

MOTIVATION

- A key process in terrestrial ecosystem linking water, carbon, and energy exchanges between the vegetation and the atmosphere.
- Considered to be the most important component of overall evapotranspiration - essential for predictions of climatic, ecological and hydrological impacts.
- Its understanding is still constrained by limited measurements.

Research objective:

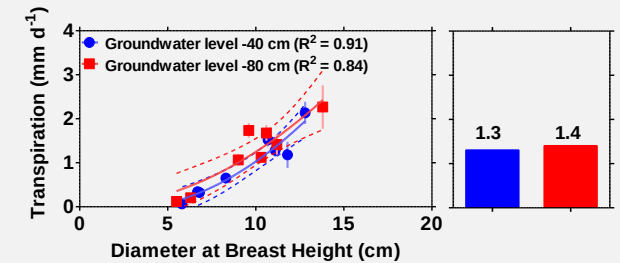
To investigate the transpiration at the stand level of Acacia plantation and the controlling factors under different groundwater levels.

APPROACH

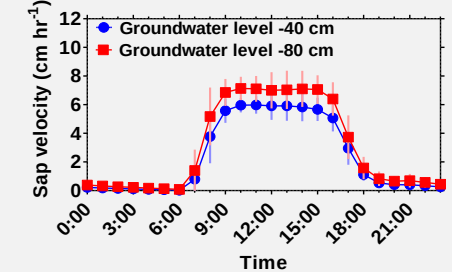
- Performed at **two lysimeter plots** with maintained groundwater level of **40** and **80** cm below the ground surface.
- Based on sap flow measurements using sap flow meter (SFM1, ICT International) from 8 trees per plot with different diameters at breast height.
- Measurement period: 30 Sep – 2 Nov 2020 Measurement frequency: 15 minute
- Other environmental variable measured: micro-meteorology (solar radiation, air temperature, relative humidity, rainfall), groundwater level, and soil moisture.
- Fine root biomass was sampled using peat sampler at each groundwater level treatment

RESULTS

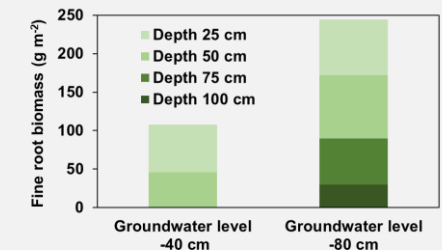
Relationship between diameter at breast height and transpiration



Diurnal pattern of Sap Velocity



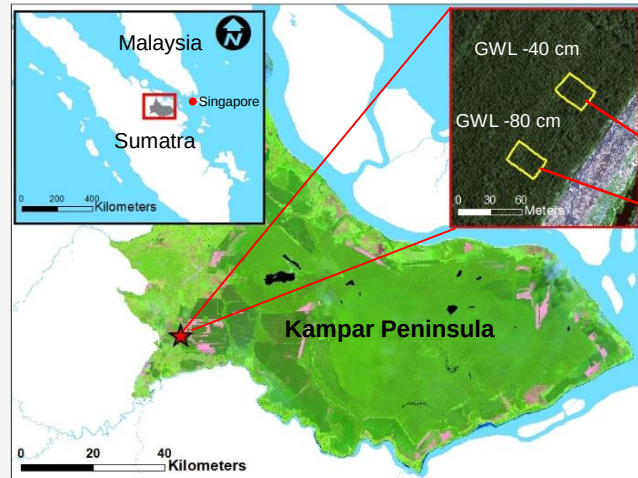
Fine root distribution



NEXT STEP

An ongoing measurement of above and below-ground biomass growth and hydrological modeling work will advance the knowledge on plant-water interaction from peatland ecosystem.

STUDY AREA



PLOT DESIGN

