Biogeosciences
Discussions

Interactive comment on "Modelling above-ground carbon dynamics using multi-temporal airborne lidar: insights from a Mediterranean woodland" *by* W. Simonson et al.

Anonymous Referee #1

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Overall quality of the discussion paper ("general comments"),

The paper is clear, scientifically sound, and well written. It represents an important study in the field of biomass and carbon forest monitoring, as few multitemporal lidar studies are available and none in the Mediterranean ecosystem under analysis. The methods are sound and the discussion is interesting. Minor scientific questions are posed below.

Individual scientific questions/issues ("specific comments"),

Line 118-121: How did you measure DBH, crowns etc. for shrubs? The list of what measured seems as better suited for trees not shrubs. Same applies for biomass

calculation (line 122 to 130). In Med. Woodlands shrubs below and among trees can be consistent, and it would be interesting to understand if you measure them (and how) and how shrubs presence influence your study

Line 152: The amount of ground truth plots for developing the lidar biomass map is quite limited. How this influenced the goodness of estimates (and the low coeff. of determination you obtained). Did you perform additional validation of the lidar modelled AGB i.e with leave one out or similar method? May the low R^2 be responsible for the large st. dev. of your AGB change map? Which are the reference values (R^2) for lidar based AGB estimation in Mediterranean woodlands? The analysis of this issues can improve the study.

Technical corrections at the very end ("technical corrections": typing errors, etc.).

Line 63: airborne lidar cannot support large scale applications, is not cost-effective. Line 70: to lidar in? Line 77: I would add that multitemporal lidar acquisitions are still s too expensive tool