

The ECV Inventory of the Joint CEOS/CGMS Working Group on Climate

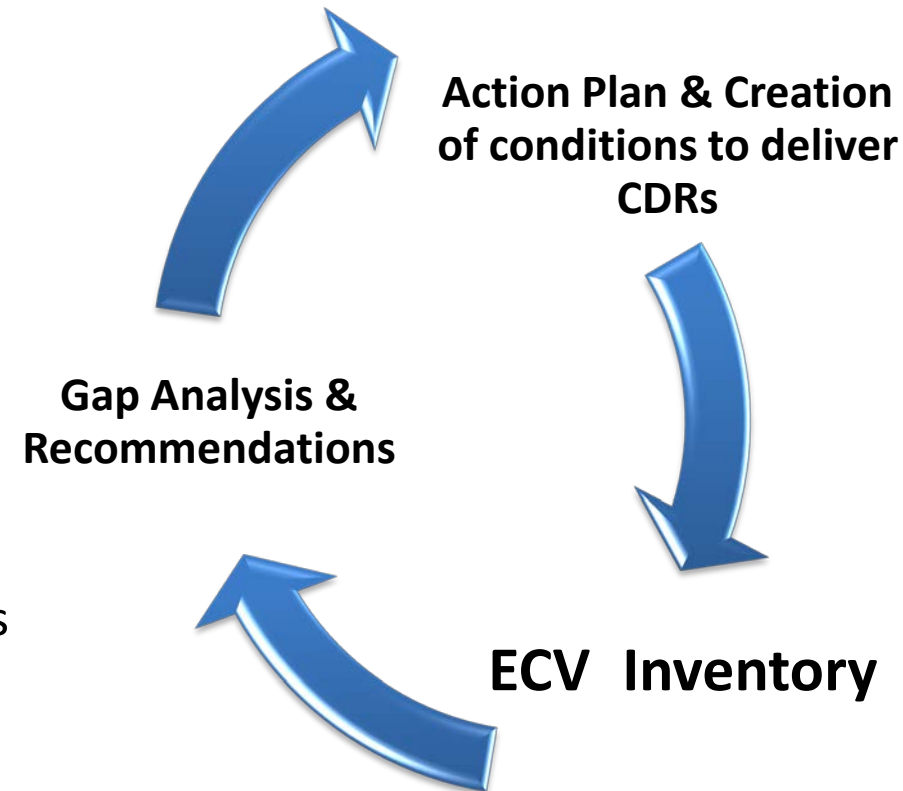
Jörg Schulz¹ and Pascal Lecomte²

with contributions from:

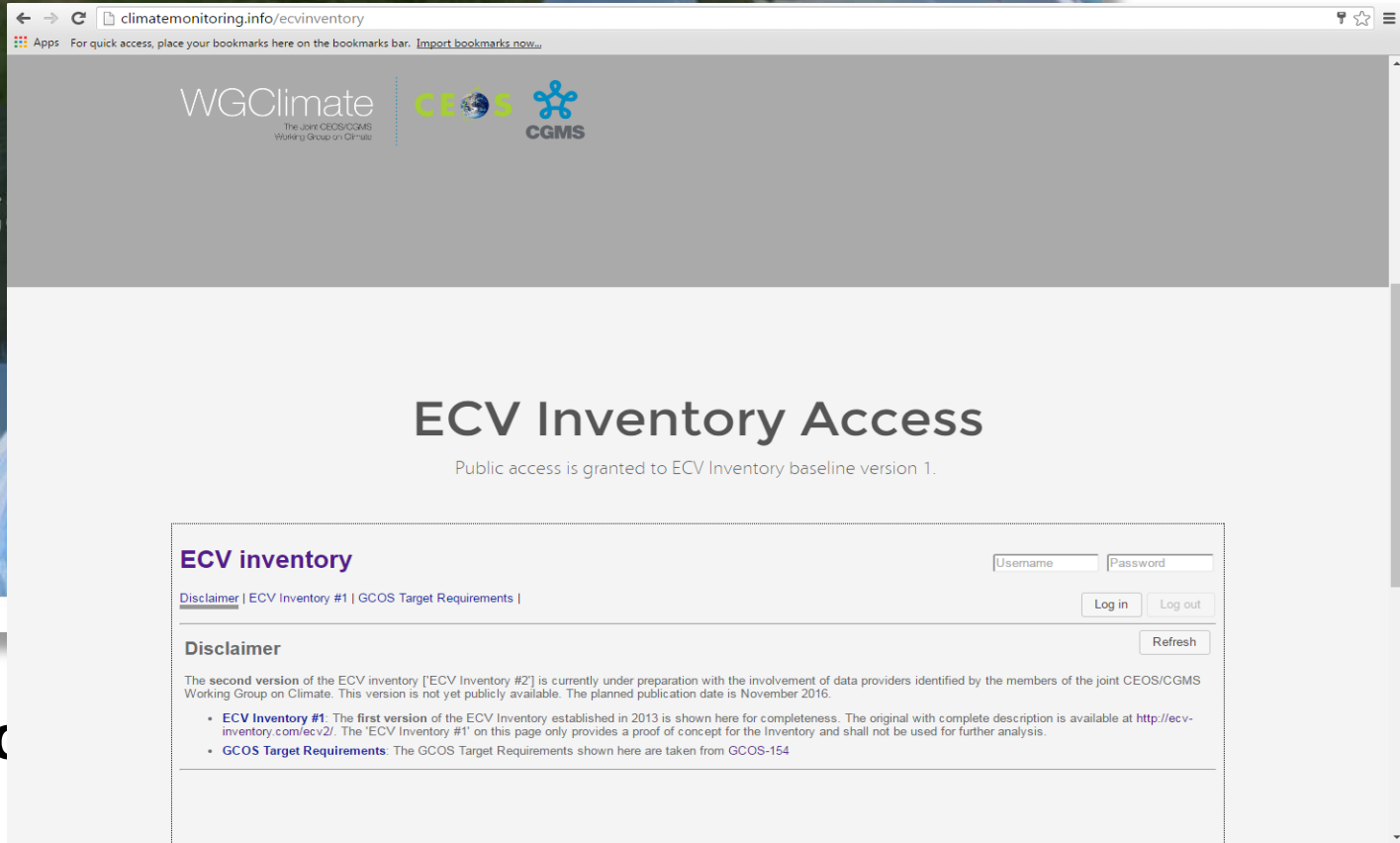
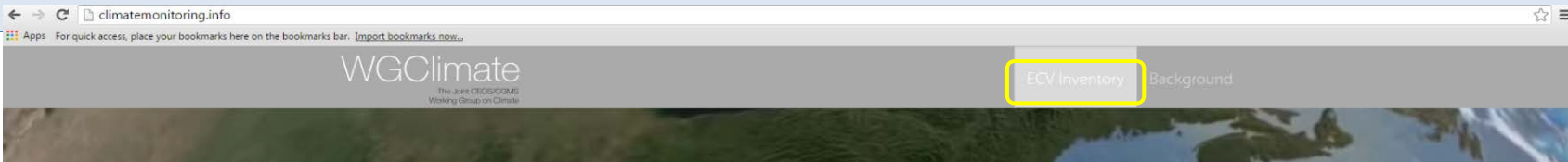
Peter Albert¹, Robert Husband¹, Alexandra Nunes¹
and Ed Pechorro²

¹EUMETSAT, ²ESA

- ECV Inventory provides visibility on Climate Data Records available/planned from CEOS & CGMS satellite missions or their combination on an GCOS ECV basis that allows response to GCOS IP;
- The ECV Inventory establishes traceability with respect to GCOS principles, guidelines and requirements for ECVs;
- The WG identifies gaps and shortfalls, provides recommendations and formulates a coordinated action plan to address recommendations;
- This shall optimise the planning of future missions and constellations to expand Climate Data Records and close gaps with respect to GCOS requirements.
- ECV Inventory is updated in 2 year cycles.



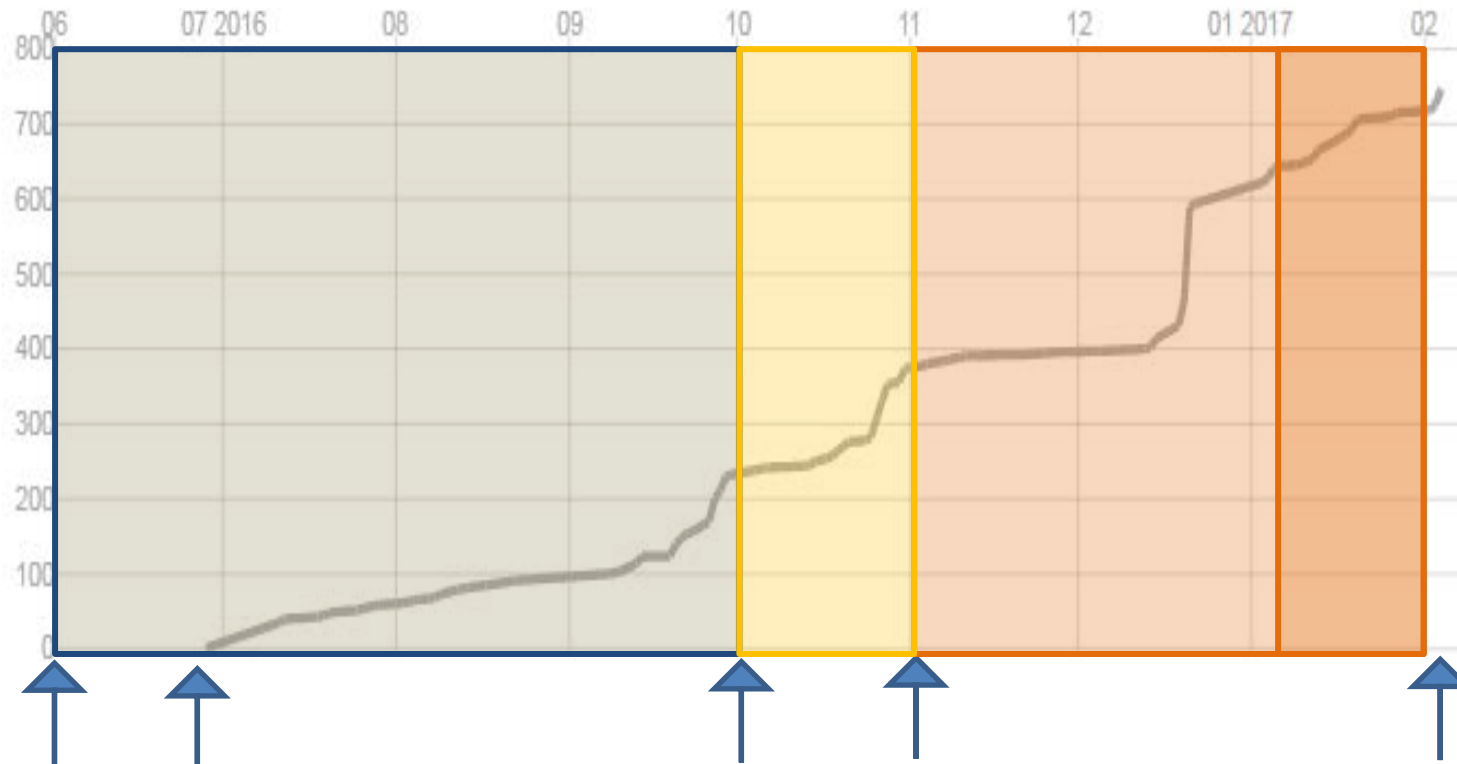
<http://climatemonitoring.info/>



Climatemonitor

ECV Inventory Status

Number of inventory items



- 20 CEOS/CGMS Agencies contacted, 18 participated, 11 contributed;
- 90 "responders" provided inputs;
- 756 entries: 524 'current', 232 'future' (Numbers are still changing due to Verification Process)
- 81 ECV products for 32 ECVs (2016 GCOS IP) covered
- Number of entries is much higher than expected → the verification process takes longer.

opening of data collection

effective start of population

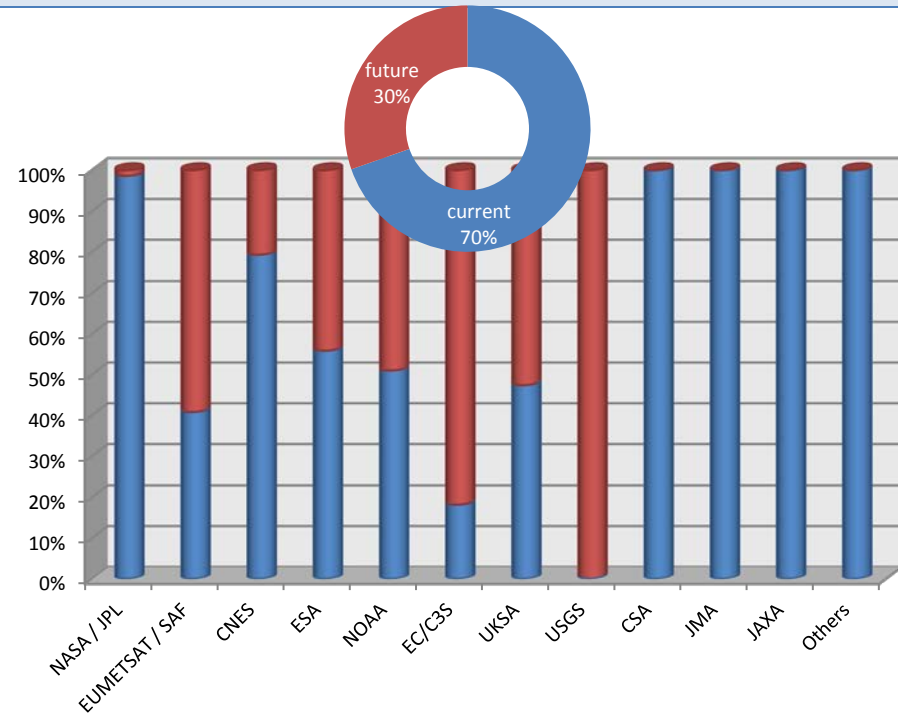
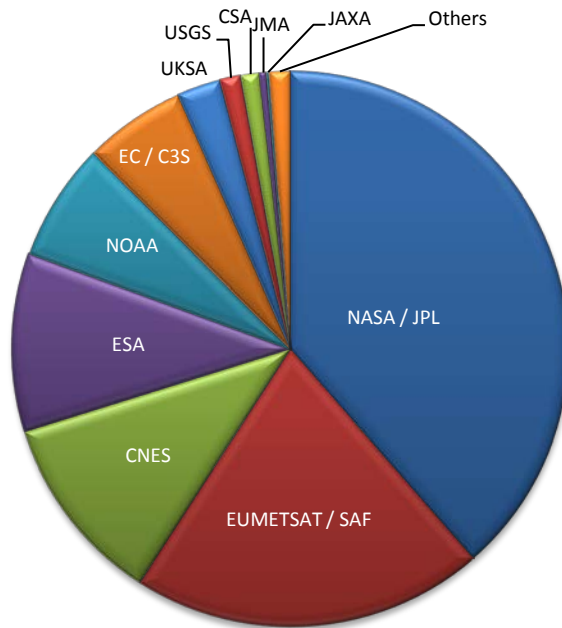
1st deadline: ~240 entries (~ Cycle #1)

2nd deadline: ~380 entries

> 750 entries!

!!

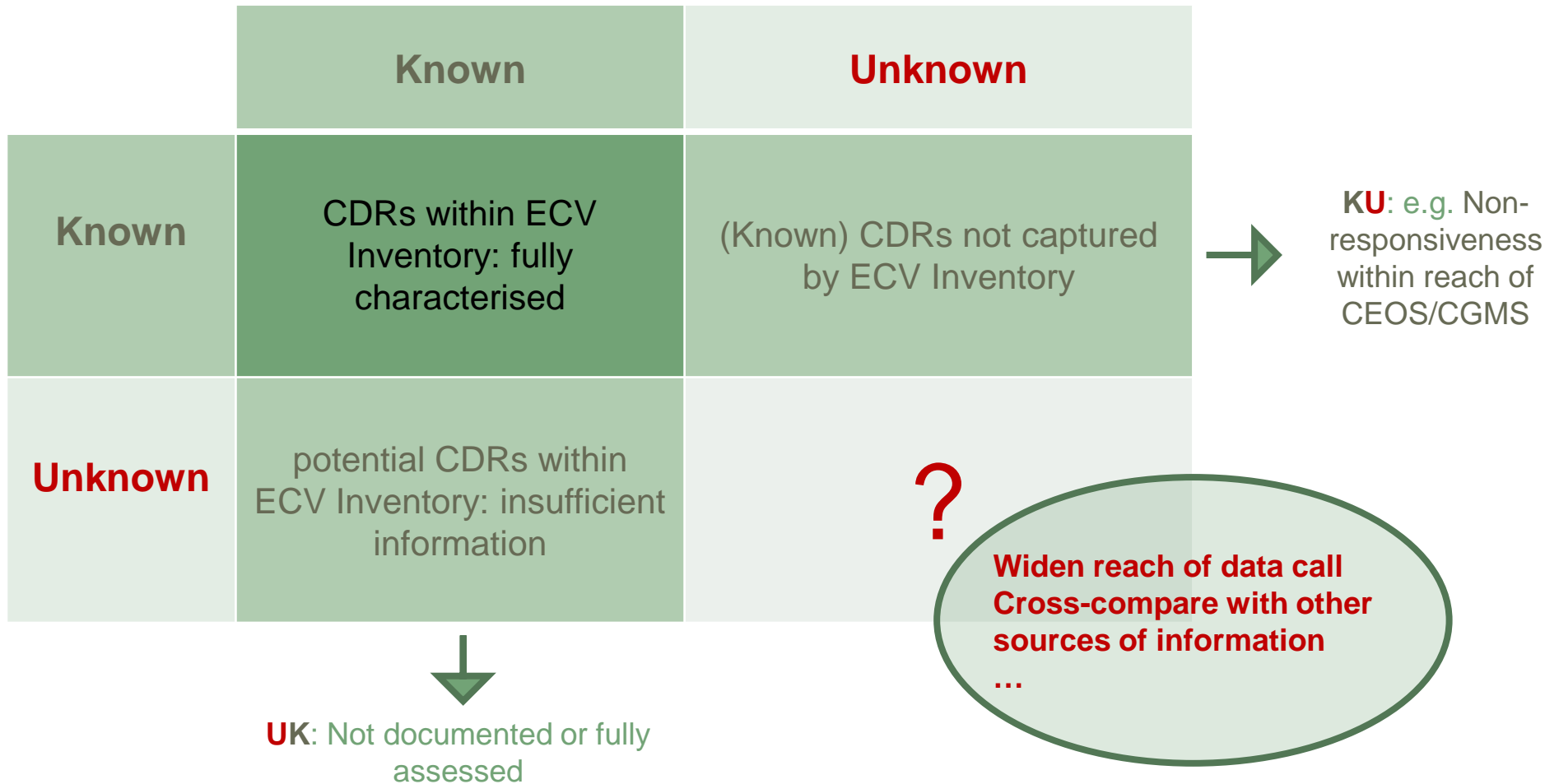
Total contribution per Agency (%)



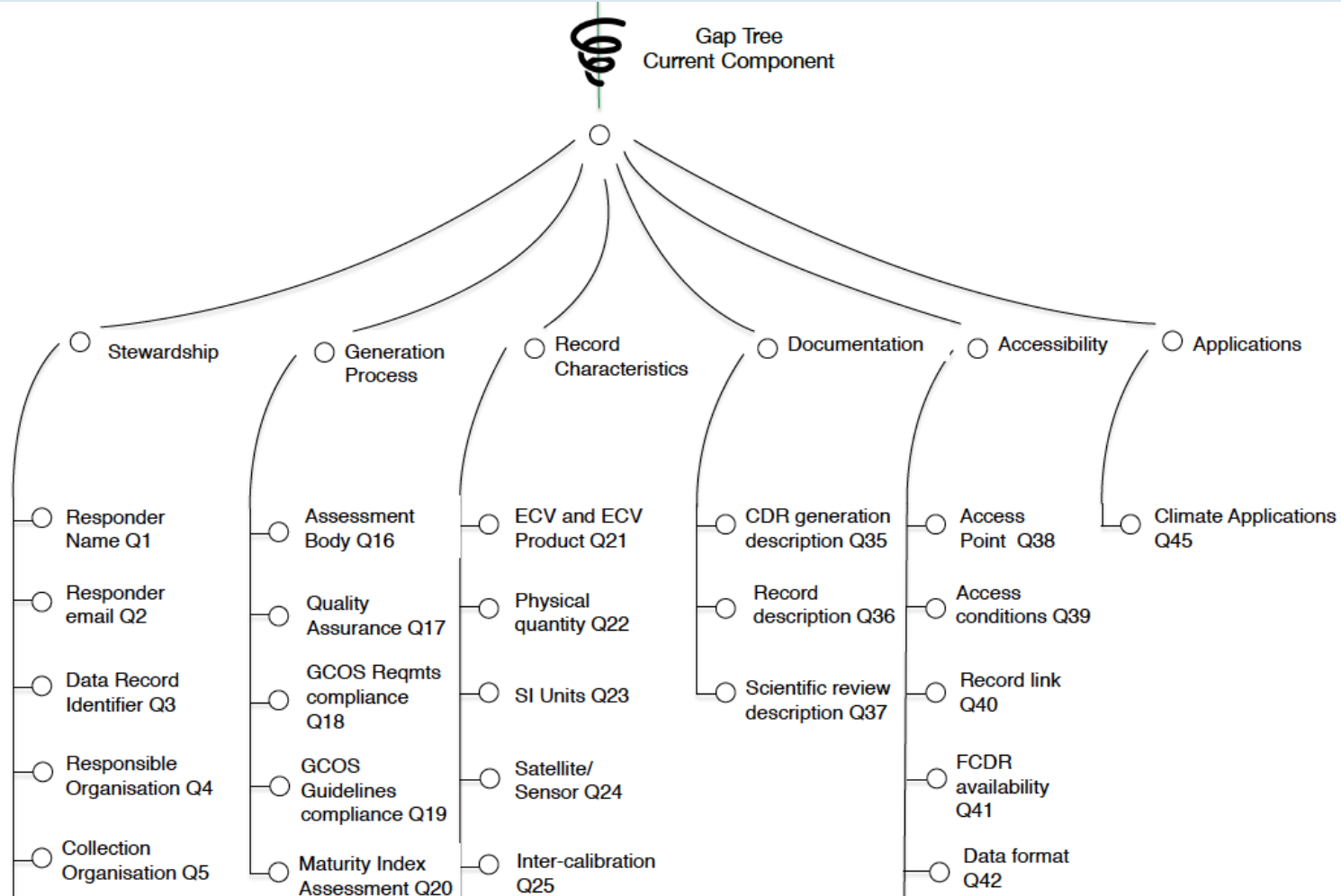
- Absolute and relative contributions can still change considerably during ongoing Verification Process (both per agency and ‘current’ / ‘future’)
- Unavailability of full ‘future’ contribution may impair gap analysis

Inherent Uncertainty

“Rumsfeld contingency matrix” (GCOS ECVs)



WGClimate – Structured Gap Analysis



Traceability: ECVs → inventory instruments

ECV Inventory #1 | ECV Inventory #2 | Synop | Statistics | Charts | **Other Tables** | Administration | Search

Satellites and Instruments | Inventory - instruments | **ECV Products - satellites and instruments** | ECVs

ECV Products - satellites and instruments - example 'Cloud Top Pressure (CTP) / Current'

Refresh | Excel | CSV

Show entries Search:

RecordID	ECVProduct	SatAcronym	InstAcronym	Start Date	DataEndDate	CurrentFuture
10118	Cloud Top Pressure (CTP)	NOAA-10	HIRS/2	1986-09-05	2001-08-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-11	HIRS/2	1988-09-01	2004-06-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-12	HIRS/2	1991-05-01	2007-08-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-14	HIRS/2	1994-12-01	2007-05-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-7	HIRS/2	1981-06-01	1985-02-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-8	HIRS/2	1983-03-01	1984-06-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-9	HIRS/2	1984-12-01	1998-02-01	Current
10289	Cloud Top Pressure (CTP)	Metop-A	AVHRR/3	2007-06-28	2016-10-07	Current
10289	Cloud Top Pressure (CTP)	Metop-B	AVHRR/3	2013-01-01	2016-10-07	Current
10289	Cloud Top Pressure (CTP)	NOAA-10	AVHRR	1987-11-17	1990-09-16	Current
10289	Cloud Top Pressure (CTP)	NOAA-11	AVHRR/2	1988-11-08	1994-08-31	Current
10289	Cloud Top Pressure (CTP)	NOAA-12	AVHRR/2	1991-09-16	1998-12-14	Current
10289	Cloud Top Pressure (CTP)	NOAA-14	AVHRR/2	1995-02-09	2002-07-25	Current
10289	Cloud Top Pressure (CTP)	NOAA-15	AVHRR/3	1998-10-26	2016-10-07	Current
10289	Cloud Top Pressure (CTP)	NOAA-16	AVHRR/3	2001-03-20	2006-07-19	Current
10289	Cloud Top Pressure (CTP)	NOAA-17	AVHRR/3	2002-08-24	2009-01-10	Current
10289	Cloud Top Pressure (CTP)	NOAA-18	AVHRR/3	2005-07-19	2016-10-07	Current
10289	Cloud Top Pressure (CTP)	NOAA-19	AVHRR/3	2009-04-19	2016-10-07	Current
10289	Cloud Top Pressure (CTP)	NOAA-6	AVHRR	1980-06-30	1982-08-03	Current
10289	Cloud Top Pressure (CTP)	NOAA-7	AVHRR/2	1981-08-24	1985-02-01	Current
10289	Cloud Top Pressure (CTP)	NOAA-8	AVHRR	1983-03-04	1985-10-14	Current
10289	Cloud Top Pressure (CTP)	NOAA-9	AVHRR/2	1985-02-25	1988-11-06	Current
10289	Cloud Top Pressure (CTP)	TIROS-N	AVHRR	1979-01-01	1980-01-30	Current
10324	Cloud Top Pressure (CTP)	Metop-A	AVHRR/3	2006-10-25	2009-12-31	Current
10324	Cloud Top Pressure (CTP)	NOAA-11	AVHRR/2	1988-09-24	1994-12-31	Current

Showing 1 to 25 of 58 entries

Previous | 1 | 2 | 3 | Next

Usage → effective observation capabilities?

Traceability: inventory instruments → WMO OSCAR

ECV Inventory #1 | ECV Inventory #2 | Synop | Statistics | Charts | **Other Tables** | Administration | Search

Satellites and Instruments | Inventory - instruments | ECV Products - satellites and instruments | ECVs

Satellites and Instruments Refresh Excel CSV

Show entries Search:

Satellite	WMO OSCAR ID Sat	Launch Date	(Expected) End-Of-Life	WMO OSCAR ID Inst	Instrument Acronym	Instrument Full Name
AEM-2	0	1979	1981	0	SAGE-I	Stratospheric Aerosol and Gas Experiment - I
ACRIMSat	1	1999-12-20	2013-12-14	9	ACRIM-III	Active Cavity Radiometer Irradiance Monitoring - III
ADEOS	2	1996-08-17	1997-06-30	571	TOMS	Total Ozone Mapping Spectrometer
ADEOS	2	1996-08-17	1997-06-30	423	RIS	Retroreflector In Space
ADEOS	2	1996-08-17	1997-06-30	405	POLDER	Polarization and Directionality of the Earth's Reflectances
ADEOS	2	1996-08-17	1997-06-30	371	OCTS	Ocean Color and Temperature Scanner
ADEOS	2	1996-08-17	1997-06-30	366	NSCAT	NASA Scatterometer
ADEOS	2	1996-08-17	1997-06-30	220	IMG	Interferometric Monitor for Greenhouse gases
ADEOS	2	1996-08-17	1997-06-30	215	ILAS-I	Improved Limb Atmospheric Spectrometer - I
ADEOS	2	1996-08-17	1997-06-30	64	AVNIR	Advanced Visible and Near-Infrared Radiometer
ADEOS-2	3	2002-12-14	2003-10-25	482	SeaWinds	SeaWinds
ADEOS-2	3	2002-12-14	2003-10-25	405	POLDER	Polarization and Directionality of the Earth's Reflectances
ADEOS-2	3	2002-12-14	2003-10-25	216	ILAS-II	Improved Limb Atmospheric Spectrometer - II
ADEOS-2	3	2002-12-14	2003-10-25	156	GLI	Global Imager
ADEOS-2	3	2002-12-14	2003-10-25	116	DCS	Data Collection System
ADEOS-2	3	2002-12-14	2003-10-25	27	AMSR	Advanced Microwave Scanning Radiometer
ADM-Aeolus	4	2016	2019	17	ALADIN	Atmospheric Laser Doppler Instrument
ALOS	5	2006-01-24	2011-04-22	411	PRISM	Panchromatic Remote-sensing Instrument for Stereo Mapping
ALOS	5	2006-01-24	2011-04-22	387	PALSAR	Phased-Array L-band Synthetic Aperture Radar
ALOS	5	2006-01-24	2011-04-22	65	AVNIR-2	Advanced Visible and Near-Infrared Radiometer - 2
ALOS-2	6	2014-05-24	2019	944	CIRC	Compact Infrared Camera
ALOS-2	6	2014-05-24	2019	388	PALSAR-2	Phased-Array L-band Synthetic Aperture Radar - 2
ALOS-3	7	2019	2026	946	HISUI	Hyperspectral Imager Suite
ALOS-3	7	2019	2026	945	PSC	Panchromatic Stereo Camera
AlSat-1	8	2002-11-28	2010-08-15	513	SLIM6	Surrey Linear Imager Multispectral 6 channels - but 3 spectral bands

Showing 1 to 25 of 2,416 entries Previous 1 2 3 4 5 ... 97 Next

Availability → Potential observation capabilities?

Synergies to identify gaps and missed opportunities

ECV Inventory #1 ECV Inventory #2 Synop Statistics Charts **Other Tables** Administration Search

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ECV Products - satellites and instruments - example 'Cloud Top Pressure (CTP) / Current'

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10118	Cloud Top Pressure (CTP)	NOAA-12	HIRS/2	1991-05-01	2007-08-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-14	HIRS/2	1994-12-01	2007-05-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-15	HIRS/2	1981-06-01	1985-02-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-8	HIRS/2	1983-03-01	1984-06-01	Current
10118	Cloud Top Pressure (CTP)	NOAA-9	HIRS/2	1984-12-01	1988-02-01	Current
10289	Cloud Top Pressure (CTP)	Metop-A	A/HRR/3	2007-06-28	2011-10-07	Current
10289	Cloud Top Pressure (CTP)	Metop-B	A/HRR/3	2013-01-01	2011-10-07	Current
10289	Cloud Top Pressure (CTP)	NOAA-17	A/HRR/3	2002-09-24	2009-01-10	Current
10289	Cloud Top Pressure (CTP)	NOAA-18	A/HRR/3	2005-07-19	2016-10-07	Current
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10289	Cloud Top Pressure (CTP)	NOAA-8	A/HRR/2	1983-03-04	1985-10-14	Current
10289	Cloud Top Pressure (CTP)	NOAA-7	A/HRR/2	1983-03-04	1985-10-14	Current
10289	Cloud Top Pressure (CTP)	NOAA-8	A/HRR/2	1983-03-04	1985-10-14	Current
10289	Cloud Top Pressure (CTP)	NOAA-9	A/HRR/2	1983-03-04	1985-10-14	Current
10289	Cloud Top Pressure (CTP)	TIROS-N	A/HRR/3	2013-01-01	2011-10-07	Current
10324	Cloud Top Pressure (CTP)	Metop-A	A/HRR/3	2006-10-25	2009-12-31	Current
10324	Cloud Top Pressure (CTP)	NOAA-11	A/HRR/2	1988-09-24	1994-12-31	Current

Showing 1 to 25 of 58 entries

ECV Inventory Usage → effective observation capabilities?

Synergies for addressing gaps and identifying missed opportunities?

Other Tables Administration Search

Satellites and Instruments ECVs

Refresh Excel CSV

Search:

Instrument Acronym	Instrument Full Name
SAGE-I	Stratospheric Aerosol and Gas Experiment - I
ACRIM-III	Active Cavity Radiometer Irradiance Monitoring - III
TOMS	Total Ozone Mapping Spectrometer
RIS	Retrorreflector In Space
MODIS	Moderate Resolution Imaging Spectroradiometer
SeaWiFS	SeaWiFS: Ocean Color and Temperature Scanner
OSTATS	Ocean Color and Temperature Scanner
SeaWiFS	SeaWiFS: Ocean Color and Temperature Scanner
AMG	Interferometric Monitor for Greenhouse gases
LAS-I	Improved Limb Atmospheric Spectrometer - I
AVNIR	Advanced Visible and Near-Infrared Radiometer
SeaWinds	SeaWinds
POLDER	Polarization and Directionality of the Earth's Reflectances
ILAS-II	Improved Limb Atmospheric Spectrometer - II
GLI	Global Imager
DCS	Deep Cloud Scanner
AMSR	Advanced Microwave Scanning Radiometer
ALADIN	Advanced Laser Interferometer for Diffusion Sounding
PRISM	Panchromatic Remote-sensing Instrument for Stereo Mapping
PALSAR	Phased-Array L-band Synthetic Aperture Radar
AVNIR-2	Advanced Visible and Near-Infrared Radiometer - 2
CIRC	Compact Infrared Camera
PALSAR-2	Phased-Array L-band Synthetic Aperture Radar - 2
HISUI	Hyperspectral Imager Suite
PSC	Panchromatic Stereo Camera
SLIM6	Surrey Linear Imager Multispectral 6 channels - but 3 spectral bands

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WMO OSCAR Availability → Potential observation capabilities?

- The joint CEOS/CGMS WG Climate keeps an inventory of ECV Climate Data Records that offers a verified resource of information allowing the analysis of gaps and formulation of coordinated action by assessing content against GCOS requirements;
- Additionally it will offer a source of verified information on CDRs for anybody;
- Extension of the inventory towards FCDR and CDR Interim are planned.