

Copernicus Climate Change Service (CCCS)

Status and Progress since last workshop

Involvement and support from the Community

- 1st CCCS workshop (17-18 February 2014)
 - High level recommendations fed into the Expression of Interest (including vision paper) sent by ECMWF on 28 February 2014
- Establishment of an expert team to support ECMWF in further defining content of the CCCS
 - First meeting: 21-22 May
 - Second meeting: 12 June (mainly via telecon)
- 2nd CCCS workshop (25-26 June 2014)
- In parallel, general forum and communication links established with our member states

European Climate Change Community ecosystem

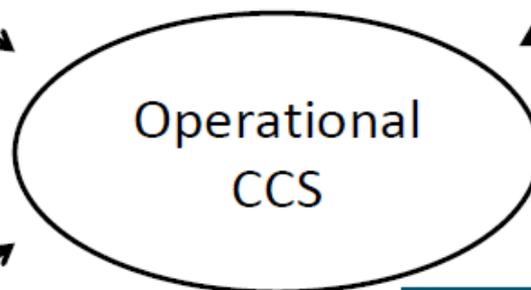
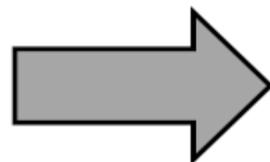
We do not start from scratch in user requirement analysis



European Environment Agency



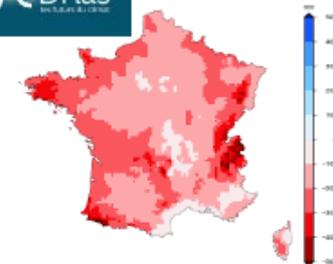
CHARME
CLIP-C
ERACLIM2
EUCLEIA
QA4ECV
UERRA



IS-ENES
ECLISE
CLIMRUN
SPECS
EUPORIAS
IMPACT2C



OASIS
E3P
ATLA
CDF
...



National/regional centers/platforms

CCCS vision

**Monitoring/
Reanalysis**

**Detection/
Attribution**

**Prediction/
Projection**

Past

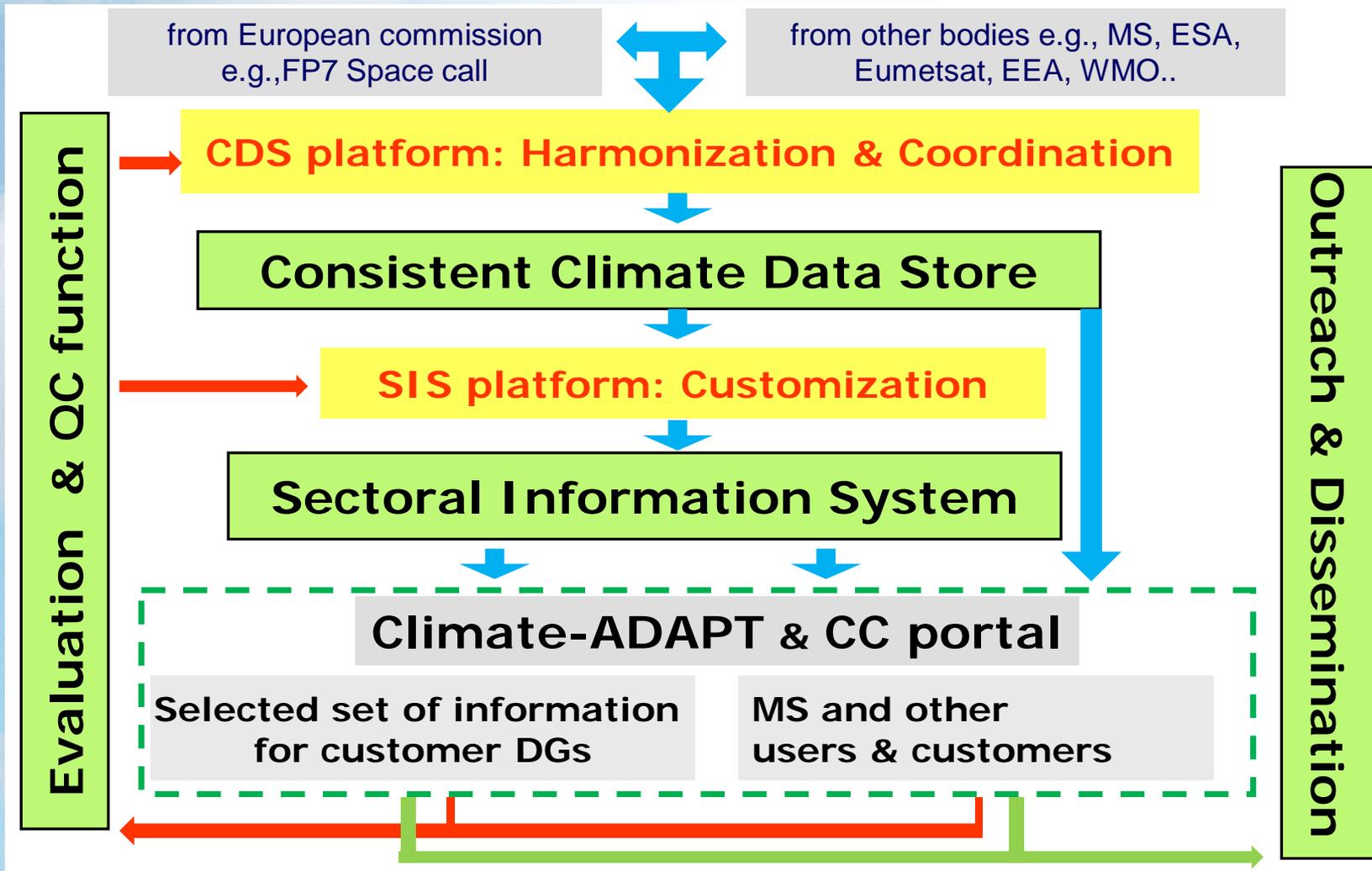
Present

Future

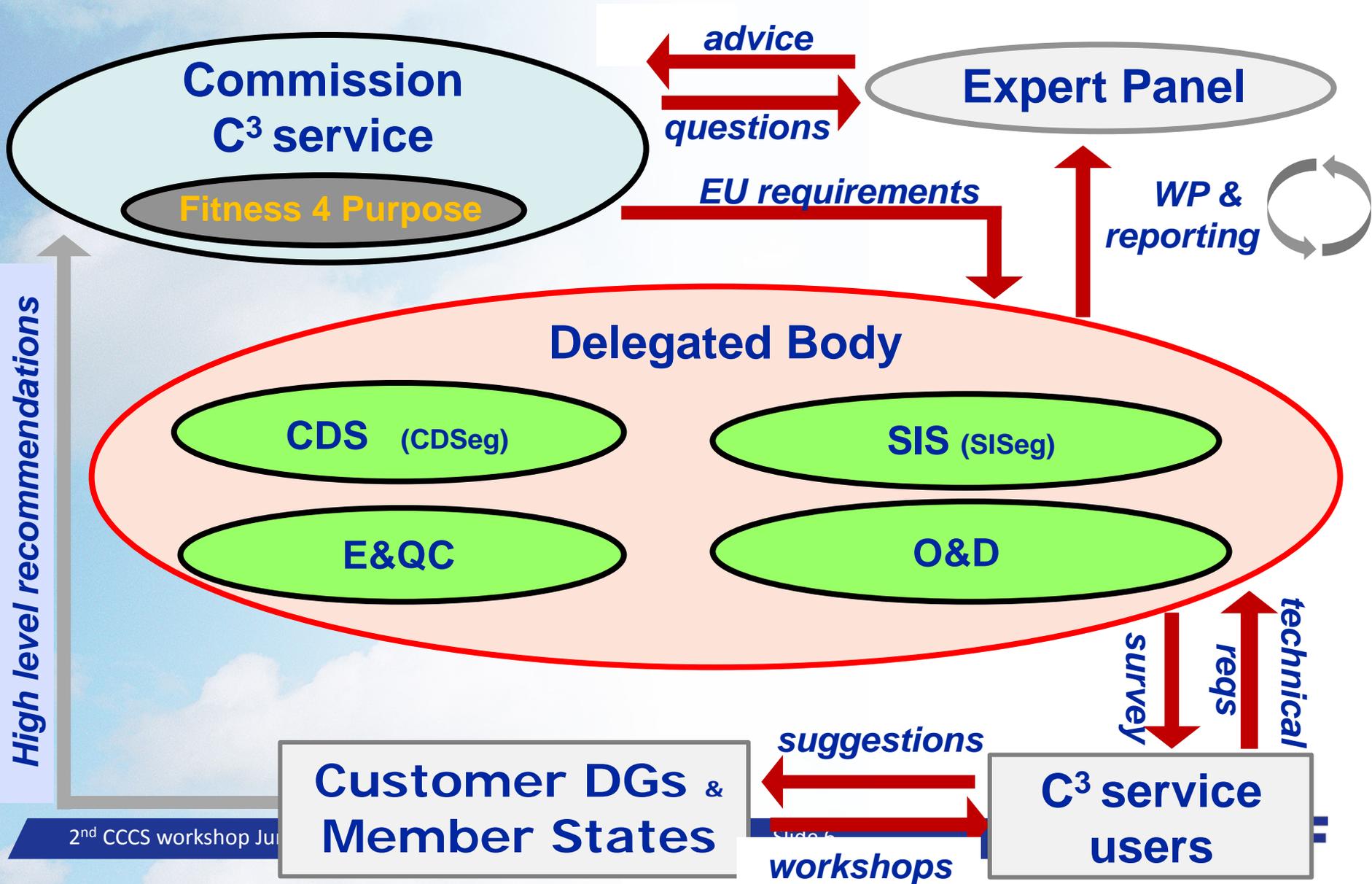
**To be an authoritative source of climate
information for Europe**

Complementarity with national services

High Level architecture of the CCCS



Climate Change service high level interactions



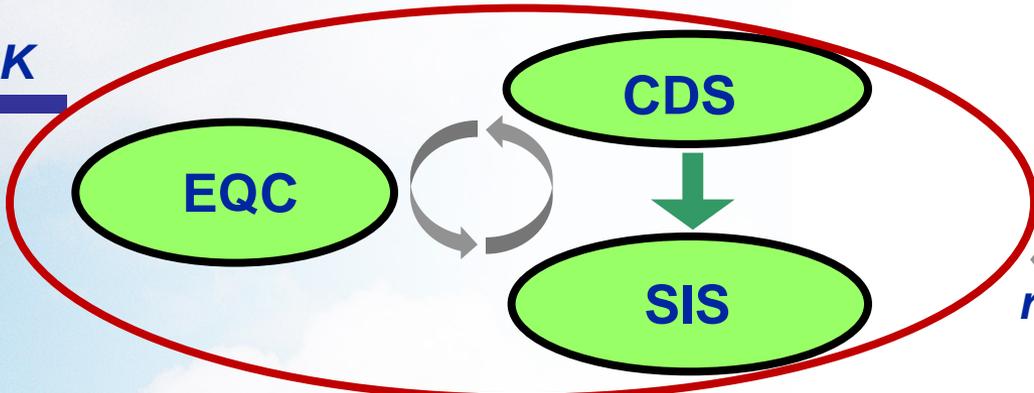
Communication channels



WP
(n+1) + AAR
(n)



if not OK



technical requirements

if OK

high level
recommendations

Customer DGs &
Member States



CCC Service: Overarching considerations

- CCCS will serve primarily:
 - the European Commission (e.g. DG-CLIMAT, EEA Climate-ADAPT,...)
 - The science community
 - National/regional climate service providers (from which national governments will get their services)
- CCCS will also serve institutional users operating at European and international level
- CCCS will serve users downstream through high quality generic provision of (free and open) data and tools
- CCCS will promote good practices in data usage
 - Uncertainties, traceability, maturity, etc.

CCCS Service elements: Climate Data Store

- Main constraints/considerations on architecture:
 - Take stock of existing facilities
 - Distributed architecture
- See Baudouin Raoult's presentation
- Elements:
 - Hardware (HPC+DHS+Network+Servers+Cache)
 - Technical support for Hardware
 - Data acquisition and archiving
 - Product development (customization, web services)
 - Dissemination tools and facilities

CCCS Service elements: Climate Data Store (II)

- Series of ECV datasets and climate indicators
 - Observed, reanalysed and simulated
 - Relevant to support adaptation/mitigation policies at European level
- More specifically:
 - Climate reanalyses (global & regional; monitoring and production)
 - Climate projections (global & regional; support for coordination)
 - Multi-model seasonal forecast products (global; support for downscaling activities)
 - Climate observations (homogenization, data rescue, reprocessing)
 - ECV datasets (CCI liaison and transfer, EUMETSAT SAFs, others,...)

CCCS Service elements: Sectoral Information System

- Tailored indicators for prime users:
 - CLIMATE-ADAPT, institutional users at European level,...
 - Science users, innovation and business development
- Toolbox development in support of sectoral applications
- Per sector (up to ~10 by 2020):
 - User engagement: build upon current expertise/projects: EUPORIAS, CLIM-RUN, DEWFORA, ECLISE, and initiatives: Climate-Kic, JPI-Climate,..
 - Product development (customization)
 - Tailored indicators, probabilities of events, etc.
 - In support of research on attribution, impacts, etc.
 - Data acquisition and monitoring (including ancillary data –e. g. socio-economic datasets)
 - Events, case studies, fact sheets,..
 - User support and outreach

CCCS Service elements: Evaluation and Quality Control

- User engagement:
 - workshops, surveys, reports,...
 - User forum to ensure interaction and capacity building
- Continual evaluation of CCCS products and services
 - Translation of user requirements into technical specifications
 - Identification of gaps in the Service (decadal prediction?)
 - Provision of guidance on dataset resolution requirements
 - Recommendations for new service components
 - Liaison with research programmes (H2020, others)
 - Strong interaction with CDS & SIS (multi-disciplinarity)
 - Scientific and technical assessments
- Support for expert groups (CDSeg, SISeg, expert panels...) and link with the EU F4P (Fitness for Purpose) function

CCCS Service elements: Outreach and dissemination

- Website development and maintenance
 - Coherence throughout the CCCS, interfaces between pillars, etc.
- Publicity:
 - all media, e.g. press, newsletters, climate impact visuals, twitter..
 - Annual State of Climate for Europe (“a la BAMS”)
 - Go global?
- Coordination with national outreach efforts
- Liaison with public authorities
 - Market/communicate CCCS products
- Events (conferences, seminars, summer schools, ..)
- Training and educational material, Apps, etc.

Role of ECMWF (I):

ECMWF's activities will be based on exploiting what it currently does that is CCCS relevant:

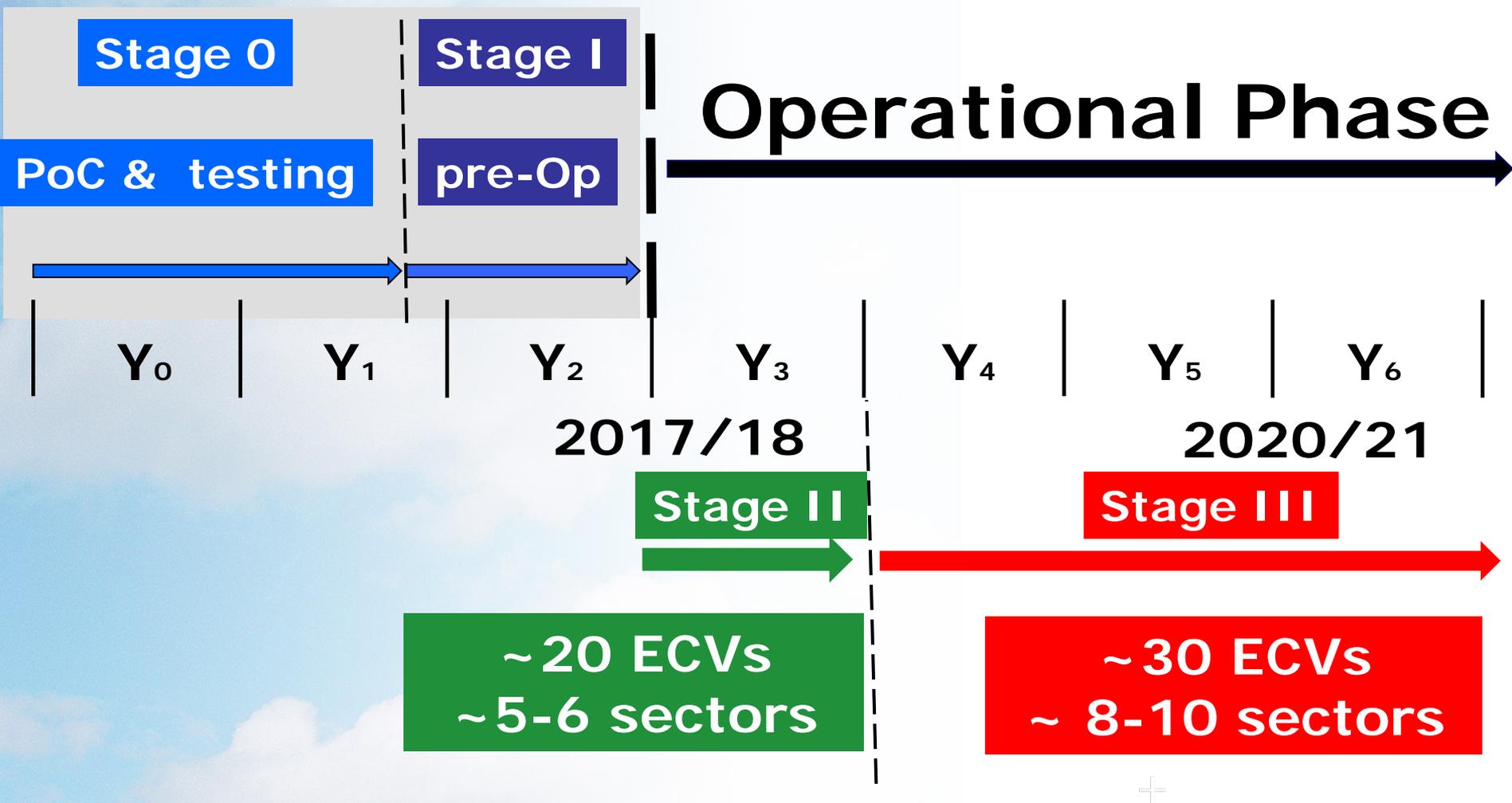
- Contribution to the CDS

- Provision of a basic infrastructure (HPC, Archive and Network, brokerage) for the Climate Data Store, including support and services
 - Support evolution towards distributed platform, liaison with WIS, ESGF, WMO GFCS, etc.
- Support for integration of climate products into the CDS
- Support for the production of **global reanalysis**
- Support for **seasonal forecasts** activities to the level required by the CCCS, in particular monitoring, diagnostics, tailored multi-model products and associated technical developments...

Role of ECMWF (II):

- Support the EQC function in the area of user engagement (**workshops**, surveys,..) and limited internal evaluation of the CCCS products and services (liaison with SIS)
- Contribution to the outreach and dissemination platform in the area of **website** development and maintenance, exposure to **media** and **organisation of events**
- Sectoral Information System would be completely outsourced
 - Interaction via the EQC platform

Indicative timeline for implementing the CCCS



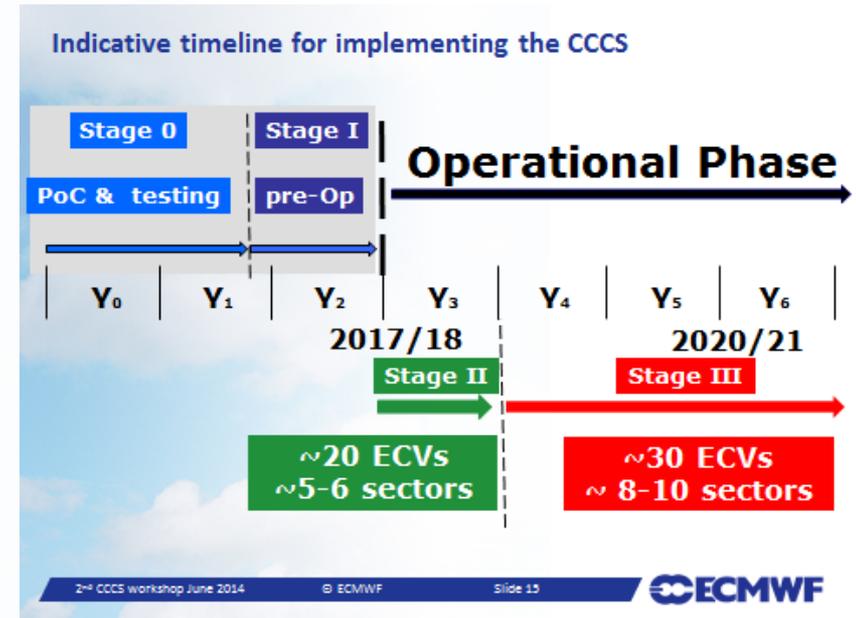
Timeline

- The first 18 months-2 years (Stage 0) will be dedicated to proof of concept of the Service

- Building the CDS infrastructure
- Testing the mechanics of the CCCS
 - Selecting two pilot sectors (energy, water)
 - Building and evaluating the value chain, from EO to tailored indicators
 - Coordinating with existing research projects
- Engaging users (institutional and wider) to prioritize the ECV datasets and Sectors during preoperational phase

- Some flexibility for implementing further stages will be reflected in the CCCS implementation plan

- e.g. end of CCI phase 2, end of FP7 precursor projects,..



Copernicus Climate Change service indicative roadmap

Consistent Climate Data Store Observed, re-analyzed and simulated products

ATMOSPHERE

Surface Air Temperature
Surface Precipitation
Water Vapor
Surface Radiation Budget
Earth Radiation Budget
Carbon Dioxide & Methane
Ozone & Aerosols
Cloud properties
Upper Air Temperature
Other Long-Lived GHGs
Wind Speed & Direction

OCEAN

Ocean Color
Sea Ice
Sea Level
Sea Surface Temperature
Global Ocean Heat Content

CO2 partial pressure
Ocean Activity
Sea Surface Salinity
Current Salinity

LAND

Snow Cover
Glaciers & Ice Caps
Albedo
FAPAR
Fire Disturbances
Ice Sheets
Lakes
Permafrost
Land Cover
Leaf Area Index
Soil Moisture

Sectoral Information System – ~10 sectors

- **Energy**
- **Water management**
- **Agriculture and forestry**
- **Infrastructure**
- **Insurance**
- **Tourism**
- **Costal areas**
- **Transport**
- **Disaster Risk Reduction**
- **Health**

Thank you

Acknowledgements to the expert team:

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