

# Coupled Model Inter-comparison Project phase 6 (CMIP6): Organization, Design, and Timeline

Based on information and slides from  
- Veronika Eyring (CMIP Panel chair)

Please see the CMIP Panel website for additional information and updates:  
<http://www.wcrp-climate.org/index.php/wgcm-cmip/about-cmip>

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# CMIP Organization and Governance

## **WGCM (co-chaired by S. Bony and C. Senior)**

<http://www.wcrp-climate.org/index.php/wgcm-overview>

- Ensures good communication between the modelling groups and the WGCM panels (CMIP Panel, WIP)
- Facilitates communication between the CMIP Panel and WCRP Grand Challenges + Theme of collaboration on “Biogeochemical forcings and feedbacks”, and WCRP core projects
- Organizes the review of MIP proposals for CMIP6 endorsement

## **CMIP Panel (V. Eyring (chair), J. Meehl, B. Stevens, R. Stouffer, K. Taylor)**

<http://www.wcrp-climate.org/index.php/wgcm-cmip/about-cmip>

- Sub-committee of the WGCM which is responsible for direct coordination of CMIP
- Oversees the whole CMIP process
- Coordinates the DECK activity and the CMIP Phase X Historical Simulation
- Coordinates and approves endorsement of CMIP6 MIPs
- Oversees and approves scientific content of the CMIP data request
- Facilitates communication between the MIPs, modeling groups and the WIP

## **WGCM Infrastructure Panel (WIP, co-chaired by V. Balaji & K. Taylor)**

<https://www.earthsystemcog.org/signal/list/wip/>

- Establishes standards and policies for sharing climate model output and ensure consistency across WGCM activities
- Extends standards as needed to meet evolving needs.
- Reviews and provides guidance on requirements of the infrastructure (e.g. level of service, accessibility, level of security)
- Oversees technical part of the CMIP6 data request and puts it together (**M. Juckes**)

## Scientific Background for CMIP6 Design

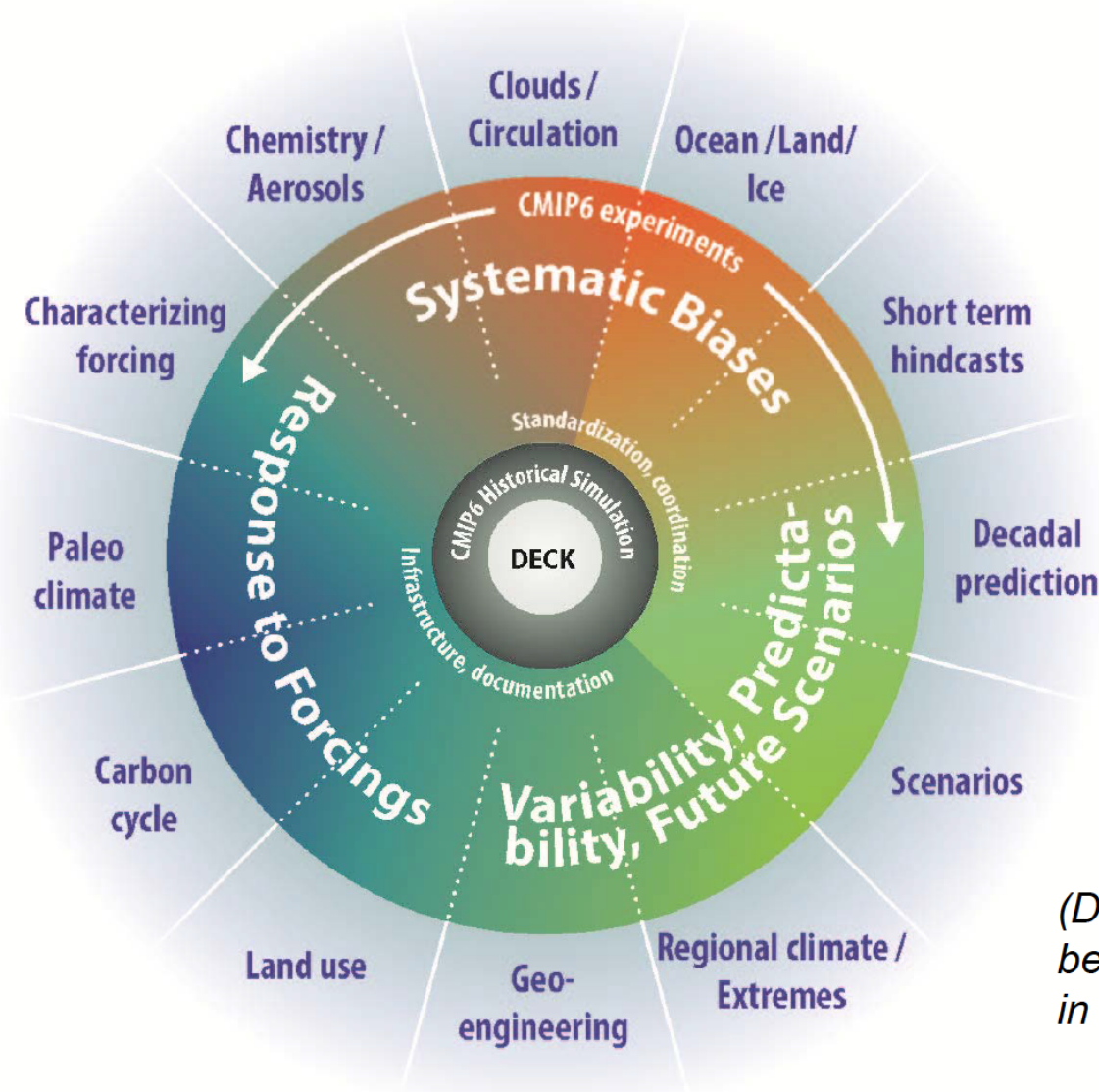
The scientific background for CMIP6 is the six WCRP Grand Challenges plus a theme encapsulating questions related to biogeochemical forcings and feedbacks:

1. Clouds, Circulation, and Climate Sensitivity
2. Changes in Cryosphere
3. Climate Extremes
4. Regional Climate Information (Decadal Climate Variability and Prediction)
5. Regional Sea Level Rise
6. Water Availability
7. Biogeochemical forcings and feedbacks (AIMES & WGCM)

The specific experimental design is focused on three broad scientific questions:

1. How does the Earth System respond to forcing?
2. What are the origins and consequences of systematic model biases?
3. How can we assess future climate changes given climate variability, predictability, and uncertainties in scenarios?

# DECK: Diagnosis, Evaluation, and Characterization of Klima



## DECK (entry card for CMIP)

- AMIP simulation (~1979-2014)
- Pre-industrial control simulation
- 1%/yr CO<sub>2</sub> increase
- Abrupt 4xCO<sub>2</sub> run

## CMIP6 Historical Simulation (entry card for CMIP6)

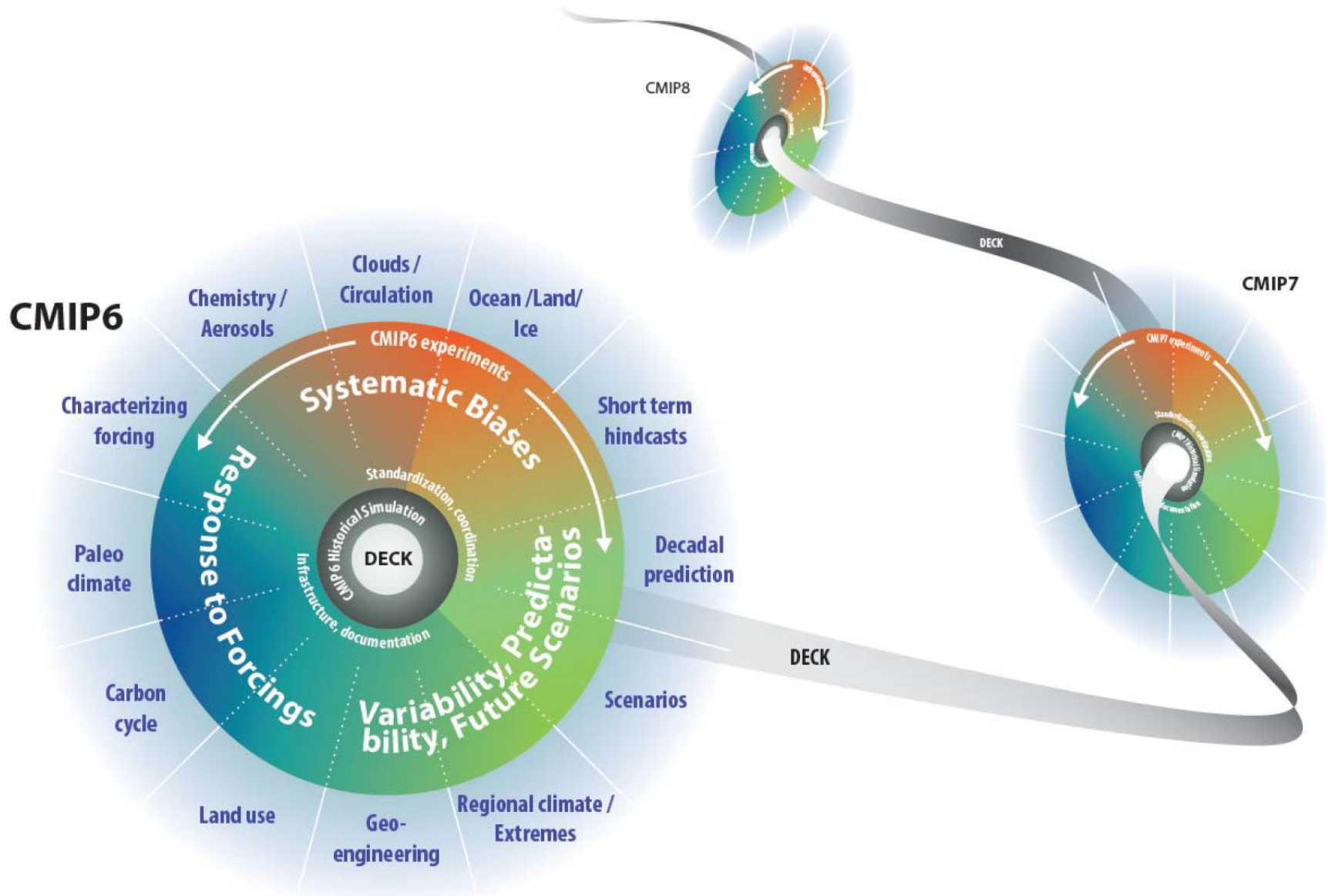
- Historical simulation using CMIP6 forcings (1850-2014)

*(DECK & CMIP6 Historical Simulation to be run for each model configuration used in the subsequent CMIP6-Endorsed MIPs)*

*With proto-DECK experiments (LMIP, OMIP etc.) in CMIP6 Tier1*

**Note:** The themes in the outer circle of the figure might be slightly revised at the end of the MIP endorsement process

# CMIP Continuity



The DECK experiments are chosen to

1. provide continuity across past and future phases of CMIP,
2. evolve as little as possible over time,
3. be well-established,
4. be part of the model development cycle.

The CMIP Phase X Historical Simulation is chosen to

1. serve as a benchmark for CMIP6-Endorsed MIPs
2. use the specific forcings consistent with Phase X of CMIP
3. be decoupled from model development cycle if needed.



## Endorsed MIPs for CMIP6 (August 2015)

	Short name of MIP	Long name of MIP
1	<b>AerChemMIP</b>	Aerosols and Chemistry Model Intercomparison Project
2	<b>C4MIP</b>	Coupled Climate Carbon Cycle Model Intercomparison Project
3	<b>CFMIP</b>	Cloud Feedback Model Intercomparison Project
4	<b>DAMIP</b>	Detection and Attribution Model Intercomparison Project
5	<b>DCPP</b>	Decadal Climate Prediction Project
6	<b>FAFMIP</b>	Flux-Anomaly-Forced Model Intercomparison Project
7	<b>GeoMIP</b>	Geoengineering Model Intercomparison Project
8	<b>GMMIP</b>	Global Monsoons Model Intercomparison Project
9	<b>HighResMIP</b>	High Resolution Model Intercomparison Project
10	<b>ISMIP6</b>	Ice Sheet Model Intercomparison Project for CMIP6
11	<b>LS3MIP</b>	Land Surface, Snow and Soil Moisture
12	<b>LUMIP</b>	Land-Use Model Intercomparison Project
13	<b>OMIP</b>	Ocean Model Intercomparison Project
14	<b>PMIP</b>	Palaeoclimate Modelling Intercomparison Project
15	<b>RFMIP</b>	Radiative Forcing Model Intercomparison Project
16	<b>ScenarioMIP</b>	Scenario Model Intercomparison Project
17	<b>VolMIP</b>	Volcanic Forcings Model Intercomparison Project
18	<b>CORDEX*</b>	Coordinated Regional Climate Downscaling Experiment
19	<b>DynVar*</b>	Dynamics and Variability of the Stratosphere-Troposphere System
20	<b>SIMIP*</b>	Sea-Ice Model Intercomparison Project
21	<b>VIACS AB*</b>	VIACS Advisory Board for CMIP6

The CMIP6 design will be described in a Geoscientific Model Development special issue with submissions of an overview paper and the CMIP6-Endorsed MIP contributions with a deadline of 31 March 2016.

# CMIP6 Forcing Timeline

