Theme (III) Linking Observations and Models

Objective:

- **Strengthen the use of satellite-based observations in climate modelling.**

  ➤ Maximise the exploitation of CCI ECVs in modelling and model-analysis to support climate science and services, *e.g.* IPCC, CMIP, CORDEX, climate reanalysis, …

  ➤ Support priorities of the new WCRP Core Project on Earth System Modelling and Observations (ESMO)

Example Activities:

- R&D supporting tools and systems for model benchmarking (*e.g.* ESMValTool, observation simulators), particularly looking towards the needs for CMIP7, or contributing to a CMIP MIP.

- Investigate the consistency of multiple ECVs in climate models and observations, and diagnose model and/or observational errors.

- Develop new ways to inform models with observations, particularly for high priority areas of model development, such as extreme events (HILLs) and high-resolution modelling.

- Improve the use of observational uncertainties in climate modelling.

- Develop techniques for assimilation into long term reanalysis, or the use of observations for model initialization, and assess improvements in model skill.

- …

Constraints

ITT parameters:

- ITT to be released in Q2 2024, 2-3yr project duration
- 3-6 projects in the range 0.5–1.5M€ each
- Open competitive Invitation to Tender (ITT)

Each project *shall*:

- Address one or more climate science challenges, or develop and demonstrate a climate service
- Make use of multiple CCI ECVs, potentially also including non-CCI ECV data, including *in situ* of course.
- Provide written feedback to CCI ECV teams on their use of the data.

Each project team *shall*:

- Be led by experts in climate modelling or climate-model analysis
- Include experts in the development of satellite-based climate observations

Some questions

Given that the objective is to *strengthen the use of satellite-based observations in climate modelling*:

- Does this preliminary plan represent the best use of the resources?

- Are there particular challenges that should be targets?

- Are there other activities/topics we should include to help break down barriers to the use of satellite obs in climate modelling?

- Better to have more smaller activities, or fewer larger activities, or a mix?