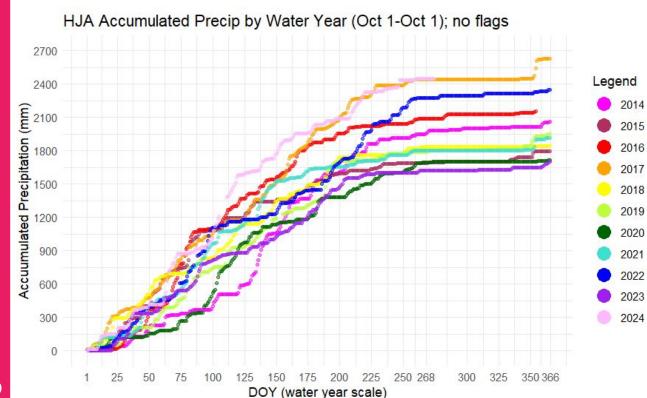
Contextualizing the 2021 Heat Dome Via Climatic Relationships, Dendrometry, and Dendrochronology

Flash Talk by Gabby John for the December 2024 HJ Andrews Monthly Meeting



- Patterns of tree growth
 - Challenging to categorize, especially when older
- 2021 Heat Dome
 - unprecedented & significant
- Heat waves & drought
 - complex & challenging to disentangle
 - Stress Hours help?

Problems? Solutions?



How do we achieve this?

- Multi-faceted analysis of...
 - Met Station microclimate data (VPD, air temp, precip, etc.)
 - High-resolution dendrometers
 - Tree cores

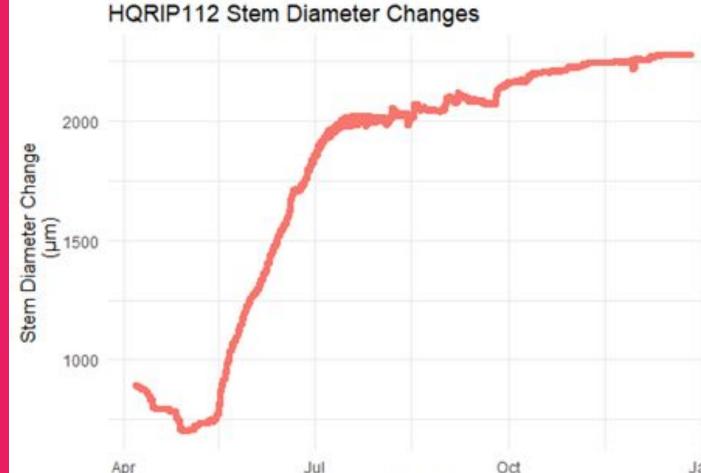
- Dendrometry: specific changes
- Microclimate data: expansive, prevalent, ready to be analyzed
- Tree cores: long-term patterns
- ALL VIA HJA!



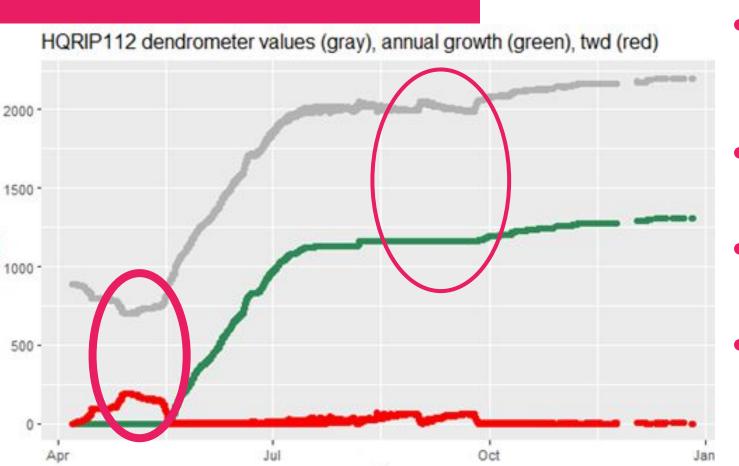
Raw dendrometer outputIncremental

- Incremental changes in diameter
- Riparian area
 by HJA
 headquarters
- Relatively as expected
- Some bumps / shrinkage

Unprocessed Data



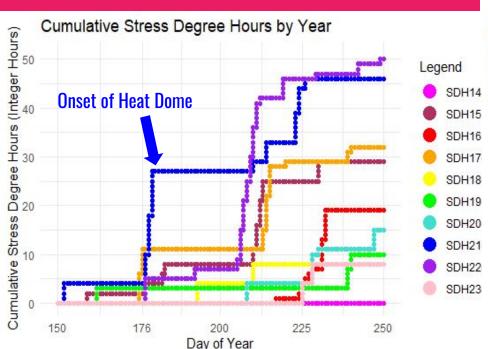
TreeNetProc Processed Data

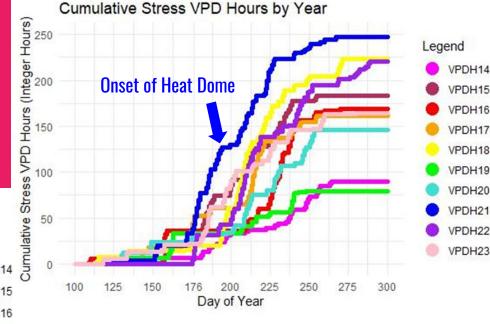


- Gray line: raw dendro output
- Green line:
 processed
 output-ideally
 more accurate
- Red line: estimate of tree water deficit (TWD)
 - Thick circle: estimate of TWD due to shrinkage
- Thin circle:
 "smoothed"
 growth reducing
 "bumps" in output

Microclimate

Tentative thresholds○ ≥35° C; ≥3 kPa





- Data from HJA Provisional Data Portal
- Significant indicators of disproportionate stress for 2021
- Ready to compare with dendrometer & tree core data

THANK YOU! :-)

