

Update on WGNE and WMAC



*Some of the material from previous WGNE and WMAC reports
at October 2016 GLASS panel meeting
from Mike Ek and Joe Santanello, respectively.*

Next WGNE meeting: October 2017, UKMO/Exeter, UK, with many groups!

Last: WGNE-31, CSIR, Pretoria, South Africa, 26-29 March 2016



WORLD
METEOROLOGICAL
ORGANIZATION

WEATHER CLIMATE WATER

Please visit our public website:

<http://public.wmo.int>

Home

http://www.wmo.int/pages/prog/arep/wwrp/rescrosscut/resdept_wgne.html

JSC/CAS Working Group on Numerical Experimentation (WGNE)

WGNE is supporting numerical experimentation research activities of the

- WMO/ICSU/IOC-UNESCO World Climate Research Programme (WCRP)
- WMO World Weather Research Programme (WWRP)
- WMO Global Atmosphere Watch Programme (GAW) as well as research links to operational weather and climate prediction.
- WGNE Madden Julian Oscillation (MJO) Task Force (TF)

The Working Group on Numerical Experimentation (WGNE), jointly established by the [WCRP Joint Scientific Committee \(JSC\)](#) and the WMO Commission for Atmospheric Sciences (CAS), which is responsible for [WWRP](#) and [GAW](#), has the responsibility of fostering the development of atmospheric circulation models for use in weather, climate, water and environmental prediction on all time scales and diagnosing and resolving shortcomings (WMO/TD 121). WCRP-JSC/CAS WGNE promotes co-ordinated numerical experimentation for validating model results, observed atmospheric properties, exploring the natural and forced variability and predictability of the atmosphere, (e.g. the Atmospheric Model Intercomparison Project, [AMIP](#)), as well as studies aimed at refining numerical techniques, and the formulation of atmospheric physics processes. WGNE also monitors the advances in data assimilation and analysis methods and is the focal point in the WCRP for encouraging and reviewing the reanalysis projects carried out at various centres with fixed state-of-the-art assimilation systems providing a multi-year homogenous data set for a range of atmospheric and climate diagnostic studies.

Activities

- WGNE Exercise: Evaluating Aerosols Impacts on Numerical Weather Prediction
- The Drag Project
- The MJO Task Force

- Panel members primarily from NWP centers around the globe.
- GLASS Co-chairs Ex-Officio Members of WGNE panel.

GLASS Projects Most Relevant to WGNE

- **PALS-PLUMBER:** Land model benchmarking.
- **DICE:** Land-atmosphere interaction, with links to GEWEX Global Atmosphere System Studies (GASS).
- **LoCo:** Local Coupled Land-Atmospheric Modelling.
- **PILDAS:** Project for the Intercomparison of Land Data Assimilation Systems. NEEDS REVITALIZATION!
- Data assimilation and process-level improvements to model physical parameterization, e.g. **WGNE Drag Project** – GLASS could examine surface drag as part of PALS-PLUMBER, DICE/LoCo or other GLASS projects/GEWEX cross-cuts (with GASS).
- Also Year of Polar Prediction (YOPP) activities (discuss later under “cross-cuts”).

WGNE-WSE 2017

Canada


 Search

Home	About	Scientific Committee	Keynote Speakers	Programme	Posters	Instructions	Venue	Local Information
------	-------	----------------------	------------------	-----------	---------	--------------	-------	-------------------

[Home](#) → [Description](#)

5th WGNE workshop on systematic errors in weather and climate models

June 19-23, 2017, Montréal, Québec, Canada



WORLD
METEOROLOGICAL
ORGANIZATION



MAPP
Modeling, Analysis,
Predictions, and Projections

Description

The WCRP-JSC/CAS Working Group on Numerical Experimentation (WGNE) is organizing a workshop on systematic errors in weather and climate models, to be hosted by Environment and Climate Change Canada (ECCC) in Montreal during **19-23 June 2017**.

The principal goal of the workshop is to increase understanding of the nature and cause of errors in models used for weather and climate prediction, including intra-seasonal to inter-annual scales. Of special interest will be studies that consider errors found in multiple models and errors which are present across timescales. Diagnostics and metrics to identify and characterize systematic errors are welcomed.

Considering recent reports from WGNE members, affiliated centres and groups, WGNE has identified some processes that models currently fail to represent accurately. The workshop is therefore organized around the following themes:

WMAC 5 – April 2016 - Geneva

Joe Santanello's slides from Oct 2016 GLASS meeting
(Gif-sur-Yvette, France)

"The Mission of WMAC is to coordinate high-level aspects of modelling across WCRP, ensuring cooperation with main WCRP partners such as World Weather Research Programme (WWRP), and acting as a single entry point for all WCRP modelling activities."

Always coincides with the WCRP JSC meeting.

GLASS has yet to be there in person.

Jon Petch used to attend, but is no longer GASS co-chair.

Purpose of WMAC has been a bit nebulous to this point?

<https://www.wcrp-climate.org/wmac5>

WMAC is undertaking a survey of the modelling activities within WCRP (March 2017).

"2nd WCRP Summer School on Climate Model Development" on "Scale aware parameterization for representing sub-grid scale processes",

22-31 Jan 2018 (moved from July 2017) at CPTEC/INPE, Brazil.

Pan-WCRP modelling & Working Group meeting in October 2017; possibly no WMAC or WG sessions planned for 2018, may postpone until 2019.

Christian Jakob	Co-Chair and WGNE Rep.	Monash Uni., AUSTRALIA
William Gutowski	Co-Chair	NCAR, USA
Sandrine Bony	WGCM Rep.	LMD/IPSL, FRANCE
Peter Cox	IGBP Rep.	Uni. Exeter, UK
Gokhan Danabasoglu	CLIVAR Rep.	NCAR, USA
Francisco Doblas-Moyeno	WGS Rep.	Spanish Institute of Research, SPAIN
Greg Flato	CLIC Rep. (ad-interim)	Environment Canada, CANADA
William Gutowski	CORDEX Rep.	Iowa State University, USA
Masahide Kimoto		Uni. Tokyo, JAPAN
Judith Perlwitz	SPARC Rep.	NOAA, USA
Gregory R. Potter	WU Rep.	University of Illinois, USA
Edwin S. Rasmusson	WU Rep.	University of Illinois, USA

WMAC-5: www.wcrp-climate.org/wmac5

Promoting model development and coordination across WCRP –**INCLUDE UPDATES**

Summer school on model development

2015 @ MPI: 240 applications; 40 selected

2-year repeat: Next in Brazil focused on grey-zone

GLASS: 1-year might be worthwhile; LSM-PBL school at NCEP; Meteo-France host in future?

WCRP/WWRP International Prize for Model Development

2nd year (17 and 10 applications in Y1 and Y2)

Modeling Summit in **Oct 2017** at UKMO (All W's participate)

Include GLASS via WGNE but not open up to ALL of GLASS (key members/interests only)

WGNE, WGCM, WGSIP, CORDEX all reported WMAC for the first time – not optimal and questions
JSC interest

WGNE

Improve models, systematic errors, process diagnostics (work w/GEWEX groups)

Build stronger links with GASS and GLASS

Concern over lack of GASS leadership

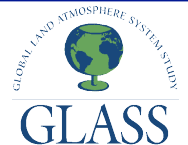
June 2017 (Montreal) WGNE Systematic Errors workshop

WGNE stated goals are 'atmospheric' circulation - but where does coupled NWP live?

Model development takes place at operational centers with little input from academia. Needs improvement.



***GLASS Panel Meeting, Univ. Tokyo
Tokyo, Japan, 15-16 May 2017***



WCRP Core Projects



The four WCRP core projects are:

- **Climate and Cryosphere (cliC)**: cliC encourages and promotes research into the cryosphere in order to improve understanding of the cryosphere and its interactions with the global climate system, and to enhance the ability to use parts of the cryosphere for detection of climate change.
- **Climate and Ocean Variability, Predictability and Change (CLIVAR)**: CLIVAR's mission is to understand the dynamics, the interaction, and the predictability of the coupled ocean-atmosphere system. To this end it facilitates observations, analysis and predictions of changes in the Earth's climate system, enabling better understanding of climate variability, predictability and change.
- **Global Energy and Water Exchanges (GEWEX)**: GEWEX is an integrated program of research, observations, and science activities that focuses on the atmospheric, terrestrial, radiative, hydrological, coupled processes, and interactions that determine the global and regional hydrological cycle, radiation and energy transitions and their involvement in global changes.
- **Stratosphere-troposphere Processes And their Role in Climate (SPARC)**: SPARC coordinates international efforts to bring knowledge of the stratosphere to bear on relevant issues in climate variability and prediction.

Pan-WCRP modelling meeting, and WCRP Joint WGCM-WGSIP-WGNE-CORDEX-S2S meeting, UKMO, Exeter, UK, 9-13 October 2017



2018

GEWEX Open Science Conference

Lake Louise, Banff, Canada
Late(r) in May 2018

***Thanks for the input
from GLASS panel
members on
sessions!***

Two Grand Challenges main focus:

- Water for the Food Baskets of the World
- Extremes