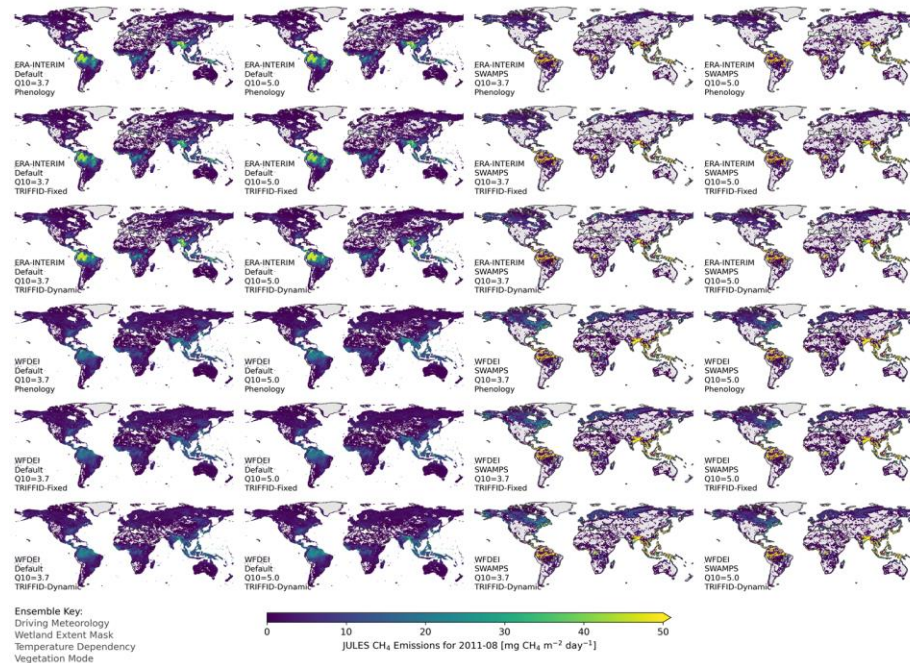


# Using Machine-Learning to Evaluate and Understand our Capability to Model Tropical Wetland Methane Emissions

- ❑ Team: Rob Parker and Cristina Ruiz Villena (NCEO-Leicester), Nic Gedney (Met Office), Paul Palmer (NCEO-Edinburgh)
- ❑ In short: We'd develop an emulator for JULES wetland methane, use it's explainability to show which factors matter in the model, drive the emulator with CCI EO data to generate wetland fluxes and compare those to a CH<sub>4</sub> inversions performed on GOSAT/TROPOMI ESA-CCI data.

Figure: Ensemble of JULES simulations with different driving data, temperature dependency, vegetation and wetland mask show massively different methane fluxes!



Parker et al., Biogeosciences, 2022

## CCI Datasets

- ❑ GHG (methane)
- ❑ Land Surface Temperature
- ❑ Soil Moisture
- ❑ Land Cover
- ❑ + Vegetation (?)

## Models

- ❑ JULES (land surface)
- ❑ GEOS-Chem (atmospheric)