



## **Five years of soil water content data in a sandy non-irrigated meadow and the performance of four potential evapotranspiration models**

Ivan Bevilacqua, Davide Canone, Davide Pognant, Maurizio Previati, and Fernanda Calderon

Università di Torino, DEIAFA - Sez. Idraulica Agraria, Grugliasco, Italy (ivan.bevilacqua@unito.it / +39-011-6708619))

The estimation of the time variability of the soil water stock over a multi-years period is crucial for many applications such as drought assessment. However, few time series of measured soil water content are available. The authors measured a sandy soil moisture below a non irrigated grass cover in NW Italy, installing an automatic Time Domain Reflectometry (TDR) station with a total of 160 vertical gages down to five different depths (0.15, 0.3, 0.6, 1.0, and 2.0 m depth). The measured data were compared with the soil water stock predicted by a bucket model, in order to test the influence of four different reference evapotranspiration models having different requirements regarding meteorological data. The overall model performances were satisfactory, especially in the period when drought is more frequent, the growing season. The best reference evapotranspiration (ET<sub>o</sub>) model performance was achieved by using a parsimonious model, the Hargreaves and Samani (1982) one, and the errors related to all the ET<sub>o</sub> models were quantified by four different statistical indicators.