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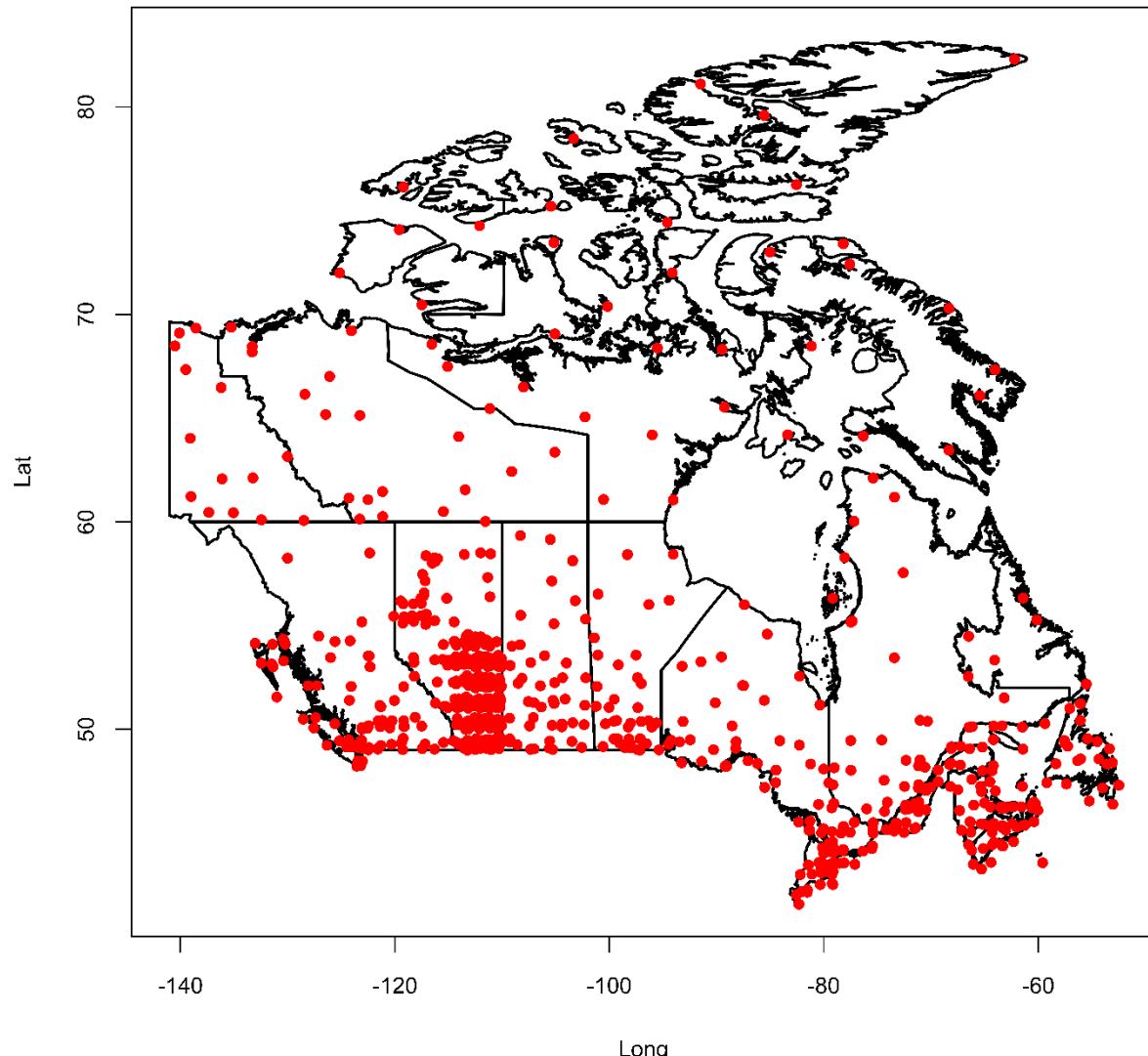
Supplement of

Historical drought patterns over Canada and their teleconnections with large-scale climate signals

Zilefac Elvis Asong et al.

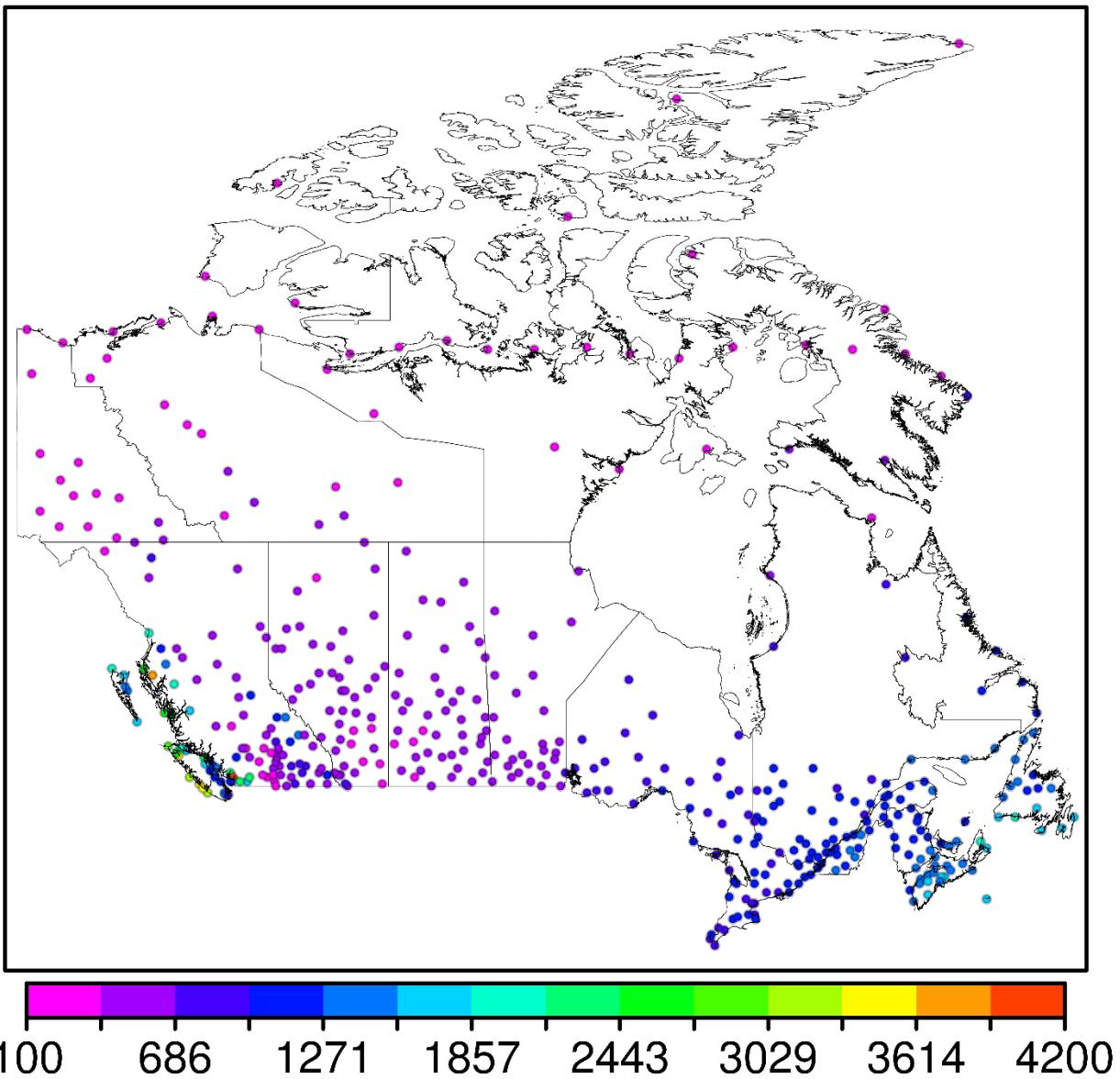
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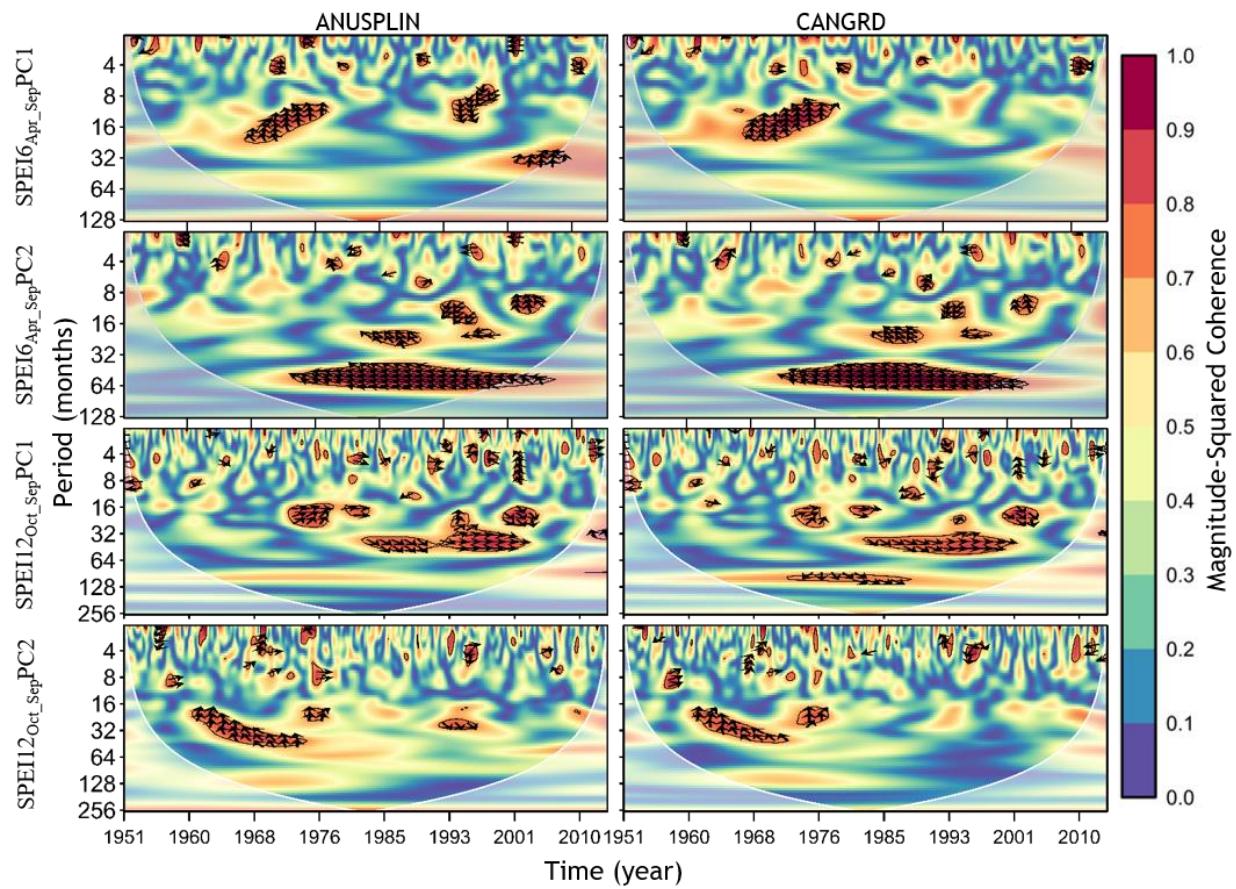
25 **Figure S1:** Spatial distribution of stations from which the ANUSPLIN data set was derived. The in situ data
26 are from the weather station networks available in the Canadian Meteorological Centre (CMC) database at
27 815 stations located across Canada. The concentration of stations south of latitude 55°N is noticeable. This
28 station network is maintained by Environment and Climate Change Canada (ECCC)
29 (http://climate.weather.gc.ca/historical_data/search_historic_data_e.html). It is important to note that the station
30 density is not constant through time.



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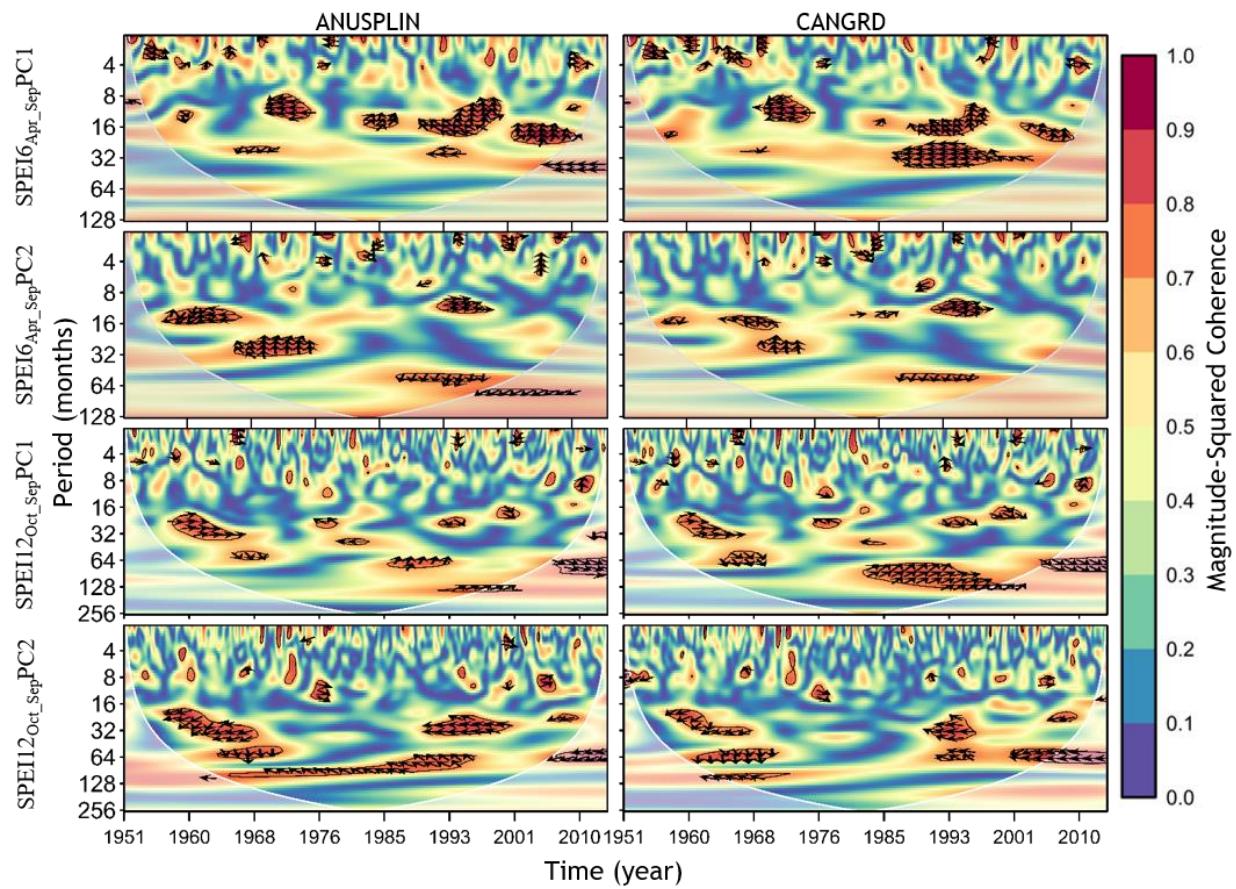
32 **Figure S2:** Spatial distribution of stations from which the CANGRD data set was derived. The colors
33 represent mean annual precipitation (mm) between 1961 – 2013.

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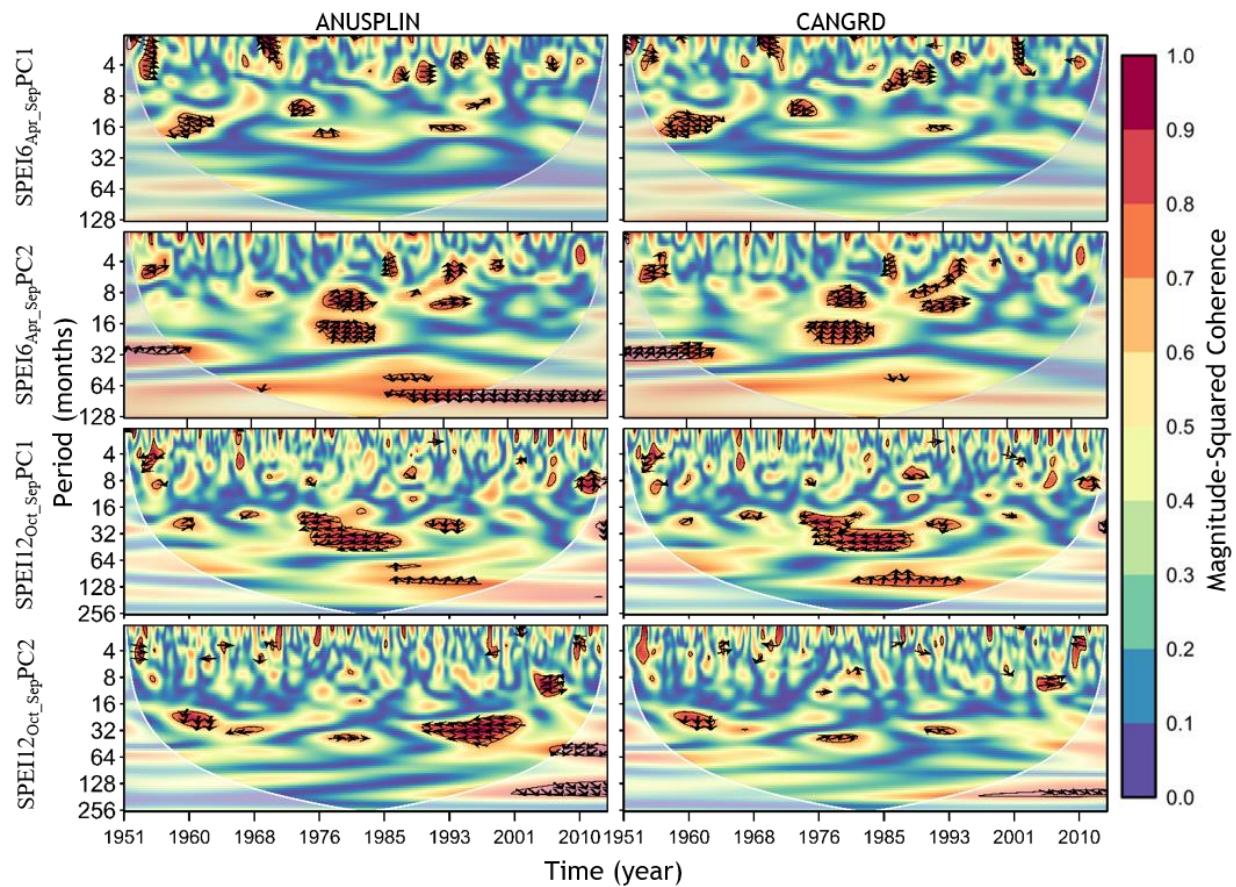
36 **Figure S3:** Squared wavelet coherence between the AMO and the temporal patterns of drought
 37 (SPEI6_{Apr_Sep} and SPEI12_{Oct_Sep}). Phase arrows pointing right indicate signals are in phase, whereas a left-
 38 pointing arrows indicate an antiphase relationship. Arrows deviating from the horizontal are indicative of
 39 lead-lag relationships between the two signals. The black contour designates the 95% confidence level
 40 against red noise, and the cone of the influence (COI) where edge effects might distort the picture is shown
 41 as a lighter grey shade.



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43 **Figure S4:** Squared wavelet coherence between the AO and the temporal patterns of drought (SPEI6_{Apr_Sep}
 44 and SPEI12_{Oct_Sept}). Phase arrows pointing right indicate signals are in phase, whereas a left-pointing arrows
 45 indicate an antiphase relationship. Arrows deviating from the horizontal are indicative of lead-lag
 46 relationships between the two signals. The black contour designates the 95% confidence level against red
 47 noise, and the cone of the influence (COI) where edge effects might distort the picture is shown as a lighter
 48 grey shade.

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50

51 **Figure S5:** Squared wavelet coherence between the NAO and the temporal patterns of drought
 52 (SPEI6_{Apr_Sep} and SPEI12_{Oct_Sep}). Phase arrows pointing right indicate signals are in phase, whereas a left-
 53 pointing arrows indicate an antiphase relationship. Arrows deviating from the horizontal are indicative of
 54 lead-lag relationships between the two signals. The black contour designates the 95% confidence level
 55 against red noise, and the cone of the influence (COI) where edge effects might distort the picture is shown
 56 as a lighter grey shade.

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