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Article:

Makowski, D, Asseng, S, Ewert, F et al. (89 more authors) (2015) A statistical analysis of three ensembles of crop model responses to temperature and CO₂ concentration. Agricultural and Forest Meteorology, 214. 483 - 493. ISSN 0168-1923

<https://doi.org/10.1016/j.agrformet.2015.09.013>

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Figure captions

Figure 1: Simulated values of maize (A), wheat (B), and rice (C) yields as a function of fitted values obtained with the selected statistical models. Each graphic includes yield data simulated in four sites.

Figure 2: Examples of yield data simulated by three different crop models for maize in Morogoro (Tanzania) (A), for wheat in Wageningen (The Netherlands) (B), and for rice in Shizukuishi (Japan) (C) for three different CO₂ concentrations and a temperature increase of +3°C. Points of different colors indicate yield data simulated by using different crop models. Curves correspond to the yield values obtained with the statistical models.

Figure 3: Yield responses to temperature change (T) and CO₂ change (CO_2) estimated using the statistical models for maize in Morogoro (Tanzania), wheat in Wageningen (The Netherlands), and rice in Shizukuishi (Japan). Yield differences are expressed relatively to a baseline defined over 1981-2010. Each grey curve corresponds to a given crop model, and is estimated with a statistical model using the crop model-specific coefficients e_{ki} , $k=0, \dots, 5$, $i=1, \dots, P$. The solid red curve indicates the mean effect on yield of climate change compared to the baseline scenario, i.e., the effect averaged over all crop models. The red dashed curves indicate the 10th and 90th percentiles of climate change effect computed over all crop models. The blue line indicates zero yield difference.

Figure 4: Probability distributions of yield loss (or yield gain) resulting from an increase of temperature of +2°C (A, C, E) or +4°C (B, D, F) for maize, wheat, and rice (four sites per crop). The CO₂ concentration increase is set to +180ppm in all cases ([CO₂]=570ppm). Each distribution describes the variability of the yield loss (or gain) values simulated by different crop models.

Figure 5: Yield loss probability as a function of CO₂ concentration (ranging from +0 to +360ppm compared to a baseline concentration of 360ppm) for two levels of temperature

increase (+2 or +4 °C). Each curve corresponds to one crop (maize, wheat or rice) and one site. Yield loss probabilities correspond to the proportions of crop models predicting a yield loss. The horizontal dashed line corresponds to a probability of yield loss of 0.5.