



Energy fluxes and soil temperature variations during the drying phase of a wheat crop in a semi-arid Mediterranean environment

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Soil temperature is one of the most important factors affecting the rate of water and nutriments uptake by vegetation during the season of active growth. It influences also the various physiochemical and biological processes concerning plant residues following crop harvest. This study investigates temperature changes and heat fluxes within the top soil layer during wheat crop and residue drying phase. The field experiment, carried out in May-August 2012, targeted the transition period between the typically wet and dry seasons of semi-arid Mediterranean environments. Energy balance was measured at three different sites using the eddy covariance method. Latent and sensible heat fluxes estimations are averaged over 30mn time spans. The ground component of the energy balance is estimated from measurements of conductance and temperature at different soil depths. Results show the range of diurnal energy fluxes variations, changes in sensible heat in relation to soil drying and consequences on soil temperature patterns at different depths within the top layer. Comparative analyses of data obtained in the different sites allow for the estimation of the impact of energy ground storage on the energy balance closure.