DC3 Aircraft Data Archive Status and other Relevant Issues

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Preliminary Data Submission and Merge Product Status

- Nearly all preliminary data are submitted
- DC-3 preliminary aircraft data are primarily hosted at the NASA Langley Research Center data repository (www-air.larc.nasa.gov)
- Preliminary merges available:
  - DC-8: 60 sec, 10 sec, 1 sec, SAGAAERO, and WAS
  - GV: 1 sec, 60 sec, and TOGA
  - Falcon: 1 sec and 60 sec
- Merge files will be updated as preliminary data is revised
- Other type of merges can be created on request
- Nearly 24000 file downloads since July 2012

Ways to get faster merges

Merge code requires consistent file headers for each dataID for all flights

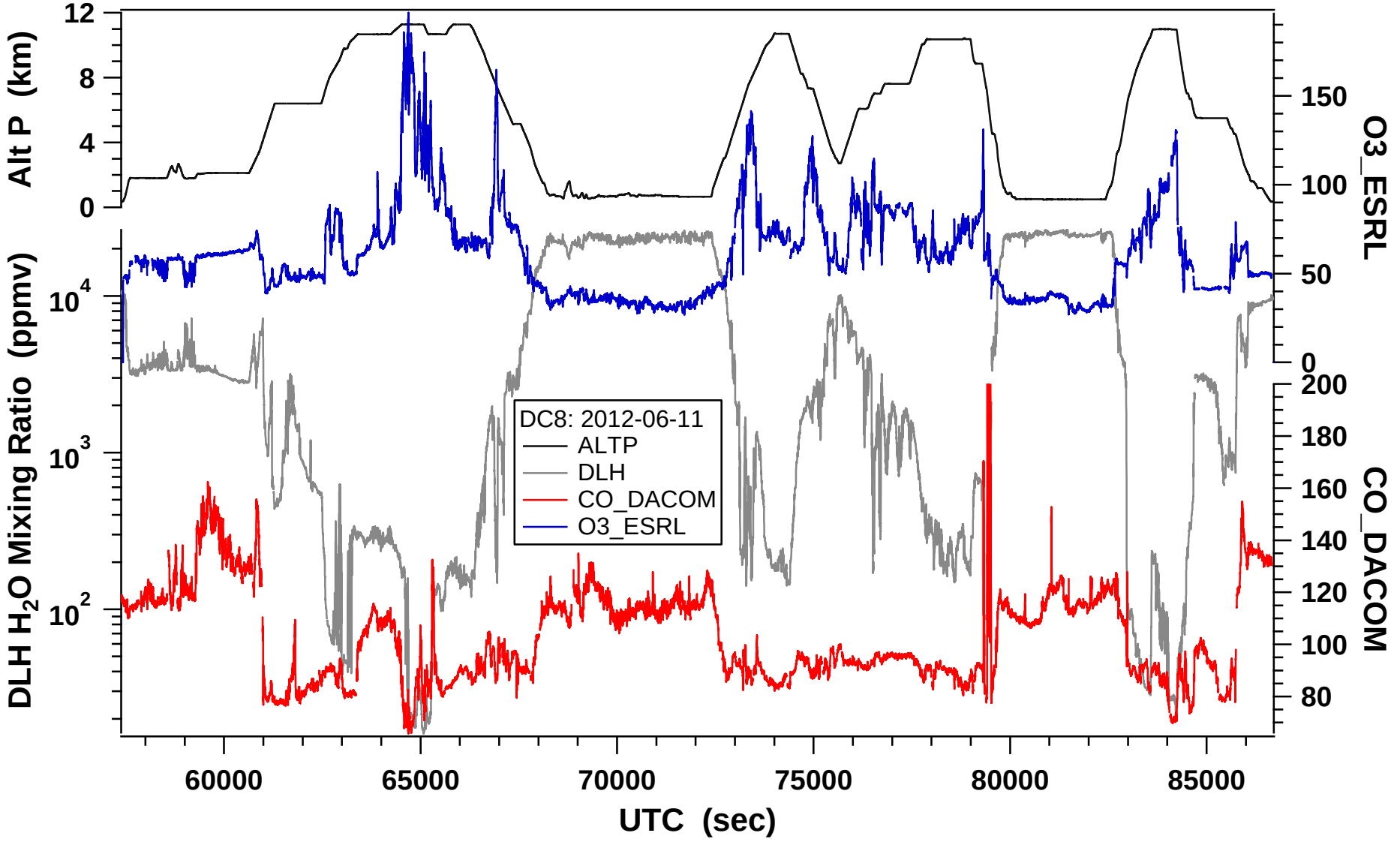
- Use consistent variable short names, units, and long names for all files under the same dataID for all flights
- Make sure variable name/unit lines in the header have info in the correct order, e.g. short name, units, optional long name
- Use "**:**" to separate the key metadata words from the entries, e.g. "INSTRUMENT_INFO**:** Proton Transfer Reaction Mass Spectrometer"
- Remove extraneous text and spaces from the non-comment header lines

Preliminary Data Time Sync Assessment

- Measurement time synchronization with open-path H_2O was requested by project leads
- The time shift can be assessed, in theory, by:
  - Correlation with the time standards (e.g., DLH for DC-8 and VCSEL for GV)
  - Compare abrupt changes due to sampling different airmasses
- Spot checks showed no obvious time shift for 1 sec measurements when looked at an entire flight
- Detailed inspection suggests that investigators should scrutinize individual plumes/events to ensure measurement synchronization on a case by case basis

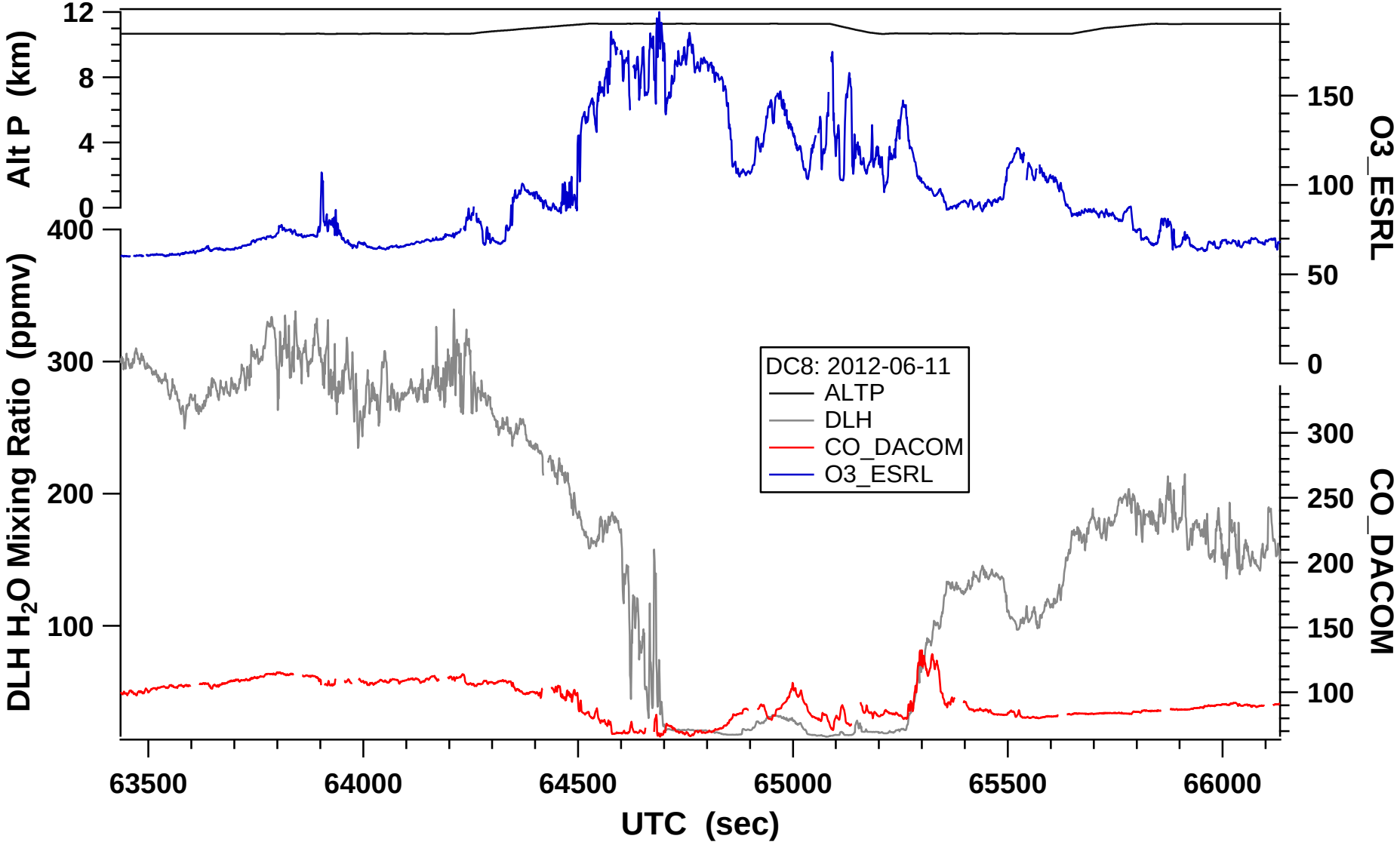
Time Sync Check for DC-8 (I)

2012/06/16



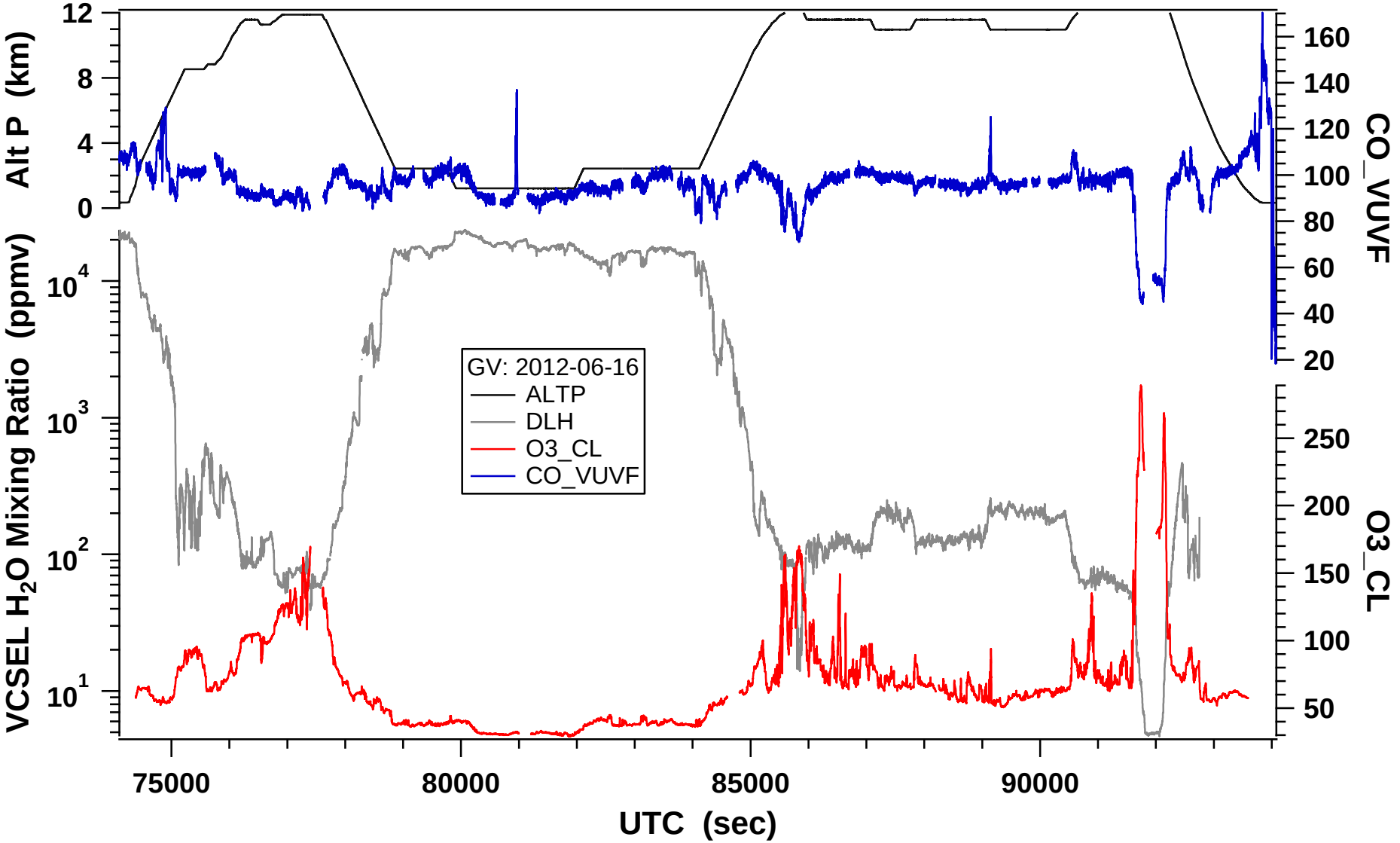
Time Sync Check for DC-8 (II)

2012/06/16



Time Sync Check for GV

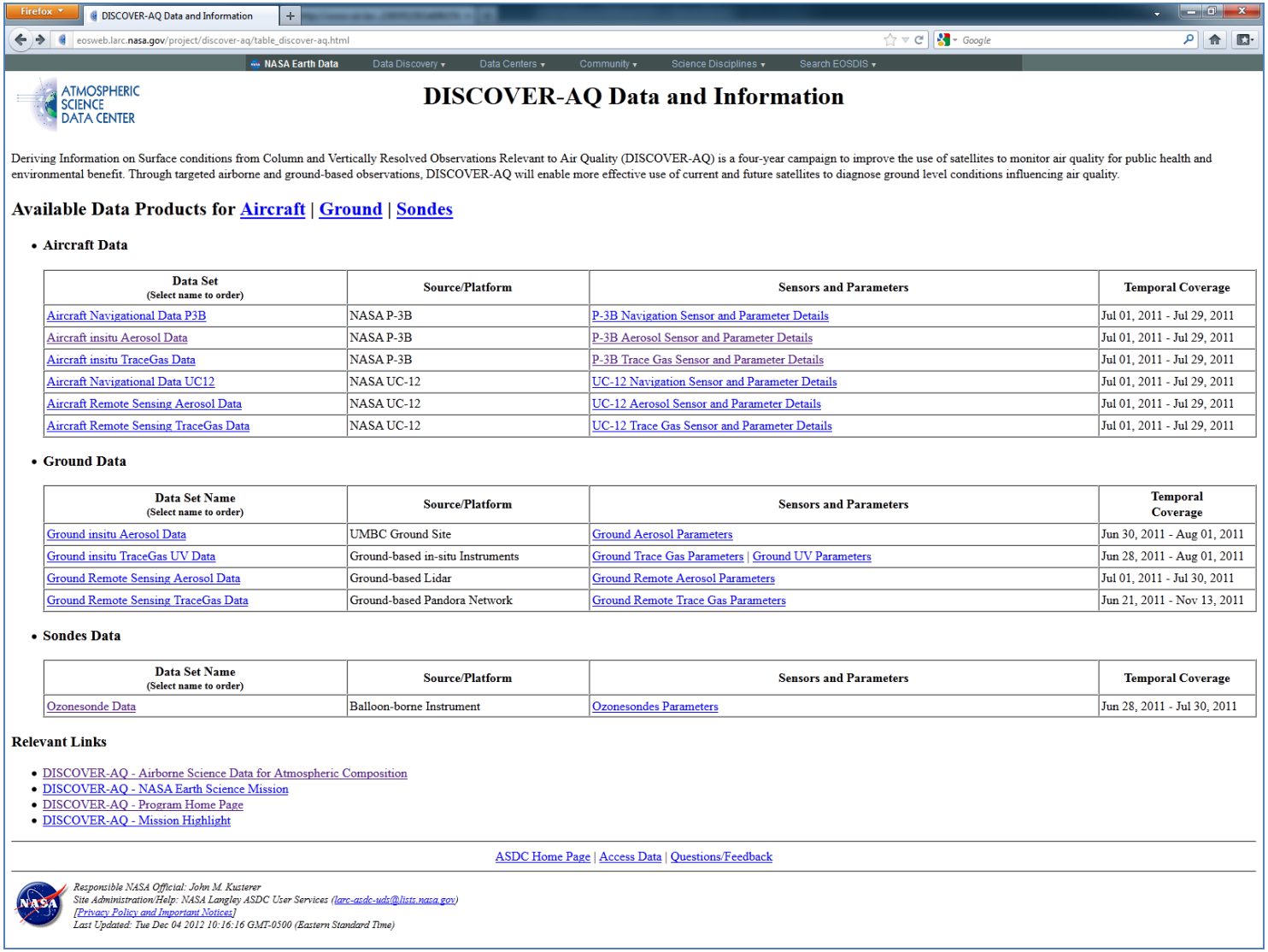
2012/06/16



Final Data Submission Reminder

- Final data is due by July 1st, 2013
- The DC-3 aircraft final data will be hosted at both NASA Langley Research Center data repository and NCAR EOL
- Final data will be transferred to NASA Langley ASDC after the due date.
- Measurement needs to be synchronized
  - DC-8 measurements should sync to DLH
  - GV data should sync to VCSEL
- Requirements for final data file header:
  - Use numerical revision numbers, e.g. R0, R1,…
  - Stipulate if the data is final, In addition to update the revision notes,
  - Remove restrictions in the “data_use_stipulation:” entry
  - Report best estimated measurement uncertainty

NASA Langley ASDC Aircraft Data Information Page Example: DISCOVER-AQ (I)



Firefox | DISCOVER-AQ Data and Information

eosweb.larc.nasa.gov/project/discover-aq/table_discover-aq.html

NASA Earth Data | Data Discovery | Data Centers | Community | Science Disciplines | Search EOSDIS

ATMOSPHERIC SCIENCE DATA CENTER

DISCOVER-AQ Data and Information

Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality (DISCOVER-AQ) is a four-year campaign to improve the use of satellites to monitor air quality for public health and environmental benefit. Through targeted airborne and ground-based observations, DISCOVER-AQ will enable more effective use of current and future satellites to diagnose ground level conditions influencing air quality.

Available Data Products for Aircraft | Ground | Sondes

- **Aircraft Data**

Data Set (Select name to order)	Source/Platform	Sensors and Parameters	Temporal Coverage
Aircraft Navigational Data P3B	NASA P-3B	P-3B Navigation Sensor and Parameter Details	Jul 01, 2011 - Jul 29, 2011
Aircraft insitu Aerosol Data	NASA P-3B	P-3B Aerosol Sensor and Parameter Details	Jul 01, 2011 - Jul 29, 2011
Aircraft insitu TraceGas Data	NASA P-3B	P-3B Trace Gas Sensor and Parameter Details	Jul 01, 2011 - Jul 29, 2011
Aircraft Navigational Data UC12	NASA UC-12	UC-12 Navigation Sensor and Parameter Details	Jul 01, 2011 - Jul 29, 2011
Aircraft Remote Sensing Aerosol Data	NASA UC-12	UC-12 Aerosol Sensor and Parameter Details	Jul 01, 2011 - Jul 29, 2011
Aircraft Remote Sensing TraceGas Data	NASA UC-12	UC-12 Trace Gas Sensor and Parameter Details	Jul 01, 2011 - Jul 29, 2011

- **Ground Data**

Data Set Name (Select name to order)	Source/Platform	Sensors and Parameters	Temporal Coverage
Ground insitu Aerosol Data	UMBC Ground Site	Ground Aerosol Parameters	Jun 30, 2011 - Aug 01, 2011
Ground insitu TraceGas UV Data	Ground-based in-situ Instruments	Ground Trace Gas Parameters | Ground UV Parameters	Jun 28, 2011 - Aug 01, 2011
Ground Remote Sensing Aerosol Data	Ground-based Lidar	Ground Remote Aerosol Parameters	Jul 01, 2011 - Jul 30, 2011
Ground Remote Sensing TraceGas Data	Ground-based Pandora Network	Ground Remote Trace Gas Parameters	Jun 21, 2011 - Nov 13, 2011

- **Sondes Data**

Data Set Name (Select name to order)	Source/Platform	Sensors and Parameters	Temporal Coverage
Ozonesonde Data	Balloon-borne Instrument	Ozonesondes Parameters	Jun 28, 2011 - Jul 30, 2011

Relevant Links

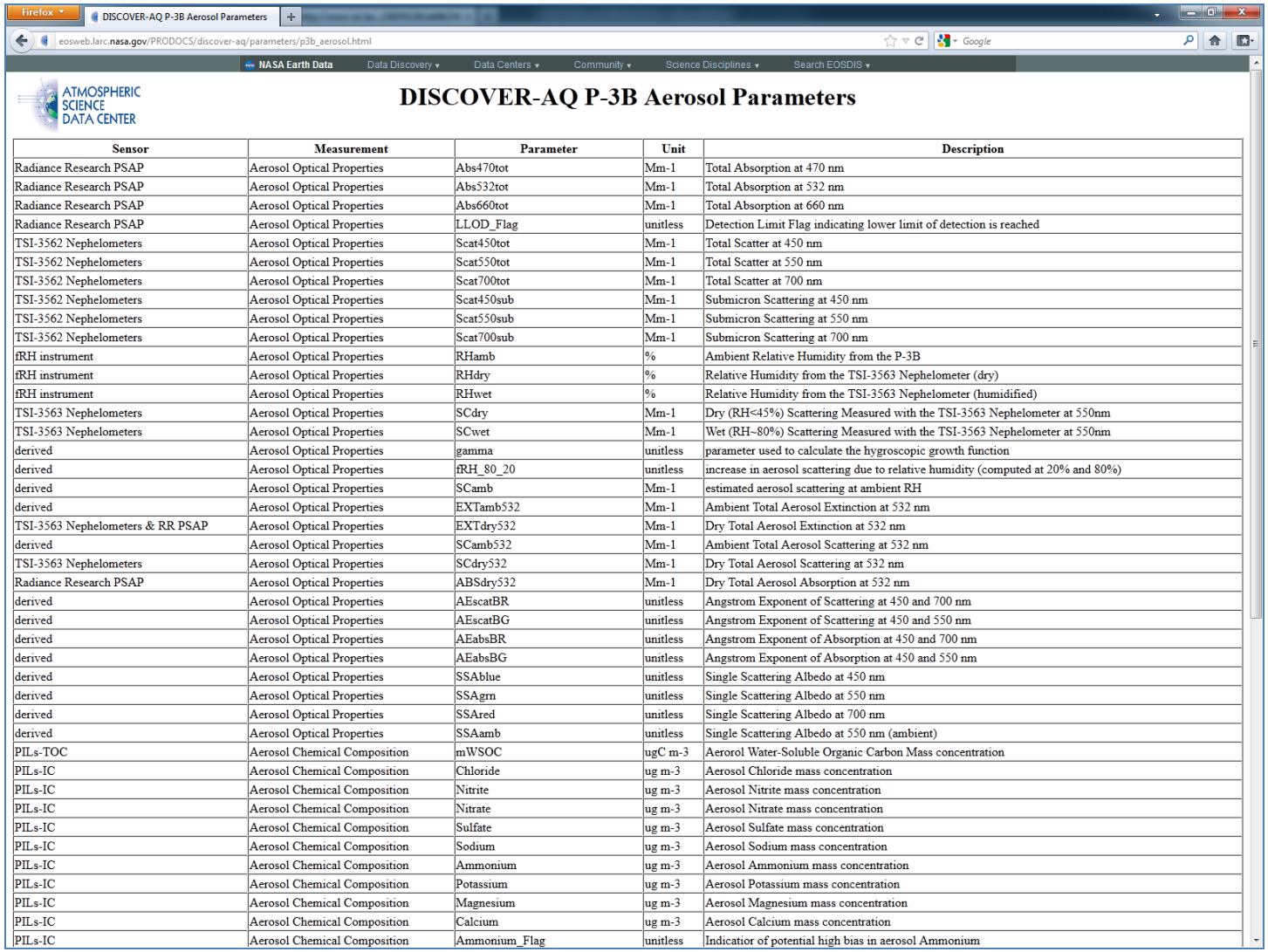
- DISCOVER-AQ - Airborne Science Data for Atmospheric Composition
- DISCOVER-AQ - NASA Earth Science Mission
- DISCOVER-AQ - Program Home Page
- DISCOVER-AQ - Mission Highlight

ASDC Home Page | Access Data | Questions/Feedback

Responsible NASA Official: John M. Kusterer
Site Administration/Help: NASA Langley ASDC User Services (larc-asdc-uds@lists.nasa.gov)
[Privacy Policy and Important Notices]
Last Updated: Tue Dec 04 2012 10:16:16 GMT-0500 (Eastern Standard Time)

http://eosweb.larc.nasa.gov/project/discover-aq/table_discover-aq.html

NASA Langley ASDC Aircraft Data Information Page
Example: DISCOVER-AQ (II)



DISCOVER-AQ P-3B Aerosol Parameters

Sensor	Measurement	Parameter	Unit	Description
Radiance Research PSAP	Aerosol Optical Properties	Abs470tot	Mm-1	Total Absorption at 470 nm
Radiance Research PSAP	Aerosol Optical Properties	Abs532tot	Mm-1	Total Absorption at 532 nm
Radiance Research PSAP	Aerosol Optical Properties	Abs660tot	Mm-1	Total Absorption at 660 nm
Radiance Research PSAP	Aerosol Optical Properties	LLOD_Flag	unitless	Detection Limit Flag indicating lower limit of detection is reached
TSI-3562 Nephelometers	Aerosol Optical Properties	Scat450tot	Mm-1	Total Scatter at 450 nm
TSI-3562 Nephelometers	Aerosol Optical Properties	Scat550tot	Mm-1	Total Scatter at 550 nm
TSI-3562 Nephelometers	Aerosol Optical Properties	Scat700tot	Mm-1	Total Scatter at 700 nm
TSI-3562 Nephelometers	Aerosol Optical Properties	Scat450sub	Mm-1	Submicron Scattering at 450 nm
TSI-3562 Nephelometers	Aerosol Optical Properties	Scat550sub	Mm-1	Submicron Scattering at 550 nm
TSI-3562 Nephelometers	Aerosol Optical Properties	Scat700sub	Mm-1	Submicron Scattering at 700 nm
fRH instrument	Aerosol Optical Properties	RHamb	%	Ambient Relative Humidity from the P-3B
fRH instrument	Aerosol Optical Properties	RHdry	%	Relative Humidity from the TSI-3563 Nephelometer (dry)
fRH instrument	Aerosol Optical Properties	RHwet	%	Relative Humidity from the TSI-3563 Nephelometer (humidified)
TSI-3563 Nephelometers	Aerosol Optical Properties	SCdry	Mm-1	Dry (RH<45%) Scattering Measured with the TSI-3563 Nephelometer at 550nm
TSI-3563 Nephelometers	Aerosol Optical Properties	SCwet	Mm-1	Wet (RH~80%) Scattering Measured with the TSI-3563 Nephelometer at 550nm
derived	Aerosol Optical Properties	gamma	unitless	parameter used to calculate the hygroscopic growth function
derived	Aerosol Optical Properties	fRH_80_20	unitless	increase in aerosol scattering due to relative humidity (computed at 20% and 80%)
derived	Aerosol Optical Properties	SCamb	Mm-1	estimated aerosol scattering at ambient RH
derived	Aerosol Optical Properties	EXTamb532	Mm-1	Ambient Total Aerosol Extinction at 532 nm
TSI-3563 Nephelometers & RR PSAP	Aerosol Optical Properties	EXTdry532	Mm-1	Dry Total Aerosol Extinction at 532 nm
derived	Aerosol Optical Properties	SCamb532	Mm-1	Ambient Total Aerosol Scattering at 532 nm
TSI-3563 Nephelometers	Aerosol Optical Properties	SCdry532	Mm-1	Dry Total Aerosol Scattering at 532 nm
Radiance Research PSAP	Aerosol Optical Properties	ABSdry532	Mm-1	Dry Total Aerosol Absorption at 532 nm
derived	Aerosol Optical Properties	AEscatBR	unitless	Angstrom Exponent of Scattering at 450 and 700 nm
derived	Aerosol Optical Properties	AEscatBG	unitless	Angstrom Exponent of Scattering at 450 and 550 nm
derived	Aerosol Optical Properties	AEabsBR	unitless	Angstrom Exponent of Absorption at 450 and 700 nm
derived	Aerosol Optical Properties	AEabsBG	unitless	Angstrom Exponent of Absorption at 450 and 550 nm
derived	Aerosol Optical Properties	SSAblue	unitless	Single Scattering Albedo at 450 nm
derived	Aerosol Optical Properties	SSAgrn	unitless	Single Scattering Albedo at 550 nm
derived	Aerosol Optical Properties	SSAred	unitless	Single Scattering Albedo at 700 nm
derived	Aerosol Optical Properties	SSAamb	unitless	Single Scattering Albedo at 550 nm (ambient)
PILs-TOC	Aerosol Chemical Composition	mWSOC	ugC m-3	Aerorol Water-Soluble Organic Carbon Mass concentration
PILs-IC	Aerosol Chemical Composition	Chloride	ug m-3	Aerosol Chloride mass concentration
PILs-IC	Aerosol Chemical Composition	Nitrite	ug m-3	Aerosol Nitrite mass concentration
PILs-IC	Aerosol Chemical Composition	Nitrate	ug m-3	Aerosol Nitrate mass concentration
PILs-IC	Aerosol Chemical Composition	Sulfate	ug m-3	Aerosol Sulfate mass concentration
PILs-IC	Aerosol Chemical Composition	Sodium	ug m-3	Aerosol Sodium mass concentration
PILs-IC	Aerosol Chemical Composition	Ammonium	ug m-3	Aerosol Ammonium mass concentration
PILs-IC	Aerosol Chemical Composition	Potassium	ug m-3	Aerosol Potassium mass concentration
PILs-IC	Aerosol Chemical Composition	Magnesium	ug m-3	Aerosol Magnesium mass concentration
PILs-IC	Aerosol Chemical Composition	Calcium	ug m-3	Aerosol Calcium mass concentration
PILs-IC	Aerosol Chemical Composition	Ammonium_Flag	unitless	Indicatior of potential high bias in aerosol Ammonium