

WGNE activities and WMAC

Andy Brown and Christian Jakob
WGNE co-chairs

Role of WGNE

- Working Group on Numerical Experimentation
 - Jointly established by the WCRP and the WMO Commission for Atmospheric Sciences (CAS)
 - Responsibility of fostering the development of atmospheric circulation models for use in weather prediction and climate studies on all time scales and diagnosing and resolving shortcomings.
- A distillation of the Terms of Reference.....
 - Advice, liaison
 - Co-ordinated experiments
 - Workshops, publications, meetings

Co-ordinated experiments and projects

Project overview

- Transpose-AMIP **GOOD PROGRESS**
- SURFA **SLOW PROGRESS**
- Cloudy-radiance **DONE**
- Grey-zone **GOOD PROGRESS**
- Verification
 - NWP performance (eg TCs, precipitation) **ONGOING**
 - Polar (CBS-style; ConcordIASI intercomparison) **NEW**
 - Climate metrics **GOOD PROGRESS**
 - Issues with verification against own analysis **NEW**

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 - VOCALS (SE Pacific stratocumulus)
 - AMY (Asian monsoon)
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- **MIROC5, HADGEM2, CNRM-CM5 now available to download**

Grey zone

Cold air outbreak case

- WGNE and GASS supported project
- Model intercomparison (9+ participating groups)
 - GCM
 - LAM
 - Idealized LAM / CRM.
- How well do models represent convection and the evolution of the boundary layer in a cold air outbreak?
- Use of high resolution 'truth' to investigate parametrization issues for coarser resolution models

Interest on participation on the Grey Zone Project

	global	Meso Operational	Meso idealised	LES	contacts
MetO	MetO globa Model	MetO meso model	MetO meso model	MOLEM	Paul Field Adrian Lock Andy Brown
Meteo France	Arpege	AROME MesoNH	AROME MesoNH (p)	MesoNH	Bouysel Eric Bazile Fleur Couvreur
DWD (MPI-H)	ICON	COSMO-EU COSMO-DE	COSMO-EU COSMO-DE	UCLA- LES	Martin Kohler Axel Seifert Verena Grutzun
Met Service Canada		Canadian LAM		Canadian LES	Vaillancourt Jason Milbrandt Aytron Zadra Stephan Belair
NCAR		WRF	WRF (p)	WRF(p)	Jim Dudhia
ECMWF	IFS (p)				Anton Beljaars
KNMI		HARMONIE	HARMONIE (p)		Wim de Rooy
TU Delft		Harmonie		DALES	Stephan de Roode Ramon Mendez
		Alaro	Alaro		J-F Geleyn
JMA Univ. of Tokyo	NICAM	JMA model	JMA model	LES	Kazuo Saito Niino Kimoto

Workshops and meetings

WGNE-THORPEX PDP

- Joint expert meeting on “Diagnosis of Forecast Errors” held in Zurich, July 2010
- WGNE/PDP/ECMWF Workshop on Representing Model Uncertainty and Error in Numerical Weather and Climate Prediction Models, ECMWF, June 2011
 - Brought together data assimilation, model physics and ensemble/stochastic physics communities
 - Stochastic parametrisation paradigm needs further development at the process level and to be incorporated as part of general parametrization development ⇒ WGNE/GASS efforts
 - <http://www.ecmwf.int/publications/library/do/references/list/201106>



NASA JET PROPULSION LABORATORY CENTER FOR CLIMATE SCIENCES

Workshop: The Physics of Weather and Climate Models

March 20-23, 2012

Beckman Institute, California Institute of Technology
Pasadena, California

Organized by J. Teixeira (JPL), C. Jakob (Monash), P. Siebesma (KNMI)

Co-organized by
Working Group on Numerical Experimentation (WGNE)
Keck Institute for Space Studies (KISS), Caltech



Workshop Goal

To focus on key problems in the representation of physical processes in weather and climate models, and to develop scientific and programmatic strategies for their solution.

Workshop Format

Three multidisciplinary thematic sessions, one per day

Day 1-3: Mornings: Three invited one-hour presentations
Afternoons: Break-out and Poster Sessions

Day 4: Break-out Presentations, Plenary Session, Recommendations

March 20, Tuesday: **High-Latitude Physics**

March 21, Wednesday: **Tropical Weather and Climate**

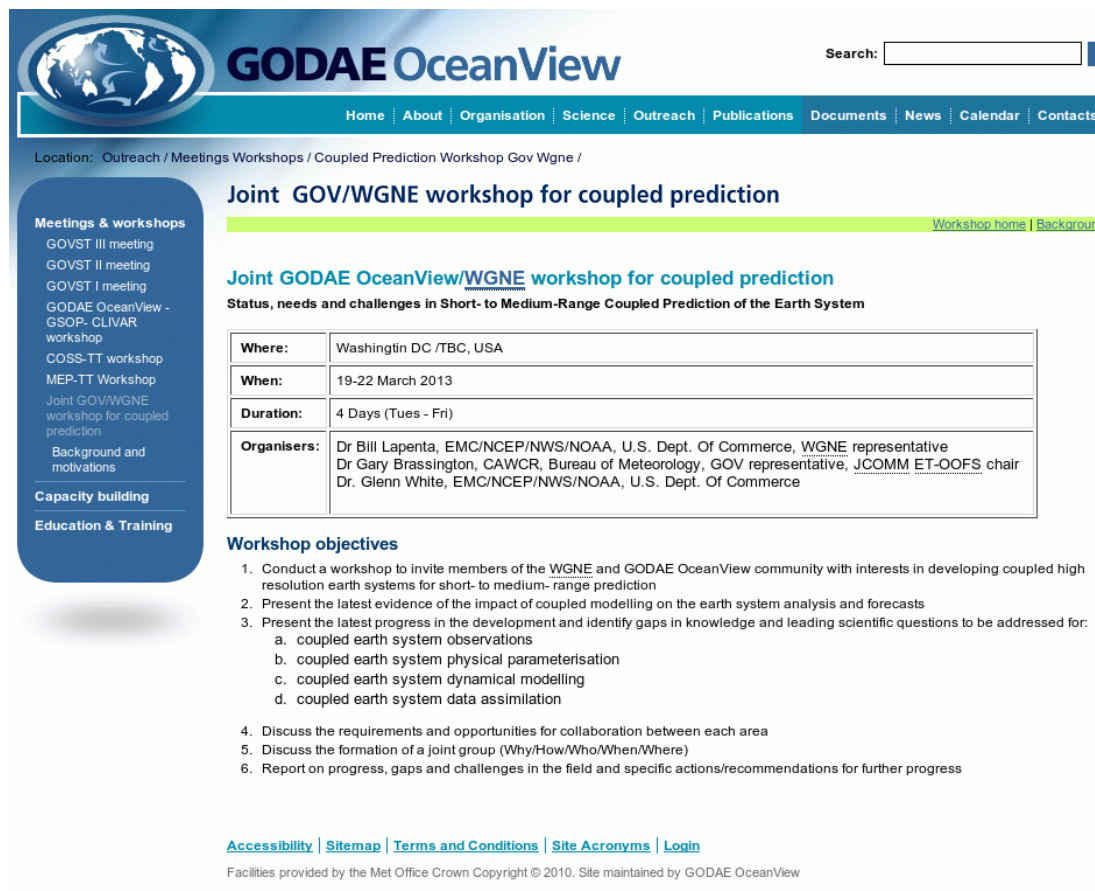
March 22, Thursday: **Clouds and Climate Physics**

March 23, Friday: **Plenary Session and Recommendations**

Register Online starting November 20, 2011 at:
climatesciences.jpl.nasa.gov/workshop/model-physics-2012



GOV/WGNE Ocean coupling workshop



The screenshot shows the GODAE OceanView website. The header includes a search bar and navigation links: Home, About, Organisation, Science, Outreach, Publications, Documents, News, Calendar, and Contacts. The page title is "Joint GOV/WGNE workshop for coupled prediction". Below the title, there is a table with details about the workshop:

Where:	Washington DC /TBC, USA
When:	19-22 March 2013
Duration:	4 Days (Tues - Fri)
Organisers:	Dr Bill Lapenta, EMC/NCEP/NWS/NOAA, U.S. Dept. Of Commerce, WGNE representative Dr Gary Brassington, CAWCR, Bureau of Meteorology, GOV representative, JCOMM ET-OOFS chair Dr. Glenn White, EMC/NCEP/NWS/NOAA, U.S. Dept. Of Commerce

Below the table, the "Workshop objectives" are listed:

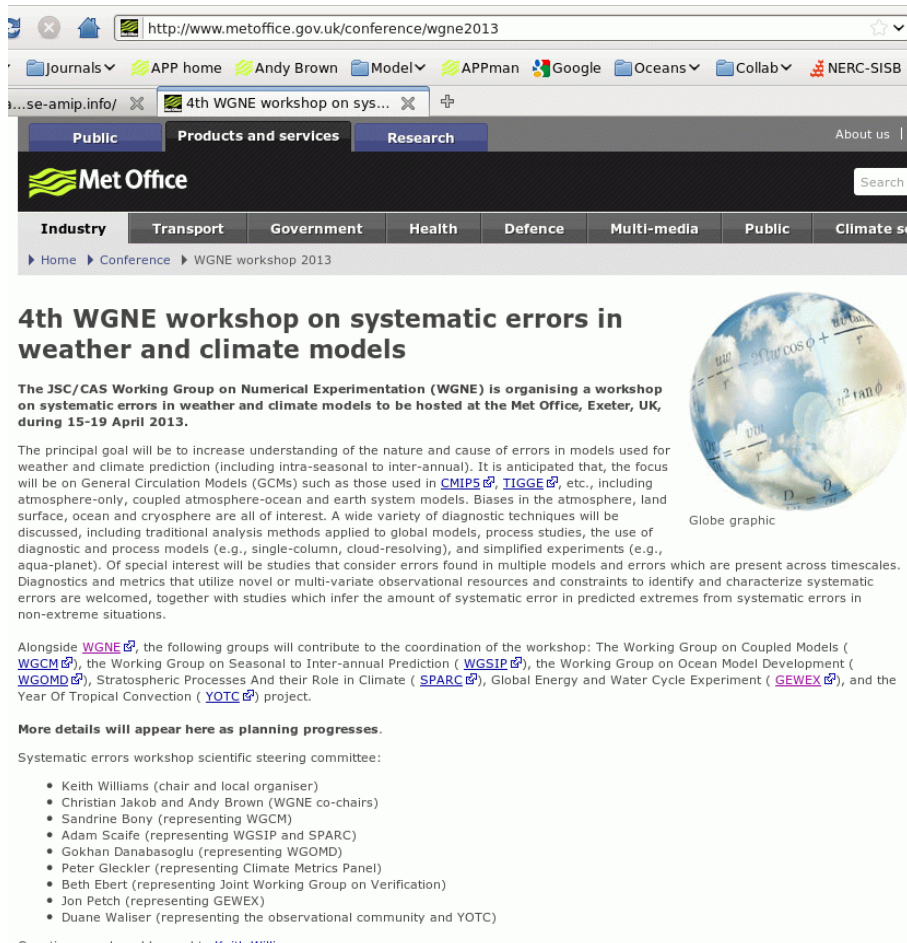
1. Conduct a workshop to invite members of the WGNE and GODAE OceanView community with interests in developing coupled high resolution earth systems for short- to medium- range prediction
2. Present the latest evidence of the impact of coupled modelling on the earth system analysis and forecasts
3. Present the latest progress in the development and identify gaps in knowledge and leading scientific questions to be addressed for:
 - a. coupled earth system observations
 - b. coupled earth system physical parameterisation
 - c. coupled earth system dynamical modelling
 - d. coupled earth system data assimilation
4. Discuss the requirements and opportunities for collaboration between each area
5. Discuss the formation of a joint group (Why/How/Who/When/Where)
6. Report on progress, gaps and challenges in the field and specific actions/recommendations for further progress

At the bottom of the page, there are links for Accessibility, Sitemap, Terms and Conditions, Site Acronyms, and Login. A footer note states: "Facilities provided by the Met Office Crown Copyright © 2010. Site maintained by GODAE OceanView".

- **Washington, USA. 19th-22nd March 2013**
- Follow on to ECMWF (2008) and Met Office (2009) workshops
- Focus on coupled modelling for short and medium range
- Use of short-range coupled to understand issues for longer range (e.g. subseasonal-seasonal)

<https://www.godae-oceanview.org/outreach/meetings-workshops/coupled-prediction-workshop-gov-wgne/>

4th WGNE Workshop on Systematic Errors in Weather and Climate Models



The screenshot shows a web browser window with the URL <http://www.metoffice.gov.uk/conference/wgne2013>. The page features the Met Office logo and navigation tabs for Public, Products and services, and Research. Below the navigation is a search bar and a menu with categories like Industry, Transport, Government, Health, Defence, Multi-media, Public, and Climate services. The main content area is titled "4th WGNE workshop on systematic errors in weather and climate models" and includes a globe graphic. The text describes the workshop's goal to increase understanding of errors in weather and climate models, listing various diagnostic techniques and models of interest. It also mentions the workshop's location at the Met Office, Exeter, UK, from April 15-19, 2013, and lists the scientific steering committee members.

4th WGNE workshop on systematic errors in weather and climate models

The JSC/CAS Working Group on Numerical Experimentation (WGNE) is organising a workshop on systematic errors in weather and climate models to be hosted at the Met Office, Exeter, UK, during 15-19 April 2013.

The principal goal will be to increase understanding of the nature and cause of errors in models used for weather and climate prediction (including intra-seasonal to inter-annual). It is anticipated that, the focus will be on General Circulation Models (GCMs) such as those used in [CMIP5](#), [TIGGE](#), etc., including atmosphere-only, coupled atmosphere-ocean and earth system models. Biases in the atmosphere, land surface, ocean and cryosphere are all of interest. A wide variety of diagnostic techniques will be discussed, including traditional analysis methods applied to global models, process studies, the use of diagnostic and process models (e.g., single-column, cloud-resolving), and simplified experiments (e.g., aqua-planet). Of special interest will be studies that consider errors found in multiple models and errors which are present across timescales. Diagnostics and metrics that utilize novel or multi-variate observational resources and constraints to identify and characterize systematic errors are welcomed, together with studies which infer the amount of systematic error in predicted extremes from systematic errors in non-extreme situations.

Alongside [WGNE](#), the following groups will contribute to the coordination of the workshop: The Working Group on Coupled Models ([WGCM](#)), the Working Group on Seasonal to Inter-annual Prediction ([WGSIP](#)), the Working Group on Ocean Model Development ([WGOMD](#)), Stratospheric Processes And their Role in Climate ([SPARC](#)), Global Energy and Water Cycle Experiment ([GEWEX](#)), and the Year Of Tropical Convection ([YOTC](#)) project.

More details will appear here as planning progresses.

Systematic errors workshop scientific steering committee:

- Keith Williams (chair and local organiser)
- Christian Jakob and Andy Brown (WGNE co-chairs)
- Sandrine Bony (representing WGCM)
- Adam Scaife (representing WGSIP and SPARC)
- Gokhan Danabasoglu (representing WGOMD)
- Peter Gleckler (representing Climate Metrics Panel)
- Beth Ebert (representing Joint Working Group on Verification)
- Jon Petch (representing GEWEX)
- Duane Waliser (representing the observational community and YOTC)

Questions can be addressed to [Keith Williams](#).

- Met Office, Exeter, UK. 15th-19th April 2013
- Weather and climate
- Nature and causes of errors
- Use of diagnostic techniques, observations, process models and simplified experiments to understand errors

<http://www.metoffice.gov.uk/conference/wgne2013>

WGNE and WMAC

- WGNE supportive in principle of the formation of WMAC
- WGNE is a micro-WMAC for the atmosphere already
 - Ex-officio membership of GASS, GLASS, SPARC and WWRP
 - this does cause some tension that needs resolving
- WGNE keen on a light-touch, bottom-up, communication-oriented WMAC

WGNE and WMAC

- WMAC must promote modelling and help grow the community
- WMAC must gain ground for the basic science of modelling
- WMAC must facilitate first and GENTLY steer second
- WMAC must include representation from the weather community, e.g., VVWRP

Questions?