

Supplementary Information

**East Asian Winter Monsoon Impacts the ENSO-related Teleconnections and North
American Seasonal Air Temperature Prediction**

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Supplementary Tables

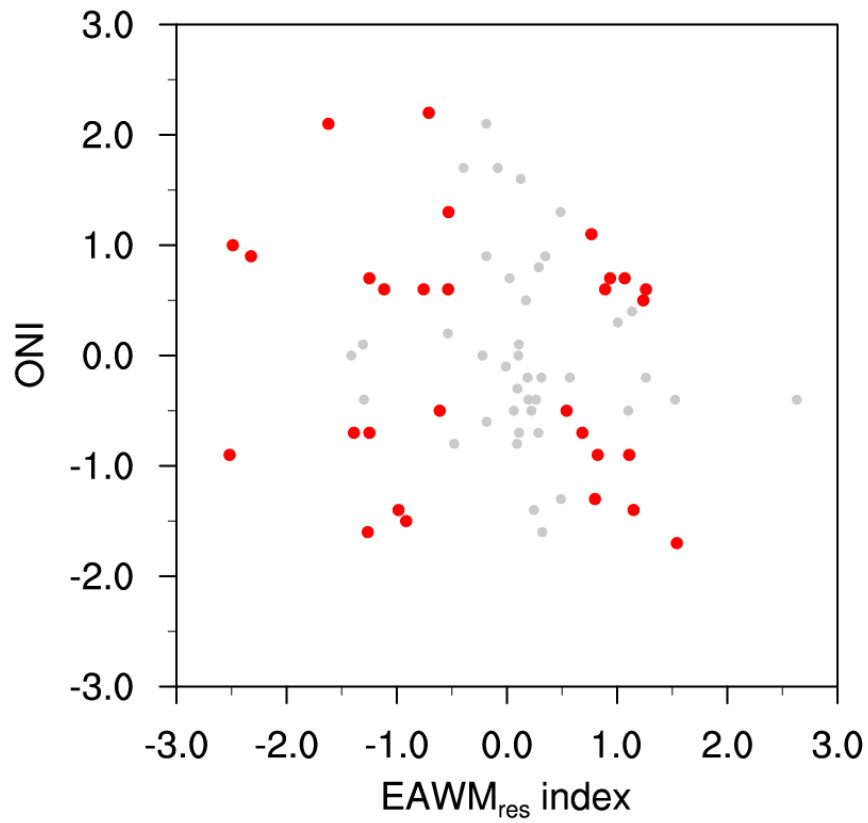
Table S1. Distribution of the ENSO events based on the EAWM_{res} **with the ERA20C reanalysis datasets.** Years 1905 indicate the winter mean of December 1904 to February 1905. Bolded font marks the years identical with those in Table 1 for the overlapping period.

Groups	years
Strong EAWM _{res} -El Niño	[1905 1914 1926 1940 1953 1970 1977 1978 1988 1995]
Weak EAWM _{res} -El Niño	[1906 1915 1919 1924 1942 1954 1959 1964 1969 1973 1998]
Strong EAWM _{res} -La Niña	[1910 1918 1934 1951 1955 1968 1971 1974 1996 1999]
Weak EAWM _{res} -La Niña	[1909 1911 1916 1939 1950 1972 1976 1985 1989 2001]

Table S2. Same as Table S1, but with **the NOAA 20th century reanalysis datasets.**

Groups	years
Strong EAWM _{res} -El Niño	[1856 1881 1885 1886 1889 1905 1912 1914 1926 1940 1946 1953 1958 1970 1978 1987 1988 1995 2007]
Weak EAWM _{res} -El Niño	[1900 1906 1915 1919 1924 1931 1941 1952 1954 1959 1969 1973 1980 1998 2003]
Strong EAWM _{res} -La Niña	[1870 1873 1879 1893 1911 1917 1918 1934 1951 1956 1968 1974 1999 2011]
Weak EAWM _{res} -La Niña	[1857 1876 1880 1887 1890 1894 1909 1916 1921 1950 1965 1972 1985 1989 2001]

40 **Supplementary Figures**



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43 Figure S1. Distribution of Ocean Nino index (ONI, from NOAA Climate Prediction Center) based on
44 EAWM_{res} index (gray dots, a positive value of EAWM_{res} index indicates a stronger-than-normal
45 EAWM_{res} winter). Red dots represent the selected ENSO winters in Table 1.

SST

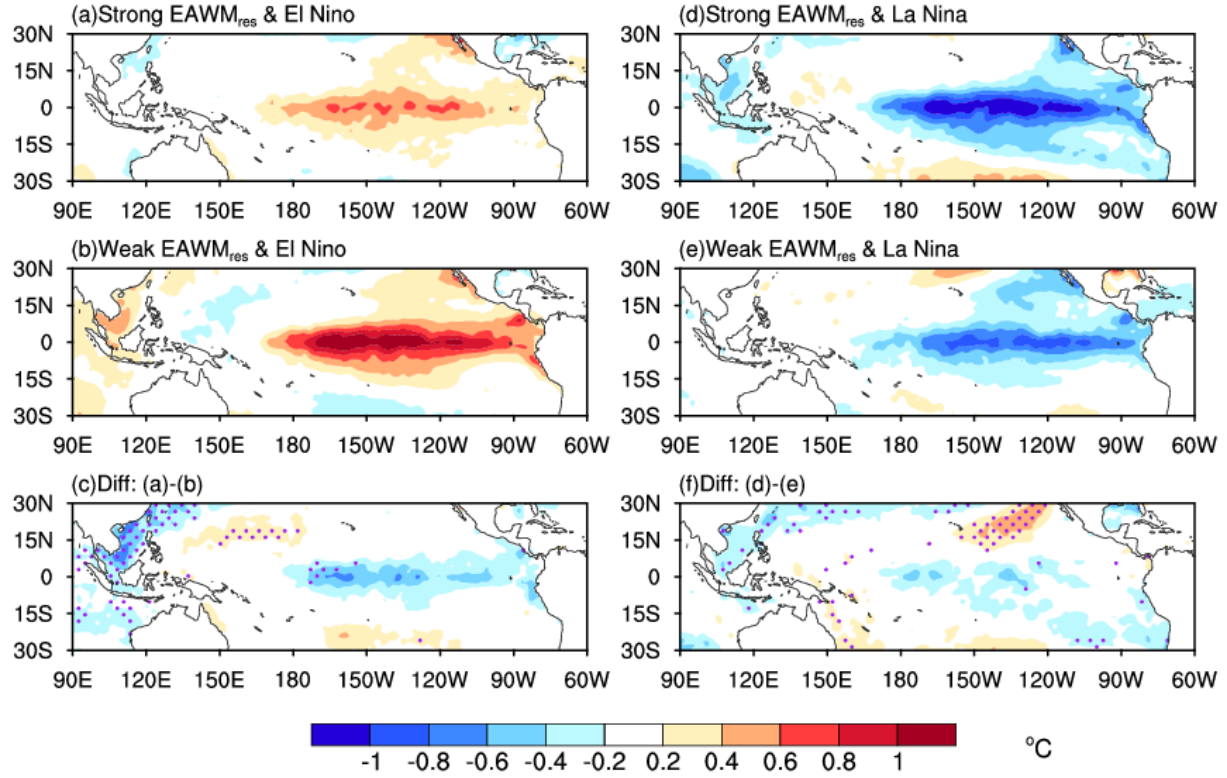
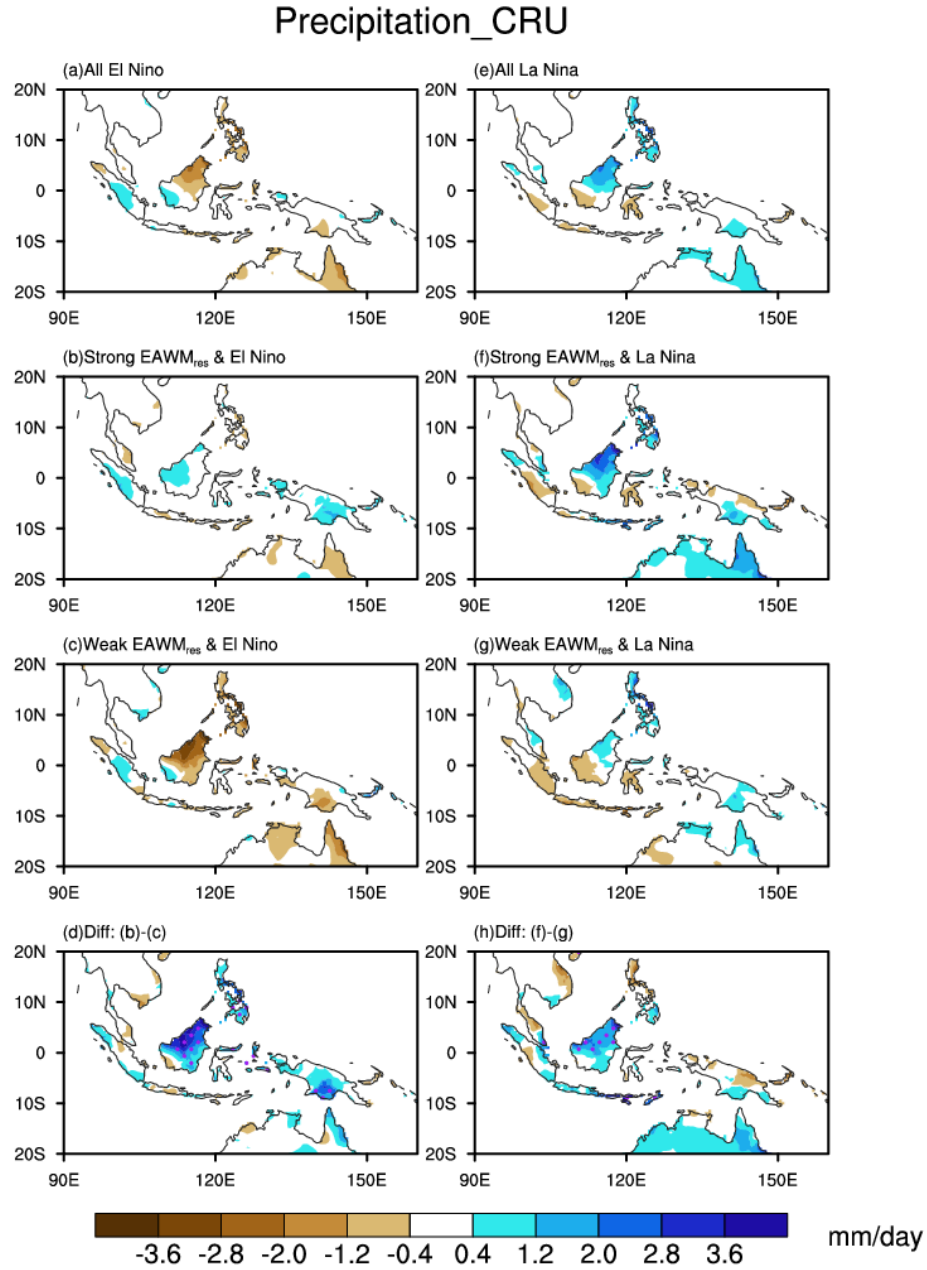


Figure S2. Composite wintertime (DJF) SST anomalies during strong EAWM_{res}-El Niño (a) and weak EAWM_{res}-El Niño winters (b). (c) is the difference between (a) and (b). (d), (e), and (f) is the same as (a), (b), and (c) but for La Niña groups. Dots in (c) and (f) indicate that the difference is significant at 90% confidence levels. The maps in the figure are generated using the NCAR Command Language (NCL) (Version 6.4.0 & URL: <http://www.ncl.ucar.edu/Download/>)



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54 Figure S3. As Figure 1, but using Climate Research Unit (CRU) version 4.00 precipitation data (period:
 55 1900-2010). Composite years for each category are listed in Table S1. Dots in (d) and (h) indicate that the
 56 difference is significant at 90% confidence levels. The maps in the figure are generated using the NCAR
 57 Command Language (NCL) (Version 6.4.0 & URL: <http://www.ncl.ucar.edu/Download/>)

Precipitation_NOAA 20thC

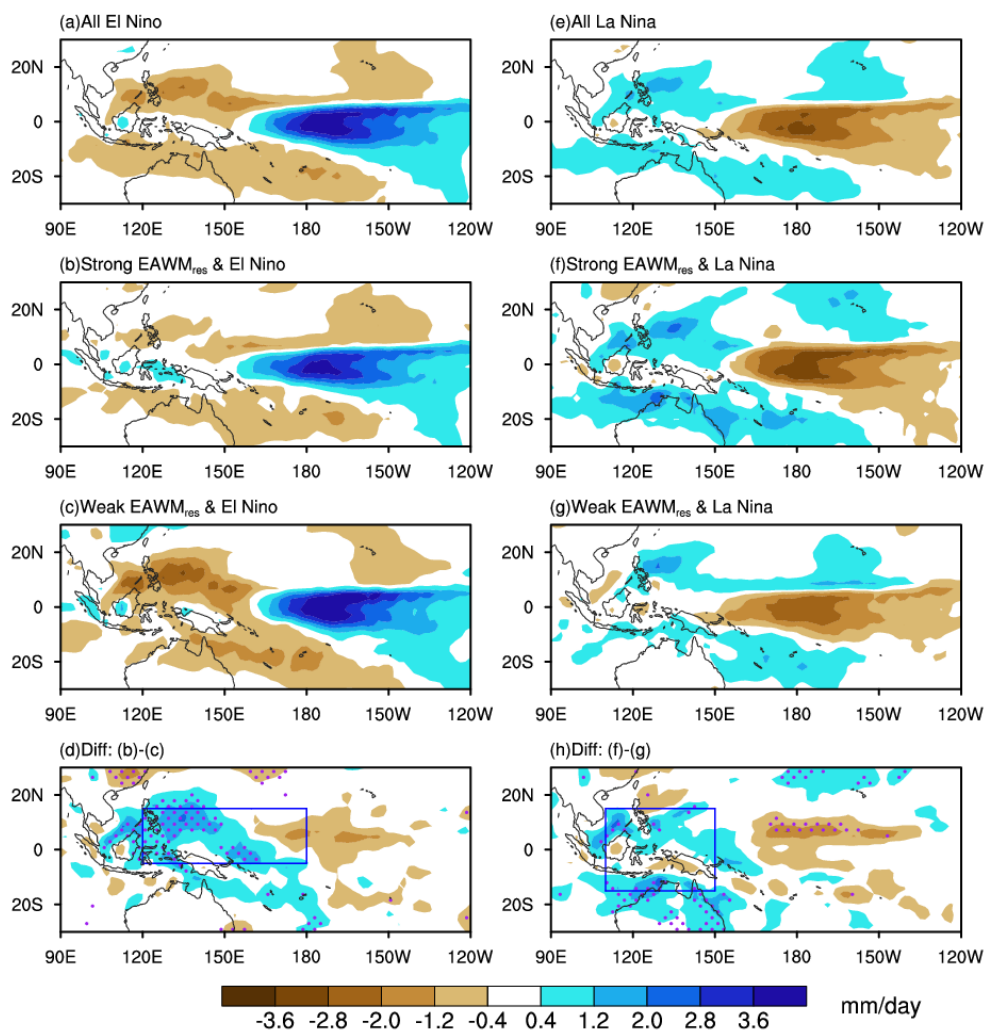


Figure S4: As Figure 1, but using NOAA 20th century reanalysis datasets for precipitation. The maps in the figure are generated using the NCAR Command Language (NCL) (Version 6.4.0 & URL: <http://www.ncl.ucar.edu/Download/>)

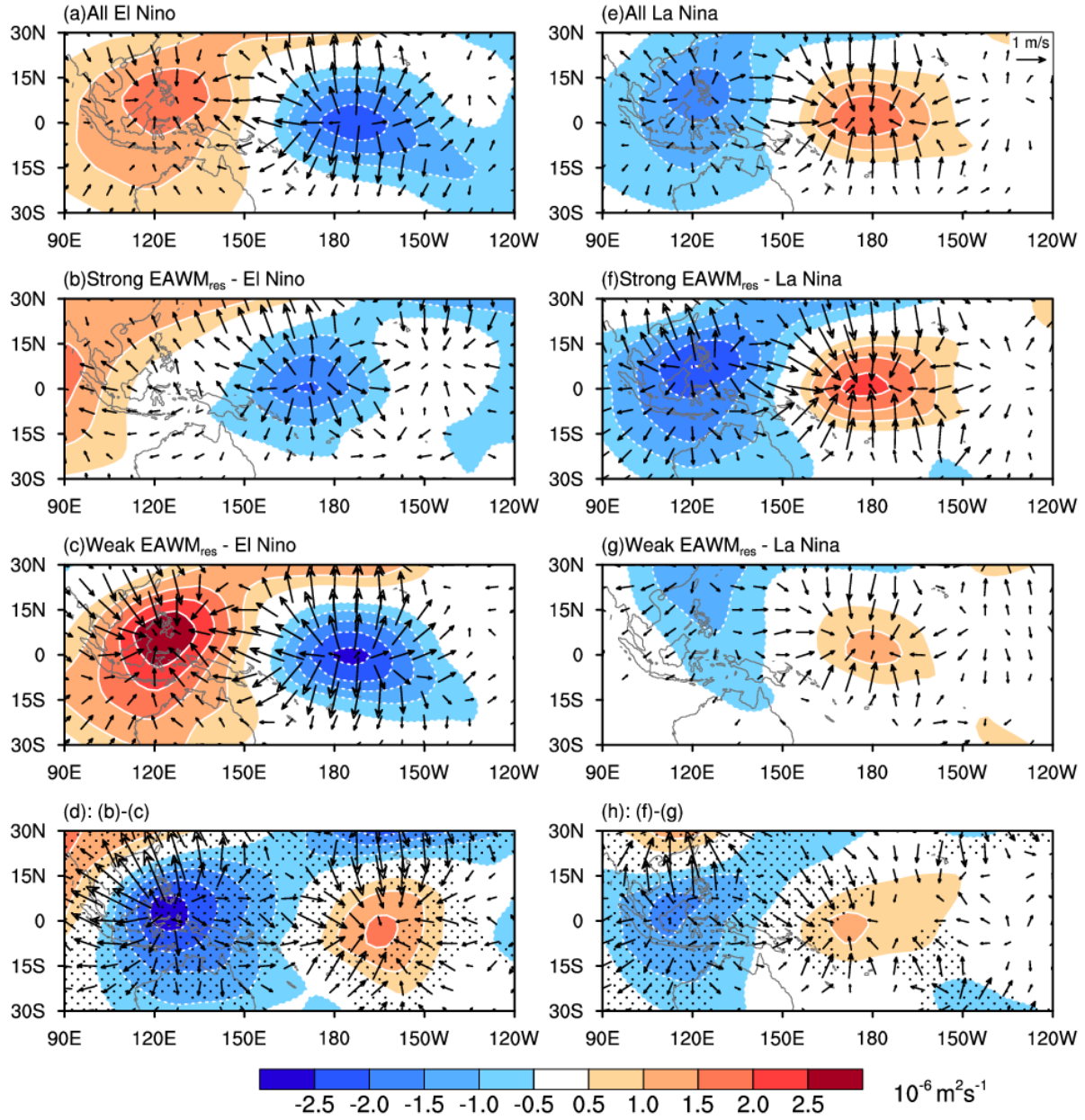


Figure S5: As Figure 2, but using ERA20C reanalysis datasets. The composite years for each category are listed in Table S1. The maps in the figure are generated using the NCAR Command Language (NCL) (Version 6.4.0 & URL: <http://www.ncl.ucar.edu/Download/>)

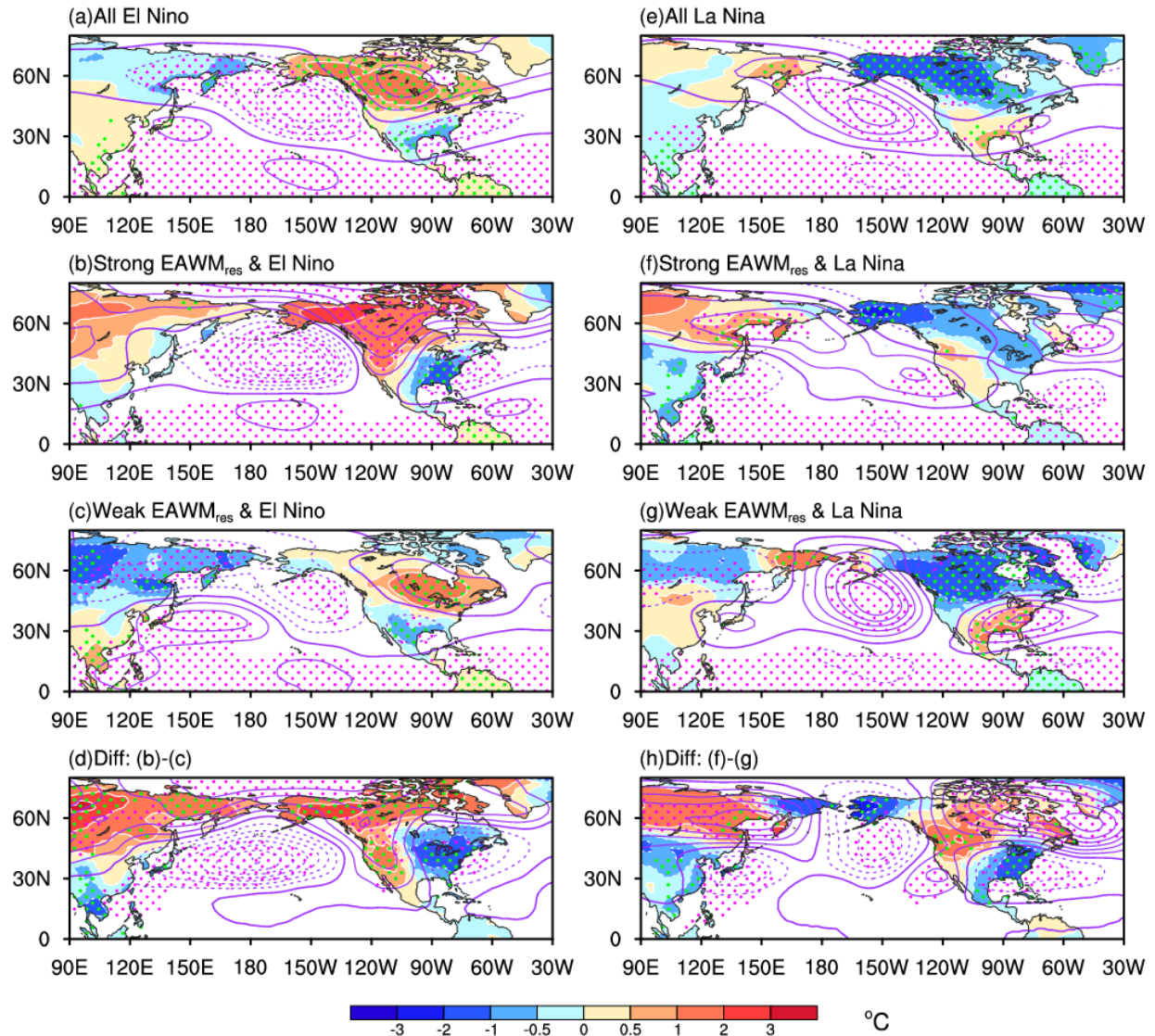


Figure S6. Same as Figure 4, but using CRU surface temperature data and ERA20C geopotential height data (period: 1900-2010). The composite years for each category are listed in Table S1. The maps in the figure are generated using the NCAR Command Language (NCL) (Version 6.4.0 & URL: <http://www.ncl.ucar.edu/Download/>)