

The ACTIVE Dataset: Status and Availability

Grant Allen

(grant.allen@man.ac.uk)

SEAES, University of Manchester

For: TWP-ICE/ACTIVE Science meeting, New York, Nov 06

The ACTIVE database

- All data is available via FTP access to:
[mobile4.phy.umist.ac.uk](ftp://mobile4.phy.umist.ac.uk)
- User account requests to grant.allen@man.ac.uk
- Geophysical processed data in ASCII format is in directory: /Database3/ACTIVE/PROCESSED/current/
- Users can upload data to: /Database3/ACTIVE/upload/
- All geophysical data will be converted to NASA AMES format and submitted to the BADC when finalised

ACTIVE website

<http://mobile4.phy.umist.ac.uk/active>

Contains:

- Description of the campaign, summary and dataset-status documents
- Quick-look plots (time-series/flight tracks etc) of some data
- Links to meteorological data browser

What's on the database?

The current database holds:

- All raw aircraft data
- Latest (and old) versions of aircraft geophysical data
- BoM meteorological image browser (1/11/05-6/1/06)
- Ozone soundings – All final
- All Darwin Airport PTU soundings (note some corrupted/missing data)
- Selected sonde data from other launch sites during TWP-ICE (not relevant to SCOUT)
- Selected BoM radar microphysical classifications

Instrument	Analyte	Status	Comment
AMS	Aerosol composition	✓	Composition data (mass loadings) finalised for all flights No size-resolved data available; possibility of averaging large number of spectra to reduce noise
AIMMS	Location, P, T, RH, winds	✓	AIMMS RH after Christmas is incorrect (supplemented with RH derived from the AMS). T shown to be consistent (to within 1K) with Darwin Airport and TWP-ICE soundings
CPC	Cloud Particles	✓	All data final
ASP	Aerosol (0.21-4.5 µm)	✓	All data final. Only data in the range 0.24 – 2.5 µm should be used due to known sizing channel problems and Dornier inlet transmission efficiency.
UHSAS	Aerosol (0.055 – 0.8 µm)	☹	An instrument problem developed prior to the first flight of the second phase. Data is known to be subject to internal inconsistency and compares poorly with other sizing instruments.
Grimm	Aerosol (0.3-25µm)	☹	Data shows a consistent difference with the ASP. Known issue that Grimm spectrometers are not calibrated or characterised at altitude.
FSSP	Aerosol (0.5 – 32 µm)	✓	All data final. Data used only in the range 2-32 um due to known instrumental channel problems.
CO	Carbon Monoxide	✓	All data final
O3	Ozone	✓	All data final
Sampler	VOCs	✗	Data for some flights available, but not finalised; the rest awaits analysis
PSAP	Black Carbon	✓	All data final. Very clean measurements, so mostly zero-level instrumental noise.
GC	CFCs	✗	Data for some flights available, but not finalised; the rest awaits analysis

Instrument	Analyte	Status	Comment
Rosemount	P, T and winds	✓ 1/2	Still awaiting final calibrated dataset from ARA. Some missing data due to problem with onboard data system in early flights. T is consistent (<1K difference) with Darwin and TWP-ICE sondes. Vert winds not available.
GPS –(Garmin & Ozi explorer)	Location	✓	All data final. Garmin GPS supplemented with poorer resolution Ozi Explorer GPS where missing, due to problem with onboard data system for early flights.
SP-2	Aerosol, black carbon	☹️?	Analysis ongoing. Questions over the quality of the data ie. inlet chippings, noise etc...
TSIs	Aerosol	✓	All data available. One CPC subject to size-cut calibration
TDL – open path	Water vapour	✓ 1/2	Awaiting analysis with final met data
TDL – closed path	Water vapour	✓ 1/2	Awaiting analysis with final met data
CR-2 FP Hygrometer	RH, water vapour	✓	Complete
CO	Carbon Monoxide	✓	All data final
O3	Ozone	✓ ☹️	All data final, but data prior to 1 st December is incorrect due to instrument problems.
CPI	Cloud particle images	✓	All data final
NOx	NO and NOx	✓	All data final
GC	CFCs	✗	Data awaits analysis

Summary

- Still waiting final Egrett met. data from ARA.
- Questions over the potential for data from the Egrett Soot Photometer (SP-2)
- Awaiting CFC (Egrett+Dornier) and VOC (Dornier) data
- Aerosol sizing data from the ASP only

ACTIVE Humidity Measurement Issues

J. Whiteway and Clive Cook

In clear air the open-TDL and FPH differ by constant factor of about 1.5

Ratio is constant within a given flight and over a large range of humidity, temperature and pressure (see example)

Not clear yet whether we should calibrate the open-TDL against the FPH

e.g. Open and Closed TDL matched pretty well before Christmas (not after)

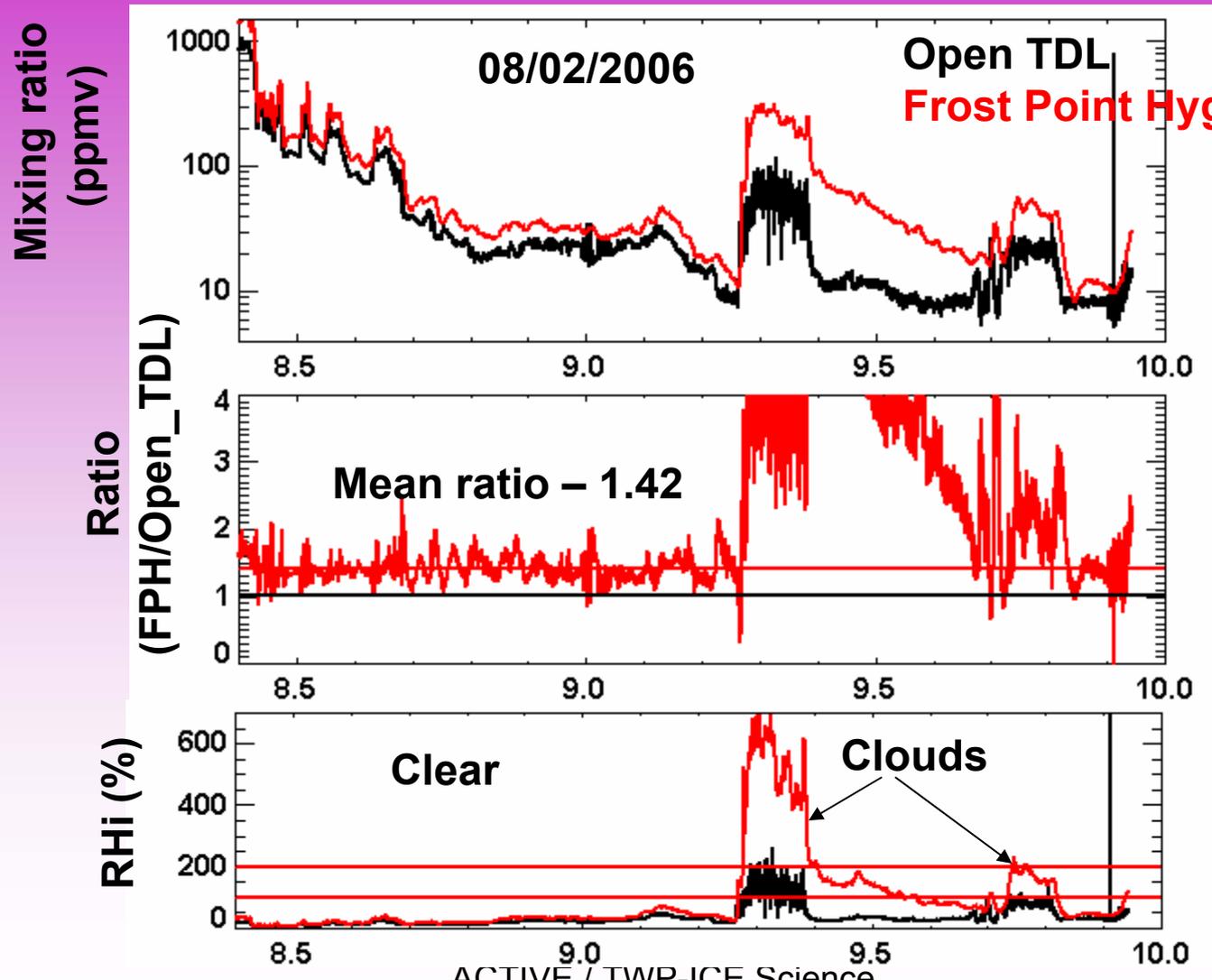
We have started carrying out comparison with radiosondes (see example)

Open-TDL is the only instrument reliable in cloud during ACTIVE

e.g. FPH far too high in cloud (e.g. $RH_i = 600\%$) due to IWC sampled by inlet

FPH shows slow recovery sometimes after very thick cloud

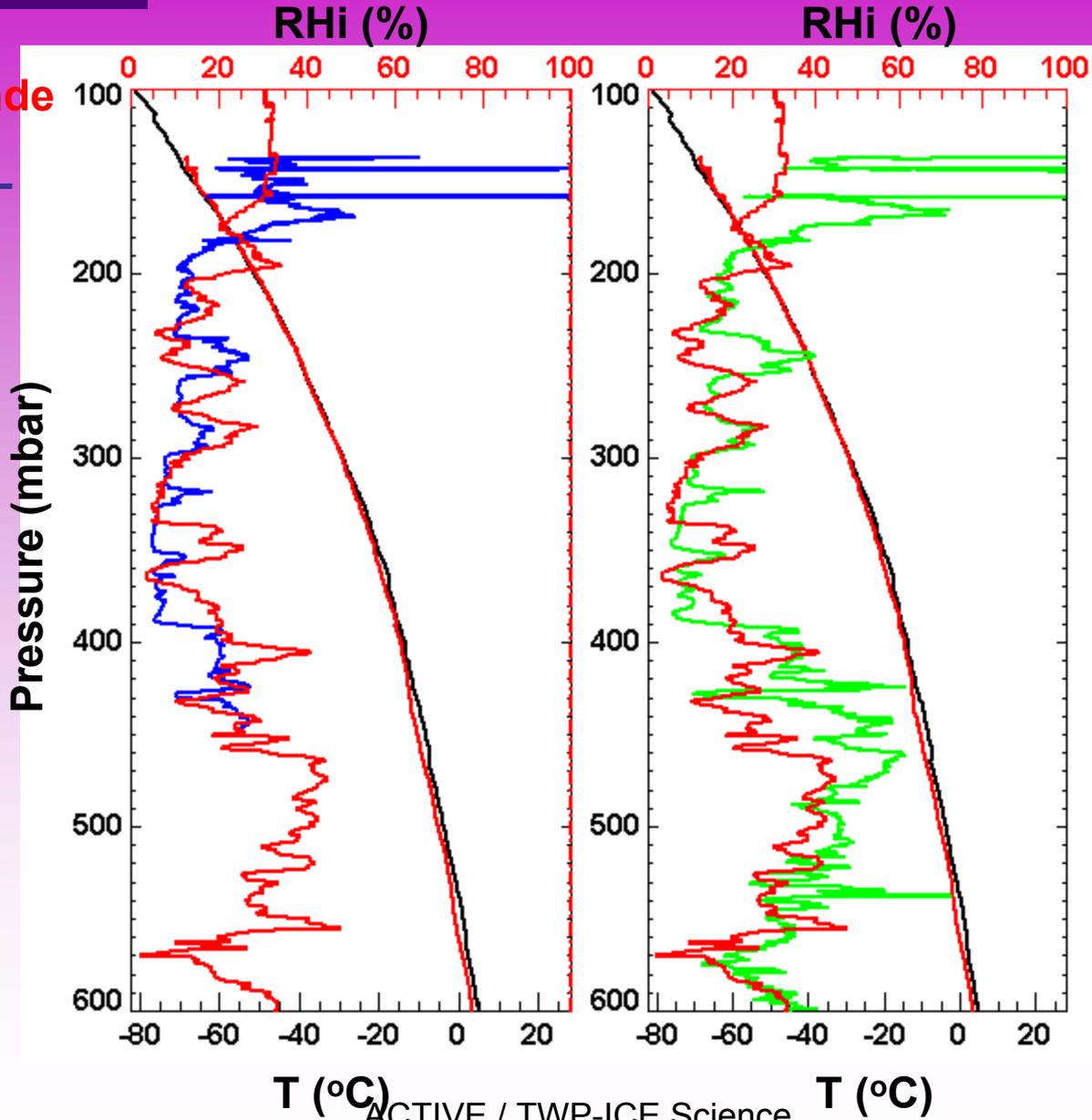
In clear Air ratio FPH/open-TDL average of about 1.4
 Ratio is constant within a given flight (not T or P dependent)
 FPH far too high in cloud (e.g. RHi = 600%)
 FPH shows slow recovery sometimes after very thick cloud



Radiosonde

Open TDL

FPH



Open and Closed TDL matched pretty well before Christmas

