

First IPCC AR6 Data Workshop Minutes

19/20 September 2017 at DKRZ, Hamburg, Germany

Participants:

Martin JUCKES (IPCC DDC Manager)
 Anna PIRANI (IPCC WGI TSU)
 Elvira POLOCZANSKA (IPCC WGII TSU)
 Martina STOCKHAUSE (IPCC DDC Manager)
 Tim WATERFIELD (IPCC WGI TSU)

Agenda:

Tuesday 19 September

12:30-13:00	Arrival & Light Lunch	
13:00-13:10 13:10-13:30	1. Welcome and objectives of the meeting 1.1 Welcome + Objectives of the meeting 1.2 History of the DDC and TGICA	Stockhouse Stockhouse
13:30-14:15 14:15-15:00 15:00-15:30	2. DDC plans for AR6 2.1 DDC at BADC 2.2 DDC at WDCC Discussion	Juckes Stockhouse
15:30-15:45	Coffee Break	
15:45-16:30 16:30-17:15 17:15-18:00	3. WG AR6 data requirements 3.1 WGI 3.2 WGII Discussion	Pirani Poloczanska
19:30	Dinner (Ti Breizh - Crêperie Bretonne)	

Wednesday 20 September

09:00-12:30	4. General Discussion	
12:30-13:00	Light Lunch / Closure	

Summary:

In the First IPCC AR6 Data Workshop, data issues within AR6 were discussed between IPCC DDC at BADC and WDCC/DKRZ and the TSUs of IPCC WGI and WGII. The participants agreed to continue this cooperation to establish as DDC Support group. The set-up of AR6 Virtual Workspaces at the DDC at BADC and WDCC/DKRZ in support of the IPCC WGs were presented and discussed in the context of data requirements from the WGs. A follow-up webex focussing on how to use these facilities with participants from WGI and WGII TSU and DDCs was scheduled for Nov 2017. The information of the IPCC groups working on data issues, TGICA, WGIII and IPCC DDC at CIESIN about the DDC Support group and this meeting was agreed, their participation is welcome.

Agenda Item 1:

An introduction to TGICA and the IPCC DDC was given by Martina with the main dates for the DDC:

- 1997: DDC formed (DKRZ and CRU), 1st workshop at DKRZ;
- 2003: CIESIN joined;
- 2007: CRU replaced by BADC;
- 2017: BADC evolves into CEDA.

Mandate and Governance

A short discussion about the role of TGICA to “enable research across the three IPCC working groups” followed. Questions risen:

- How to meet core needs of the working groups?
- TGICA activities relative to core IPCC mandate
- Funding constraints on TGICA and DDC

There are various discussions within IPCC going on:

- ATF TGICA: Discussions on the future of TGICA were started at the Expert Meeting in 2016, which resulted in recommendations and discussion point, which were taken up by the Ad Hoc Task Force (ATF). A report from the latest meeting of the ATF-TGICA in Montreal was given.
- DDC and TSUs;
- DDC with their national funders and focal points.

Agenda Item 2.1:

Martin gave an overview over the IPCC DDC at CEDA and the plans for AR6:

- National funding opportunity to provide support for IPCC authors in the form of a data analysis platform;

- JASMIN, a platform for data analysis, will be available for the IPCC Authors, providing computing capacity, a file space for data exchange, direct access to the large environmental data archive at CEDA and fast links to other major archives;
- IPCC TSUs are invited to coordinate access to JASMIN by IPCC authors, to enable efficient use of this resource.

Agenda Item 2.2:

Martina presented the plans of the IPCC DDC at WDC/CDRZ for AR6:

- DCRZ data pool (2 PB primary data; 2 PB replica, coordinated with European partners; 1 PB special use), created for the German national scientific community, will be provided for IPCC Authors. Authors will get access to the DCRZ HPC. Requests to add data to the data pool are delivered via IPython notebook forms, which create synda files.
- jupyterhub and web processing services on the data are under development at DCRZ.
- VMs can be set up upon request.
- Data access via [Freva interface \(CMIP + ESMVal\)](#) with definition of plugins and sharing of data products can be given to IPCC Authors.

The data pool idea was first discussed at the IPCC Expert Meeting on the future of TGICA in 2016 and in follow-up bilateral discussions. The First IPCC DDC AR6 Workshop was a result of the fact that little progress on establishing a working framework to get IPCC Authors onto the system was made.

WDC/CDRZ is currently archiving Euro-CORDEX and the first HAPPI-MIP (MPI-M contribution) data.

Discussion of Agenda Item 2:

Anna mentioned that the Integrated Assessment Model (IAM) data is being archived at IIASA. She asked about a possibility for an ESMVal for everyone with the cmip-eval portal or the extension of ESMVal for AR6 chapter suites of figures (ESMVal currently includes packages for AR5 Chapter 9 and 12). Martina will discuss with Christopher (Freva).

The WG TSUs sought more information on how authors would in practice work between the multiple DDC centres. → *Action Item 6*

Agenda Item 3.1

Anna gave an overview over the work of AR6 WGI and some data-related aspects:

- AR6 WGI outline: 12 chapters. After a framing chapter, the first 3 chapters focus on the assessment of large scale climate change, 6 on climate processes and feedbacks, and 3 on regional aspects. There will not be a dedicated model evaluation chapter but there will a fit-for-purpose model evaluation throughout the report. There may be a technical annex on model evaluation, and others on cross-chapter aspects e.g. observations, detection and attribution.

- There will be interaction between working groups built into the writing process of the AR6 on topics such as scenarios and regional aspects.
- A Regional Climate Atlas is proposed, potentially with dedicated WGI authors.
- Important dates:
 - Sept 15, 2017: invitation for authors
 - May 2018: Regional Climate Assessment Expert Meeting
 - Jun 25, 2018: 1st lead author meeting

Topics raised for discussion included:

- Reproducibility and transparency of assessment
- Curation of data reproduced in report – Figures and Tables
- Multiple data sources and access (model, reanalysis, observations, paleo information)
- Multiple scales (projections, predictions, global, high resolution, regional)

Regional Climate Atlas

- scale-, region-, user-specific information
- online navigation and tailoring of information extraction
- implementing WGII linkages
- Expert Meeting on regional aspects in 2018 (tentatively May)

Oversight (TGICA, AR6 Bureau and authors) and linkages:

- CMIP Panel / WGCM Infrastructure Panel
- Decadal Climate Prediction Project
- CORDEX
- Observations, reanalysis and other data sources

Agenda Item 3.2

Elvira gave an overview over the work of AR6 WG II and some data-related aspects:

- AR6 WGII: The report covers a wide range of disciplines.
- WGII Regions: AR5 had a focus on “regions”, basically continents, “oceans” and “small islands”. Land regions in AR6 will include coastal ocean (continental shelf). How to define these regions needs to be discussed
- Risk framework: There is an intersection of hazard from WGI and WGII vulnerability, and exposure. Cross working group discussions needed for consistent approach.
- Detection and attribution is included within each chapter for AR6, not a separate chapter as for AR5.
- Regional Climate Atlas: There were efforts during AR5 to take up the WGI atlas in WGII but with limited success. AR6 will attempt to improve by having WGI expertise embedded in the WGII author teams and for an improved exchange of the atlas data among the WGs.
- Important date:

- Jan 2019: AR6 WGII 1st Lead Author meeting

Discussion for Agenda Item 3:

The discussion on several different items was started. Some of them were taken up in the general discussion (Agenda Item 4):

- *IAM database*: A link from the DDC to the Integrated Assessment Model (IAM) database at IIASA was discussed.
- *DDC's role in Special Reports* (e.g. SR1.5) that are already underway. → *Agenda Item 4, Action 1*
- *AR6 data distribution oversight* is not clear. Which role will TGICA play?
- *How is the DDC used* (stakeholders and research community, regional uptake, preferences)?
- *Review of Annexes*: e.g. model evaluation or the Regional Climate Atlas. For WGII there is a standalone review for some cross WG work, which could also be applied for the atlas. A technical review is missing.
- *Regional Climate Atlas*: The possibility for an interactive atlas was discussed.
- *Linkages to data portals* (e.g. U. Santander, KNMI, IRI, ClipC) should be explored.
- *Traceability of data*: How to enable the traceability of data esp. data underlying figures and tables? A full-traceability from model result to figure data is not achievable for AR6. Martin mentioned that the storage of intermediate results is possible but the storage of high-volume, high-resolution data is not due to volume. Martina agrees for the AR6 Virtual Workspace at DKRZ. A possible storage of intermediate results can be transferred between WGs and should be archived after AR6 plus the scripts used (github with possibility to archive a specific version in Zenodo, possibility to publish scripts in software journals to assign doi identifiers). How to integrate into a portal?
→ *Agenda Item 4, Action 3*
- *Foundations for technical work to be done in chapters*: The Regional Climate Assessment Expert Meeting (May 2018 in Buenos Aires or Paris) will be a chance to set some foundations for work to be done in chapters to ensure some consistency (e.g. defining regions) and on the storage of intermediate results and scripts. Note that WGII AR6 timeline is about 6 month behind the WGI timeline.

Agenda Item 4:

- *Special Report on 1.5°C*: The process is already running and therefore there is not much scope for new objectives apart from the agreed integration of HAPPI-MIP data into the IPCC DDC Reference Data Archive at WDCC. However data needs are still unclear. → *Action Item 1*
- *Special Reports on ocean and cryosphere in a changing climate and on climate change and land*: Elvira reported that work on these special reports are at the start. Martin mentioned that there are new very high resolution land use maps (e.g. 25m).

- *Data Issues in WGII*: The content and authors of WGII are much more dispersed and variable. More individual projects are included, but there is some effort going into coordinated modelling exercises. Historically not much thought was given to data traceability. Up to now, data is sometimes made available as a supplement but the data volumes are growing; e.g. FishMIP has no clear long-term data curation plan.
- *Traceability of data behind figures and tables*: Making data behind WGI figures (i.e. spatial fields plotted, not raw source data) available in a suitable form could be helpful for WGII.
- *Data on institutional web portals*: Lots of AR5-related data is still on institutional web portals (or research group portals). There is a need to review AR5 and then discuss new developments with authors. → *Action Item 7*
- *AR5/AR6 regions and Regional Climate Atlas*: Martin mentioned the problems to digitize the regions underlying the climate atlas in AR5. They are not identical to CORDEX domains. Information on the regions is available at the DDC: http://www.ipcc-data.org/guidelines/pages/ar5_regions.html. A uniform definition of regions within the AR6 (WGI and WGII) is desirable. It was discussed to share the digitized region information from the DDC AR5 with the Chapter Lead Authors of AR6. An improved data exchange of Regional Climate Atlas data was discussed between WGI and WGII.
- *AR6 Virtual Workspaces* were the outcome of Expert Meeting on Future of TGICA. At the [Future Earth-PROVIA-IPCC risks and solutions workshop](#) (Stockholm, 2016) a stocktake of WGII AR5 and coordination of data needs was discussed. Future Earth wants to play a role within the climate impact community. Bob Chen (IPCC DDC at CIESIN) got involved at the Data Week (Denver, 2016), where [Future Earth announced](#) the 'Partnership for Resilience and Preparedness' (<http://www.prepdata.org/>). Bob's involvement there is unclear. → *Action Item 5*
- *Involvement of WG III*: The exchange of data is not a priority for WG III but there will be discussions on the coordination of scenarios and question of consistent assessment processes within AR6. It is unclear how to integrate WGIII into the DDC Support group discussion.

Action Items:

Action 1 - Special Report on 1.5°C:

Anna: sets up and sends a survey on data requirements for the SR15 report to the authors.
 Martina: will add HAPPI-MIP data to the IPCC DDC Reference Data Archive at WDCC using the literature cut-off date May 15, 2018 as snapshot date.

Action 2 - Communication with WIP:

Martin: passes the AR6 schedule to the WIP and the expected CMIP6 timeline to the DDC support group.

Action 3 - Script Archival:

Tim: works out a plan for the use of github (or equivalent) for all scripts used within AR6. Some low costs are connected with a privacy use of github.

Anna: TSU to develop AR6 policy to store intermediate data products and figure scripts in time to be implemented at the first Lead Author Meeting (LAM1) of WGI in June 2018.

Action 4 - Organization of Remote Meeting (Nov 2017):

Tim: organizes a remote meeting with IT repositories on how to use facilities with participants from WGI (Tim), WGII, WGIII, IPCC staff (Jesbin) and DDCs in November 2017.

Action 5 - Integration of IPCC DDC at CIESIN:

Martin/Martina: bring Bob Chen into the discussion, e.g for linkage to IIASA and Future Earth's initiative 'Partnership for Resilience and Preparedness'.

Action 6 - AR6 Virtual Workspace:

Martin & Martina: prepare one page documents on the AR6 Virtual Workspaces before November telco.

Action 7 - Requirements for AR6 Virtual Workspaces:

Anna & Elvira: go back to AR5 to provide use cases for the AR6 Virtual Workspaces, e.g. used software (packages) and data. Which additional non-CMIP6 data is required?

Action 8 - Summary of the First IPCC DDC AR6 Workshop:

All: create a summary report of the meeting for TGICA and as information for WGIII and the DDC at CIESIN.

Martina: has the first go at summarising the meeting outcomes.

Action 9 - DDC support group web page:

Martin: creates a meeting report page as part of CEDA's DDC support outside of the IPCC DDC pages and a [Zenodo community](#).

Open Issues

Issue 1: How to coordinate the use of AR6 Virtual Workspaces for IPCC work? Which is the role of the TSUs?

Issue 2: How to integrate WGIII into the discussion on data, scripts and questions regarding the consistent assessment process?

Next Steps

Nov. 2017: Remote meeting

May 2018: Meeting at the Regional Climate Assessment Expert Meeting

Annex

Materials / Links:

IPCC DDC: <http://ipcc-data.org>

DDC Support: https://cedadev.github.io/ipcc_ddc/

DDC Support materials: <https://zenodo.org/communities/ddc-support>

DDC Governance:

http://www.ipcc-data.org/docs/TGICA_DDC_Governance_2012feb08.html

TGICA Mandate: http://www.ipcc-data.org/docs/TGICA_Mandate_031207.htm

AR6 Important Dates:

Sep 15, 2017: Call open for AR6 author nominations

Oct 2, 2017: First Lead Author meeting for Special Report on Oceans and Cryosphere in Fiji.

Oct 16, 2017: First Lead Author meeting for Special Report on Land Use

May 15, 2018: Literature cut-off date for HAPPI-MIP / Special Report on 1.5°C

May, 2018: Regional Climate Assessment Expert Meeting (in Paris or Buenos Aires)

Jun 25, 2018: First Lead Author meeting AR6 WGI

Jan 21, 2019: First Lead Author meeting AR6 WGII

Oct 15, 2020: Literature cut-off date for WGI AR6