ETo-PM

Version 0.9

19 February 2013

What is ETo-PM?

Eto-PM is a simple Microsoft Excel spreadsheet for computing the reference evapotranspiration (ETo) by using the FAO Penman-Monteith equation (Allen et al., 1998).

ETo is implemented in the minimal dataset scenario where meteorological data available are only the maximum and minimum temperature (°C). Wind speed if not available can be set to 2 m/s, the soil heat flux (G) can be set to 0 (the assumption is valid being G smaller than Rn (net radiation at the crop surface), particularly when the surface is covered by vegetation and calculation time steps are 24 hours or longer).

All the intermediate parameters are calculated by using the equations and the calculation rules reported in the reference manual of the FAO ETo Calculator Version 3.1.

Further details on the equations can be found in the references reported below.

Feature

- Calculation of the Reference evapotranspiration ETo [mm] computed (table and graph);
- Calculation of all the parameters required (table).

Functions

The following functions are implemented by using Microsoft Visual Basic for Application:

- Reference evapotranspiration ETo [mm];
- Extraterrestrial radiation (Ra) [Mj m^{-2} day^{-1}];
- Net radiation at the crop surface (Rn) [MJ m-2 day-1];
- Solar radiation (Rs) [MJ m-2 day-1];
- Saturation vapour pressure (es) [kPa];
- Actual vapour pressure (ea) [kPa];
- Slope vapour pressure curve (Delta) [kPa °C-1];
- Atmospheric pressure (atmP) [kPa];
- Psychrometric constant (Gamma) [kPa °C-1].

Installing on a PC

Use an uncompression program that can handle zip files to extract the files inside the zip file. The files must all be extracted to the same folder on your hard disk.

Since some equation are implemented with VBA the spreadsheet requires the activation of the macros.

Eto-PM is not an Excel add-in and no permanent modifications to your system, including Excel itself, are carried out during installation.

Further enquiries

For questions about software, contact lupia@inea.it

References

Allen, R. G., Pereira, L. S., Raes, D., Smith, M., 1998. Crop evapotranspiration: Guidelines for computing crop water requirements. Irrigation and Drainage Paper No. 56. FAO, Rome, Italy.

FAO The ETo Calculator – Reference Manual, Version 3.2. http://www.fao.org/nr/water/eto.html

Citation

To cite ETo-H in publications, please use something like this (depending on your journal's preferences):

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