

DESTINATION EARTH

KM SCALE STORYLINE EXPERIMENTS

Amal John & Climate DT team

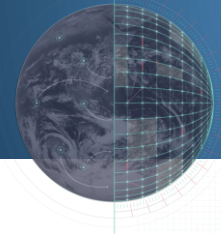


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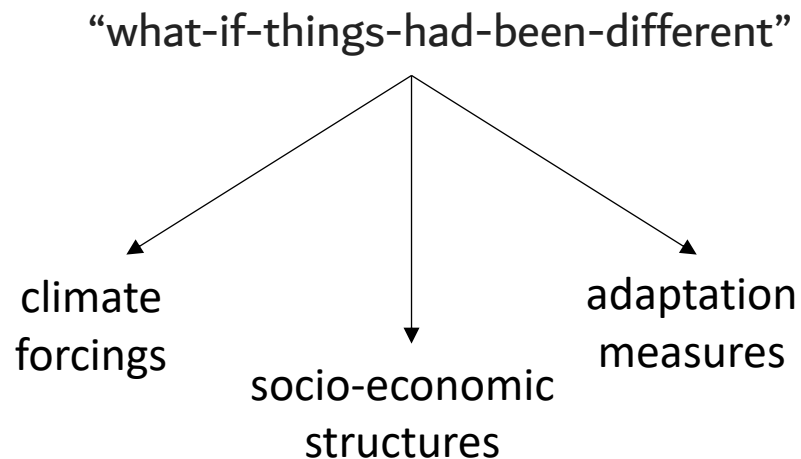




Climate Storylines

A physically self-consistent unfolding of past events, or of plausible future events or pathways

- *Shepherd, 2018*

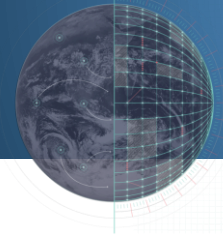


Storylines make the climate change information

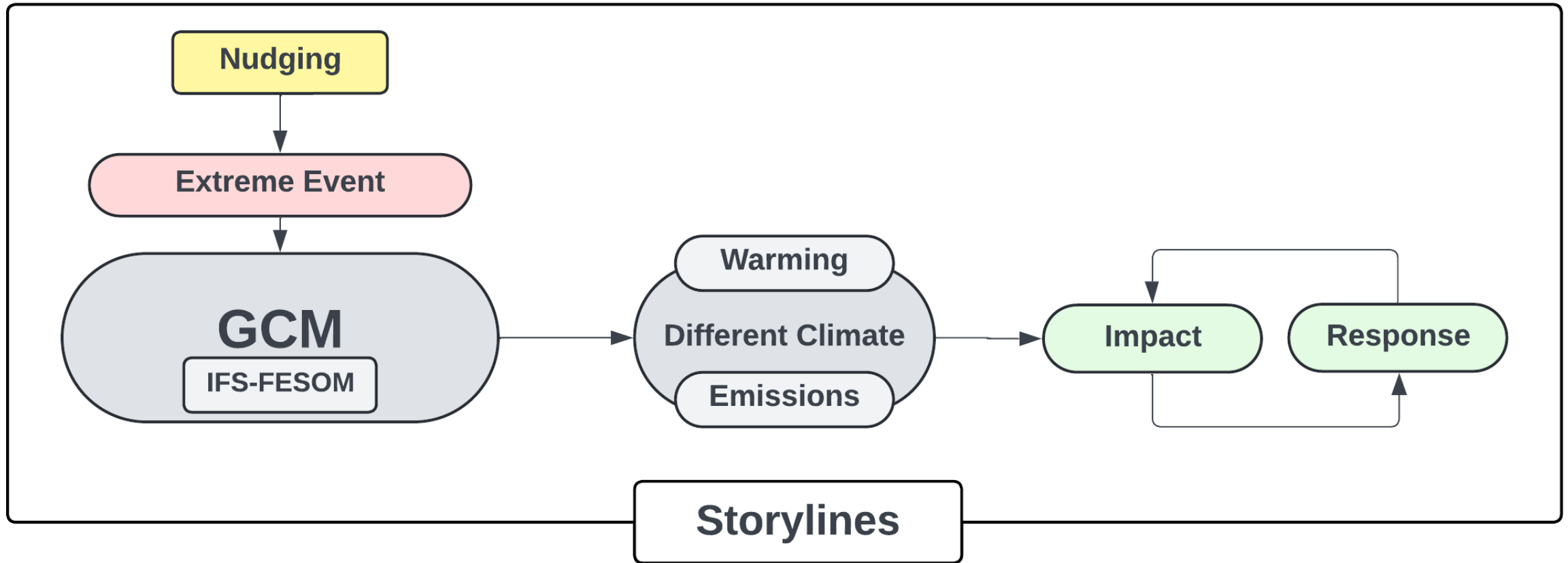
Meaningful

Tangible

Engaging



Event based Storylines





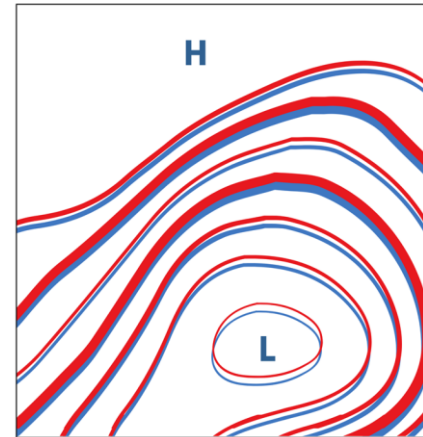
Nudging

Nudging constrain the large scale model dynamics to follow a reference data

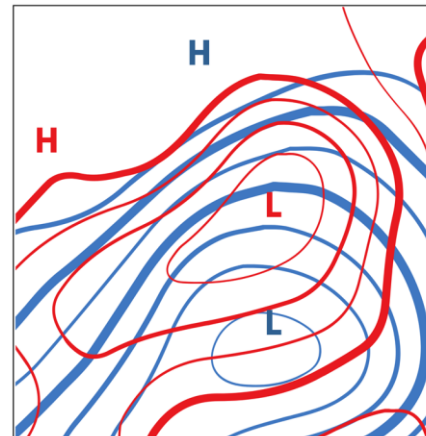
The reference data can be an observational product or reanalysis data.

eg., ERA5

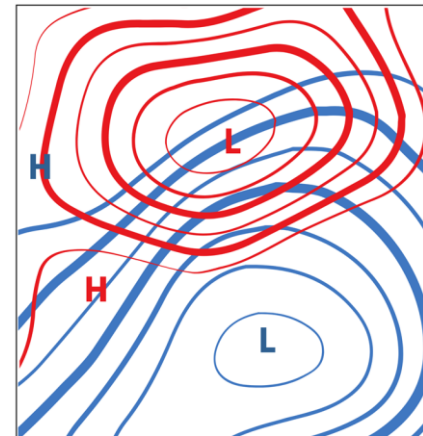
WITH NUDGING



keeps large-scale weather patterns close to real data



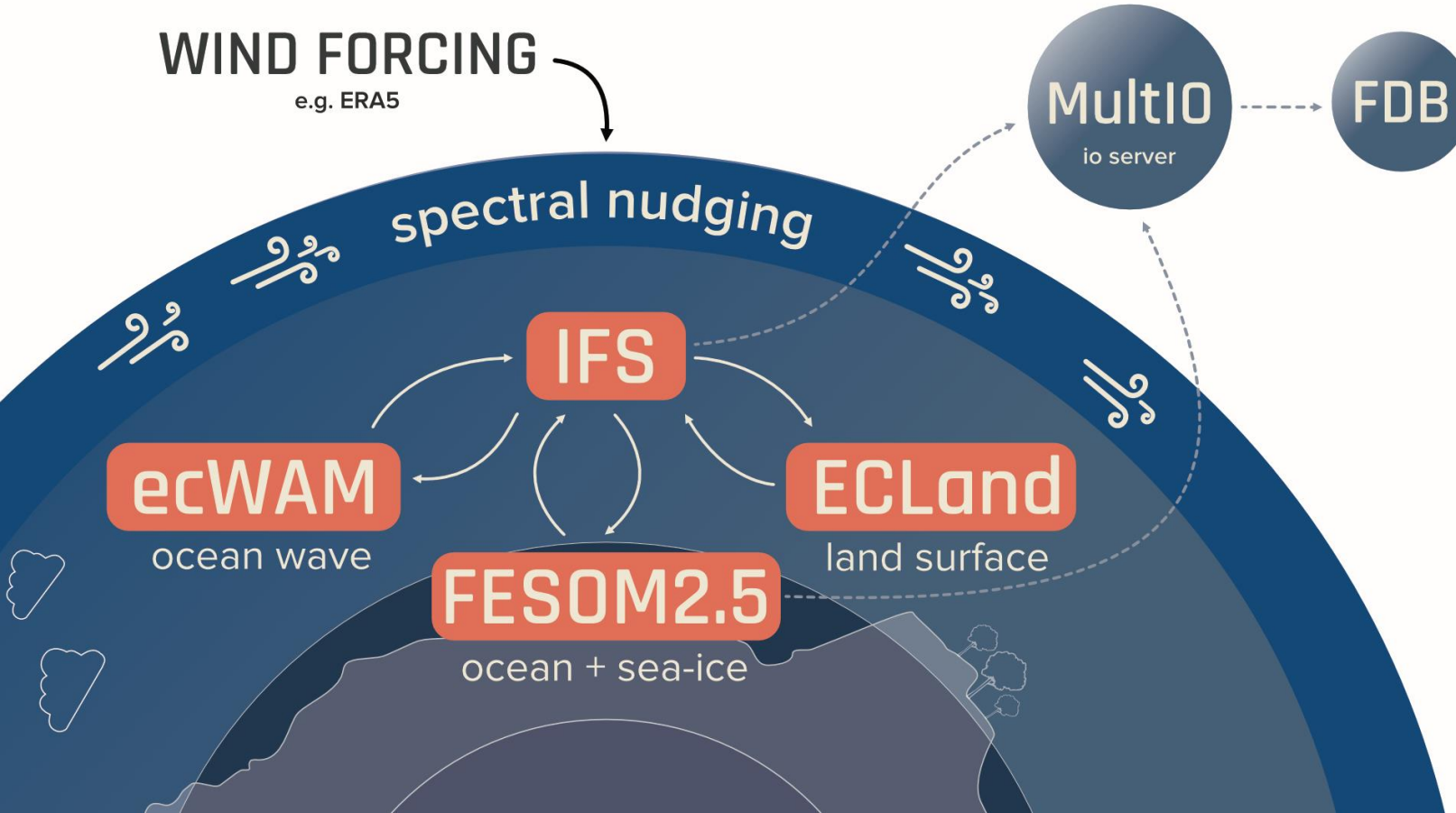
WITHOUT NUDGING



weather patterns deviate from real-world data



Km-scale storylines with IFS-FESOM



Experiments available

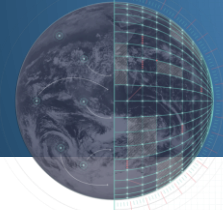
Hist (a.k.a historical, present day)

Cont (a.k.a control, circa 1950)

Tplus2.0K (2K warmer than pre-industrial, circa 2040)

All are nudged -> same weather events at different climate

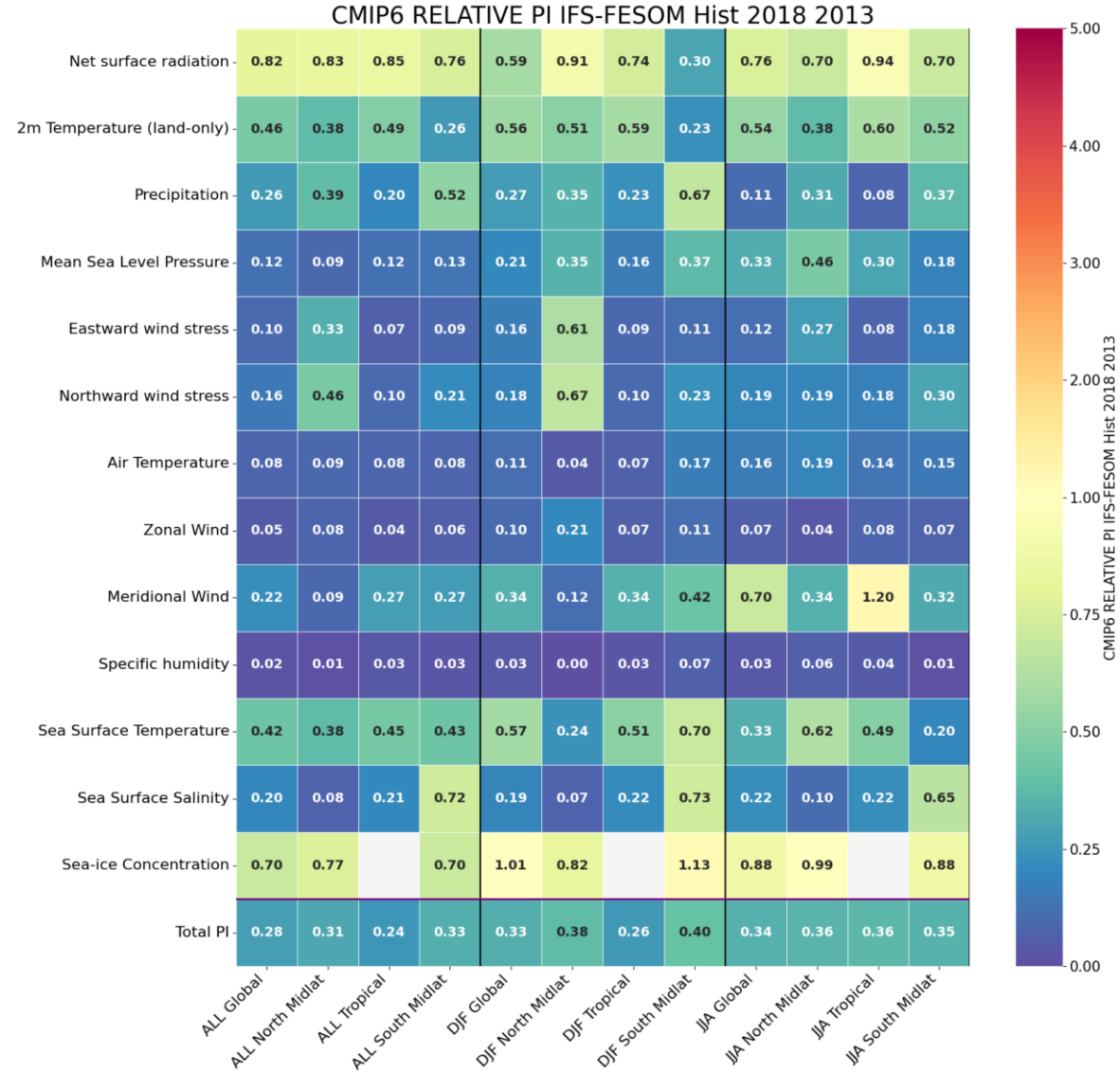
Additional experiments, Tplus3.0K, Tplus4.0K



Performance Indices

Better performance than the CMIP6 models

Less biases





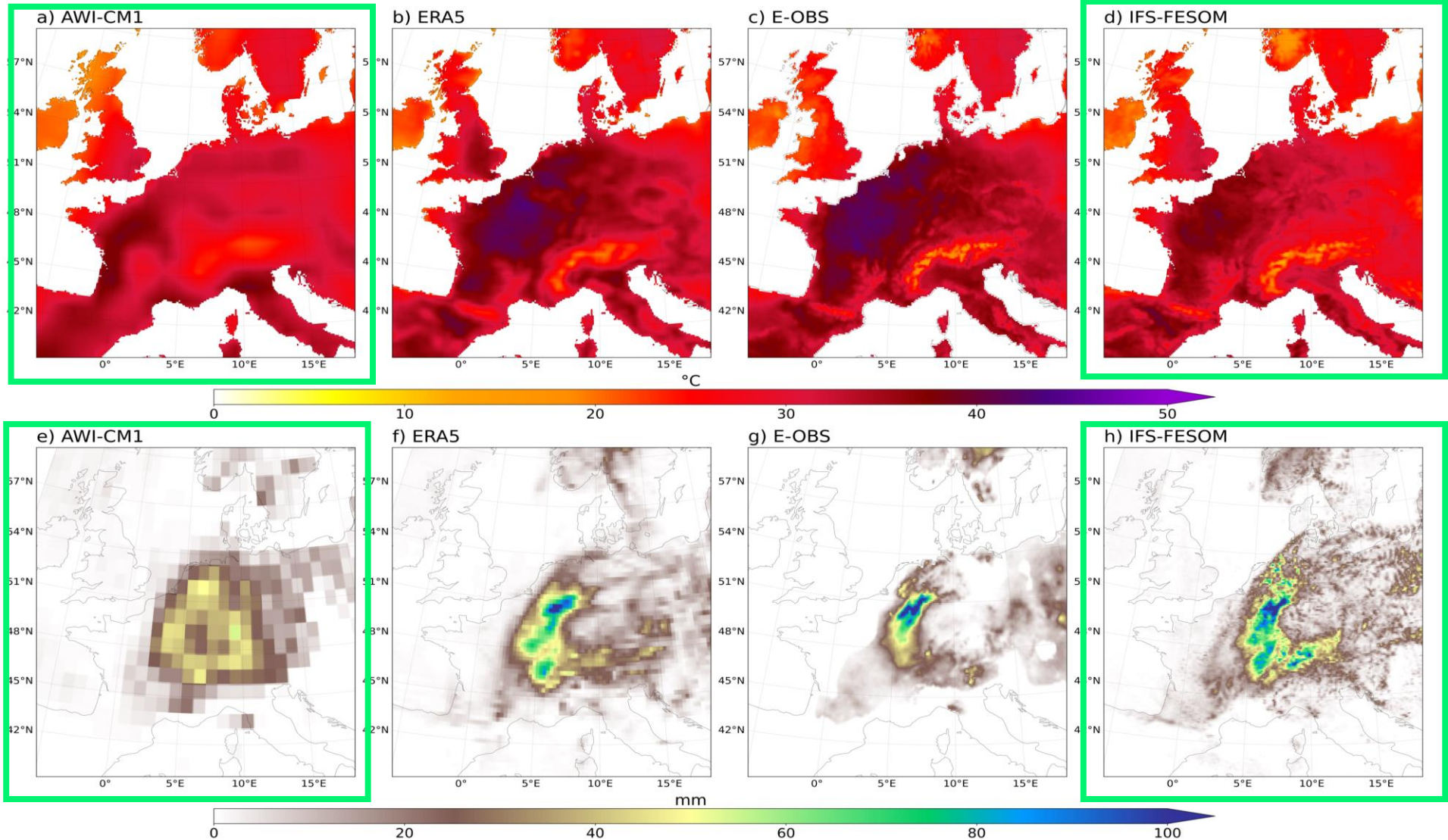
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Granular Information

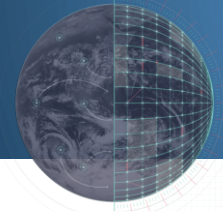




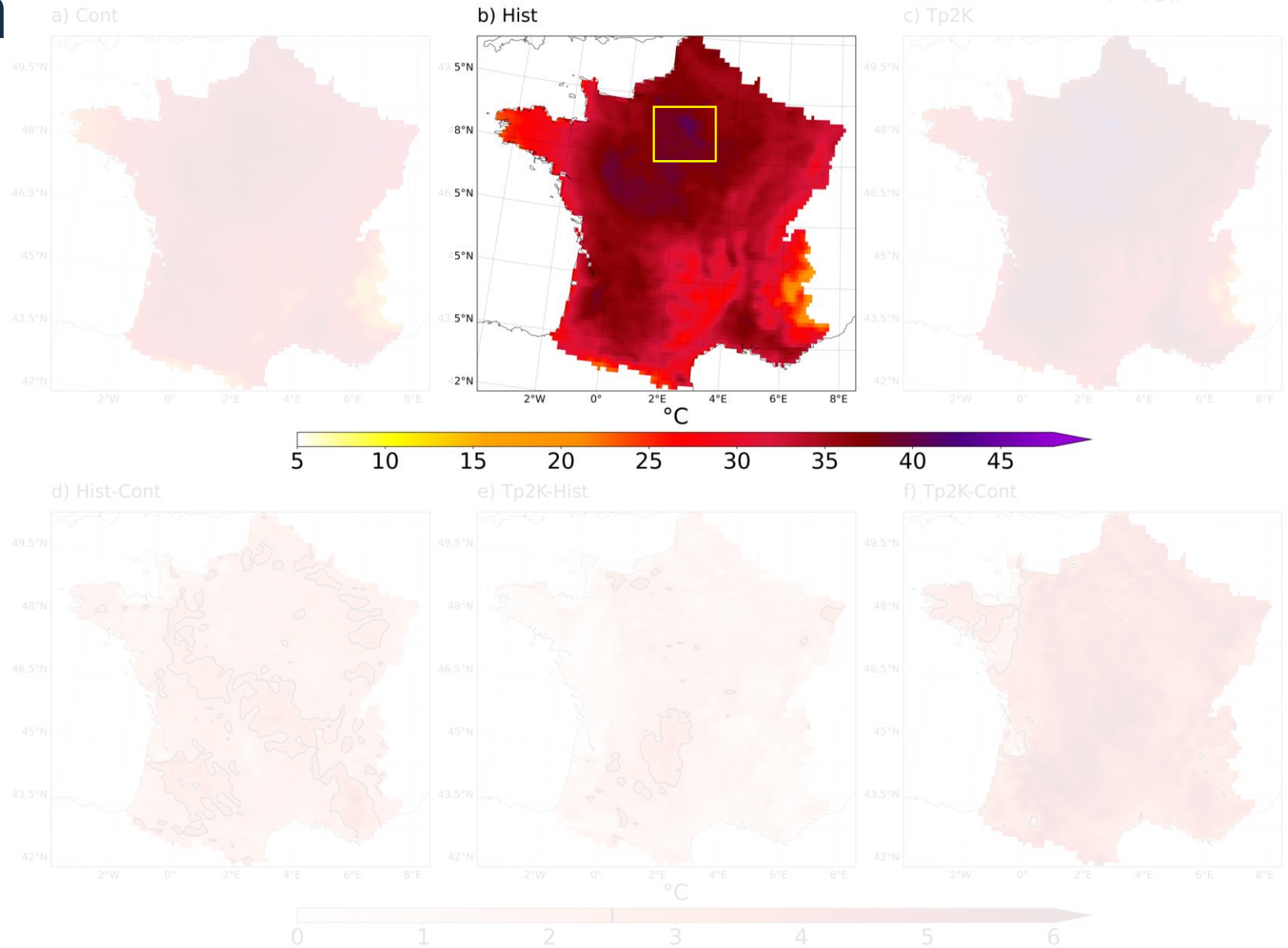
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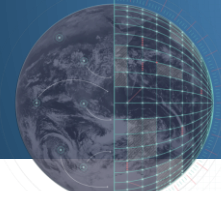
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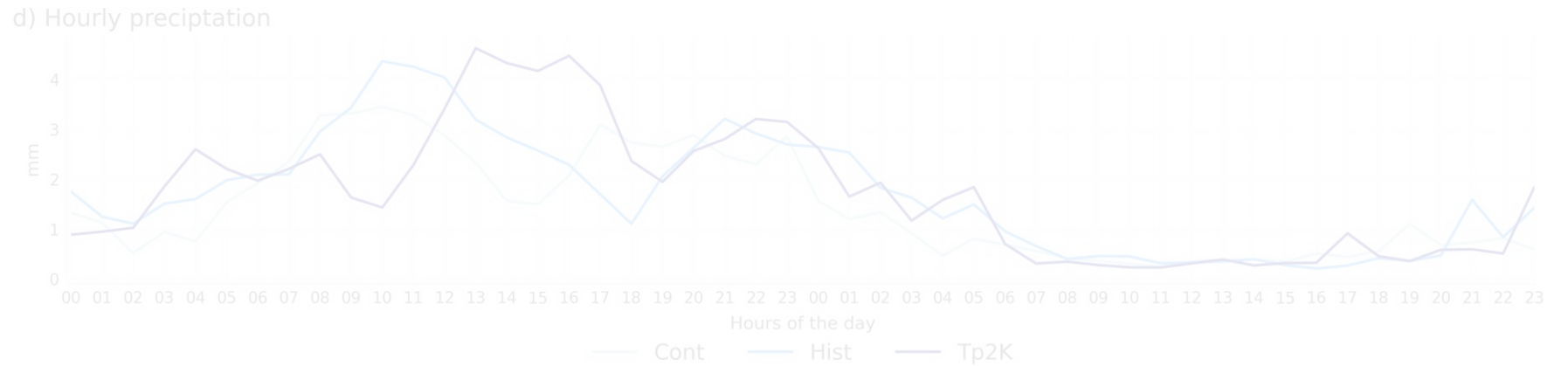
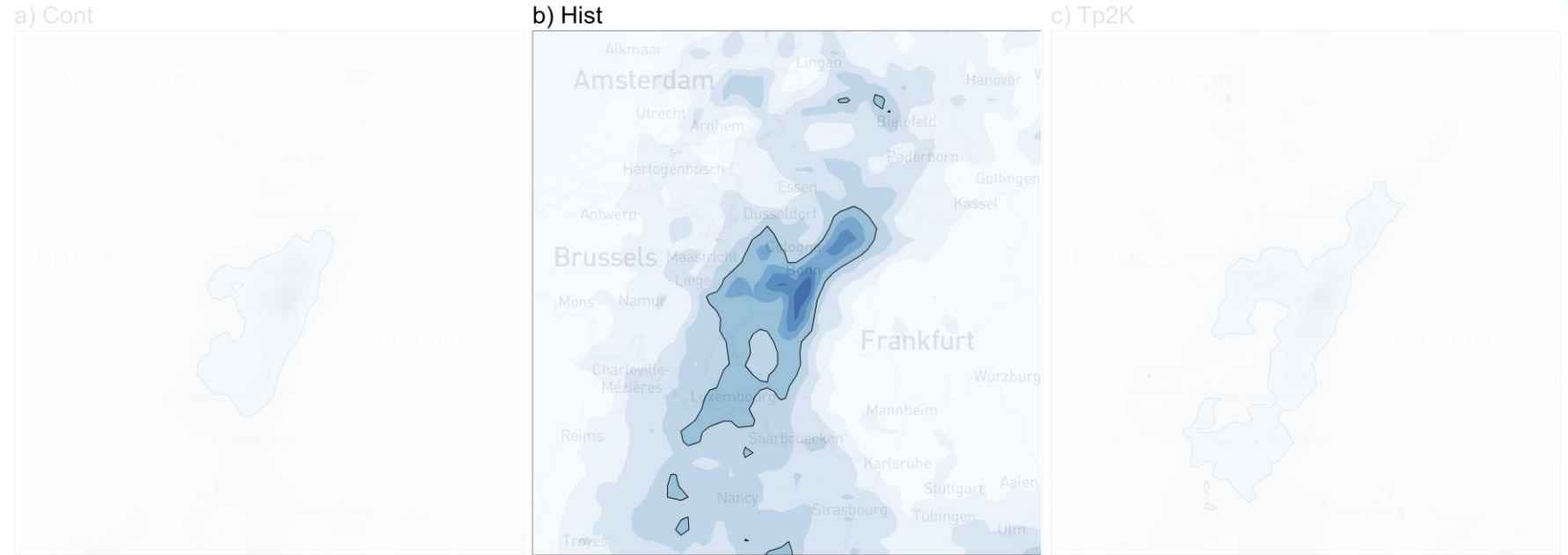


2019 European Heatwave





Arhtal Flood

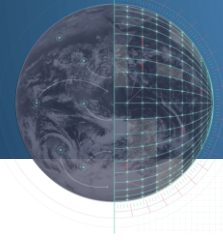




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Questions ?