Geophysical Research Abstracts, Vol. 8, 09277, 2006
SRef-ID: 1607-7962/gra/EGU06-A-09277

Forecasting soil water content

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The soil water content is a component controlling the exchanges of energy and water mass between land and atmosphere, and therefore the fate of living organisms.

It is proposed a method to forecast soil water content by using the information mainly extracted from soil water content data monitored at several tenth of kilometres distance.

The main concept of the method is based on the observation that the temporal variability is often bigger than the spatial one. Therefore the method uses soil water content data from a reference offsite station and condition the forecasting by on site precipitation records, in order to assess the time variability.

The spatial variability is then added by taking into account the different land covers (forest, herbaceous etc.) and the soil hydraulic properties, evaluated or not by a simple single-ring infiltrometer data.

Original data from a two-year experiment will be displayed. They refer to some Valle di Susa (Torino, Italy) sub-catchments and they show a satisfying accuracy in forecasted data. This is an encouraging result because the summer rainfall is quite different between the reference offsite station and the catchments themselves. Also, the measured discharge data will be shown.