



## **Validation of a regional agrometeorological network in Central Italy using ECMWF ERA5 reanalysis.**

Paolina Bongioannini Cerlini (1), Lorenzo Silvestri (1), Andrea Onofri (2), and Michela Farneselli (2)

(1) CIRIAF-CRC, University of Perugia, Perugia, Italy (paolina.cerlini@unipg.it), (2) Department of Agricultural, Food and Environmental Sciences, University of Perugia, Perugia, Italy

During the analysis - funded by The European Agricultural Fund for Rural Development (EAFRD) that has financed the EU's contribution to rural development program in Umbria (Italy) – of meteorological data from automatic weather stations following the WMO requirements [1], it has become evident the need of using the newest global climatic data (ERA5, ECMWF [2]) to compute indices to perform an extended quality control over data and to give climate information to the end users . The peculiar regional environment with strong orographic modulation of the Umbria region and the consequent impact over the precipitation field together with the signal of a seasonal and intra-seasonal change of the temperature distribution, show a complex impact of the climate change over the Umbria region and broadly over Central Italy. This work is trying to show how to account for the impact of the climate change over the phenology of vineyards using different indices as SPI , SPEI, and Winkler starting from the new reanalysis dataset with enhanced resolution in time and space. Moreover within this project agronomists and plant pathologists are cooperating with meteorological scientists to analyze and relate weather epidemic development in order to reduce the economic impact and environmental effects of airborne plant disease epidemics and ultimately to make the end-users timely decisions about the effective and economical application of fungicides and about other tactics to manage plant diseases.

[1] WMO. Guide to agricultural meteorological practices (wmo-no. 134). World Meteorological Organization: Geneva, Switzerland, 2010.

[2] <https://www.ecmwf.int/en/forecasts/datasets/archive-datasets/reanalysis-datasets/era5>