

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

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with contributions from:

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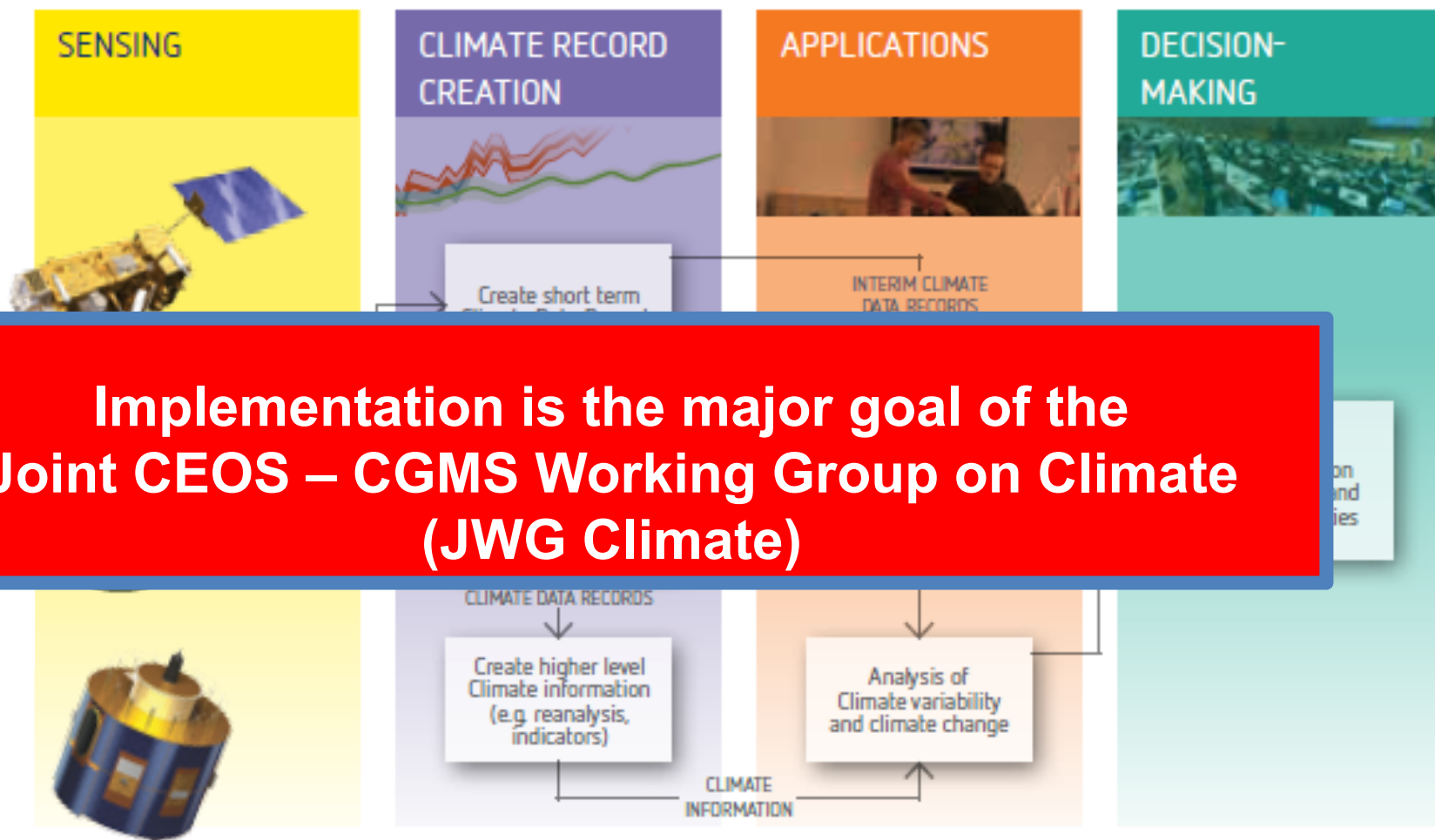
- CEOS Working Group on Climate endorsed at CEOS Plenary in 2010;
- The joint development of the high-level architecture for climate monitoring from space led to the formation of the Joint CEOS/CGMS WGClimate endorsed by CEOS and CGMS Plenaries in 2013:
- Major Task is: Coordinate and encourage collaborative activities between the world's major space agencies in the area of climate monitoring.

JWGClimate

Chair: Pascal Lecomte (ESA)

Vice Chair: Jörg Schulz (EUMETSAT)

The Architecture for Climate Monitoring from Space

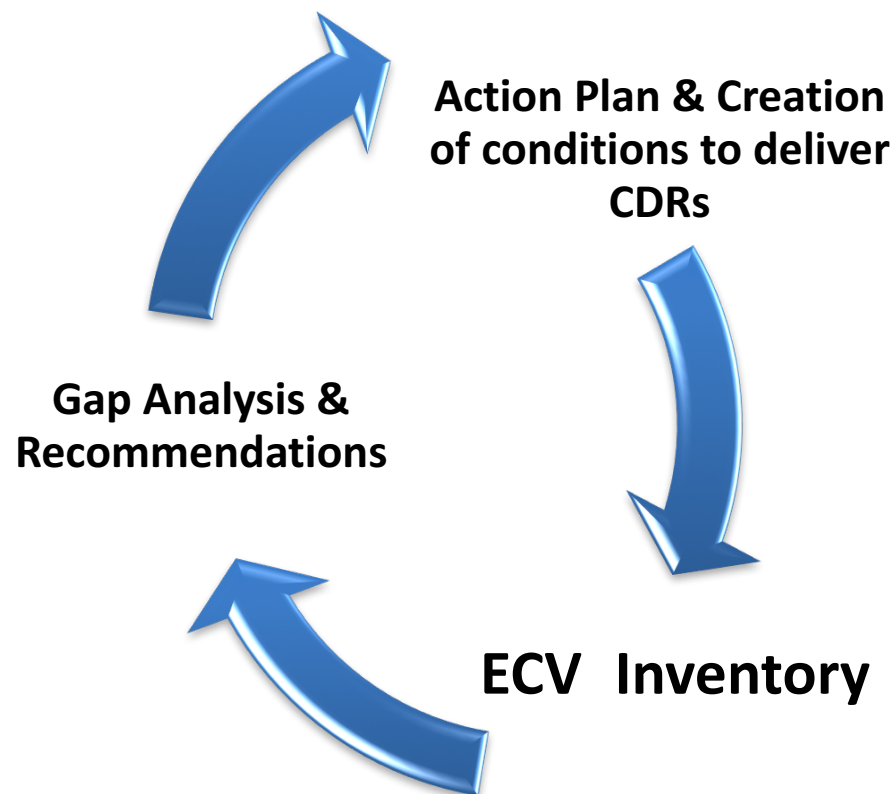


- Provision of a structured, comprehensive and accessible view as to which Climate Data Records (CDR) are currently available and planned from satellite missions of CEOS and CGMS members or their combination;
- Assist in promotion of a common understanding of the implementation implications of meeting the various space-related climate monitoring requirements (e.g. from GCOS);
- Creation of the conditions for delivering further Climate Data Records;
- Optimisation of the planning of future satellite missions and constellations to expand existing and planned Climate Data Records addressing possible gaps with respect to GCOS requirements.

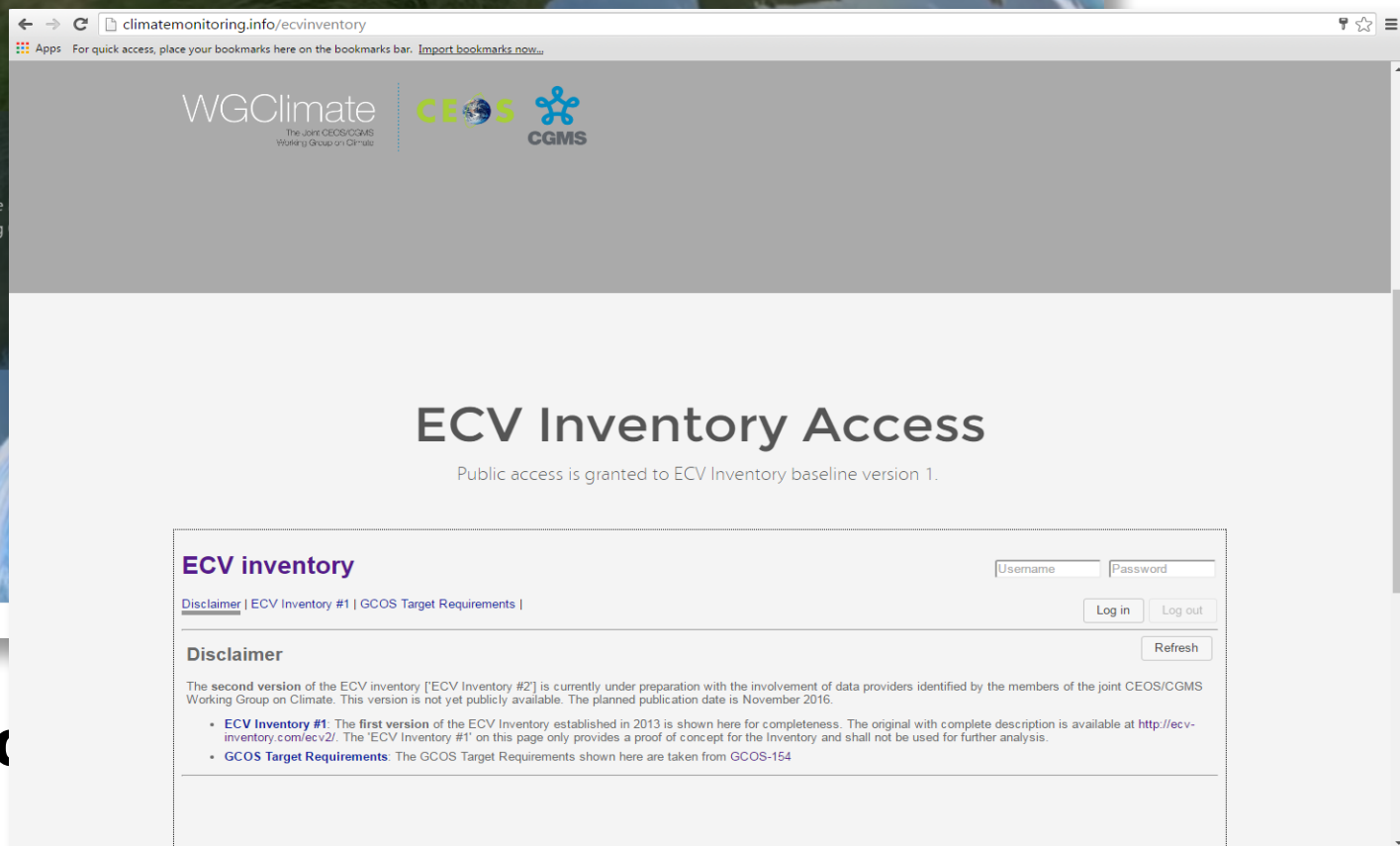
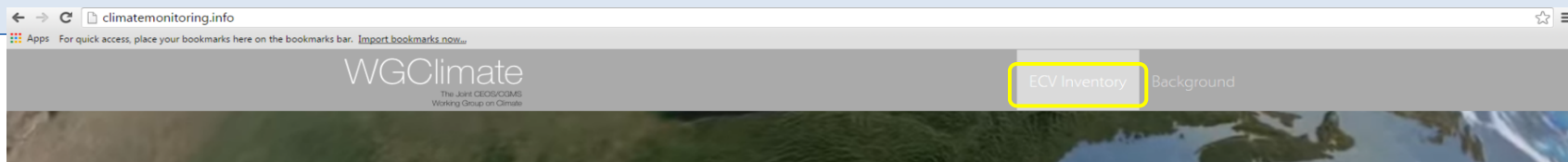
Last Meeting, 7-9 February @INPE, S. José dos Campos (SP, Brazil)

- 7 Feb - Pre-meeting on Space Agency Response to new GCOS IP
 - Clarified the needs/approach for reporting to SBSTA on the response to the GCOS Implementation Plan;
 - Structured the response to the GCOS IP;
 - It was noted that the overall process for updating requirements needs to be improved and structured. Joint WGClimate is engaged with GCOS to define a better process.
- 8-9 Feb 2017 – CEOS-CGMS Working Group Climate, 7th session, INPE,;
 - Representation from INPE, ESA, EUMETSAT, EC, USGS, WMO, NOAA, KMA, NASA, DLR, GEO, ECMWF;
 - Underscored the substantive progress on the ECV inventory population;
 - Discussed and decided way forward ECV Inventory, gap analysis and coordinated action plan for CEOS and CGMS member agencies;
 - Highlighted the ambitious and critical schedule for the gap analysis and action plan;
 - Selected John Dwyer of USGS as vice-chair during the time of EUMETSAT's oncoming chairmanship.

- 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.



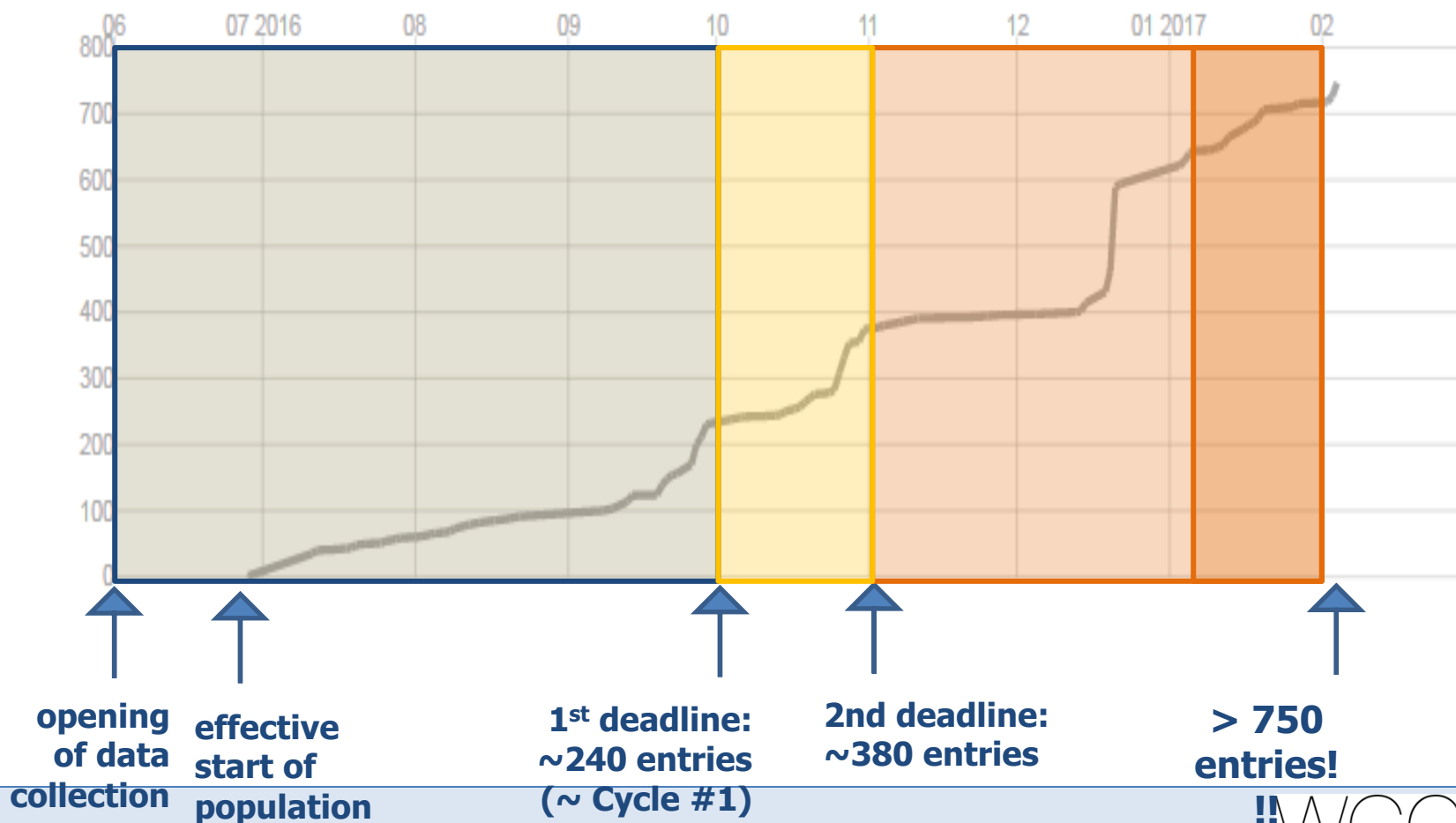
<http://climatemonitoring.info/>



Climatemonitor

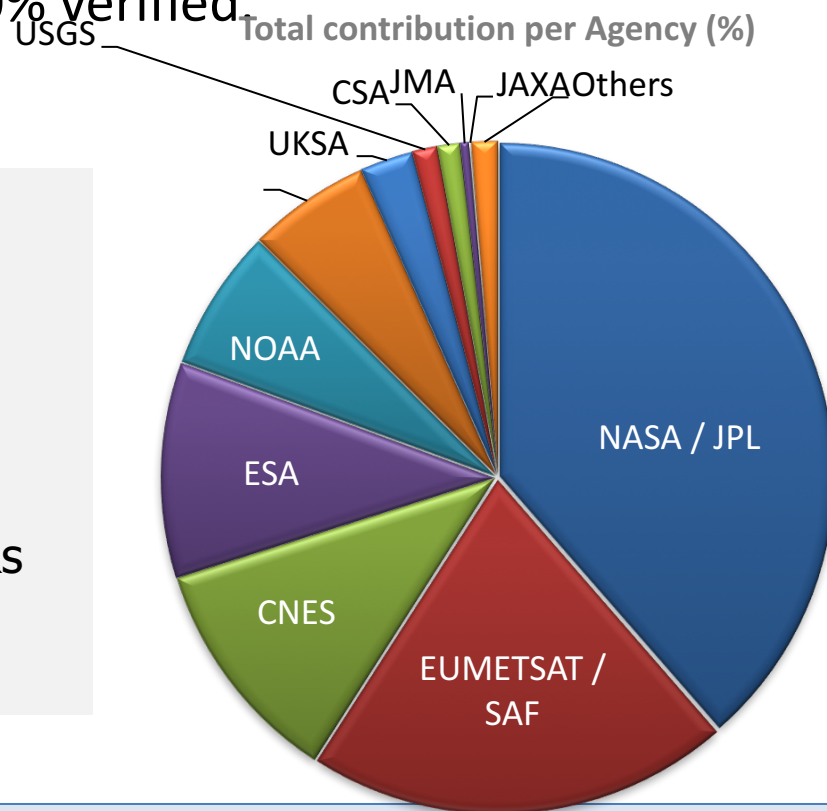
ECV Inventory Status

Number of inventory items



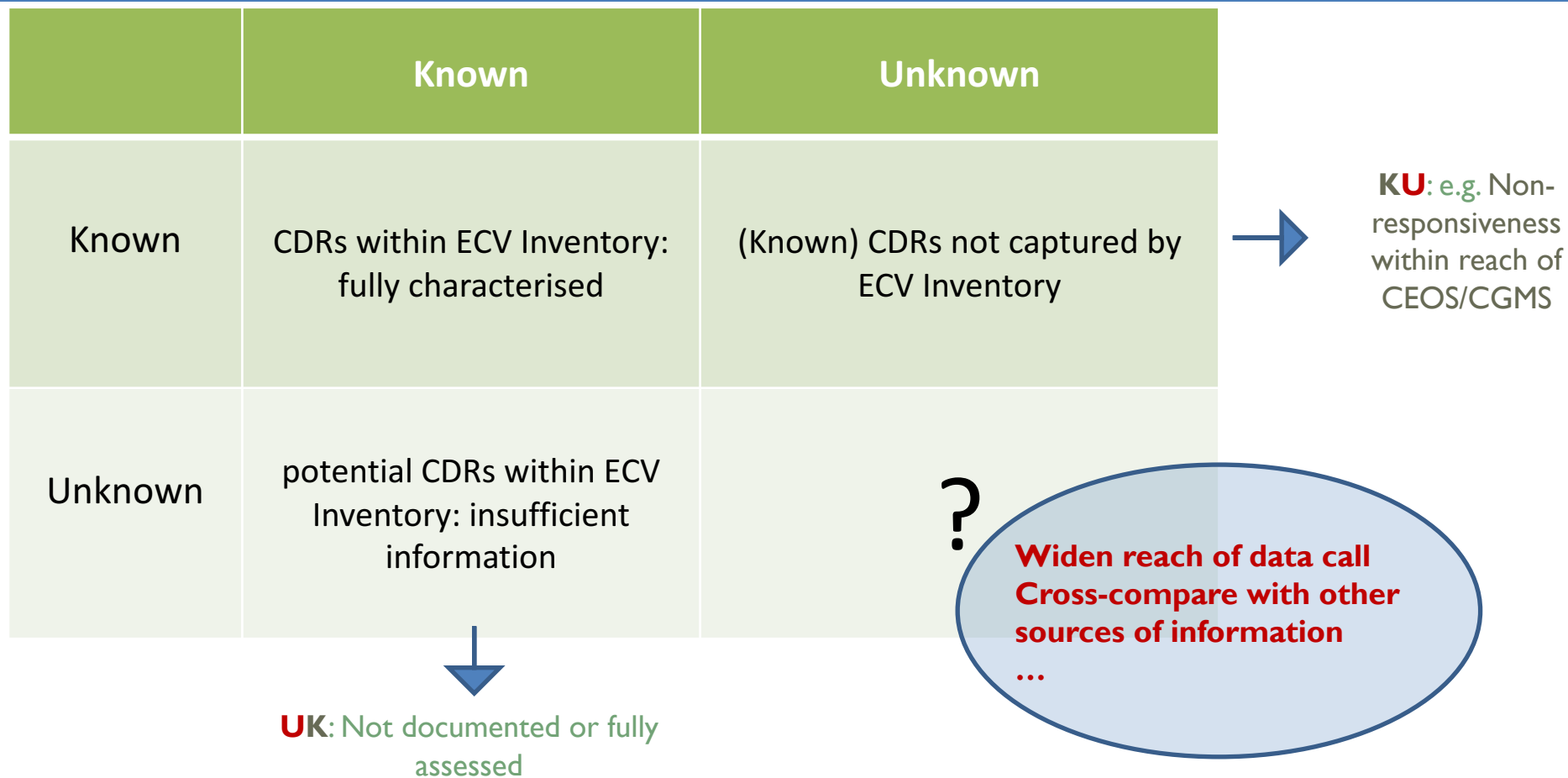
Global partnerships: Architecture for Climate Monitoring from Space

- Architecture on Climate Monitoring from Space
 - Population of web-based Inventory of Climate Data Records (CDRs) of ECVs observable from space completed and 60% verified
 - Prototype gap analysis starting
- 20 CEOS/CGMS Agencies contacted, 18 participated, 11 provided entries;
 - 90 “responders” provided inputs;
 - Number of entries higher than expected
 - 761 entries
 - 518 for existing CDRs, 243 for planned CDRs
 - 81 ECV products for 33 ECVs covered

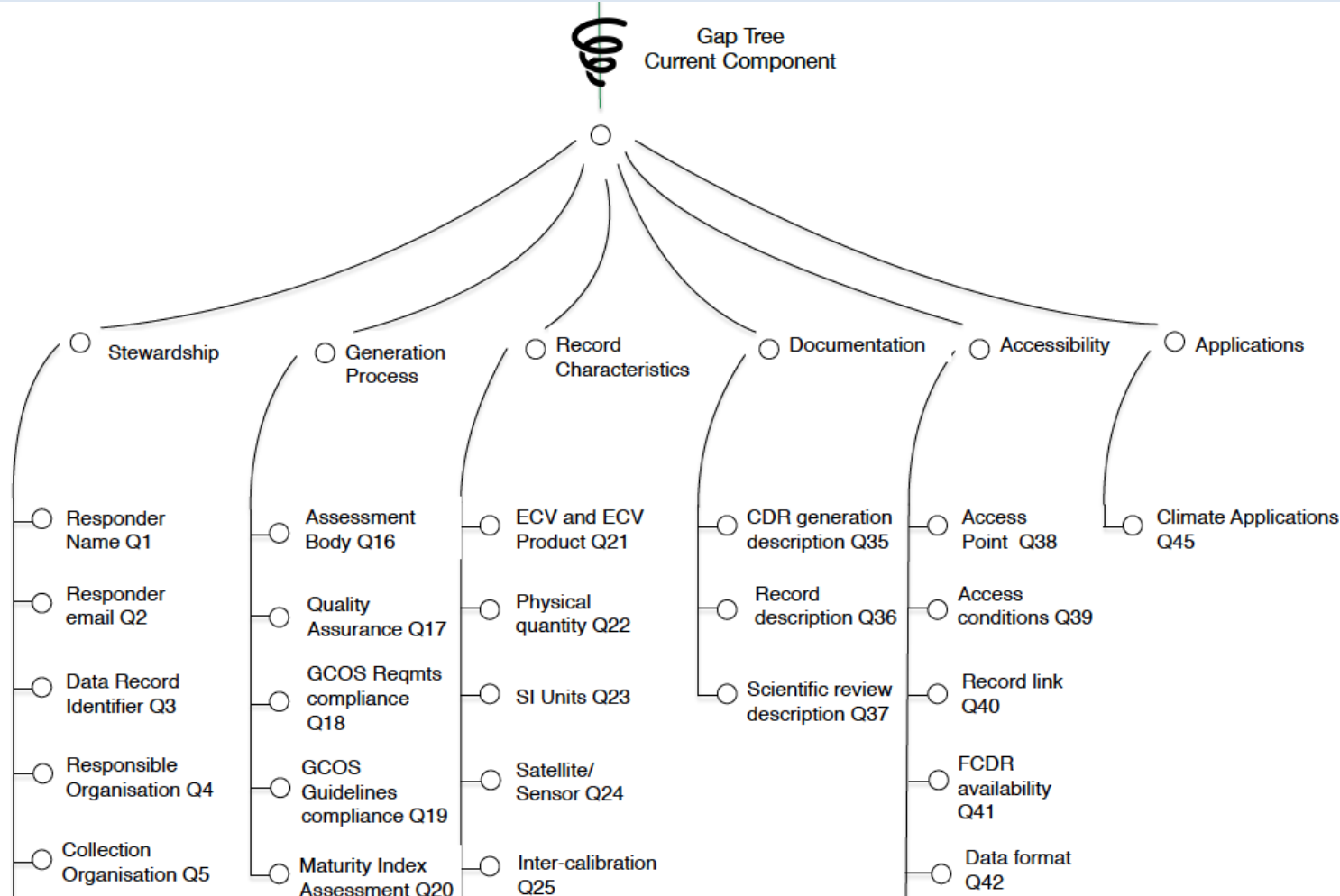


Inherent Uncertainty

“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'

Show 25 entries

Refresh

Excel

CSV

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

Usage → effective observation capability

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						
Show <input type="text" value="25"/> entries				Refresh Excel CSV		
				Search: <input type="text"/>		
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

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Availability → Potential observation capabilities?

Synergies to identify gaps and missed opportunities

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'

Show entries Refresh Excel CSV

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10118	Cloud Top Pressure (CTP)	NOAA-12	HIRS/2	1991-05-01	2007-08-01	Current
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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-11	A/HRR/2	1987-11-17	1991-09-16	Current
10289	Cloud Top Pressure (CTP)	NOAA-11	A/HRR/2	1988-11-08	1994-08-31	Current
10289	Cloud Top Pressure (CTP)	NOAA-11	A/HRR/2	1988-11-08	1994-08-31	Current
10289	Cloud Top Pressure (CTP)	NOAA-15	A/HRR/3	2002-07-25	2016-10-07	Current
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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-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	2006-10-25	2009-12-31	Current
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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?

ADEOS-2	3	2002-12-14	2003-10-25	482
ADEOS-2	3	2002-12-14	2003-10-25	405
ADEOS-2	3	2002-12-14	2003-10-25	216
ADEOS-2	3	2002-12-14	2003-10-25	156
ADEOS-2	3	2002-12-14	2003-10-25	116
ADEOS-2	3	2002-12-14	2003-10-25	27
ADM-Aeolus	4	2016	2019	17
ALOS	5	2006-01-24	2011-04-22	411
ALOS	5	2006-01-24	2011-04-22	387
ALOS-2	6	2014-05-24	2019	944
ALOS-2	6	2014-05-24	2019	388
ALOS-3	7	2019	2026	946
ALOS-3	7	2019	2026	945
AlSat-1	8	2002-11-28	2010-08-15	513

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Other Tables Administration Search

Satellites and Instruments ECVs

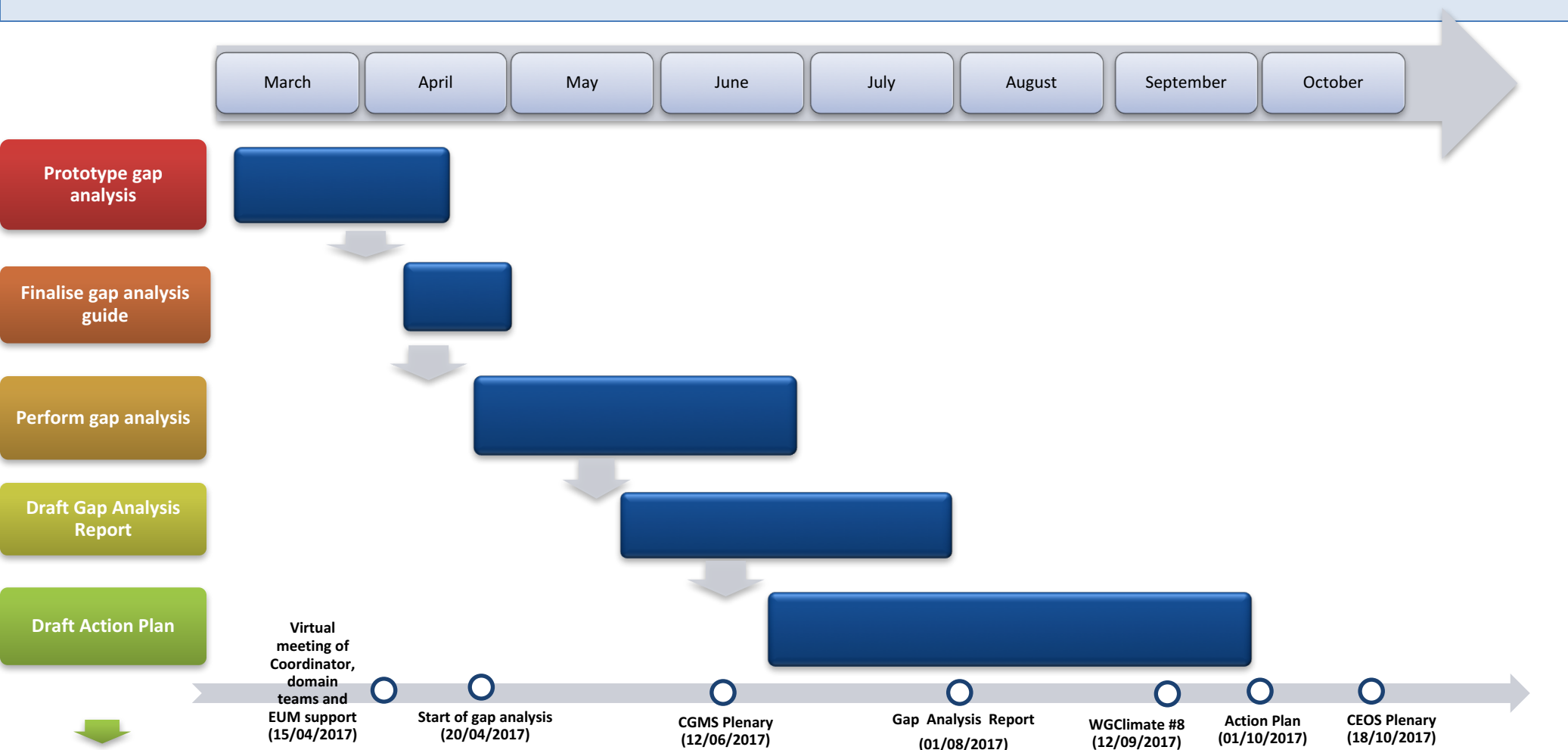
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Search:

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	Retroreflector In Space
MODIS	Moderate Resolution Imaging Spectroradiometer
OC2S	Ocean Color and Temperature Scanner
AMG	Advanced Microwave Geophysical Imager
IMG	Interferometric Monitor for Greenhouse gases
LAS-I	Improved Limb Atmospheric Spectrometer - I
AVNIR	Advanced Visible and Near-Infrared Radiometer
SeaWinds	SeaWinds Wide Swath Scatterometer
POLDER	Polarization and Directionality of Earth's Reflectances
ILAS-II	Improved Limb Atmospheric Spectrometer - II
GLI	Global Imager
DCS	Dual Channel Scatterometer
AMSR	Advanced Microwave Scanning Radiometer
ALADIN	Advanced Light Detection and Ranging
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

WMO OSCAR
Availability → Potential observation capabilities?

Planned timeline to end cycle #2



Summary

- The joint CEOS/CGMS WG Climate is working in parallel on providing structured response to the GCOS-IP and finishing cycle#2 ECV Inventory, gap analysis and action plan;
- The inventory of ECV Climate Data Records is a verified source of information allowing the analysis of gaps and formulation of coordinated action by assessing content against GCOS principles, guidelines and requirements;
- The ECV Inventory also will offer a public source of verified information on CDRs for anybody and should be useful for selection of satellite data records for activities such as climate services and obs4mips;
- For cycle#3 extension of the inventory towards FCDR and CDR Interim are planned.