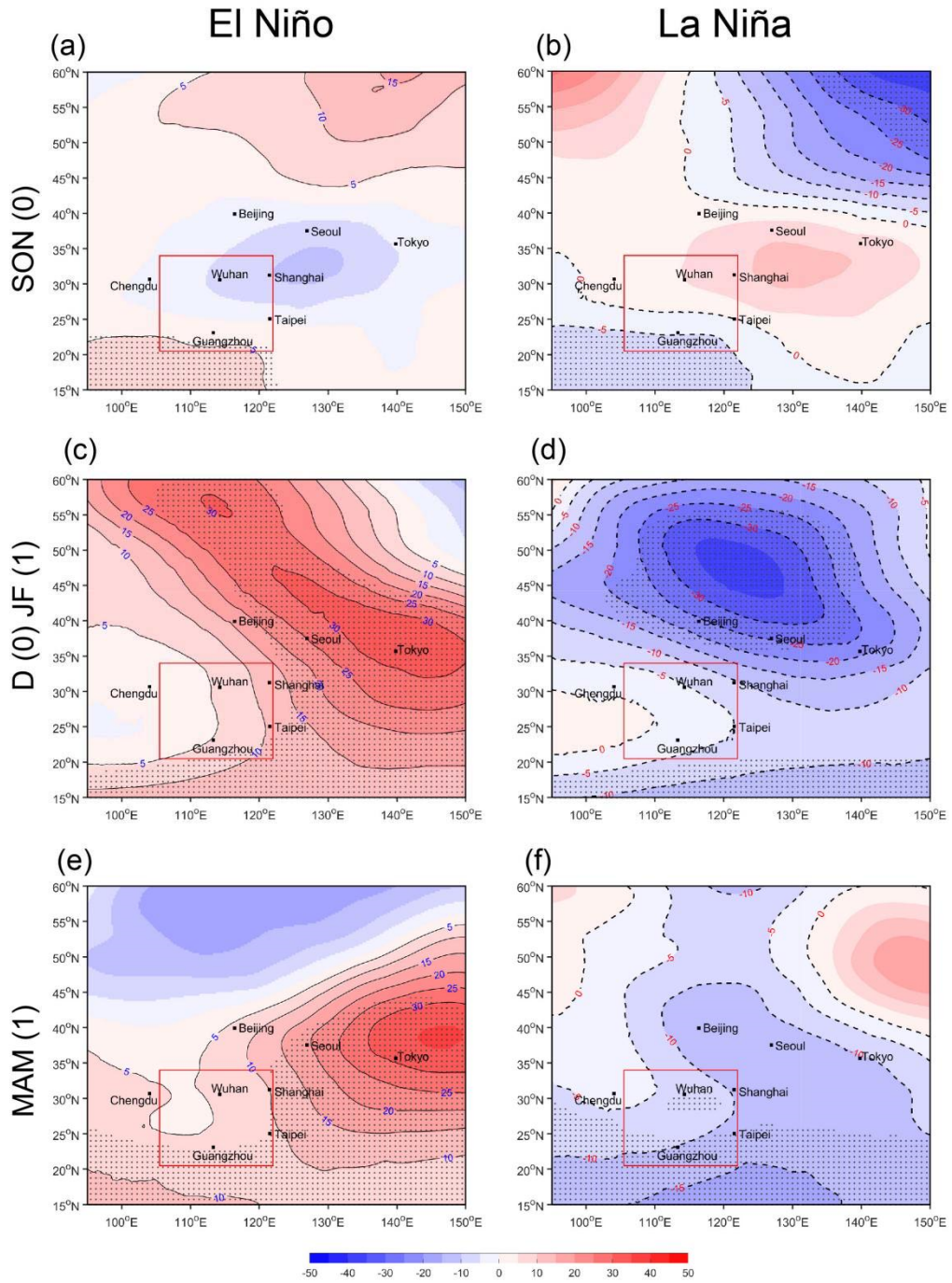


Fig. S5. Same as Figure 4, except for composite spatial patterns of anomalous 500-hPa geopotential height (m). Dots indicate geopotential height that exceed the 95% confidence level. Solid and dash contour lines indicate positive and negative anomalies, respectively.