



EGUsphere, community comment CC1
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Comment on egusphere-2022-436

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Community comment on "Satellite-derived constraints on the effect of drought stress on biogenic isoprene emissions in the southeastern US" by Yuxuan Wang et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-436-CC1>, 2022

This manuscript provides an account of the impacts of drought on isoprene emissions using satellite measurements combined with model simulations and ground-based observations. As noted by the authors in the Introduction, efforts in establishing the effects of drought on isoprene emissions are limited by the scarcity of observations currently available. It would therefore be worth adding to the Introduction recent work from the WISDOM field campaign in the UK to provide up-to-date context to the readers. In particular:

-lines 48-49: The work of Otu-Larbi et al. (GBC, 2020) used observations from the WISDOM site combined with a canopy model to show how not including a drought stress factor in the emission algorithm led to severe underestimates of the observed isoprene concentrations.

-lines 62-66: Similarly, the work by Ferracci et al. (GRL, 2020) supports the conclusions from the MOFLUX studies by observing a similar behaviour in a mid-latitude temperate forest in the UK where prolonged drought is rare. This is, to date, the only dataset of ecosystem-scale observations of isoprene during drought other than the MOFLUX study.

References:

Ferracci, V., Bolas, C. G., Freshwater, R. A., Staniaszek, Z., King, T., Jaars, K., Otu-Larbi, F., Beale, J., Malhi, Y., Waite, T. W., Jones, R. L., Ashworth, K. and Harris, N. R. P.: Continuous Isoprene Measurements in a UK Temperate Forest for a Whole Growing Season: Effects of Drought Stress During the 2018 Heatwave, *Geophys. Res. Lett.*, 47(15), doi:10.1029/2020gl088885, 2020.

Otu-Larbi, F., Bolas, C. G., Ferracci, V., Staniaszek, Z., Jones, R. L., Malhi, Y., Harris, N. R. P., Wild, O. and Ashworth, K.: Modelling the effect of the 2018 summer heatwave and drought on isoprene emissions in a UK woodland, *Glob. Chang. Biol.*, 26(4), 2320–2335, doi:10.1111/gcb.14963, 2020.