

supplementary material for

**Distinguishing stratospheric sudden warmings from ENSO as key drivers
of wintertime climate variability over the North Atlantic and Eurasia**

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NCEP/NCAR reanalysis and ERSSTv4

	El Niño	La Niña	neutral
	30-Jan-58	23-Mar-65	16-Jan-60
	30-Nov-58	17-Jan-71	22-Feb-79
	8-Dec-65	20-Mar-71	4-Dec-81
	24-Feb-66	2-Jan-85	24-Feb-84
	27-Nov-68	22-Feb-89	2-Jan-02
	13-Mar-69	15-Dec-98	7-Jan-04
	2-Jan-70	25-Feb-99	21-Jan-06
	2-Feb-73	20-Mar-00	24-Jan-09
	29-Feb-80	11-Feb-01	7-Jan-13
	23-Jan-87	22-Feb-08	
	8-Dec-87		
	14-Mar-88		
	18-Jan-03		
	24-Feb-07		
	9-Feb-10		
	24-Mar-10		
total # of SSWs	16	10	9
total # of years	20	16	20
SSW frequency	8.0	6.3	4.5

Table S1: Central dates of observed SSWs, using NCEP/NCAR reanalysis for winds (Kalnay et al. 1996) and ERSSTv4 for sea surface temperature (Huang et al. 2015), for direct comparison with Table 1 of BPD14.

ERA40/ERA-I reanalysis and ERSSTv4

	El Niño	La Niña	neutral
	31-Jan-58	7-Jan-68	17-Jan-60
	8-Dec-65	18-Jan-71	28-Jan-63
	24-Feb-66	20-Mar-71	22-Feb-79
	28-Nov-68	1-Jan-85	4-Mar-81
	13-Mar-69	21-Feb-89	4-Dec-81
	2-Jan-70	15-Dec-98	24-Feb-84
	31-Jan-73	26-Feb-99	31-Dec-01
	9-Jan-77	20-Mar-00	18-Feb-02
	29-Feb-80	11-Feb-01	5-Jan-04
	23-Jan-87	22-Feb-08	21-Jan-06
	8-Dec-87		24-Jan-09
	14-Mar-88		7-Jan-13
	18-Jan-03		
	24-Feb-07		
	9-Feb-10		
	24-Mar-10		
total # of SSWs	16	10	12
total # of years	20	16	20
SSW frequency	8.0	6.3	6.0

Table S2: As Table S1, but using ERA40/ERA-I reanalysis (Dee et al. 2011).

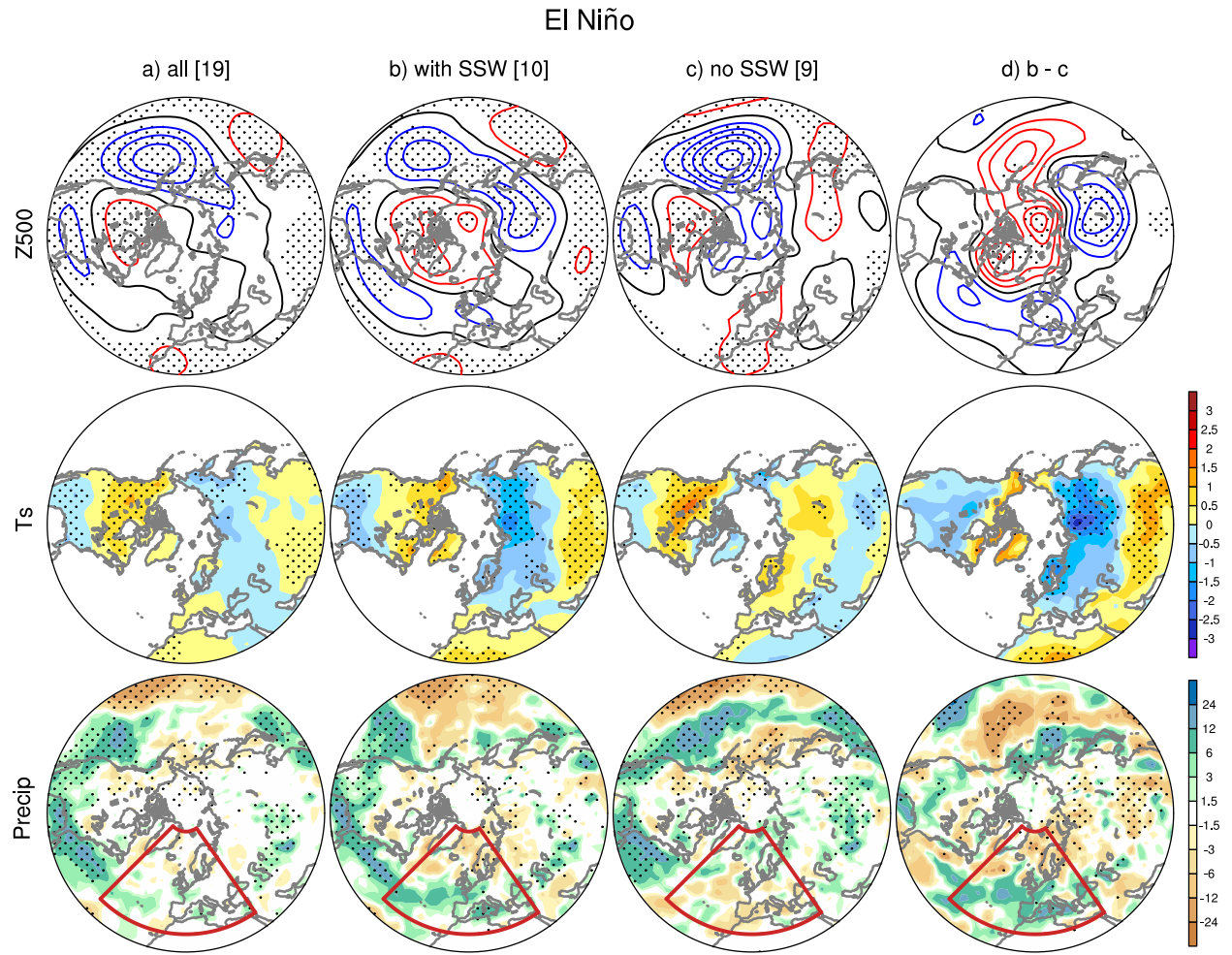


Figure S1: As in Figure 3, but using NCAR/NCEP reanalysis.

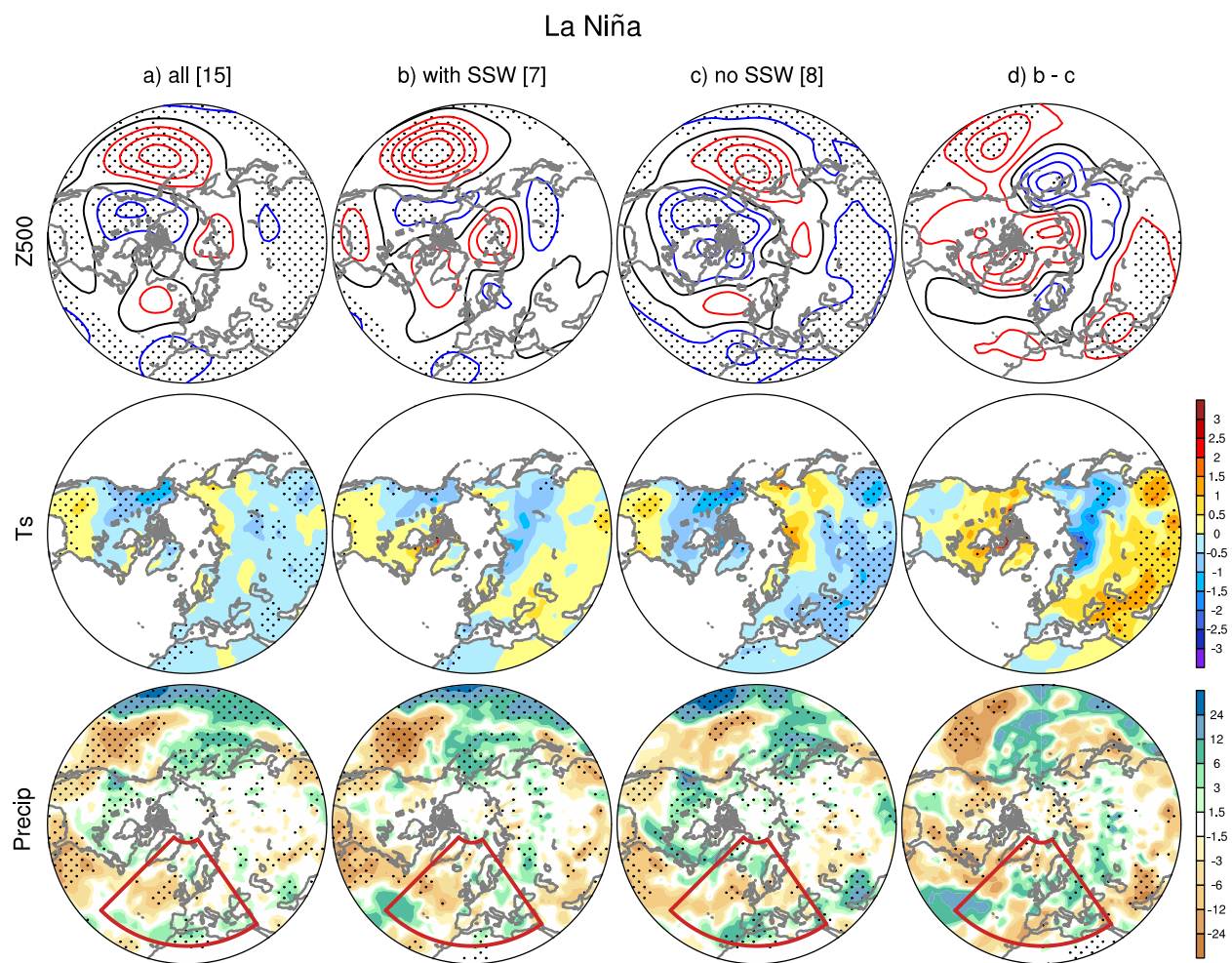


Figure S2: As in Figure 4, but using NCAR/NCEP reanalysis.