



Data User Guide

Mission Reports CPEX-AW

Introduction

The Mission Reports CPEX-AW dataset contains daily objectives, flight times, and instrument performance during each NASA DC-8 aircraft flight during the Convective Processes Experiment – Aerosols & Winds (CPEX-AW) field campaign. CPEX-AW was a joint effort between the US National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA) with the primary goal of conducting a post-launch calibration and validation activities of the Atmospheric Dynamics Mission-Aeolus (ADM-AEOLUS) Earth observation wind Lidar satellite in St. Croix, U.S. Virgin Islands. Data are available from August 20, 2021 through August 27, 2021 in Microsoft Word Doc format.

Citation

Skofronick-Jackson, Gail. 2022. Mission Reports CPEX-AW [indicate subset used]. Dataset available online from the NASA Global Hydrometeorology Resource Center DAAC, Huntsville, Alabama, U.S.A. doi: <http://dx.doi.org/10.5067/CPEXAW/MISREP/DATA101>

Keywords:

NASA, GHRC, CPEX-AW, St. Croix, mission reports, flight reports

Project

The Convective Processes Experiment – Aerosols & Winds (CPEX-AW) campaign was a joint effort between the US National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA) with the primary goal of conducting post-launch calibration and validation activities of the Atmospheric Dynamics Mission-Aeolus (ADM-AEOLUS) Earth observation wind Lidar satellite in St. Croix, US Virgin Islands. CPEX-AW was a follow-on to the Convective Processes Experiment (CPEX) field campaign which took place in the summer of 2017 ([CPEX](#)). In addition to joint calibration/validation of ADM-AEOLUS, CPEX-AW will study the dynamics and microphysics related to the Saharan Air Layer,

African Easterly Waves and Jets, Tropical Easterly Jet, and deep convection in the InterTropical Convergence Zone (ITCZ). CPEX-AW science goals include:

- Better understanding interactions of convective cloud systems and tropospheric winds as part of the joint NASA-ESA Aeolus Cal/Val effort over the tropical Atlantic;
- Observing the vertical structure and variability of the marine boundary layer in relation to initiation and lifecycle of the convective cloud systems, convective processes (e.g., cold pools), and environmental conditions within and across the Intertropical Convergence Zone (ITCZ);
- Investigating how the African easterly waves and dry air and dust associated with the Saharan Air Layer control the convectively suppressed and active periods of the ITCZ;
- Investigating interactions of wind, aerosol, clouds, and precipitation and effects on long range dust transport and air quality over the western Atlantic.

More information about the CPEX-AW field campaign can be found at [NASA JPL|CPEX-AW](#), [CPEX-AW 2017 | Campaign Overview](#), and [CPEX-AW ESPO](#).



Figure 1: CPEX-AW field campaign logo
(Image source: [CPEX-AW](#))

Investigators

Gail Skofronick-Jackson
NASA Headquarters
Washington, D.C.

Data Characteristics

The Mission Reports CPEX-AW contains daily objectives, flight times, and instrument performance during each flight. Data files are in Word format at a Level 0 processing level.

More information about the NASA data processing levels is available on the [EOSDIS Data Processing Levels webpage](#). The characteristics of this dataset are listed in Table 2 below.

Table 2: Data Characteristics

Characteristic	Description
Platform	NASA DC-8 aircraft
Instrument	Visual observations
Spatial Coverage	N: 26.986, S: 14.999, E: -63.758, W: -80.780 (St. Croix, Virgin Islands)
Spatial Resolution	5 m
Temporal Coverage	August 20, 2021 - August 27, 2021
Temporal Resolution	Daily -< Weekly
Parameter	Flight reports, mission scientist report
Version	1
Processing Level	0

File Naming Convention

The Mission Reports CPEX-AW data are within Doc files and are named using the following convention:

Data files: CPEXAW_RF##_Mission_Summary_MMDDYYYY.docx

Table 3: File naming convention variables

Variable	Description
RF##	Flight number
MM	Two-month
DD	Two-digit day
YYYY	Four-digit year
.docx	Microsoft Word Doc

Data Format and Parameters

The Mission Reports CPEX-AW contains daily objectives, flight times, and instrument performance during each flight.

Software

No special software is needed to read these reports.

Known Issues or Missing Data

There are no known issues or missing data with this dataset. Since the NASA DC-8 aircraft did not operate every day during the campaign, there are some dates where there is no report information available.

References

DC-8 Airborne Science Experimenter Handbook. 2011.

https://airbornescience.nasa.gov/sites/default/files/DC8_Experimenter_Handbook_Jan2011v2.pdf

Related Data

All other datasets collected as part of the CPEX-AW campaign are considered related and can be located by searching the term “CPEX-AW” in the [Earthdata Search](#).

Contact Information

To order these data or for further information, please contact:

NASA Global Hydrometeorology Resource Center DAAC

User Services

320 Sparkman Drive

Huntsville, AL 35805

Phone: 256-961-7932

E-mail: support-ghrc@earthdata.nasa.gov

Web: <https://ghrc.nsstc.nasa.gov/>

Created: 5/16/2022