WCRP Data Advisory Council (WDAC)

Mission

- act as a single entry point for all WCRP data, information, and observation activities with its sister programmes,
- coordinate their high-level aspects across the WCRP,
- ensure cooperation with main WCRP partners such as GCOS, CEOS, CGMS and other observing programmes

WDAC works with the WCRP Modeling Advisory Council to promote effective use of observations with models and to address issues related to the coordinated development of data assimilation, reanalysis, Observing System Sampling Experiments, fluxes and paleoclimatic data and their assessments (metrics, etc.).
WDAC-3 Hosting

- National University of Ireland – Galway, May 6-7, 2014
- Hosted by Peter Browne, President, NUI-G
- Local Host Brian Ward, SOLAS rep to WDAC
- WDAC is very thankful for NUI-G’s hospitality – it made for a wonderful setting and great meeting
JSC34 Recommendations [1]

- Need for best practices on process of publishing datasets and their endorsement. Request a white paper from projects, starting from GEWEX. WDAC will coordinate development of a WCRP-wide dataset quality assessment process. WDAC will distribute to other Core Projects for input/comment and make it available for Spring 2014 discussions.

- Need for guidelines for submitting datasets to ESGF. Core Project data sets will be considered as early entrants to ESGF. Core Projects and other entities represented on WDAC should nominate datasets for inclusion in the ESGF (both old and new) by next WDAC meeting.
JSC34 Recommendations [2]

• Following the lead of SPARC, WDAC to consider the use of Open access journals citations for data sets via use of DOI across the whole of the WCRP. WDAC will discuss and draft a recommendation to the JSC on using DOIs as a way to document data sets from Core Projects. This topic will be discussed at WDAC-3.

• Evaluate WCRP efforts on surface fluxes relative to plan developed across CLIVAR, GEWEX, WGNE, SOLAS as posted on the WCRP website. Core Projects should nominate representatives to surface flux discussion in early 2014. GEWEX and CLIVAR to consider joint session making scientific progress on surface fluxes at 2014 Pan GEWEX/CLIVAR meetings. WDAC to include a specific agenda item on fluxes at its next session and seek ways to reinvigorate this effort.
WDAC-3 Overview

- Fluxes: observations, modeling, data assimilation, reanalysis, including review of activities within core projects
- Data dissemination, inventories, obs4MIPS, etc.
- Quality assessment and best practices
- Publication guidelines
- WDAC Business
<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda Item</th>
<th>Docs</th>
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<td></td>
<td>Draft Agenda as of 23 April 2014</td>
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**Tuesday 6 May 2014**

1. **Introduction – Chair O. Brown**
   - a. Introduction – WDAC Co-chairs
   - b. Welcome address – J. Browne, President NUI Galway
   - c. Meeting arrangements – B. Ward
   - d. Adoption of agenda
   - e. Review of WDAC2 actions – O. Brown
   - f. WCRP Update, JSC34 – M. Rixen

2. **Flux observations and analysis - Chair O. Brown**
   Briefers are invited to focus their presentation on the observation and analysis of fluxes
   - b. GCOS update – M. Bourassa (remotely), R. Husband and K. Hill
   - c. CEOS – J. Bates (remotely)
   - d. Coffee break
   - e. SOLAS – B. Ward
   - f. Discussion
   - Lunch

3. **Flux analysis and modeling - Chair T. Koike**
   - b. CLIVAR Ocean-atmosphere interactions – P.-P. Mathieu
   - c. GEWEX Land-atmosphere interactions – J. Schulz
   - d. SPARC Stratosphere-troposphere interactions – K. Sato
   - e. CLC Cryosphere interactions – W. Meier (remotely)
   - f. IGBP Biogosphere interactions – D. Schimel (remotely)
   - 15h30 Coffee break
   - 16h00 g. Reanalyses – M. Bosilovich
   - 16h20 h. Data assimilation, uncertainties – P. Poli obo J.-N Thépaut
   - 17h00 i. Discussion and way ahead
     - a. Introduction – WDAC Co-chairs
     - b. Welcome address – J. Heffernan, Director, Marine Institute (TBC)
   - 17h30 j. Welcome address
   - Dinner

**Wednesday 7 May 2014**

4. **Data dissemination, inventories, obs4MIPs – Chair O. Brown**
   - a. obs4MIPs – P. Gleckler
   - 08h30 b. an4MIPs – M. Bosilovich
   - 09h15 c. ECV inventory – C. Lief
   - 10h15 d. GEO – T. Koike
   - 11h30 e. Discussion - all
   - 12h30 Lunch

5. **Quality assessment and best practices – Chair T. Koike**
   - a. Data set assessments, best practices – J. Schulz
   - 14h00 b. Open access publication guidelines – K. Sato
   - 14h30 c. Discussion - all
   - 15h00 d. Review of Draft actions list
   - 16h00 e. Memberships
   - 16h10 f. Next WDAC Meeting – Date/Venue
   - 16h20 g. AOB
   - 16h30 h. Review of Draft actions list
   - 17h00 i. Meeting ends
<table>
<thead>
<tr>
<th>Topic</th>
<th>Outcome</th>
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| Surface Fluxes:           | Establish Surface Flux Task Team  
- Develop a ToR and candidate membership recommendation to address:  
  - Flux-ECV cross walk  
  - Gaps in observing systems  
  - Tracking of community activities  
  - Single Point-of-Contact for WCRP surface fluxes |
| Reanalysis/Fluxes         | Circulate CORE-CLIMAX draft report to WDAC  
- Draft concept paper on a “RIP” (S-RIP+CORE-CLIMAX efforts as potential basis)  
- Recommend Reanalysis as the planning focus for WDAC-4  
- Identify support needs for Input Obs for Reanalysis Workshop (6/2015)  
- Initiate planning for 5th International Reanalysis Conference (2016)  
- Resolve reanalysis.org hosting support |
| Dataset Quality Assessment| Accepted GEWEX Draft Report  
- Add obs4MIPs section  
- Initiate Internal WDAC review and approval  
- Circulate to core projects and GCOS panels when updated |
| GEO                       | Register ESGF/COG as GEO resource |
| WDAC Online pages         | Insert Link to WG Climate  
- Update ToRs to reflect WG Climate |
| Open Access Publication and DOI | Endorsed |
| WDAC-4                    | Asheville, NC USA – April 2015 |
Surface Flux Task Team
Organizing Committee

Members: Carol Anne Clayson (lead, WHOI), Pierre-Philippe Mathieu (ESA), Brian Ward (NUI-G), Jörg Schultz (EUMETSAT), Peter Gleckler (PCMDI)

Develop a ToR and candidate membership recommendation to address:

• Near-term flux discussion items
• Flux – ECV cross walk
• Gaps in Observing Systems
• Cross community tracking of surface flux activities, WCRP single point-of-contact, etc.
An update on obs4MIPs
www.earthsystemcog.org/projects/obs4mips

Members: P. Gleckler (co-chair; PCMDI), D. Waliser (co-chair; JPL), S. Bony (IPSL), M. Boslovich (GSFC), H. Chepfer (IPSL), V. Eyring (DLR), R. Ferraro (JPL/NASA), R. Saunders (MOHC), J. Schultz (EUMETSAT), K. Taylor (PCMDI), J.-N. Thepaut, (ECMWF)

- Progress with obs4MIPs since JSC-34
- Challenges and critical infrastructure
- obs4MIPs-CMIP6 meeting
- A WDAC task team and next steps . . .
1. Use the CMIP5 simulation protocol (Taylor et al. 2009) as guideline for selecting observations. Matching variable required (This will adapt to CMIP6)

2. Observations to be technically aligned with CMIP Model output (e.g. NetCDF files with CF Convention)

3. Include a Technical Note for each variable describing observation and use for model evaluation (at graduate student level).

4. Hosted side by side on the ESGF with CMIP model output.
# obs4MIPs: Current Set of Observations

## CFMIP-OBS Provided

<table>
<thead>
<tr>
<th>CFMIP-OBS Provided</th>
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<tbody>
<tr>
<td>Cloudsat</td>
<td>Clouds</td>
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<tr>
<td>Calipso</td>
<td>Clouds &amp; Aerosols</td>
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<td>ISCCCP</td>
<td>Clouds</td>
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<tr>
<td>Parasol</td>
<td>Clouds &amp; Aerosols</td>
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Several products from ESA now being prepared/evaluated for obs4MIPs

## ana4MIPs Provided Reanalysis

<table>
<thead>
<tr>
<th>ana4MIPs Provided Reanalysis</th>
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<tbody>
<tr>
<td>ECMWF</td>
<td>Zonal Winds</td>
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<tr>
<td>Expected to expand to other fields and sources of reanalysis</td>
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Initial in-situ Example

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<th>Initial in-situ Example</th>
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<tr>
<td>ARMBE/DOE</td>
<td>Clouds, Radiation, Meteorology, Land Surface, etc</td>
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A decision has not been made yet as to whether obs4MIPs should strive to include in-situ data

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<thead>
<tr>
<th>AIRS ($\geq 300$ hPa)</th>
<th>Temperature profile</th>
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<td>Specific humidity profile</td>
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<table>
<thead>
<tr>
<th>MLS ($&lt; 300$ hPa)</th>
<th>Temperature profile</th>
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<tr>
<td>Specific humidity profile</td>
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<tr>
<th>QuikSCAT</th>
<th>Ocean surface winds</th>
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<td>TES</td>
<td>Ozone profile</td>
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<tr>
<td>AMSR-E</td>
<td>SST</td>
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<tr>
<td>ATSR (ARC/CMUG)</td>
<td>SST</td>
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<tr>
<td>TOPEX/JASON</td>
<td>SSH</td>
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<tr>
<td>CERES</td>
<td>TOA &amp; Surface radiation fluxes</td>
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<td>TRMM</td>
<td>Precipitation</td>
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<tr>
<td>GPCP</td>
<td>Precipitation</td>
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<tr>
<td>MISR</td>
<td>Aerosol Optical Depth</td>
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<td>MODIS</td>
<td>Cloud fraction</td>
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<tr>
<td></td>
<td>Aerosol Optical Depth</td>
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<tr>
<td>NSIDC</td>
<td>Sea Ice (in progress)</td>
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Meeting objective: Ensure relevant satellite data sets currently (or potentially) available can be fully utilized for CMIP6 research

Great discussions!

Examples:
• More data sets – which ones, priority?
• Higher frequency (strong interest in this)
• Process & Model Development focus – how to?
• Relaxing the “model-equivalent” criteria – how far?
• Better characterization of obs uncertainty needed
• Optimizing connections to ana4MIPs/reanalysis
• Satellite Simulator/Observation Proxy priorities?
• Use of averaging kernels – how far?
• Geostationary priorities/guidance
• Gridded In-Situ data sets?
• In-Situ – where to start, how far to go?

Invite only; ~60 attendees
Mix of observational experts, modelers, managers
Implementation Challenges And Immediate Needs

*Items to be addressed by WDAC Task Team and Possibly WIP*

obs4MIPs leverages existing CMIP infrastructure, but additional work is still needed to better accommodate observations and reanalysis datasets

- A streamlined “recipe” is needed for preparation/hosting obs4MIPs datasets
- Guidelines/requirements for the submission and “acceptance” process
- Measures of “data quality” or a “data maturity matrix” are likely needed
- Is there a means for quality control of submitted data sets?
- Is there a means to provide feedback and a “blog” of sorts for each data set where users can ask questions and seek answers?
- Do we need to ensure stewardship of each data set?
- If a proposer isn’t connected to an ESGF node, where/who should it go to?
- etc

**Standardization requires:**
- Conventions and controlled vocabularies
- Tools enforcing or facilitating conformance

**Standardization enables:**
- ESG federated data archive
- Uniform methods search and access data, potential to coordinate across WCRP projects

Efforts are underway to address these needs but a number of these issues require some technical work which at the moment is largely being done on a volunteer basis
Recommended JSC Actions

• Endorse formation of a WCRP-wide “Surface Flux Task Team”
• Endorse the use of open access publications and DOIs within WCRP, so that data sets can be easily cited and the efforts of data producers can be more widely recognized.
Thank you