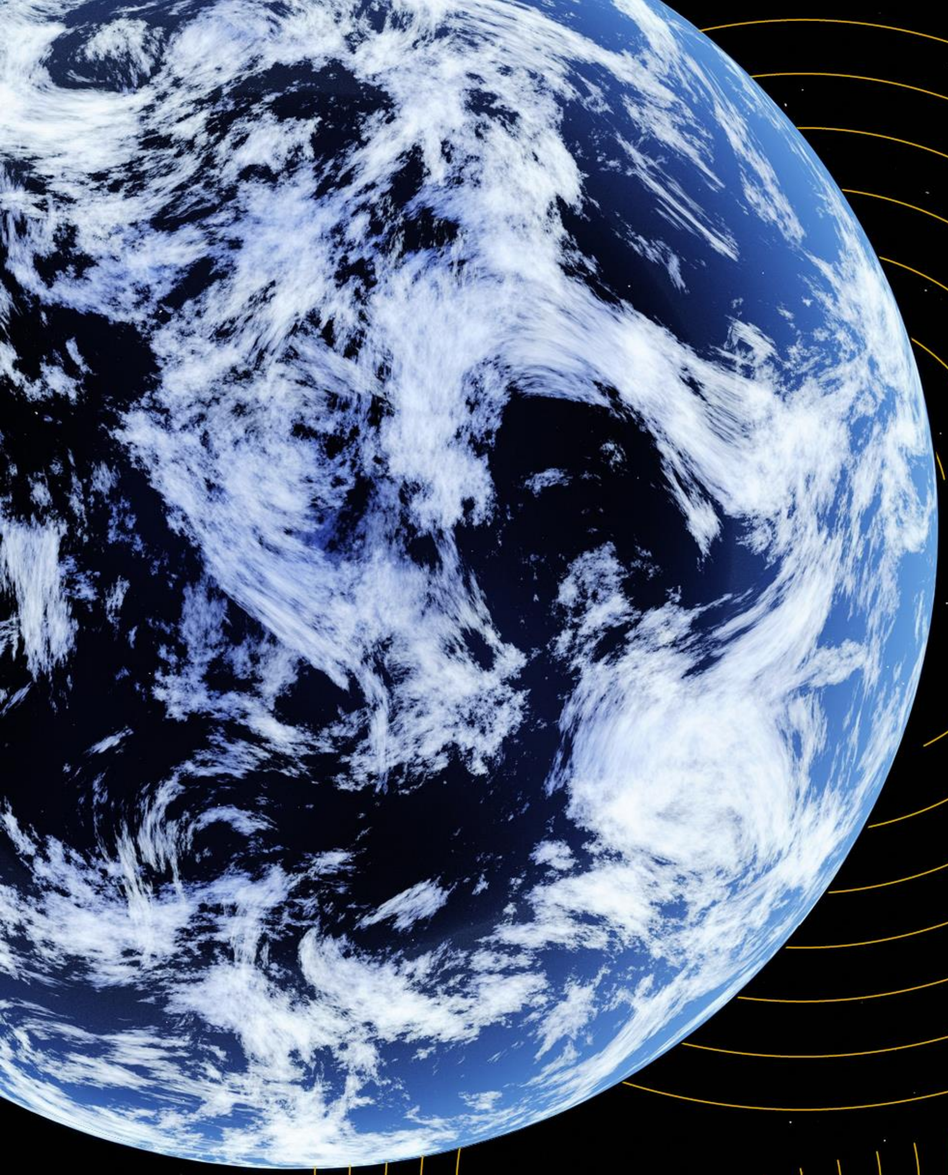


CMIP
Coupled Model Intercomparison Project

Streamlining model selection

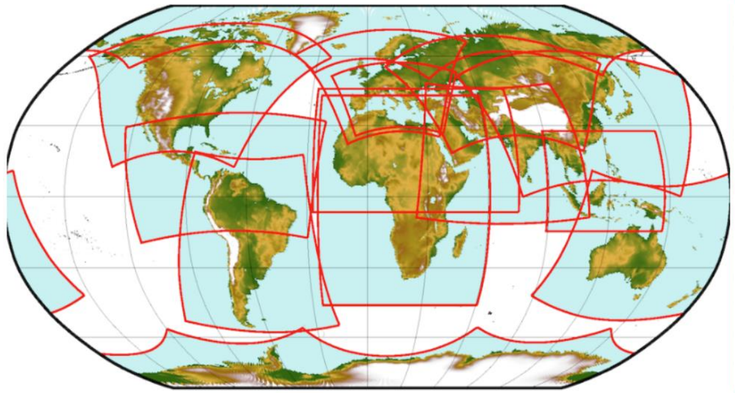
Wednesday 5th February 2025, 19:00-22:00 UTC
Virtual workshop

Introduction

Christian Steger, Deutscher Wetterdienst

Motivation

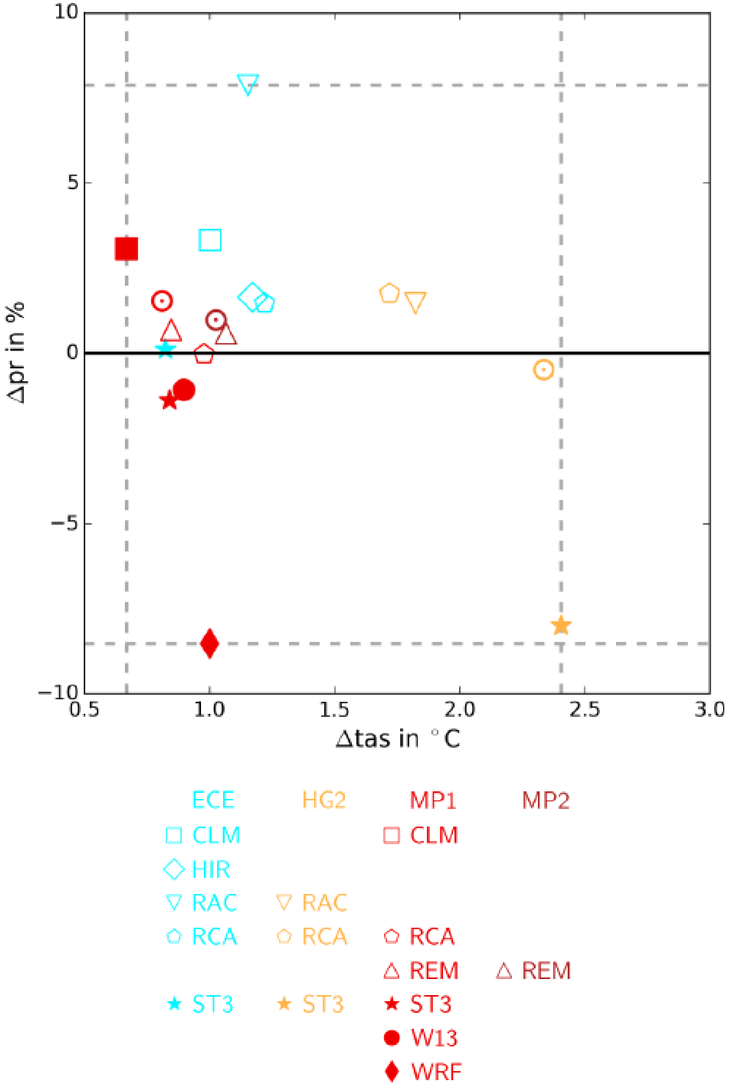
- Information for climate services, advice for decision-makers and climate adaptation are usually based on climate projection ensembles
- The composition of the ensembles is decisive for the information that is generated and passed on to users
- Various sources of information and model ensembles are used in different projects and initiatives
- This leads to different, inhomogeneous and sometimes contradictory information and, as a consequence, to uncoordinated and inconsistent decisions and measures



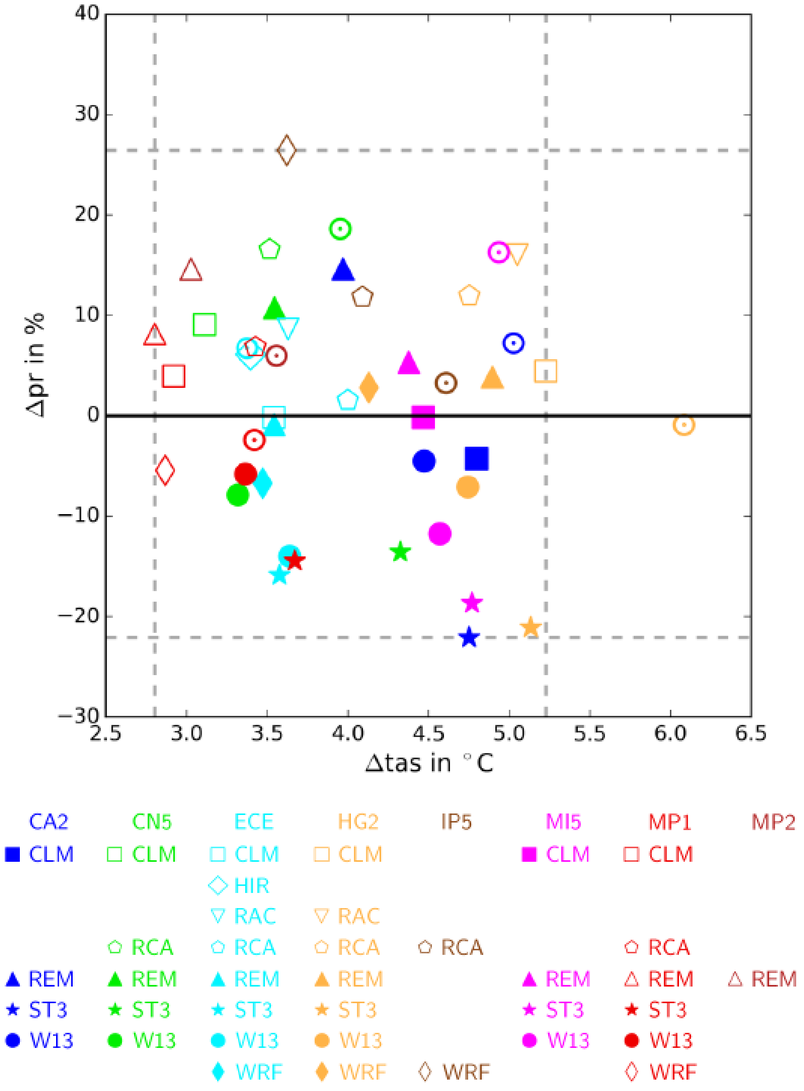
Region 1: South America
Region 2: Central America
Region 3: North America
Region 4: Africa
Region 5: Europe (EURO)
Region 6: South Asia
Region 7: East Asia
Region 8: Central Asia
Region 9: Australasia
Region 10: Antarctica
Region 11: Arctic
Region 12: Mediterranean (MED)
Region 13: Middle East North Africa (MENA)
Region 14: South-East Asia (SEA)

ReKliEs-De Ensemble

RCP2.6

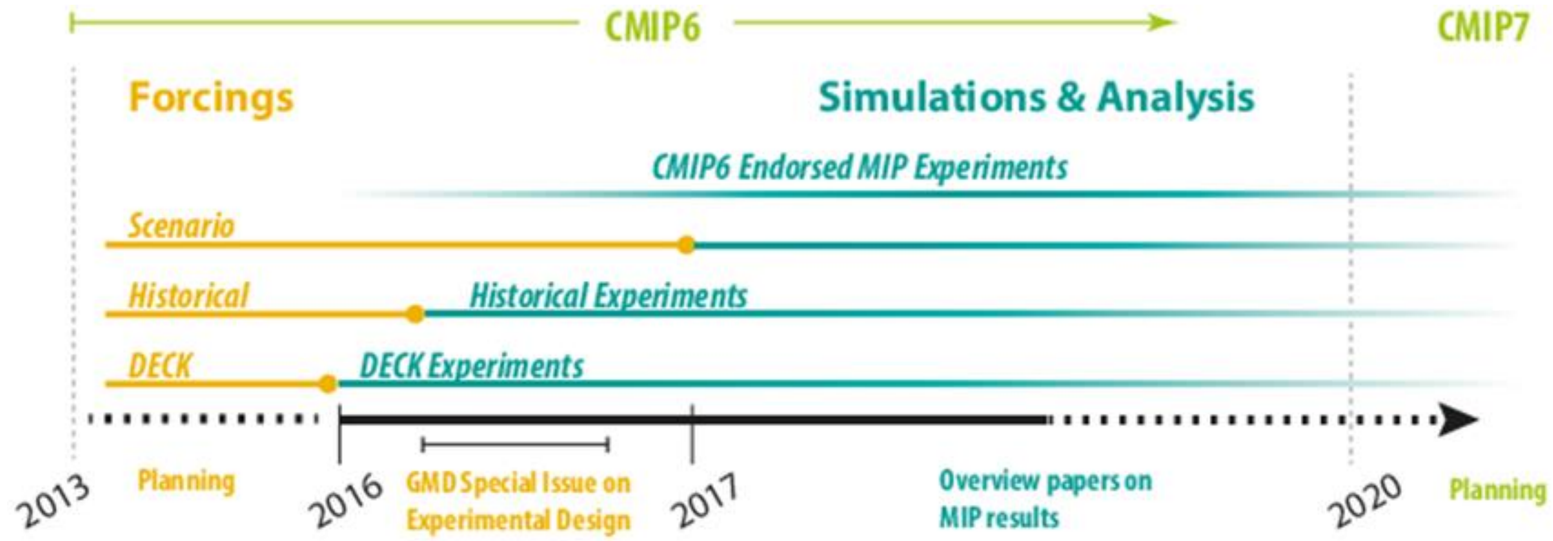


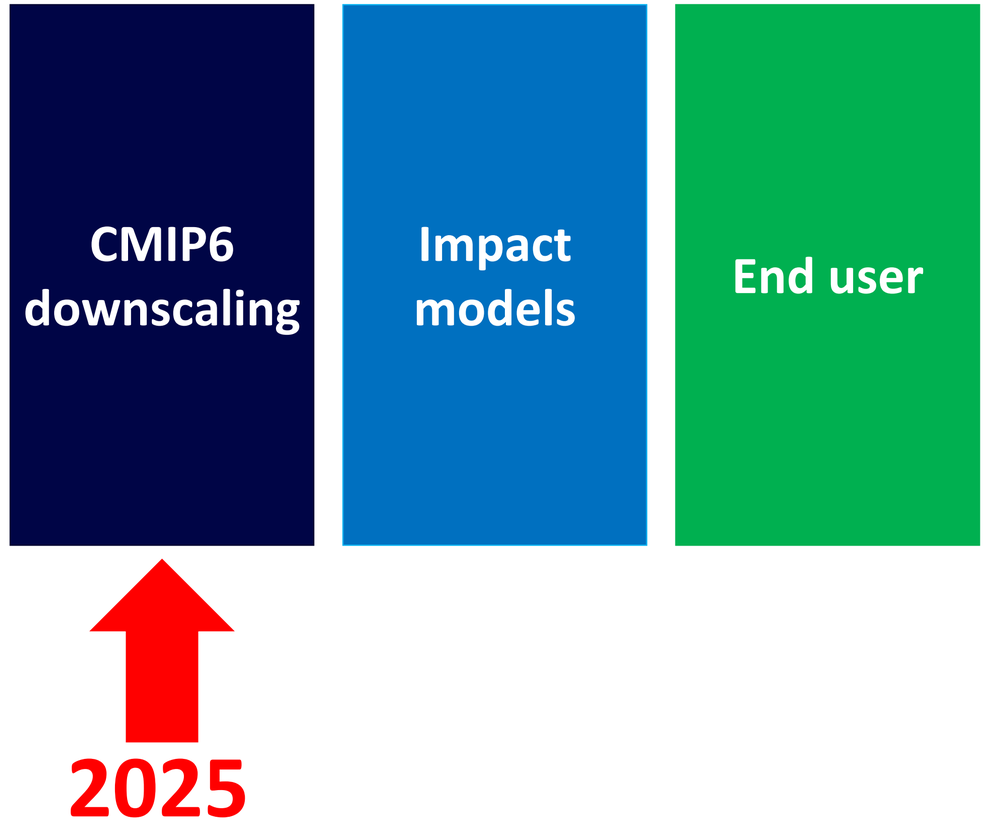
RCP8.5



Motivation

- It takes a very long time for the information from the latest generation of CMIP simulations to reach the end users





Key questions of the workshop

1. Is it possible to streamline, homogenize or even standardize model selection and ensemble composition across projects/activities/initiatives?

2. Is it possible to speed up the process from generating global climate projections to making the information available to end users?

Aims of the workshop:

- Identifying the issues/challenges in the current framework, both scientific and technical.
- Developing shared understanding of model selection techniques/approaches used across the communities.
- Determining if shared criteria for model selection is required and possible.
- Establishing tangible structures to support improved communication between modelling centers and downstream activities.
- Accelerate the process from the creation of global simulations to regional downscaling and impact modelling and finally, the provision of data to end users.
- Determining the needs for and identifying pathways to developing and funding the scientific and technical frameworks required to deliver to users.
- Realistically assessing whether achieving this within CMIP7 is feasible, or the focus should be on laying groundwork for a longer term plan.

Time (UTC)	Topic
19:00-19:05	**Welcome and housekeeping** (CMIP IPO)
19:05-19:20	**Meeting objectives** (Christian Steger, DWD)
19:20-19:35	**Setting the context** An example of challenges faced by users in the current framework (Sven Kotlarski, Meteo Swiss)
19:35-20:05	**Sharing examples of current best practice** EURO-CORDEX for CMIP6 (Stefan Sobolowski, University of Bergen) CORDEX-Australasia CMIP6 for Australian national projections (Michael Grose, CSIRO) Model selection for RCM downscaling in ISMIP6 (Céline Agosta, LSCE/IPSL) The ISIMIP approach (Lisa Novak, PIK Potsdam)
20:05-20:35	**BREAKOUT GROUPS: Scientific challenges** BOG 1 & 2: Ensemble sub-selection: is a common criteria/minimum set of evaluation metrics/framework to serve all communities possible or desired? BOG 3: What do model development innovations mean for model selection e.g., the CMIP7 focus on CO_2 emission-driven simulation, increasing resolution and AI/ML? BOG 4: Understanding, quantifying and communicating uncertainty
20:35-20:45	*BREAK: Time for a drink and stretch!*
20:45-21:15	**BREAKOUT GROUPS: Other challenges** BOG 5: Constraints on the availability of the required GCM/ESM model data – timing, provision of all required data, including temporal frequencies and extensions BOG 6: Sustained and supported infrastructure to store, deliver and provide user friendly platforms for analysis, framework for coordinated exchange between communities. BOG 7: Speeding up the process from creation of the global simulations until data/information reaches the end user including potential role of community developed tools to support model evaluation and selection BOG 8: Balancing competing needs – funding, politics and ensuring equity, and supporting training and capacity building in a global community effort
21:15-21:40	**Feedback from breakout groups**
21:40-21:55	**What have we learned during the workshop and what are next steps?** Immediate actions required Follow up workshop (virtual/in person) Format of outcomes – commentary paper, whitepaper etc.
21:55-22:00	**Final comments and meeting close**

Breakout groups: Scientific challenges

1. Ensemble sub-selection: is a common criteria/minimum set of evaluation metrics/framework to serve all communities possible or desired (Christian Steger)
2. Same as 1 (Silvina Solman)
3. What do development innovations mean for model selecton e.g. the CMIP7 focus on CO2 emission-driven simulations, increasing resolution and AI/ML? (Roland Séférian)
4. Understanding, quantifying and communicating uncertainty (Michael Grose)

Breakout groups: Other challenges

1. Constraints on the availability of the required GCM/ESM model data – timing, provision of all required data, incl. temporal frequencies and extensions (Sophie Nowicki)
2. Sustained and supported infrastructure to store, deliver and provide user friendly platforms for analysis, framework for coordinated exchange between communities (Michael Grose)
3. Speeding up the process from creation of the global simulations until data/information reaches the end user including potential role of community developed tools to support model evaluation and selection (Christian Steger)
4. Balancing competing needs, funding, politics and ensuring equity, and supporting training and capacity building in a global community effort (Helene Hewitt)

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Thank You


@wcrp-cmip.org


wcrp-cmip


cmip-ipo@esa.int