

An Update on the ESGF Needs for Obs4MIPs

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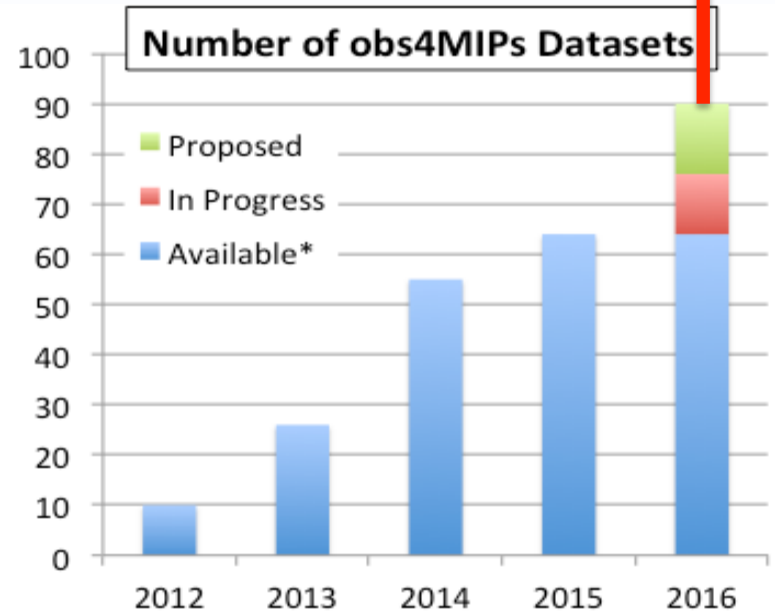
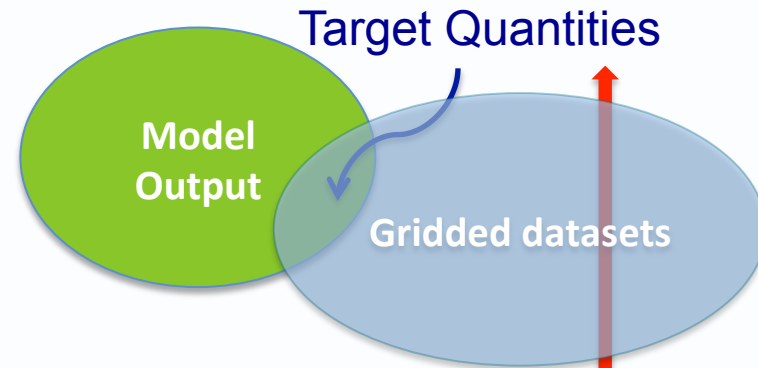
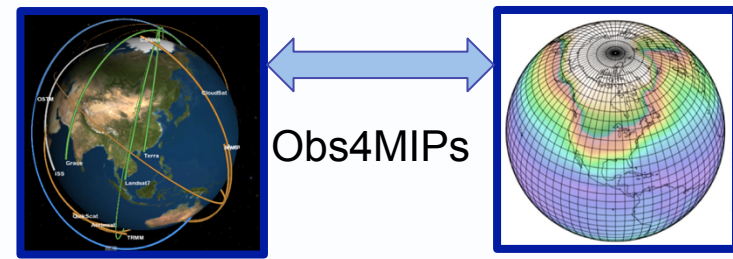
... and many others

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obs4MIPs

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

- A Project for identifying, documenting and disseminating observations for climate model evaluation.
- Data sets accessible on the ESGF alongside CMIP model output, **adhering to the same data conventions**
- Guided by the WCRP Data Advisory Council obs4MIPS Task Team



obs4MIPs leverages key protocols and infrastructure

- Experiment protocol and **CMIP standard output**
 - **Climate Forecast (CF) Convention (as applied in CMIP)**
 - Software to ensure data complies to CMIP structure: **CMOR**
 - Distribution: **ESGF**, technically aligned with CMIP data
 - **CoG**: Project information and interconnectedness with others
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Desired enhancements

Publishing obs4MIPs data on ESGF

- Preparing observational data needs to become easier
 - CMOR3 accommodates describing gridded observations ✓
 - Apply CMIP6 standards with CMOR3, including examples
- Publishing needs to become easier
- Ability to monitor downloads

- **Identifying dataset “suitability” via search**
- **After searching for “best estimate”, having access to “ancillary data”**

Technical Requirements			
Meets obs4MIPs data technical requirements	Data suitably processed with CMOR and/or consistent with obs4MIPs standards	Largely complete with minor metadata inconsistencies	Non-compliant. Should be removed from database!
Includes obs4MIPs technical note information	Complete technical note information provided	Technical note information incomplete and/or could be improved	Technical note not provided
Dataset Suitability and Maturity			
Closeness or robustness of measurement to observed reference quantity	Firmly established and/or validated methodology	Indirect means of calculation or observations only providing partial constraint (e.g. ocean surface latent heat flux)	Largely model-derived quantity (e.g. LAI, root zone soil moisture, NPP)
Maturity with respect to climate model evaluation	Multiple peer-reviewed examples of application to CMIP climate model evaluation	One peer-reviewed example of application to CMIP climate and/or examples of other sorts of model evaluation.	As of DATE-TBS, no significant application to climate model evaluation
Provision for robust uncertainty information	Uncertainty information provided per retrieval/grid point	General uncertainty information given relative to the methodology and dataset as a whole - backed by actual field/in-situ validation exercises	No uncertainty information provided
Comparison Complexity			
Complexity of Model Observation Comparison	Comparison can be made directly with CMIP model output variable	Comparison requires some simple post processing of CMIP output variable(s) (e.g. vertical integral or ratio of two variables)	Comparison requires complex processing of CMIP output (e.g. "simulator", budget calculation)

obs4MIPs
Dataset Suitability
&
Maturity Indicators
(DRAFT)

Currently under discussion by WCRP Task Team

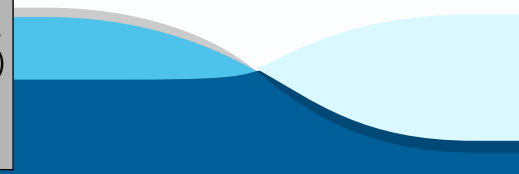


Illustration Of Dataset Suitability And Maturity Indicators

Based on typical obs4MIPs dataset search

Obs4MIPs

You are at the CoG-CU node

[Home](#) [About Us](#) [Governance](#) [Contact Us](#)

[Technical Support](#)

- Institute
- Instrument
- Time Frequency
- Realm
- Variable
- Variable Long Name
- CF Standard Name
- Data Node

Enter Text: Display results per page



Show All Replicas Show All Versions Search Local Node Only (Including All Replicas)
Search Constraints: ✖TEMPERATURE

Total Number of Results: 8

-1-

Please login to add search results to your Data Cart

Expert Users: you may display the search URL and [return results as XML](#) or [return results as JSON](#)

- obs4MIPs AMSRE Sea Surface Temperature L3 Monthly Data**
Description: Obs-AMSRE model output prepared for obs4MIPs NASA-JPL observation
Data Node: esgf-data.jpl.nasa.gov
Version: 20111031
Total Number of Files (for all variables): 3
[\[Show Metadata \]](#) [\[Show Files \]](#) [\[THREDDS Catalog \]](#) [\[WGET Script \]](#) [\[LAS Visualization \]](#) [\[Tech Note \]](#) [\[Globus Download \]](#) 
- obs4MIPs AIRS Air Temperature L3 Monthly Data**
Description: Obs-AIRS model output prepared for obs4MIPs NASA-JPL observation
Data Node: esgf-data.jpl.nasa.gov
Version: 20110608
Total Number of Files (for all variables): 3
[\[Show Metadata \]](#) [\[Show Files \]](#) [\[THREDDS Catalog \]](#) [\[WGET Script \]](#) [\[LAS Visualization \]](#) [\[Tech Note \]](#) [\[Globus Download \]](#) 

Linked as a single entity to explanatory page of color codes



An emerging need: Being able to access to ancillary data

How things work now . . .

Scientist using CMIP variable X goes to obs4MIPs CoG site and finds observational analog(s)

These “best estimate” data strictly adhere to CMIP/obs4MIPs data conventions

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What is needed ...


After finding “best estimate”, the user has access to a diversity of data and metadata

These supporting data sets may not adhere to data standards and therefore not be directly searchable

Summary

- Commitments to contribute new datasets: NASA, NOAA, ESA, EUMETSAT, and now many traditional gridded in-situ products
- CMOR3 accommodates observational data, should improve process
- WCRP/WDAC urging obs4MIPs to extend beyond satellite data

Desired enhancements to CoG/ESGF:

- **Color code identification of dataset “suitability” via search**
 - **After searching for “best estimate”, having access to “ancillary data”**
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EXTRAS

