Deliverable 1.1: Initial version of DMP of data collected within CARGO-ACT

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Work package no	WP1
Deliverable no.	D1.1
Lead beneficiary	NILU
Deliverable type	☐ R (Document, report) ☐ DEC (Websites, patent filings, videos, etc.) X OTHER: DMP – data management plan
Dissemination level	X PU (public) ☐ CO (confidential, only for members of the Consortium, incl. Commission)
Estimated delivery date	M6
Actual delivery date	29/08/2024
Version	Final revised 26/02/2026
Reviewed by	Giri Prakash
Accepted by	Ewan O'Connor
Comments	

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Contents

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1. The CARGO-ACT project

Aerosol, clouds and trace gases are short-lived atmospheric constituents, with residence times in the atmosphere ranging from seconds or minutes to a few weeks. Some of the short-lived atmospheric constituents are also climate forcers. From the recent 6th IPCC report on the physical basis of climate change, the climate feedbacks induced by short-lived climate forcers (SLCFs) are assessed as having a significant cooling effect but with low confidence. The same species are responsible for approximately 8 million premature deaths worldwide (Lancet). Mechanisms by which SLCFs are affecting climate are much more complex than for greenhouse gases and require the definition of more than 20 essential climate variables (Global Climate Observing System, IP report 2021).

The overarching goal of CARGO-ACT is to deliver a clear roadmap for sustainable global cooperation between key organisations in Europe and in the United States to provide all users, in the scientific community and beyond, with the best possible services for accessing and using information from monitoring climate- and air quality-relevant properties of aerosol, cloud and trace gases in the atmosphere.

2. The Argos Data Management Plan Tool

ARGOS is an online tool in support of automated processes to creating, managing, sharing and linking Data Management Plans (DMPs) with research artifacts they correspond to. It is the joint effort of OpenAIRE and EUDAT, both EU funded entities, to deliver an open platform for Data Management Planning that addresses FAIR and Open best practices and assumes no barriers for its use and adoption. It does so by applying common standards for machine-actionable DMPs as defined by the global research data community of RDA and by communicating and consulting with researchers, research communities and funders to better reflect on their needs.

ARGOS provides a flexible environment and an easy interface for users to navigate and use.

3. The CARGO-ACT Data Management Plan

The CARGO-ACT DMP is publicly accessible by following this link:

https://doi.org/10.5281/zenodo.18786676

A screenshot of the landing page for this link is shown in Fig. 1. The DMP is hosted on the Zenodo website by direct export from the ARGOS tool. From the Zenodo landing page, the DMP can be accessed in JSON and PDF format.

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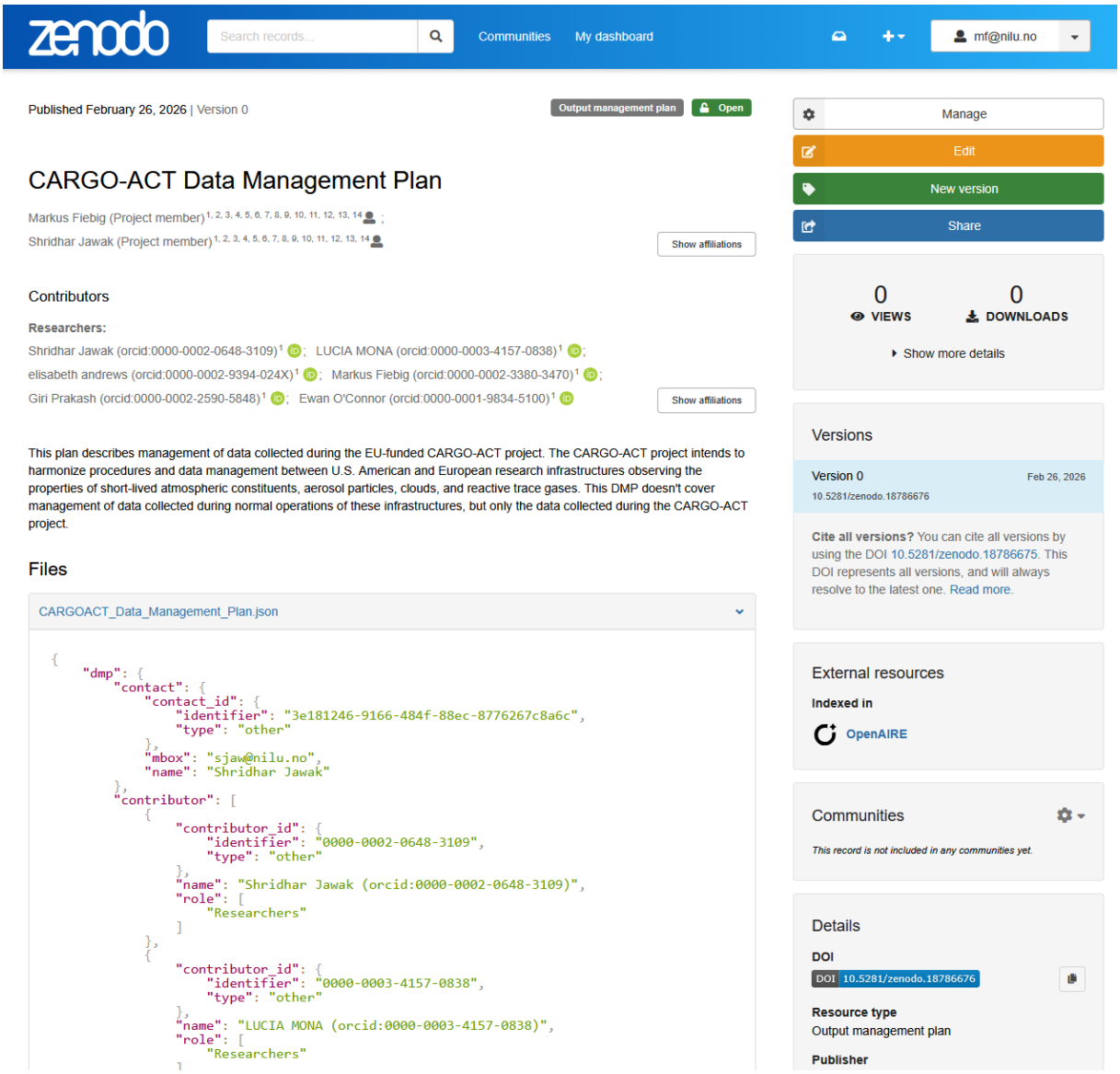

Figure 1: Landing page for the CARGO-ACT Data Management Plan on the Zenodo website. A link for a PDF download is available further down on the page.

Appendix: PDF version of CARGO-ACT Data Management Plan

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CARGO-ACT Data Management Plan

Version 0

Description

This plan describes management of data collected during the EU-funded CARGO-ACT project. The CARGO-ACT project intends to harmonize procedures and data management between U.S. American and European research infrastructures observing the properties of short-lived atmospheric constituents, aerosol particles, clouds, and reactive trace gases. This DMP doesn't cover management of data collected during normal operations of these infrastructures, but only the data collected during the CARGO-ACT project.

Funder

European Commission||EC

Grant

Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership (2023) (HORIZONINFRA-2023-DEV-01)

Researchers

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9394-024X), Markus Fiebig (orcid:0000-0002-3380-3470), Giri Prakash (orcid:0000-0002-2590-5848), Ewan O'Connor (orcid:0000-0001-9834-5100)

Organizations

Norwegian Institute for Air Research (NILU), Kjeller, Norway, National Institute for Research and Development in Optoelectronics INOE 2000, Belgian Institute for Space Aeronomy, Leibniz Institute for Tropos (replace), Brookhaven National Laboratory, University of Helsinki - Department of Physics, United States Department of Commerce, National Oceanic and Atmospheric Administration, Earth System Research Laboratory, Global Monitoring Laboratory, University of Boulder, Cooperative Institute for Research in Environmental Sciences, Oak Ridge National Laboratory - Environmental Science Divison, CNRS, Pacific Northwest National Laboratory, UNI: NASA Goddard Space Flight Center Gree nbelt USA, University of Maryland, Baltimore County, Finnish Meteorological Institute

Main Info

Title of DMP: CARGO-ACT Data Management Plan Description:

This plan describes management of data collected during the EU-funded CARGO-ACT project. The CARGO-ACT project intends to harmonize procedures and data management between U.S. American and European research infrastructures observing the properties of short-lived atmospheric constituents, aerosol particles, clouds, and reactive trace gases. This DMP doesn't cover management of data collected during normal operations of these infrastructures, but only the data collected during the CARGO-ACT project.

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Researchers:

Shridhar Jawak (orcid:0000-0002-0648-3109) LUCIA MONA (orcid:0000-0003-4157-0838) elisabeth andrews (orcid:0000-0002-9394-024X)

Markus Fiebig (orcid:0000-0002-3380-3470)

Giri Prakash (orcid:0000-0002-2590-5848) Ewan O'Connor (orcid:0000-0001-9834-5100)

Organizations:

Norwegian Institute for Air Research (NILU), Kjeller, Norway

National Institute for Research and Development in Optoelectronics INOE 2000

Belgian Institute for Space Aeronomy

Leibniz Institute for Tropos (replace)

Brookhaven National Laboratory

University of Helsinki - Department of Physics

United States Department of Commerce, National Oceanic and Atmospheric Administration, Earth System Research Laboratory, Global Monitoring Laboratory

University of Boulder, Cooperative Institute for Research in Environmental Sciences Oak Ridge National Laboratory - Environmental Science Divison

CNRS

Pacific Northwest National Laboratory

UNI: NASA Goddard Space Flight Center Gree nbelt USA

University of Maryland, Baltimore County

Finnish Meteorological Institute

Contact: Markus Fiebig (mf@nilu.no)

Funding

Funding organizations: European Commission||EC

Grants: Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership (2023) (HORIZON-INFRA-2023-DEV-01)

Project: CARGO-ACT

License

License: CC-BY-4.0 Access

Rights: Public

Templates

Descriptions

Text documents

The project will produce a huge variety of text documents, most prominently Deliverables and Milestones. These are archived in PDF format, which is openly accessible. To meet the identification and version history criteria, the documents will be archived in the Zenodo general purpose archive. Access will be regulated according to the nature of the document, with open access as default.

Template: Horizon Europe

Type: Dataset

Protocols

Digital

New

The text documents produced in the project, mainly Milestones and Deliverables, but also protocols, e.g. produced during instrument calibrations, are by definition generated in the project. Re-use of existing data this isn't relevant here.

1.1.4 What is the type of the described dataset?

Other

The text documents will constitute primary data generated by the project.

1.1.5 What is its format?

Portable Document Format (PDF)

1.1.6 What is its expected size?

4MB

1.1.7 Why are you collecting/generating or re-using it?

To keep on record

Milestones and deliverable are essential documentation of project progress, and should be kept on record.

1.1.8 What is its origin / provenance?

The text documents, here milestones and deliverables, are produced manually by humans.

1.1.9 To whom might it be useful ('data utility')?

- Research communities
- Education
- Other

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The project results will be interesting mainly for environmental research infrastructures or networks focusing on observations of air quality and climate relevant atmospheric parameters.

2 Links Between Outputs

2.1 Publications

2.1.1 Does the described output support any scientific publication?

No

2.1.2 Is there a data availability statement provided along with the publication?

No

2.2 Datasets

2.2.1 Does the described output use or support any published dataset?

No

2.3 Software

2.3.1 Does the described output use or support any software?

No

3 FAIR Practices

3.1 Making data and other outputs findable, including provisions for metadata

3.1.1 Making data findable, including provisions for metadata

3.1.1.1 What type(s) of persistent identifier(s) are used for the described dataset / output?

Other

DOI

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Text documents produced in the project will be archived in ZENODO, and will be associated with the "CARGO-ACT" community

3.1.1.2 Will you provide metadata for the described dataset / output?

Yes

DataCite Metadata Schema

Zenodo uses DOIs issued by DataCite, thus uses the DataCite metadata schema.

3.1.1.3 What type(s) of metadata?

- Descriptive
- Reference

According to DataCite schema.

3.1.1.4 Do the metadata use standardised vocabularies?

Yes

DataCite vocabulary

3.1.1.5 Please provide URL/Description of used vocabularies

https://github.com/metadatacenter/datacite-controlled-vocabulary DataCite vocabulary is

obligatory to fille in DataCite schema.

3.1.1.6 Are the metadata searchable?

Yes

3.1.1.7 How are searchable metadata provided?

Registry/Catalogue Zenodo catalogue.

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3.1.1.8 Are keywords provided in the metadata?

Yes

3.1.1.9 Are metadata harvestable?

Yes

From Zenodo APIs.

3.2 Making data and other outputs openly accessible

3.2.1 Repository

3.2.1.1 In which repository will the dataset / output be deposited? Zenodo

https://zenodo.org

Zenodo is a widley-used open repository for digital resources.

3.2.1.2 Is the selected repository a trusted source?

Yes

- Follows repository standards
- Details terms of use
- Has an open access content policy
- Supports back up
- Provides Open Access content (free at the point of use)
- Assigns PIDs
- Follows metadata standards

3.2.1.4 Add appropriate arrangements made with the repository(ies) where the described dataset will be deposited

Zenodo is recommended by FAIRsharing.org.

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3.2.1.5 Does the repository(ies) assign datasets / outputs with persistent identifiers?

Yes

3.2.1.6 Does the repository(ies) resolve the identifiers to a digital object?

Uses DataCite to resolve identifiers.

3.2.1.7 Does the repository support versioning? Yes

3.2.2 Data

3.2.2.1 What is the described dataset / output title?

Title of deliverable / milestone.

3.2.2.2 How is the dataset / output shared?

Open

Zenodo is open.

3.2.2.5 Are there any methods or tools required to access the dataset / output?

No

3.2.2.8 Is the described dataset / output supported by a data access committee?

No

3.2.2.9 Please specify how the dataset / output will be accessed during and after the project ends

Through Zenodo web-interface or API.

Accessing persons aren't identified.

3.2.2.10 Please specify how long after the project has ended the dataset / output will be made accessible for unlimited duration.

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3.2.3 Metadata

3.2.3.1 Will you provide metadata even if the described dataset / output can not be openly shared?

Yes

Use Zenodo's access mechanisms

3.2.3.2 Under which license will metadata be provided?

Creative Commons Zero (CC0)

3.2.3.3 Do metadata provide information about how to access the described dataset / output?

Yes

According to DataCite schema.

3.2.3.4 Will metadata remain available after the dataset / output is no longer available?

Yes

According to Zenodo DMP.

3.3 Making data and other outputs interoperable

3.3.1 Does your (meta)data use a controlled vocabulary?

Yes

DataCite vocabulary.

3.3.2 If you created the vocabulary, where can it be found?

Vocabulary is pre-existing

3.3.3 Have you applied a standard schema for your (meta)data?

Yes

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DataCite Metadata Schema

3.3.5 What is the methodology followed?

Zenodo's metadata interface.

3.3.6 What community-endorsed interoperability best practices are followed?

Specified by Zenodo.

3.3.7 Does the described dataset / output provide qualified references with other outputs?

Yes

References by PID, e.g DOI.

3.4 Increasing data and other outputs reuse

3.4.1 What internationally recognised licence will you use for your dataset / output?

Creative Commons Attribution 4.0

3.4.2 What reusability and / or reproducibility methods are followed?

Other

Documents are quality assured project internally.

3.4.3 Will you provide the described dataset / output in the public domain? Yes

3.4.4 Do you intend to ensure (re)use by third parties after your project finishes?

Yes

3.4.5 Is provenance well documented?

Yes

Authors are specified in documents. They are also identified in the Zenodo metadata schema, identified by PID, which makes the information machine actionable.

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3.4.6 What documented procedures for quality assurance do you have in place?

Set up of scientific and technical committee

Project internal review, according to standard rules of scientific review.

4 Allocation of Resources

4.1 Allocation of resources

4.1.1 What will be the cost of making the described output FAIR?

100

Euro

- Storage
- Archiving
- Re-use
- Security

Indirect cost

4.1.2 How will this cost be covered?

Infrastructure Grant Project.

4.1.3 Identify the people who will be responsible and their role(s) in the management of the described output

Markus Fiebig (orcid: 0000-0002-3380-3470)

5 Security

5.1 Data Security

5.1.1 What security measures are followed?

- Firewall

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- Passwords

5.1.2 What conditions do the security measures meet?

Data storage

Zenodo is a certified archive, and should therefore have backup measures in place.

5.1.3 How will you preserve the described dataset / output in the long term?

Zenodo is a long-term archive.

6 Ethical Aspects

6.1 Ethical aspects

6.1.1 Are there any ethical or legal issues that can have an impact on sharing the described dataset / output? no

6.1.2 Does the described dataset / output contain sensitive information?

No

6.1.3 Does the described dataset / output contain personal data?

No

7 Other Issues

7.1 Other

7.1.1 Do you make use of other procedures for data management?

No

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Software

The project may produce software. The software will be archived and version controlled in Github. The plug-in to Zenodo will be used to identify the software and software versions.

Template: Horizon Europe

Type: Dataset

1 Summary

1.1 Brief description of the described research output1.1.1 What kind of research output are you describing?

Software

1.1.2 Is it physical or digital?

Digital

1.1.3 Are you generating or re-using it?

New

The software generated in the project is by definition generated within the scope of the current project. The reuse of existing data isn't relevant here.

1.1.4 What is the type of the described dataset?

Other

The software will constitute primary data generated by the project.

1.1.5 What is its format?

Containers: TAR, GZIP, ZIP, also explicit code in Python or other languages.

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1.1.6 What is its expected size?

50MB

1.1.7 Why are you collecting/generating or re-using it?

To keep on record

Software is essential documentation of a project and should be kept on record.

1.1.8 What is its origin / provenance?

The software and codes are produced manually by humans.

1.1.9 To whom might it be useful ('data utility')?

- Researchers
- Research communities
- Education

The software will be interesting mainly for environmental research infrastructures or networks focusing on observations of air quality and climate-relevant atmospheric parameters.

2 Links Between Outputs

2.1 Publications

2.1.1 Does the described output support any scientific publication?Yes

2.1.2 Is there a data availability statement provided along with the publication?

No

2.2 Datasets

2.2.1 Does the described output use or support any published dataset?

No

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3 FAIR Practices

3.1 Making data and other outputs findable, including provisions for metadata

3.1.1 Making data findable, including provisions for metadata

3.1.1.1 What type(s) of persistent identifier(s) are used for the described dataset / output?

Other

DOI

Software produced in the project will be archived in ZENODO, and will be associated with the "CARGO-ACT" community

3.1.1.2 Will you provide metadata for the described dataset / output?

Yes

DataCite Metadata Schema

Zenodo uses DOIs issued by DataCite, thus uses the DataCite metadata schema.

3.1.1.3 What type(s) of metadata?

- Descriptive
- Reference

According to the DataCite schema.

3.1.1.4 Do the metadata use standardised vocabularies?

Yes

DataCite vocabulary

3.1.1.5 Please provide URL/Description of used

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vocabularieshttps://github.com/metadatacenter/datacite-controlled-vocabulary DataCite vocabulary is obligatory to fille in the DataCite schema.

3.1.1.6 Are the metadata searchable?

Yes

3.1.1.7 How are searchable metadata provided?

Registry/Catalogue Zenodo catalogue.

3.1.1.8 Are keywords provided in the metadata?

Yes

3.1.1.9 Are metadata harvestable?

Yes

From Zenodo APIs.

3.2 Making data and other outputs openly accessible

3.2.1 Repository

3.2.1.1 In which repository will the dataset / output be deposited?Zenodo

https://zenodo.org

Zenodo is a widely-used open repository for digital resources.

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3.2.1.2 Is the selected repository a trusted source?

Yes

- Follows repository standards
- Details terms of use
- Has an open access content policy
- Supports back up
- Provides Open Access content (free at the point of use)
- Assigns PIDs
- Follows metadata standards

3.2.1.4 Add appropriate arrangements made with the repository(ies) where thedescribed dataset will be deposited

Zenodo is recommended by FAIRsharing.org.

3.2.1.5 Does the repository(ies) assign datasets / outputs with persistent identifiers?

Yes

3.2.1.6 Does the repository(ies) resolve the identifiers to a digital object?

Uses DataCite to resolve identifiers.

3.2.1.7 Does the repository support versioning?Yes

3.2.2 Data

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3.2.2.1 What is the described dataset / output title?

Title of the software

3.2.2.2 How is the dataset / output shared?

Open

Zenodo is open.

3.2.2.5 Are there any methods or tools required to access the dataset / output?

No

3.2.2.8 Is the described dataset / output supported by a data access committee?

No

3.2.2.9 Please specify how the dataset / output will be accessed during and after the project ends

Through Zenodo web-interface or API.

Accessing persons aren't identified.

3.2.2.10 Please specify how long after the project has ended the dataset / output will be made accessible for

unlimited duration.

3.2.3 Metadata

3.2.3.1 Will you provide metadata even if the described dataset / output can not be openly shared?

Yes

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Use Zenodo's access mechanisms

3.2.3.2 Under which license will metadata be provided?

Creative Commons Zero (CC0)

3.2.3.3 Do metadata provide information about how to access the described dataset / output?

Yes

According to DataCite schema.

3.2.3.4 Will metadata remain available after the dataset / output is no longer available?

Yes

According to Zenodo DMP.

3.3 Making data and other outputs interoperable

3.3.1 Does your (meta)data use a controlled vocabulary?

Yes

DataCite vocabulary.

3.3.2 If you created the vocabulary, where can it be found?

Vocabulary is pre-existing

3.3.3 Have you applied a standard schema for your (meta)data?

Yes

DataCite Metadata Schema

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3.3.5 What is the methodology followed?

Zenodo's metadata interface.

3.3.6 What community-endorsed interoperability best practices are followed?

Specified by Zenodo as described In Zenodo's data FAIRness self-assessment.

3.3.7 Does the described dataset / output provide qualified references with other outputs?

Yes

References by PID, e.g DOI.

3.4 Increasing data and other outputs reuse

3.4.1 What internationally recognised licence will you use for your dataset / output?

- Creative Commons Attribution 4.0
- GNU Affero General Public License v3

3.4.2 What reusability and / or reproducibility methods are followed?

- Readme files
- Other

Software is quality assured project internally. Data are archived together with references to the software used to produce them. New software versions trigger new data versions.

3.4.3 Will you provide the described dataset / output in the public domain?Yes

3.4.4 Do you intend to ensure (re)use by third parties after your project finishes?

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Yes

3.4.5 Is provenance well documented?

Yes

Authors are specified in documents. Data are archived together with references to the software used to produce them. New software versions trigger new data versions.

3.4.6 What documented procedures for quality assurance do you have in place?

Set up of scientific and technical committee Project internal

review.

4 Allocation of Resources

4.1 Allocation of resources

4.1.1 What will be the cost of making the described output FAIR?

100

Euro

- Storage
- Archiving
- Re-use
- Security

Indirect cost

4.1.2 How will this cost be covered?

Infrastructure Grant Project.

5 Security

5.1 Data Security

5.1.1 What security measures are followed?

- Firewall
- Passwords

5.1.2 What conditions do the security measures meet?

Data storage

5.1.3 How will you preserve the described dataset / output in the long term?

Zenodo is a long-term archive.

6 Ethical Aspects

6.1 Ethical aspects

6.1.1 Are there any ethical or legal issues that can have an impact on sharing the described dataset / output? no

6.1.2 Does the described dataset / output contain sensitive information?

No

6.1.3 Does the described dataset / output contain personal data?

No

7 Other Issues

7.1 Other

7.1.1 Do you make use of other procedures for data management?

No

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Lab calibrations

The project will produce text documents outlining lab calibrations and procedures. These are archived in PDF format, which is openly accessible. The documents will be archived in the Zenodo (general purpose archive) to meet the identification and version history criteria. Access will be regulated according to the nature of the document, with open access as default.

Template: Horizon Europe

Type: Dataset

1 Summary

1.1 Brief description of the described research output1.1.1 What kind of research output are you describing?

Protocols

1.1.2 Is it physical or digital?

Digital

1.1.3 Are you generating or re-using it?

New

The text documents produced in the project mainly include protocols produced during instrument calibrations. These protocols are by definition generated in the project. The reuse of existing data isn't relevant here.

1.1.4 What is the type of the described dataset?

Other

The text documents will constitute primary data generated by the project.

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1.1.5 What is its format?

Portable Document Format (PDF)

1.1.6 What is its expected size?

4MB

1.1.7 Why are you collecting/generating or re-using it?

- To obtain information
- To keep on record

Lab calibration protocols/procedures are essential documentation for the project's progress and should be kept on record.

1.1.8 What is its origin / provenance?

The text documents, here lab calibration protocols, are produced manually by humans.

1.1.9 To whom might it be useful ('data utility')?

- Researchers
- Research communities
- Education
- Other

The project results will be interesting mainly for environmental research infrastructures or networks focusing on observations of air quality and climate relevant atmospheric parameters.

2 Links Between Outputs

2.1 Publications

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2.1.1 Does the described output support any scientific publication?

Yes

2.1.2 Is there a data availability statement provided along with the publication?

No

2.2 Datasets

2.2.1 Does the described output use or support any published dataset?

No

2.3 Software

2.3.1 Does the described output use or support any software?

No

3 FAIR Practices

3.1 Making data and other outputs findable, including provisions for metadata

3.1.1 Making data findable, including provisions for metadata

3.1.1.1 What type(s) of persistent identifier(s) are used for the described dataset / output?

Other

DOI

Text documents produced in the project will be archived in ZENODO, and will be associated with the "CARGO-ACT" project community

3.1.1.2 Will you provide metadata for the described dataset / output?

Yes

DataCite Metadata Schema

Zenodo uses DOIs issued by DataCite, thus uses the DataCite metadata schema.

3.1.1.3 What type(s) of metadata?

- Descriptive
- Reference

According to DataCite schema.

3.1.1.4 Do the metadata use standardised vocabularies?

Yes

DataCite vocabulary

3.1.1.5 Please provide URL/Description of used vocabularies

https://github.com/metadatacenter/datacite-controlled-vocabulary DataCite vocabulary is obligatory to fille in DataCite schema.

3.1.1.6 Are the metadata searchable?

Yes

3.1.1.7 How are searchable metadata provided?

Registry/Catalogue Zenodo catalogue.

3.1.1.8 Are keywords provided in the metadata?

Yes

3.1.1.9 Are metadata harvestable?

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Yes

From Zenodo APIs.

3.2 Making data and other outputs openly accessible

3.2.1 Repository

3.2.1.1 In which repository will the dataset / output be deposited? Zenodo

https://zenodo.org

Zenodo is a widley-used open repository for digital resources.

3.2.1.2 Is the selected repository a trusted source?

Yes

- Follows repository standards
- Details terms of use
- Has an open access content policy
- Supports back up
- Provides Open Access content (free at the point of use)
- Assigns PIDs
- Follows metadata standards

3.2.1.4 Add appropriate arrangements made with the repository(ies) where the described dataset will be deposited

Zenodo is recommended by FAIRsharing.org.

3.2.1.5 Does the repository(ies) assign datasets / outputs with persistent identifiers?

Yes

3.2.1.6 Does the repository(ies) resolve the identifiers to a digital object?

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Uses DataCite to resolve identifiers.

3.2.1.7 Does the repository support versioning? Yes

3.2.2 Data

3.2.2.1 What is the described dataset / output title?

Title of lab calibration protocol

3.2.2.2 How is the dataset / output shared?

Open

Zenodo is open.

3.2.2.5 Are there any methods or tools required to access the dataset / output?

No

3.2.2.8 Is the described dataset / output supported by a data access committee?

No

3.2.2.9 Please specify how the dataset / output will be accessed during and after the project ends

Through Zenodo web-interface or API.

Accessing persons aren't identified.

3.2.2.10 Please specify how long after the project has ended the dataset / output will be made accessible for unlimited duration.

3.2.3 Metadata

3.2.3.1 Will you provide metadata even if the described dataset / output can not be openly shared?

Yes

Use Zenodo's access mechanisms

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3.2.3.2 Under which license will metadata be provided?

Creative Commons Zero (CC0)

3.2.3.3 Do metadata provide information about how to access the described dataset / output?

Yes

According to DataCite schema.

3.2.3.4 Will metadata remain available after the dataset / output is no longer available?

Yes

According to Zenodo DMP.

3.3 Making data and other outputs interoperable

3.3.1 Does your (meta)data use a controlled vocabulary?

Yes

DataCite vocabulary.

3.3.2 If you created the vocabulary, where can it be found?

Vocabulary is pre-existing

3.3.3 Have you applied a standard schema for your (meta)data?

Yes

DataCite Metadata Schema

3.3.5 What is the methodology followed?

Zenodo's metadata interface.

3.3.6 What community-endorsed interoperability best practices are followed?

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Specified by Zenodo.

3.3.7 Does the described dataset / output provide qualified references with other outputs?

Yes

References by PID, e.g DOI.

3.4 Increasing data and other outputs reuse

3.4.1 What internationally recognised licence will you use for your dataset / output?

Creative Commons Attribution 4.0

3.4.2 What reusability and / or reproducibility methods are followed?

Other

Documents are quality assured project internally.

3.4.3 Will you provide the described dataset / output in the public domain? Yes

3.4.4 Do you intend to ensure (re)use by third parties after your project finishes?

Yes

3.4.5 Is provenance well documented?

Yes

Authors are specified in documents.

3.4.6 What documented procedures for quality assurance do you have in place?

Set up of scientific and technical committee Project internal

review.

4 Allocation of Resources

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4.1 Allocation of resources

4.1.1 What will be the cost of making the described output FAIR?

100

Euro

- Storage
- Archiving
- Re-use
- Security

Indirect cost

4.1.2 How will this cost be covered?

Infrastructure Grant Project.

4.1.3 Identify the people who will be responsible and their role(s) in the management of the described output

Markus Fiebig (orcid: 0000-0002-3380-3470)

5 Security

5.1 Data Security

5.1.1 What security measures are followed?

- Firewall
- Passwords

5.1.2 What conditions do the security measures meet?

Data storage

5.1.3 How will you preserve the described dataset / output in the long term?

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Zenodo is a long-term archive.

6 Ethical Aspects

6.1 Ethical aspects

6.1.1 Are there any ethical or legal issues that can have an impact on sharing the described dataset / output? no

6.1.2 Does the described dataset / output contain sensitive information?

No

6.1.3 Does the described dataset / output contain personal data?

No

7 Other Issues

7.1 Other

7.1.1 Do you make use of other procedures for data management?

No

Intercomparisons on ambient air

The project will conduct intercomparisons of observations on atmospheric properties and constituents in the ambient, conducted by the US networks and ACTRIS as European RI. The data collected during these intercomparison campaigns will be archived in the responsible units of the ACTRIS Data Centre.

Template: Horizon Europe

Type: Dataset

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1 Summary

1.1 Brief description of the described research output1.1.1 What kind of research output are you describing?

Research Data

1.1.2 Is it physical or digital?

Digital

1.1.3 Are you generating or re-using it?

New

The intercomparison campaigns will generate new data.

1.1.4 What is the type of the described dataset?

Observational

The intercomparison campaigns will conduct atmospheric ambient air observations.

1.1.5 What is its format?

Observation specific, mostly converted to NetCDF-CF data format during data curation.

1.1.6 What is its expected size?

10 GB

1.1.7 Why are you collecting/generating or re-using it?

To keep on record

Keep record for demonstrating comparability and provenance of observations conducted in US and European networks for observing short-lived atmospheric constituents.

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1.1.8 What is its origin / provenance?

Observations during intercomparison campaigns

1.1.9 To whom might it be useful ('data utility')?

- Researchers
- Research communities

Researchers will be able to assess accuracy and comparability of data across regional networks.

2 Links Between Outputs

2.1 Publications

2.1.1 Does the described output support any scientific publication?Yes

2.1.2 Is there a data availability statement provided along with the publication?

No

2.3 Software

2.3.1 Does the described output use or support any software?

No

3 FAIR Practices

3.1 Making data and other outputs findable, including provisions for metadata

3.1.1 Making data findable, including provisions for metadata

3.1.1.1 What type(s) of persistent identifier(s) are used for the described dataset / output?

Data identifiers

DOI

ACTRIS DC uses DOIs to identify data. The default granularity resolves data streams from individual instruments. Once data collection and curation are completed, a collection DOI for all intercompariosn data generated in CARGOACT can be generated.

3.1.1.2 Will you provide metadata for the described dataset / output?

Yes

DataCite Metadata Schema

ACTRIS DC uses DOIs provided by DataCite.

3.1.1.3 What type(s) of metadata?

Descriptive

3.1.1.4 Do the metadata use standardised vocabularies?

Yes

DataCite vocabulary, ACTRIS vocabulary.

3.1.1.5 Please provide URL/Description of used vocabularies

https://github.com/metadatacenter/datacite-controlled-vocabulary; https://vocabulary.actris.nilu.no/actris_vocab/

DataCite vocabulary is obligatory to fille in the DataCite schema. ACTRIS vocabulary is used in addition for domain specific purposes.

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3.1.1.6 Are the metadata searchable?

Yes

3.1.1.7 How are searchable metadata provided?

- Registry/Catalogue
- Metadata repository

Metadata are searchable both in ACTRIS Data Portal and ACTRIS metadata API.

3.1.1.8 Are keywords provided in the metadata?

Yes

3.1.1.9 Are metadata harvestable?

Yes

Metadata are searchable through ACTRIS metadata API.

3.2 Making data and other outputs openly accessible

3.2.1 Repository

3.2.1.1 In which repository will the dataset / output be deposited?

ACTRIS Data Centre

3.2.1.2 Is the selected repository a trusted source?

No

3.2.1.4 Add appropriate arrangements made with the repository(ies) where thedescribed dataset will be deposited

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ACTRIS Data Centre is part of the project, and intends to work on obtaining CoreTrustSeal certification.

3.2.1.5 Does the repository(ies) assign datasets / outputs with persistent identifiers?

Yes

3.2.1.6 Does the repository(ies) resolve the identifiers to a digital object?

Repositories provide DOI landing pages.

3.2.1.7 Does the repository support versioning?

Yes

3.2.2 Data

3.2.2.1 What is the described dataset / output title?

Title format depends on data type

3.2.2.2 How is the dataset / output shared?

Open

ACTRIS Data Centre doesn't use access restrictions.

3.2.2.5 Are there any methods or tools required to access the dataset / output?

No

3.2.2.8 Is the described dataset / output supported by a data access committee?

No

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3.2.2.9 Please specify how the dataset / output will be accessed during and after the project ends

No committee needed since data are open.

3.2.2.10 Please specify how long after the project has ended the dataset / output will be made accessible for

As long as ACTRIS Data Centre exists, i.e. at least for the next 20 years.

3.2.3 Metadata

3.2.3.1 Will you provide metadata even if the described dataset / output can not be openly shared?

Yes

3.2.3.2 Under which license will metadata be provided?

Other

Creative Commons Attribution 4.0

To ensure attribution of the infrastructure

3.2.3.3 Do metadata provide information about how to access the described dataset / output?

Yes

Metadata contain data access points in various protocols.

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3.2.3.4 Will metadata remain available after the dataset / output is no longer available? Yes

3.3 Making data and other outputs interoperable

3.3.1 Does your (meta)data use a controlled vocabulary?

Yes

DataCite vocabulary, ACTRIS vocabulary

3.3.2 If you created the vocabulary, where can it be found?ACTRIS vocabulary: https://vocabulary.actris.nilu.no/actris_vocab/

3.3.3 Have you applied a standard schema for your (meta)data?

Yes

DataCite Metadata Schema

3.3.6 What community-endorsed interoperability best practices are followed?

ENVRI atmospheric domain FAIRness implementation plan.

3.3.7 Does the described dataset / output provide qualified references with other outputs?

No

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References are under implementation.

3.4 Increasing data and other outputs reuse

3.4.1 What internationally recognised licence will you use for your dataset / output?

Creative Commons Attribution 4.0 No embargo

planned.

3.4.2 What reusability and / or reproducibility methods are followed?

- Data cleaning
- Variable definitions
- Units of measurement

3.4.3 Will you provide the described dataset / output in the public domain?Yes

3.4.4 Do you intend to ensure (re)use by third parties after your project finishes?

Yes

The ACTRIS Data Centre exists as long as the ACTRIS infrastructure exists, and will keep the data available after the project end.

3.4.5 Is provenance well documented?

No

Provenance documentation is under implementation.

3.4.6 What documented procedures for quality assurance do you have in place?

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- Use of tools for automatic checks
- Data conform to format specification

4 Allocation of Resources

4.1 Allocation of resources

4.1.1 What will be the cost of making the described output FAIR?

500

Euro

- Storage
- Archiving
- Re-use

Indirect cost

4.1.2 How will this cost be covered?

Infrastructure Grant

4.1.3 Identify the people who will be responsible and their role(s) in the management of the described output

a. Cathrine Lund Myhre (orcid: 0000-0003-3587-5926)

Head of ACTRIS Date Centre

b. LUCIA MONA (orcid: 0000-0003-4157-0838)

Head of ACTRIS Date Centre Aerosol Remote Sensing unit

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c. Ewan O'Connor (orcid: 0000-0001-9834-5100) Head of ACTRIS Date Centre Cloud Remote Sensing unit

d. Markus Fiebig (orcid: 0000-0002-3380-3470)

Head of ACTRIS Date Centre In Situ unit

e. Cathy Boonne (orcid: 0000-0003-2972-2851)

Head of ACTRIS Date Centre Trace Gas Remote Sensing unit

5 Security

5.1 Data Security

5.1.1 What security measures are followed?

- Firewall
- Passwords

5.1.2 What conditions do the security measures meet?

- Data access
- Data storage
- Data transmission
- Data recovery

5.1.3 How will you preserve the described dataset / output in the long term?

ACTRIS DC has the same lifetime as the ACTRIS Research Infrastructure

6 Ethical Aspects

6.1 Ethical aspects

6.1.1 Are there any ethical or legal issues that can have an impact on sharing the described dataset / output? no

6.1.2 Does the described dataset / output contain sensitive information?

No

6.1.3 Does the described dataset / output contain personal data?

No

7 Other Issues

7.1 Other

7.1.1 Do you make use of other procedures for data management?

No

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