**VPD review**

Why are we interested in VPD - the climate is change (a warmer atmosphere increases VPD) - what will this mean for evaporation in the future? Will plants be under greater stress? Or are some plants more resilient to changes in VPD - which species?

* Grossiord review paper New Phyt (you have this)
* Baldocchi: https://onlinelibrary-wiley-com.bris.idm.oclc.org/doi/full/10.1111/gcb.14807
* Renchon: <https://bg.copernicus.org/articles/15/3703/2018/>
* Drought review (you have this)
* Yuan et al.: <https://www.science.org/doi/10.1126/sciadv.aax1396>
* Zhan et al: <https://onlinelibrary-wiley-com.bris.idm.oclc.org/doi/full/10.1111/gcb.16397>
* Oren et al: <https://onlinelibrary-wiley-com.bris.idm.oclc.org/doi/abs/10.1046/j.1365-3040.1999.00513.x>

Why do we want to use ML?

Why might we want to use machine learning (ML) to predict photosynthesis (GPP) - it is because we have lots of flux towers, but they do not cover the whole globe - we have spatial gaps. Can we one day train a GPP model in one location and apply it spatially using meteorological data without the need for flux sites (which are expensive).

What are the knowledge gaps?

* Species differences - can we quantify this
* Does the sensitivity change in extreme conditions (e.g. when soil water is limiting)
* How different are species sensitivities - do they affect our ability to model GPP?
* How will they respond in the future (i.e. have any responses changed over time in the sites with long-histories > 10 years of data)

Aim:

* Using data from Ozflux <https://www.ozflux.org.au/>
* Characterise VPD sensitivity across Australian flux sites (<https://www.difuse.dartmouth.edu/modules/bio16>) - how do it vary between species/ecosystems and how does it vary in extreme years vs average years.
* How does characterisation compare to European sites (https://www.icos-cp.eu/data-products/2G60-ZHAK)
* How does this affect an ML algorithm trained to predict GPP? How important is capturing the site or species VPD sensitivity to correctly modelling GPP (= photosynthesis) across Australian sites.