

**SOCIO-ECONOMIC BENEFITS OF
METEOROLOGICAL AND HYDROLOGICAL SERVICES**

INVENTORY OF DECISION SUPPORT TOOLS

ITEM	DESCRIPTION
Sector Agriculture	Specific Sector to which the tool belongs (this would be a set table of groupings to be decided, (eg Agriculture, Energy, Media, Mining, Tourism, Transport, Water, etc, Other)
Sub-sector Irrigation, Agro-environment, Agro-meteorology	A sub-sector of the total Sector, again to be decided, but for example Energy, could be divided in to generation types, Hydropower, Wind, and demand management, etc., Water could be divided into water supply, water allocation, water delivery, water demand, urban water management, water application, hydrological design, etc.
Tool Name CRITERIA	Name of the tool
Tool Description Combining soil, crop and weather data to simulate water balance, nutrient balance and crop growth on a region.	Description of the tool's area of application – in general
Weather, Climate or Water inputs Daily weather data	Weather, Climate or Water service (data, product or service) that is the input to the tool.
Daily max and min temperature, precipitation. Watertable depth if available.	Specific weather, climate, water data required by the tool
Spatial resolution Any. The application runs on single fields or on areas. In the latter case weather data are interpolated with various methods.	Spatial resolution of data required
Temporal resolution Daily	Temporal resolution of data required
Delivery methodology Both methods available	Delivery methodology of data required (eg historical, real-time)
Frequency of data requirement Weekly for current use	Frequency of data requirement (how often required/updated)
Soil texture data and crop parameters area also needed	Other relevant information as required
Outputs include irrigation needs, surface and subsurface runoff, deep drainage flow and associated flow of nutrients (e.g. N and P)	Specific output information
Spatial resolution From field to local scale (e.g. from 100 m to 10 km)	Spatial resolution of output products

Temporal resolution Daily	Temporal resolution of output products
Delivery methodology Graphs, tables, maps. All output can be exported in many formats including ascii for numbers, shape files for maps and wmf for graphs	Delivery methodology of product
Frequency of provision We use it for weekly bulletins	Frequency of provision of product
The system can be used (and indeed has been used) also for long time simulations, for the benefit of agricultural policy makers.	Other relevant information as required
Benefits of tool application The CRITERIA tool allows to make rather precise computations in very short time, combining data that are usually available but are difficult to put together without a model. It is easy to test and compare different crop management scenarios with the same soil and weather or even to confront existing crop management with possible climate change scenarios	Description of how the tool provides benefits and quantify these if possible
Possible future advances The CRITERIA project is evolving towards the integration with remotely sensed soil cover data to be used in combination with soil maps and weather data for the computation of water requirements on large agricultural areas.	Comment on possible future improvements with new/additional input data
Criteria has also been used with seasonal forecasts in the framework of the Demeter and Ensembles EU R&D projects	Option for additional comments
URL maps from CRITERIA are published weekly in the web site http://www.arpa.emr.it/sim/pagine/agrometeo/bollettino/	
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MARLETTO V., ZINONI F., FILIPPI N., ANGELELLI A., LARUCCIA N., LEGA P., TONELLI T., 1993. CRITERIA: an integrated geo-graphical system for soil water monitoring. Proc. IX Symposium Pesticide Chemistry, Mobility and Degradation of Xenobiotics, Piacenza 12-13 october 1993, 695-706. MARLETTO V., ZINONI F., 1998. The Criteria project: integration of satellite, radar, and traditional agroclimatic data in a GIS-supported water balance modelling environment. In: EUR 18328, Dalezios N.R. (ed.), 1998. Proc. COST 77, 79, 711 Int. Symp. on Applied Agrometeorology and Agroclimatology, Volos, Grecia, 24-26 april 1996, ISBN 92-828-4137-5, 173-178. Marletto V., Luca Criscuolo, Margot Van Soetendael, 2001. IMPLEMENTATION OF WOFOST IN THE FRAMEWORK OF THE CRITERIA GEOGRAPHICAL TOOL. Proc. of the 2nd Int. Symp. Modelling Cropping Systems, European Society for Agronomy, Florence, 16-18 July 2001, 219-220.	References