



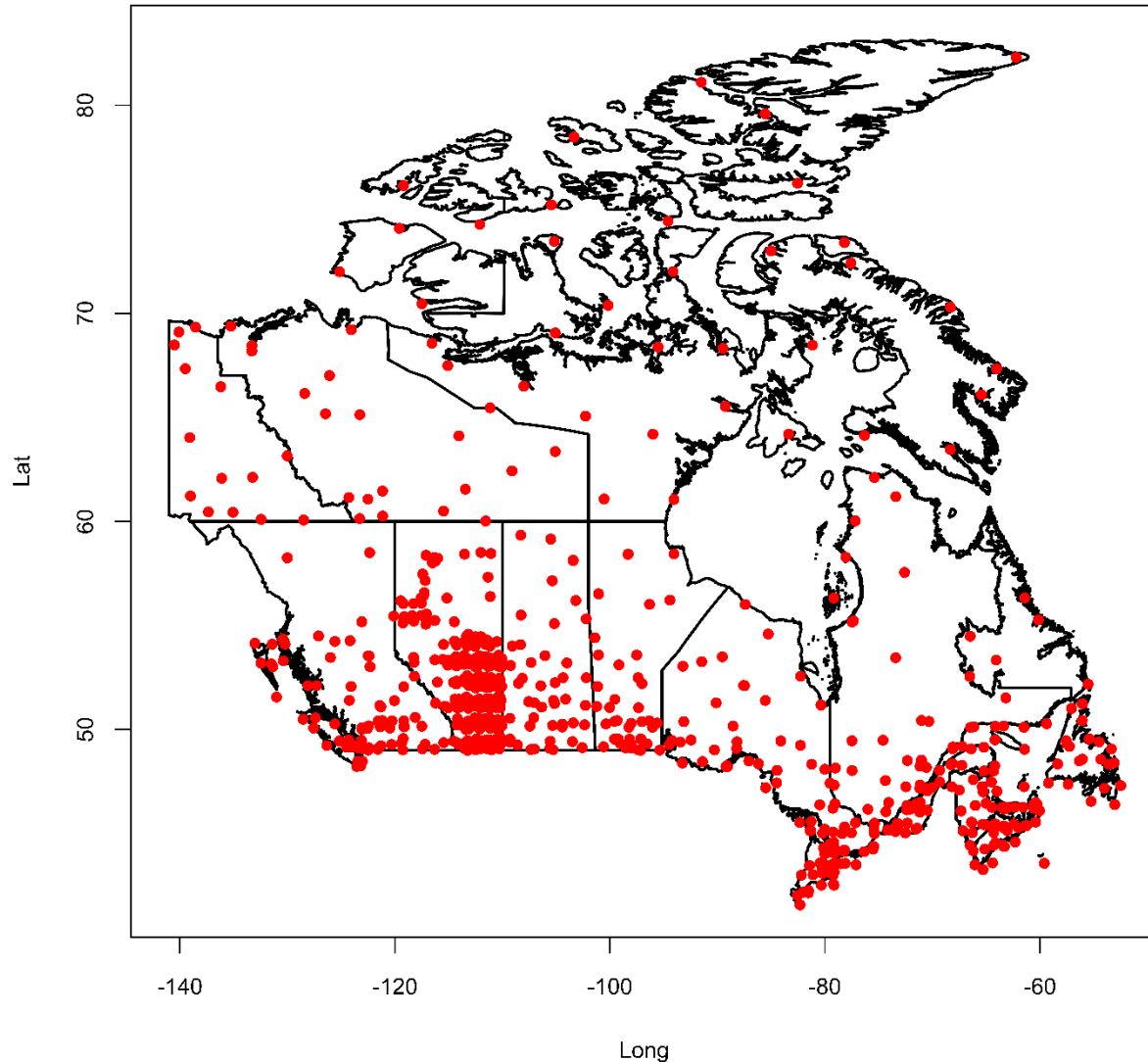
*Supplement of*

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

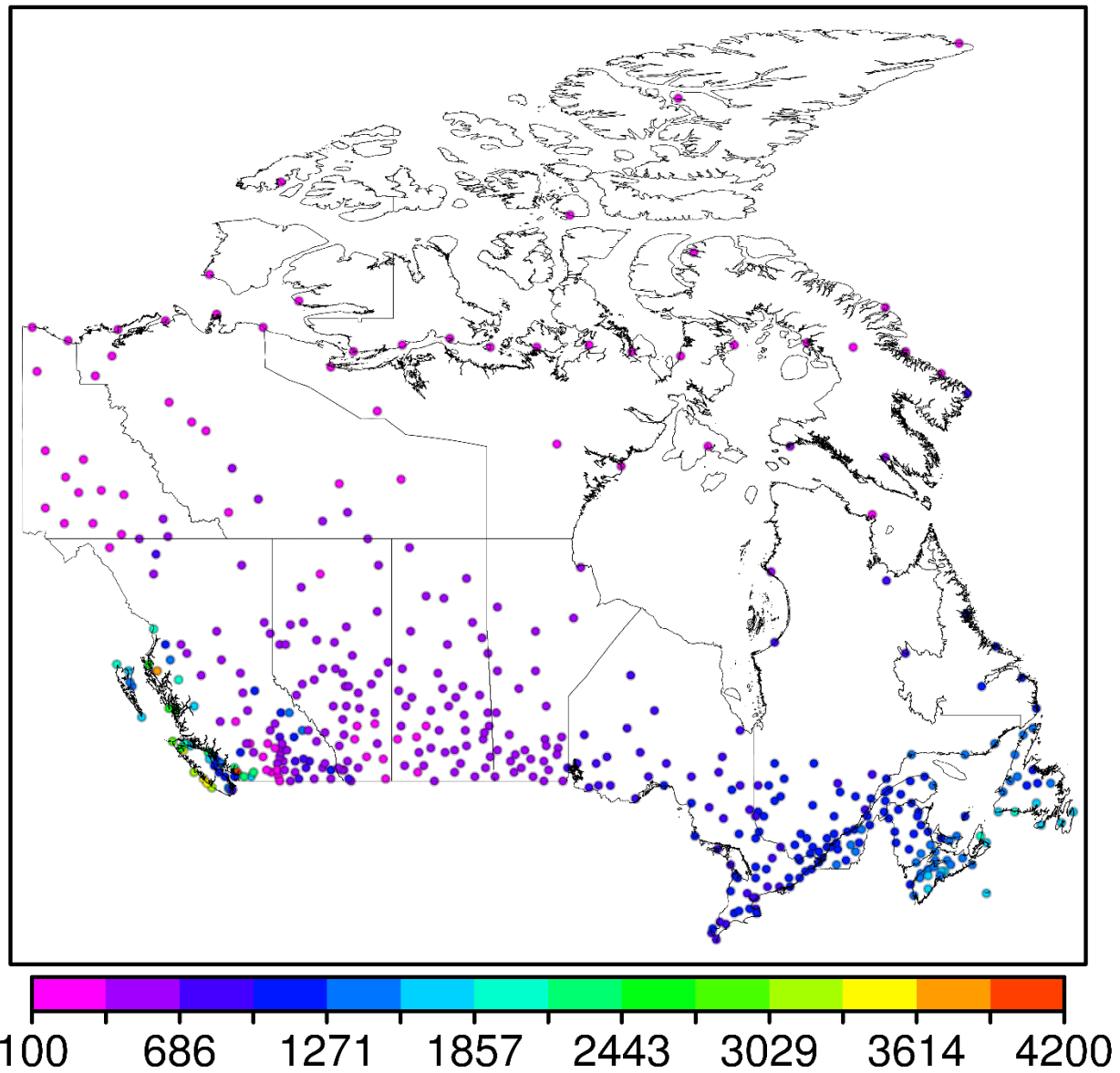
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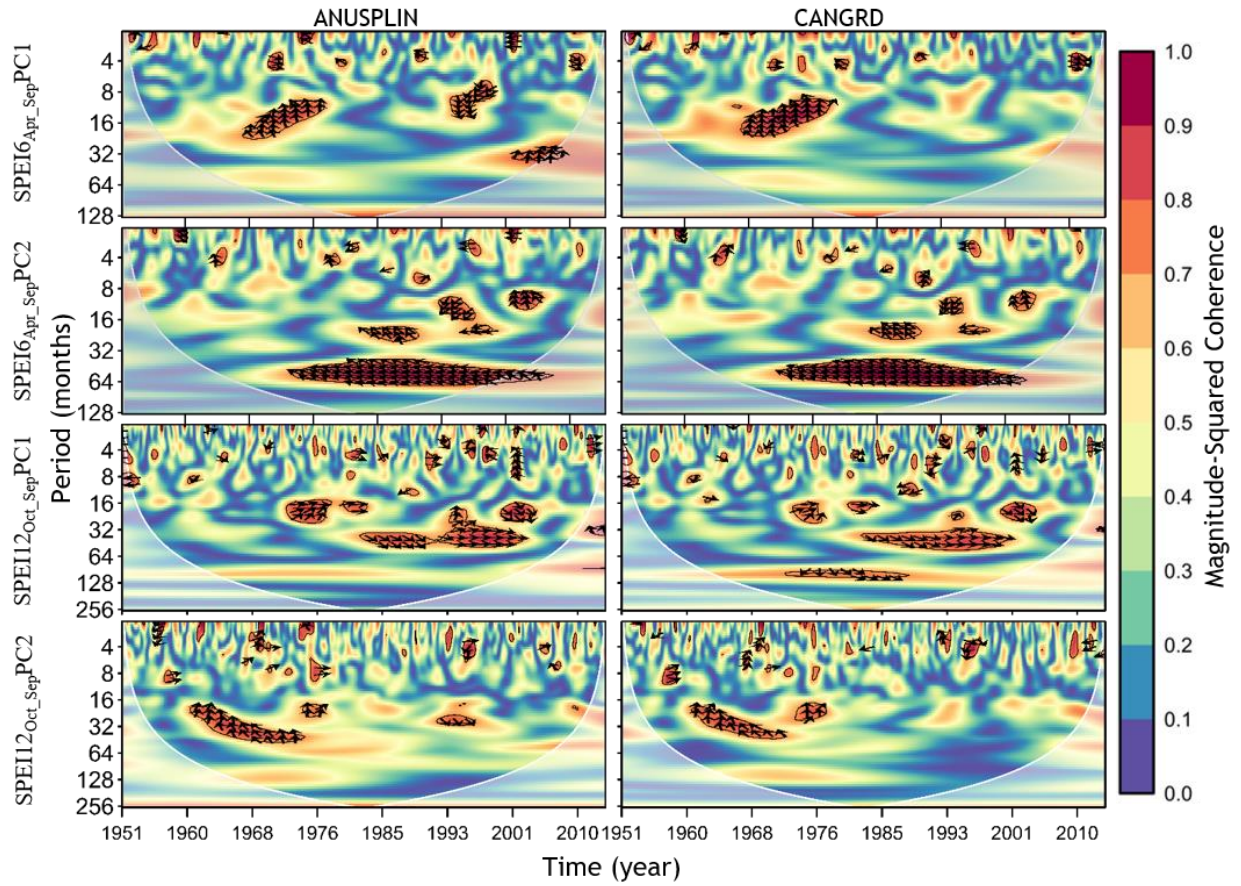
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**Figure S1:** Spatial distribution of stations from which the ANUSPLIN data set was derived. The in situ data are from the weather station networks available in the Canadian Meteorological Centre (CMC) database at 815 stations located across Canada.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

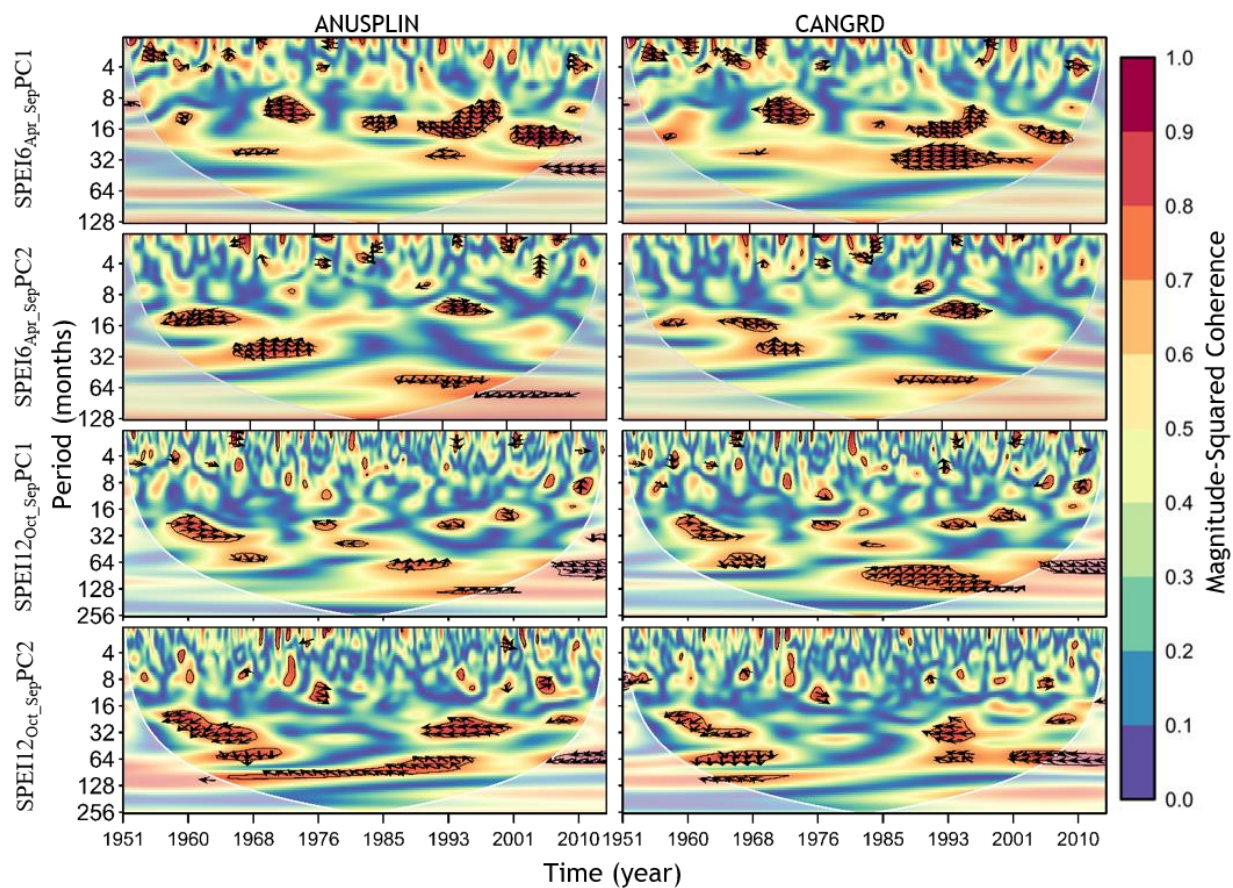


**Figure S2:** Spatial distribution of stations from which the CANGRD data set was derived. The colors represent mean annual precipitation (mm) between 1961 – 2013.



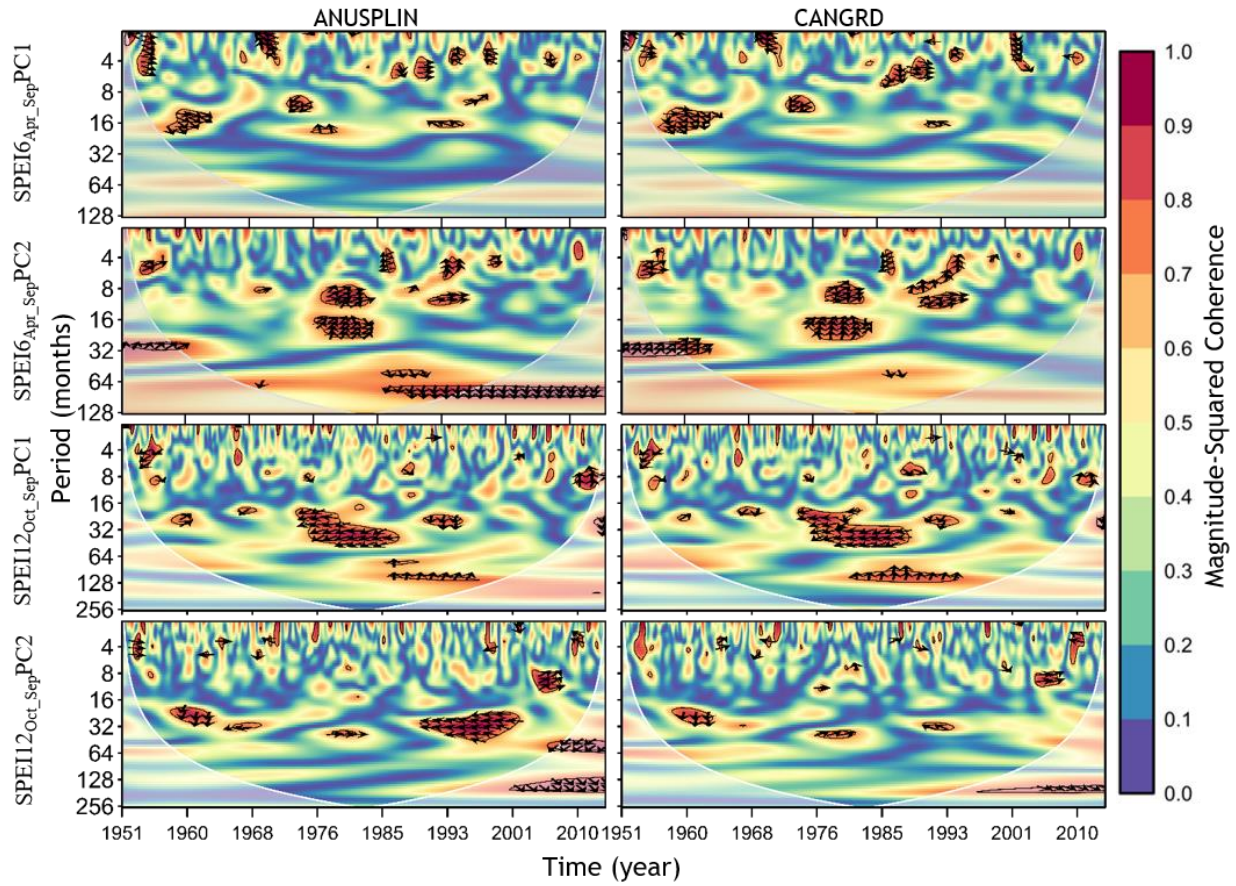
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36 **Figure S3:** Squared wavelet coherence between the AMO and the temporal patterns of drought  
 37 (SPEI6<sub>Apr\_Sept</sub> and SPEI12<sub>Oct\_Sept</sub>). Phase arrows pointing right indicate signals are in phase, whereas a left-  
 38 pointing 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.



**Figure S4:** Squared wavelet coherence between the AO and the temporal patterns of drought (SPEI6<sub>Apr-Sep</sub> and SPEI12<sub>Oct-Sep</sub>). Phase arrows pointing right indicate signals are in phase, whereas a left-pointing arrows indicate an antiphase relationship. Arrows deviating from the horizontal are indicative of lead-lag relationships between the two signals. The black contour designates the 95% confidence level against red noise, and the cone of the influence (COI) where edge effects might distort the picture is shown as a lighter grey shade.





**Figure S5:** Squared wavelet coherence between the NAO and the temporal patterns of drought (SPEI6<sub>Apr\_Sep</sub> and SPEI12<sub>Oct\_Sep</sub>). Phase arrows pointing right indicate signals are in phase, whereas a left-pointing arrows indicate an antiphase relationship. Arrows deviating from the horizontal are indicative of lead-lag relationships between the two signals. The black contour designates the 95% confidence level against red noise, and the cone of the influence (COI) where edge effects might distort the picture is shown as a lighter grey shade.