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*Supplement of*

## **Response of *Pinus sylvestris* var. *mongolica* to water change and drought history reconstruction in the past 260 years, northeast China**

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# Supplementary Material

## 1. Supplementary Data

The following is the regional tree-ring width chronology of *Pinus sylvestris* in the Central Daxing'an Mountains.

Year	Index	Sample depth	Year	Index	Sample depth	Year	Index	Sample depth
1725	1.174	1	1825	0.834	67	1925	0.669	108
1726	0.880	1	1826	1.075	69	1926	0.775	108
1727	0.637	2	1827	1.058	69	1927	0.826	108
1728	1.128	2	1828	1.015	71	1928	0.932	108
1729	0.999	3	1829	0.893	71	1929	0.978	108
1730	1.159	3	1830	0.994	72	1930	1.048	109
1731	0.989	3	1831	0.966	73	1931	0.985	109
1732	1.287	3	1832	0.964	73	1932	1.040	110
1733	1.062	3	1833	0.993	73	1933	1.130	110
1734	0.961	3	1834	0.967	73	1934	1.155	110
1735	0.651	3	1835	1.054	73	1935	1.002	110
1736	1.121	3	1836	0.841	74	1936	1.023	110
1737	1.067	5	1837	0.889	74	1937	0.973	110
1738	0.835	5	1838	0.823	75	1938	1.041	110
1739	1.052	5	1839	0.800	75	1939	0.902	110
1740	1.151	5	1840	1.060	77	1940	0.765	110
1741	1.091	5	1841	0.951	78	1941	0.916	111
1742	0.596	6	1842	0.921	78	1942	0.998	111
1743	0.532	6	1843	0.949	78	1943	1.000	113
1744	0.965	6	1844	1.104	79	1944	0.940	113
1745	0.775	7	1845	1.163	79	1945	0.812	114
1746	1.196	7	1846	1.084	79	1946	0.890	114
1747	0.834	7	1847	0.875	79	1947	1.029	114
1748	0.509	7	1848	0.870	80	1948	1.170	114
1749	0.331	7	1849	0.874	81	1949	1.087	114
1750	0.423	7	1850	0.827	82	1950	1.067	118
1751	0.756	8	1851	0.660	84	1951	1.071	118
1752	0.980	8	1852	0.658	84	1952	1.379	118

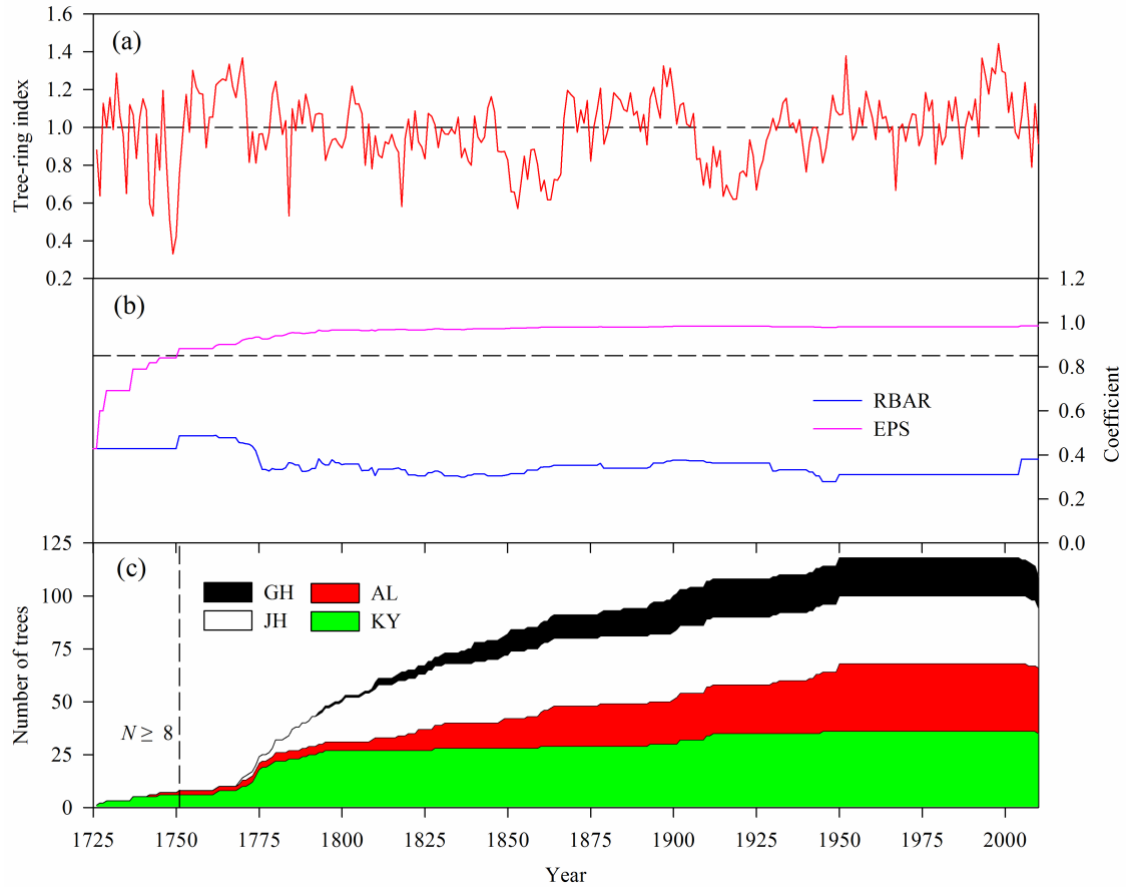
<b>1753</b>	1.175	8	1853	0.571	84	1953	1.105	118
<b>1754</b>	0.975	8	1854	0.707	84	1954	0.933	118
<b>1755</b>	1.302	8	1855	0.848	84	1955	0.976	118
<b>1756</b>	1.214	8	1856	0.726	85	1956	1.104	118
<b>1757</b>	1.180	8	1857	0.881	85	1957	1.009	118
<b>1758</b>	1.176	8	1858	0.885	85	1958	1.191	118
<b>1759</b>	0.893	8	1859	0.805	85	1959	1.116	118
<b>1760</b>	1.054	8	1860	0.663	87	1960	1.048	118
<b>1761</b>	1.054	8	1861	0.721	88	1961	0.936	118
<b>1762</b>	1.226	9	1862	0.617	88	1962	1.143	118
<b>1763</b>	1.243	10	1863	0.618	90	1963	1.047	118
<b>1764</b>	1.258	10	1864	0.725	91	1964	1.058	118
<b>1765</b>	1.248	10	1865	0.720	91	1965	0.974	118
<b>1766</b>	1.334	10	1866	0.751	91	1966	1.006	118
<b>1767</b>	1.216	10	1867	1.052	91	1967	0.667	118
<b>1768</b>	1.158	10	1868	1.196	91	1968	0.988	118
<b>1769</b>	1.276	12	1869	1.175	91	1969	1.018	118
<b>1770</b>	1.368	14	1870	1.158	91	1970	0.926	118
<b>1771</b>	1.154	15	1871	0.974	91	1971	1.011	118
<b>1772</b>	0.816	16	1872	1.092	91	1972	1.072	118
<b>1773</b>	0.978	17	1873	1.022	91	1973	1.066	118
<b>1774</b>	0.811	20	1874	1.142	91	1974	0.903	118
<b>1775</b>	0.965	24	1875	0.821	91	1975	0.959	118
<b>1776</b>	0.966	25	1876	1.005	91	1976	1.185	118
<b>1777</b>	0.881	25	1877	1.096	91	1977	1.087	118
<b>1778</b>	0.976	26	1878	1.208	92	1978	1.145	118
<b>1779</b>	1.175	28	1879	0.911	93	1979	0.805	118
<b>1780</b>	1.244	32	1880	0.973	93	1980	1.018	118
<b>1781</b>	1.103	32	1881	1.046	93	1981	0.908	118
<b>1782</b>	0.962	32	1882	1.184	93	1982	0.952	118
<b>1783</b>	1.035	33	1883	1.163	93	1983	1.141	118
<b>1784</b>	0.532	34	1884	1.144	93	1984	1.035	118
<b>1785</b>	1.099	37	1885	1.095	94	1985	1.161	118
<b>1786</b>	0.983	38	1886	1.085	94	1986	1.012	118
<b>1787</b>	1.145	38	1887	1.183	94	1987	0.833	118
<b>1788</b>	1.019	40	1888	1.066	94	1988	1.007	118
<b>1789</b>	1.175	40	1889	1.085	94	1989	1.084	118

<b>1790</b>	1.102	41	1890	0.977	94	1990	1.039	118
<b>1791</b>	0.978	43	1891	1.068	94	1991	1.150	118
<b>1792</b>	1.068	43	1892	0.909	94	1992	0.951	118
<b>1793</b>	1.074	45	1893	1.157	96	1993	1.367	118
<b>1794</b>	1.070	46	1894	1.213	97	1994	1.279	118
<b>1795</b>	0.826	48	1895	1.123	97	1995	1.176	118
<b>1796</b>	0.887	48	1896	1.049	97	1996	1.315	118
<b>1797</b>	0.934	49	1897	1.325	97	1997	1.283	118
<b>1798</b>	0.941	50	1898	1.216	98	1998	1.443	118
<b>1799</b>	0.911	50	1899	1.314	98	1999	1.298	118
<b>1800</b>	0.891	51	1900	1.182	100	2000	1.289	118
<b>1801</b>	0.946	53	1901	1.018	101	2001	1.080	118
<b>1802</b>	1.087	53	1902	1.118	103	2002	1.185	118
<b>1803</b>	1.219	53	1903	1.129	103	2003	0.974	118
<b>1804</b>	1.124	53	1904	1.018	103	2004	0.941	118
<b>1805</b>	1.125	53	1905	1.004	104	2005	1.062	117
<b>1806</b>	1.073	54	1906	1.075	104	2006	1.238	117
<b>1807</b>	0.800	55	1907	0.831	104	2007	1.037	116
<b>1808</b>	1.019	55	1908	0.836	104	2008	0.789	115
<b>1809</b>	0.781	56	1909	0.695	104	2009	1.125	114
<b>1810</b>	0.956	59	1910	0.811	107	2010	0.915	109
<b>1811</b>	0.854	61	1911	0.680	107			
<b>1812</b>	0.840	61	1912	0.899	108			
<b>1813</b>	0.924	61	1913	0.792	108			
<b>1814</b>	0.913	61	1914	0.877	108			
<b>1815</b>	0.963	61	1915	0.635	108			
<b>1816</b>	0.902	62	1916	0.696	108			
<b>1817</b>	0.868	63	1917	0.651	108			
<b>1818</b>	0.582	64	1918	0.619	108			
<b>1819</b>	0.946	64	1919	0.621	108			
<b>1820</b>	1.044	65	1920	0.759	108			
<b>1821</b>	0.881	65	1921	0.769	108			
<b>1822</b>	1.088	65	1922	0.740	108			
<b>1823</b>	0.924	67	1923	0.934	108			
<b>1824</b>	0.896	67	1924	0.850	108			

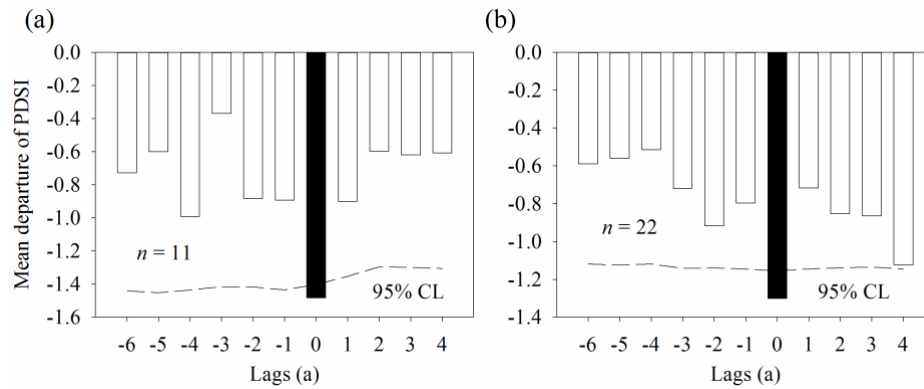
## 2. Supplementary Tables and Figures

**Table S1** Information of the weather stations and gridded data nearest to sampling sites.

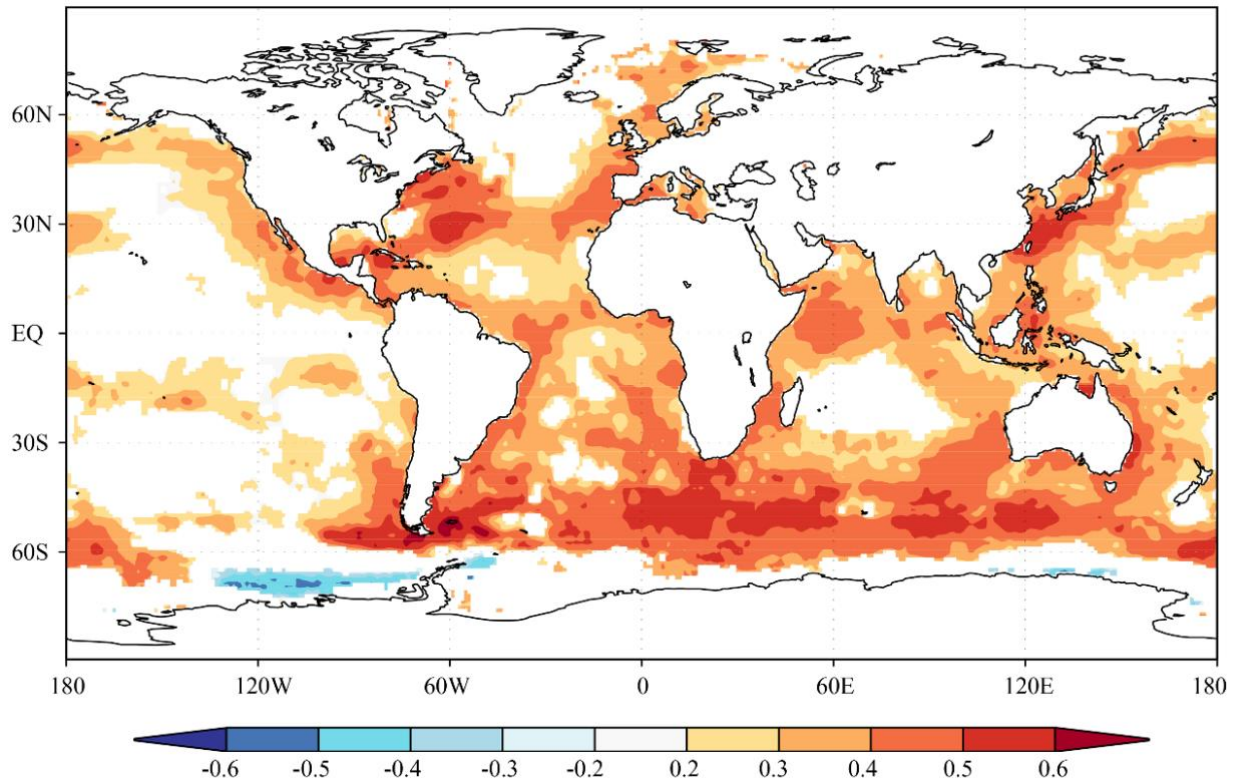
Site	Latitude (N)	Longitude (E)	Altitude (m)	Time-Span	Resolution
Xiaoergou	49°12'	123°43'	286.1	1957-2014	–
TS3.23 Mean T	51.25°	123.75°	–	1901-2014	0.5°*0.5°
GPCC Precipitation	51.25°	123.75°	–	1901-2014	2.5°*2.5°
Dai-PDSI	51.25°	123.75°	–	1911-2013	2.5°*2.5°
Cook-PDSI	51.25°	123.75°	–	1725-2005	2.5°*2.5°
sc-PDSI	51.25°	123.75°	–	1901-2013	0.5°*0.5°
CSIC-SPEI	51.25°	123.75°	–	1901-2012	0.5°*0.5°



**Fig. S1** The regional tree-ring width chronology of *Pinus sylvestris* var. *mongolica* in the Daxing'an Mountains (a). The RBAR, EPS (b), and sample size (c) of the chronology are also shown. RBAR and EPS are computed using 51-year windows. The reliable segment of the chronology is determined by the EPS value  $> 0.85$ .



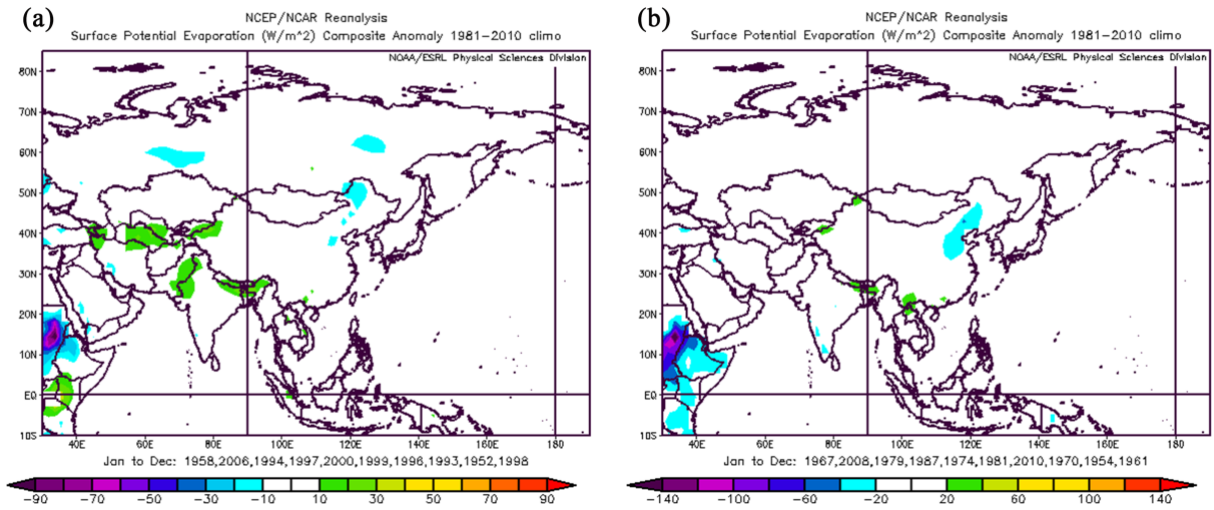
**Fig. S2** Superposed epoch analyses of reconstructed Dai-PDSI (1751-2010) with regional wildfire years of (a) Mengkeshan (1743-2010) and (b) Pangu (1767-2010) in the Daxing'an Mountains, northeast China. The analysis window includes six and four years before and after fire year (year “0”). Black bars indicate significant departures ( $p < 0.05$ ; dashed lines) from mean conditions.



**Fig. S3** Spatial correlations between the reconstructed PDSI and sea surface temperature in global scale.

The spatial correlation covered a time span from AD 1911 to 2010.





**Fig. S4** Composite anomaly maps of the surface potential evaporation ( $W/m^2$ ) (from January to December) for the 10 wettest (a) and driest (b) years of the reconstruction Dai-PDSI during the period 1948-2010.