

CMIP6 Data Request: Status and Outlook

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Outline

1 Status

- The Structure and Purpose of the Request
- Variable Lists and Request Links

2 Outlook

- Organisation, user community, funding
- Suggestions, Resources and Plans

Status

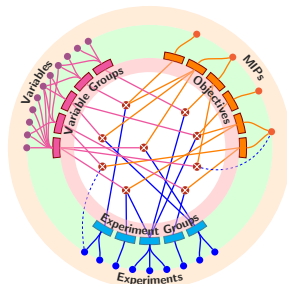
- Version 01.00.30 released;
- Supplied with web pages and python library;
- Aggregated across all MIPs;
- Delays in finalising the request caused problems for modeling groups;

Structure and Purpose

The Data Request defines CMIP6 diagnostics in terms of scientific and technical specifications and specifies the contexts in which they are required.

Data Request

- Data requirements tuned to each experiment;
- Each requested variable is linked to the MIP(s) that need it;
- Additional options related to priorities of variables, tiers of experiments and model configurations;



Variable Lists

Standard Name: structured name agreed in CF Conventions:
gross_primary_productivity_of_biomass_expressed_as_carbon

- 927 CF Standard Names;
- 1272 MIP Variables;
- 2063 CMOR Variables;
- 6423 Request Variables;

Short name, units and title: **gpp**
[kg m⁻² s⁻¹] Carbon Mass Flux
out of Atmosphere Due to Gross
Primary Production on Land

CMOR Variable: detailed specifications, including frequency and spatial processing.

Request Variable: linking experiments, variables and objectives and setting a priority.

Request Links

Connection Variables, Experiments and Objectives

- Different combinations of variables for each experiment;
- Each variable/experiment combination is linked to one or more objectives;
- 3 level of prioritisation;

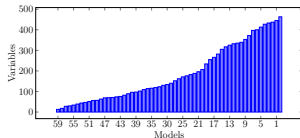
MIP Experiments vs. MIP Requests

	CMP	ScenarioMIP	AerChemMIP	CDRMIP	C4MIP	CFMIP	DAMIP	DCPP	FAFMIP	GeoMIP	GMMIP	HighResMIP	ISMIP6	LS3MIP	LUMIP	OMP	PAMIP	PMIP	RFMIP	VolMIP	TOTAL	Unique
CMIP	71T	5.5T	3.3T	7.3T	1.5T	1.8T	2.7T	927G	511G	625G	793G	695G	5.2T	3.0T	4.1T	1.8T	571G	2.2T	2.8T	869G	117T	26T
VIACSAB	12T	39T			2.0T	5.3T	6.9T	11T	507G	2.8T	2.2T	388G	3.9T	1.8T	2.2T			3.0T			93T	58T
AerChemMIP	16T	2.8T	37T																6G		57T	41T
CDRMIP	1.3T			2.7T																	4.1T	1.4T
C4MIP	12T	9.3T			10T		6.7T			577G				9.6T	4.4T			2.0T			55T	23T
CFMIP	12T					14T															27T	25T
DAMIP	9.2T	11M					44T														53T	36T
DCPP	882G	499G						29T												2.7T	33T	28T
FAFMIP	13T								3.6T												17T	14T
GeoMIP	19T	5.7T								5.7T											30T	5.9T
GMMIP	47G										5.5T										5.6T	5.0T
HighResMIP	91T											83T									175T	162T
ISMIP6	854G	49G											1.9T					57G			2.8T	921G
LS3MIP	322G	3.0T												44T	1.9T						49T	43T
LUMIP	1.2T	5.3T			1.5T									3.2T	10T						21T	6.7T
OMP	74T															40T					115T	63T
PAMIP	882G																12T				13T	12T
PMIP	7.0T	534G			931G													8.3T			16T	9.3T
RFMIP	6.8T																		7.9T		14T	12T
VolMIP	7.2T																			6.0T	13T	4.8T
CORDEX	7.0T	6.9T																			13T	4.8T
DynVarMIP	1.5T	4.7T	9.1T			3.2T						3.6T								4.4T	26T	22T
SIMIP	942G	925G						7.2T								695G		862G			10T	8.8T
UNION	214T	62T	47T	8.7T	12T	18T	53T	45T	4.4T	7.7T	7.9T	85T	8.6T	51T	15T	42T	13T	13T	9.7T	12T	735T	

Grade Inflation in Variable Priorities

Have variable priorities lost their meaning?

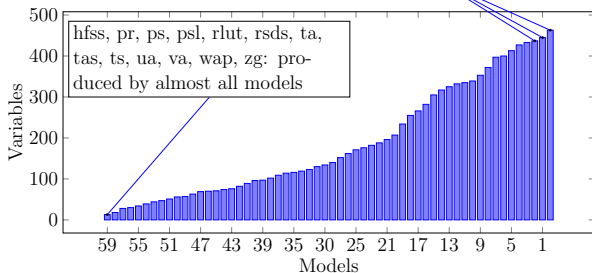
- Analysis of data provided in the CMIP5 archive;
- 50% of variables labelled as top priority;
- Many of these provided by few models;
- e.g., four CMIP5 models provided no orography fields.



Bar chart showing number of variables provided against size of model ensemble which provides all those variables.

Grade Inflation in Variable Priorities

agesno, chepsoa, cltc, concaerh2o, eparag100, fGrazing, loadno3, prAdjust, pslAdjust, tasAdjust, tsAdjust, wetnh4: produced by 0,1 or 2 models



Proposal

- Re-set prioritisation for CMIP7;
- Top priority only assigned with significant and early justification;

Suggestions

Technical

Clarify requirements, improve schema, review definitions.

Support

Improve documentation of process and responsibilities.

Governance

Clarity about priorities and appropriate deadlines for candidate MIPs.

Technical Options

- Work with Data Request Support Group to establish priorities [in progress];
- Establish a suitable communications platform. e.g. dedicated domain (cmip-dreq.org) and an archived email list for each MIP (MyMIP@cmip-dreq.org).
- Survey MIP teams & modelling centres for feedback;
- The activity has some funding through H2020 project IS-ENES3;

Recommendations: Procedural

- Require a named data coordinator for each CMIP endorsed MIP;
- Set appropriate deadlines for candidate MIPs: organisational and resourcing;
- Realistic prioritisation;
- Identify the core priority variables by June 2021;

Thank you



Resources and Plans

The IS-ENES3 project has funds allocated to support data standards work;



Standard Names

PMIP Isotopic Tracers

- precipitation_flux_containing_180
- Terms which are of interest to a small community.
- Difficult to locate people to comment on definitions;
- in future: require a list of people from multiple organisations who can contribute to the discussion of definitions of terms;

Sample Top Priority Description

rlus: Surface Upwelling Longwave Radiation [W m^{-2}]
surface_upwelling_longwave_flux_in_air

