



Linking the M&Rfi Weather Generator with Agrometeorological Models

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Realistic meteorological inputs (representing the present and/or future climates) for the agrometeorological model simulations are often produced by stochastic weather generators (WGs). This contribution presents some methodological issues and results obtained in our recent experiments. We also address selected questions raised in the synopsis of this session.

The input meteorological time series for our experiments are produced by the parametric single site weather generator (WG) Marfi, which is calibrated from the available observational data (or interpolated from surrounding stations). To produce meteorological series representing the future climate, the WG parameters are modified by climate change scenarios, which are prepared by the pattern scaling method: the standardised scenarios derived from Global or Regional Climate Models are multiplied by the change in global mean temperature (ΔTG) determined by the simple climate model MAGICC. The presentation will address following questions:

- (i) The dependence of the quality of the synthetic weather series and impact results on the WG settings. An emphasis will be put on an effect of conditioning the daily WG on monthly WG (presently being one of our hot topics), which aims at improvement of the reproduction of the low-frequency weather variability. Comparison of results obtained with various WG settings is made in terms of climatic and agroclimatic indices (including extreme temperature and precipitation characteristics and drought indices).
- (ii) Our methodology accounts for the uncertainties coming from various sources. We will show how the climate change impact results are affected by 1. uncertainty in climate modelling, 2. uncertainty in ΔTG , and 3. uncertainty related to the complexity of the climate change scenario (focusing on an effect of inclusion of changes in variability into the climate change scenarios).

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