

ORNL DAAC Airborne Data Tools

ORNL DAAC

NASA Airborne and Field Data Workshop

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Approved for public release

ORNL is managed by UT-Battelle, LLC for the US Department of Energy

ORNL Airborne and Field Data Tool Activities

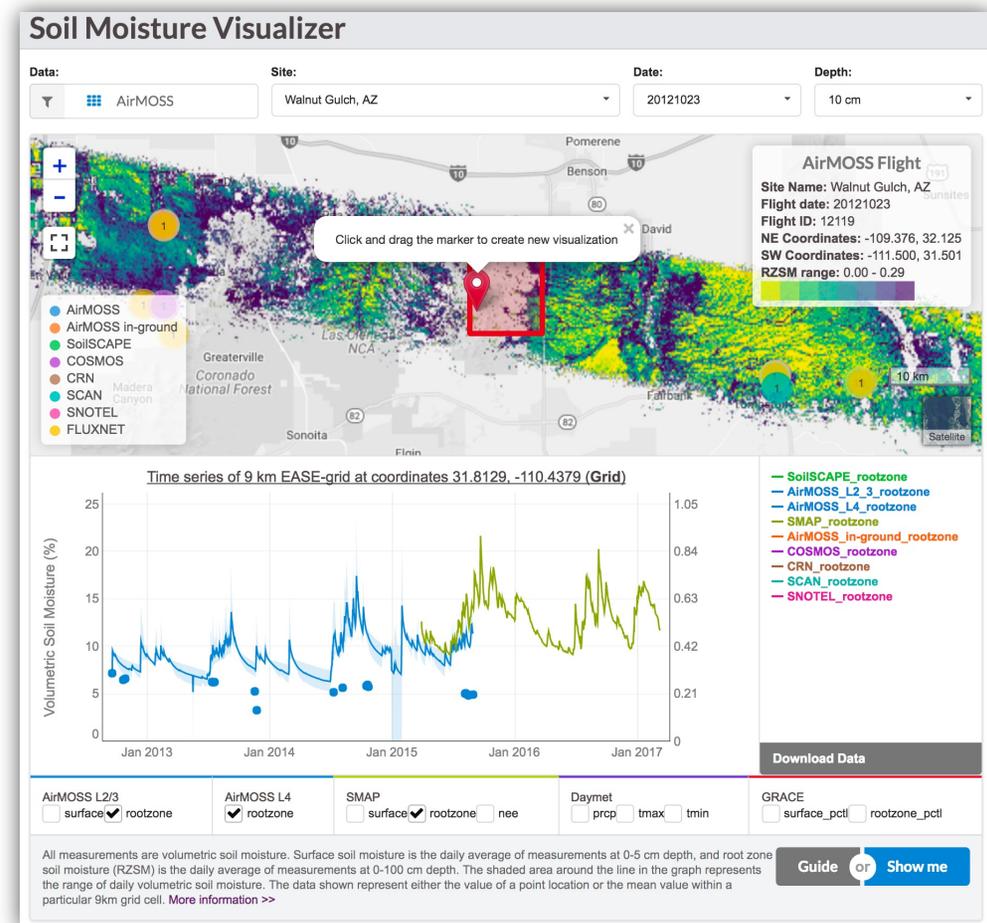
- File format standardization and improved discoverability
 - ICARTT (csv)-to-netCDF file conversion
 - Ties discrete (point:x,y,z) flight path with in-situ measurements
 - Creates 'trajectory' data files that are geolocated in space and time
 - Improved discoverability and interoperability (NASA Earthdata)
- ORNL DAAC Airborne Tools
 - Soil Moisture Visualizer
 - ACT-America Campaign Catalog
 - Airborne Data Visualizer (ADV) – atmospheric chemistry, geotrjectory
 - Spatial Data Access Tool (SDAT) – gridded, geoTIFF, AirSWOT



Soil Moisture Visualizer

<https://doi.org/10.3334/ORNLDAAC/1366>

- An integrated visualization and data distribution platform that harmonizes a wide variety of soil moisture data over North America
 - Field, Airborne, Orbital, other
 - AirMOSS L2/L3, L4
- Facilitates analysis and data discovery



ACT-America Campaign Catalog



- Compiles flight details of 121 Research Flights
 - 3 Years (2017, 2018, 2019), 4 Seasons, 3 US Regions, 2 Aircrafts
- Includes: *flight dates, regions, objectives, weather conditions, instrument status, aircraft flight paths, detailed weather reports, and measurement summary figures*

ACT-America Campaign Catalog										
Summer 2016 Winter 2017 Fall 2017 Spring 2018 Summer 2019										
Search: <input type="text"/>										
Date	Region*	Weather Conditions	Flight Patterns	Instrument /Flight Status	More Details (click icons to edit)	Flight Track	Weather	[CO ₂] cross-sections	[CH ₄] cross-sections	CPL or HALO HSRL
					📄	📄	📄	📄	📄	📄
SUMMER_2016										
2016-07-18	MA	Cold front approaches from NW, crossing through Lake Erie by end of day	Cold front crossing flight	All operational	📄	📄	📄	📄	📄	📄
2016-07-19	MA	By morning of Jul 19, analyzed cold front is just off Jersey coast, and pushes from the northern VA border to the southern border by early afternoon; little movement during afternoon	Cold front crossing flight	B200 down	📄	📄	📄	📄	📄	📄
WINTER_2017										
2017-02-06	South	GoM inflow conditions in presence of warm conveyor belt	Warm conveyor belt sampling	Bird hit C130 in the BL leg in LA	📄	📄	📄	📄	📄	📄
2017-02-08	South	Cold front approaches northwest LA	Cold front crossing flight	C130 down	📄	📄	📄	📄	📄	
2017-02-09	South	Fair weather conditions with high pressure and NE winds	Methane Box pattern flight	C130 down	📄	📄	📄	📄	📄	



Pal, S., and K.J. Davis. 2021. ACT-America Campaign Catalog. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1862>

Airborne Data Visualizer

ORNL DAAC
DISTRIBUTED ACTIVE ARCHIVE CENTER
FOR BIOGEOCHEMICAL DYNAMICS

DAAC Home > Tools > Airborne Data Visualizer

Airborne Data Visualizer (ADV) Campaigns

ACT-America ATom CARVE

Python-based web application

Web browser display of flight paths and graphical plots of in-situ measurements

Select and display individual flights and variables

Direct granule download



<https://doi.org/10.3334/ORNLDAAC/1860>

DAAC Home

Airborne Data Visualizer

View other flights: -- Select Year -- | -- Select Date --

CARVE Flight 24 May 2012

Download Data

The flight path of a CARVE flight that occurred on 24 May 2012 and a value map of measurements taken during the flight are shown on the map. The bottom panel shows the atmospheric gas concentration (left y-axis) and altitude (right y-axis) recorded over the duration of the flight. Moving the cursor across the graph will reveal individual measurement values and mark the corresponding location on the map.

24 May 2012 / 18:14:25 - 22:27:55 GMT

CO₂ CH₄ Value Map Flight Path

Map Satellite

Measurements	
Location	(67.231453;-152.437057)
CO ₂	399.75 ppm
CH ₄	1880.26 ppb
H ₂ O	0.88%
CO	no measurement
Altitude	1666.75 m
Time	20:01:00 GMT

1880.26

1869.38 CH₄ (ppb) 1902.50

Carbon Dioxide Methane

CO₂ Concentration (ppm)

CH₄ Concentration (ppb)

Time (GMT)

Displaying 3133 of 6207 measurements (50% of data set)

Please credit the CARVE project for use of the data and the ORNL DAAC data repository for the visualization.
Currently viewing CARVE Flight ID: carve20120524XXXX

This visualization is constructed using the following data:

Dataset	Granule	Documentation
CARVE: L2 Atmospheric CO ₂ , CO and CH ₄ Concentrations, NOAA CRDS, Alaska, 2012-2015	carve_AtmosISGA_L2_N_b23_20120524_20150713021204.nc	CARVE_L2_AtmosGas_NOAA User Guide