WCRP
World Climate Research Programme

WDAC Report to JSC38

UNESCO

Paris
April 5, 2017

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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.*).

Focal point for all observational and data matters across the programme

- ***Promote open data policies***, protocols and standards across the programme
- ***Recommend best practices*** for ECV data set development and assessments
- ***Coordinate reanalysis intercomparison efforts***
- Promote and publish observational and reanalysis data sets to support climate modeling
- Coordinate flux research and promote development of associated data sets
- Review adequacy of observations and data assimilation techniques
- Sponsor *International Data Prize*

WDAC Current Activities

- obs4MIPs
- Reanalysis
- Surface Fluxes
- Dataset Assessments
- Polar Challenge
- WCRP – GCOS collaborations

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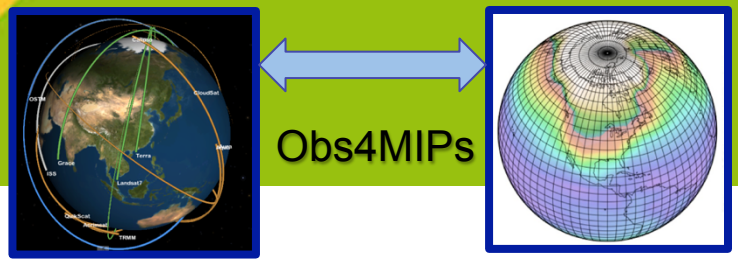
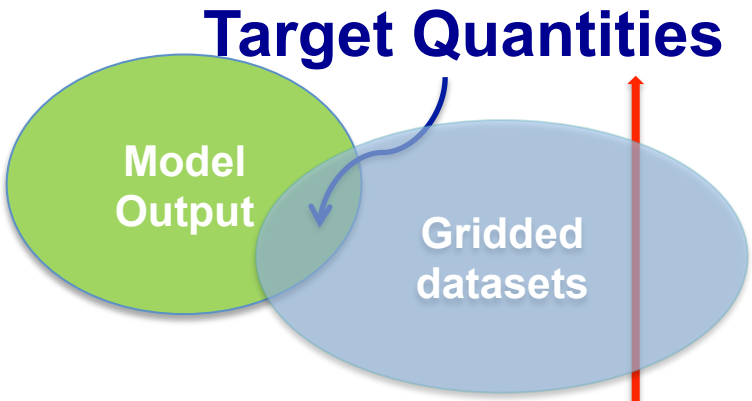
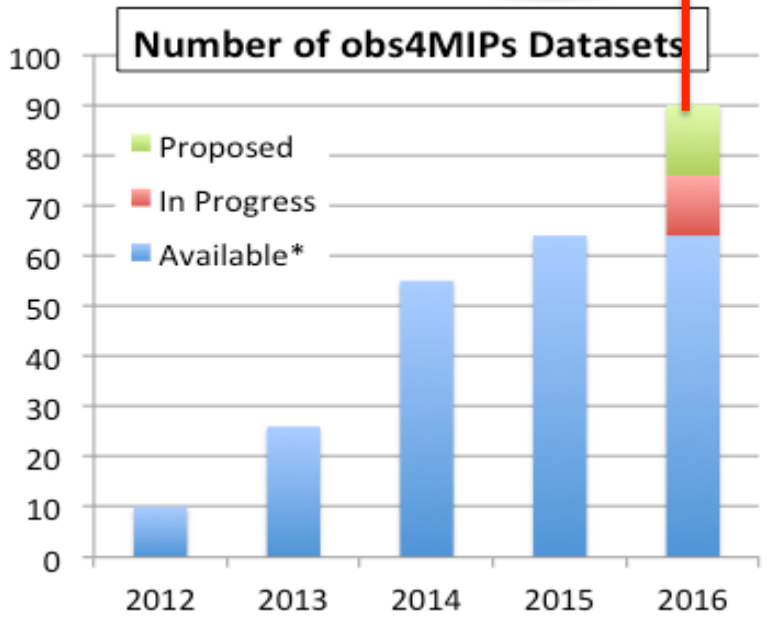


obs4MIPs

https://www.earthsystemcog.org/projects/obs4mips/

- **A project for identifying, documenting and disseminating observations for climate model evaluation in WCRP model intercomparisons, notably CMIP.**
- **Data accessible with the distributed CMIP model output, adhering to same conventions**
- **Guided by the WCRP Data Advisory Council obs4MIPS Task Team**





Complete (~125*)
In Progress* (~15)
Proposals from Data Call (~90)

NASA esa cnes NOAA EUMETSAT DLR WMO IOC ICSU

obs4MIPS Progress

- Data call: >90 new gridded datasets proposed, Task Team encouraging most to go forward
- Data proposal submission form automated
- Current holdings (>80) span across 6 ESGF nodes, complete listing generated daily
- 6 Task Team telecons, multiple presentations at scientific meetings
- Two manuscripts in-prep (#1 strategy, #2 data description governance)
- CMIP6 data conventions released (December 2016) – *a critical juncture*
    - CMIP6-Obs4MIPs data convention integration, nearly complete
- Software (CMOR) revised for preparing obs data released, examples being documented
- Development of a strategy to expand the project scope
    - Initially to accommodate more classes of gridded data (*e.g.*, part synthetic, LAI)
    - Exploring new approaches to include *in situ* data

Reanalysis Activities

- **WCRP Task Team for Intercomparison of Reanalyses (TIRA) – 4 virtual meetings to date; developing a reanalysis intercomparison project···Michael Bosilovich is leading this effort**
- **Common infrastructure, protocols, standards and tools for reanalysis comparisons and analyses, *e.g.*, S-RIP, ORA-IP**
- ***Workshop on ocean reanalyses and inter-comparisons* (Toulouse) 29-30 June 2017 (Andrea Storto)**
- **5th *International Reanalysis Conference* (Rome) 13-17 November, 2017 (Jean-Noël Thépaut, Michael Bosilovich)**
  Details at https://climate.copernicus.eu/events/5th-international-conference-reanalysis

Surface Flux Task Team

[https://www.earthsystemcog.org/projects/surflux/]

Task Team Members

Carol Anne Clayson (co-chair, WHOI), Brian Ward (co-chair, NUI-G), Anton Beljaars (ECMWF), Michael Bosilovich (NASA), James Edson (UConn), Peter Gleckler (PCMDI), Petra Heil (UTasmania), Pierre-Philippe Mathieu (ESA), Nobuko Saigusa (NIES), Hape Schmid (KIT), Paul Stackhouse (NASA), Russ Buss de Souze (INPE)

Status…

- **ESGF / CoG presence**
- **Flux – ECV cross walk**
- **Need for balancing/broadening leadership to accelerate efforts**

Surface Flux Update

- **SOLAS has recently moved into a second 10-year phase and the new science plan has recently been published. It consists of 5 themes which deal with different aspects of the ocean-atmosphere coupled system from a biogeochemistry and physics perspective.**
- **SOLAS Theme 2 addresses air-sea fluxes of mass and energy and processes at the air-sea interface. A workshop will be held in Cargese Corsica from May 15-19. Details of the workshop are here: http://airsea.nuigalway.ie/cargese/workshop**
- **The southern ocean air-sea flux working group is making progress on establishing an air-sea flux observational programme in the southern ocean. It is anticipated that a white paper will be produced soon.**

Dataset Assessments

- **Climate Data Intercomparison Project**
  - **Discussed the proposed "Climate Data Intercomparison Project" at WDAC6…**
    There are several data assessment activities completed or underway by the WCRP Core Projects (*e.g.* SPARC S-RIP initiative, CLIVAR ORA-IP, *etc.*)
    The Core Projects (led by GEWEX/GDAP) prepared and vetted a "best practices" document (see below), which was recently published -
    (https://www.wcrp-climate.org/WDAC/documents/WDAC_Report_DataSetQualityAssessments.pdf)
  - **Other initiatives exist (e.g Copernicus Climate Change Service), where focus is put on "climate quality" datasets, including also continuity, sustainability, operational production**
  - **Need clarity about criteria to assess, should we engage in such a venture**

WCRP – GCOS

How does Council improve communications about observing needs between GCOS (panels), WCRP Core Projects, Grand Challenges and Working Groups?

GCOS oversees the observing networks for the WCRP, thus it is critically important for the WCRP Core Projects, Working Groups and Grand Challenges to provide the GCOS panels with their observing requirements as research evolves. While the WDAC is a facilitator in this process and has representation from the Core Projects and the GCOS panels, it cannot address the totality of WCRP needs. How do we improve direct communication between the respective entities?

POLAR CHALLENGE

CONTEXT

The cryosphere plays a fundamental role in the climate system. We need much better monitoring and prediction capabilities for the polar regions.

CHALLENGES AND OPPORTUNITIES

Polar observations are expensive, risky and sparse. We can expand AUVs' endurance, navigation and communication capabilities to operate under the sea ice.

VISION

A cost-effective, sustainable and autonomous polar ocean monitoring system to drive a new era for climate research and services.

Be the first to complete a 2000 km continuous mission with an Autonomous Underwater Vehicle (AUV) under the sea ice.

500K €

ompete for the Prize!

Become a co-sponsor!

www.wcrp-climate.org/polarchallenge

Co-sponsors:

WMO · Environment Canada · Environnement Canada · WWRP · esa · GCOS · GEO Group on Earth Observations · SCOR · IOC · Endorsed by: IASC · SCAR · Industry Partners: Wildlife Computers

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JSC-38 Recommended Actions

- **Discuss approaches to improve linkages between GCOS observing panels and all WCRP elements (Working Groups, Core Projects, Grand Challenges)**
- **Continuing concerns about the fragility of *in situ* networks**
  - **BSRN**
  - **ARGO**
  - **ISMN (soil moisture)**
  - **ozonesondes (GAW more generally)**
- **Emergent satellite mission gaps**
  - **e.g. limb missions, active lidar missions – remains a concern**
- **Should WDAC be the "advocate" for observations and observing systems within the WCRP?**

Thank you