



Evaluation of impacts of extreme events projected by Regional Climate Models on cropping systems in the Iberian Peninsula by the end of XXI century

Margarita Ruiz-Ramos (1), Clemente Gallardo (1), Enrique Sánchez (2), and M. Inés Mínguez (3)

(1) Universidad de Castilla-La Mancha, Instituto de Ciencias Ambientales, Toledo, Spain (margarita.ruiz@uclm.es), (2) Facultad de Ciencias del Medio Ambiente, Universidad de Castilla-La Mancha, Toledo, Spain (enrique.sanchez@uclm.es), (3) Depto. Producción Vegetal: Fitotecnia, Universidad Politécnica de Madrid, Spain (ines.minguez@upm.es)

Increasing of extreme events is expected under climate change. The impact of such increase will depend on the vulnerability of the evaluated system. For Mediterranean agricultural systems, extremes temperatures and water deficit are main hazards. The vulnerability of crops and cropping systems varies according to the extreme event considered and timing of crop development.

Indexes for extreme events of temperature and water stress were defined and calculated from outputs of an ensemble comprising 10 Regional Climate Models, for control (1960-1990) and future climate (A2 IPCC SRES scenario for 2070-2100). Maize and wheat simulation models were run also using outputs from the same ensemble of RCMS, obtaining phenological dates describing crop development. Extreme indexes were then recalculated for vulnerable phenological periods, extending the work presented in Ruiz-Ramos et al. (2009).

The work analysed the “effective” impact of extreme events related to specific crops and growing seasons, which is a valuable information to design optimum adaptation strategies. The use of an ensemble of climate allows us for analyzing the uncertainty related to differences among RCMs in the modelling chain from climate to impacts.

References

Ruiz-Ramos M, Gallardo C, Sánchez E and Mínguez MI, 2009. Impacts on cropping systems of present and future extreme events assessed with various regional climate models in the Iberian Peninsula. *Geophysical Research Abstracts*, Vol. 11, EGU2009-8555.