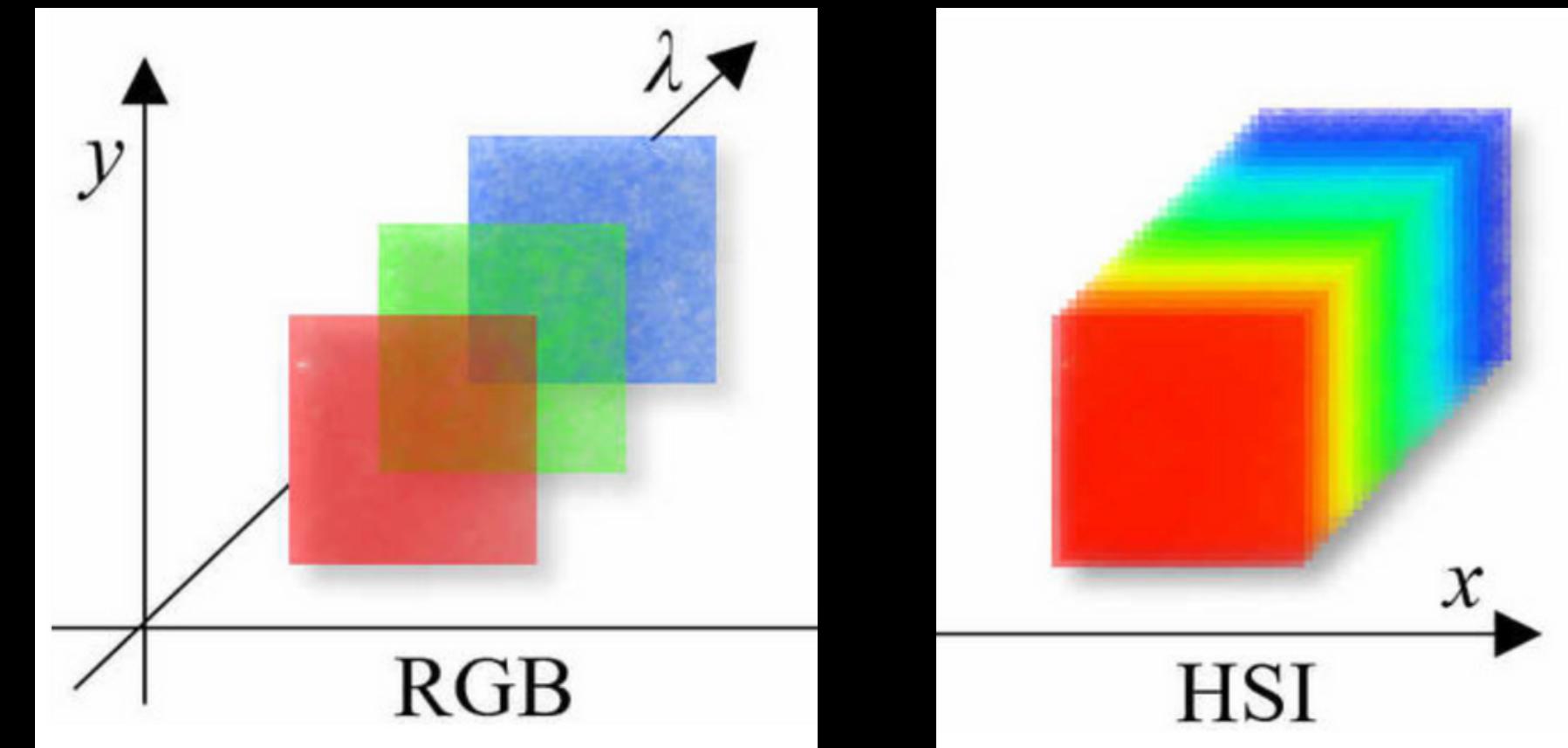


HOT DROUGHT INDUCED DOUGLAS-FIR MORTALITY PROJECT SUMMARY

MEDELIN KANT | FOREST ECOSYSTEMS AND SOCIETY

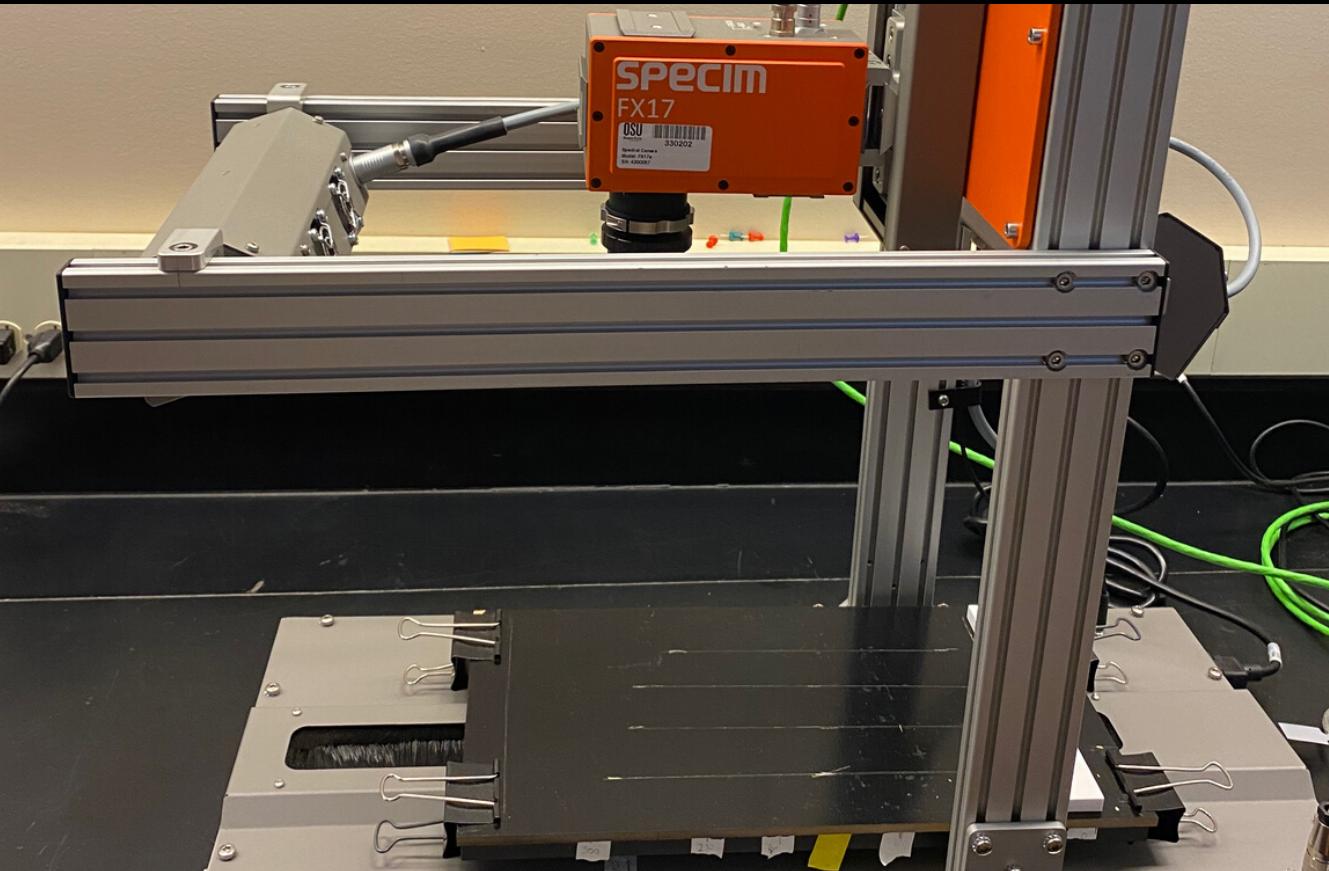
AS A RESULT OF CLIMATE CHANGE, HOT DROUGHT IN THE PNW IS LEADING TO WIDESPREAD DOUGLAS-FIR MORTALITY AND FOREST MANAGERS NEED A RAPID AND SCALABLE PLATFORM TO ASSESS TREE PHYSIOLOGICAL STATUS TO SUCCESSIVELY MANAGE FORESTS.



TO PROVIDE A MORE EFFECTIVE METHOD TO ASSESS TREE RESPONSE TO GLOBAL-CHANGE-TYPE DROUGHT, I PROPOSE TO UNIQUELY PAIR STABLE CARBON ISOTOPE COMPOSITION (AN IMPORTANT PROXY FOR PLANT FUNCTION) WITH HYPERSPECTRAL IMAGING OF TREE RINGS.

GROWTH VARIATION ANALYSES

1. Ring Width Index and
2. Basal Area Increment from tree core samples



HYPERSPECTRAL REFLECTANCE ANALYSES

Spectral data transformation,
Partial Least Squares
Regression modeling and
relevant wavelength selection.

ACHIEVED SUCCESSES

Finished the first part of my goals for the term.

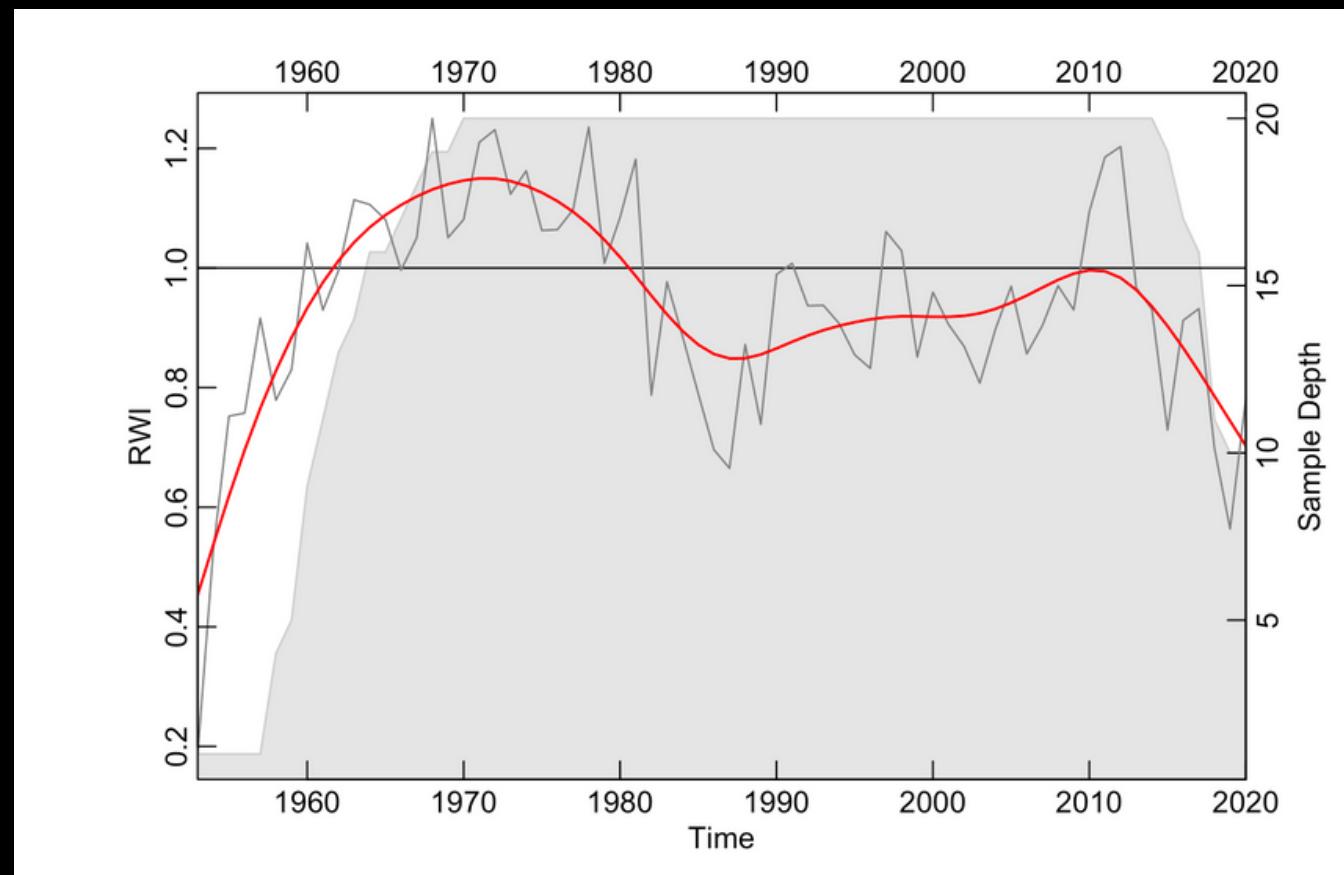
Tree ring growth variation analyses:

1. Ring Width Index
2. Basal Area Increment

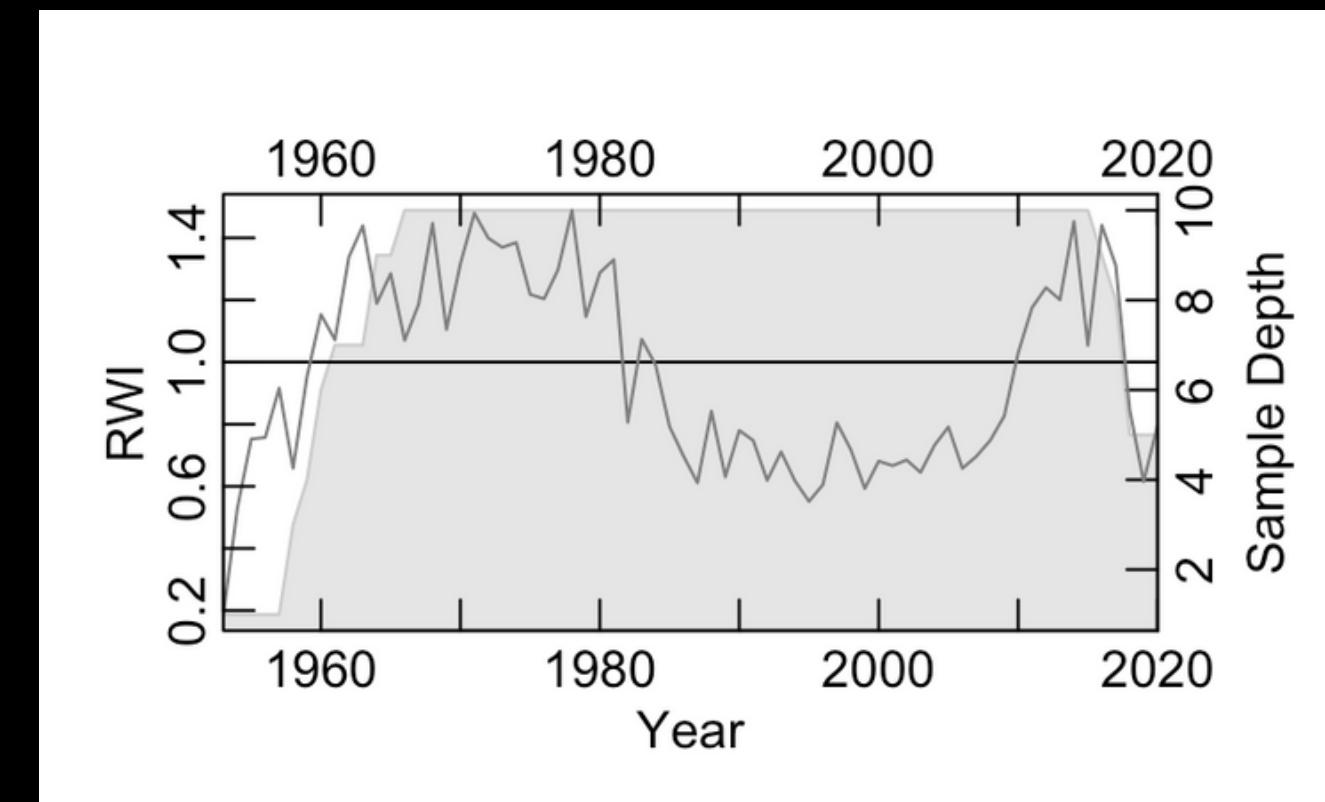
Used a new R package dplR, to perform tree-ring analyses of detrending, chronology building, and cross dating.

Now able to share code with dendro-friends.

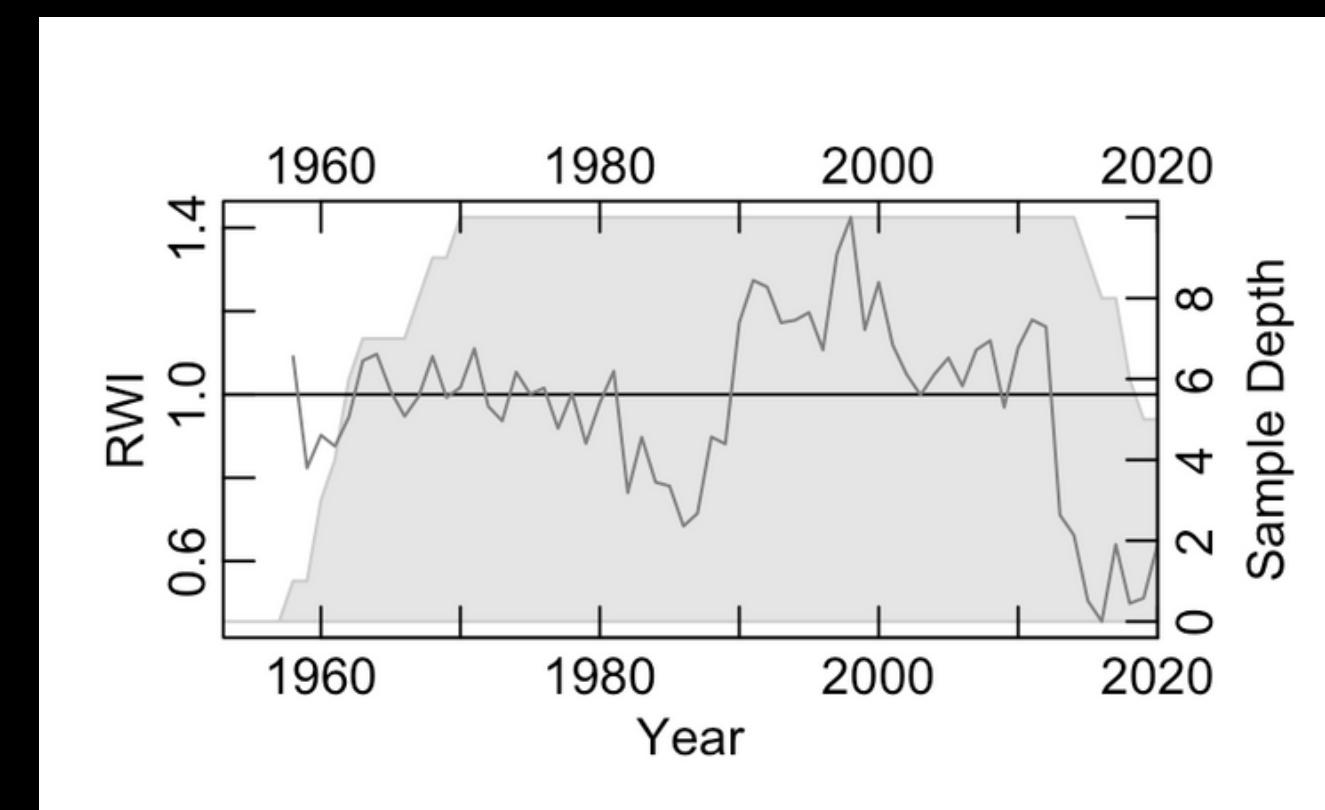
Achieved Scientific Insights



TOTAL MEAN VALUE
CHRONOLOGY



SITE 1 MEAN VALUE CHRONOLOGY



SITE 2 MEAN VALUE CHRONOLOGY



MAIN STICKING POINTS AND FUTURE PLANS

EXPECT EVERYTHING TO TAKE MUCH
LONGER THAN YOU ANTICIPATED

I was fairly ambitious in setting my goals for
the term so I'm still satisfied with the
progress made.

HYPERSPECTRAL IMAGING ANALYSES

Working on this part of the project over
December

ISOTOPIC ANALYSIS