

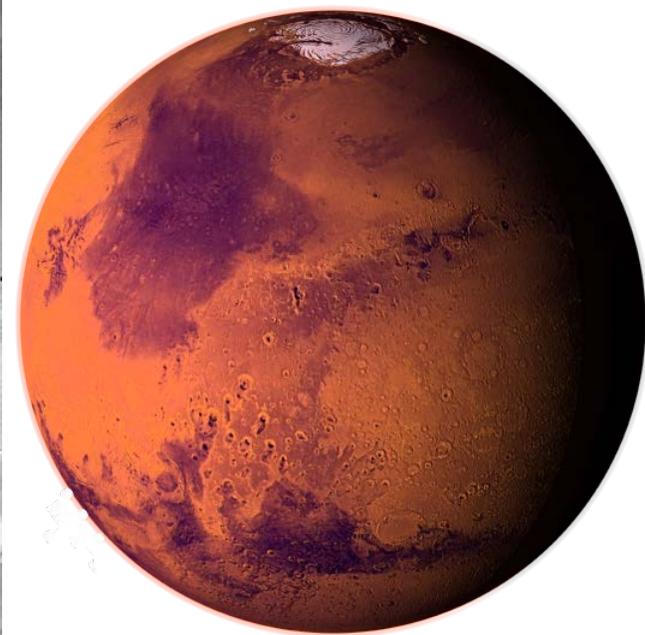
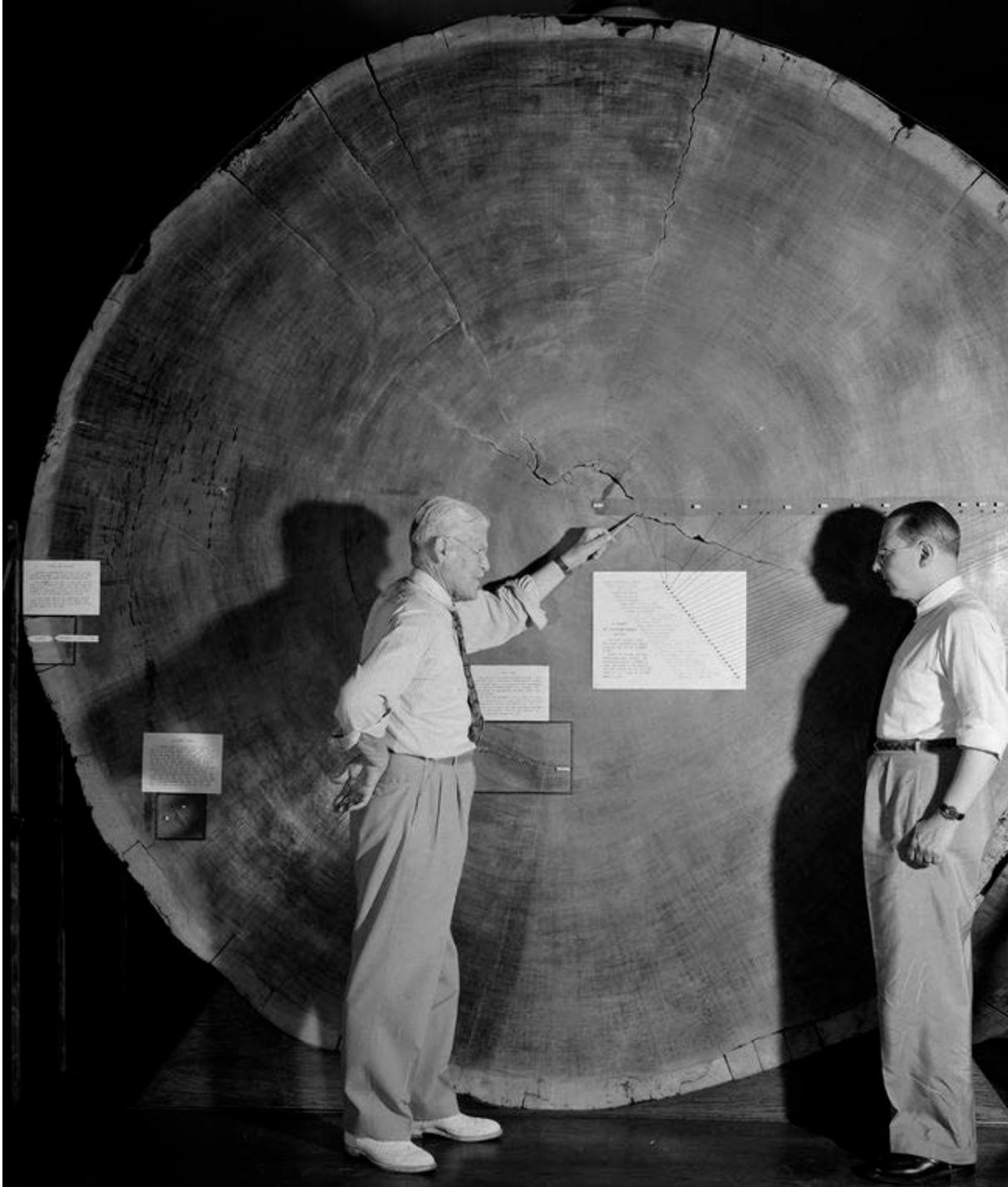
Using tree-ring sampling to quantify historical stem growth and reconstruct aboveground biomass at flux-tower sites

Jasper Bloemen, Flurin Babst, Stefan Klesse, David Frank and Bert Gielen



UA SCIENCE
Laboratory of
Tree-Ring Research







Nothing has changed that much since then...

But more subdisciplines were created:

Dendrochronology

ecology

climatology

archaeology

Geomorphology

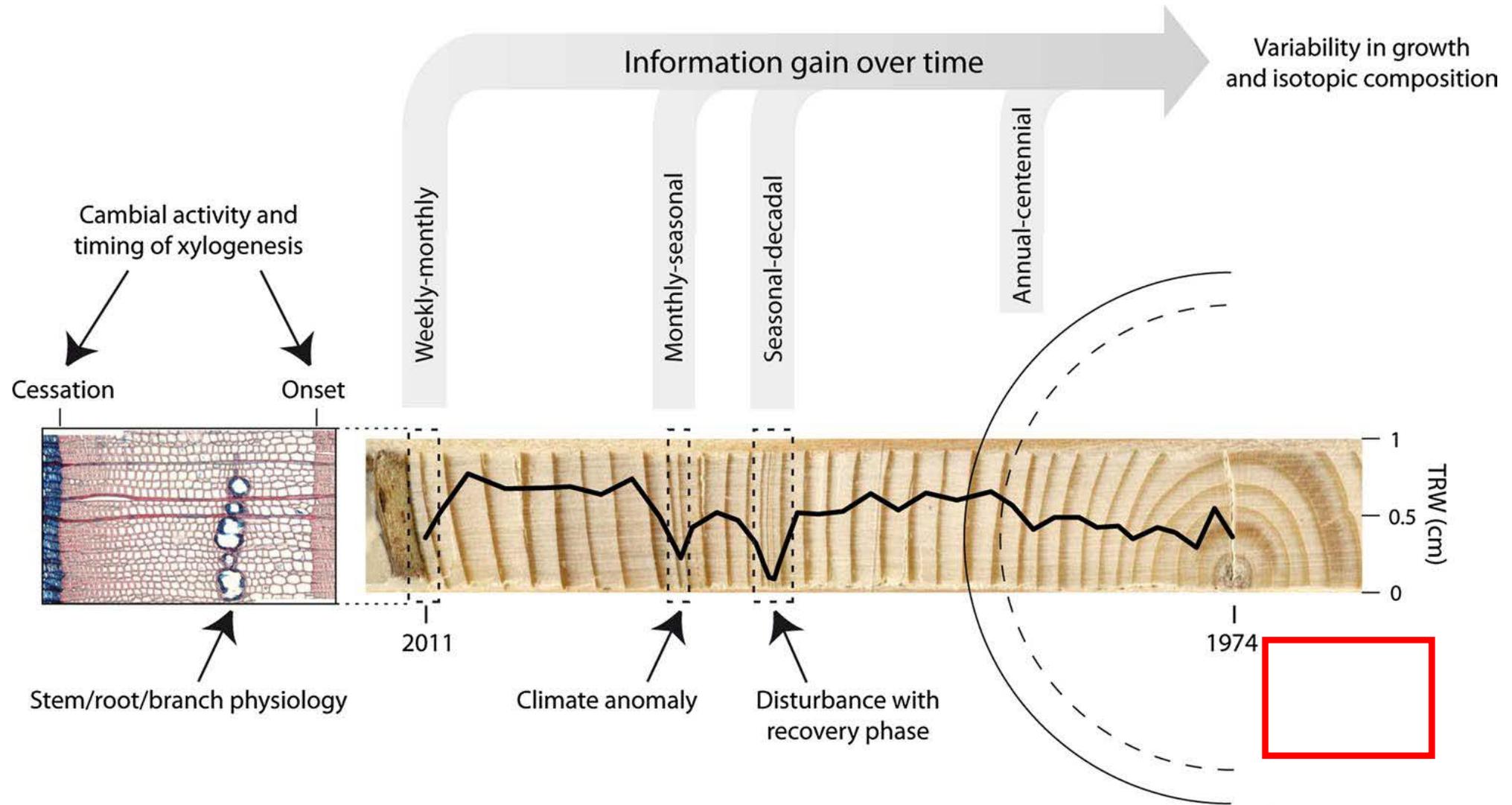
Isotope chemistry

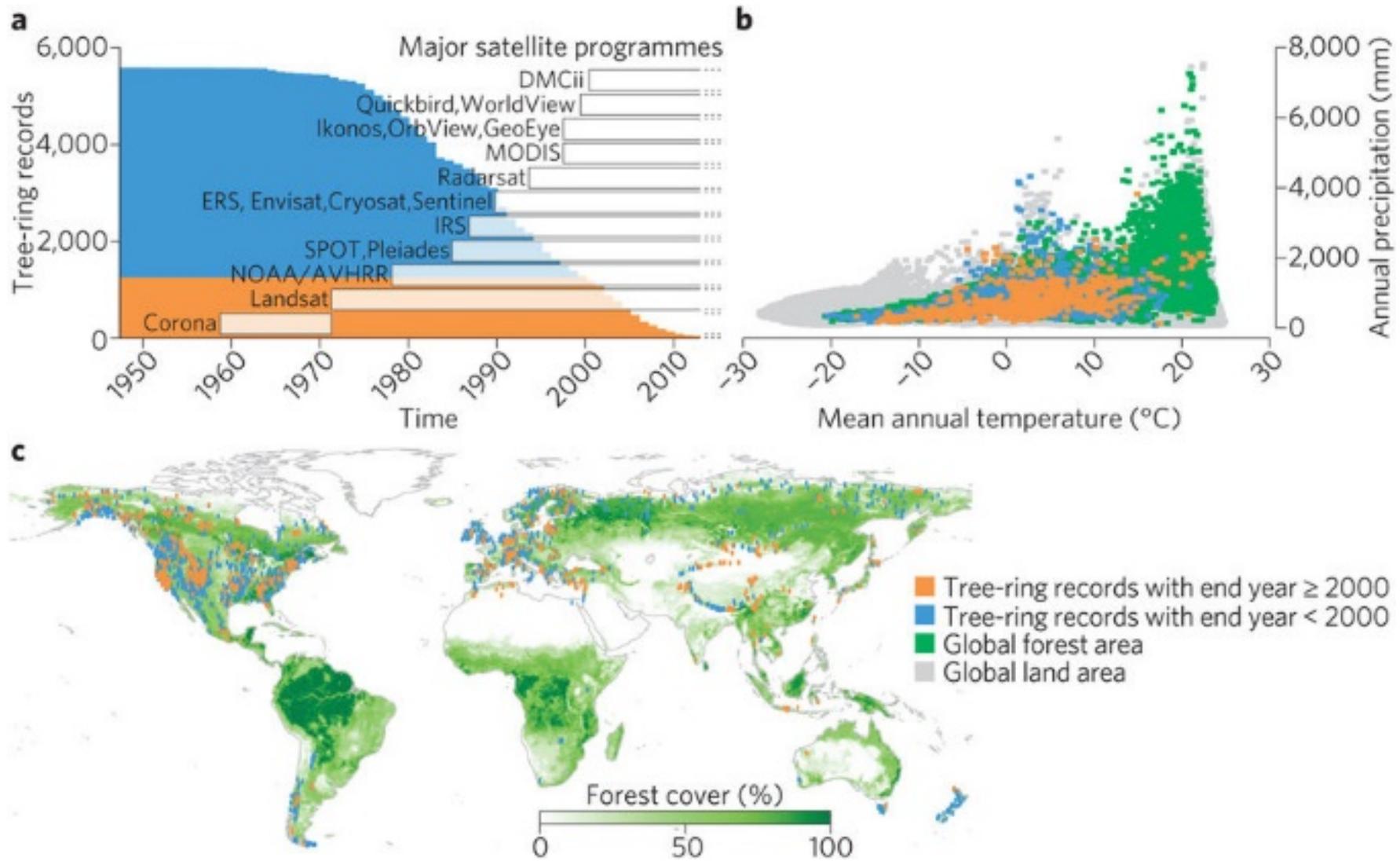
hydrology



“Collect tree-ring samples from the biggest (dominant) trees to obtain the longest tree-ring chronologies”

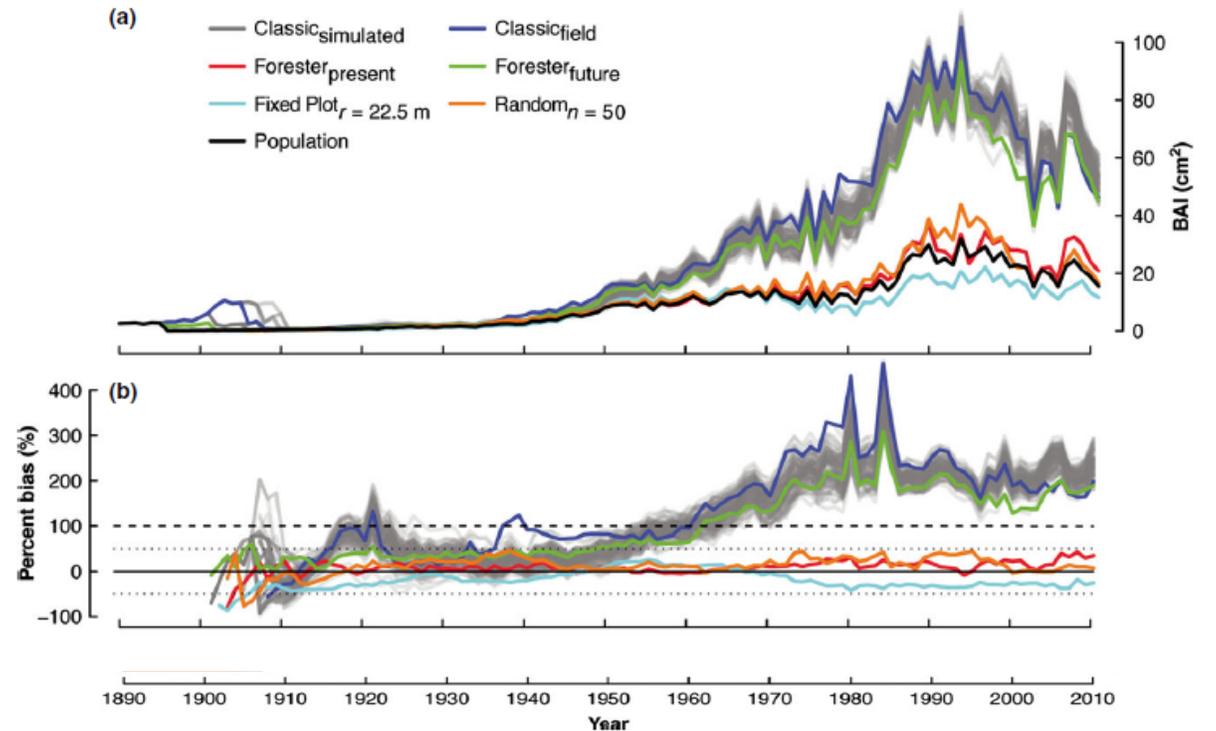
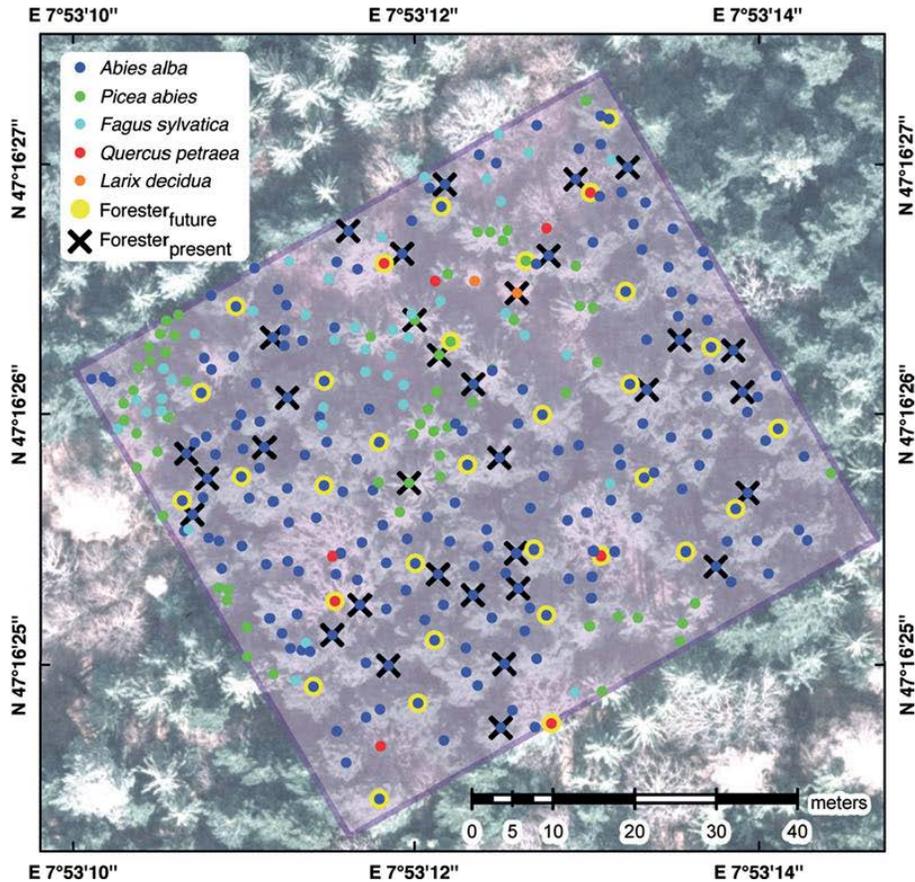
“Focus on forest stands that are most climatically stressed (e.g. treeline)”



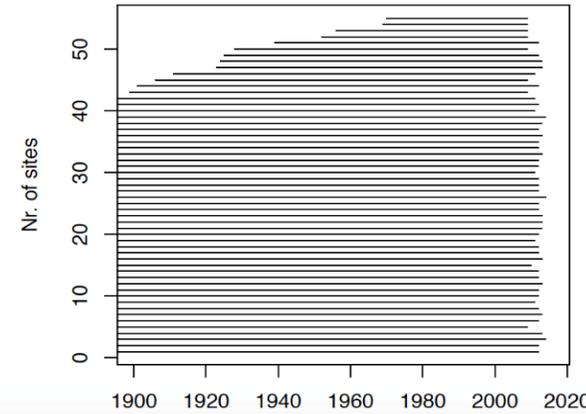
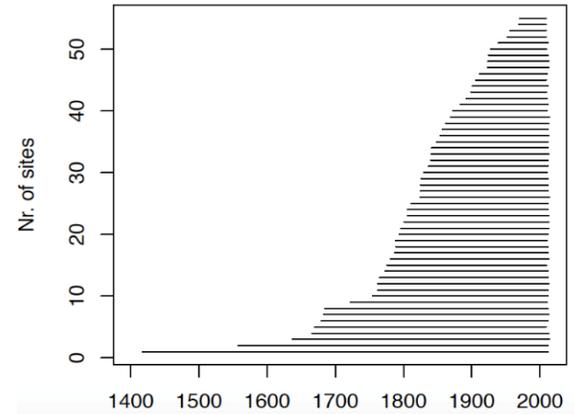
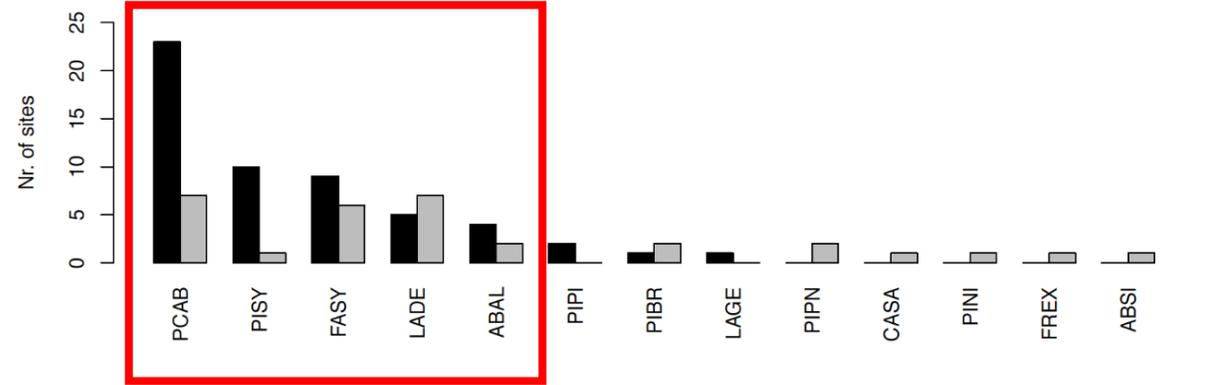
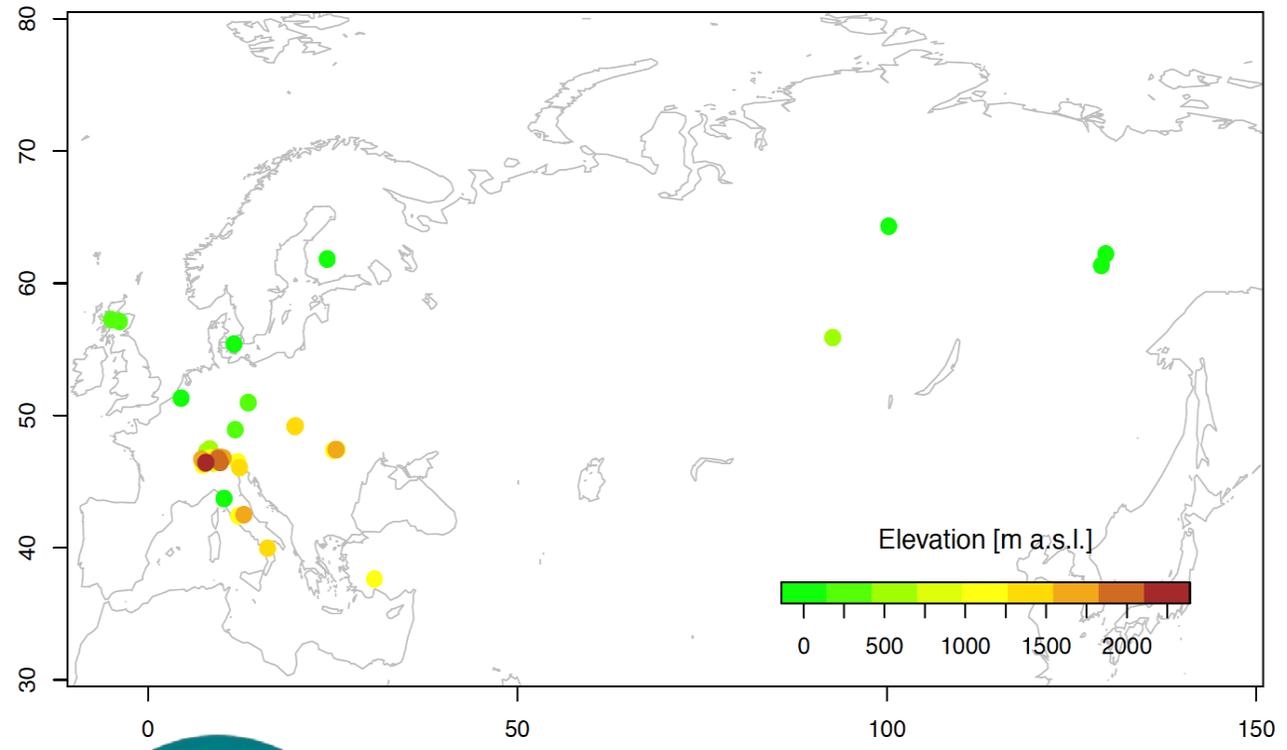


The influence of sampling design on tree-ring-based quantification of forest growth

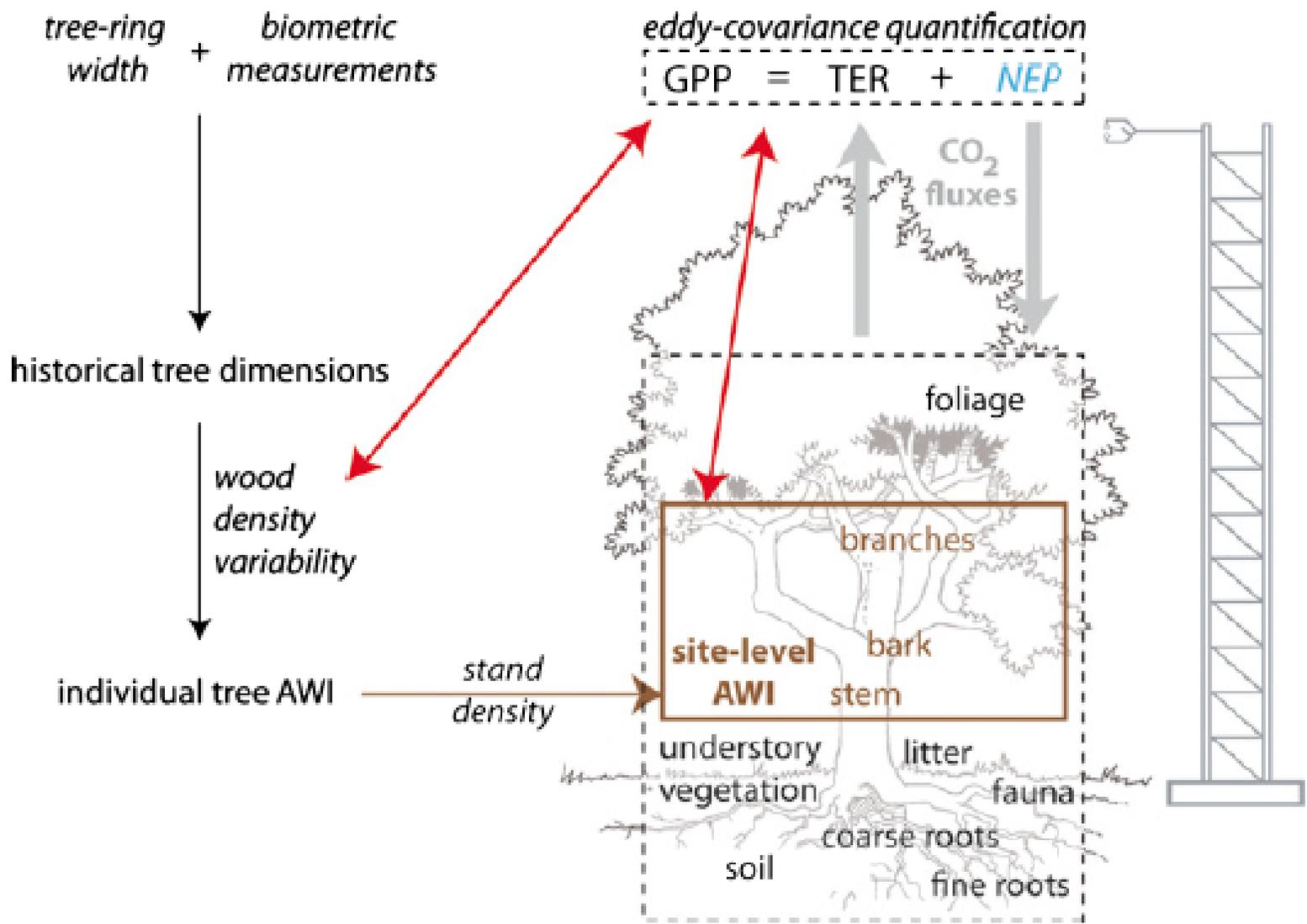
CHRISTOPH NEHRBASS-AHLES^{1*}, FLURIN BABST^{1,2}, STEFAN KLESSE^{1,3}, MAGDALENA NÖTZLI¹, OLIVIER BOURIAUD⁴, RAPHAEL NEUKOM^{1,3,5}, MATTHIAS DOBBERTIN¹ and DAVID FRANK^{1,3}



Tree-ring biomass network



Upscaling tree-rings to biomass



Protocol for the ICOS network



ICOS Ecosystem Thematic Centre

ICOS Ecosystem Instructions

TREE RINGS - FOREST

Version: **DRAFT 20170614**

INSTRUCTIONS FOR

ANCILLARY VEGETATION

MEASUREMENTS

in

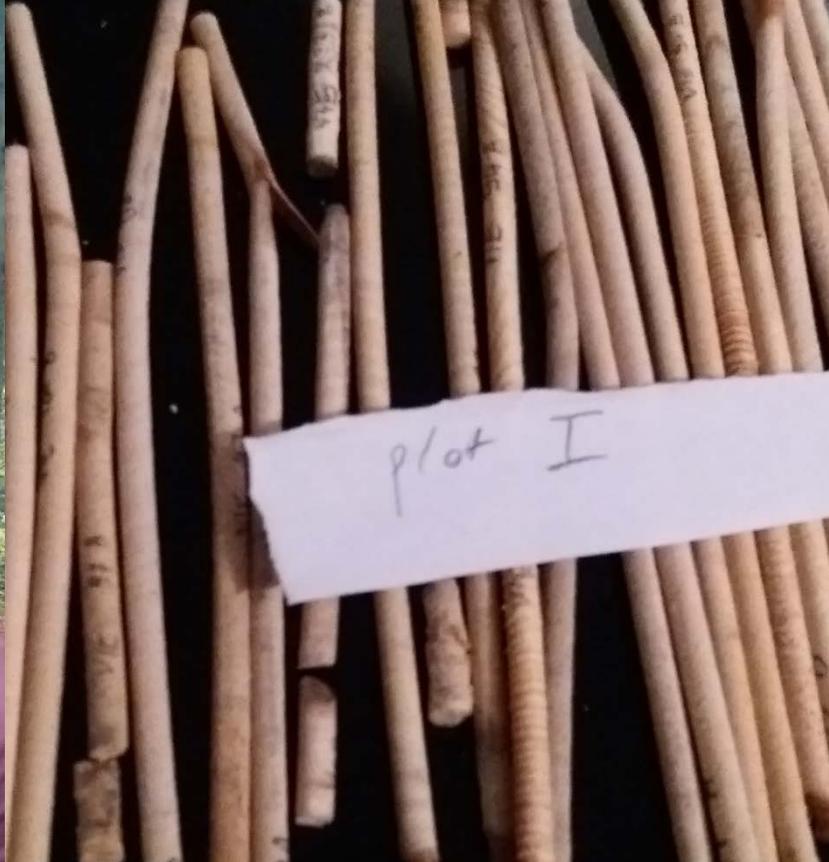
FOREST

TREE-RING INCREMENT

Version	Release date	Summary of changes

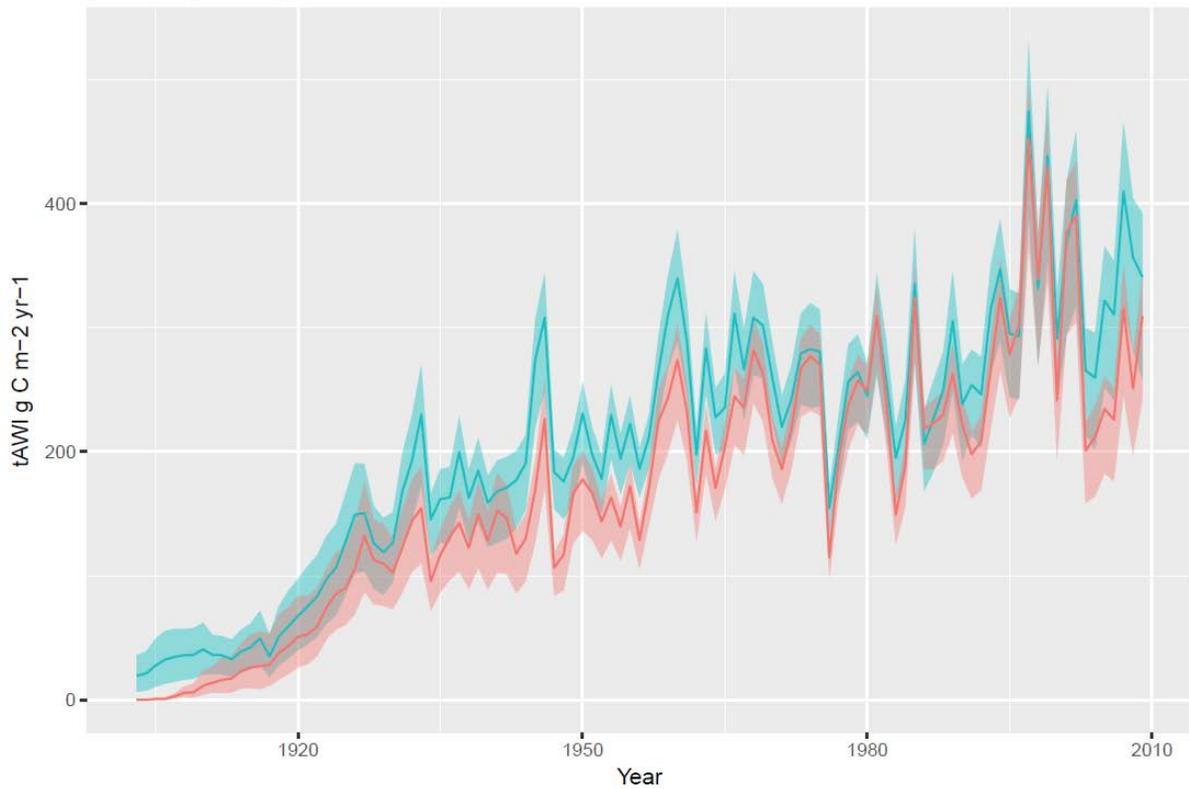
The ICOS protocols and the derived instructions documents can be changed and amended in time, because new methods become available or to improve their clearness. For this reason, it is crucial to keep track of the versions and differences.





How well does our plot represent the site? – assessment of site uncertainty

Tharandt

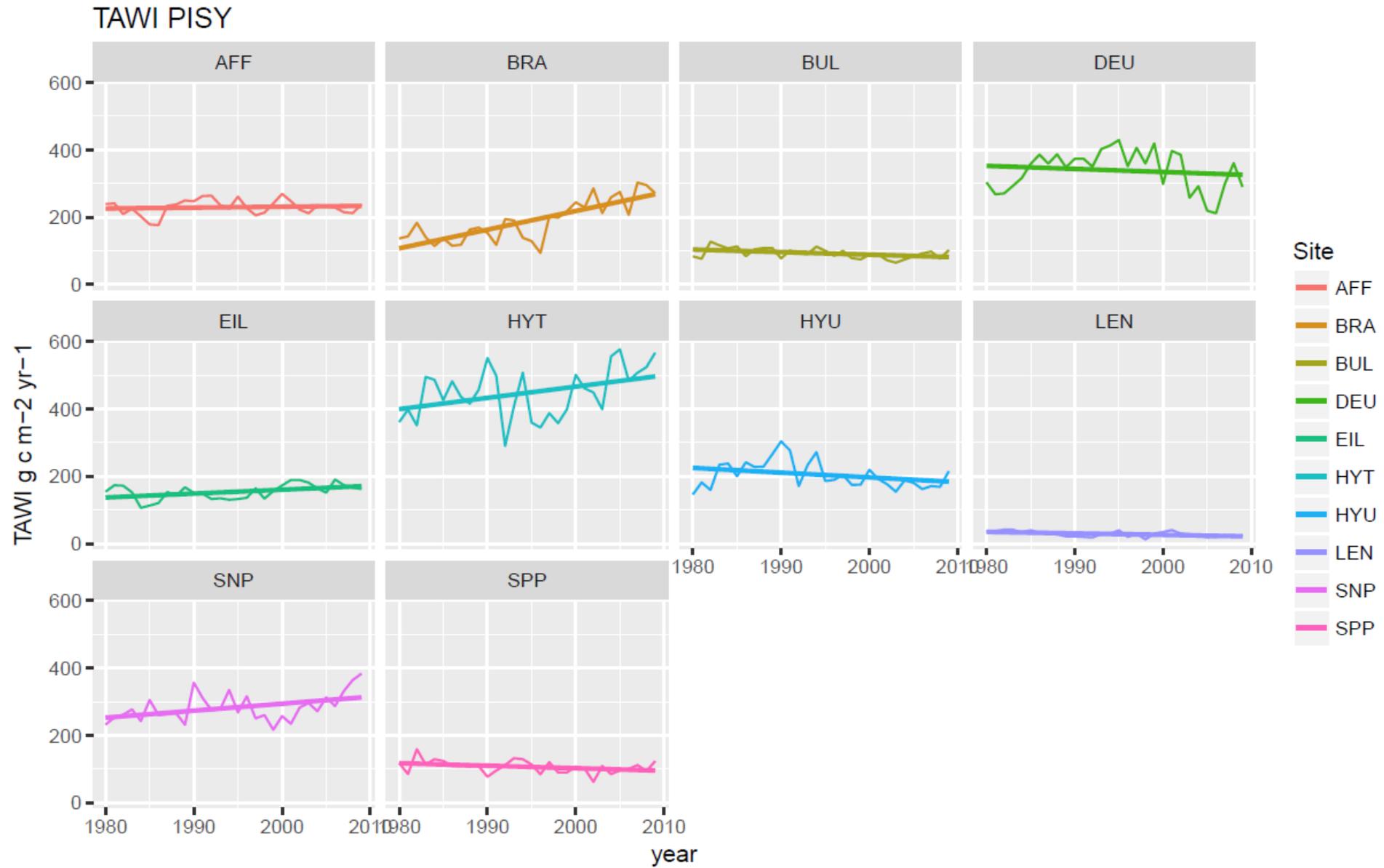


Hyttiala

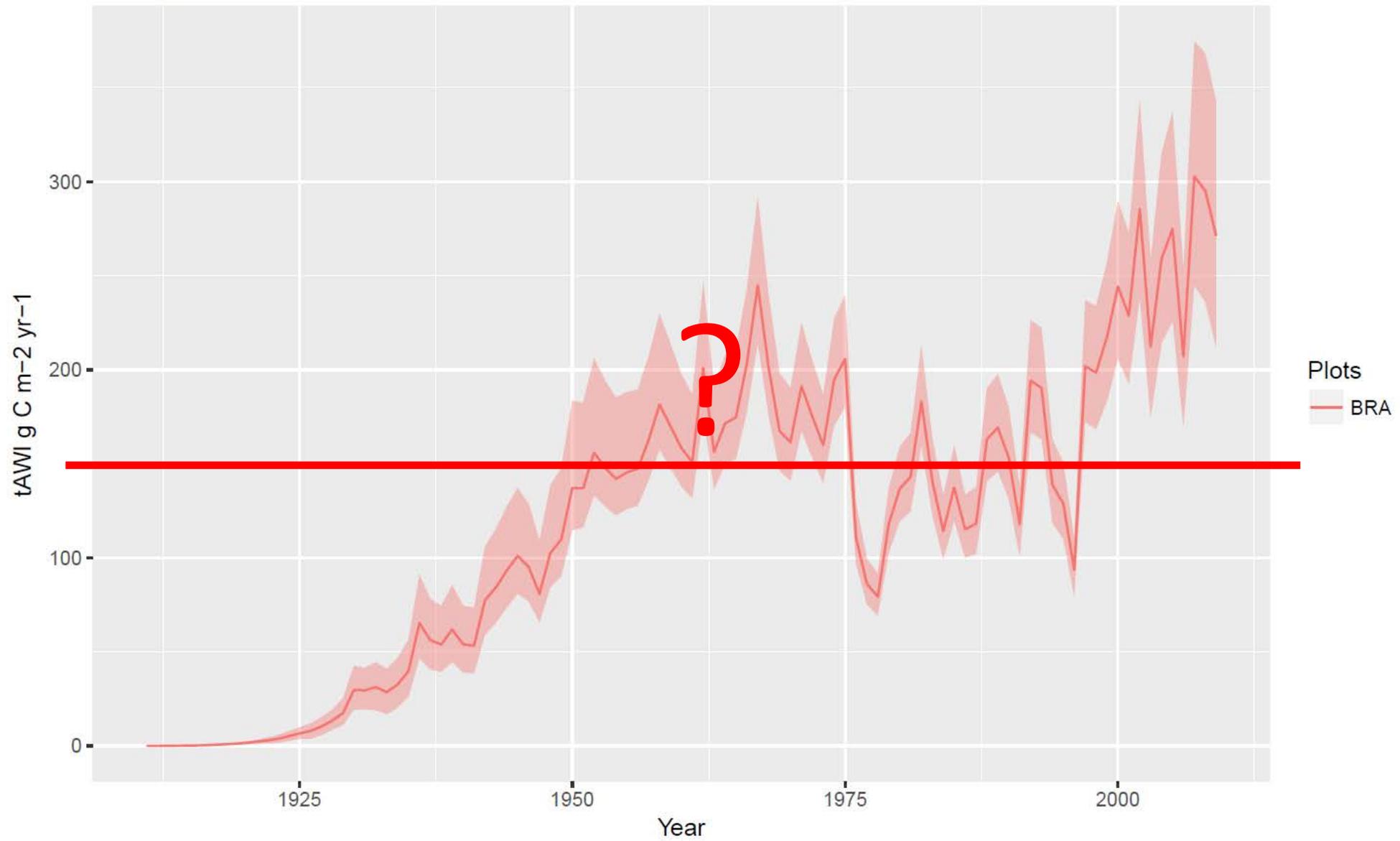


Plots
— HYT
— HYU

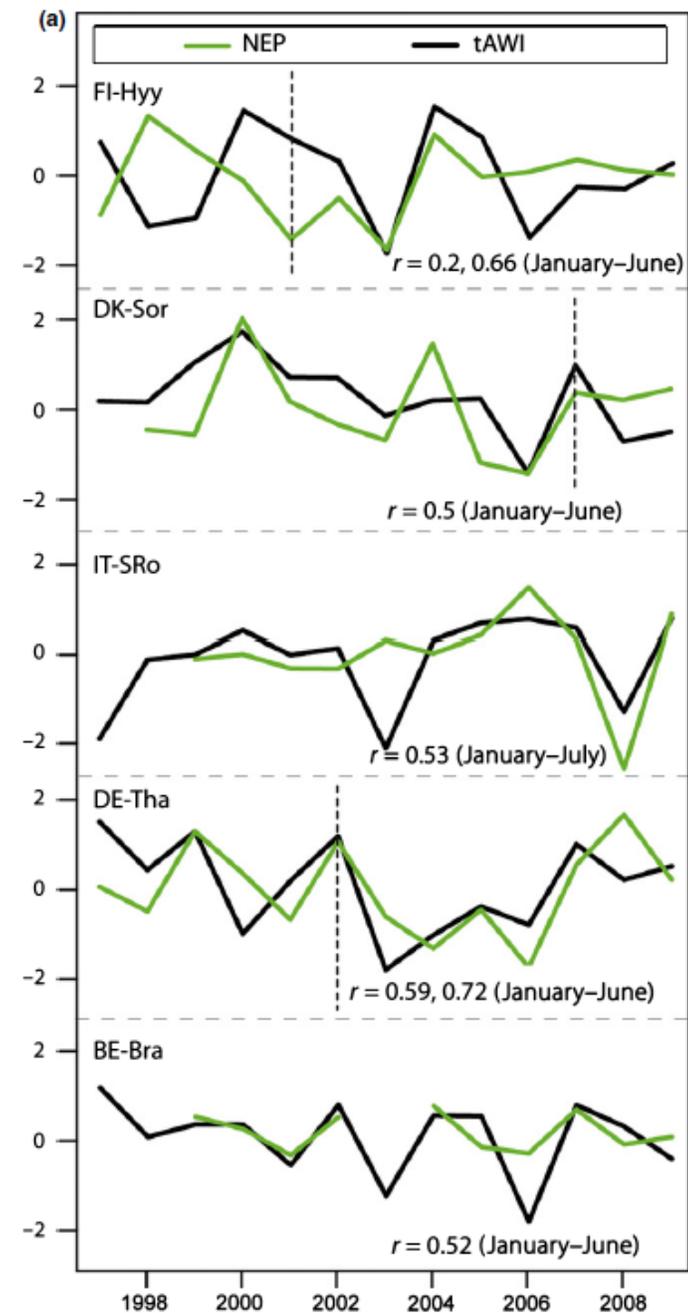
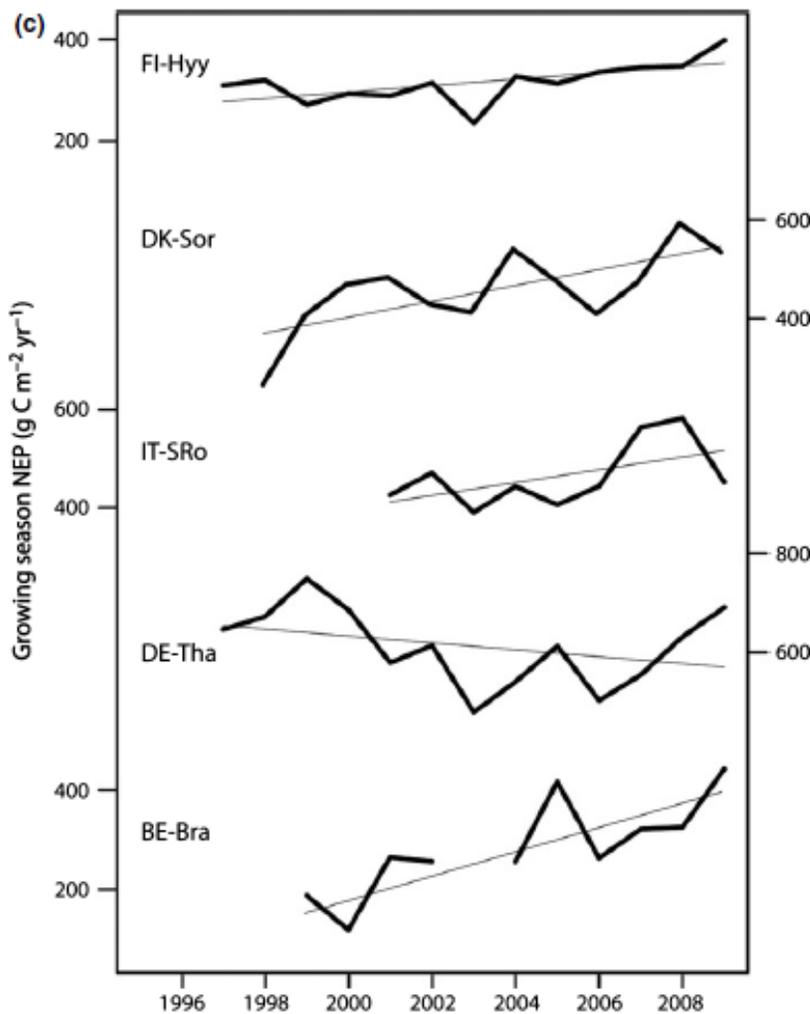
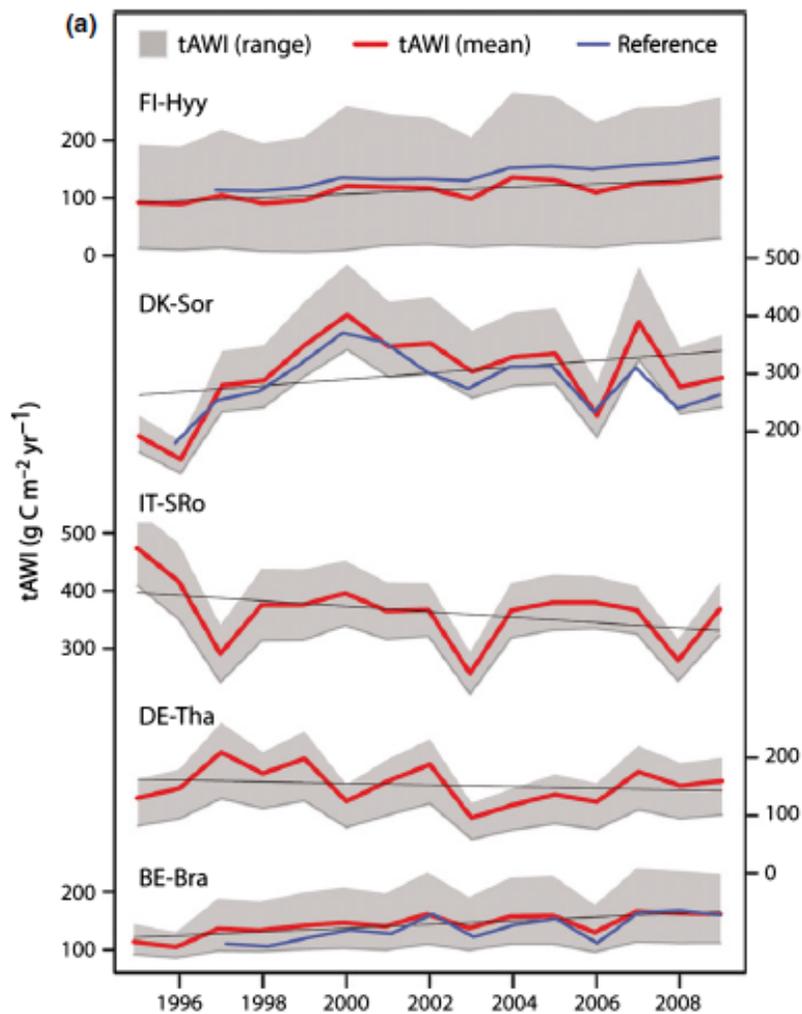
Trends in aboveground woody biomass



Fading record issue

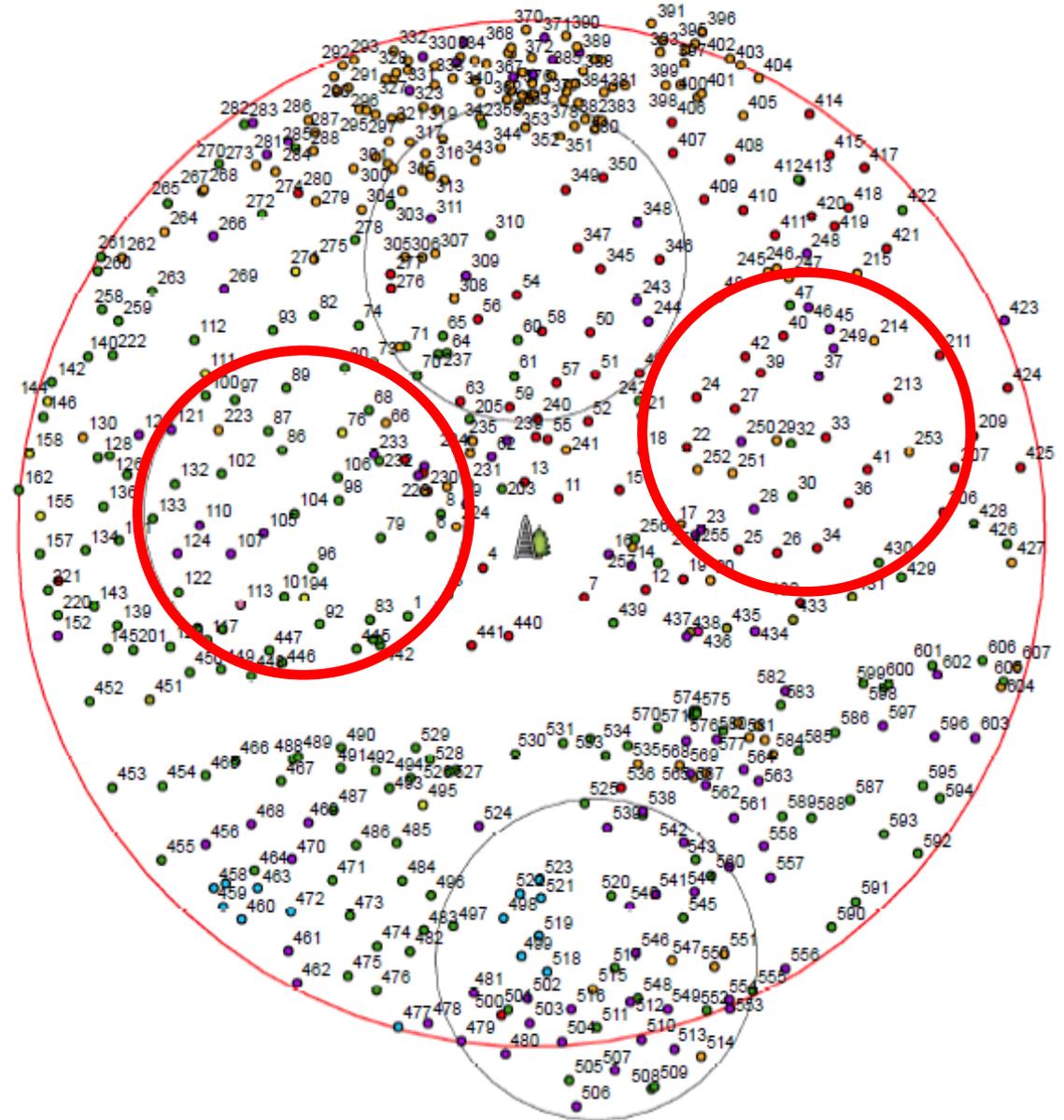


Comparison of EC data and tree-ring data



Expanding the network... and connecting with ICOS

- Sampled EC sites:
 - ✓ Hyytiala
 - ✓ Tharandt
 - ✓ San Rossore
 - ✓ Davos
 - ✓ Laegeren
 - ✓ Soroe
 - ✓ Brasschaat
- Planned:
 - Hesse
 - Brasschaat (re-sampling)
 - ...
- Coupling with the long term Monitoring plots ICOS
- Coupling with LiDAR (poster Miro Demol)
- Coupling with DGVM – Orchidee - CAN





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Dept of Biology | Centre of Excellence PLECO

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