

Atmospheric Carbon and Transport – America (ACT-America) Datasets: Description, Management, and Delivery

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Table S1: Meteorological, trace gases, and navigational variables in an example C-130 5-second merged file.

Introduction

This document contains supporting Information (Table S1), which provides meteorological, trace gases, and navigational variables in an example C-130 5-second merged file.

Variable name	Description	Units
Instrument: Portable Flask Package		
BENZ_MoleFraction_PFP	benzene mole fraction	ppt
C2F6_MoleFraction_PFP	hexafluorethane mole fraction	ppt
C2H2_MoleFraction_PFP	acetylene mole fraction	ppt
C2H6_MoleFraction_PFP	ethane mole fraction	ppt
C3H8_MoleFraction_PFP	propane mole fraction	ppt
CF4_MoleFraction_PFP	carbon tetrafluoride mole fraction	ppt
CH2BrCl_MoleFraction_PFP	bromochloromethane mole fraction	ppt
CH3I_MoleFraction_PFP	methyl iodide mole fraction	ppt
CH4C13_MoleFraction_PFP	C-13 of CH4 mole fraction	per mil
CH4_MoleFraction_PFP	methane mole fraction	ppb
CHLF_MoleFraction_PFP	chloroform mole fraction	ppt

CO2C14_MoleFraction_PFP	C-14 of CO2 mole fraction	per mil
CO2_MoleFraction_PFP	carbon dioxide mole fraction	ppm
CO_MoleFraction_PFP	carbon monoxide mole fraction	ppb
DIBR_MoleFraction_PFP	dibromomethane mole fraction	ppt
DICL_MoleFraction_PFP	dimethyl chloride mole fraction	ppt
F113_MoleFraction_PFP	CFC113 mole fraction	ppt
F115_MoleFraction_PFP	CFC115 mole fraction	ppt
F11B_MoleFraction_PFP	F11 mole fraction	ppt
F125_MoleFraction_PFP	pentafluoroethane mole fraction	ppt
F134A_MoleFraction_PFP	Tetrafluoroethane mole fraction	ppt
F13_MoleFraction_PFP	F13 mole fraction	ppt
F143a_MoleFraction_PFP	1-1-1-trifluoroethane mole fraction	ppt
F152A_MoleFraction_PFP	1-1-difluoroethane mole fraction	ppt
F227e_MoleFraction_PFP	F227 mole fraction	ppt
F236fa_MoleFraction_PFP	F236fa mole fraction	ppt
F23_MoleFraction_PFP	fluoroform mole fraction	ppt
F32_MoleFraction_PFP	F32 mole fraction	ppt
F365m_MoleFraction_PFP	pentafluorobutane mole fraction	ppt

FC12_MoleFraction_PFP	FC12 mole fraction	ppt
H1211_MoleFraction_PFP	halon 1211 mole fraction	ppt
H1301_MoleFraction_PFP	halon 1301 mole fraction	ppt
H2402_MoleFraction_PFP	halon 2402 mole fraction	ppt
H2_MoleFraction_PFP	hydrogen mole fraction	ppb
HF133a_MoleFraction_PFP	HF133a mole fraction	ppt
HF22_MoleFraction_PFP	HF22 mole fraction	ppt
MCFA_MoleFraction_PFP	methyl chloroform mole fraction	ppt
MEBR_MoleFraction_PFP	methyl bromide mole fraction	ppt
MECL_MoleFraction_PFP	methyl chloride mole fraction	ppt
N2O_MoleFraction_PFP	nitrous oxide mole fraction	ppb
OCS_MoleFraction_PFP	carbonyl sulfide mole fraction	ppt
P218_MoleFraction_PFP	P218 mole fraction	ppt
PCE_MoleFraction_PFP	perchloroethylene mole fraction	ppt
SF6_MoleFraction_PFP	sulfur hexafluoride mole fraction	ppt
SO2F2_MoleFraction_PFP	sulfuryl fluoride mole fraction	ppt
TCE_MoleFraction_PFP	trichloroethylene mole fraction	ppt
TOL_MoleFraction_PFP11	toluene mole fraction	ppt

iC4H10_MoleFraction_PFP	isoButane mole fraction	ppt
iC5H12_MoleFraction_PFP	isoPentane mole fraction	ppt
nC4H10_MoleFraction_PFP	neoButane mole fraction	ppt
nC5H12_MoleFraction_PFP	neoPentane mole fraction	ppt
nC6H14_MoleFraction_PFP	n-Hexane mole fraction	ppt
Instrument: Picarro CRDS		
CH4_DryMoleFraction_PICARRO	Methane dry mole fraction	ppm
CO2_DryMoleFraction_PICARRO	carbon dioxide dry mole fraction	ppm
CO_DryMoleFraction_PICARRO	Carbon monoxide dry mole fraction	ppm
Dewpoint_PICARRO	dew point	K
H2O_MassMixingRatio_PICARRO	Water vapor mass mixing ratio	g kg ⁻¹
H2O_VaporPressure_PICARRO	Derived water vapor pressure	hPa
H2O_VolMixingRatio_PICARRO	Water vapor volume mixing ratio	percent
RHi_PICARRO	Derived relative humidity wrt ice	percent
RHw_PICARRO	Derived relative humidity wrt liquid water	percent
Instrument: CAMS-2 Spectrometer		
C2H6_MixingRatio_CAMS2	C2H6 mixing ratio by volume	ppbv
Instrument: Cloud Physics Lidar		

MLH-AMSL_CPL	derived mixed layer height in ASL	m
GroundHeight-AMSL_CPL	derived ground height above MSL	m
Instrument: 2B Technologies Continuous O3		
O3_DryMoleFraction	ozone mole fraction	ppb
Instrument: In Situ Quantum Cascade Laser Spectrometer (QCLS)		
C2H6_MixingRatio_QCLS	C2H6 dry mixing ratio	ppbv
Aircraft navigation and meteorological variables		
ALTP	pressure altitude	m
AircraftSunAzimuth	aircraft sun azimuth	degree
AircraftSunElevation	aircraft sun elevation	degree
CabinPressure	cabin pressure	hPa
Dewpoint_Nav	dew point	K
DifferentialPressure	differential pressure	hPa
DriftAngle	drift angle	degree
GPS_ALT	global positioning system altitude	m
GRD_SPD	ground speed	m s ⁻¹
H2O_MixingRatio_Nav	H2O mixing ratio	g kg ⁻¹
H2O_RelativeHumidity_Nav	relative humidity	percent

H2O_SatVaporPressureIce_Nav	H2O sat vapor pressure ice	hPa
H2O_SatVaporPressureWater_Nav	H2O sat vapor pressure water	hPa
H2O_VaporPressure_Nav	H2O vapor pressure	hPa
HDG	true heading	degree
IAS	indicated air speed	m s-1
LATITUDE	latitude	degree_north
LOCAL_SUN_TIME	local sun time	h
LONGITUDE	longitude	degree_east
MachNumber	mach number	1
PITCH	pitch angle	degree
PRESSURE	static pressure	hPa
PotentialTemp_Nav	potential temperature	K
Radar_ALT	radar altitude	m
ROLL	roll angle	degree
SZA	solar azimuth angle	degree
SolarZenithAngle	solar zenith angle	degree
StaticPressure	static pressure	hPa
SunAzimuth	sun azimuth	degree

TAS	true air speed	m s-1
TEMPERATURE	static air temperature	K
THETA	potential temperature	K
TRK	track angle	degree
TotalAirTemp	total air temperature	K
VerticalSpeed	vertical speed	m s-1
U_WINDS	U wind direction	m s-1
V_WINDS	V wind direction	m s-1
Wind_Direction	wind direction	degree
Wind_Speed	wind speed	m s-1
Metadata flag information		
Air_flag	Warm/Cold air flag	
BL_FT_flag	ABL or free troposphere flag	
Flight_flag	Flight pattern flag	
Maneuver_flag	Maneuver flag	
Maneuver_flagQC	Maneuver flag QC	
Extracted ground elevation		

Altitude_AGL	Aircraft altitude above ground level from Google Maps API	m
GroundElevation-AMSL_GoogleMaps	ground elevation above mean sea level from Google Maps API	m

Table S1. Meteorological, trace gases, and navigational variables in an example C-130 5-second merged file.