Severity, duration and frequency of drought in SE England from 1697-2011

Electronic supplementary material

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Table S1 Sources of rainfall and temperature data

Site	Data	Period	Source	Monthly	Daily
Kew (Kew gardens)	Rainfall	1697-1870	Wales-Smith, 1980	✓	x
		1871-1970	Wales-Smith, 1971	✓	x
		1971-2010	MIDAS station 723, BADC	✓	✓
		1971-2010	MIDAS station 5574, BADC	✓	✓
	Temperature	1697-2010	CET, BADC	✓	✓
Oxford (Radcliffe Observatory)	Rainfall	1767-1814	Craddock, 1977	✓	x
		1815-1852	Rad obs vol 55, Knox-Shaw and Balk, 1932	✓	x
		1853-2010	MIDAS station 606, BADC	✓	✓
	Temperature	1767-1814	CET, BADC	✓	✓
		1815-1852	Rad obs vol 55, Knox-Shaw and Balk, 1932	✓	x
		1853-2010	MIDAS station 606, BADC	✓	✓
Spalding (Pode Hole)	Rainfall	1726-1975	Craddock and Wales-smith, 1977	✓	x
		1976-2010	MIDAS station 4037, BADC	✓	✓
	Temperature	1726-2010	CET, BADC	✓	✓

Table S2 Categorisation of dry and wet conditions as defined by Palmer (1965) for the PDSI, Source: adapted from Palmer (1965)

PDSI	Category
≥4.0	Extremely wet
3.0 to 3.9	Very wet
2.0 to 2.9	Moderately wet
1.0 to 1.9	Slightly wet
0.5 to 0.9	Incipient wet spell
0.49 to -0.49	Near normal
-0.5 to -0.99	Incipient drought
-1.0 to -1.9	Mild drought
-2.0 to -2.9	Moderate drought
-3.0 to -3.9	Severe drought
≤-4.0	Extreme drought

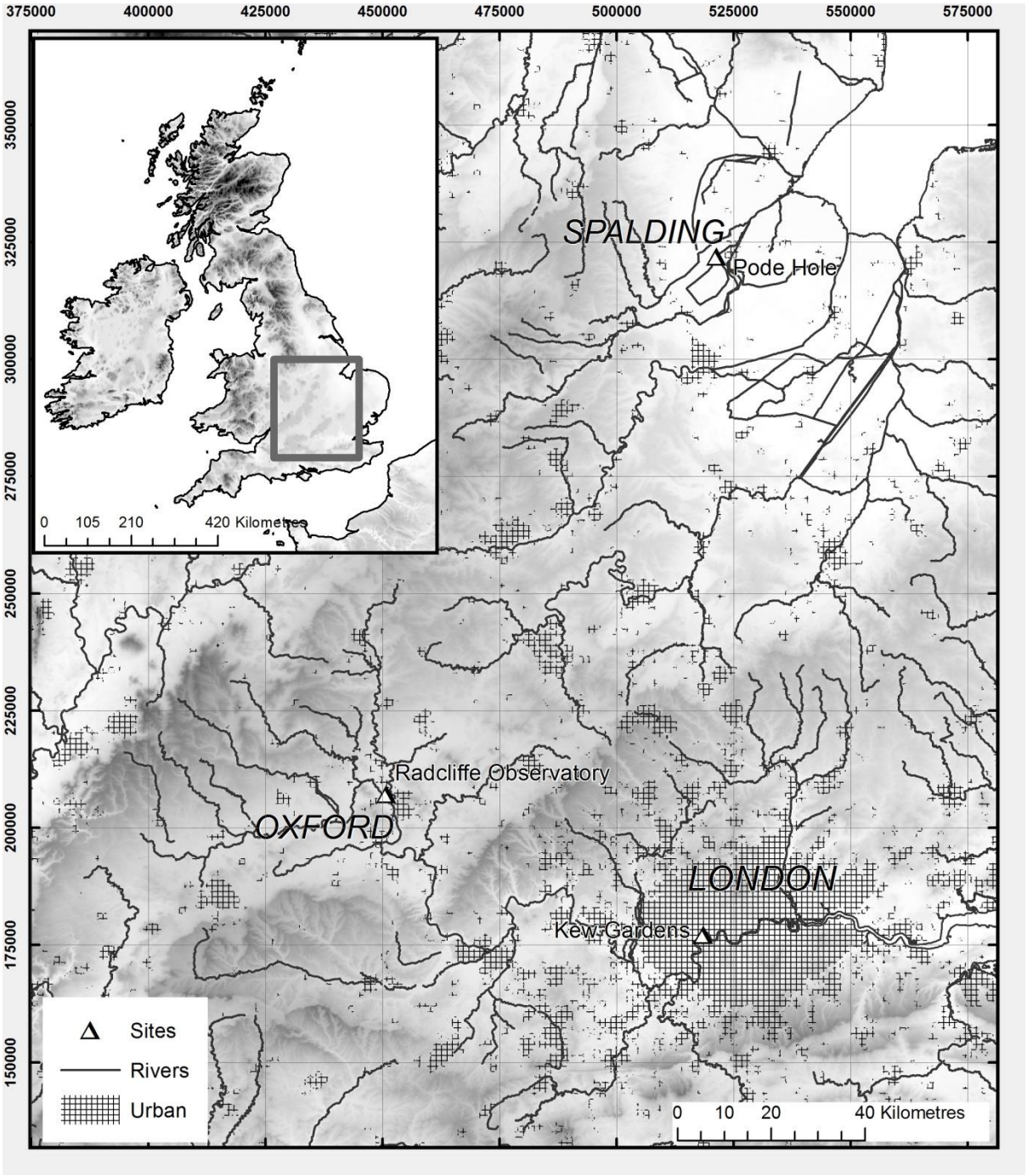

Fig S1 Distribution of meteorological stations across Southeast England employed in this study

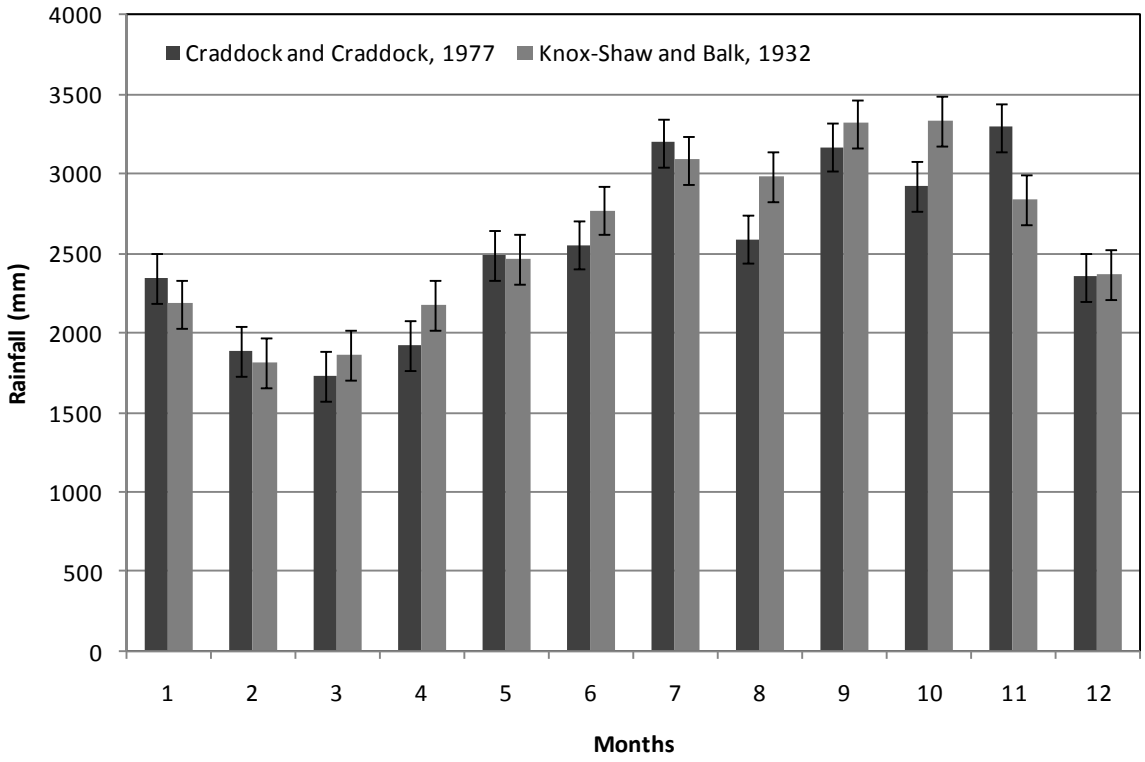

Fig S2 Monthly rainfall totals during 48 years from two data sources for Radcliffe Observatory, Oxford including standard error bars calculated at two standard deviations

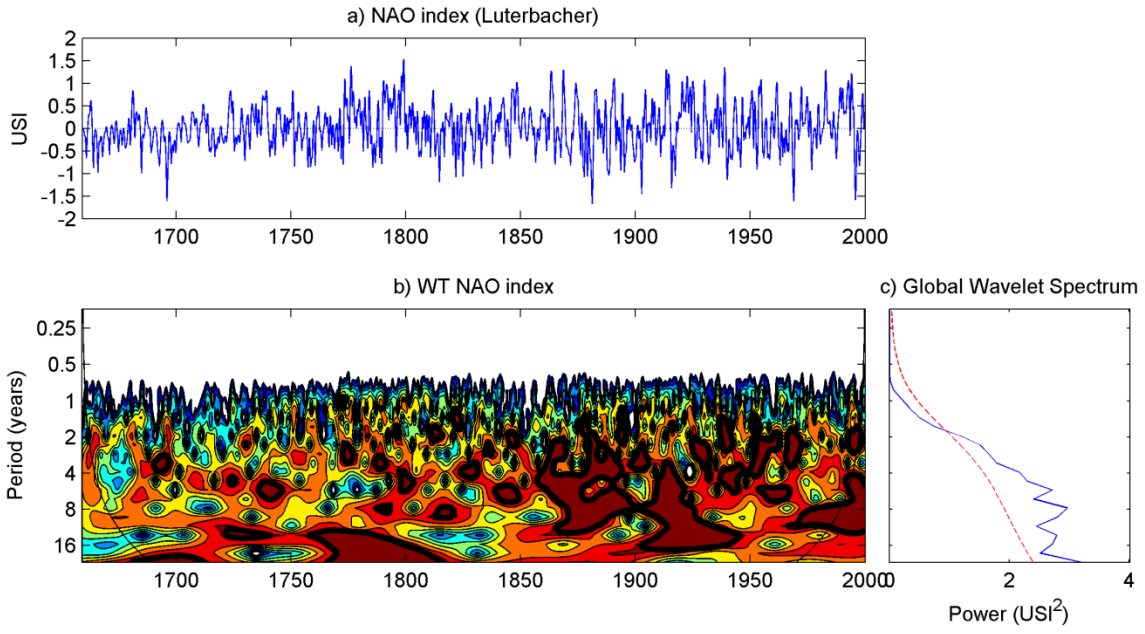

Fig S3 a) Luterbacher (2002)NAO index (a Gaussian filter with a 12 months cut off has been applied to remove the annual cycle), b) NAO index wavelet power spectrum, c) Integrated power spectrum

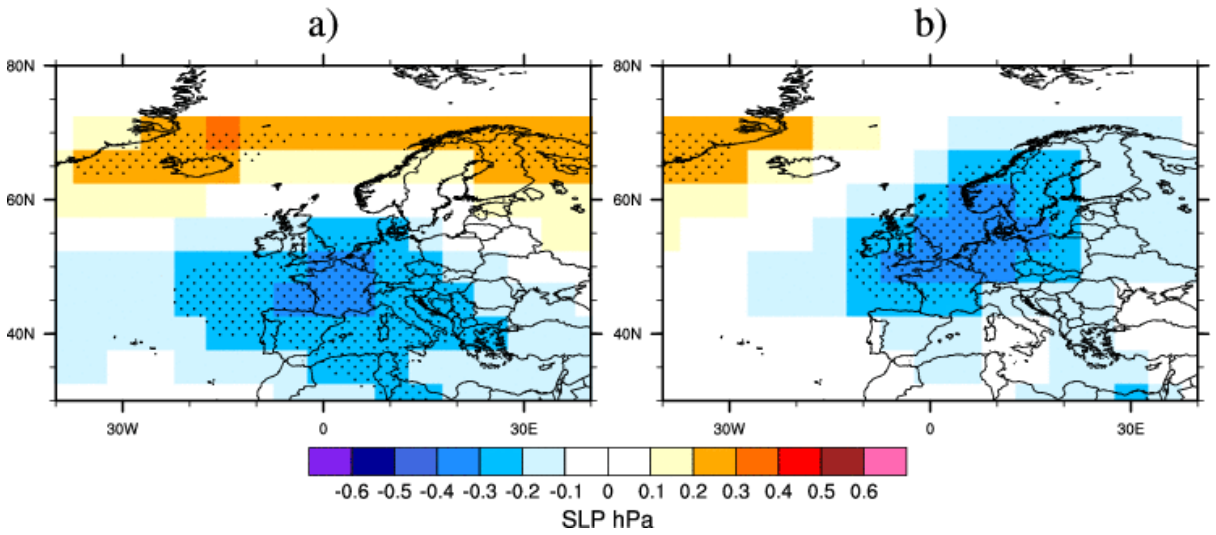

Fig S4 Linear regression between the Kew scPDSI and (a) winter (DJF) and (b) summer (JJA) mean sea level pressure based on the **EMULATE** dataset (Ansell et al. 2006). This is calculated for the period 1850-2003. Dotted areas depict significant correlation at the 95% confidence interval based on a student T-test. All data have been previously detrended.

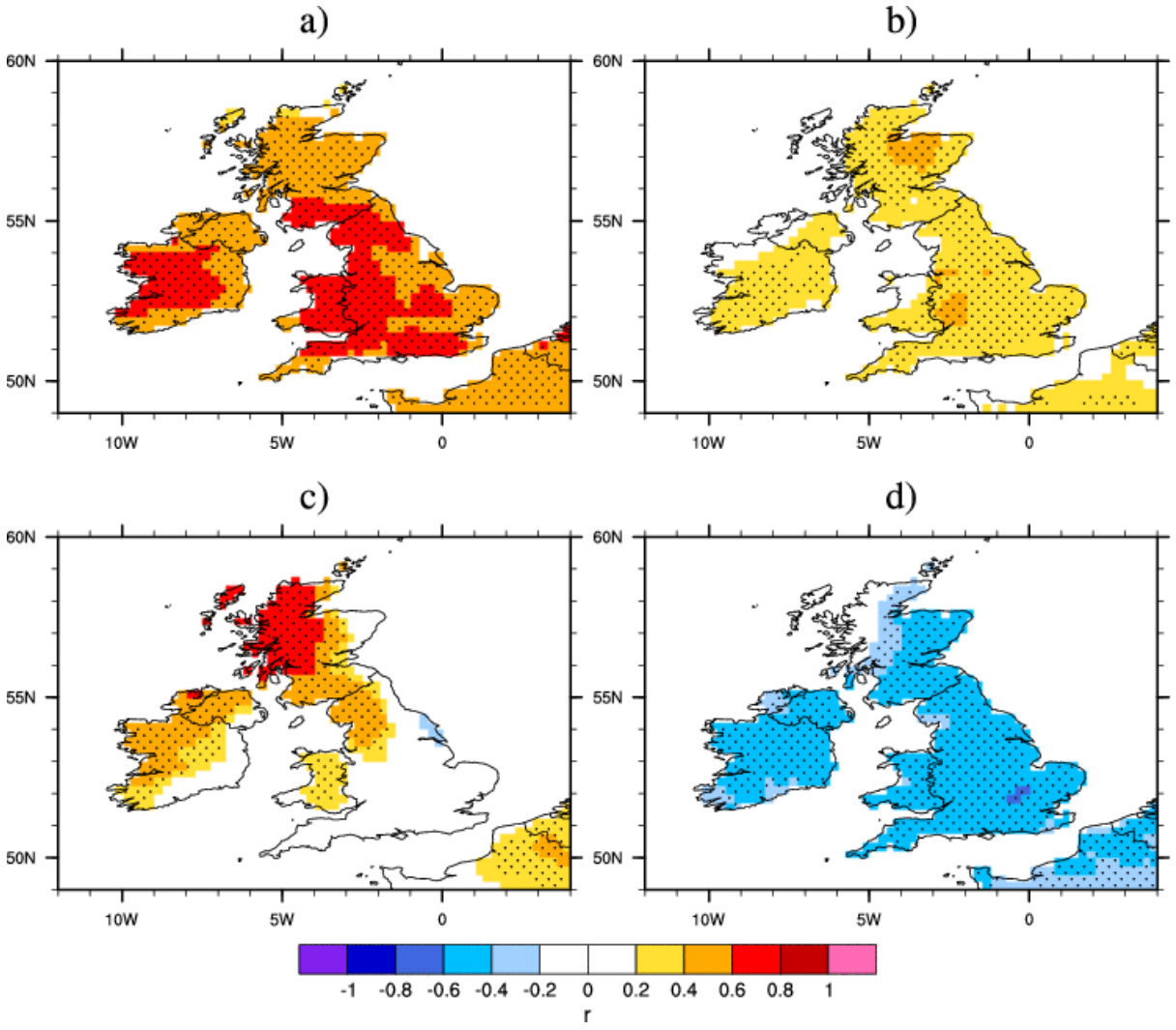

Fig S5 Correlation between the NAO index (CPC) and (a) winter (DJF) and (b) summer (JJA) temperature and c) winter and d) summer rainfall based on the **EOBS dataset** (Haylock et al. 2008). This is calculated for the period 1950-2010. Dotted areas depict significant correlation at the 95% confidence interval based on a student T-test. All data have been previously detrended.

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