

# Wrangling Plant-Water Data : an update

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**PLANT-WATER 2017-2019**  
**XYLEM SAPFLOW** in 21 trees  
*Quercus robur* -18 trees  
*Acer pseudoplatanus* 3 trees

- Confounding factors
- tree size
  - xylem width
  - wood characteristics
  - sap speed
  - wounding

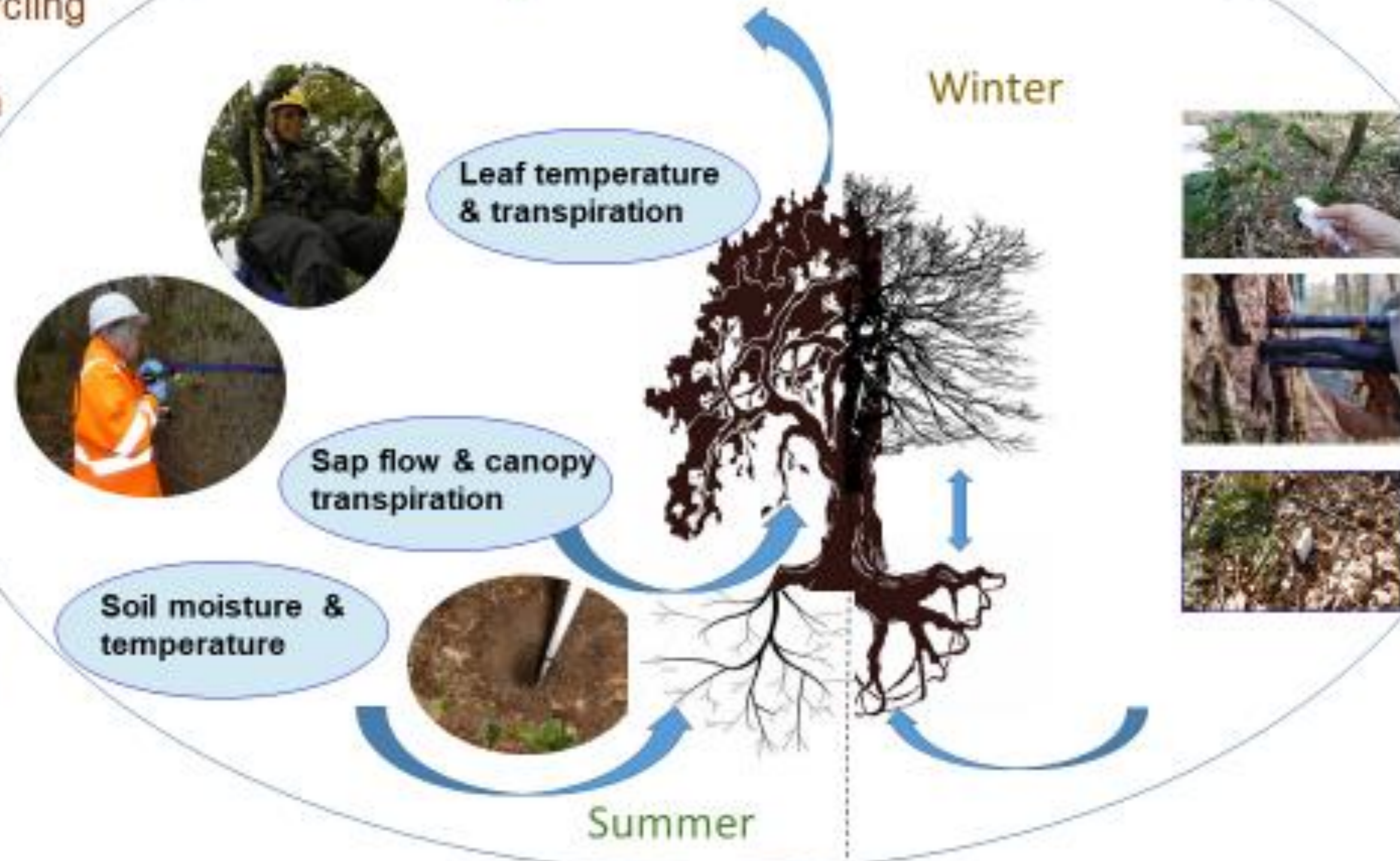
## Project Objectives

To investigate:  
 water/ water vapour cycling  
 through Soil-Plant-  
 Atmosphere continuum

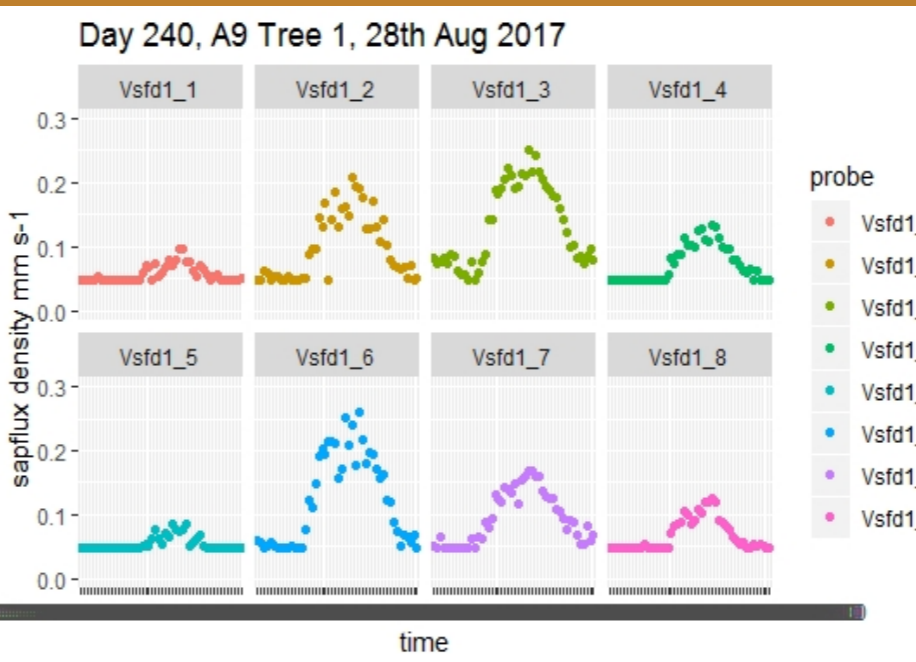
How does elevated  
 CO<sub>2</sub> influence plant  
 water usage and  
 transpiration?

Findings inform climate  
 change models and  
 help predict future  
 forest resilience.

## Key Measurements



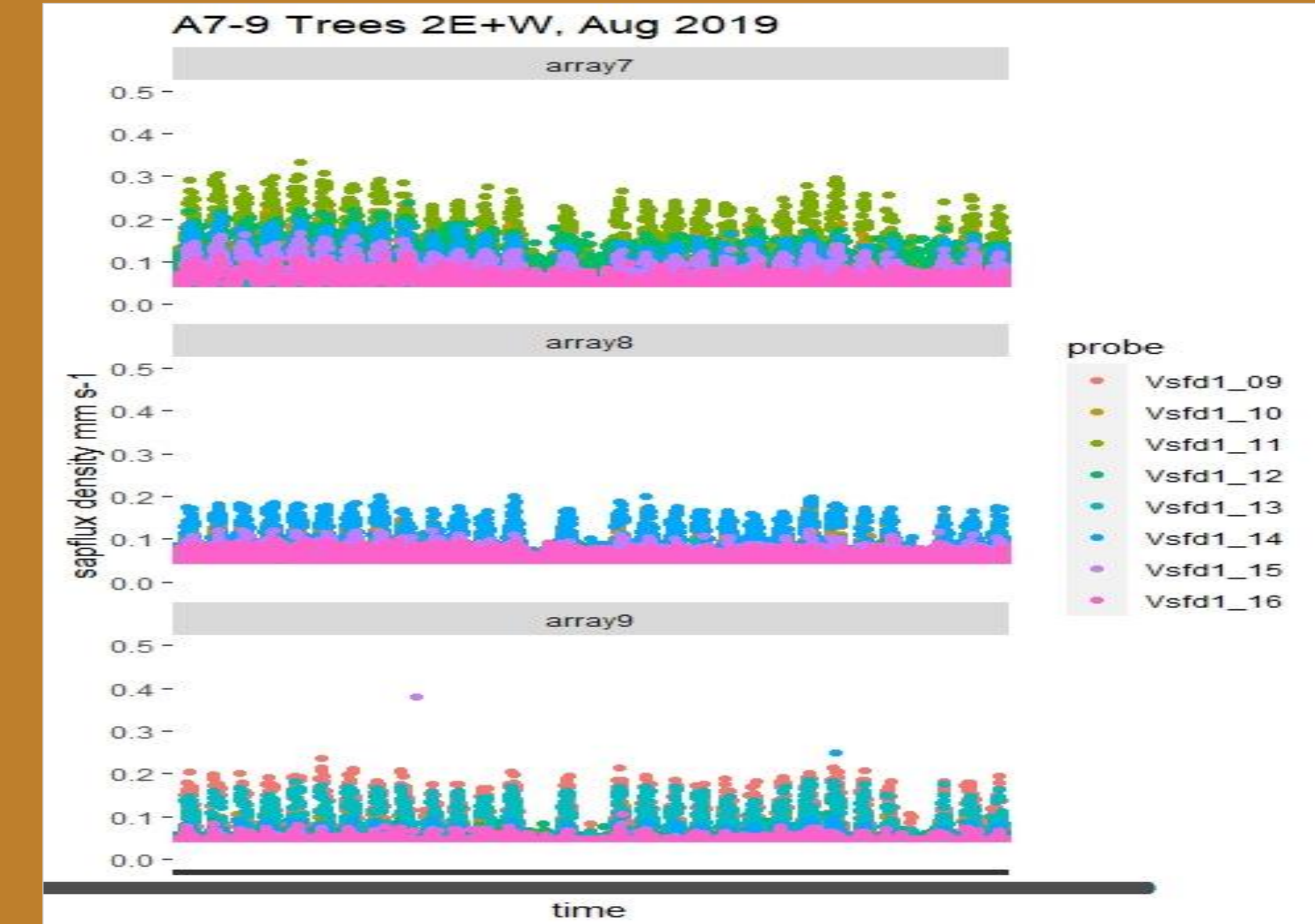
### GHOSTS -Undisturbed



Diurnal – one tree example  
 x2 probesets  
 x4 sensor positions

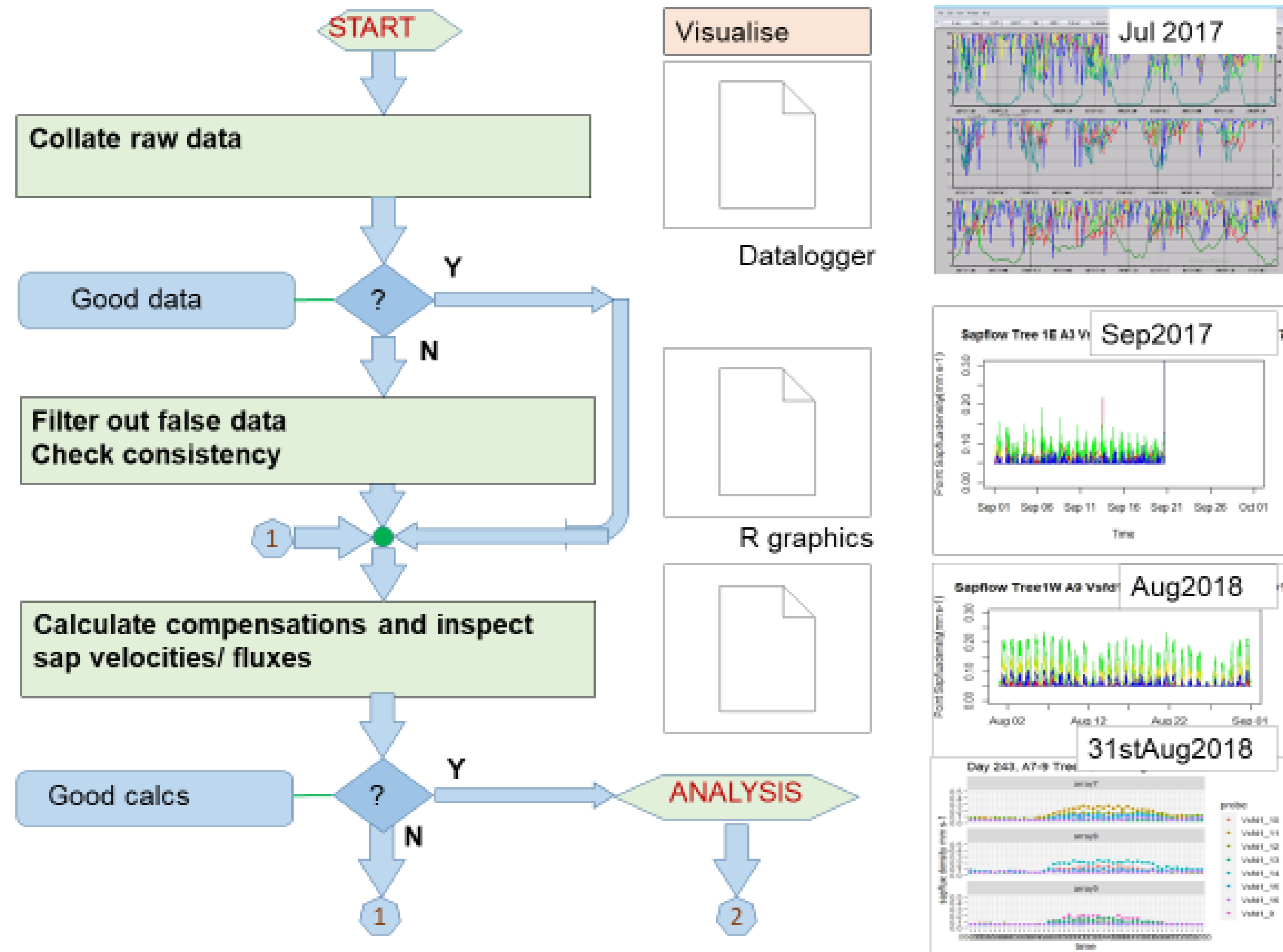
SAPFLUX DENSITY ANALYSIS  
 Data for Ghosts in August  
 2017- 2019 prepared for  
 next analysis steps e.g.  
 daytime only filtering by solar  
 radiation >0.  
 Quick et al. (in prep)

### Monthly – three trees example



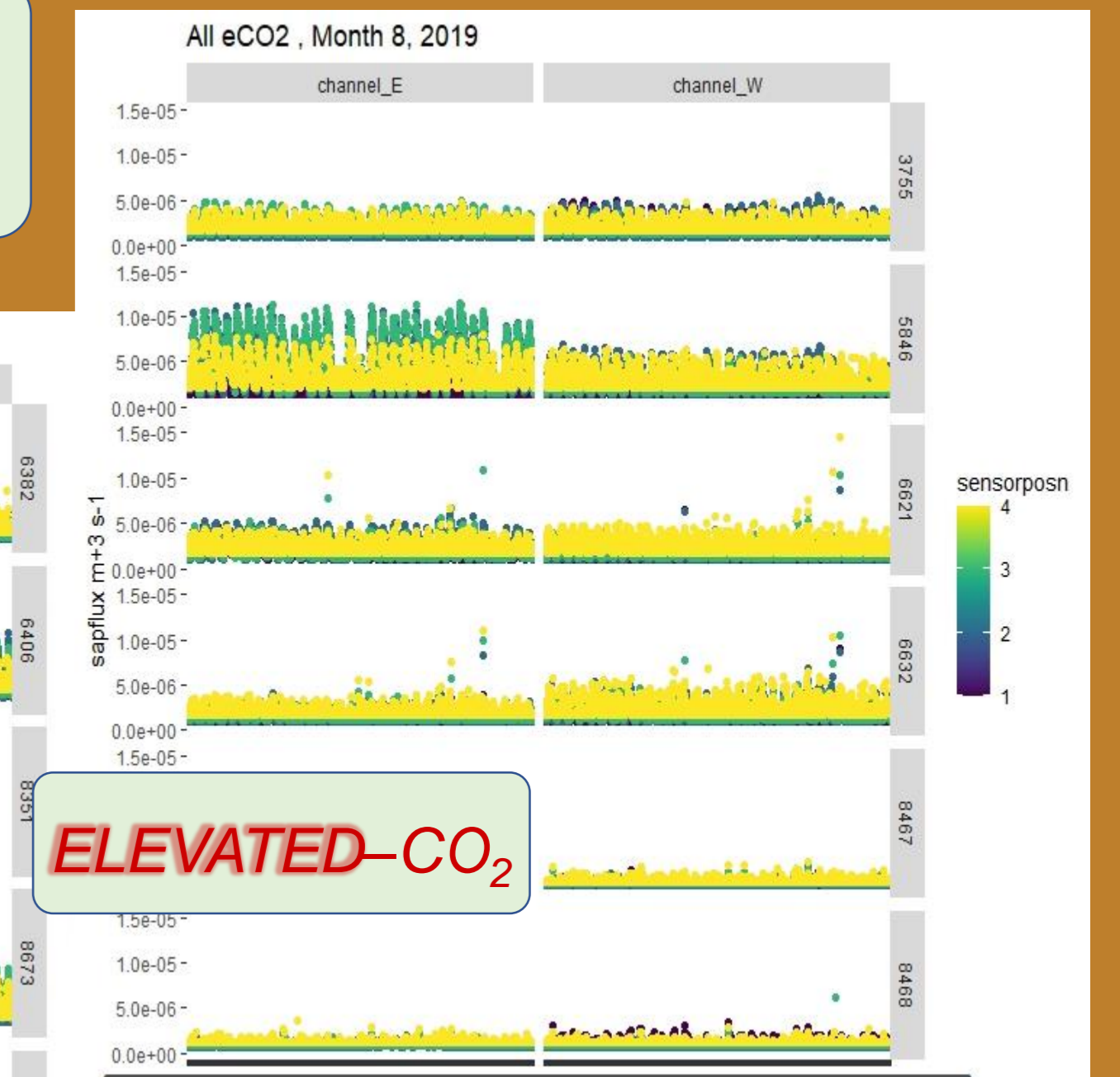
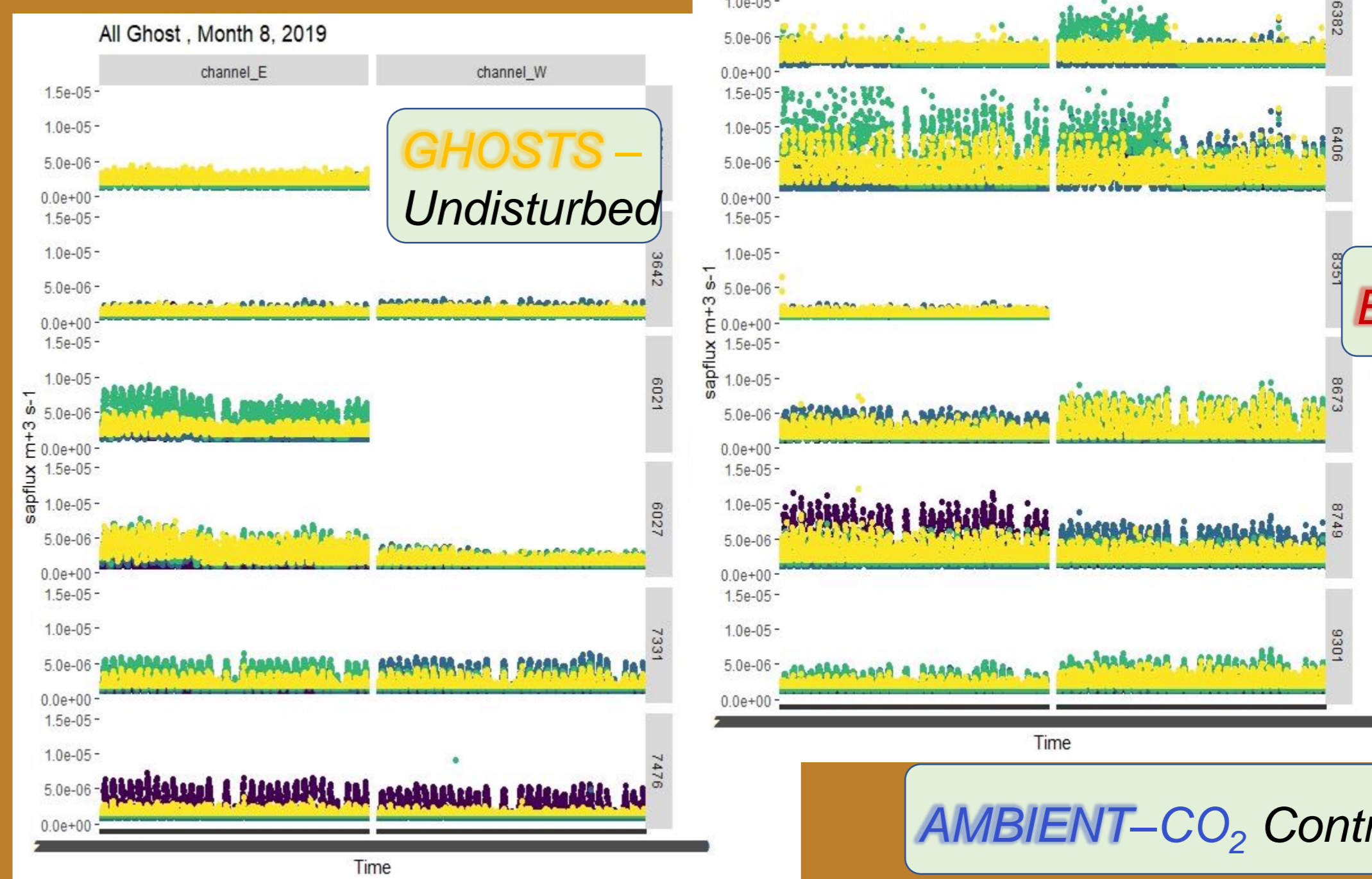
## Data Output

### Data Flowchart



**GHOSTS -Undisturbed**  
**AMBIENT-CO<sub>2</sub> Control**  
**ELEVATED-CO<sub>2</sub>**

Monthly – eighteen trees  
 x2 probesets  
 x4 sensor positions



**SAPFLUX RESULTS**  
 Data for all oaks August  
 2019 calculated using  
 modified weighted average  
 method (Hatton, 1990) ready  
 for comparative analysis.  
 Quick et al. (in prep)

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