PARTNER 9 (DIAAT-UNINA)

Università di Napoli "Federico II", *Department of Agricultural Engineering and Agronomy, Land and Water Management Section, Italy*

TASKS

ABOUT US

RELEVANT PUBLICATIONS

TASKS:

We will have responsibility for the implementation of simulation model for soil water dynamics (see WP8 in the Working Packages Page), and application of Geographical Information Sustems procedure for the calculation of soil water balance at sub-catchment scale as a basis for helping to integrate results into a form of use to water resources managers and policymakers.

ABOUT US:

Responsable Scientist: Prof. Alessandro Santini santini@unina.it

The research activity currently being carried out at the Institute mainly involves the following topics: development of methods for determining soil physical and hydraulic properties; assessment of the space-time variability of soil properties; modelling transport processes in the soil-plant-atmosphere system; development of techniques for measuring water content in soil; problems relating to pressure pipe networks; remote sensing and GIS (Geographic Information Systems) techniques in hydrology and water management. In particular, mathematical model was developed to simulate water transport processes in the soil-plant-atmosphere system to facilitate integration of field and laboratory observations with existing knowledge and to make decisions on water applications. The model provides a useful tool to study the complete water balance and the influence of different factors that can interact with each other in many ways.

The personnel currently working in this research unit is about 15 people among professors, researchers and technical staff. At the laboratory of soil hydrology, apart from standard equipments (sand-kaolin box apparatus; pressure membrane plates; neutron soil moisture probe; TDR (Time Domain Reflectometry), disc permeameter; tensiometers; etc.), experimental facilities properly designed to study the movement

of water in the soil and collect data to assess soil hydraulic properties are available. Computer facilities are available for both computing requirements and controlling over experimental equipments. The Institute is equipped with two HP-9000 Unix Workstations, two Windows NT Workstations with image-processing and GIS software and several PCs connected to local and external networks.

RELEVANT PUBLICATIONS :

SANTINI, A. (1992). Modelling water dynamics in the soil-plant-atmosphere system for irrigation problems. *Excerpta*, 6: 133-166.

SANTINI, A., ROMANO, N. (1994). A simulation model for irrigation water management. Proceedings of the IV International Congress on Desert Development "*Sustainable Development for Our Common Future*" (M. Anaya-Garduno, M.A. Pascual-Moncayo and R. Zarate-Zarate, eds.), México City, 25-30 July 1993, 1: 332-339.

D'URSO G., MENENTI M., SANTINI A. (1996). Remote sensing and simulation modeling for on-demand irrigation system management. Proceedings Intern. Workshop ICID-FAO on "*Irrigation Scheduling from Theory to Practice*", Backgr. Paper no. 16, Theme V

MENENTI M., AZZALI S., D' URSO G. (1996). Remote sensing, GIS and hydrological modelling for irrigation management. In L.S. Pereira et al. (Ed.): *Sustainability of Irrigated Agriculture*. NATO-ASI Series E: Vol.312, Kluwer Acad. Pub., Dordrecht (Paesi Bassi); 453-472