Status of ECV Inventory

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"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
Context: History

- **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)

<table>
<thead>
<tr>
<th>[Database]</th>
<th>976 records inherited from #2</th>
<th>579 new records</th>
</tr>
</thead>
<tbody>
<tr>
<td>[“available”]</td>
<td>934 records inherited from #2</td>
<td>494 new records</td>
</tr>
<tr>
<td>[“submitted”]</td>
<td>914 records inherited from #2</td>
<td>416 new records</td>
</tr>
<tr>
<td>[“verified”]</td>
<td>818 records inherited from #2</td>
<td>256 new records</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmosphere</td>
<td>999</td>
</tr>
<tr>
<td>Land</td>
<td>327</td>
</tr>
<tr>
<td>Ocean</td>
<td>168</td>
</tr>
<tr>
<td>Total</td>
<td>1555</td>
</tr>
</tbody>
</table>

- 1428 records “available”
- 1330 records “submitted”
- 1074 records “verified”
- 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)*

<table>
<thead>
<tr>
<th>Database</th>
<th>Existing Records</th>
<th>Planned Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Available”</td>
<td>944 existing records</td>
<td>484 planned records</td>
</tr>
<tr>
<td>“Submitted”</td>
<td>882 existing records</td>
<td>448 planned records</td>
</tr>
<tr>
<td>“Verified”</td>
<td>727 existing records</td>
<td>347 planned records</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Database</th>
<th>Atmosphere</th>
<th>Land</th>
<th>Ocean</th>
</tr>
</thead>
<tbody>
<tr>
<td>[“available”]</td>
<td>957</td>
<td>291</td>
<td>157</td>
</tr>
<tr>
<td>[“submitted”]</td>
<td>926</td>
<td>247</td>
<td>150</td>
</tr>
<tr>
<td>[“verified”]</td>
<td>774</td>
<td>187</td>
<td>113 O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECV Inventory (“submitted”): 35 ECVs = 13 Atmosphere + 14 Land + 8 Ocean [84 ECV Products = 38 A + 32 L + 14 O ]</td>
</tr>
<tr>
<td>- Total gaps [Level of ECV]: 0 Atmosphere + 1 Land (Anthropogenic GHG fluxes) + 1 Ocean (Surface currents)</td>
</tr>
<tr>
<td>- 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)</td>
</tr>
<tr>
<td>ECV Inventory (“verified”): 31 ECVs = 12 Atmosphere + 12 Land + 7 Ocean [69 ECV Products = 33 A + 24 L + 12 O]</td>
</tr>
<tr>
<td>- Verification gaps”: 1 Atmosphere (Lightning) + 2 Land (Permafrost, Above-ground biomass) + 1 Ocean (Ocean colour)</td>
</tr>
</tbody>
</table>
Evolution: Never a Dull Moment

- 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

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- 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