

SOOT for ACTIVATE: Reaching Aerosol Research Communities

An ASDC Update

Megan Buzanowicz, Morgan Silverman, Sean Leavor, Jennifer Tindell,
John Kusterer, Gao Chen



What is the ASDC?

- One of twelve NASA Earth Observing System Data and Information System (EOSDIS) Distributed Active Archive Centers (DAACs)
- ASDC supports four focus areas: Aerosols, Clouds, Tropospheric Chemistry and Radiation Budget
 - Maintain a focus in handling field campaign data
- Sole post project data portal for distribution of data products
 - Responsible for long-term preservation and stewardship
- ACTIVATE data holdings
 - Archive the latest versions of publication quality data, including observational, derived, and value-added data products
 - Contextual information to facilitate data use by research community at large
 - Documentation to maintain reprocessing capability and openness

Data Archival Update

- ASDC has completed ingest, archival, and distribution of all currently available publication quality data
 - If any data products are generated related to manuscript publication, we'd be happy to archive/publish the data at the ASDC
- Data is available through all the ASDC's search mechanisms (Earthdata Search and SOOT)
- Data updates will be uploaded first through the field repository and ingested periodically to ASDC
- Additional data DOIs can be issued to facilitate future publications

ACTIVATE Data Organization and DOIs

- Project level DOI: [10.5067/SUBORBITAL/ACTIVATE/DATA001](https://doi.org/10.5067/SUBORBITAL/ACTIVATE/DATA001)
- ACTIVATE_Aerosol_AircraftInSitu_Falcon_Data_1 Collection:
 - In-situ observations of aerosol microphysical, optical, and chemical properties
 - DOI: [10.5067/ASDC/ACTIVATE_Aerosol_AircraftInSitu_Falcon_Data_1](https://doi.org/10.5067/ASDC/ACTIVATE_Aerosol_AircraftInSitu_Falcon_Data_1)
- ACTIVATE_Cloud_AircraftInSitu_Falcon_Data_1 Collection:
 - In-situ observations of cloud physical, optical, and chemical properties
 - DOI: [10.5067/ASDC/ACTIVATE_Cloud_AircraftInSitu_Falcon_Data_1](https://doi.org/10.5067/ASDC/ACTIVATE_Cloud_AircraftInSitu_Falcon_Data_1)
- ACTIVATE_TraceGas_AircraftInSitu_Falcon_Data_1 Collection:
 - In-situ observations of O3, CH4, CO, and CO2
 - DOI: [10.5067/ASDC/ACTIVATE_TraceGas_AircraftInSitu_Falcon_Data_1](https://doi.org/10.5067/ASDC/ACTIVATE_TraceGas_AircraftInSitu_Falcon_Data_1)

- ACTIVATE_MetNav_AircraftInSitu_Falcon_Data_1 Collection:
 - Navigational parameters, temperature, water vapor, and 3-D winds
 - DOI: [10.5067/ASDC/ACTIVATE_MetNav_AircraftInSitu_Falcon_Data_1](https://doi.org/10.5067/ASDC/ACTIVATE_MetNav_AircraftInSitu_Falcon_Data_1)
- ACTIVATE_MetNav_AircraftInSitu_KingAir_Data_1 Collection:
 - Navigational Parameters, dropsondes
 - DOI: [10.5067/ASDC/ACTIVATE_Aerosol_AircraftInSitu_Falcon_Data_1](https://doi.org/10.5067/ASDC/ACTIVATE_Aerosol_AircraftInSitu_Falcon_Data_1)
- ACTIVATE_AerosolCloud_AircraftRemoteSensing_Falcon_KingAir_1 Collection:
 - RSP and HSRL remote sensing of cloud and aerosol properties
 - DOI: [10.5067/ASDC/ACTIVATE_AerosolCloud_AircraftRemoteSensing_KingAir_Data_1](https://doi.org/10.5067/ASDC/ACTIVATE_AerosolCloud_AircraftRemoteSensing_KingAir_Data_1)

- ACTIVATE_Miscellaneous_Data_1 Collection:
 - Camera forward cloud masks
 - DOI: [10.5067/ASDC/SUBORBITAL/ACTIVATE_Miscellaneous_Data_1](https://doi.org/10.5067/ASDC/SUBORBITAL/ACTIVATE_Miscellaneous_Data_1)
- ACTIVATE_Merge_Data_1 Collection:
 - Project generated merge files
 - Merge netCDF files are publicly available
 - DOI: [10.5067/ASDC/ACTIVATE_Merge_Data_1](https://doi.org/10.5067/ASDC/ACTIVATE_Merge_Data_1)
- ACTIVATE_Model_Data_1 Collection:
 - MERRA-2 Reanalysis Model Data
 - DOI: [10.5067/ASDC/SUBORBITAL/ACTIVATE_Model_Data_1](https://doi.org/10.5067/ASDC/SUBORBITAL/ACTIVATE_Model_Data_1)

- ACTIVATE-FLEXPART_1
 - FLEXible PARTicle dispersion model back-trajectories
 - DOI: [10.5067/ASDC/SUBORBITAL/ACTIVATE-FLEXPART_1](https://doi.org/10.5067/ASDC/SUBORBITAL/ACTIVATE-FLEXPART_1)
- ACTIVATE-MODIS-MERRA2_1
 - Merged MODIS and MERRA-2 dataset
 - DOI: [10.5067/ASDC/SUBORBITAL/ACTIVATE-MODIS-MERRA2_1](https://doi.org/10.5067/ASDC/SUBORBITAL/ACTIVATE-MODIS-MERRA2_1)
- ACTIVATE-Satellite_1
 - GOES-16 satellite data
 - DOI: [10.5067/ASDC/SUBORBITAL/ACTIVATE-Satellite_1](https://doi.org/10.5067/ASDC/SUBORBITAL/ACTIVATE-Satellite_1)

Open-Source Science: Findable and Accessible Data

Earthdata Search

- Search based on temporospatial criteria as well as keywords
- Retrieve data via collections (groupings of files)
- Data DOIs are issued for each collection

12 Matching Collections

Showing 12 of 12 matching collections

Export Sort View

ACTIVATE King Air Aerosol and Cloud Remotely Sensed Data
1,135 Granules 2020-02-10 to 2022-06-30
ACTIVATE_AerosolCloud_AircraftRemoteSensing_KingAir_Data is the aerosol and cloud data collected onboard the B-200 King Air aircraft via remote...
[GEOSS](#) • ACTIVATE AerosolCloud AircraftRemoteSensing KingAir Data v1 - NASA/LARC/SD/AS...

ACTIVATE GOES-16 Supplementary Data Products
1,290 Granules 2020-09-20 to 2022-10-31
ACTIVATE_Satellite_Data_1 is the GOES-16 satellite data supporting the ACTIVATE suborbital campaign. ACTIVATE was a 5-year NASA Earth-Venture...
[GEOSS](#) • ACTIVATE-Satellite v1 - NASA/LARC/SD/ASDC

ACTIVATE Falcon In Situ Cloud Data
936 Granules 2020-02-14 to 2022-06-30
ACTIVATE_Cloud_AircraftInSitu_Falcon_Data is the cloud data collected onboard the HU-25 Falcon aircraft via in-situ instrumentation during the...
[GEOSS](#) • ACTIVATE Cloud AircraftInSitu Falcon Data v1 - NASA/LARC/SD/ASDC

ACTIVATE Merged MODIS and MERRA-2 Dataset
67 Granules 2013-01-01 to 2022-06-30
ACTIVATE-MODIS-MERRA2 is the merged CERES MODIS and MERRA-2 dataset (pixel-level geostationary cloud products) produced by SatCORPS group at...
[GEOSS](#) • ACTIVATE-MODIS-MERRA2 v1 - NASA/LARC/SD/ASDC

ACTIVATE Falcon In Situ Aerosol Data
1,471 Granules 2020-02-14 to 2022-06-30
ACTIVATE_Aerosol_AircraftInSitu_Falcon_Data is the aerosol data collected onboard the HU-25 Falcon aircraft via in-situ instrumentation during the...

Search Results (12 Collections)

ACTIVATE King Air Aerosol and Cloud Remotely Sensed Data

Showing 20 of 1,135 matching granules

Sort View

ACTIVATE-RSP-WTRCLD_KINGAIR_2020618_R1.ict	ACTIVATE-HSRL2-mlh_KINGAIR_20220618_R0.ict
START 2022-06-18 12:11:18	START 2022-06-18 11:58:43
END 2022-06-18 15:22:06	END 2022-06-18 15:22:48
+ Download	+ Download
ACTIVATE-HSRL2-Cloud_KingAir_20220618_R1.h5	ACTIVATE-HSRL2_KingAir_20220618_R2.h5
START 2022-06-18 11:58:43	START 2022-06-18 11:58:43
END 2022-06-19 03:21:34	END 2022-06-19 03:21:31
+ Download	+ Download
ACTIVATE-RSP-CLD_KINGAIR_20220618_R1.zip	ACTIVATE-RSP-L1C_KINGAIR_20220618_R1.zip
START 2022-06-18 00:22:36	START 2022-06-18 00:22:36
END 2022-06-19 05:56:10	END 2022-06-19 05:56:10
+ Download	+ Download
ACTIVATE-RSP-AER_KingAir_20220618_R1.h5	ACTIVATE-HSRL2-images_KingAir_20220618_R2.zip
START 2022-06-18 00:00:12	START 2022-06-18 00:00:12

20 Search Time: 0.8s

Add Download All 1,135


Open Source Science: Findable, Accessible, and (Re)usable Data - [Sub-Orbital Order Tool \(SOOT\)](https://asdc.larc.nasa.gov/soot/power-user/)

(<https://asdc.larc.nasa.gov/soot/power-user/>)

- A variable centric discovery tool complementary to Earthdata Search
- Aims to facilitate research data use
 - ✓ Expert user interface for users with reasonable understanding of airborne field campaigns and airborne atmospheric composition measurements
 - ✓ General user interface development is currently on hold
- Variable (dataID) based data search - filtered by platform, flights, instruments, principal investigators
- Provides field campaign relevant documentation, e.g., flight summary reports
- Provides a merge service tool, an enhanced version of the field data repository online merge tool
- API under development, which will make data more findable and accessible

SOOT Power User Interface – 2 Approaches



Survey study: Few variables for all flights







ACTIVATE
Support Documentation


2020 2021 2022

Platforms: ?

ANALYSIS  HU25 

MERGE  MODEL 

SATELLITE  TRAJECTORY 

UC12 

Principal Investigators: ?

ANDREA CORRAL GLENN DISKIN
RICHARD MOORE LEE THORNHILL
CHRISTIANE VOIGT EDDIE WINSTEAD
LUKE ZIEMBA

Data IDs : ? All | None ^

- ☐ ACTIVATE-2DS-H-ARM [*variables]
- ☐ ACTIVATE-2DS-V-ARM [*variables]
- ☐ ACTIVATE-CAMERA-FORWARD
- ☒ ACTIVATE-DLH-H2O [*variables]
- ☐ ACTIVATE-DLH-H2O-20HZ [*variables]
- ☐ ACTIVATE-FCDP [*variables]
- ☐ ACTIVATE-LARGE-AMS [*variables]
- ☐ ACTIVATE-LARGE-AMS-CVI [*variables]
- ☐ ACTIVATE-LARGE-CAS [*variables]
- ☒ ACTIVATE-LARGE-CCN [*variables]
- ☐ ACTIVATE-LARGE-CDP [*variables]
- ☐ ACTIVATE-LARGE-CLOUDWATER [*variables]
- ☐ ACTIVATE-LARGE-INLETFLAG [*variables]
- ☐ ACTIVATE-LARGE-LAS [*variables]
- ☒ ACTIVATE-LARGE-MICROPHYSICAL [*variables]
- ☐ ACTIVATE-LARGE-OPTICAL [*variables]

Clear All Selected Files

Marine boundary layer clouds play a critical role in Earth's energy balance. Aerosol Cloud Meteorology Interactions over the western Atlantic Experiment (ACTIVATE) provides globally-relevant data about changes in marine boundary layer cloud systems over the western North Atlantic and samples its broad range of atmospheric conditions. The UC-12 King Air will primarily be used for remote sensing measurements of aerosol, cloud properties, and atmospheric state. A flight pattern which will contribute to airmass classification analysis. A total of 150 cloud conditions which enables robust characterization of aerosol-cloud-meteorology interactions. The statistical survey pattern involves close coordination between the aircraft and the ship as above and within cloud top. The process study pattern involves extensive

ANDREA CORRAL (0 / 34 files)

GLENN DISKIN (40 / 209 files)

RICHARD MOORE (28 / 106 files)


LEE THORNHILL (0 / 88 files)

CHRISTIANE VOIGT (0 / 119 files)

EDDIE WINSTEAD (0 / 29 files)

LUKE ZIEMBA (40 / 343 files)



Process study: All variables for 1 flight







ACTIVATE
Support Documentation


2020 2021 2022

Platforms: ?

ANALYSIS  HU25 

MERGE  MODEL 

SATELLITE  TRAJECTORY 

UC12 

Principal Investigators: ?

ANDREA CORRAL GLENN DISKIN
RICHARD MOORE LEE THORNHILL
CHRISTIANE VOIGT EDDIE WINSTEAD
LUKE ZIEMBA

Data IDs : ?

Start Dates: ? All | None ^

- ☐ 2020-02-12
- ☒ 2020-02-14
- ☐ 2020-02-15
- ☐ 2020-02-17
- ☐ 2020-02-21
- ☐ 2020-02-22
- ☐ 2020-02-23
- ☐ 2020-02-27
- ☐ 2020-02-28
- ☐ 2020-02-29
- ☐ 2020-03-01
- ☐ 2020-03-02
- ☐ 2020-03-06
- ☐ 2020-03-08
- ☐ 2020-03-09

Clear All Selected Files

Marine boundary layer clouds play a critical role in Earth's energy balance. Aerosol Cloud Meteorology Interactions over the western Atlantic Experiment (ACTIVATE) provides globally-relevant data about changes in marine boundary layer cloud systems over the western North Atlantic and samples its broad range of atmospheric conditions. The UC-12 King Air will primarily be used for remote sensing measurements of aerosol, cloud properties, and atmospheric state. A flight pattern which will contribute to airmass classification analysis. A total of 150 cloud conditions which enables robust characterization of aerosol-cloud-meteorology interactions. The statistical survey pattern involves close coordination between the aircraft and the ship as above and within cloud top. The process study pattern involves extensive

ANDREA CORRAL (1 / 34 files)

GLENN DISKIN (6 / 209 files)

RICHARD MOORE (3 / 106 files)

LEE THORNHILL (2 / 88 files)

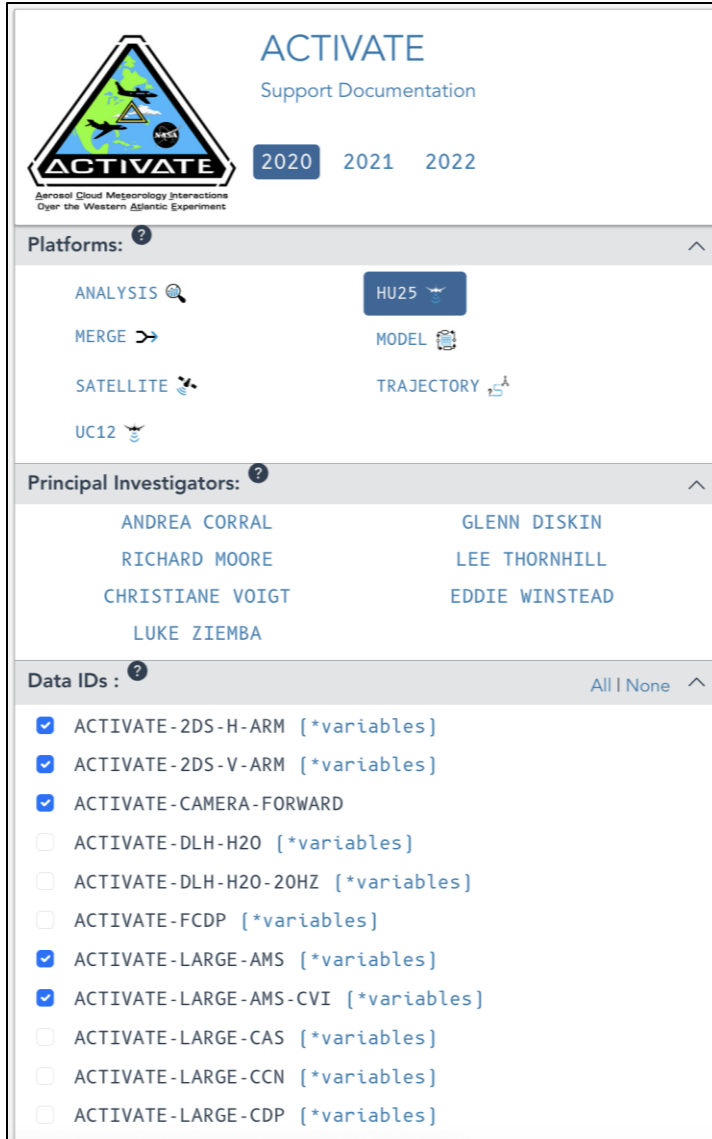
CHRISTIANE VOIGT (3 / 119 files)

EDDIE WINSTEAD (2 / 29 files)

LUKE ZIEMBA (9 / 343 files)

SOOT – Filter/Select Files

Filter



The screenshot shows the 'Filter' interface of the SOOT application. At the top left is the ACTIVATE logo with the text 'Aerosol Cloud Meteorology Interactions Over the Western Atlantic Experiment'. To the right of the logo is the text 'ACTIVATE Support Documentation'. Below this are three tabs for the years '2020', '2021', and '2022', with '2020' currently selected. The interface is divided into three main sections: 'Platforms', 'Principal Investigators', and 'Data IDs'. The 'Platforms' section has a search bar and buttons for 'ANALYSIS', 'MERGE', 'SATELLITE', 'UC12', 'HU25', 'MODEL', and 'TRAJECTORY'. The 'Principal Investigators' section lists names in two columns: ANDREA CORRAL, RICHARD MOORE, CHRISTIANE VOIGT, LUKE ZIEMBA, GLENN DISKIN, LEE THORNHILL, EDDIE WINSTEAD. The 'Data IDs' section has a search bar and a list of data IDs with checkboxes. The first three are checked: 'ACTIVATE-2DS-H-ARM [*variables]', 'ACTIVATE-2DS-V-ARM [*variables]', and 'ACTIVATE-CAMERA-FORWARD'. The remaining seven are unchecked.

ACTIVATE
Support Documentation

2020 2021 2022

Platforms:

ANALYSIS
MERGE
SATELLITE
UC12

HU25
MODEL
TRAJECTORY

Principal Investigators:

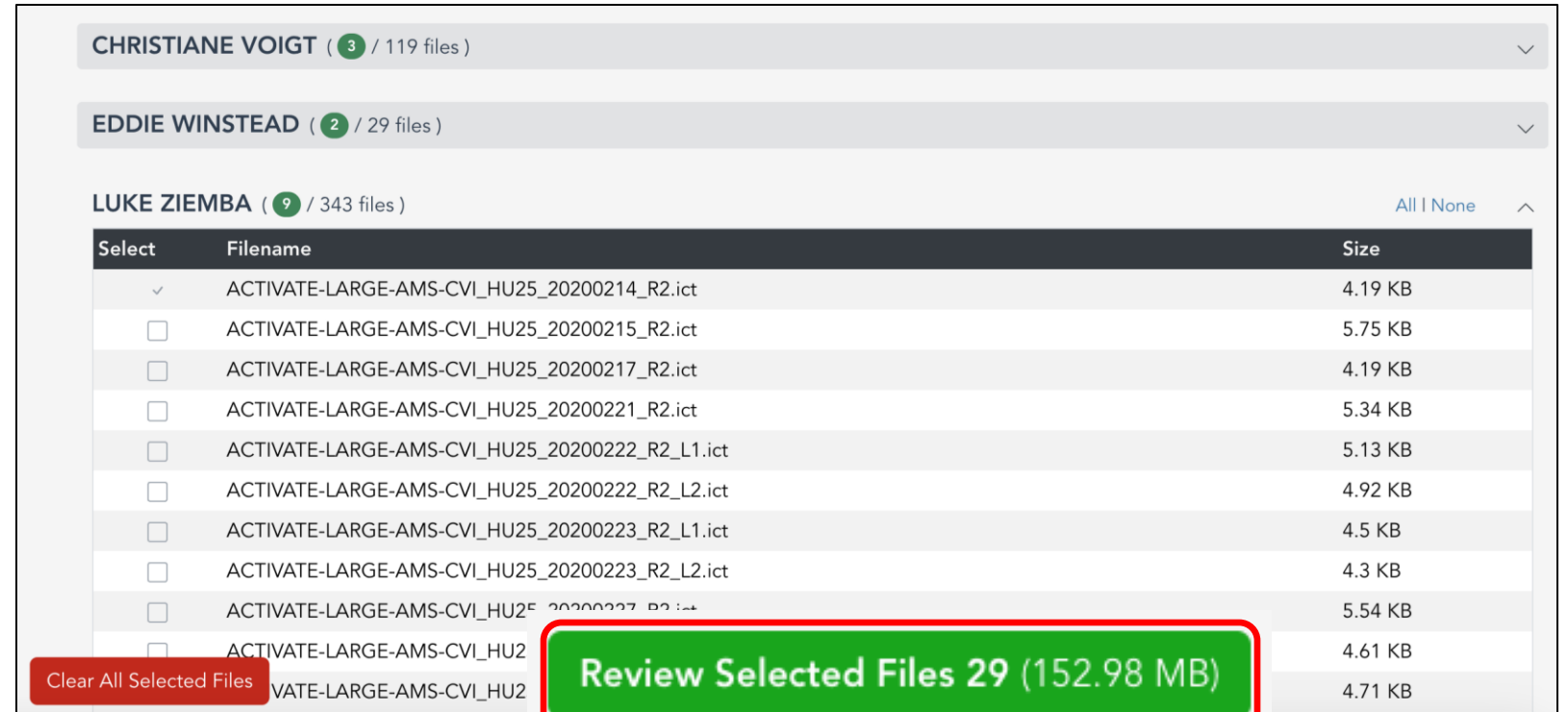
ANDREA CORRAL
RICHARD MOORE
CHRISTIANE VOIGT
LUKE ZIEMBA

GLENN DISKIN
LEE THORNHILL
EDDIE WINSTEAD

Data IDs :

ACTIVATE-2DS-H-ARM [*variables]
ACTIVATE-2DS-V-ARM [*variables]
ACTIVATE-CAMERA-FORWARD
ACTIVATE-DLH-H2O [*variables]
ACTIVATE-DLH-H2O-20HZ [*variables]
ACTIVATE-FCDP [*variables]
ACTIVATE-LARGE-AMS [*variables]
ACTIVATE-LARGE-AMS-CVI [*variables]
ACTIVATE-LARGE-CAS [*variables]
ACTIVATE-LARGE-CCN [*variables]
ACTIVATE-LARGE-CDP [*variables]

Select



The screenshot shows the 'Select' interface of the SOOT application. At the top, there are three dropdown menus for selecting Principal Investigators: 'CHRISTIANE VOIGT (3 / 119 files)', 'EDDIE WINSTEAD (2 / 29 files)', and 'LUKE ZIEMBA (9 / 343 files)'. Below these is a table with columns 'Select', 'Filename', and 'Size'. The table lists 11 files, all starting with 'ACTIVATE-LARGE-AMS-CVI_HU25_'. The first file is selected with a checkmark. At the bottom left is a red button 'Clear All Selected Files'. At the bottom right is a green button 'Review Selected Files 29 (152.98 MB)'.

CHRISTIANE VOIGT (3 / 119 files)

EDDIE WINSTEAD (2 / 29 files)

LUKE ZIEMBA (9 / 343 files)

All | None


Select	Filename	Size
<input checked="" type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200214_R2.ict	4.19 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200215_R2.ict	5.75 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200217_R2.ict	4.19 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200221_R2.ict	5.34 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200222_R2_L1.ict	5.13 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200222_R2_L2.ict	4.92 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200223_R2_L1.ict	4.5 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200223_R2_L2.ict	4.3 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200227_R2.ict	5.54 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200227_R2_L1.ict	4.61 KB
<input type="checkbox"/>	ACTIVATE-LARGE-AMS-CVI_HU25_20200227_R2_L2.ict	4.71 KB

Clear All Selected Files

Review Selected Files 29 (152.98 MB)

- As data are filtered, the number and size of the selected files are shown
- File selections can be made through the filters or the PI selection panes, e.g., PI name, dataID
- Switch between platforms and years to select and review additional files for download
- Once files are selected, click the green 'Review Selected Files' button to download or create merges for the mergeable files

Review Selected Files – Choose to Merge or Download



ACTIVATE
Support Documentation

2020 2021 2022

Platforms: ?

ANALYSIS ?
MERGE ?
SATELLITE ?
UC12 ?

HU25
MODEL
TRAJECTORY

Principal Investigators: ?

ANDREA CORRAL
RICHARD MOORE
CHRISTIANE VOIGT
LUKE ZIEMBA

GLENN DISKIN
LEE THORNHILL
EDDIE WINSTEAD

Data IDs : ?

☐ ACTIVATE-2DS-H-ARM [*variables]
☐ ACTIVATE-2DS-V-ARM [*variables]
☐ ACTIVATE-CAMERA-FORWARD
☐ ACTIVATE-DLH-H2O [*variables]
☐ ACTIVATE-DLH-H2O-20HZ [*variables]
☐ ACTIVATE-FCDP [*variables]
☐ ACTIVATE-LARGE-AMS [*variables]
☐ ACTIVATE-LARGE-AMS-CVI [*variables]
☐ ACTIVATE-LARGE-CAS [*variables]
☐ ACTIVATE-LARGE-CCN [*variables]
☐ ACTIVATE-LARGE-CDP [*variables]
☐ ACTIVATE-LARGE-CLOUDWATER [*variables]
☐ ACTIVATE-LARGE-INLETFLAG [*variables]

Selected 29 files (152.98 MB)

Remove All

Filename	Size	Remove
NAAMES-LARGE-AMS_C130_20151112_R0.ict	83.26 KB	<input type="checkbox"/>
NAAMES-LARGE-AMS_C130_20151114_R0.ict	69.36 KB	<input type="checkbox"/>
NAAMES-LARGE-AMS_C130_20151117_R0.ict	68.23 KB	<input type="checkbox"/>
ACTIVATE-2DS-H-ARM_HU25_20200214_R2.ict	16.79 MB	<input type="checkbox"/>
ACTIVATE-2DS-V-ARM_HU25_20200214_R2.ict	16.8 MB	<input type="checkbox"/>
ACTIVATE-CAMERA-FORWARD_HU25_20200214_R0_L1.mp4	79.76 MB	<input type="checkbox"/>
ACTIVATE-CAMERA-FORWARD_HU25_20200214_R0_THRU20200930_README.docx	16.04 KB	<input type="checkbox"/>
ACTIVATE-DLH-H2O-20HZ_HU25_20200214_R0.ict	5.98 MB	<input type="checkbox"/>
ACTIVATE-DLH-H2O_HU25_20200214_R0.ict	274.96 KB	<input type="checkbox"/>
ACTIVATE-FCDP_HU25_20200214_R0.ict	1.9 MB	<input type="checkbox"/>
ACTIVATE-LARGE-AMS-CVI_HU25_20200214_R2.ict	4.19 KB	<input type="checkbox"/>
ACTIVATE-LARGE-AMS_HU25_20200214_R2.ict	40.77 KB	<input type="checkbox"/>
ACTIVATE-LARGE-CAS_HU25_20200214_R0.ict	1.46 MB	<input type="checkbox"/>
ACTIVATE-LARGE-CCN_HU25_20200214_R0.ict	200.02 KB	<input type="checkbox"/>
ACTIVATE-LARGE-CDP_HU25_20200214_R0.ict	1.62 MB	<input type="checkbox"/>
ACTIVATE-LARGE-CLOUDWATER_HU25_20200214_R0.ict	12.1 KB	<input type="checkbox"/>
ACTIVATE-LARGE-INLETFLAG_HU25_20200214_R1.ict	130.46 KB	<input type="checkbox"/>

Open All

Beta Testing - Do not cite merge results

Merge Files ?

[Click here to provide feedback on merge capability](#)

Download Files

Cancel

SOOT - Merge Service

Merge Options

Beta Testing - Do not cite merge results

[SOOT PUI Merge User Guide](#)

Selected Variables:

ACTIVATE-DLH-H2O (3) ▾

ACTIVATE-LARGE-AMS (14) ▾

ACTIVATE-LARGE-CCN (2) ▾

ACTIVATE-LARGE-INLETFLAG (1) ▾

ACTIVATE-LARGE-LAS (30) ▾

ACTIVATE-LARGE-MICROPHYSICAL (10) ▾

ACTIVATE-LARGE-PILS (12) ▾

ACTIVATE-LEGFLAGS (3) ▾

ACTIVATE-SUMMARY (14) ▾

Time Base Mode:

Generic ▾

Choose a generic time base interval:

☒ 60 sec ☐ 30 sec ☐ 15 sec ☐ 10 sec ☐ 5 sec ☐ 1 sec

Mergeable:

Filename

Why are these files able to be merged?
Merge is available for ICARTT (.ict) file formats.

☐ Include Input Files in Download?

Return to Selected Files

Package for Download

Cancel

- Combines data from the same platform and flight onto a common time base.
- Two main steps:
 1. Variable Selection
 2. Time Base Selection
- Currently only merges ICARTT files. In the future will work with other formats.
- Actively seeking users to test merge service and provide feedback. [Feedback Form](#)

SOOT Merge Service – Configure Merge

Selected Variables:

ACTIVATE-DLH-H2O (3) ▾

ACTIVATE-FCDP (22) ▾

ACTIVATE-LARGE-AMS (14) ▾

<input checked="" type="checkbox"/> Select	Variable Name	Type	Units	Description	Standard Name
<input checked="" type="checkbox"/>	Org_Ave_IsoK_S TP	Scala r	Organic_micrograms_per_standard_cu bic_meter		AerComp_OrganicAerosol_InSitu_VacuumAerodynamic_Accu_MassSTP
<input checked="" type="checkbox"/>	SO4_Ave_IsoK_S TP	Scala r	Sulfate_micrograms_per_standard_cub ic_meter		AerComp_Sulfate_InSitu_VacuumAerodynamic_Accu_MassSTP
<input checked="" type="checkbox"/>	NO3_Ave_IsoK_S TP	Scala r	Nitrate_micrograms_per_standard_cubi c_meter		AerComp_Nitrate_InSitu_VacuumAerodynamic_Accu_MassSTP
<input checked="" type="checkbox"/>	NH4_Ave_IsoK_S TP	Scala r	Ammonium_micrograms_per_standard _cubic_meter		AerComp_Ammonium_InSitu_VacuumAerodynamic_Accu_MassSTP

ACTIVATE-LARGE-CAS (34) ▾

Time Base Mode:
Choose a dataID to use as the time base for each campaign-platform below:

ACTIVATE-HU25

Data ID Time Base ▾

✓ Please select a dataID

ACTIVATE-DLH-H2O-20HZ

ACTIVATE-SUMMARY

ACTIVATE-LEGFLAGS

ACTIVATE-LARGE-CAS

Mergeable:

Filename	Why
ACTIVATE-DLH-H2O-20HZ_HU25_20211130_R0.ict	Merge is available for ACTIVATE flag time base from the same campaign, target date, launch, and

☐ Include Input Files in Download?

Return to Selected Files

Package for Download

Cancel

1. Variable Selection:

- Expand dataIDs to allow users to select variables
- All variables are automatically selected.

2. Time Base Selection:

- Choose a generic time base, e.g., 60 sec
- Choose a dataID time base, e.g., LegFlags, to merge data based on ACTIVATE flag time base

SOOT Merge Service – Download

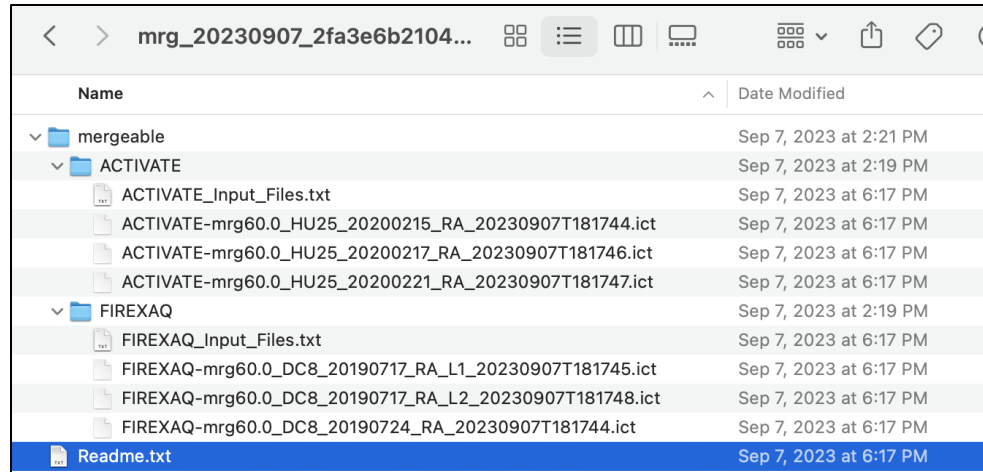
Thanks Morgan for using SOOT!

Your download is ready! Click the button below to download.

Download (2.9 GB)

[Go back to the previous page](#)

[Go to the Home page](#)



Name	Date Modified
mergeable	Sep 7, 2023 at 2:21 PM
ACTIVATE	Sep 7, 2023 at 2:19 PM
ACTIVATE_Input_Files.txt	Sep 7, 2023 at 6:17 PM
ACTIVATE-mrg60.0_HU25_20200215_RA_20230907T181744.ict	Sep 7, 2023 at 6:17 PM
ACTIVATE-mrg60.0_HU25_20200217_RA_20230907T181746.ict	Sep 7, 2023 at 6:17 PM
ACTIVATE-mrg60.0_HU25_20200221_RA_20230907T181747.ict	Sep 7, 2023 at 6:17 PM
FIREXQAQ	Sep 7, 2023 at 2:19 PM
FIREXQAQ_Input_Files.txt	Sep 7, 2023 at 6:17 PM
FIREXQAQ-mrg60.0_DC8_20190717_RA_L1_20230907T181745.ict	Sep 7, 2023 at 6:17 PM
FIREXQAQ-mrg60.0_DC8_20190717_RA_L2_20230907T181748.ict	Sep 7, 2023 at 6:17 PM
FIREXQAQ-mrg60.0_DC8_20190724_RA_20230907T181744.ict	Sep 7, 2023 at 6:17 PM
Readme.txt	Sep 7, 2023 at 6:17 PM

- Zipped file with merged and unmergeable files
- Folders within zipped file for each field campaign/platform if chose multiple

Selected 208 file(s) from Power User Interface:
Mergeable files (179)

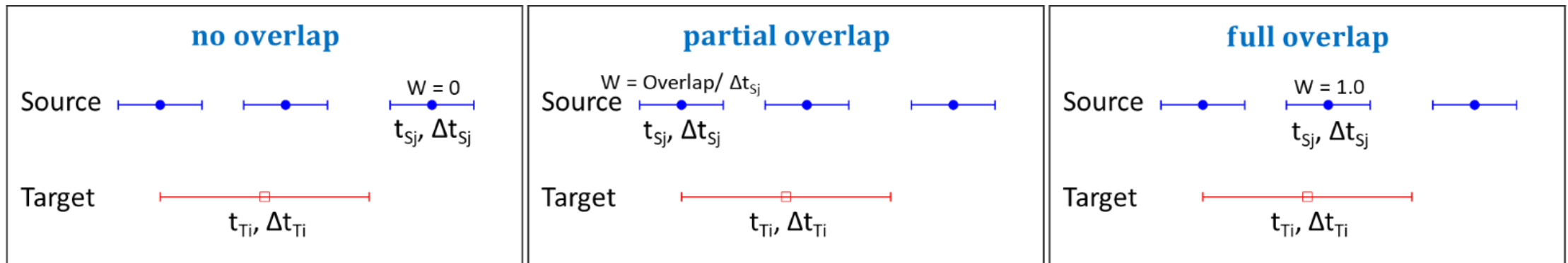
Filename	Size
ACTIVATE-2DS-H-ARM_HU25_20200214_R2.ict	16.79 MB
ACTIVATE-2DS-V-ARM_HU25_20200214_R2.ict	16.8 MB
ACTIVATE-DLH-H2O-20HZ_HU25_20200214_R0.ict	5.98 MB
ACTIVATE-DLH-H2O_HU25_20200214_R0.ict	274.96 KB
ACTIVATE-FCDP_HU25_20200214_R0.ict	1.9 MB
ACTIVATE-LARGE-AMS-CVI_HU25_20200214_R2.ict	4.19 KB
ACTIVATE-LARGE-AMS_HU25_20200214_R2.ict	40.77 KB
ACTIVATE-LARGE-CAS_HU25_20200214_R0.ict	1.46 MB
ACTIVATE-LARGE-CCN_HU25_20200214_R0.ict	200.02 KB
ACTIVATE-LARGE-CDP_HU25_20200214_R0.ict	1.62 MB
ACTIVATE-LARGE-CLOUDWATER_HU25_20200214_R0.ict	12.1 KB
ACTIVATE-LARGE-INLETFLAG_HU25_20200214_R1.ict	130.46 KB
ACTIVATE-LARGE-LAS_HU25_20200214_R3.ict	2.06 MB
ACTIVATE-LARGE-MICROPHYSICAL_HU25_20200214_R3.ict	758.73 KB
ACTIVATE-LARGE-OPTICAL_HU25_20200214_R2.ict	1.44 MB
ACTIVATE-LARGE-PILS_HU25_20200214_R1.ict	3.87 KB
ACTIVATE-LARGE-SMPS_HU25_20200214_R4.ict	65.05 KB
ACTIVATE-LEGFLAGS_HU25_20200214_R3.ict	3.65 KB

Non-mergeable files (29)

Filename	Size
ACTIVATE-CAMERA-FORWARD_HU25_20200214_R0_L1.mp4	79.76 MB
ACTIVATE-CAMERA-FORWARD_HU25_20200214_R0_THRU20200930_README.docx	16.04 KB
ACTIVATE-CAMERA-FORWARD_HU25_20200215_R0_L1.mp4	82.7 MB
ACTIVATE-CAMERA-FORWARD_HU25_20200217_R0_L1.mp4	84.88 MB
ACTIVATE-CAMERA-FORWARD_HU25_20200227_R0_L1.mp4	91.77 MB
ACTIVATE-CAMERA-FORWARD_HU25_20200228_R0_L1.mp4	41.59 MB
ACTIVATE-CAMERA-FORWARD_HU25_20200228_R0_L2.mp4	41.37 MB

SOOT Merge Service – Algorithm

- Weighted time averages of different source data, i.e., individual measurement data, onto to the target (common) time base.
- Target time base can be a continuous time with a constant interval or the time base of an individual measurement.
- The weighting factor calculation is based on the overlap between a source sampling time interval and the target time interval or merge time interval.
- Mathematical calculations handle scalar, vector, wind measurements, data flag (including missing data flags and detection limit flags) variables accordingly.




SOOT - Custom Merge Output

- Currently only outputs .ict files
- PI file header not included
- Traceability to PI files via. dataID given in variable long name
- Future output in netCDF
 - CF compliant – more interoperable and usable, especially for modelers
 - Capability to better handle metadata, e.g., PI file headers

```
ACTIVATE-mrg60.0_HU25_20200214_RA_20230802T140407.ict
44, 1001
Suborbital Science Data for Atmospheric Composition
NASA Langley Research Center
Merged Flight #20200214, on the HU25 platform. Data is merged to 60.0 seconds. This merge was created by the SOOT Merge tool.
ACTIVATE
1,1
2020, 02, 14, 2023, 08, 02
0
Time_Start, seconds, start time of the merge period
11
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
-999999, -999999, -9999, -9999, -9999, -9999, -9999, -9999, -9999, -9999
Time_Mid, seconds, mid-point of the merge period
Time_Stop, seconds, stop time of the merge period
Latitude_THORNHILL, deg, Platform_Latitude_InSitu_None, {dataID = ACTIVATE-SUMMARY}
Longitude_THORNHILL, deg, Platform_Longitude_InSitu_None, {dataID = ACTIVATE-SUMMARY}
Pressure_Altitude_THORNHILL, ft, Platform_AltitudePressure_InSitu_None, {dataID = ACTIVATE-SUMMARY}
Static_Air_Temp_THORNHILL, degrees Celcius, Met_StaticAirTemperature_InSitu_None, {dataID = ACTIVATE-SUMMARY}
Static_Pressure_THORNHILL, mb, Met_StaticPressure_InSitu_None, {dataID = ACTIVATE-SUMMARY}
Ammonium_ZIEMBA, milligram_per_liter, CldComp_Ammonium_InSitu_None_Bulk_MassAMB, Ammonium_Aqueous_Mass_Concentration {dataID = ACTIVATE-LARGE-CLOUDWATER}
DMA_ZIEMBA, milligram_per_liter, CldComp_DMA_InSitu_None_Bulk_MassAMB, DMA_Aqueous_Mass_Concentration {dataID = ACTIVATE-LARGE-CLOUDWATER}
Sodium_ZIEMBA, milligram_per_liter, CldComp_Sodium_InSitu_None_Bulk_MassAMB, Sodium_Aqueous_Mass_Concentration {dataID = ACTIVATE-LARGE-CLOUDWATER}
Sodium_ZIEMBA_1, microgram_per_standard_cubic_meter, AerComp_Sodium_InSitu_None_Bulk_MassSTP, Sodium_Mass_Concentration {dataID = ACTIVATE-LARGE-PILS}
1
SPECIAL COMMENTS : See original files(listed in ASSOCIATED DATA) for special comments
18
PI_CONTACT_INFO: gao.chen@nasa.gov, michael.shook@nasa.gov, ali.a.aknan@nasa.gov
PLATFORM: HU25
LOCATION: Included in data records
ASSOCIATED_DATA: See following PI data: LEE.THORNHILL, LUKE.ZIEMBA
INSTRUMENT_INFO: Please see PI data files for instrument information.
DATA_INFO: Please see PI data files for: (1) ULOD/LLOD, (2) DATA_FLAG information (DATA_FLAG=-66666 indicates that there are multiple data flag values in the reported interval), and (3) when using merged ratio variables (merge algorithm may not be appropriate when range of variation is large). Longitude is reported as (0, 360) degrees.
UNCERTAINTY: Please see PI data files for uncertainty information.
ULOD_FLAG: -7777
ULOD_VALUE: N/A
LLOD_FLAG: -8888
LLOD_VALUE: N/A
DM_CONTACT_INFO: gao.chen@nasa.gov, michael.shook@nasa.gov, ali.a.aknan@nasa.gov
PROJECT_INFO: ACTIVATE
STIPULATIONS_ON_USE: N/A
OTHER_COMMENTS: This merge was created using the SOOT online merge tool. Data merge methods are described here: https://www-air.larc.nasa.gov/missions/etc/onlinemergedoc.pdf. For detailed information on any data shown here, please see the associated PI files.
REVISION: RA
RA: File generated using LaRC's SOOT merge tool on 2023-08-02T14:04:07.711940+00:00
Time_Start,Time_Stop,Time_Mid,Latitude_THORNHILL,Longitude_THORNHILL,Pressure_Altitude_THORNHILL,Static_Air_Temp_THORNHILL,Static_Pressure_THORNHILL,Ammonium_ZIEMBA, DMA_ZIEMBA,Sodium_ZIEMBA,Sodium_ZIEMBA_1
61350.0,61410.0,61380.0,37.1071,-76.2717,2782.99075,-2.6667499999999995,909.7851666666662,-9999.0,-9999.0,-9999.0,0.1992
61410.0,61470.0,61440.0,37.1177,-76.1879,4509.65775,-6.6087500000000015,850.5599999999999,-9999.0,-9999.0,-9999.0,0.1992
61470.0,61530.0,61500.0,37.1047,-76.096,5297.5990000000001,-6.875916666666668,826.9088333333331,-9999.0,-9999.0,-9999.0,0.1992
61530.0,61590.0,61560.0,37.0897,-76.0053,5489.4445833333332,-7.169583333333332,820.1323333333333,-9999.0,-9999.0,-9999.0,0.1992
61590.0,61650.0,61620.0,37.074,-75.9126,5481.8269999999998,-7.139666666666667,820.4164999999999,-9999.0,-9999.0,-9999.0,0.1992
61650.0,61710.0,61680.0,37.0592,-75.8204,5482.515166666667,-7.56525,820.5460000000002,-9999.0,-9999.0,-9999.0,0.1992
61710.0,61770.0,61740.0,37.0449,-75.7292,5488.5223333333315,-7.472166666666665,820.6090000000003,-9999.0,-9999.0,-9999.0,0.1992
61770.0,61830.0,61800.0,37.0297,-75.6386,5483.189916666667,-7.266499999999998,820.9614166666665,-9999.0,-9999.0,-9999.0,0.1992
61830.0,61890.0,61860.0,37.0076,-75.5508,5491.841916666667,-6.924583333333333,820.7970833333333,-9999.0,-9999.0,-9999.0,0.1992
61890.0,61950.0,61920.0,36.9847,-75.4625,5485.061666666665,-6.312083333333333,820.9306666666666,-9999.0,-9999.0,-9999.0,0.2258
61950.0,62010.0,61980.0,36.9609,-75.3744,5493.487749999999,-4.315,821.157166666667,-9999.0,-9999.0,-9999.0,0.2366
62010.0,62070.0,62040.0,36.9366,-75.2859,5493.881416666667,-3.452416666666666,821.034,-9999.0,-9999.0,-9999.0,0.2366
62070.0,62130.0,62100.0,36.9184,-75.195,5499.668833333334,-2.598,820.7911666666665,-9999.0,-9999.0,-9999.0,0.2366
62130.0,62190.0,62160.0,36.9186,-75.1003,5461.446416666667,-2.360166666666667,821.7436666666666,-9999.0,-9999.0,-9999.0,0.2366
62190.0,62250.0,62220.0,36.9203,-75.0042,4555.291833333333,-5.141416666666665,849.0320833333335,-9999.0,-9999.0,-9999.0,0.2366
62250.0,62310.0,62280.0,36.9208,-74.912,3152.5851666666663,-3.356833333333333,895.2710833333332,-9999.0,-9999.0,-9999.0,0.2366
62310.0,62370.0,62340.0,36.9215,-74.8273,2130.9931666666675,-0.8370833333333333,931.2322499999998,-9999.0,-9999.0,-9999.0,0.2366
```

SOOT - Project Merge

[View all campaigns](#)



ACTIVATE

Support Documentation

2020 2021 2022

Platforms: [?](#)

ANALYSIS

MERGE

SATELLITE

UC12

HU25

MODEL

TRAJECTORY

Principal Investigators: [?](#)

HU25_MRG 01_SECOND

HU25_MRG 01_SECOND_NC

HU25_MRG 60_SECOND

HU25_MRG 60_SECOND_NC

H25_MRG LEGFLAGS

Data IDs : [?](#) [Select All](#)

☐ ACTIVATE-MRG01-HU25 [*variables]

☐ ACTIVATE-MRG01-HU25-NC

☐ ACTIVATE-MRG60-HU25 [*variables]

☐ ACTIVATE-MRG60-HU25-NC

☐ ACTIVATE-MRGLEGFLAGS-HU25 [*variables]

Start Dates: [?](#) [Select All](#)

☐ 2020-02-14

☐ 2020-02-15

☐ 2020-02-17

☐ 2020-02-21

☐ 2020-02-22

☐ 2020-02-23

SOOT Power User Interface: ACTIVATE

Marine boundary layer clouds play a critical role in Earth's energy balance and water cycle. These clouds cover the western Atlantic Ocean. The Aerosol Cloud Meteorology Interactions over the western Atlantic Experiment (ACTIVATE) project is a five-year project that collects globally-relevant data about changes in marine boundary layer cloud systems, atmospheric aerosols and meteorological conditions over the western North Atlantic and samples its broad range of aerosol, cloud and meteorological data. The UC-12 King Air will primarily be used for remote sensing measurements while the HU-25 Falcon will conduct in-situ measurements of aerosol, cloud properties, and atmospheric state. A few trace gas measurements will also be collected which will contribute to air mass classification analysis. A total of 150 coordinated flights over the western North Atlantic will be conducted. The ACTIVATE science observing strategy intensively targets the shallow cumulus cloud regime and aims to collect data under conditions which enables robust characterization of aerosol-cloud-meteorology interactions. This strategy is implemented in two patterns: the statistical survey pattern involves close coordination between the remote sensing and in-situ aircraft as above and within cloud top. The process study pattern involves extensive vertical profiling to characterize

HU25_MRG 01_SECOND (0 / 35 files)

HU25_MRG 01_SECOND_NC (0 / 34 files)

HU25_MRG 60_SECOND (0 / 35 files)

HU25_MRG 60_SECOND_NC (0 / 34 files)

H25_MRG LEGFLAGS (0 / 35 files)

[Clear All Selected Files](#) [Review Selected Files](#)

- Project merge from field data repository, made by science team
- Both .ict and .nc files
- ACTIVATE .nc merge files by Sanja Dmitrovic
- Need to check if the data is up to date

SOOT - NetCDF Project Merge

DatasetsCatalogsBookmarks

Name	Long Name	Type
▼ ACTIVATE-mrg60-HU25-NC...	60 sec merge file for A...	Local File
Abs470_total	Dry absorption at 470n...	GeoTraj
Abs532_total	Dry absorption at 532n...	GeoTraj
Abs660_total	Dry absorption at 660n...	GeoTraj
▼ ACTIVATE-2DS-H-ARM	ACTIVATE-2DS-H-Arm	—
▶ ACTIVATE-2DS-V-ARM	ACTIVATE-2DS-V-Arm	—
▶ ACTIVATE-DLH-H2O	ACTIVATE-DLH-H2O	—
▶ ACTIVATE-FCDP	ACTIVATE-FCDP	—
▶ ACTIVATE-LARGE-AMS	ACTIVATE-LARGE-AMS	—
▶ ACTIVATE-LARGE-CAS	ACTIVATE-LARGE-CAS	—
▶ ACTIVATE-LARGE-CCN	ACTIVATE-LARGE-CCN	—
▶ ACTIVATE-LARGE-CDP	ACTIVATE-LARGE-CDP	—
▶ ACTIVATE-LARGE-INLET...	ACTIVATE-LARGE-Inlet...	—
▶ ACTIVATE-LARGE-MICROP...	ACTIVATE-LARGE-MIC...	—
▶ ACTIVATE-LARGE-OPTICAL	ACTIVATE-LARGE-OPTI...	—
▶ ACTIVATE-LARGE-PILS	ACTIVATE-LARGE-PILS	—
▶ ACTIVATE-LARGE-SMPS	ACTIVATE-LARGE-SMPS	—
▶ ACTIVATE-LEGFLAGS	ACTIVATE-LegFlags	—
▶ ACTIVATE-SUMMARY	ACTIVATE-SUMMARY	—
▶ ACTIVATE-TRACEGAS-CH4	ACTIVATE-TraceGas-C...	—
▶ ACTIVATE-TRACEGAS-CO	ACTIVATE-TraceGas-CO	—
▶ ACTIVATE-TRACEGAS-CO2	ACTIVATE-TraceGas-C...	—
▶ ACTIVATE-TRACEGAS-O3	ACTIVATE-TraceGas-O3	—
▶ ACTIVATE-WINDS	ACTIVATE-WINDS	—
AEabsDRY_470to660nm	derived dry Angstrom E...	GeoTraj
AEscat_450to700nm	derived Angstrom Expo...	GeoTraj
AEscatAMB_450to700nm	derived AMBIENT Angst...	GeoTraj
alt	average gps MSL altitud...	GeoTraj
Ammonium_PILS	Ammonium Mass Conce...	GeoTraj
Bromide_PILS	Bromide Mass Concentr...	GeoTraj
Calcium_PILS	Calcium Mass Concentr...	GeoTraj
CCN_SS	Water vapor supersatur...	GeoTraj
CH4	Methane dry mole fracti...	GeoTraj
Chl_Ave_IsoK_STP	Chl Ave IsoK STP	GeoTraj
Chloride_PILS	Chloride Mass Concentr...	GeoTraj
CNgt10nm	Number concentration ...	GeoTraj
CNgt10nm_nonvol	Number concentration ...	GeoTraj

Group "ACTIVATE-2DS-H-ARM"


In file "ACTIVATE-mrg60-HU25-NC_merge_20200214_R3.nc"

```
// group attributes:
:DataProvider = "Voigt, Christiane";
:DataProviderAffiliation = "DLR e.V.";
:DataProviderContact = " Christiane.Voigt@dlr.de";
:InstrumentDescription = "Cloud Droplet Information Data from SPEC 2DS Probe Horizontal Direction
:DataInfo = "2DS measurements are reported at ambient temperature and pressure. All measured Data
:Uncertainty = "Depend on instrumental and ambient conditions. Please contact the PI or DM for mc
:LowerDetectionLimit = "N/A";
:UpperDetectionLimit = "N/A";
:OtherComments = "Bin Lower Edges (in um) =[28.50, 39.90, 51.30, 62.70, 74.10, 85.50, 96.90, 108.
:Revision = "R2";
:RevisionNotes = "R2: Final data - log normalization base change to 10. R1: Final data - IWC and
:sourceFile = "ACTIVATE-2DS-H-Arm_HU25_20200214_R2.ict";
:NotIncludedInMerge = 384; // int
:title = "ACTIVATE-2DS-H-Arm";
:NativeTimeResolution = "1 s";
:Instruments = "2DS";
```

- NetCDF project merge from the field data repository
- CF compliant: file structure, e.g., variables properly dimensioned and global and variable attribute names
- Use standardized units: <http://codes.wmo.int/wmdr/unit>
- Individual file header information captured as group attributes

SOOT - Support Documentation

View all campaigns



ACTIVATE

Support Documentation

2020 2021 2022

Platforms: ?

HU25 KINGAIR
MERGE SATELLITE

Principal Investigators: ?

ANDREA CORRAL GLENN DISKIN
RICHARD MOORE LEE THORNHILL
CHRISTIANE VOIGT EDDIE WINSTEAD
LUKE ZIEMBA

Data IDs for RICHARD MOORE: ? All | None ^

☒ ACTIVATE-LARGE-CAS [*variables]
☐ ACTIVATE-LARGE-CCN [*variables]
☐ ACTIVATE-LARGE-CDP [*variables]

Start Dates: ? Select All ^

☐ 2021-11-19
☐ 2021-11-30
☐ 2021-12-01
☐ 2021-12-07
☐ 2021-12-09
☐ 2021-12-10
☐ 2021-12-14
☐ 2022-01-11
☐ 2022-01-12

Campaign Documentation

- Flight Report
 - 2020
 - 2021
 - 2022
- Manuscript Data
- Product Documentation
- Related Website
- Science Data Products
 - Analysis
 - 2013
 - 2014
 - 2015
 - 2016
 - 2017
 - 2018
- Videos
- Workshops
- Publication

- Flight reports
- PI supplied Data Readme files (e.g., ACTIVATE-DROPSONDE_UC12_20200214_R0_20200930_README.pdf)
- Related website links (e.g., ACTIVATE project website)
- General project related data files, not flight specific
- Flight videos
- List of publications

Thank you