

Data Management Plan for KORUS-AQ Airborne Field Study

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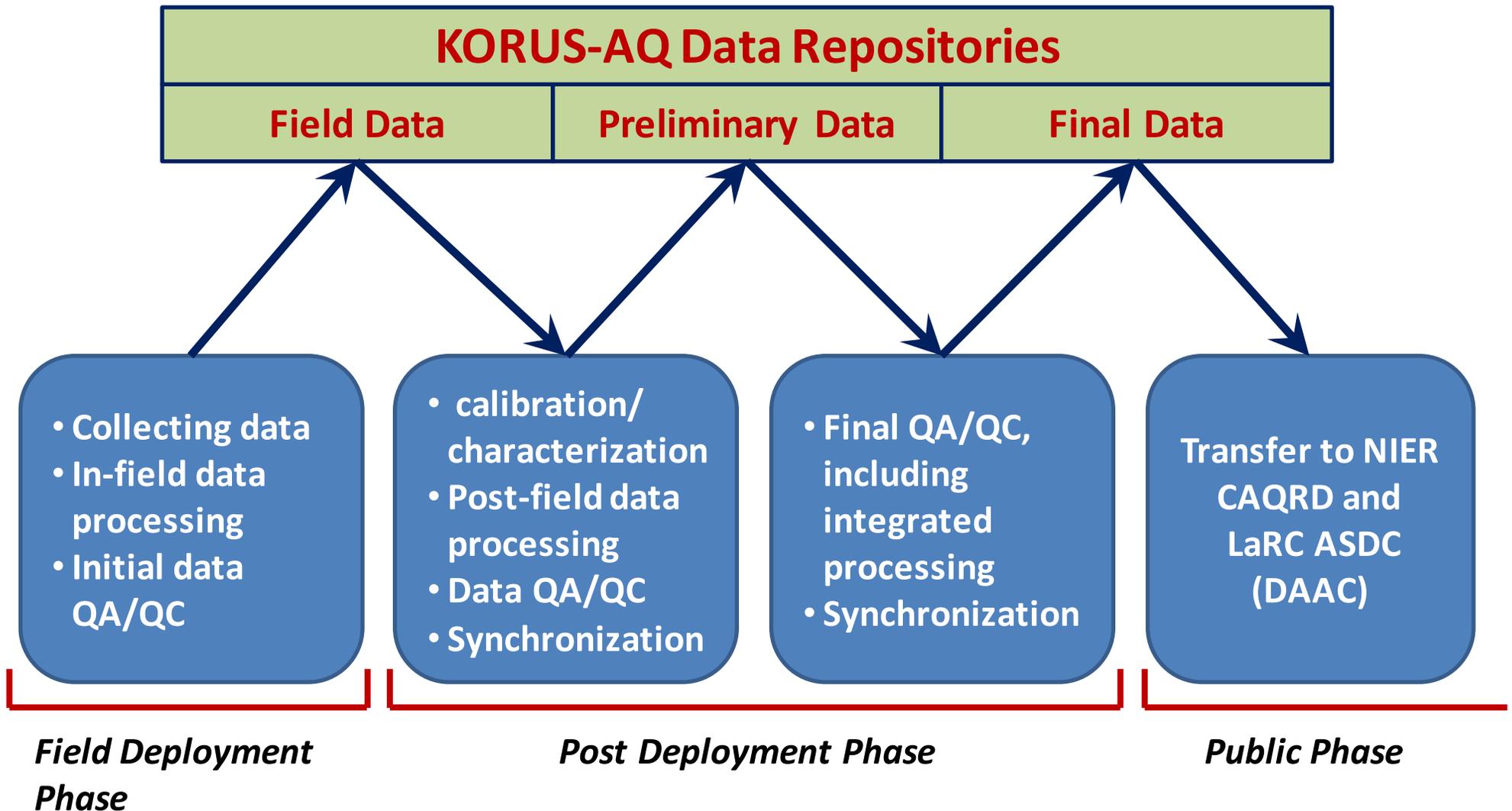
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Motivation and Overview

- Objective: to provide a framework through which the KORUS-AQ observational data are effectively archived, managed, and shared. This document also addresses the plan for long-term preservation and distribution
- Overview: The KORUS-AQ data submission will be conducted in three stages: field, preliminary, and final. The final data will be open to public and transferred to LaRC ASDC and NIER CAQRD for long-term preservation and distribution

KORUS-AQ Data Flow Overview



KORUS-AQ Data Repositories and Data Holdings

- NASA Data Repository: www-air.larc.nasa.gov
 - NASA DC-8 and King Air
 - Ozonesonde, Ozone LIDAR and Pandora
 - Other relevant model, trajectory and satellite data
- NEIR Data Repository: www.nier.go.kr
 - KMA King Air and Hanseo King Air
 - Kisang I and Onnuri
 - Ground sites
- Both data repositories will use the same username and password for access control
- Weblink will be provided for AERONET data website

KORUS-AQ Data Submission Schedule

Mission Phase	Data Type	Data Repository	Submission Deadline	Access Control
Field Deployment	Field Data	NASA	24 hour after each flight or cal. Day	Science team and Partners
		NEIR		
Post-Deployment	Preliminary Data	NASA	January 15, 2017	Science team and Partners
		NEIR		
Public	Final Data	NASA	June 15, 2017	Public
		NEIR	June 15, 2018	

- Field data submission deadline may vary depending on field operation constraints
- Preliminary and field data will be expunged after their operation periods, respectively
- The final data due date difference is driven by data policies at NASA and NEIR

KORUS-AQ Data Format Requirements

- The data from KORUS-AQ field study will conform to **ICARTT or HDF** format
- All in-situ measurements are required to report data in ICARTT format. Detailed format description can be found at: <http://www-air.larc.nasa.gov/missions/etc/IcarttDataFormat.htm>.
- All incoming data files from in-situ measurements will be scanned to ensure compliance to the ICARTT format requirements
- Assistance will be made available to the science team to troubleshoot issues in generating ICARTT files.
- The remote sensing measurement instruments may report data in either HDF or ICARTT format

KORUS-AQ Data File Naming Convention

DataID_LocationID_YYYYMMDD_R#_Description.extension

- DataID: a short description of measured parameter/species, instrument, or model
- LocationID: an identifier of measurement platform: e.g. DC8, will be provided on the website in a drop-down box
- YYYYMMDD: UTC date when the flight take off or the beginning of the measurement for ground sites
- R#: Revision number. The revision number will be RA, RB, RC, ... for field data and R0, R1, R2, ... for the preliminary and final data. [Note: archived files cannot be overwritten](#)
- Description: optional additional description of the file if necessary
- Extension: “ict” for ICARTT files, “h4” for HDF 4 files, and “h5” for HDF 5 files, etc.
- Examples: the filename for DC-8 diode laser spectrometer H2O measurement made on May 1, 2016 flight may be:
 - KORUSAQ-DLH-H2O_DC8_20160501_RA.ICT (for field data)
 - KORUSAQ-DLH-H2O_DC8_20160501_R0.ICT (for preliminary or final data)

KORUS-AQ Data Reporting Requirements

- KORUS-AQ Metadata Requirements:
 - The KORUS-AQ data files should be *self-describing* with sufficient information on: variable definition, unit, data reporting information, measurement description, measurement uncertainty and detection limits
 - The metadata requirements for ICARTT and HDF files are uniform. Details will be provided in the Data Management Plan.
- DataID Registration:
 - PI will need to register his/her dataID before file submission.
 - DataID is used to organize file on the data repository and is a part of the KORUS-AQ file naming convention.
 - DataID is a typically short description of measured parameter/species, instrument, or model (e.g., KORUSAQ-O3).
 - The website will be open for DataID registration in late March, 2016 and detailed instruction will be distributed.

KORUS-AQ Science Data Policy

All participants are requested to accept the following responsibilities:

- Submit data in ICARTT or HDF format no later than the specified deadlines
- If unexpected events lead to any delay in data submission, the PI is required to notify the project leadership as soon as issues are known
- **Final data should be submitted to the archive prior to any presentation at scientific conferences (e.g. AGU, AMS) or manuscript preparation, unless explicit authorization is obtained from the program managers**
- All aircraft measurements from a common platform should be synchronized to science team pre-agreed time standard, e.g. DLH for DC-8
- Consult with PIs when using their data in conference/data workshop presentations and/or manuscript
- Invite PIs of any data used to be **co-authors** (particularly during post-deployment research phase)
- PIs should be available to answer questions about their data

- **Data Managers**

The KORUS-AQ Data Manager will monitor the data submission status in accordance with the data submission timeline. The data manager will also coordinate the efforts to support implementation of ICARTT format

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Additional Requirements for Enhancing KORUS-AQ Data Quality

- Data Synchronization standards:
 - DC8: DLH
 - King Airs?
- All aerosol extensive measurements are reported in STP (i.e., 273.15K and 1013 mb), including optical measurements
- 1 sec files start and stop at the common take-off and landing time
- 1 sec. cloud marker/flag?

Additional Requirements for Enhancing KORUS-AQ Data Quality (Cont.)

- *Use fixed variable name(s) for Time Stamps, i.e., Time_Start, Time_Stop, and Time_Mid*
- *Use the same number of variables and variable names throughout mission for the files with the same dataID*
- *While no standard short variable name recommendations, please consider add a common variable name after the “short name, unit”.*
- *These are recommended ICARTT format changes under discussion*