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Interactive comment on "A top-down approach of surface carbonyl sulfide exchange by a Mediterranean oak forest ecosystem in Southern France" *by* S. Belviso et al.

Anonymous Referee #1

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Carbonyl sulfide has been postulated a while ago as a potential proxy that may be used to estimate gross primary production at flux tower sites. In the present manuscript Belviso et al. present measurements of the diurnal dynamics of OCS, CO2, and O3 and of their respective fluxes above a Mediterranean oak forest ecosystem during two summer campaigns. The authors analyze the applicability of the OCS-GGP approach, and the suitability of the site as a flux monitoring station in a Mediterranean climate. Based on their data they elaborate and discuss the problems and limitations of their concept in an open and thorough manner. A major problem of the site apparently arises from the advection of pollution-derived OCS that occasionally flaws OCS gradients towards the vegetation sink. The manuscript as a whole is crafted very well. I support

the conclusions drawn. These interesting new data clearly deserve publication in ACP. From multiple readings of the manuscript I cannot find reasons why it should not be published in almost its present form. Below please find some minor remarks.

Minor remarks

I would like to encourage citation of the publication that first reported stomatal uptake of OCS molecule by leaves (the central mechanism of the paper), not only of the most recent publications on page 1. To my knowledge this has first been published by Paul Goldan (Goldan et al., Journ. Geophys. Res., 93, 14186-14192, 1988).

I recommend to consider moving the introduction of the second approach to estimate GPP (including equation (2)) from chapter 4.2 to the introduction in chapter 1, next to equation (1). This way the conceptual frame of using OCS as a tracer gets clearer, and it does not come as a "surprise" in chpt. 4.2.

P.7, L. 18: ". . . the range in OCS was relatively low . . .", do you mean "the variability" ?

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