

ECV Data Access in the ESA Climate Change Initiative (CCI)

Copernicus Climate Data Store Workshop, 3–6 March 2015
















Ed Pechorro, Simon Pinnock & Pascal Lecomte

ESA Climate Office, Harwell, UK

1. Objective of the Climate Change Initiative (CCI)
2. CCI Data Access Portal
3. CCI Toolbox

To realize the full potential of the long-term global Earth Observation archives that ESA together with its Member states have established over the last thirty years, as a significant and timely contribution to the ECV databases required by United Nations Framework Convention on Climate Change (UNFCCC).









[CCI Phase I SoW]

- Aerosol CCI 
- Cloud CCI 
- GHG CCI 
- Ozone CCI 
- SST CCI 
- Sea Level CCI 
- Ocean Colour CCI 
- Sea Ice CCI 
- Glaciers CCI 
- Ice Sheets Greenland CCI 
- Ice Sheets Antarctic CCI 
- Land Cover CCI 
- Fire CCI 
- Soil Moisture CCI 
- CMUG 

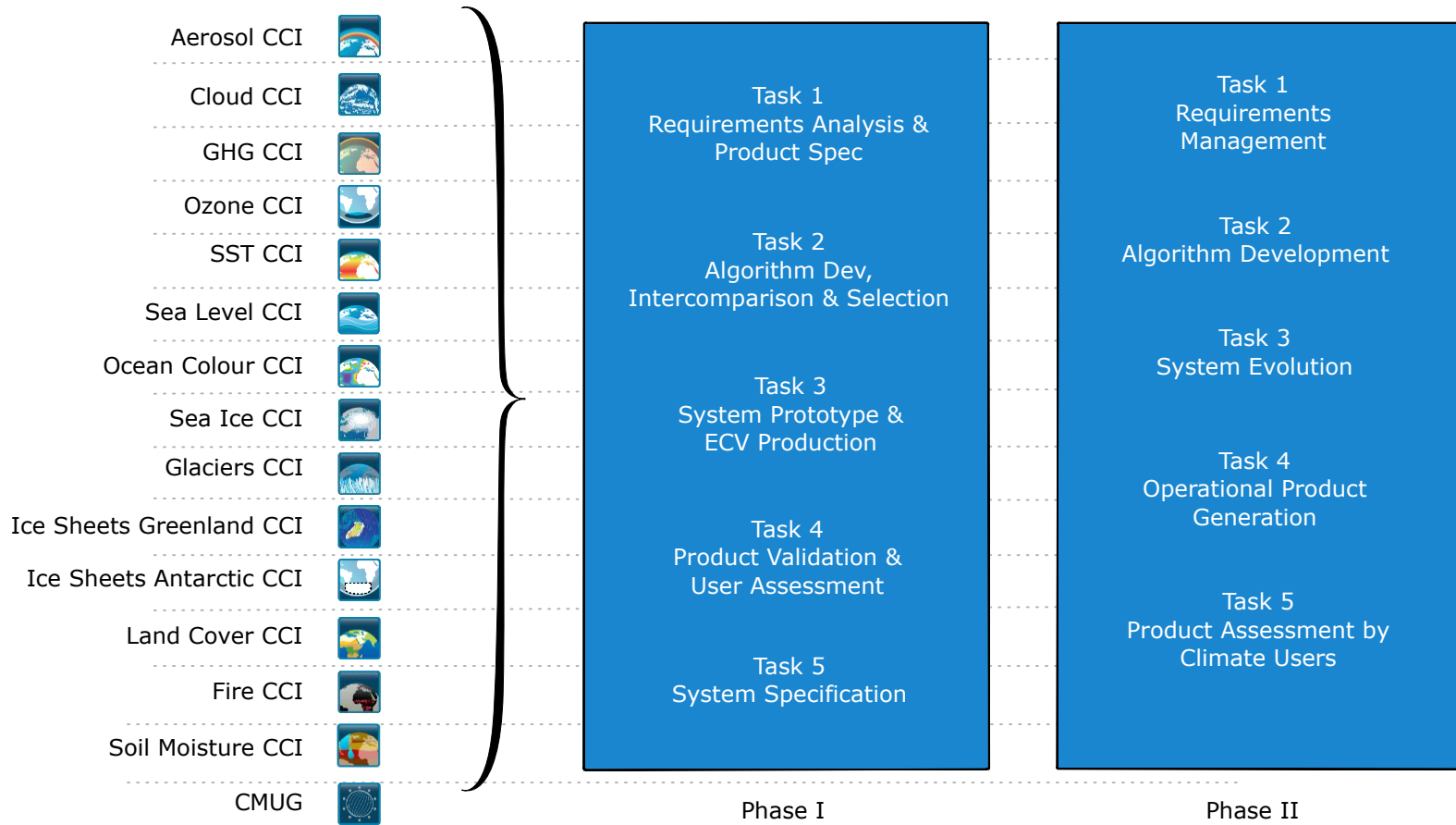
13 GCOS ECVs
35 GCOS Parameters

CCI – Project per ECV

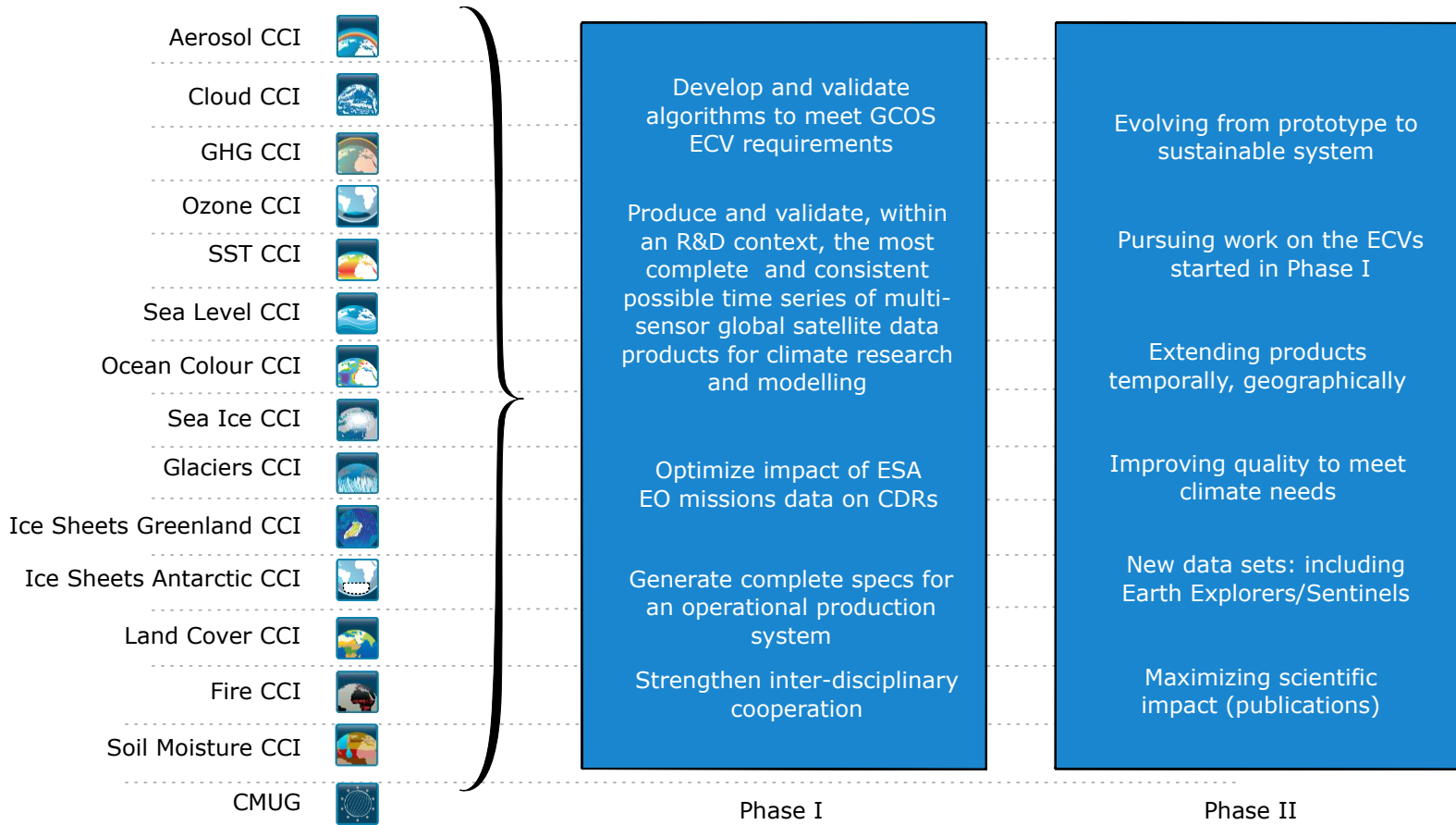


		prime contractor	web site
Aerosol CCI		DLR (D)	www.esa-aerosol-cci.org
Cloud CCI		DWD (D)	www.esa-cloud-cci.org
GHG CCI		U. Bremen (D)	www.esa-ghg-cci.org
Ozone CCI		BIRA-IASB (B)	www.esa-ozone-cci.org
SST CCI		U. Reading (UK)	www.esa-sst-cci.org
Sea Level CCI		CLS (F)	www.esa-sealevel-cci.org
Ocean Colour CCI		PML (UK)	www.esa-oceancolour-cci.org
Sea Ice CCI		NERSC (N)	esa-cci.nersc.no
Glaciers CCI		U. Zurich (CH)	www.esa-glaciers-cci.org
Ice Sheets Greenland CCI		DTU Space (DK)	www.esa-icesheets-cci.org
Ice Sheets Antarctic CCI		U. Leeds (UK)	www.esa-icesheets-cci.org
Land Cover CCI		UCL (B)	www.esa-landcover-cci.org
Fire CCI		UAH (E)	www.esa-fire-cci.org
Soil Moisture CCI		TU Wien (A)	www.esa-soilmoisture-cci.org
CMUG		Met Office (UK)	www.esa-cmug-cci.org

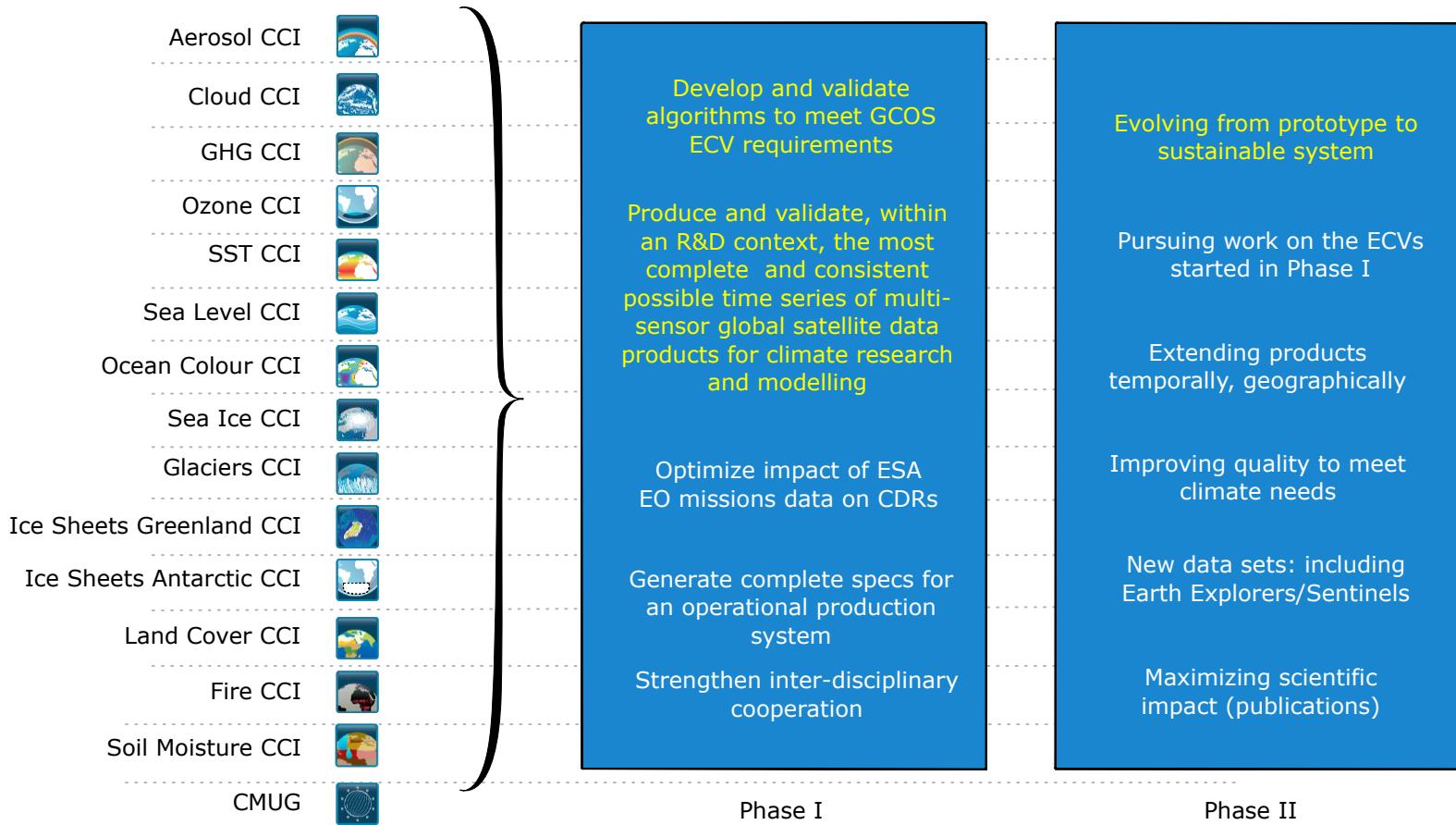
CCI – Common Phases & Tasks



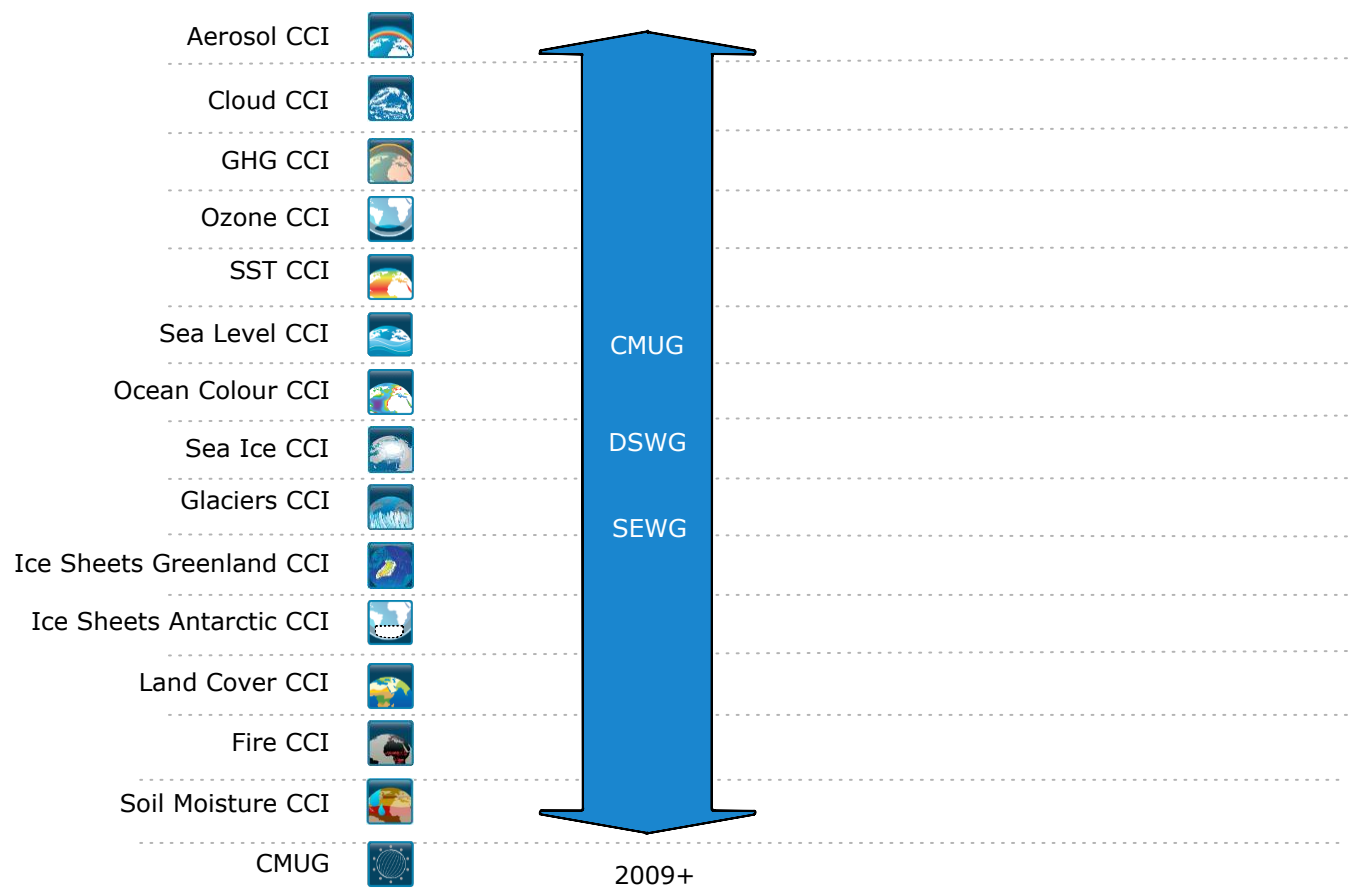
CCI – Common Cardinal Requirements



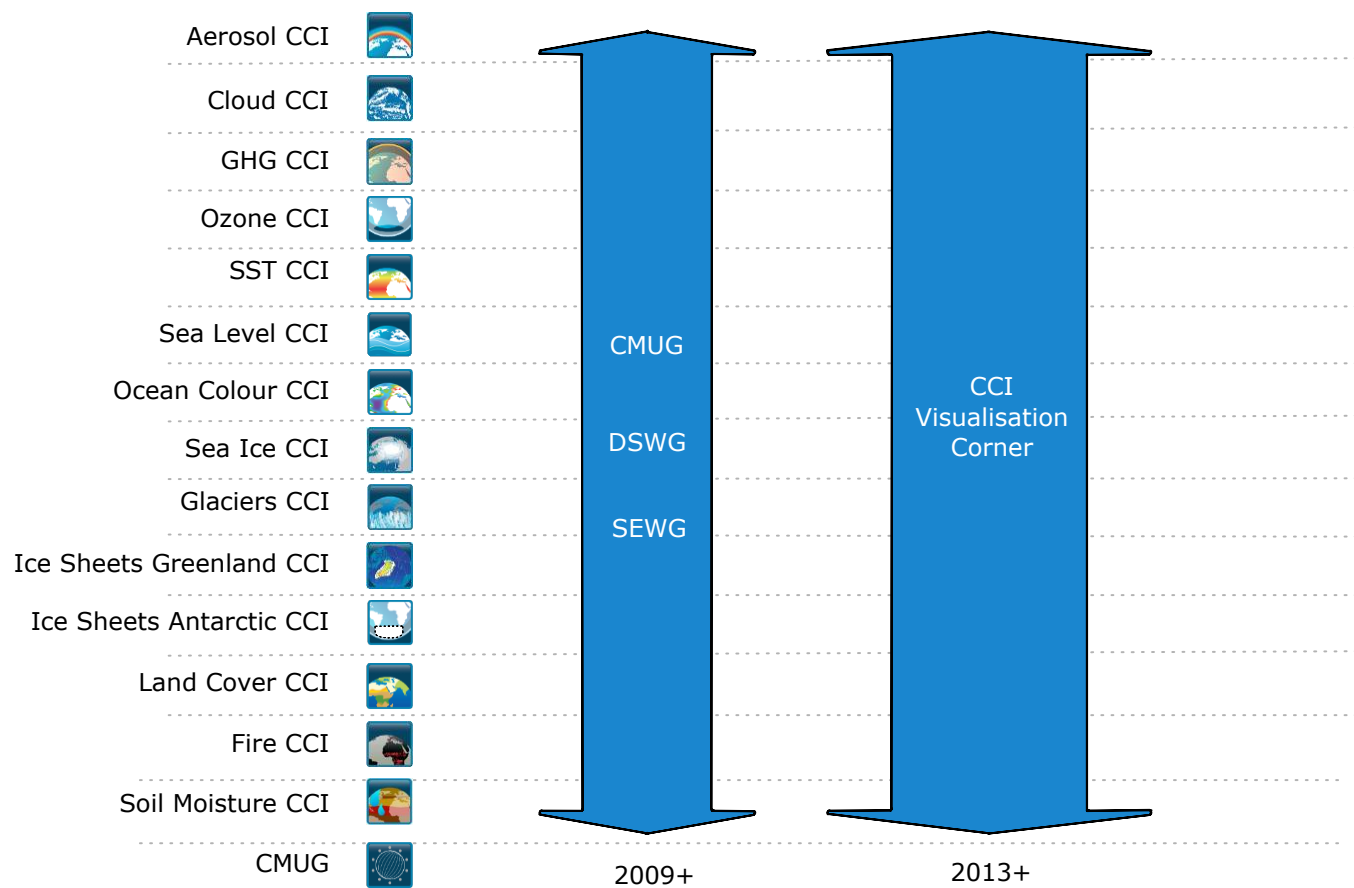
CCI – Common Cardinal Requirements



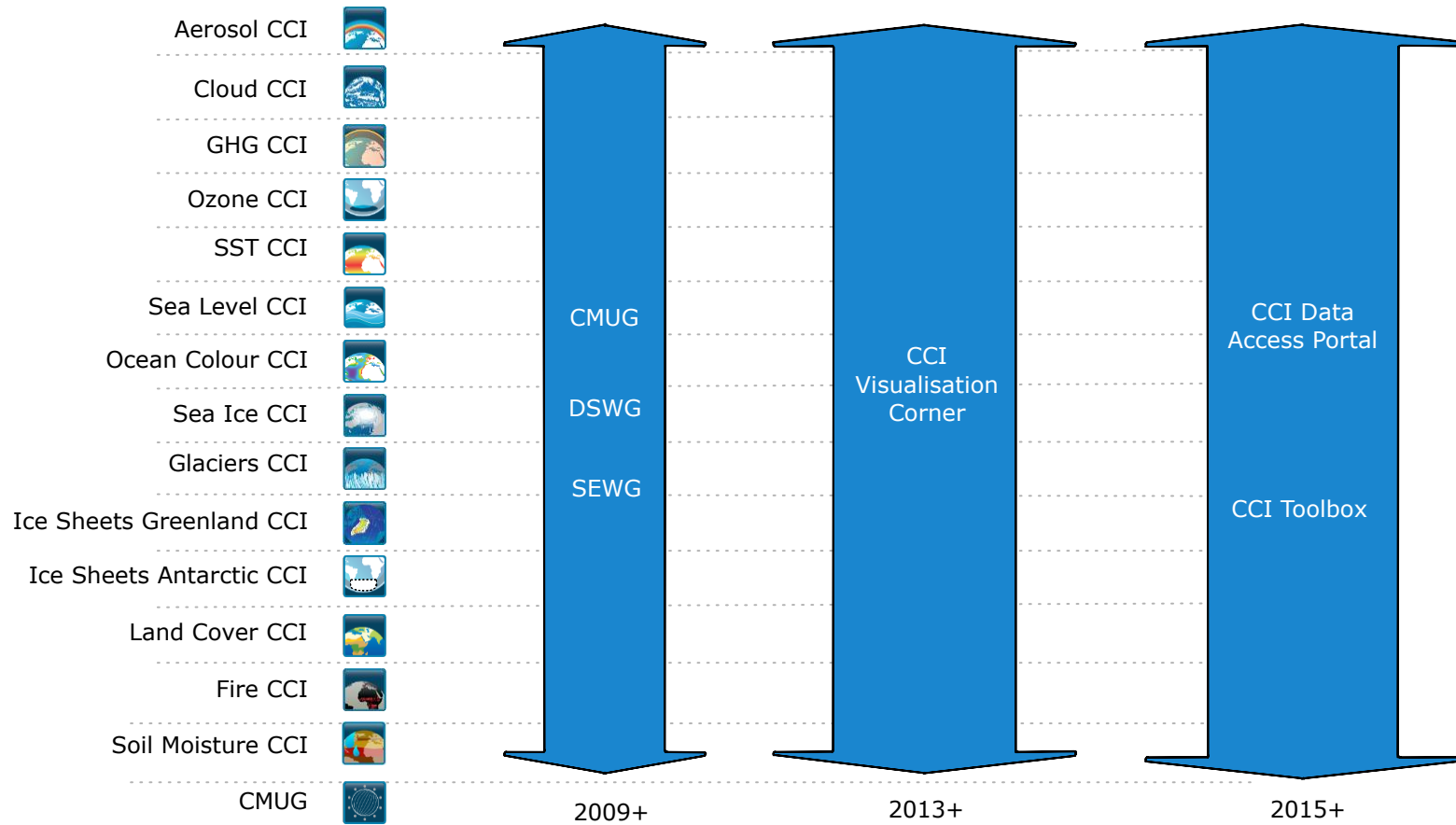
CCI – Cross-ECV Activities



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CCI ECV Data Access - Currently



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Cloud CCI		www.esa-cloud-cci.org	
GHG CCI		www.esa-ghg-cci.org	
Ozone CCI		www.esa-ozone-cci.org	
SST CCI		www.esa-sst-cci.org	
Sea Level CCI		www.esa-sealevel-cci.org	
Ocean Colour CCI		www.esa-oceancolour-cci.org	
Sea Ice CCI		esa-cci.nersc.no	
Glaciers CCI		www.esa-glaciers-cci.org	
Ice Sheets Greenland CCI		www.esa-icesheets-cci.org	
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CMUG		www.esa-cmug-cci.org	

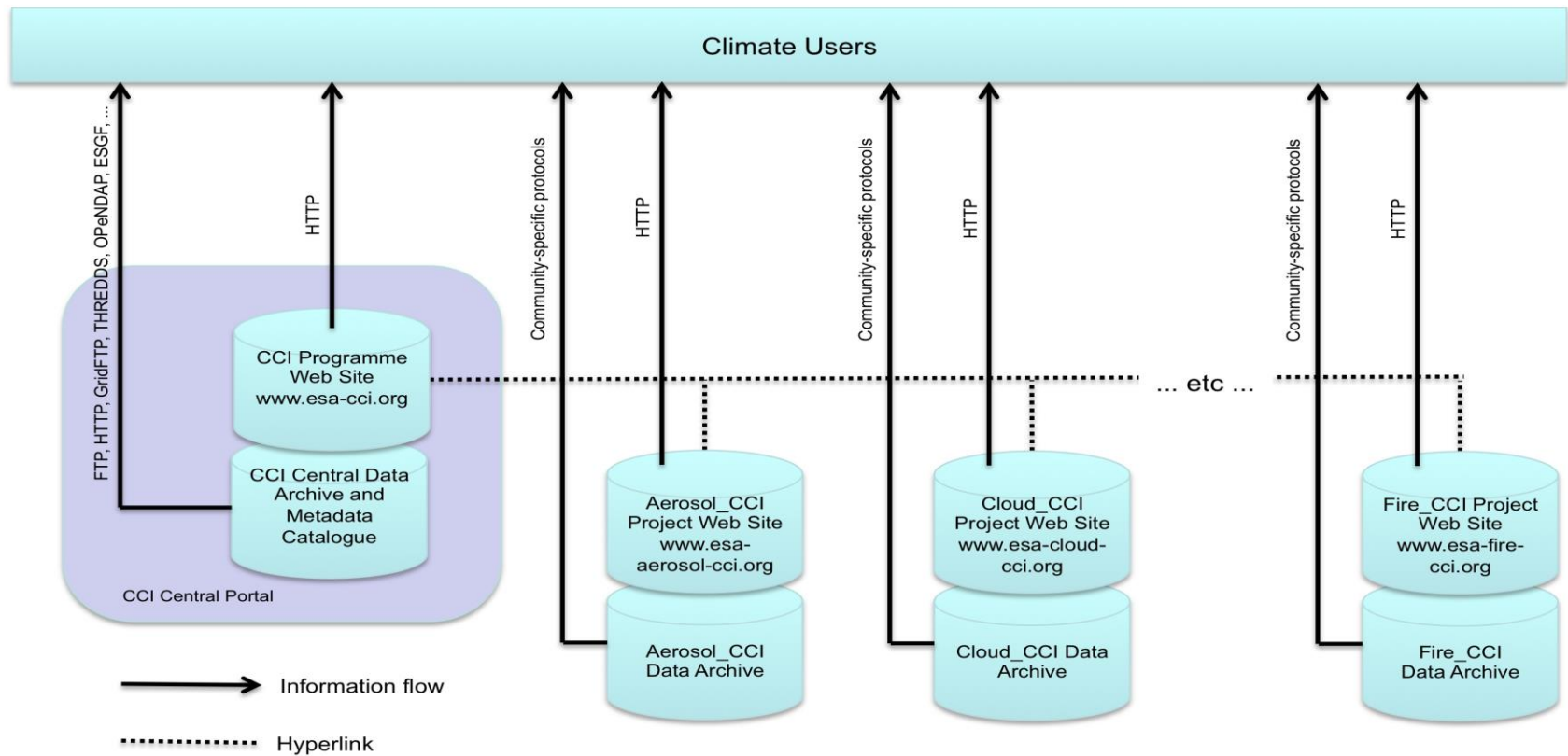
2009+
14 CCI ECV project portals
1 main CCI project portal

2014 - 2015+
Emerging need for cross-CCI-ECV analysis,
single point of ECV data
product access

- To satisfy climate users' needs for a **single point of harmonised reliable access** to the subset of mature and validated ECV data products delivered by the CCI programme that are of main interest to the climate users.
- To ensure the ECV data products and other results of the CCI programme are provided to users in a **consistent and complementary** way to other key initiatives, such as the **Copernicus Climate Change Service (CCCS)** and the international Global Climate Observing System (GCOS).
- To provide the **primary communication and promotion** web site for the ESA CCI programme.
- To gather and examine user requirements for a potential **Thematic Exploitation Platform for Climate**.

- **International climate research community** contributing to IPCC scientific assessments, including climate model development, verification and data-assimilation, and scientists performing research on climate change monitoring, detection, attribution and mitigation.
- **Climate service developers and providers**, to support in their development and provision of climate services.
- **Earth system reanalysis community**, for use in reanalysis model development, verification and data-assimilation.
- **General public**, for access to general information about the CCI programme and success stories. The general public should also in principle have access to all climate data sets hosted, although it is unlikely that they will be major users of these data sets.

CCI Data Access Portal – System



- Improvement and operation of the **CCI programme web site**.
- Development, implementation and operation of a **CCI Central Data Archive and Metadata Catalogue**.
- Development, implementation and operation of **interfaces** to access ECV data and metadata from the CCI Central Data Archive and Metadata Catalogue.
- Support to CCI projects to facilitate the contribution of CCI data to the international **Obs4MIPs** initiative of the CMIP community, and assignment and management of **Digital Object Identifiers**.
- Improvement of the common elements of the design of the **CCI project web sites**, and assistance to the project teams to implement these improvements and maintain their CCI web sites.
- User requirements analysis of a **Thematic Exploitation Platform for Climate**.
- **Option** - Online ECV data visualization, analysis and processing tools

Schedule:

- 19 Sep 2014 – ITT issued on EMITS
- 19 Nov 2014 – ITT closed
- Dec-Feb – Proposal evaluation
- ~Mar 2015 – Contract negotiation & KO (3 yr project)
- ~June 2015 – First version of data access portal online (FTP)

Budget:

- 750k€ + up to 250k€ for optional online tools

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1. *Ingest different ECV products into a common data model.* Although in principle the CCI community largely adhere to a common NetCDF-CF file format tailored to fit all CCI ECVs, the ingestion of all CCI ECV types into a single common data model will be non-trivial. ECV data products differ significantly in their structure, spanning a variety of vector and scalar representations and differing dimensionality. Moreover, syntactic and semantic idiosyncrasies across data records spanning different ECV types exist. The CCI Toolbox shall include a common data model for ECV data products and the means to ingest any CCI ECV data product into the model.
2. *Compute algorithms homogeneously across a common data model.* The CCI Toolbox shall include functions, or *Processors*, each homogeneously applicable to any ECV data product. Baseline requirements for these processors are contained herein, with the complete set of processors to be specified and developed by the Contractor after a user consultation.
3. *Support ECV analysis and visualisation.* The CCI Toolbox shall provide a means to visualise and analyse the output from Processors. The toolbox shall also provide the means to reapply this output, including its analysis by the user, as new input back into Processor(s). The toolbox shall also make all output from Processor(s), together with the analysis conducted by the user, exportable to a variety of file types.

[CCI Toolbox SoW. ITT released Feb 27th 2015. Available on EMITS]

http://emits.sso.esa.int/emits/owa/emits_online.showao?actref=14.155.05&type=mail

1. *International climate research community* contributing to IPCC scientific assessments, including climate model development, verification and data-assimilation, and scientists performing research on climate change monitoring, detection, attribution and mitigation. This includes (but is not limited to) the CCI Climate Modelling User Group (CMUG) and the Climate Research Groups (CRG) within each CCI ECV project.
2. *Earth system science community* working at a higher level than individual climate indicators, interested in Earth processes, interactions and feedbacks involving a fusion of theory, observations and models to which ECVs can play a role. [...]
3. *Climate service developers and providers*, for use in the development and provision of climate services. The provision of climate services is outside the scope of the CCI programme, nevertheless the Agency aims to proactively support parties involved in the development and provision of such services.
4. *Earth system reanalysis community*, for use in reanalysis model development, verification and data-assimilation.
5. *International bodies* responsible for climate change policy making and coordination of climate change measurement, mitigation and adaptation efforts, including UNFCCC, CEOS, IPCC, and COP participants.
6. *Undergraduate and postgraduate students* with an academic interest in climate change. Sustained and dedicated actions to generate and disseminate a substantial volume of effective communication and educational materials on the specific subject of Earth Observation and Climate Change to a wider audience are required by the Agency. The CCI Toolbox shall support this endeavour.
7. *Knowledgeable public*, for access and interaction to the latest scientific data on climate change.

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Schedule:

- 27 Feb 2015 – ITT issued on EMITS
- 30 Apr 2015 – ITT closes
- May-Jul – Proposal evaluation & contract negotiation
- ~Sep 2015 – KO (3 yr project)

Budget:

- €1m

Thank You

Ed Pechorro, Simon Pinnock & Pascal Lecomte
ESA Climate Office, Harwell, UK
ed.pechorro@esa.int