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Biogeosciences Discussions

Interactive comment on "A whole plant approach to evaluate the water use of mediterranean maquis species in a coastal dune ecosystem" *by* S. Mereu et al.

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Title: A whole plant approach to evaluate the water use of mediterranean maquis species in a coastal dune ecosystem Authors: S. Mereu, E. Salvatori, L. Fusaro, G. Gerosa, B. Muys, and F. Manes

The authors present original data about water relations in three Mediterranean woody plants under summer drought. While this topic has been studied for two or three decades now, such a specific study for Mediterranean vegetation in coastal environments is more rare, the data is quite valuable and the findings interesting. In particular, knowledge incorporated in current ecosystem models about relations between stom-

atal conductance, plant traits and water use is questioned and appropriately discussed.

General A complex set of unspecified mechanisms at whole plant level might be involved in contradictory water use performances of these species, including plant size, water consumption, acclimation processes, species competition, etc., and scaling of results on ecophysiological parameters collected during a short-term experiment to species-specific survival should be done with caution. Caution in using estimated hydraulic conductance from gas exchange measurements is required. The high experience in ecophysiological studies of the Authors, induce themselves to extrapolate beyond the domain of the data. In particular, some speculation on root structure and function should be avoided, as well as the relation to plant origin.

Minor mmoli in Fig 8 should be mmol p. 1725, line 12: please revise, it seems there is some contradiction with previous sentence. In the relationship between Gs and VPD there could be the confounding effect of PAR, which varies concomitantly.

Conclusion In conclusion, the manuscript is well written and methodologically sound, though it prevalently corroborates observations and results presented by other studies before. The Authors are well versed in the literature immediately pertaining to their topic. However, discussion of results mainly confirms emerging consensus on resistance/adaptation mechanisms to water stress in Mediterranean plants, without breaking new ground. I think the study would benefit if the discussion also related to in-situ situations and whole-ecosystem responses that have been observed and where similar general patterns were found. I would suggest the editor to accept the manuscript after minor revision.

Interactive comment on Biogeosciences Discuss., 6, 1713, 2009.