

## AgroFIND – Agro-meteorological Forecasting INDICES

AgroFIND is a part of the cloud storage which hosts the materials of the [Observatory for agricultural meteorology and climatology](#) of the Research Center for Agriculture and Environment belonging to the Council for Agricultural Research and Economics (CREA). It stores data and maps related to agrometeorological forecasting indices, with the aim to support agrometeorological services at national level.

The agrometeorological indices are based on the 10-day forecast of the [atmospheric model High RESolution \(HRES\)](#) of the [European Center for Medium-Range Weather Forecasts \(ECMWF\)](#). The resulting forecasted agrometeorological indices (Tab. 1) have a spatial resolution of 0.1 degrees (horizontal resolution of around 9 km), like the atmospheric model, and cover the whole Italian area (within the coordinates 35.0° - 48.0° N, 6.0° - 20.0° E), with a daily temporal resolution spanning a 7-day time interval from the issuing day of the forecast (Bellucci et al., 2023). Datasets and maps are updated every day through the atmospheric forecast runs at 00 UTC base time.

The most common hazards in agriculture have been taken into account for the selection and definition of the agrometeorological indices. Moreover, the choice was based on those indices already officially recognized by the World Meteorological Organization (WMO and GWP, 2016) and the Intergovernmental Panel on Climate Change (IPCC, 2007; Field et al., 2012), also considering other important works carried out for Italy, as well as some products developed by other Italian agrometeorological services at a local scale. The index map gallery is updated every day, and it is freely accessible at the link reported in the Abstract.

Table 1 - List of agrometeorological forecast indices stored in the AgroFIND storage

Acronym	Definition	Units
<b>TX</b>	Maximum daily temperature	°C
<b>TN</b>	Minimum daily temperature	°C
<b>TX35</b>	<i>Very hot days</i> , defined as the number of days with temperature over 35 °C (available from June to September)	days
<b>LFD0</b>	<i>Late Frost Days</i> , defined as the number of days with minimum temperature under 0 °C (available from March to April)	days
<b>DTR</b>	<i>Diurnal Temperature Range</i> , defined as the temperature range between maximum and minimum daily temperatures	°C
<b>RRc</b>	Precipitation amount, when it overcomes 5 mm per day, accumulated over days from the first to each of the forecast time steps	mm
<b>R20</b>	<i>Very heavy precipitation days</i> , defined as the number of days with precipitation over 20 mm (calculated from the first to each of the forecast time steps)	days
<b>ETo</b>	Daily reference crop evapotranspiration according to the Penman-Monteith equation defined by FAO	mm
<b>EToc</b>	ETo accumulated over days from the first to each of the forecast time steps	mm
<b>CWB</b>	Daily climatic water balance	mm
<b>CWBc</b>	CWB accumulated over days from the first to each of the forecast time steps	mm

## References

- Bellucci G.M., Alilla R., De Natale F., Parisse B., Pepe A.G. (2023), Medium-range agrometeorological forecast supporting agriculture. In Atti del XXV Convegno Nazionale di Agrometeorologia L'Agrometeorologia per la gestione delle risorse e delle limitazioni ambientali in agricoltura. Matera, 14-16 giugno 2023. Ventura F., Cola G., Di Cesare F. Eds. Matera, 2023. 124-128. ISBN 9788854971127. <http://doi.org/10.6092/unibo/amsacta/7302>
- Field C. B., Barros V., Stocker T. F., Dahe Q. (2012), Managing the risks of extreme events and disasters to advance climate change adaptation: special report of the intergovernmental panel on climate change. Cambridge University Press.
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