



Data protocol for $(AC)^3$, the

Transregional Collaborative Research Center (TR 172) on “Arctic Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms $(AC)^3$ ”

Preamble

$(AC)^3$ is a Transregional Collaborative Research Center (TR 172) funded by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft). It is formed by a German research consortium (Universities of Leipzig, Bremen and Cologne, Alfred-Wegener-Institute, Leibniz Institute for Tropospheric Research) and investigates why the Arctic region is warming more rapidly than the rest of the world over the past three decades.

The participants of the observational campaigns and modelling exercises performed in the framework of $(AC)^3$ agree on this data protocol.

This data protocol aims to:

1. Ensure the fair use of the data,
2. Encourage the rapid dissemination of the scientific results,
3. Uphold the rights of the individual scientists,
4. Ensure the visibility and the integrity of the project,
5. Have all involved researchers treated equitably,
6. Encourage an orderly and timely analysis and publication of the data, and
7. Produce a central repository of the data to be released to the public domain.

This data protocol formulates the common scientific practice related to data—that has been collected in a joint effort by many scientists—as it has been established in the field of atmospheric science for many decades.

§ 1 Definitions

In this document the term *principal investigator of the mission*—also called *Mission PI* or *PI of the mission*—refers to a person that is the scientific head of the mission.

A *principal investigator of an instrument*—also called *Instrument PI* or *PI of an Instrument*—is a person in charge of a scientific instrument.

A *principal investigator of a model* is a person in charge of a scientific model.

The term *participant of the mission* refers to a person that subscribed this document and was granted membership to the mission by the PI of the mission.

The term *quicklook* refers to a visualization of preliminary data that is produced shortly after the respective data set was created.

§ 2 Data management

(1) Data ownership: Data shall be property of the owner of the instrument (instrument PI) which the data was created with.

(2) Data Access: The data shall be made publicly available without access restrictions. The repository for the published data of the mission is the *Pangaea*-database operated by the *Alfred-Wegener-Institute for Polar and Marine Research (AWI)*.

(3) Citation of data: A persistent identifier such as a digital objective identifier (DOI) will be assigned to the data published in *Pangaea* to ensure correct attribution and reference to the data by potential users.

(4) Data format: The data must be provided in standard scientific formats (e.g. NASA-Ames or NetCDF format). Metadata, sufficient to independently understand the data must accompany the submission. The usage of international standards for the metadata delivery (e.g. CF conventions) is encouraged.

(5) Data quality: The analysis of the scientific data has to be made following the *rules of good scientific practice* defined by the Deutsche Forschungsgemeinschaft (DFG). This includes in particular that the analysis procedures have to be transparently documented and the scientific data and the documentation necessary to understand the data has to be stored for at least 10 years. A long time preservation of the data beyond 10 years is encouraged which is also ensured via the *Pangaea* database.

§ 3 Provision of data/data licensing and sharing

(1) Provision of data during airborne campaigns: Each group will provide *quicklooks* of their data to the participants shortly after each flight. The data of the individual scientific instruments along with the corresponding documentation to understand the data shall be made available to all participants as soon as possible. Six month after the observations were made the data and the documentation must be made available to all participants. The data should contain qualifiers of the status of the analysis (preliminary, final, etc.). Corrections and amendments to preliminary data must be made available to all participants as soon as possible.

(2) Data licensing and sharing: Until the end of the first one year (period of time) after the end of the mission the data is only available to the participants of the mission.

An individual scientist wishing to collaborate (Associated Scientist) can apply to get access to the data of interest. The Associated Scientist must provide a short written description of her/his aims to the PI of the mission. This will be considered by the principal investigator of the mission and access to the data will be granted after approval by the respective instrument PI.

During the period of time as set forth in this paragraph any publication or forwarding of data to public, non-participants of the mission or non-Associated Scientists is prohibited. After the expiration of the period of time set forth in this paragraph § 3 (3) shall apply.

(3) After the period of time set forth in § 3 (2) the PI of an instrument must decide if the data, created with the instrument he/she is responsible for, shall be released to individual persons or to the public by one of the following options:

- Closed: A potential data user can request the data of the instrument by contacting the respective Instrument PI. The data can be made available to that person under the conditions defined in the agreement in Appendix A at the end of this data protocol. This agreement has to be signed by this person and returned to the respective Instrument PI. The final decision to share or not to share the data with that person remains by the respective Instrument PI.

Or

- Open: The data is made public available under a suitable open license such as one of the Creative Commons licenses² as recommended by the *Allianz der deutschen Wissenschaftsorganisationen*.

In either case the receiver(s) of the data are obliged to accept the provisions as stipulated in §§ 4 et seq.

§ 4 Model studies

(1) Model results: Results of model studies using data of the mission must be made available to the participants as soon as possible.

(2) Corrections: Corrections and amendments to preliminary results must be communicated to the participants of the mission as soon as possible.

(3) Recent version of data: The principal investigator of a model must ensure that the data used in the modeling study is the best available at that time.

§ 5 Publications/conference contributions/public meetings

(1) Co-authorship: If data of the mission is used for publications (scientific articles), conference contributions and/or in public meetings the lead author has to offer co-authorship to the creator(s) of the data.

(2) Right to refuse: The creator(s) that created the data has/have the right to refuse the usage of the data in publications, conference contributions and/or in public meetings prior to her/his publication of that work.

(3) Co-authors: The manuscript for any journal publication must be sent to the co-authors at least three weeks before submission with a copy to the principal investigator of the mission.

Abstracts to contributions to conferences and/or public meetings must be sent to the co-authors at least one week before submission with a copy to the principal investigator of the mission.

The lead author has to take into account substantial comments from the co-authors before the submission of the manuscript or abstract. The co-authors and the principal investigator of the mission shall be kept informed of the further progress of the review and publication.

(4) Usage of data: The lead author must have the explicit agreement of the creator(s) that created the data for the usage of the data in publications, conference contributions and/or public meetings.

(5) Recent version of data: The PI of an instrument must ensure that the data of this instrument used in publications, conference contributions and/or public meetings is the best available at that time.

(6) Acknowledgement: The mission must be acknowledged in a suitable way. In addition **(AC)³** needs to be acknowledged by the following phrase:

“We gratefully acknowledge the support from the Transregional Collaborative Research Center (TR 172) “**ArctiC Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms (AC)³**”, which is funded by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft).”

§ 6 Press releases

(1) Publications and/or press releases where the mission itself is the main subject—so called overview articles—must be approved by all PIs of the mission and all PIs of the instruments before submission.

(2) Press releases relating to data, created during a mission, must be approved by the creator(s) of the data.

§ 7 Collaborations

Effective and productive collaborations between the participants of the mission and other projects are encouraged.

§ 8 Avoidance of disputes

(1) Any disputes about the use of the data in particular with respect to publications will be resolved by a committee of scientists suggested by the principal investigator of the mission and approved by the instrument PIs.

(2) During the periods defined in § 3, when the data is still not public, it is encouraged to hold scientific meetings on a regular basis where all participants of the mission can present their ongoing work and their plans for future work with the data of the mission. This shall be made to avoid redundant work and parallel efforts which are both sources of potential disputes.

§ 9 Constraints

National and international laws or regulations might constrain the agreements of this data protocol.

In that case the principal investigator of the mission has to inform the instrument PIs about those constraints. The mission PI and the instrument PIs shall find a mutual solution on a case-by-case basis.

The undersigned agrees to the conditions of the data protocol.

Signature of participant:
.....
Date, place :
.....
Name :
.....
Position (PI, post-doc, student, etc.) :
...
Address :
.....
E-mail :
.....

The principal investigator of the mission grants the membership of the mission.

Signature of principal investigator of the mission:

Date, place:

Appendix A

Agreement to receive the data of an instrument that was licensed according to §§ 2 and 3

(closed version)

I will receive a copy of a data set of the mission FULL NAME OF THE MISSION.

I agree to the provisions stipulated in the Data protocol of the mission „NAMEOFTHEMISSION“ and the following common principle:

“If data of the mission is used for a publication, conference contribution and/or public meeting, co-authorship has to be offered to the creators of the data.”

I will not distribute this data set or parts of it.

Signature of the receiver of the data set:
.....

Date, place :
.....

Name :
.....

Affiliation and address:
.....

E-mail :
.....