

Status of ECV Inventory

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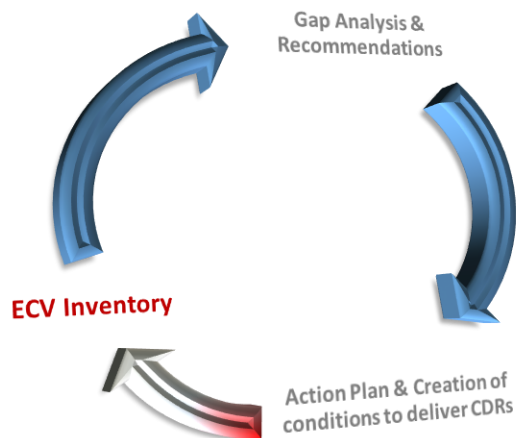
Context: Concept and Approach

“ECV Inventory”: a database of information about satellite-derived (Thematic) Climate Data Records addressing geophysical quantities contributing to the GCOS-defined space-observable ECVs / ECV Products.

- ▶ Capture the largest possible number of *existing* and *planned* satellite-derived CDRs addressing GCOS ECVs
- ▶ Get the most accurate information concerning the data records: *Stewardship, (Generation Process,) Record Characteristics, (Documentation,) Accessibility, Applications*
- ▶ Ensure completeness and consistency of information provided
- ▶ Continuous data call, i.e., inputs can be provided any time, organised by Focal Points
- ▶ Direct involvement of data producers identified by the space agencies; *Questionnaire Guide* and individual support
- ▶ Verification / consolidation process by individual interaction with the ECV Inventory *Responders*

▶ Cycle #1 (- 2014)

- Proof of concept of the Inventory, with ~ two hundred records being contributed



▶ Cycle #2 (2016-2018)

- ~ one thousand records contributed by ~ one hundred *Responders* from 10 agencies
- Publication of verified and consolidated database (v2.0) with 913 records
- Full cycle

▶ [Cycle] #3 (2018 - 2020)

- ~ thirteen hundred records [end of 2019] contributed by ~ two hundred *Responders* from 11 agencies
- Upcoming publication of verified and consolidated database (v3.0) with ~ eleven hundred records
- Continuous data collection mode, with cut-off dates for reference versions of annual ECV Inventory, Gap Analysis, and Coordinated Action Plan

Status: A Snapshot* in Numbers (Heritage and Evolution)

* end of April 2020 (continuous data collection mode)

1555 records in the database			
1428 records “available”			127 records “deleted”
1330 records “submitted”		98 records “in progress”	
1074 records “verified”	256 records “TBC”		

[Database]	976 records inherited from #2	579 new records		
[“available”]	934 records inherited from #2	494 new records		127 records “deleted”
[“submitted”]	914 records inherited from #2	416 new records		
[“verified”]	818 records inherited from #2	256 new records	256 records “TBC”	
				98 records “in progress”

Note on “verified”: 818 records inherited from #2 → 643 were updated and verified again + 175 remained unchanged

Status: A Snapshot* in Numbers (Domain)

* end of April 2020 (continuous data collection mode)

1555 records in the database			
1428 records “available”			127 records “deleted”
1330 records “submitted”		98 records “in progress”	
1074 records “verified”	256 records “TBC”		

[Database]	999 records Atmosphere	327 records Land	168 Ocean	61
[“available”]	957 records Atmosphere	291 records Land	157 Ocean	23
[“submitted”]	926 records Atmosphere	247 records Land	150 Ocean	7
[“verified”]	774 records Atmosphere	187 Land	113 Ocean	256 records “TBC”
			98 records “in progress”	127 records “deleted”

Note on “no domain” for “submitted” records: non strictly-GCOS physical quantities (for assessment during the verification process)

Status: A Snapshot* in Numbers (Achievements and Plans)

* end of April 2020 (continuous data collection mode)

[Database]	1009 <i>existing</i> records	546 <i>planned</i> records		
["available"]	944 <i>existing</i> records	484 <i>planned</i> records		
["submitted"]	882 <i>existing</i> records	448 <i>planned</i> records	98 records "in progress"	127 records "deleted"
["verified"]	727 <i>existing</i> records	347 <i>planned</i> records	256 records "TBC"	

[Database]	665 existing records Atmosphere	334 planned Atmosphere	201 ex Land	126 pl L	105 ex O	63 pl	61
["available"]	649 existing records Atmosphere	308 planned Atmosphere	176 ex Land	115 pl L	102 ex O	55 pl	23
["submitted"]	623 existing records Atmosphere	303 planned Atmosphere	157 ex Land	90 pl L	95 ex O	55 pl	7
["verified"]	520 existing records Atmosphere	254 planned Atmosphere	129 ex Land	58 pl L	78 ex O	55 pl	256 records "TBC"
						98 records "in progress"	127 records "deleted"

existing records: produced and released CDRs, covering past and current missions + current ICDR-like records

planned records: planned/committed but not yet released CDRs, covering past, current, and future missions

Status: A Snapshot* in Numbers (Coverage and Gaps)

* end of April 2020 (continuous data collection mode)

[Database]	999 records Atmosphere	327 records Land	168 Ocean	61
["available"]	957 records Atmosphere	291 records Land	157 Ocean	23
["submitted"]	926 records Atmosphere	247 records Land	150 Ocean	7
["verified"]	774 records Atmosphere	187 records L	113 O	256 records "TBC"
			98 records "in progress"	127 records "deleted"

GCOS-200 (space-observable): 37 ECVs = 13 Atmosphere + 15 Land + 9 Ocean [92 (+8 GCOS-154) ECV Products = 39 A + 45 (+8) L + 16 O]

– ECV Inventory ("submitted"): 35 ECVs = 13 Atmosphere + 14 Land + 8 Ocean [84 ECV Products = 38 A + 32 L + 14 O]

- Total gaps [Level of ECV]: 0 Atmosphere + 1 Land (**Anthropogenic GHG fluxes**) + 1 Ocean (Surface currents)
- Partial Gaps [Level of ECV Product]: 1 Atmosphere (Temperature (upper-air)) + 6 Land (Albedo, LAI, FAPAR, Glaciers, Lakes, Soil moisture) + 1 Ocean (Ocean-surface heat flux (radiative flux))

– ECV Inventory ("verified"): 31 ECVs = 12 Atmosphere + 12 Land + 7 Ocean [69 ECV Products = 33 A + 24 L + 12 O]

- Verification gaps": 1 Atmosphere (Lightning) + 2 Land (Permafrost, Above-ground biomass) + 1 Ocean (Ocean colour)

Evolution: Never a Dull Moment

▶ Cycle #2 (2016-2018)

▶ [Cycle] #3 (2018 - 2020)

▶ [Cycle] #4 (2020 -)

- Continuous data collection, with submission cut-off dates for reference versions of the annual ECV Inventory, Gap Analysis, and Coordinated Action Plan, i.e. no strict “Cycle”
 - Conversion of *planned* into *existing*
 - Update of information for v2.0
 - Deletion of obsolete / redundant content
 - Registration of new content
- Lessons learnt from data collection, verification process, and gap analysis:
 - Minor changes to the questionnaire and terminology (new GCOS-IP)
 - Different approach for registration of ICDR-like datasets
 - Relaxation of commitment constraints for *planned* CDRs
- Update of verification, assessment, and reporting tools

- Continuous data collection, with verification cut-off dates for publication of new versions of the ECV Inventory (tentatively twice per year), irrespective of schedule set for Gap Analysis and Coordinated Action Plan
 - No strict data-calls: agencies will be encouraged to provide their input on a near real-time basis (updates of previous entries and registration of new content – *existing* and *planned*)
 - Continuous verification process with priorities set mainly by date of submission
 - Gap Analyses and Coordinated Action Plans tied to “reference versions” of the ECV Inventory
- Lessons learnt from data collection, verification process, and gap analysis:
 - Different approach for registration of “families” of datasets – differing only in space/time resolutions (still TBD), to reduce the workload of all actors
 - Highlight of the verification date/version (and active prompting for the update of previously published records)
- Update of verification, assessment, and reporting tools
 - Automated “pre-submission check” tools, warning the Responder of obvious inconsistencies in their input and prompting for correction prior to submission (and verification)

Way ahead: ECV Inventory v3.0 and beyond

- Publication of v3.0 planned May/June on climatemonitoring.info/ecv_inventory
 - Web interface view and simple sort/filter tools
 - Download of all user-relevant database contents in big excel table for additional viewing, filtering and sorting options
 - Previous published version (2.0) to be kept available for reference
- Agencies *Focal Points* and *Responders* to be informed of publication of v3.0 (with a big “Thank you!”)
- Data collection web interface to be moved to a version-independent URL (https://oecvinv01.eumetsat.int/ECV_Inventory/ecv/)
- Agencies *Focal Points* and *Responders* to be informed of changes in approach regarding the data collection and publication of new versions

Climate Monitoring from Space





















ECV Inventory

The Essential Climate Variable (ECV) Inventory houses information on Climate Data Records (CDR) provided by CEOS and CGMS member agencies. The Inventory is a structured repository for the characteristics of two types of ECV CDRs:

- Climate data records that exist and are accessible;
- Climate data records that are planned to be delivered as part of an already approved programme of an individual or several agencies.

The ECV Inventory is an open resource to explore existing and planned data records from space agency sponsored activities. Access links to the data are provided within the Inventory, alongside details of the data's provenance, integrity and application to climate monitoring.

The inventory is updated every year and provides a unique source of information on climate data records available internationally. The current version of the inventory was released in October 2017. The interactive version of the inventory is available below, a static export is available here: [ECV_Inventory_v2.0](#).

Existing data records							
RecordID	Details	tempCov	Domain	ECVName	ECVProduct	PhysQuantity	ResponsibleOrg
10106			Atmosphere	Surface Wind Speed and Direction	Surface Wind Speed and Direction	Wind speed over ocean surface (horizontal)	NASA
10115			Atmosphere	Upper-air Temperature	Stratospheric Temperature Profile	Stratospheric Temperature Profile	NASA
10116			Atmosphere	Water Vapour	Tropospheric and Lower-stratospheric Profiles of Water Vapour	Tropospheric and Lower-stratospheric Profiles of Water Vapour	NASA
10117			Atmosphere	Cloud Properties	Cloud Water Path (liquid and ice)(CWP)	Cloud Water Path (liquid)	NASA
10118			Atmosphere	Cloud Properties	Cloud Top Pressure (CTP)	Cloud Top Pressure	NASA
10119			Atmosphere	Cloud Properties	Cloud Amount	Cloud Amount	NASA
10121			Atmosphere	Precipitation	Precipitation	Liquid precipitation	NASA
10125			Atmosphere	Ozone	Total Ozone	Total Ozone	NASA
10132			Land	Ice Sheets and Ice Shelves	Ice Shelves	Grounding Line Location	NASA
10133			Land	Ice Sheets	Ice Velocity	Ice Velocity	NASA