

The fingerprint of climate change in crop losses during recent heatwaves and droughts

Jonas Jägermeyr

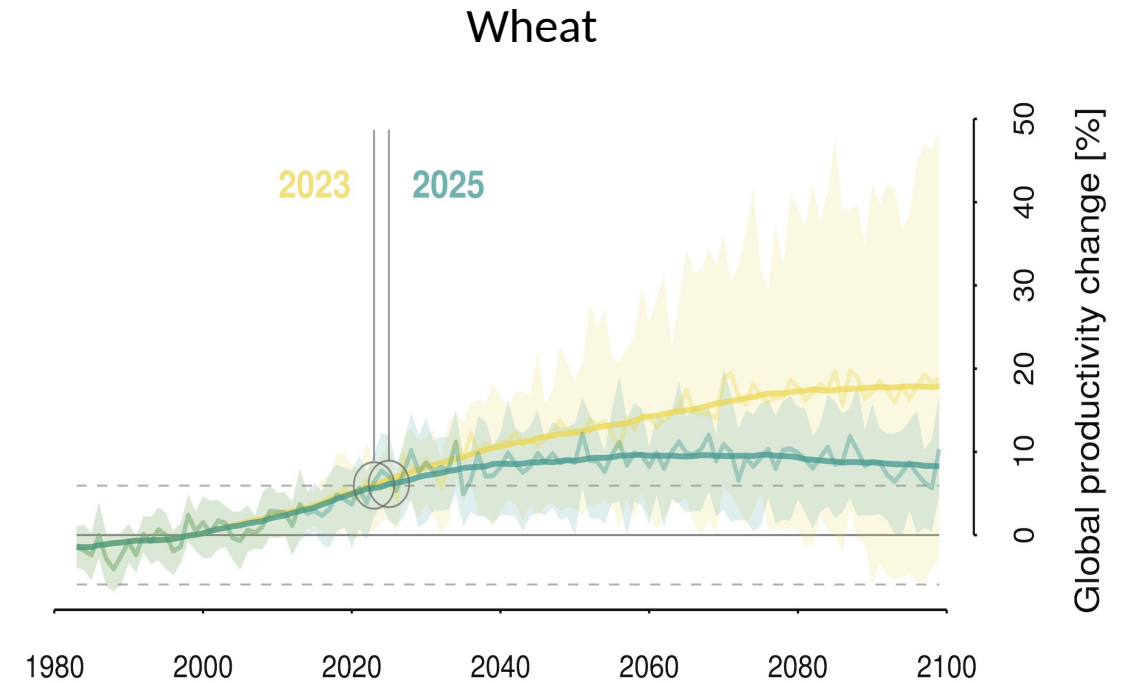
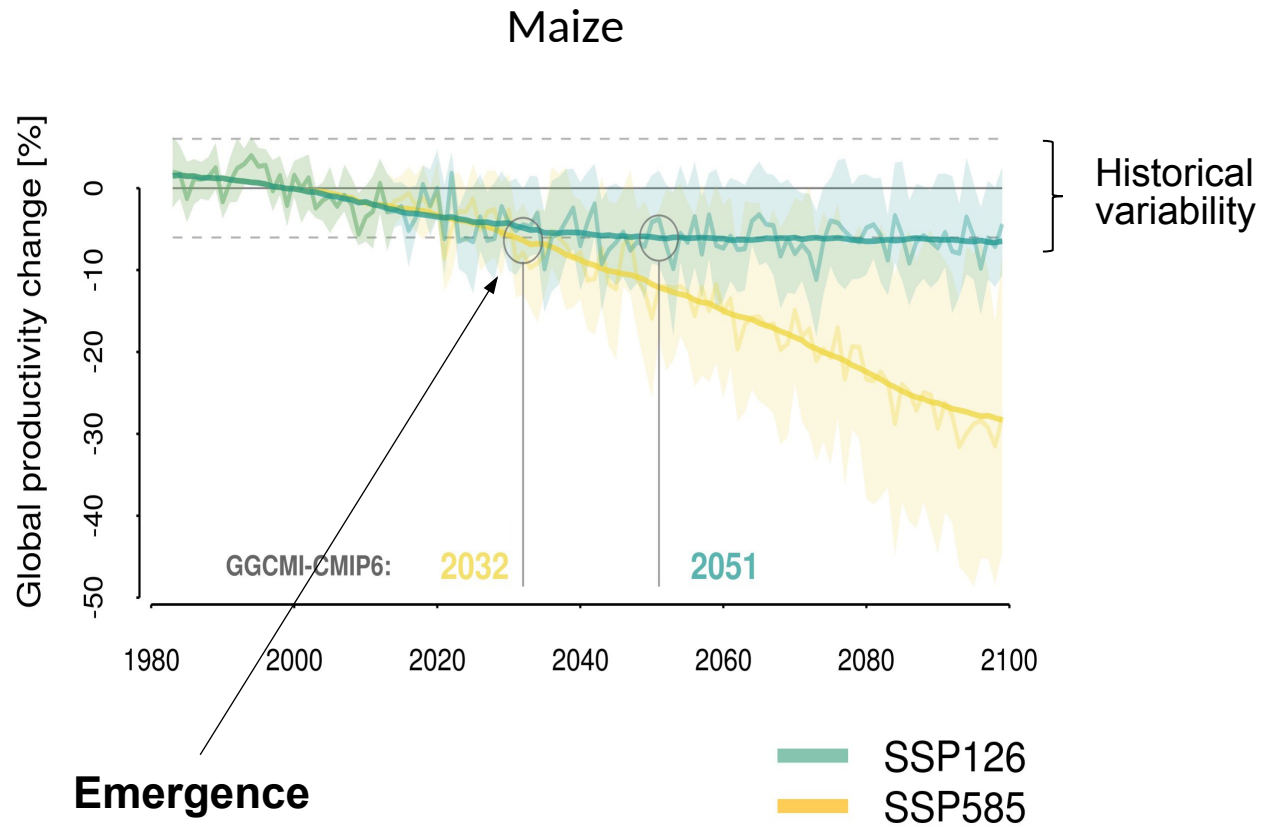
ISIMIP/PROCLIAS workshop

April 24, 2024

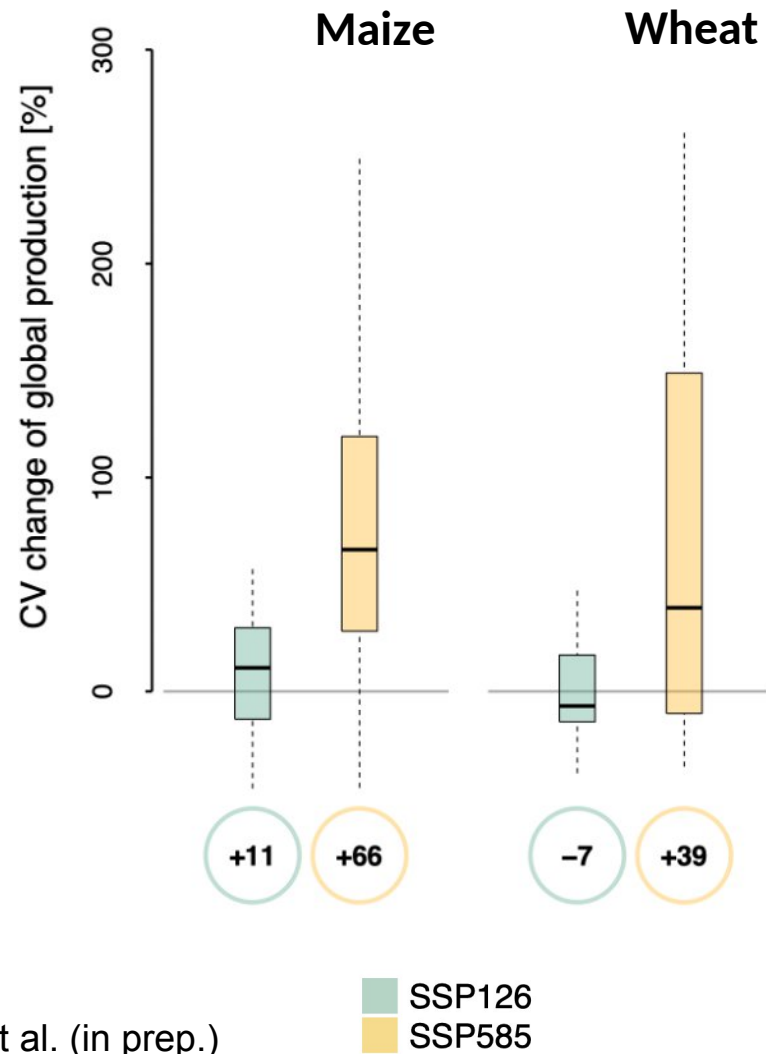




Time of Climate Impact Emergence

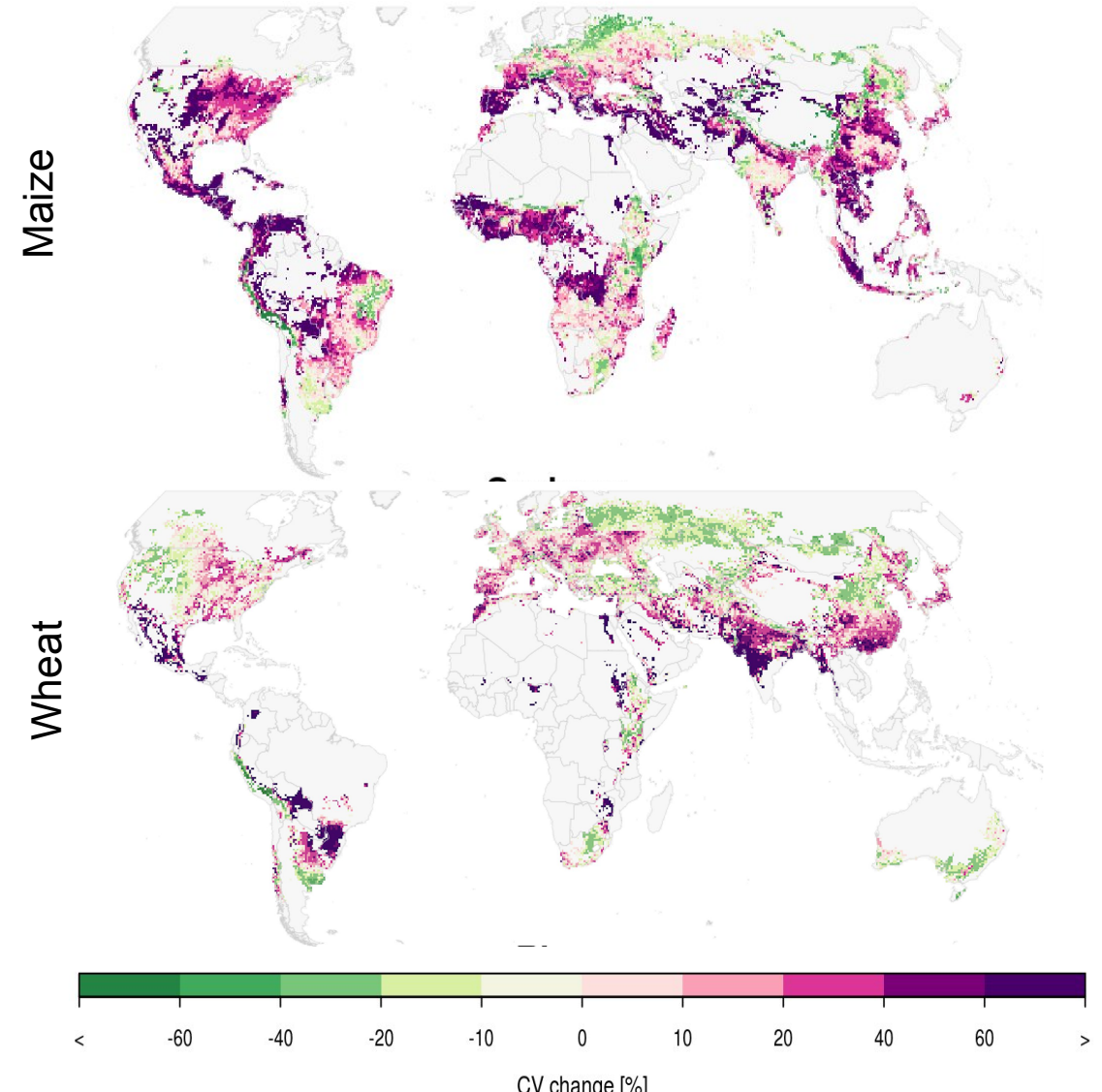


Inter-annual variability to increase



Jägermeyr et al. (in prep.)

Change in Coefficient of Variation





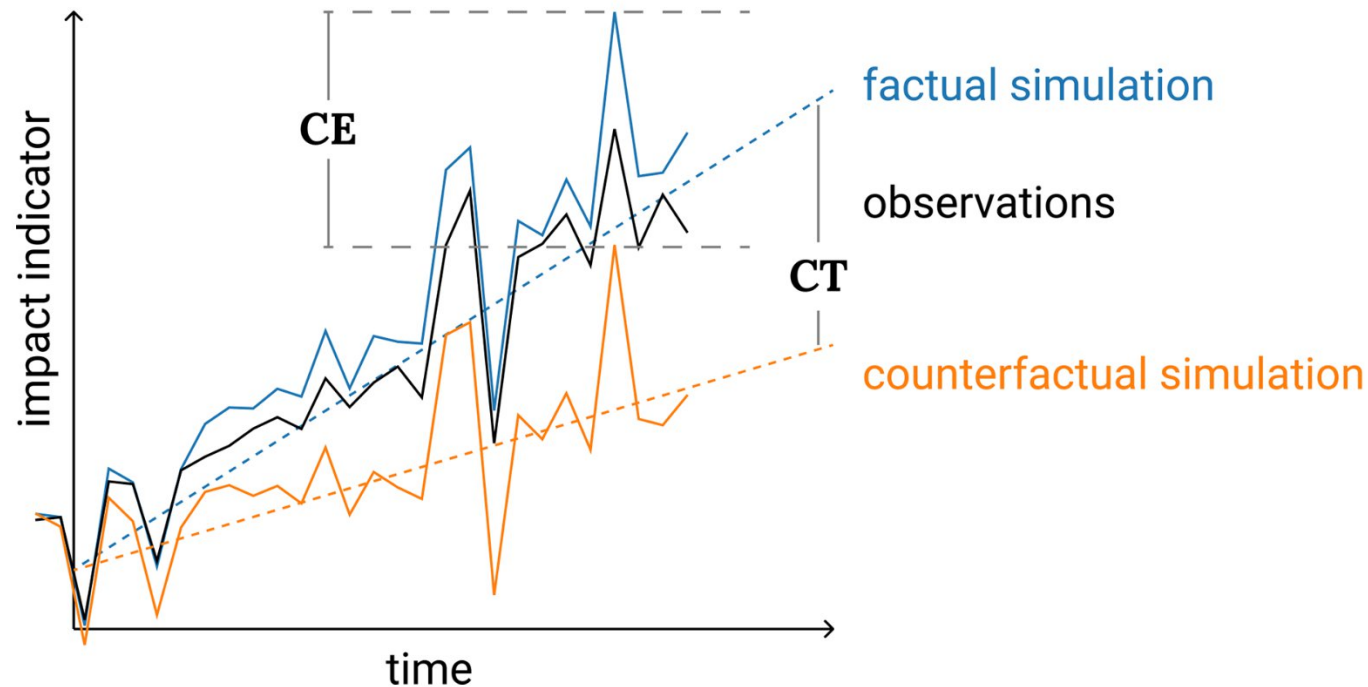
ATTRICI v1.1 – counterfactual climate for impact attribution

Matthias Mengel, Simon Treu, Stefan Lange, and Katja Frieler

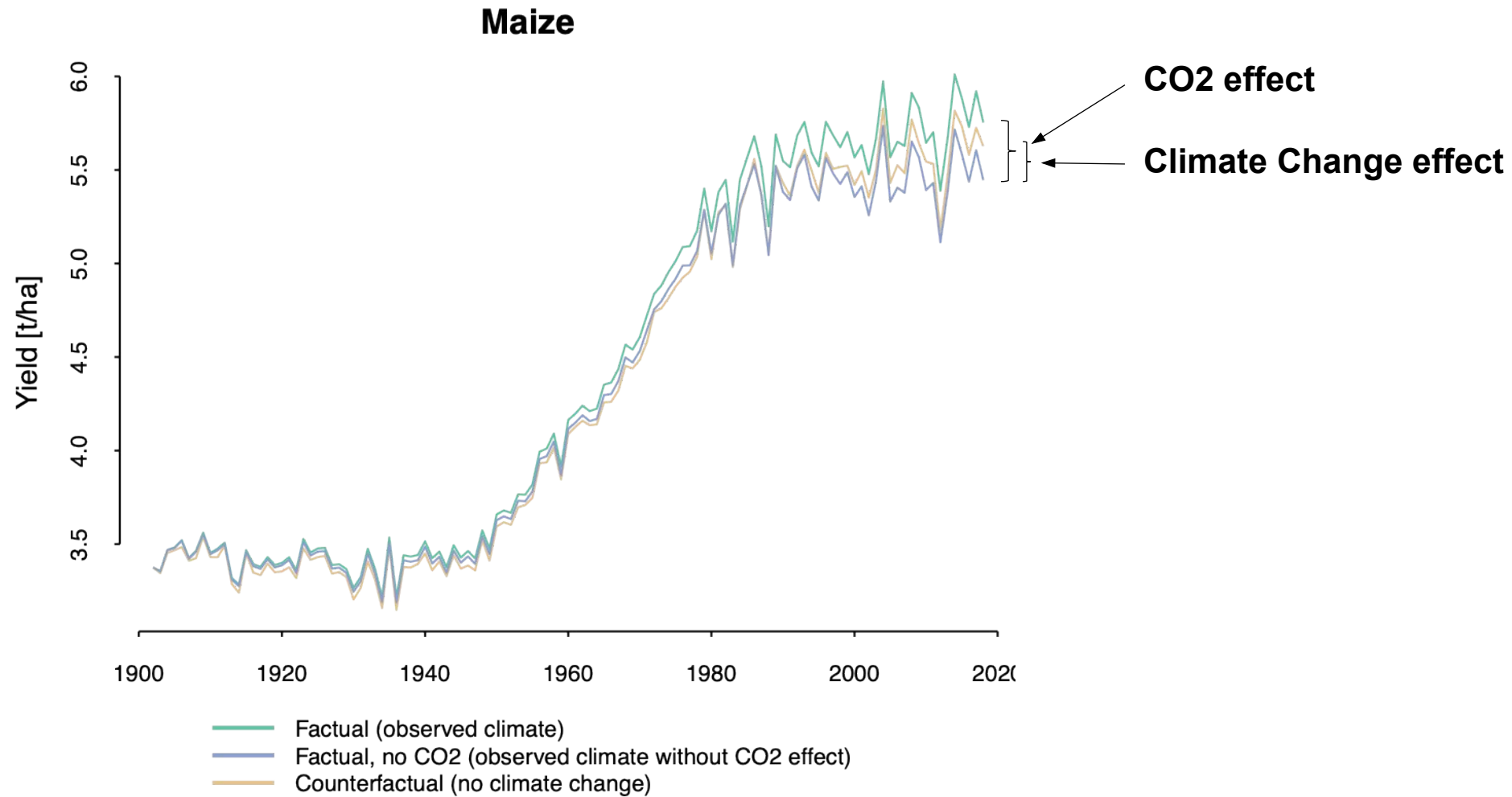
Potsdam Institute for Climate Impact Research (PIK), Member of the Leibniz Association,
 P.O. Box 60 12 03, 14412 Potsdam, Germany

CE = contribution of climate change
to impact event magnitude

CT = contribution of climate change
to trend in impact

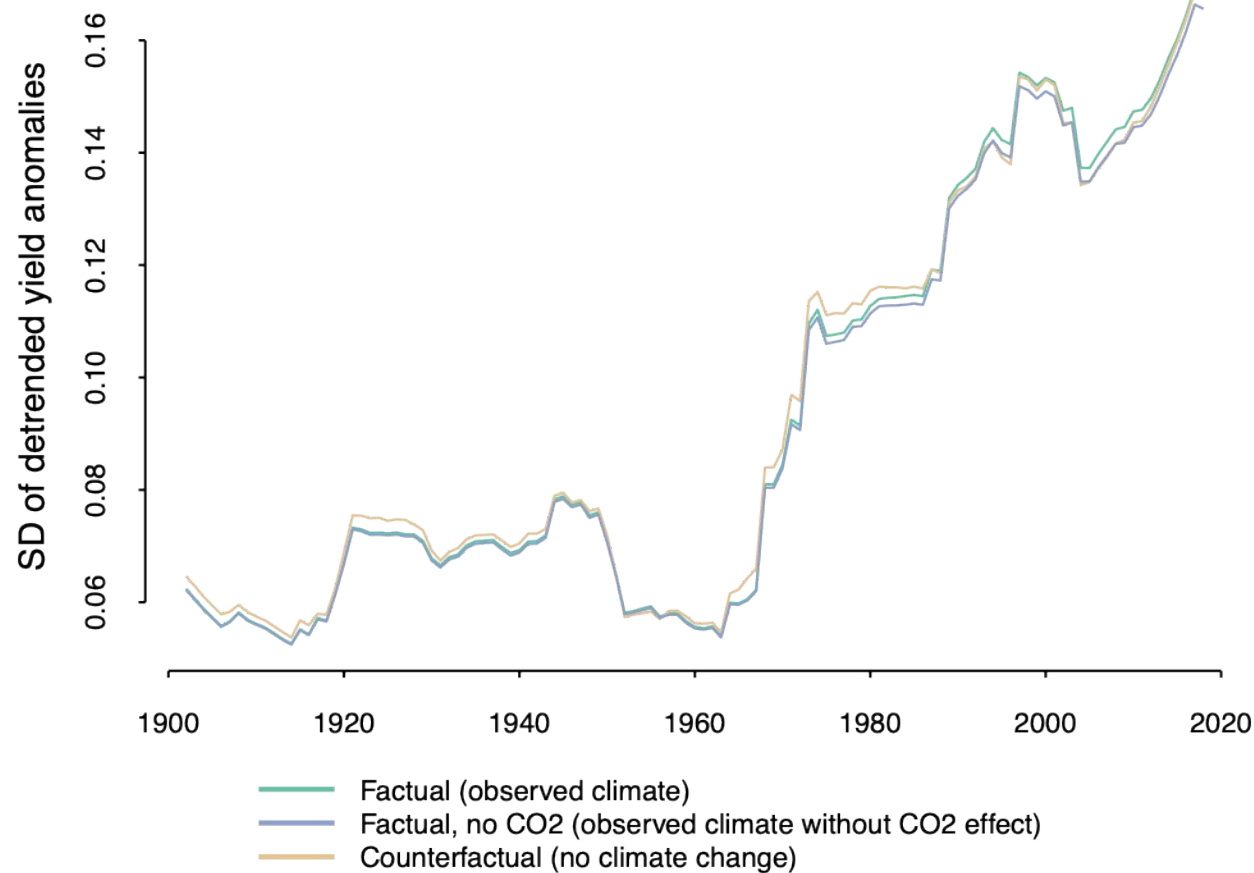


Simulated yield trends over the 20th century

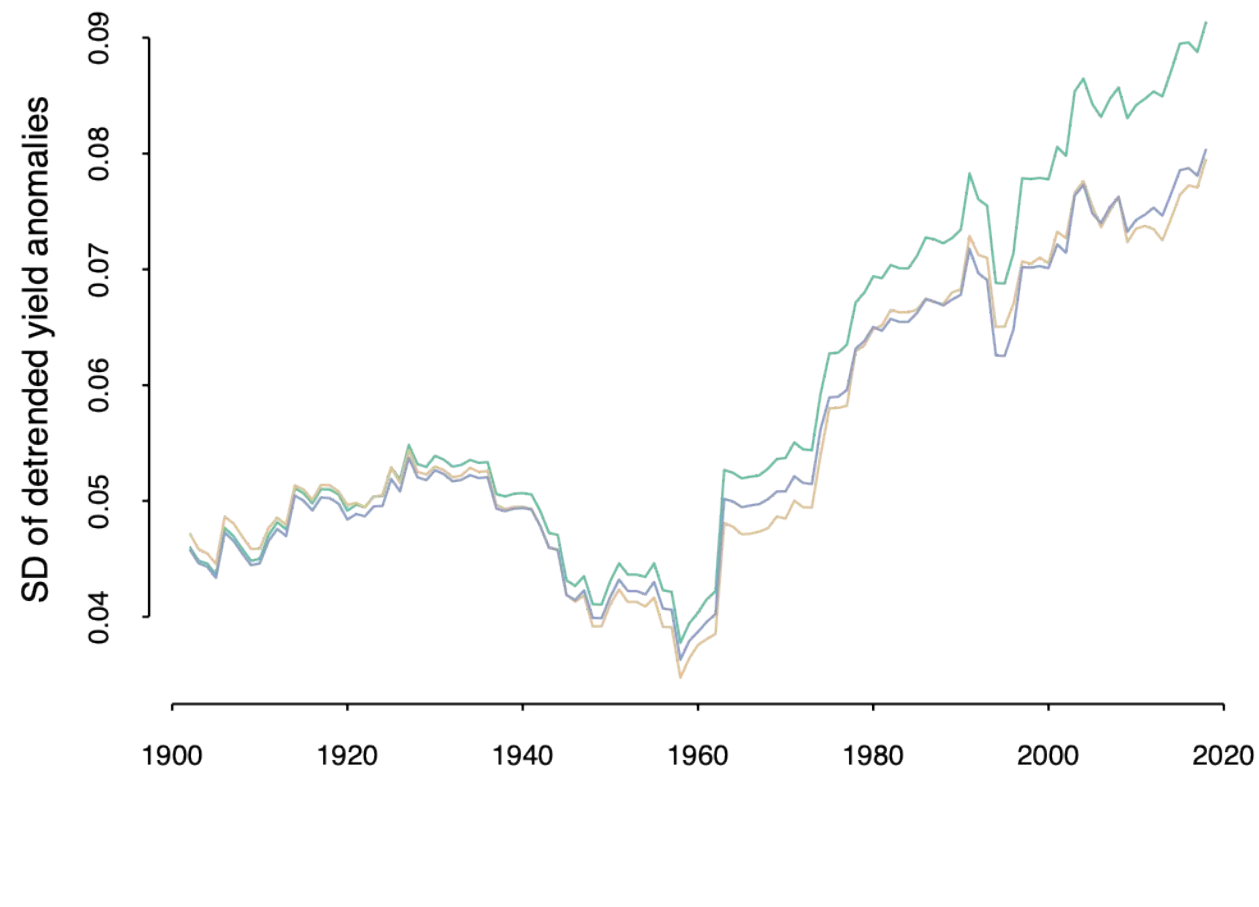


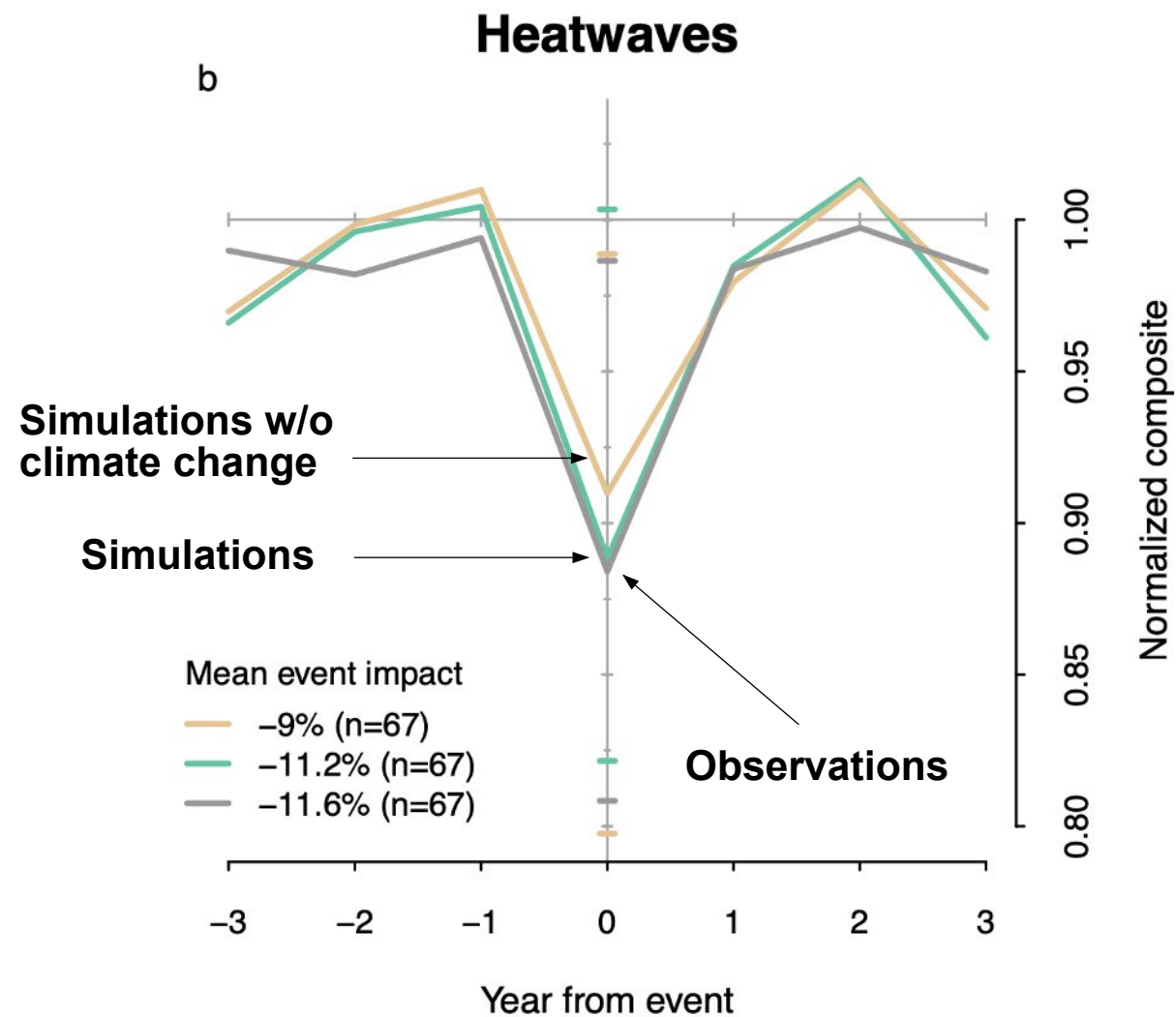
Simulated yield standard deviation (SD)

Maize



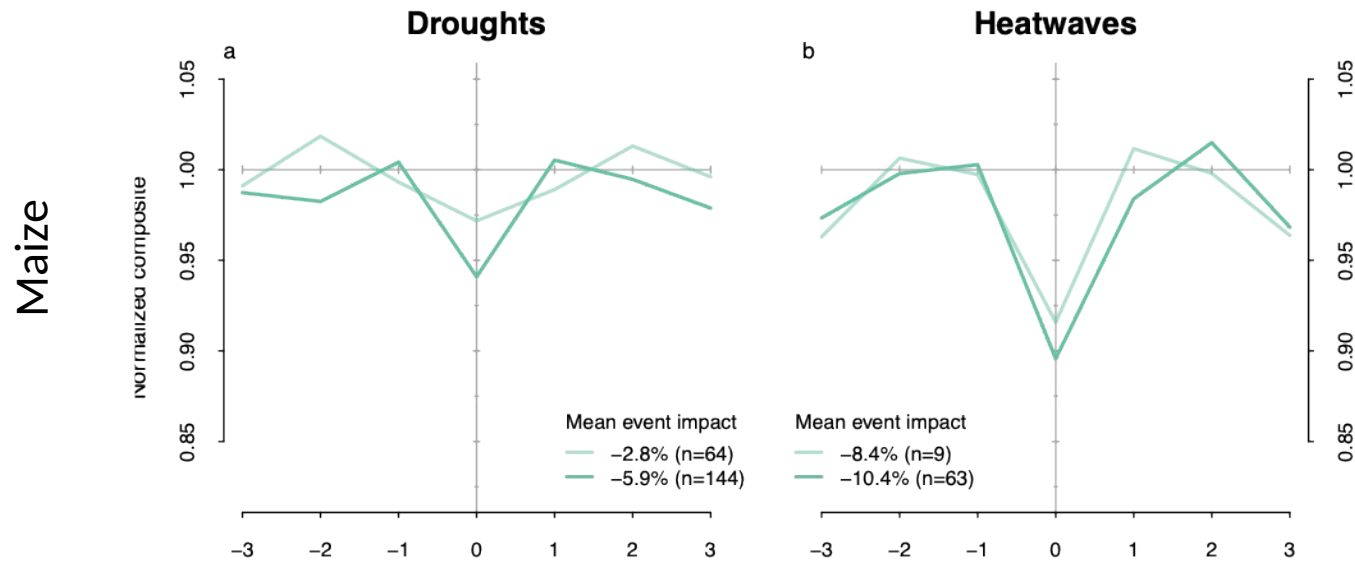
Wheat



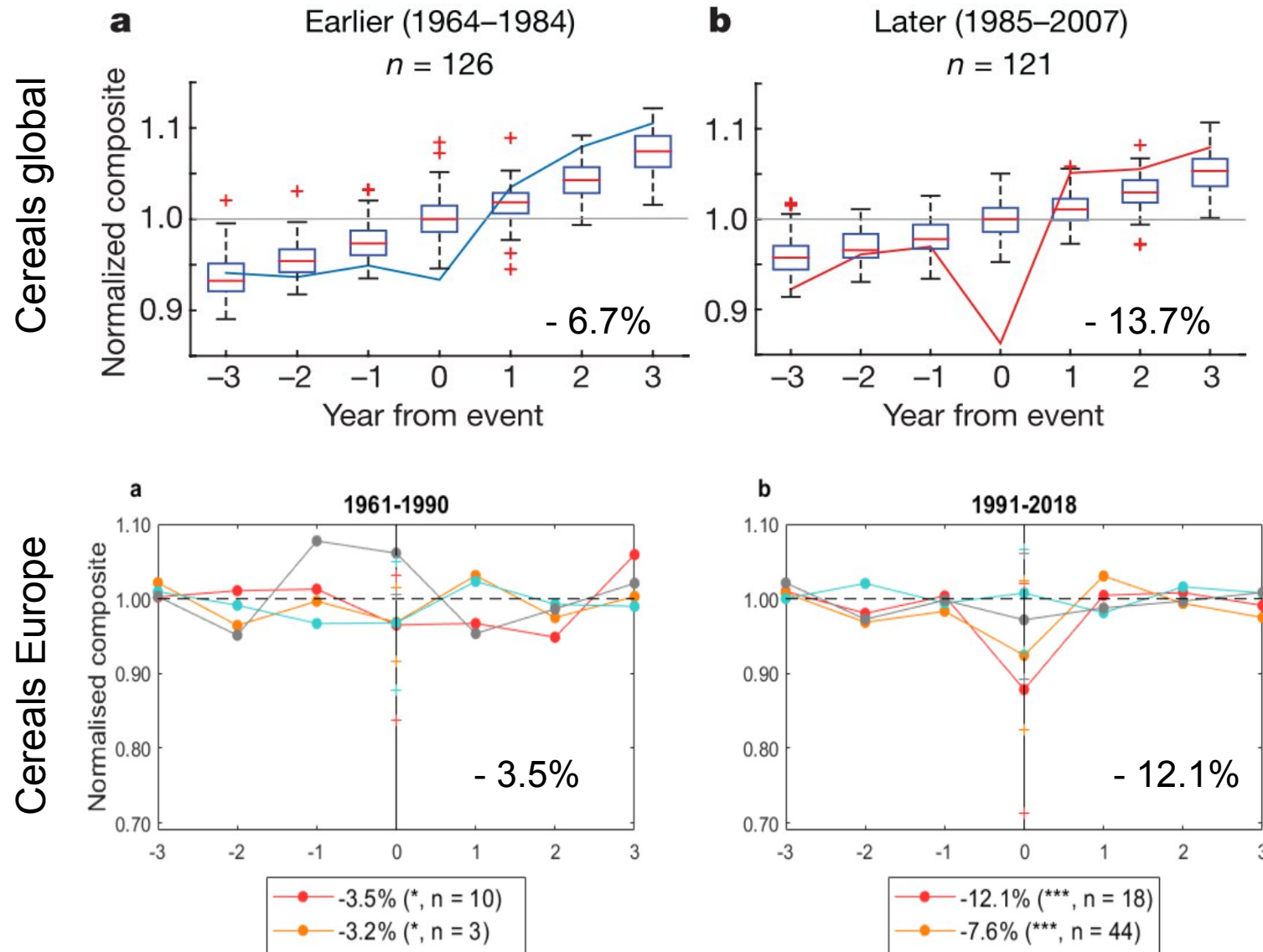


— Counterfactual
— Factual

Historical yield impacts of droughts and heat waves before and after 1990



Crop impacts of extreme weather disasters increased in observations



Lesk et al. 2016, Influence of extreme weather disasters on global crop production, *Nature*

Bras et al. 2021, Severity of drought and heatwave crop losses tripled over the last five decades in Europe, *ERL*

Thank you!

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