



ECL7202 – DENDROECOLOGY

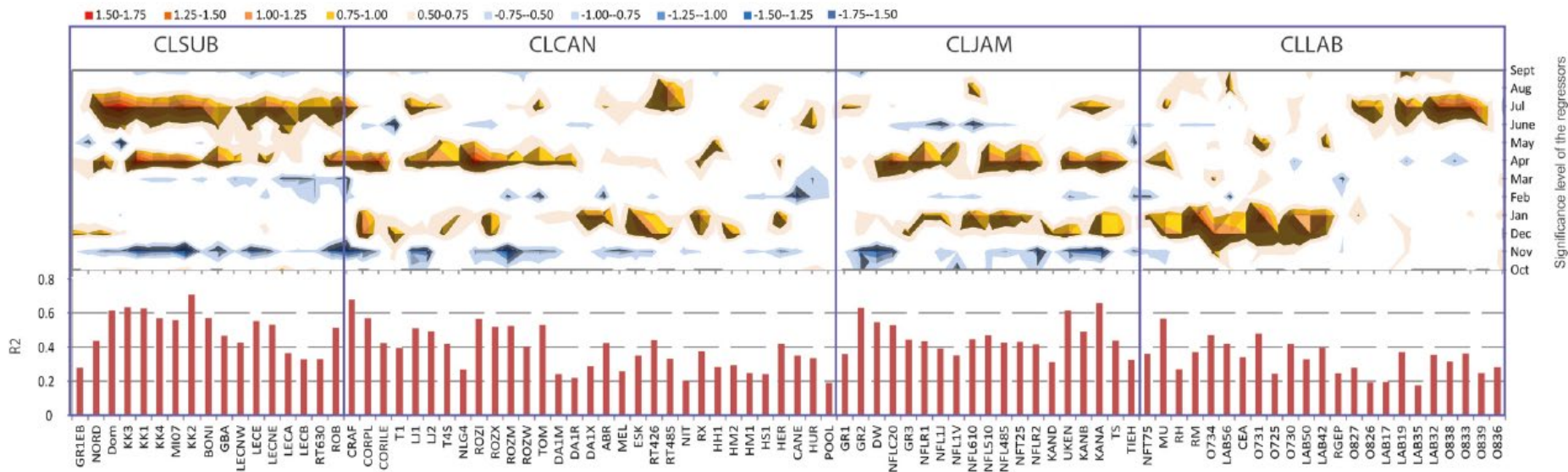
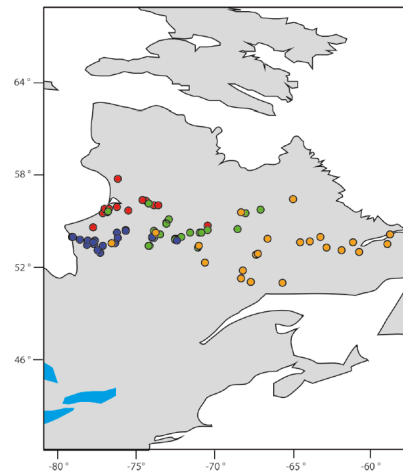
2.3 – Response functions and transfer functions



Response functions

Functions to identify climatic variables that determine growth

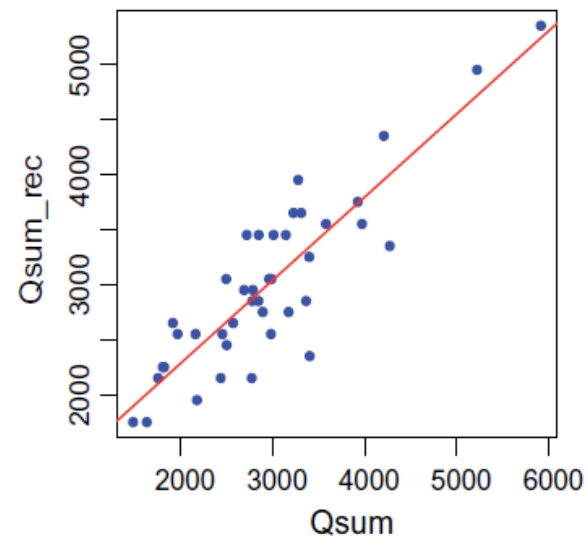
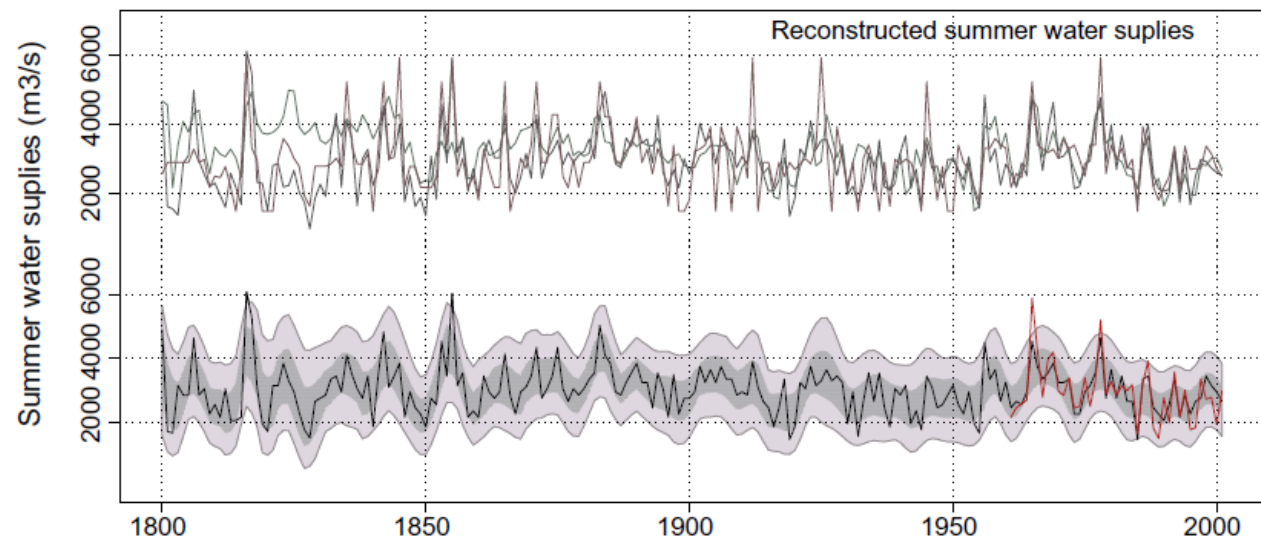
Nicault, A., Boucher, E., Tapsoba, D., Arseneault, D., Berninger, F., Bégin, C., ... Bégin, Y. (2014). Spatial analysis of the black spruce (*Picea mariana* [MILL] B.S.P.) radial growth response to climate in northern Québec, Canada. *Canadian Journal of Forest Research*, 45(3), 343–352. doi: 10.1139/cjfr-2014-0080



Transfer functions

Functions to reconstruct a climatic variable using tree-ring proxies

Nicault, A., Boucher, E., Bégin, C., Guiot, J., Marion, J., Perreault, L., ... Bégin, Y.
(2014). Hydrological reconstruction from tree-ring multi-proxies over the last two centuries at the Caniapiscau Reservoir, northern Québec, Canada. *Journal of Hydrology*, 513, 435–445.



Practical exercise

1. Download climate data in Climate Explorer

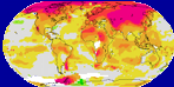
Go to Climate Explorer

Monthly Observation

1901-2019: CRU TS 4.04 (land)

ave_region :: lon= -73.000 -69.000, lat= 54.000 55.000

Download raw data



KNMI Climate Explorer

Climate Explorer European Climate Assessment & Data KNMI

search in the Climate Explorer

Help News About Contact World weather Effects of El Niño Seasonal forecasts Climate Change Atlas

Starting point

Welcome, anonymous user

Please enter the KNMI Climate Explorer, a research tool to investigate the climate. This web site collects a lot of climate data and analysis tools. Please verify yourself that the data you use is good enough for your purpose, and report errors back. In publications the original data source should be cited, a link to a web page describing the data is always provided.

Start by selecting a class of climate data from the right-hand menu. After you have selected the time series or fields of interest, you will be able to investigate it, correlate it to other data, and generate derived data from it.

If you are new it may be helpful to study the examples.

Share and enjoy!

Some restrictions are in force, notably the possibility to define your own indices, to upload data into the Climate Explorer and to handle large datasets. If you want to use these features please [log in](#) or [register](#).

Select a time series

- > Daily station data
- > Daily climate indices
- > Monthly station data
- > Monthly climate indices
- > Annual climate indices
- > View, upload your time series

Select a field

- > Daily fields
- > Monthly observations
- > Monthly reanalysis fields
- > Monthly and seasonal historical reconstructions
- > Monthly seasonal hindcasts
- > Monthly CMIP3+ scenario runs

Practical exercise

1. Download climate data in Climate Explorer
2. Response and transfer functions with the package <treeclim>

Open : <dendroecology-response_transfer_f-2020>

