Geophysical Research Abstracts,
Vol. 11, EGU2009-11968, 2009
EGU General Assembly 2009

Land surface temperature from remote sensing and from ground observation for the validation of a distributed hydrologic model at local and basin scale.

C. Corbari, G. Ravazzani, and M. Mancini
Politecnico di Milano, DIIAR, Milano, Italy (chiara.corbari@mail.polimi.it)

Soil Moisture is recognized as the key variable in the distributed hydrologic models for operational purpose as for flash flood forecast system as well as for irrigation management. Respect to this role it is most of the time confined to an internal numerical model variable often without any control with measured data. This is mainly due to its intrinsic space and time variability and to the well known difficulties in assessing its value from remote sensing as from in situ measurements.
The present work investigates the potentiality to control surface soil moisture and its spatial and temporal variability through the detection of land surface temperature (LST) from satellite remote sensing due to the simpler information and availability of the infrared satellite images respect to the microwave ones and through the distributed hydrological model (FEST-EWB).
LST retrieved from satellite images and field data from an eddy tower are used for the validation of the distributed hydrological model as a complementary method to the traditional calibration with discharge measurements.
The link between the soil moisture and the land surface temperature is investigated through the FEST-EWB model which considers the energy balance.
LST analysis is done for test areas with different spatial scale where there are operative measurement activities and hydrologic modelling, in order to compare LST data from remote sensing, modelling simulation and ground measurements. At basin scale the Po river basin at Ponte della Becca is considered, while at local scale the experimental fields of Moscazzano and Landriano (Italy).
The radiometric analysis is be done for thermal infrared data from different operative satellites (MODIS, AVHRR, METEOSAT) with particular attention on LST retrieval for heterogeneous area.