

Earth Observation for Monitoring Irrigation Demand

D'Urso G^{*1}, Vuolo F², Chirico G B¹, De Michele C³

¹*Dept. Agric. Sci, University of Naples "Federico II", Via Università 100, I-80055 PORTICI (Naples); Italy.*

²*BOKU University, VIENNA; Austria.*

³*ARIESPACE srl, spin-off University of Naples "Federico II", NAPLES; Italy.*

E-mail: durso@unina.it

Abstract

During recent years Earth Observation from space (E.O.) has become the most important source of data for monitoring most of land surface-atmosphere processes, and in particular the hydrology of agricultural and forestry areas. Nowadays, E.O. data are being implemented in operative applications for the management of land and water resources. The technological developments of new generation of sensors such as Sentinel-2 of the European Space Agency -with improved spatial and temporal resolution- provide the opportunity for new observational and modelling perspectives. In this work, we illustrate some recent developments in the utilisation of E.O. techniques in the visible and near infrared ranges for supporting the management of irrigation at both farm and district scale. In particular, the following applications of E.O. in the visible and near infrared ranges will be described: irrigated area monitoring, crop parameters, estimation of crop evapotranspiration under standard conditions and crop water requirements. An operational irrigation advisory and forecast service used in Italy and based on the above mentioned techniques will be illustrated.

Keywords: earth observation satellites, irrigation, evapotranspiration, leaf area index, forecast