

Welcome and why are we here?

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WMAC Co-Chairs

Meeting goals

1. Have the annual meetings of the WGs and other groups that are here.
2. Use the fact that we are in the same place to discuss issues of common interest across the groups present.
3. How best to coordinate modelling across WCRP?
4. Contribute to the strategic planning of the WCRP and its partners (see Guy's introduction later).

Why do we need to
talk about strategies?

“New” science questions have been posed

- Where does the carbon go?
- How does the weather change with climate?
- How does climate influence the habitability of the Earth and its regions?

There is an incredible amount of activity

- 3 Working groups
- 4 Core Projects
- 7 Grand Challenges
- Several prediction projects
- CMIP et al.
- Desire to better connect to “weather” activities
- And wait, there is more

A survey of modelling activities in WCRP

Project/WG/GC	Activity	Website	Contact	Type (Dev, Eval, Pred)
CliC / GC on Melting Ice and Global Consequences	Earth System Model-Snow Model Intercomparison Project (ESM-SnowMIP)	http://www.climate-cryosphere.org/activities/targeted/esm-snowmip	Gerhard Krinner	Eval
CliC / GC on Melting Ice and Global Consequences	Ice Sheet Model Intercomparison for CMIP6 (ISMIP6)	http://www.climate-cryosphere.org/activities/targeted/ismip6	Sophie Nowicki	Eval/Pred
CliC / GC on Melting Ice and Global Consequences	Glacier Model Intercomparison Project (GlacierMIP)	http://www.climate-cryosphere.org/activities/targeted/glaciermip	Regine Hock and Ben Marzeion	Eval/Pred
CliC / GC on Melting Ice and Global Consequences	Permafrost Carbon Network (PCN)	http://www.permafrostcarbon.org/ and http://www.climate-cryosphere.org/activities/groups/pcn	Ted Schuur	Eval
CliC	Sea Ice and Climate Modelling Forum and Sea Ice Model Intercomparison Project (SIMIP)	http://www.climate-cryosphere.org/activities/groups/seaicemodeling http://www.climate-cryosphere.org/activities/targeted/simip	Alexandra Jahn and Dirk Notz	Eval
CliC	Marine Ice Sheet-Ocean Model Intercomparison Project (MISOMIP)	http://www.climate-cryosphere.org/activities/targeted/misomip	David Holland	Eval / Dev
CliC	Biogeochemical exchange processes at Sea Ice Interfaces (BEPSII)	https://sites.google.com/site/bepsiiwg140/about-us	Clara Deal and Nadja Steiner	Eval
CliC	Antarctic Sea Ice Processes &	http://www.climate-cryosphere.org/activities/groups/165-aspect	Marilyn Raphael and Steve Ackley	Eval/Dev

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CLiC	Antarctic Sea Ice Processes & Climate (ASPeCt)	http://www.climate-cryosphere.org/activities/groups/165-aspect	Marilyn Raphael and Steve Ackley	Eval/Dev
CLiC	Southern Ocean Region Panel (SORP)	http://www.climate-cryosphere.org/activities/groups/sorp	John Fyfe and Inga Smith	Eval
CLiC	Ice Sheet Mass Balance and Sea Level (ISMAS)	http://www.climate-cryosphere.org/activities/groups/ismass	Catherine Ritz	Eval/Dev
CLIVAR/OMDP	CORE	http://www.clivar.org/omdp/core	Steve Griffies (stephen.griffies@noaa.gov)	Dev
CLIVAR/OMDP	REOS	http://www.clivar.org/clivar-panels/omdp/reos	Lei Han (lei.han@clivar.org)	Eval
CLIVAR/OMDP	OMIP	https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/modelling-wgcm-cmip6-endorsed-mips/index.php?t&view=article&id=1063	Gokhan Danabasoglu (gokhan@ucar.edu)	Dev/Pred
CLIVAR/GSOP	ORA-IP	http://www.clivar.org/clivar-panels/gsop/ocean-synthesisreanalysis-efforts	Nico Calabiano (nico.calabiano@clivar.org)	Eval
CORDEX	Diagnostic MIP	https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/modelling-wgcm-cmip6-endorsed-mips/index.php?t&view=article&id=1052 www.cordex.org	Cordex-cmip6-registration@cordex.org	Eval/Pred
	Regional Downscaling activities		ipoc@cordex.org	Dev/Eval/Pred
GEWEX	GLASS	http://www.gewex.org/panels/global-landatmosphere-system-study-panel/	Mike Ek/Gab Abramovitz	Dev/Eval/Pred
GEWEX/CLIC	LS3MIP (CMIP6 experiment)	http://www.climate-cryosphere.org/activities/targeted/ls3mip	Bart van den Hurk/Gerhard Krinner	Eval/Pred
GEWEX	LUMIP (CMIP6 experiment)	https://cmip.ucar.edu/lumip	Dave Lawrence/ George Hurtt	Eval/Pred

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GEWEX	LUMIP (CMIP6 experiment)	https://cmip.ucar.edu/lumip	Dave Lawrence/ George Hurtt	Eval/Pred
GEWEX	GASS	http://www.gewex.org/panels/global-atmospheric-system-studies-panel/gass-projects/	Jon Petch	Eval/Dev
S2S	WWRP/WCRP	s2sprediction.net	Frederic Vitart/Andrew Robertson	Pred/Eval
SPARC	Gravity Waves	http://www.sparc-climate.org/activities/gravity-waves/	Joan Alexander	Dev, Eval
SPARC	Quasi-Biennial Oscillation initiative	http://www.sparc-climate.org/activities/quasi-biennial-oscillation/	Scott Osprey	Dev, Eval, Pred
SPARC	Dynamical Variability	http://www.sparc-climate.org/activities/dynamical-variability/	Elisa Manzini	Dev, Eval
SPARC	Chemistry-Climate Modelling Initiative	http://www.sparc-climate.org/activities/ccm-initiative/	Michaela Hegglin	Dev, Eval
SPARC	Stratospheric Network for Assessment of Predictability	http://www.sparc-climate.org/activities/assessing-predictability/	Andrew Charlton-Perez	Pred
SPARC	Solar Influences on Climate	http://www.sparc-climate.org/activities/solar-influence/	Katja Matthes	Eval, Pred
SPARC	Stratospheric Sulfur and its Role in Climate	http://www.sparc-climate.org/activities/stratospheric-sulfur/	Claudia Timmreck	Eval
WGCM	CMIP	https://www.wcrp-climate.org/wgcm-cmip	Veronika Eyring	Pred/Eval
WGCM	AerChemMIP	https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/modelling-wgcm-cmip6-endorsed-mips	William Collins, Jean-Francois Lamarque and Michael Schulz	
WGCM	ADD the 20 other CMIP6-Endorsed	https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/modelling-wgcm-cmip6-endorsed-mips	Co-chairs of MIPs	

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WGCM	ADD the 20 other CMIP6-Endorsed MIPs	https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/modelling-wgcm-cmip6-endorsed-mips	Co-chairs of MIPs	
WGCM	WGCM Infrastructure Panel (WIP)	https://www.earthsystemcog.org/projects/wip/	V. Balaji at balaji@princeton.edu or Karl Taylor at taylor13@llnl.gov .	Infrastructure
WGCM	GC-Carbon	https://www.wcrp-climate.org/grand-challenges/gc-carbon-feedbacks	Pierre Friedlingstein Tatiana Ilyina	Dev, Eval, Pred
WGNE	MJO Task Force	http://www.wmo.int/pages/prog/arep/wwrp/new/MJO_Task_Force_index.html	Steve Woolnough / Daehyun Kim	Eval/Pred
WGNE	Drag project	http://collaboration.cmc.ec.gc.ca/science/rpn/drag_project/	Ayrton Zadra	Dev/Eval
WGNE	Aerosols for initialized predictions project	http://www.wmo.int/pages/prog/arep/wwrp/new/documents/03_Freitas_Aerosols.pdf	Saulo Freitas (stepping down)	Dev/Eval
WGNE	Systematic errors workshop (will feed into new joint projects with GASS/GLASS)	http://collaboration.cmc.ec.gc.ca/science/rpn/wgne_wse/index-en.html	Ayrton Zadra	Eval
WGNE	JWGFVR	https://www.wmo.int/pages/prog/arep/wwrp/new/Forecast_Verification.html	Marion Mittermaier / Lawrie Wilson	Eval
WGNE/WGCM	Diagnostics and Metrics Panel		Peter Gleckler	Eval
WGNE	Routine evaluation (precip, TC's, etc.)		WGNE members	Eval
WGNE	Routine parametrization sensitivity discussion.		WGNE members	Dev

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WGNE	Routine parametrization sensitivity discussion.		WGNE members	Dev
WGSIP/WCRP	GC NTCP	https://www.wcrp-climate.org/gc-near-term-climate-overview	Adam Scaife & Yochanan Kushnir	Prediction
WGSIP	Tropical Rainfall and Teleconnections	https://www.wcrp-climate.org/wgsip-projects/tropics	Laura Ferranti, Adam Scaife, Herve Douville	Prediction
WGSIP	LRFTIP	https://www.wcrp-climate.org/wgsip-projects/lrftip	William Merryfield, Mikhail Tolsykh	Eval
WGSIP	SNOWGLACE	https://www.wcrp-climate.org/wgsip-projects/snowglace	Yvan Orsolini, Jee-Hoon Jeong	Pred/Eval
WGSIP	CHFP	https://www.wcrp-climate.org/wgsip-chfp	Ramiro Saurral	Pred/Eval
WGSIP	DCPP	https://www.wcrp-climate.org/dcp-overview	George Boer, Doug Smith	Pred/Eval

A survey of modelling activities in WCRP

- There are 47 (67) individual modelling projects.
- Many of them are not run by the modelling working groups, which WMAC aims to coordinate, but directly through the core projects and/or Grand Challenges.
- They are all led by identifiable individuals and groups and have community support.

A survey of modelling activities in WCRP

- There are 47 (67) individual modelling projects.
- What do they claim to do?
 - Evaluation: 38
 - Prediction: 19
 - Development: 16
- What is WG's role in the coordination, execution and delivery of these projects?.

Some personal reflections

- We have made lots of progress on enhancing models over the last 20 years and it has been fun.
- Despite this, systematic errors in models are just as bad as they were when I started out! - We need to up our game on this!
- 20 years ago, I understood the hierarchy of modelling (and other) activities and how they fit together - I no longer do. We need to simplify and provide focus supporting some core activities!
- Despite many efforts, model development still has not achieved the central status in the programme that it deserves. It's assumed to happen rather than made to happen.

Solutions

- Set clear goals and dare to prioritise!
- Pose some tough questions (including in this meeting) to challenge our approach to modelling, e.g., What is the WCRP going to do so that the systematic model errors in CMIP8 are significantly reduced?
- Empower the three core modelling working groups and make them central to the effort, i.e., every modelling activity in the programme is affiliated with one of the three groups.
- This will challenge the WGs as they will have to change and likely leave their comfort zones.

Meeting outline

- Monday - am: overview, pm: Group meetings
- Tuesday - Group and bilateral meetings
- Wednesday - Cross cutting issues
- Thursday - am: Group meetings, pm: Breakout reports and final discussion

Thank you