Geophysical Research Abstracts,
Vol. 10, EGU2008-A-09615, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-09615
EGU General Assembly 2008

Application of energy balance models for actual evapotranspiration assessment by means of airborne and satellite remote sensing data

(1) **C. Cammalleri**, (1) G. Ciraolo, (2) G. D'Urso, (3) M. Minacapilli

(1) Dept. of Hydraulic Engineering and Environmental Applications, Università di Palermo, Italy, (2) Dept. Agricultural Engineering and Agronomy University of Naples "Federico II", Italy, (3) Dept. of Engineering and Agro-Forestal Technology (ITAF), Università di Palermo. Italy (cammillino@gmail.com / Fax: +390916657749 / Phone: +390916657747)

A correct estimation of temporal and spatial distribution of evapotranspiration is an essential step for water management and crop water requirements, in particular in Mediterranean areas where water scarcity and semi-arid climate often cause fragility and severe damages in the agro-ecosystems. During the last two decades, the scientific community developed detailed mathematical models for simulating land surface energy fluxes and crop evapotranspiration rates by means of a energy balance approach.

Two different energy balance models can be applied in large areas and with a spatial distributed approach using land surface temperature and some ancillary information retrieved from multispectral satellite and airborne data. These application has been carried out to test the potentialities of these models to estimate evapotranspiration fluxes from a set of typical Mediterranean crops (wine, olive, citrus) and the impact of different spatial resolutions on models-derived fluxes has been investigated in order to understand the roles and the main conceptual differences between the two approaches which respectively use a "single-layer" (SEBAL) and a "two-layer"(TSEB) schematisation. The critical spatial resolution of remote sensed data has been also investigated.