

Dataset Title

WMI Aircraft Instrument Data

Dataset Author

Courtney Weeks

cweeks@ucar.edu

National Center for Atmospheric Research, Research Applications Laboratory
3450 Mitchell Lane, Boulder CO 80301
303.497.2824

Time of Interest

20170108 024557	20170108 054303
20170108 075256	20170108 092654
20170109 043101	20170109 071751
20170111 023745	20170111 044305
20170111 054418	20170111 074212
20170118 205437	20170118 230742
20170119 160140	20170119 174019
20170119 234122	20170120 014323
20170122 213837	20170122 234301
20170131 201335	20170131 212014
20170202 234358	20170203 000604
20170204 223733	20170205 005454
20170205 224842	20170205 225748
20170206 082500	20170206 091922
20170206 121757	20170206 143104
20170206 161800	20170206 171706
20170207 202051	20170207 224347
20170210 192809	20170210 195509
20170217 001123	20170217 005920
20170218 215509	20170219 001440
20170220 145749	20170220 164419
20170221 145359	20170221 165233
20170304 134050	20170304 160124
20170305 124030	20170305 144612
20170307 142604	20170307 172927
20170309 144049	20170309 164419
20170309 202811	20170309 233336
20170310 213638	20170310 220007
20170316 013717	20170316 032936

Area of Interest

Region bounded by -116.6, 43.3, -115.3, 44.6

Data Frequency

1 second

Data Spatial Type

Point measurement

General Dataset Description

The WMI King Air level 2 data contain measurements from the following instruments:

- Rosemount 102AU1AP Total Temperature Sensor
(<https://www.flightdatacommunity.com/wp-content/uploads/downloads/2013/02/TAT-Report.pdf>)
- Edgetech 137 Vigilant Hygrometer
(<https://edgetechinstruments.com/wp-content/uploads/2018/06/137-Vigilant-v4.pdf>)
- AIMMS20
(<https://aventech.com/documents/AIMMS20/AIMMS%20Technical%20Brochure.pdf>)
- DMT Cloud Droplet Probe (CDP;
<http://dropletmeasurement.com/sites/default/files/ManualsGuides/Hardware%20Manuals/CDP-2%20Manual.pdf>)
- DMT Liquid Water Content (LWC-100, part of the Cloud Aerosol and Precipitation Spectrometer;
<http://dropletmeasurement.com/sites/default/files/ManualsGuides/Products/CAPS/CAPS%20Manual.pdf>)

Level 2 files in this dataset contain the following variables:

Variable Name	Instrument Source	Unit	Corrections	Dependencies
Alt	GPS	M		
Lat	GPS	degree		
Lon	GPS	degree		
Temp	Rosemount	C		
DP	Edgetech	C		
MixingRatio		g/kg		
StaticPres	AIMMS	hPa		
SatVap		mb		
Theta		K		
RH	AIMMS	%	Time matched to GPS	
DMTLWC	LWC100	g/m3	Baseline removal; removed points prior to takeoff	
CDPConc	CDP	/cc		TAS
CDPLWC	CDP	g/m3		TAS
CDPMVD	CDP	um		TAS
Temp2	AIMMS	C		
TAS	AIMMS	m/s	Time matched to GPS	
VVert	AIMMS	m/s	Time matched to GPS	

WDIR	AIMMS	degree	Time matched to GPS	
WSpd	AIMMS	m/s	Time matched to GPS	
BIP		#		
EJ		#		

Baseline Removal for the LWC was performed following

https://zanran_storage.s3.amazonaws.com/www.science.uva.nl/ContentPages/443199618.pdf

CDP Calculations were performed following

http://www.dropletmeasurement.com/PADS_Help/Sample_Volume.htm

[http://www.dropletmeasurement.com/PADS_Help/LWC_\(Liquid_Water_Content\)_in_g_cm%5E3.htm](http://www.dropletmeasurement.com/PADS_Help/LWC_(Liquid_Water_Content)_in_g_cm%5E3.htm)

[http://www.dropletmeasurement.com/PADS_Help/MVD_\(um\).htm](http://www.dropletmeasurement.com/PADS_Help/MVD_(um).htm)

File Names

20170108_1.csv
 20170108_2.csv
 20170109_1.csv
 20170111_1.csv
 20170111_2.csv
 20170118_1.csv
 20170119_1.csv
 20170119_2.csv
 20170122_1.csv
 20170131_1.csv
 20170202_1.csv
 20170204_1.csv
 20170205_1.csv
 20170206_1.csv
 20170206_2.csv
 20170206_3.csv
 20170207_1.csv
 20170210_1.csv
 20170217_1.csv
 20170218_1.csv
 20170220_1.csv
 20170221_1.csv
 20170304_1.csv
 20170305_1.csv
 20170307_1.csv
 20170309_1.csv
 20170309_2.csv
 20170310_1.csv
 20170316_1.csv

Data Format

Comma-separated ASCII

1 Header Line

Missing Values: -999

Date and Time are strings in UTC; all other variables are numeric

Data Restrictions

None

Digital Object Identifier

Please generate a DOI

GCMD Keywords

ATMOSPHERE

CLOUDS

CLOUD DROPLET DISTRIBUTION

CLOUD PROPERTIES

CLOUD MICROPHYSICS

ATMOSPHERIC PRESSURE

ATMOSPHERIC TEMPERATURE

ATMOSPHERIC WINDS

PRECIPITATION

ATMOSPHERIC WATER VAPOR