IN44-04

IPCC Sixth Assessment approaches towards FAIR data and an enhanced data reuse

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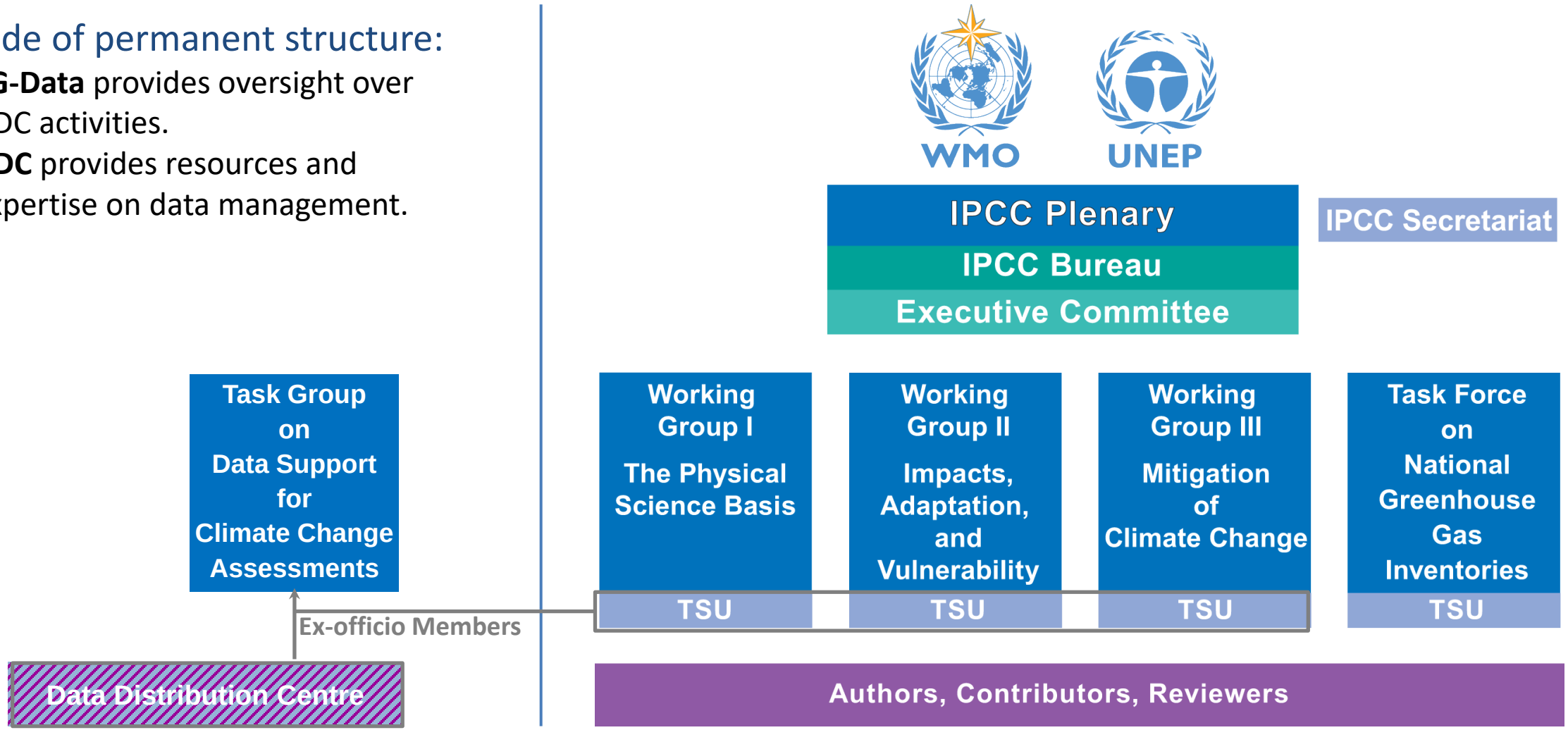
Introduction: Intergovernmental Panel on Climate Change (IPCC)

Outside of permanent structure:

- **TG-Data** provides oversight over DDC activities.
- **DDC** provides resources and expertise on data management.



Introduction: DDC (1)

DDC Partners

- Centre for Environmental Data Analysis (CEDA, UK)
- Deutsches Klimarechenzentrum (DKRZ, Germany)
- Center for International Earth Science Information Network (CIESIN, US)

DDC Partner Candidate

- Santander Meteorology Group (UC-CSIC, Spain)

DDC's Role

Main task (subject of the MoU):

- Long-term stewardship of data underlying the IPCC Assessment Reports complying with international standards: CoreTrustSeal – WDS Regular Membership

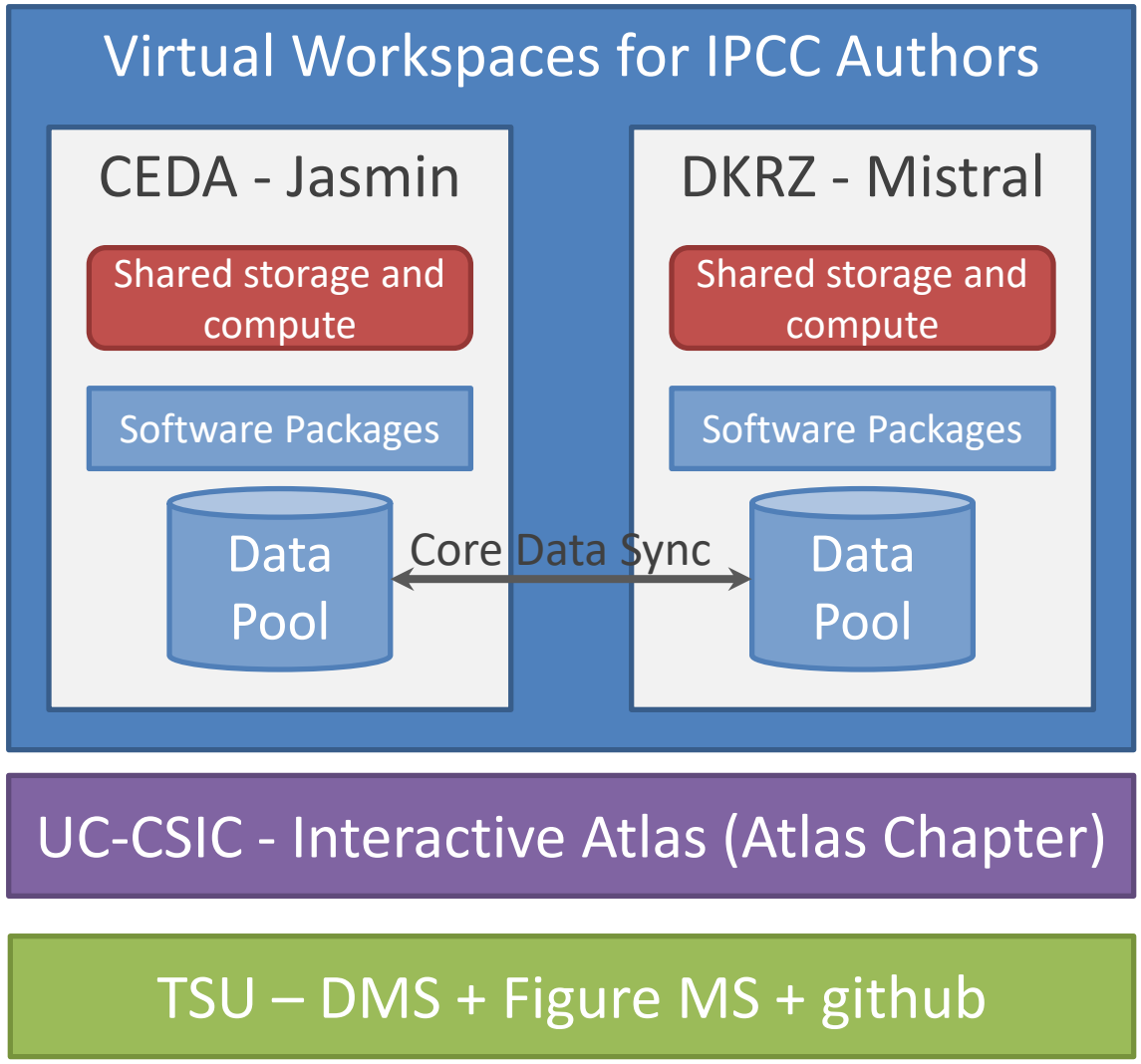
New tasks in AR6 (as best effort):

- provide support for the Working Groups and IPCC authors during the Assessment
- provide expert advice for data-related questions
- contribute to the integration of data into IPCC products, procedures, and protocols

II. FAIR Data Guidelines

FAIR Guidelines: Preparing the WGI AR6

Preparing WGI AR6



- Virtual Workspaces support IPCC Authors in analyzing **input datasets** and creating **final datasets** for figures for the AR6.
- Atlas chapter of AR6 WGI inherits an Interactive Atlas with figure creation functionality on the long-term.
- TSU coordinates IPCC authors in AR6 creation and collect dataset information.

31 January 2021: Literature acceptance cut off (data snapshot date)

FAIR Guidelines

Transparency and Accessibility

- Implementation of IPCC Errata Protocol for assessed digital information
- Long-term stewardship of assessed digital information

Traceability

- Documentation of input data used
- Citing input data
- Interlinking report, final data and input data

Reproducibility

- Archival of final data and software

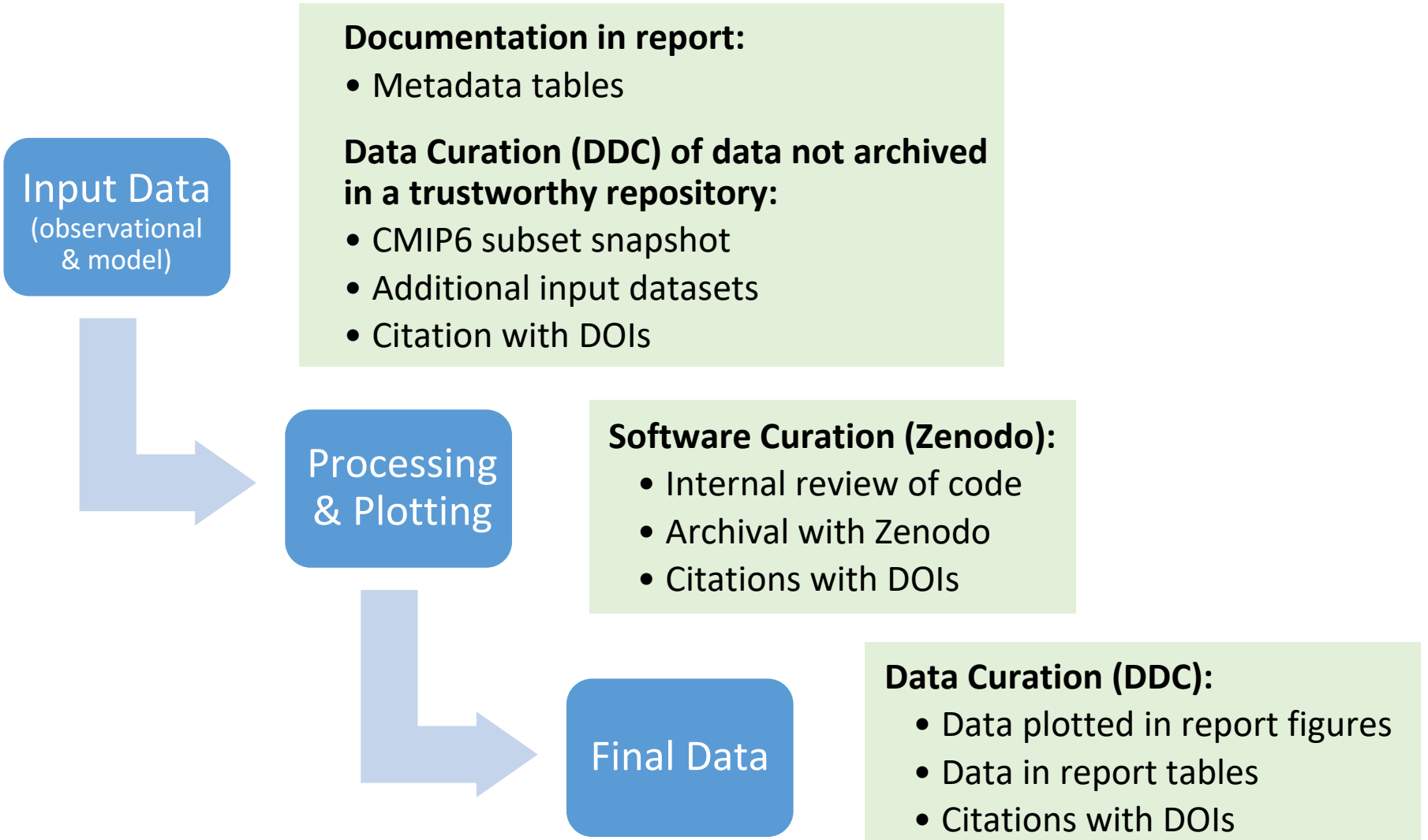
Benefits/Purpose

- Contributes to IPCC's integrity
- Enables long-term reuse
- Enables external checking

- Credit for data creators
- Enhanced discoverability of IPCC results

- Enables re-creation of figures
- Enables repurposing of data
- Enables external checking
- Credit for data creators

I. FAIR Guidelines: Approaches to FAIR in AR6 (WGI Example)



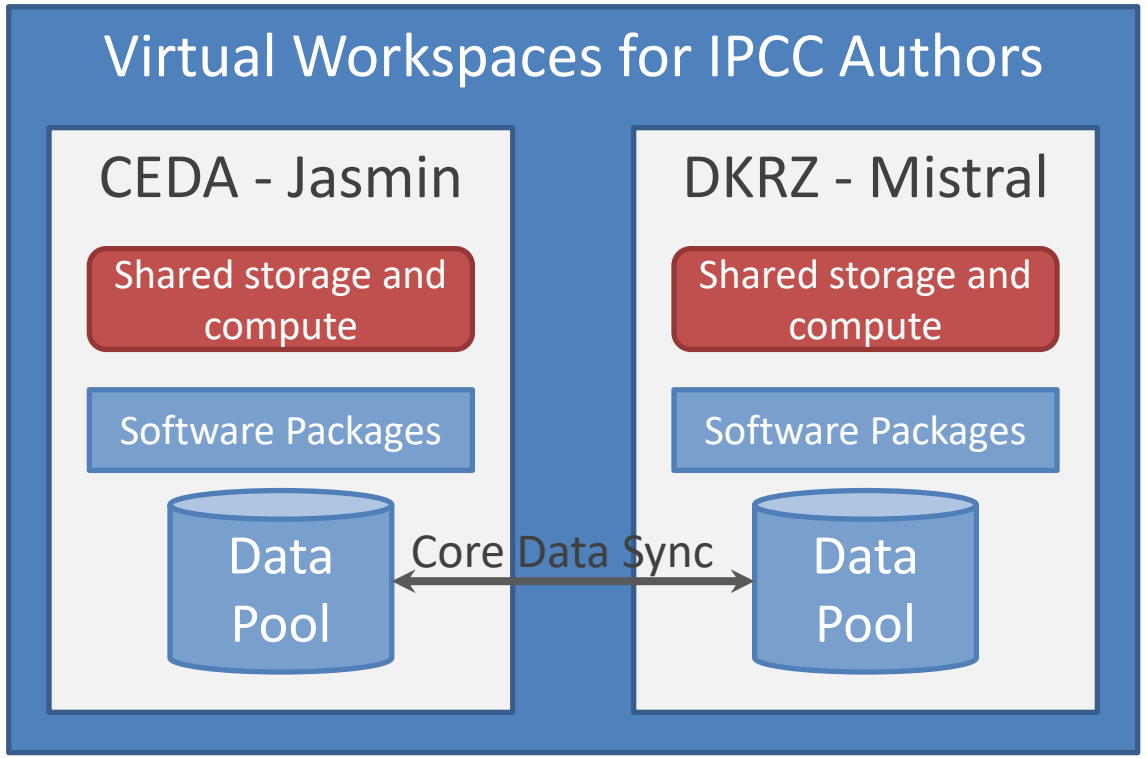
WG-Specific Differences in Approaching FAIR

	Focus in AR6	Challenges
WGI	Final data, software, selected and prioritized input datasets	Input data volume
WGII	final data and software (first priority SPM and TS), few input data	
WGIII	final data and software (focus on SPM and TS), no input data	License issues with input data

III. Long-Term Data Stewardship

I. FAIR Guidelines and Long-Term Stewardship

Preparing WGI AR6

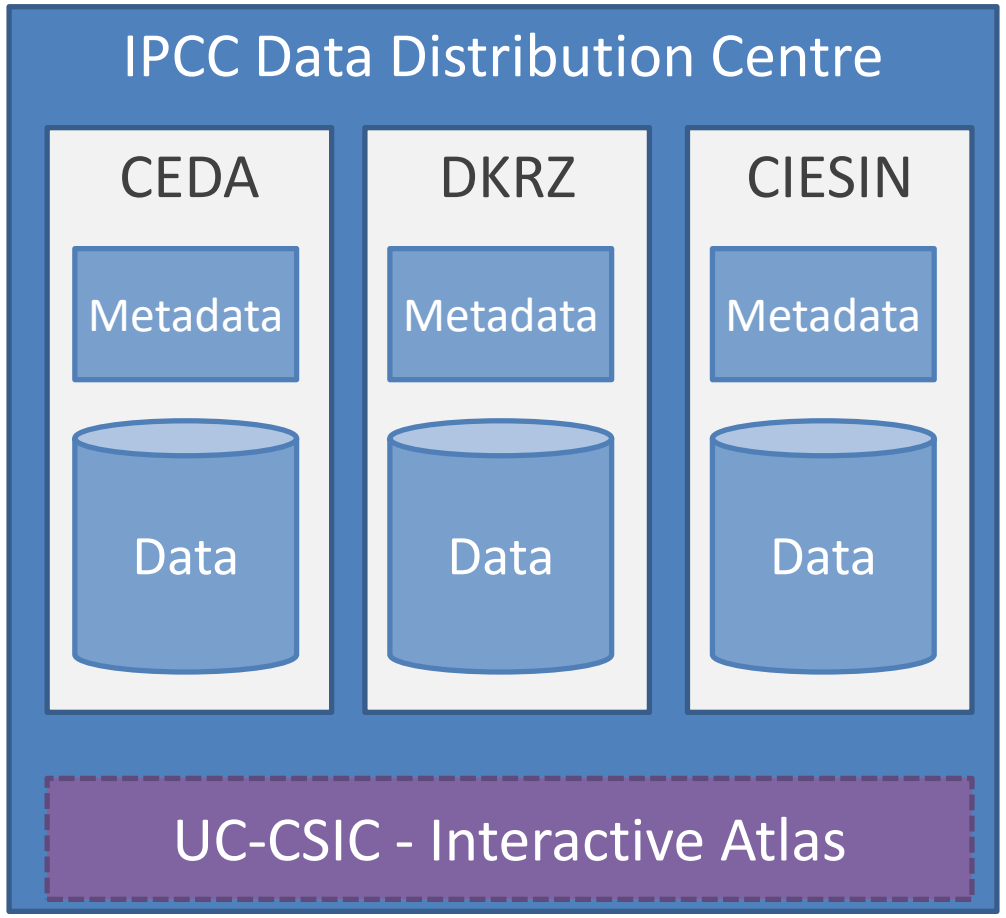


UC-CSIC - Interactive Atlas (Atlas Chapter)

TSU – DMS + Figure MS + github

Apply FAIR Guide-lines

Long-Term Stewardship



IPCC – AR6 (digital and printed)

III. Long-Term Data Stewardship: TRUST and the DDC (1)

Data Stewardship in DDC:

DDC Partners are established trustworthy repositories:
DKRZ and CIESIN are WDS Regular Members
and CEDA is a WDS Network Member.

The **jointly managed DDC** adds to these individual TRUST-compliant data center operations:

Transparency:

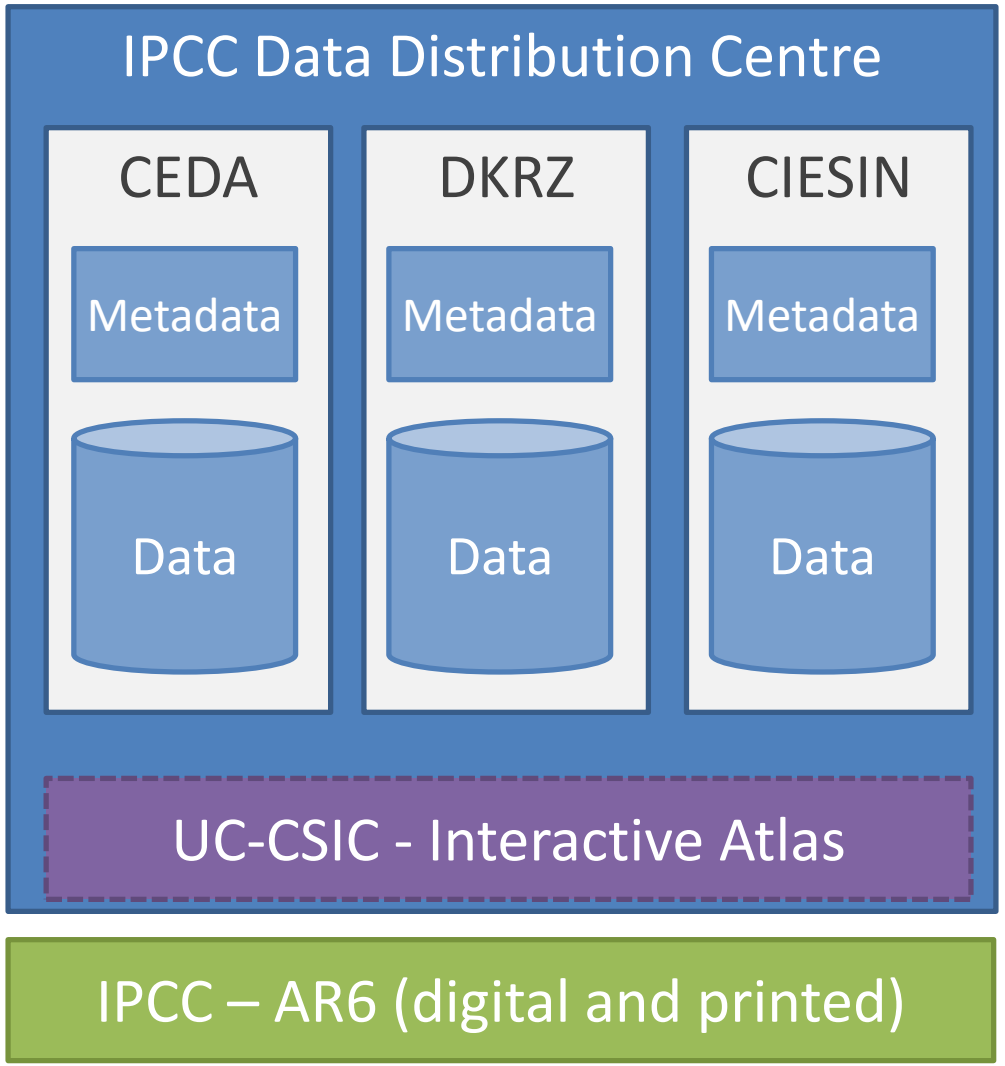
IPCC's DDC Guidance describes DDC objectives, further materials are provided on or accessible from the DDC webpages.

Responsibility:

In the DDC's MoU the responsibilities of the Partners are described.

User Focus:

The collaboration within IPCC ensure the user focus.



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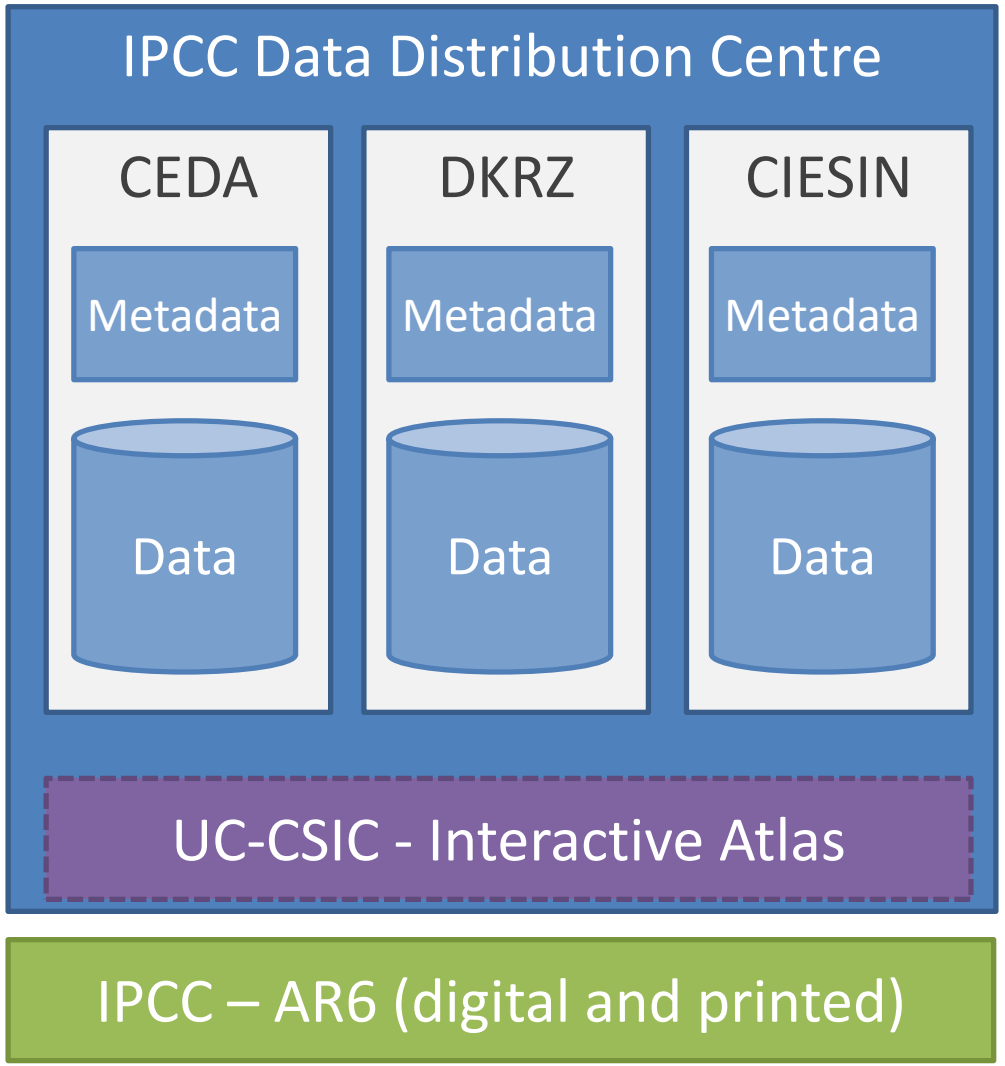
Sustainability:

DDC Partners have committed in a MoU to preserve data holdings on the long-term and sustain ***core*** services.

Technology:

DDC Partners use institutional infrastructure and staff to maintain their services.

Long-Term Stewardship



Summary

- In AR6, data and software get integrated into the Assessment via the FAIR Guidelines and become IPCC products.
- Digital products get integrated into established IPCC protocols and procedures.
- The traceability, transparency, and accessibility of IPCC products is enhanced.

→ The presented approach towards FAIR data and software with long-term stewardship in the DDC provides the first step of a long-term effort.

Open Issues / Gap Analysis

1. Exhaustive IPCC data archival:
   - Recruit new DDC partners to improve regional data access
   - Establish partnerships to bring in new expertise related to data discovery, access and analysis
2. Integration into IPCC procedures and products:
   - Implementation of IPCC Errata Protocol for assessed digital products
   - Open licensing for IPCC data products
   - Two-way integration of AR with DDC data holdings
3. DDC service improvements:
   - Single access point for data discovery
   - Support for data users in Annex 1 list of UNFCCC by e.g. server-side processing
   - Common API for IPCC DDC data

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