

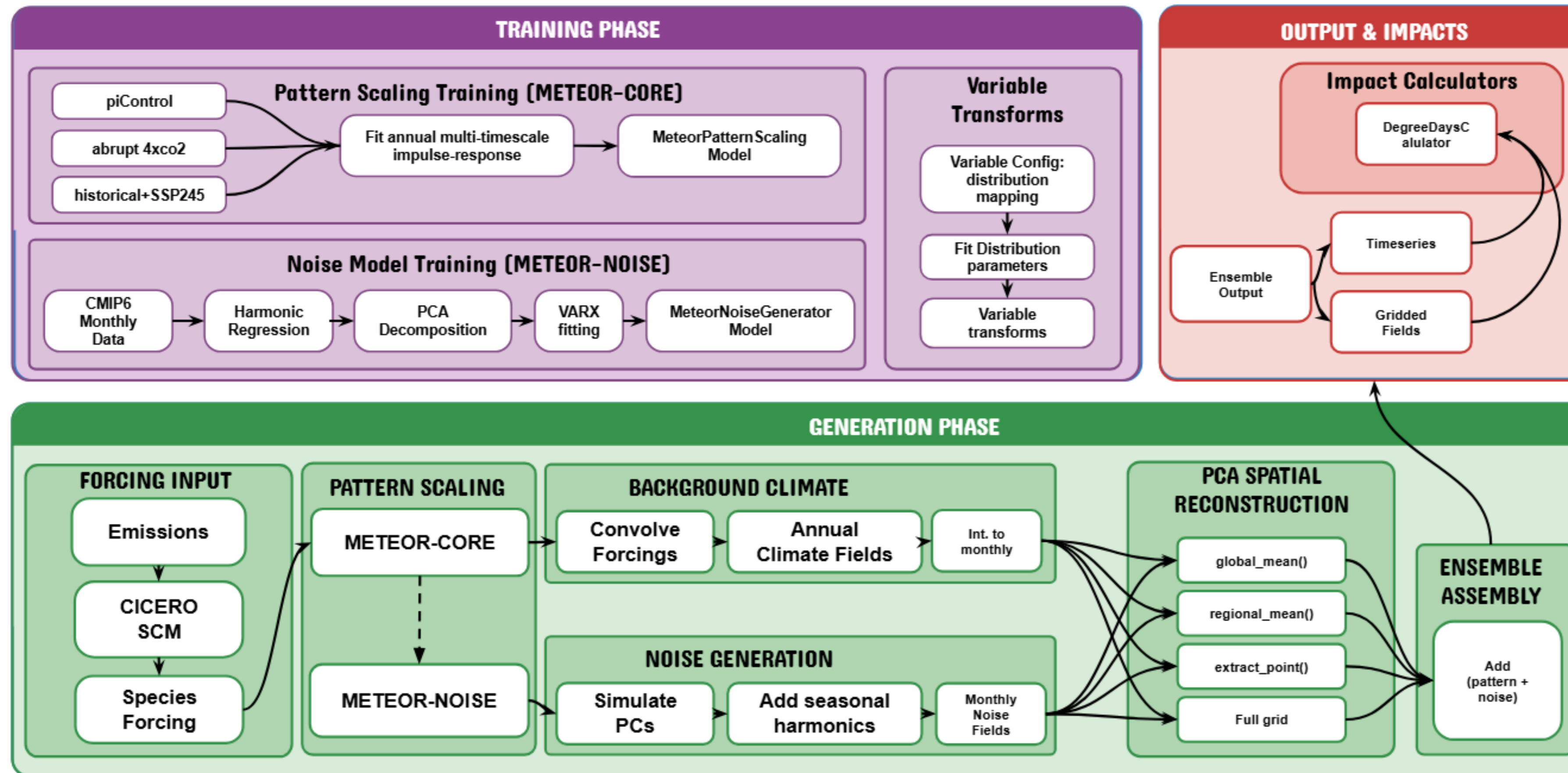
METEOR 1.5 a spatial emulator for fast and relevant responses to impact questions

Marit Sandstad¹, Benjamin Mark Sanderson¹, and Norman Julius Steinert¹, and Shivika Mittal¹

¹ CICERO Center for International Climate Research, Oslo 0349, Norway

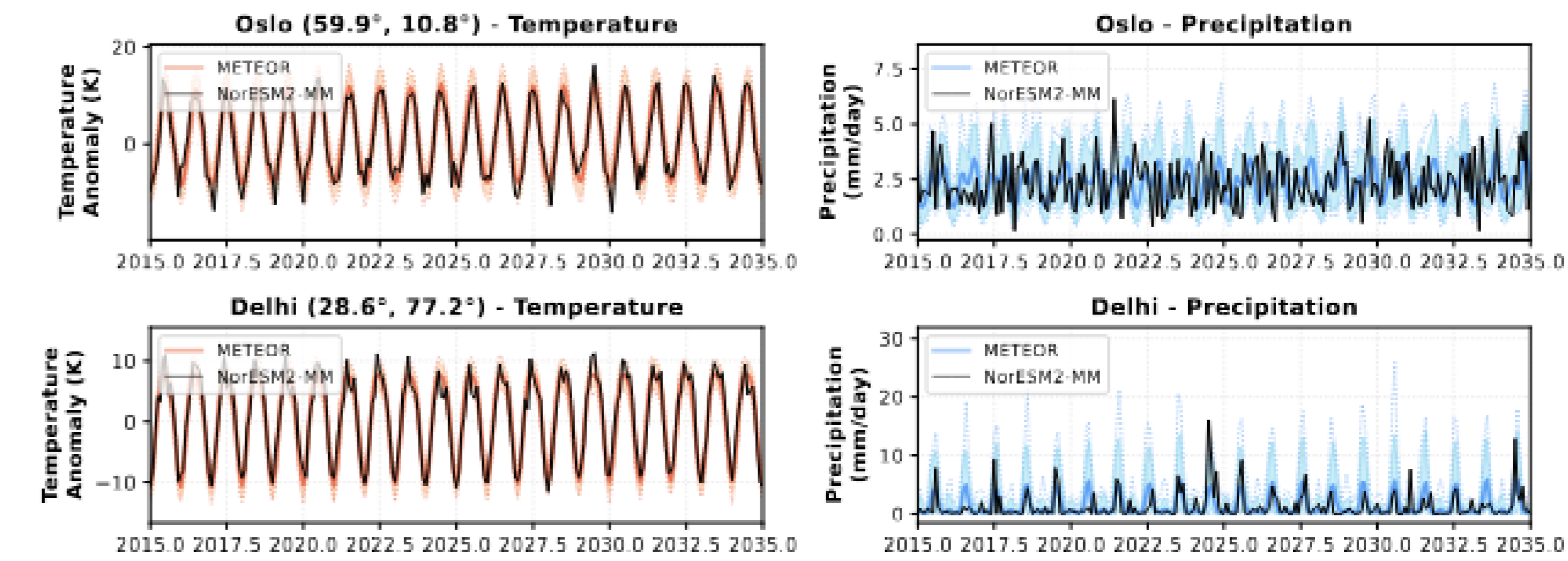
Main idea : METEOR-core: Emulation of spatial climate patterns for annual climate evolution assuming time-evolving forcing. METEOR-noise: Adding global temperature-dependent seasonal cycles and variability trained from monthly data.

METEOR-impacts: Transforming monthly outputs to local or regional impacts.

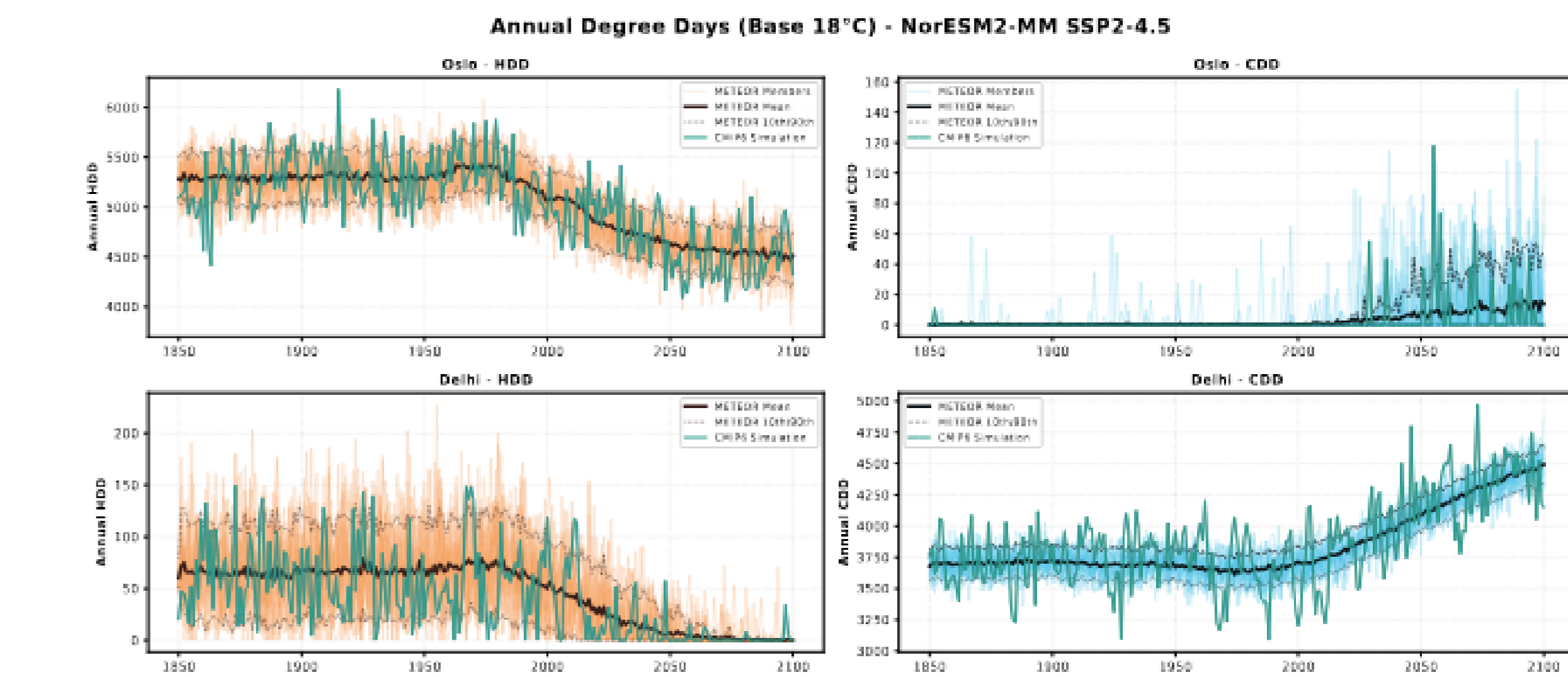


Impacts at global, regional and point scale

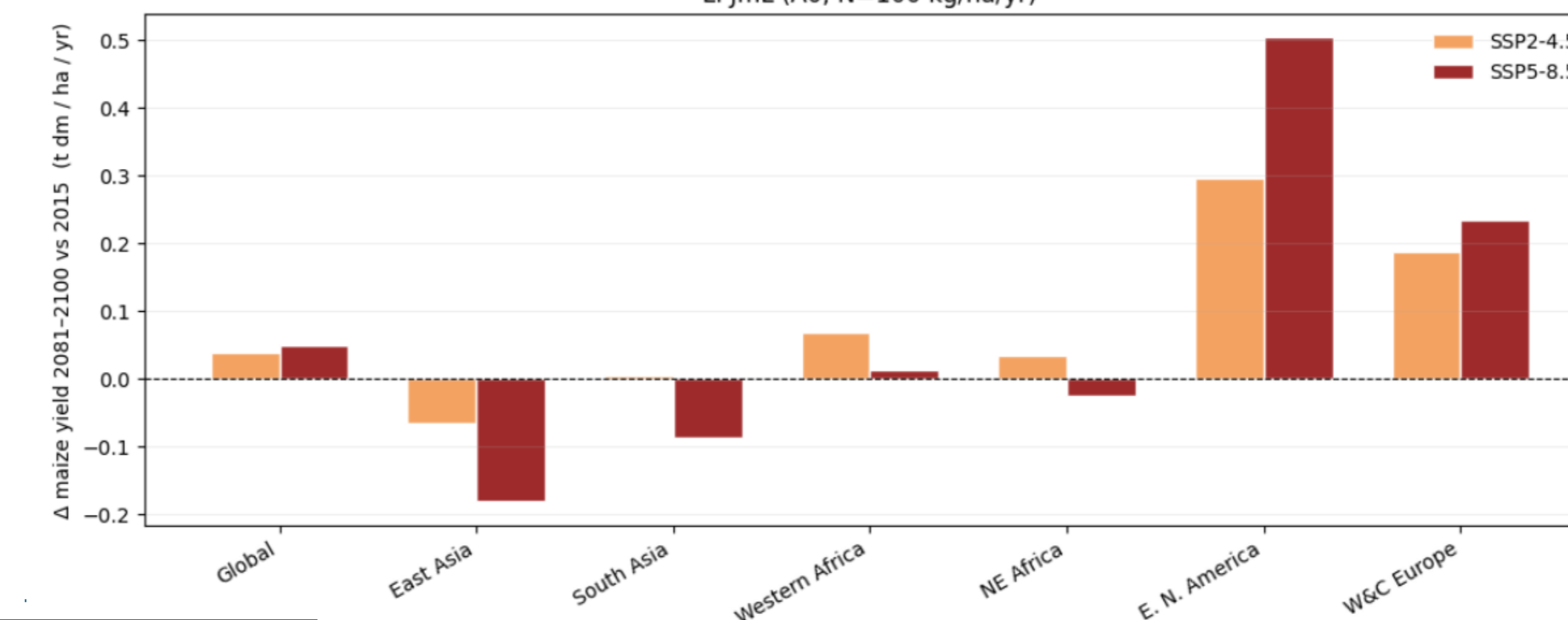
On-demand ensemble generation to requested area for fast calculations and low memory and disk demand



Heating and cooling degree days

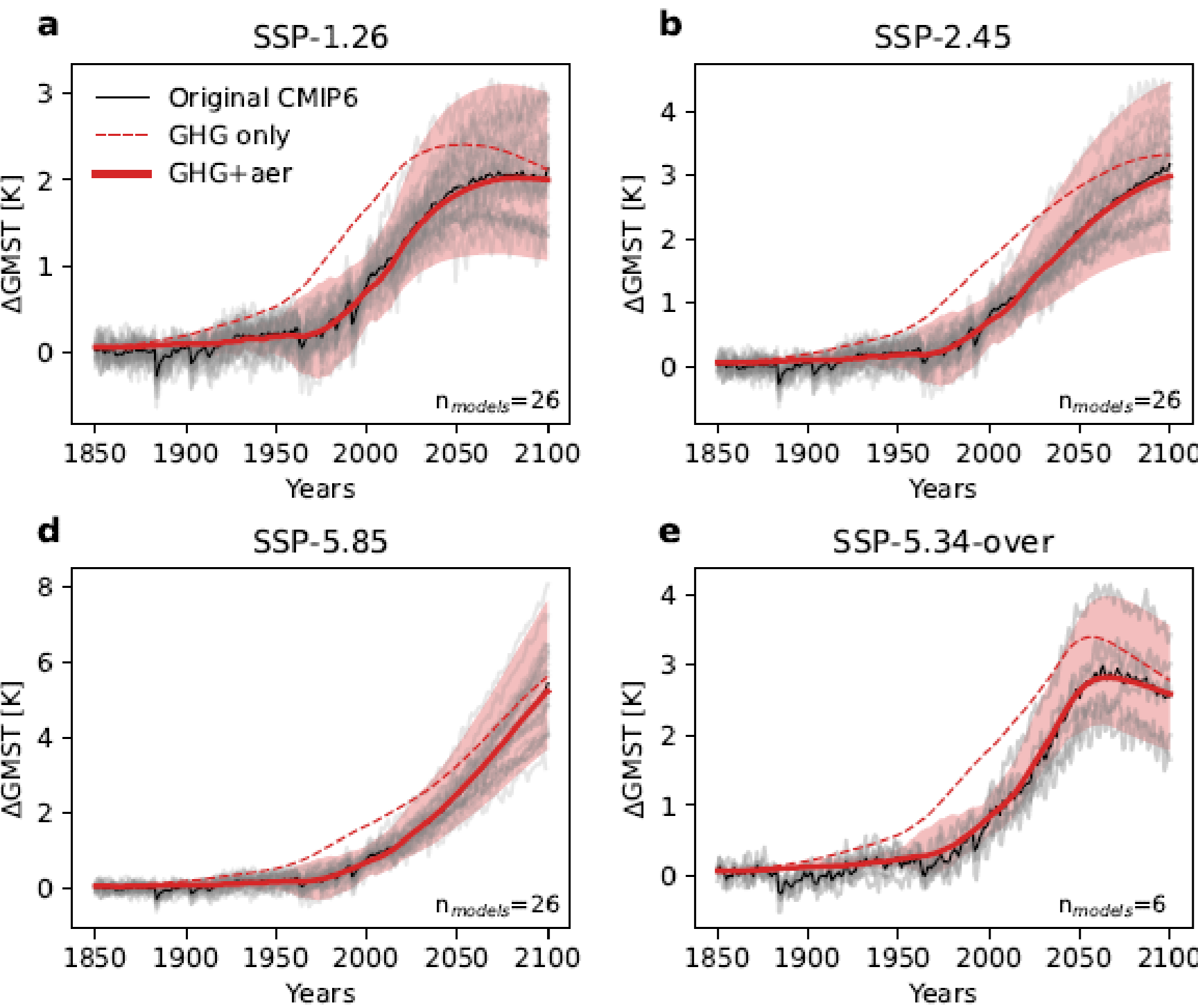


Crop yield



METEOR-CORE

Forcing-induced annual mean timeseries

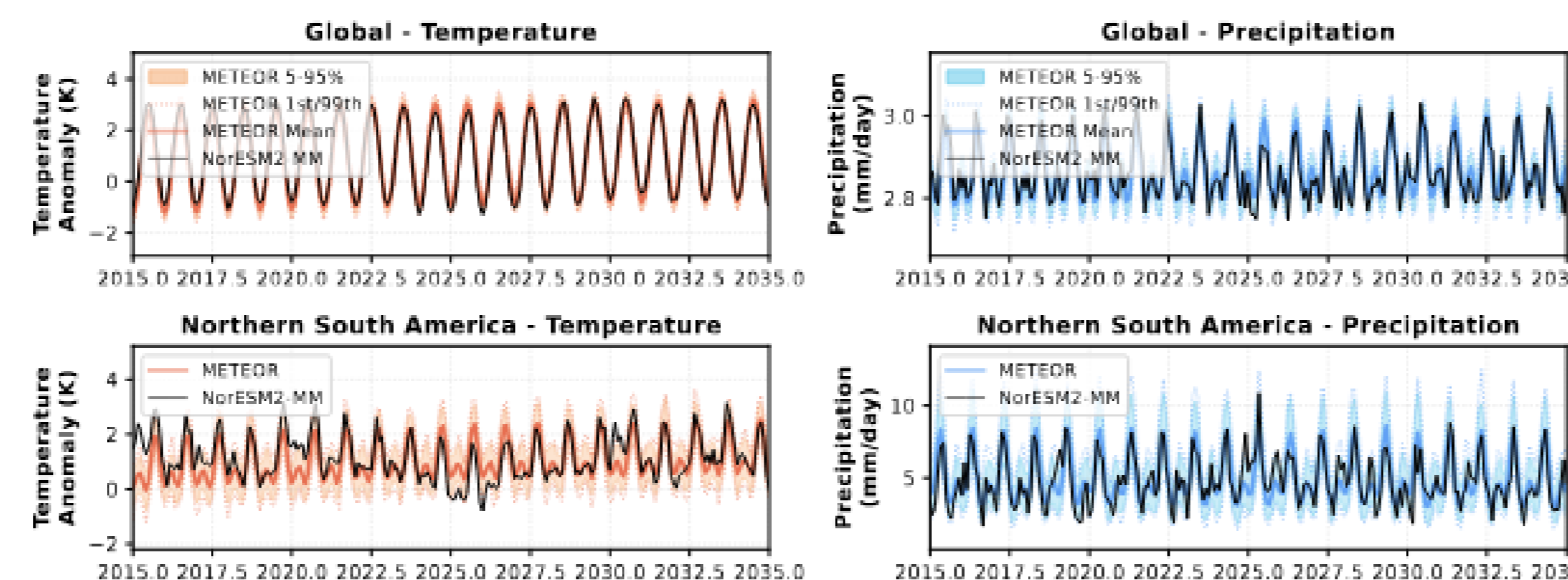


METEOR-NOISE

Seasonal cycle and variability

- GMST-dependent harmonic regression
- VARX noise possibly GMST-dependent

Climate Projections - NorESM2-MM SSP2-4.5 (METEOR vs CMIP6)



Sharing is encouraged

Status and outlook

- Add more impacts indicators
- Add and validate more physical variables
- More weather pattern-aware emulation and validation
- Better aerosol process understanding
- Downscaling and extreme value metrics
- Description paper of noise and seasonal impacts model submitted to GMD