



Flux measurement and modeling in a typical mediterranean vineyard

Serena Marras (1,2), Veronica Bellucco (1), David R Pyles (2,4), Matthias Falk (2,4), Costantino Sirca (1,2), Pierpaolo Duce (3), Richard L Snyder (4), Kyaw Tha Paw U (4), Donatella Spano (1,2)

(1) University of Sassari, Department of Science for Nature and Environmental Resources, Sassari, Italy (serenam@uniss.it), (2) CMCC, Euro-Mediterranean Centre on Climate Change, IAFENT Division, Sassari, Italy, (3) CNR-IBIMET, National Research Council-Institute of Biometeorology, Sassari, Italy, (4) University of California, LAWR - Department of Land, Air and Water Resources, Davis, CA, USA

Vineyard ecosystems are typical in the Mediterranean area, since wine is one of the most important economic sectors. Nevertheless, only a few studies have been conducted to investigate the interactions between this kind of vegetation and the atmosphere. These information are important both to understand the behaviour of such ecosystems in different environmental conditions, and are crucial to parameterize crop and flux simulation models. Combining direct measurements and modelling can obtain reliable estimates of surface fluxes and crop evapotranspiration.

This study would contribute both to (1) directly measure energy fluxes and evapotranspiration in a typical Mediterranean vineyard, located in the South of Sardinia (Italy), through the application of the Eddy Covariance micrometeorological technique and to (2) evaluate the land surface model ACASA (Advanced-Canopy-Atmosphere-Soil Algorithm) in simulating energy fluxes and evapotranspiration over vineyard.

Independent datasets of direct measurements were used to calibrate and validate model results during the growing period. Statistical analysis was performed to evaluate model performance and accuracy in predicting surface fluxes. Results will be showed as well as the model capability to be used for future studies to predict energy fluxes and crop water requirements under actual and future climate.