

HISCLAE Data Overview

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ARM data archive – AAF datasets

HISCALE measurement	Data Source Name
Meteorology	<ul style="list-style-type: none">• Aircraft-integrated meteorological measurement system• Meteorology/State/Position Parameters
Aerosol	<ul style="list-style-type: none">• Condensation particle counter (CPC, > 10 nm)• Cloud condensation nuclei counter (CCN)• Ultra high sensitivity aerosol spectrometer (UHSAS)• Passive cavity aerosol spectrometer (PCASP)• Fast integrated mobility spectrometer (FIMS)• Time of flight chemical ionization mass spectrometer (ToF CIMS)• Aerosol mass spectrometer (AMS)• Mini single particle mass spectrometer (mini- SPLAT)• Optical particle counters after isokinetic and counter-flow virtual impact inlet
Trace gas	<ul style="list-style-type: none">• NO/Nox analyzer• Trace gas suite: CO, SO₂, ozone.

ARM data archive – AAF datasets

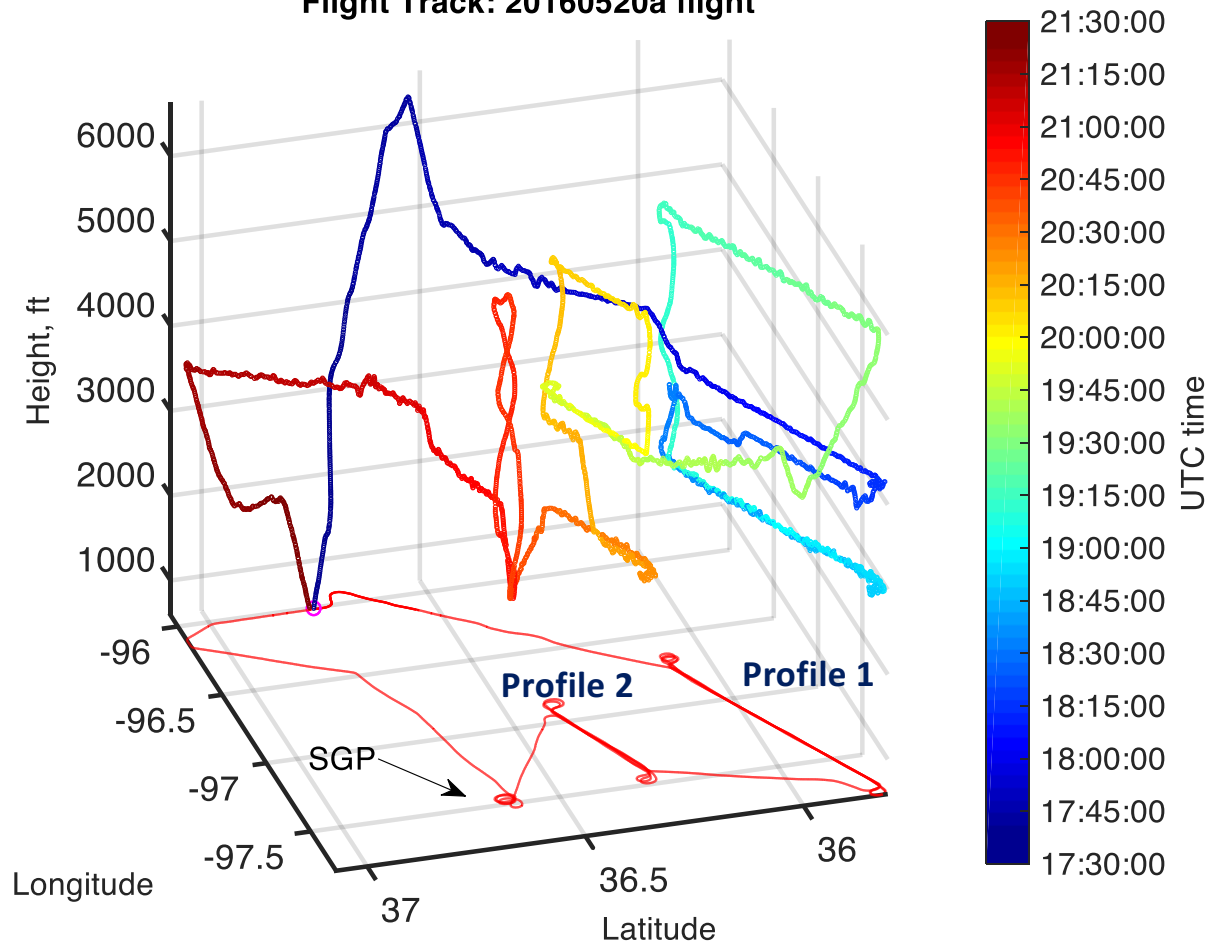
HISCALE measurement	Data Source Name
Cloud	<ul style="list-style-type: none">• Fast cloud droplet probe (FCDP, 1-50 μm)• 2DS cloud particle imaging probe (2DS, 10 μm- 3 mm)• High Volume Precipitation Spectrometer imaging probe (HVPS, 150 μm – 10 cm)• Cloud droplet probe (CDP, 1-50 μm)• Cloud imaging probe (CIP, 10 μm- 3 mm)• Cloud spectrometer and impactor (CSI)• Cloud and aerosol spectrometer (CAS)• Water content monitor
Radiation	<ul style="list-style-type: none">• Radiometer suite
Others	<ul style="list-style-type: none">• Video• Worldview -3 satellite images of SGP/ARM

HISCALE Data availability

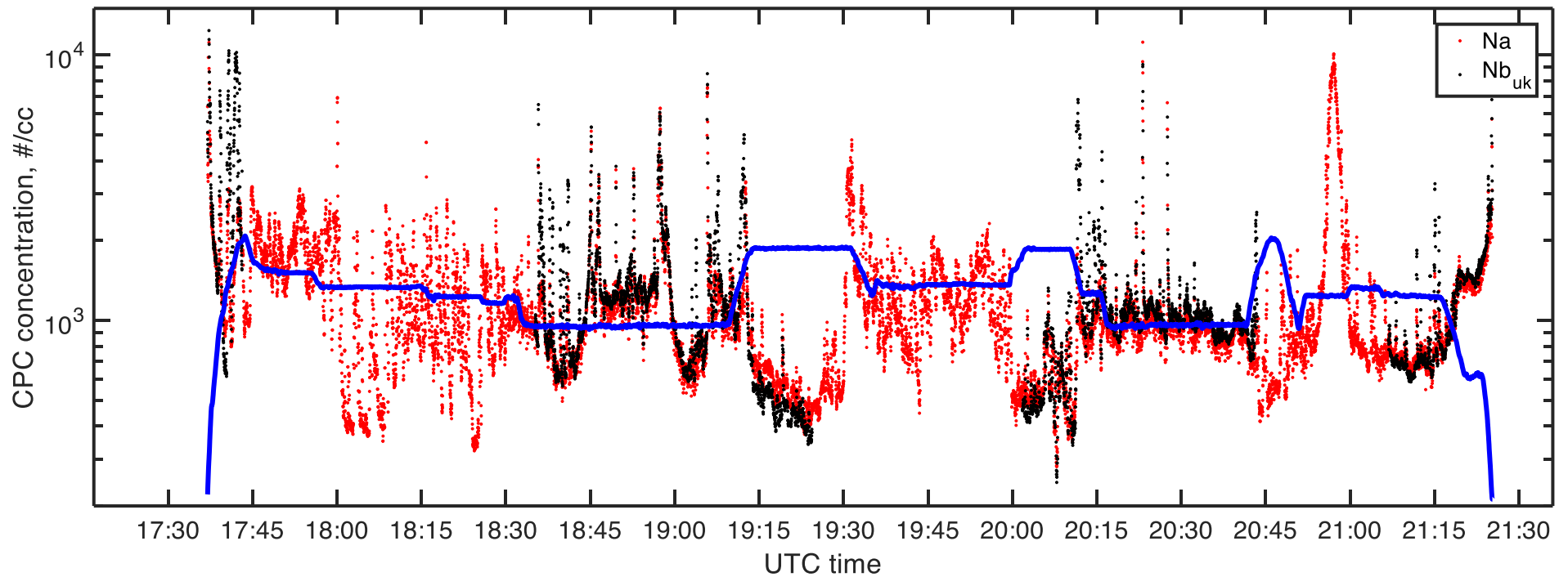
- ▶ Data website: <https://www.arm.gov/research/campaigns/aaf2016hiscale>
- ▶ IOP1 data are available at ARM website.
- ▶ IOP2 data will be available after 3/24/2017.
- ▶ ARM archive user will automatically receive a notice, if new data revision is uploaded to ARM archive.
- ▶ Data DOI: DOI - 10.5439/1345492 for all AAF final datasets.
 - DOI - 10.5439/1328760 for National Geospatial-Intelligence Agency (NGA) Calibration Target Placements during HISCALE

Case study of 20160520a flight

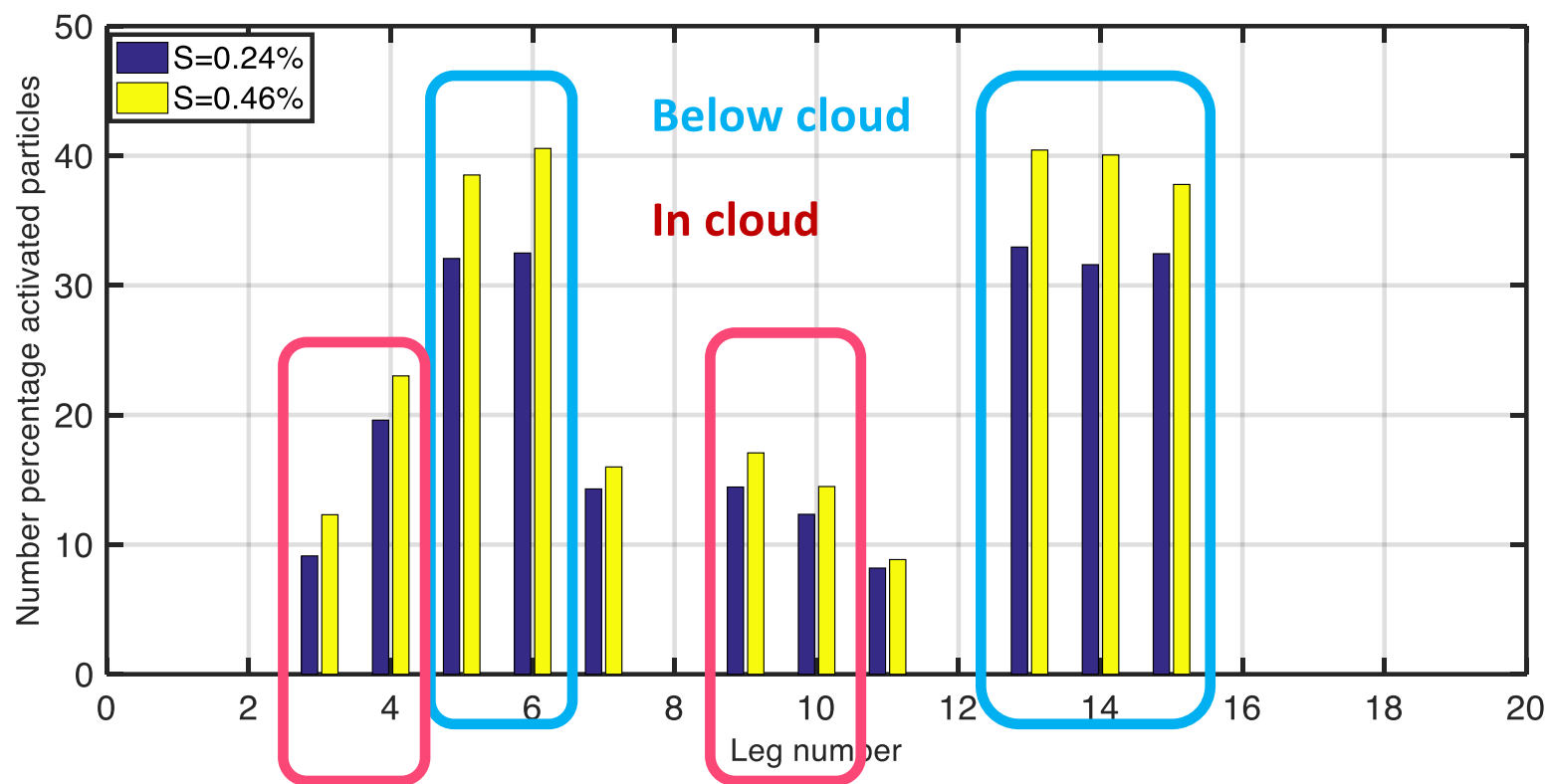
Flight Track: 20160520a flight



Aerosol number concentrations after isokinetic and CVI (under kinetic mode) inlets

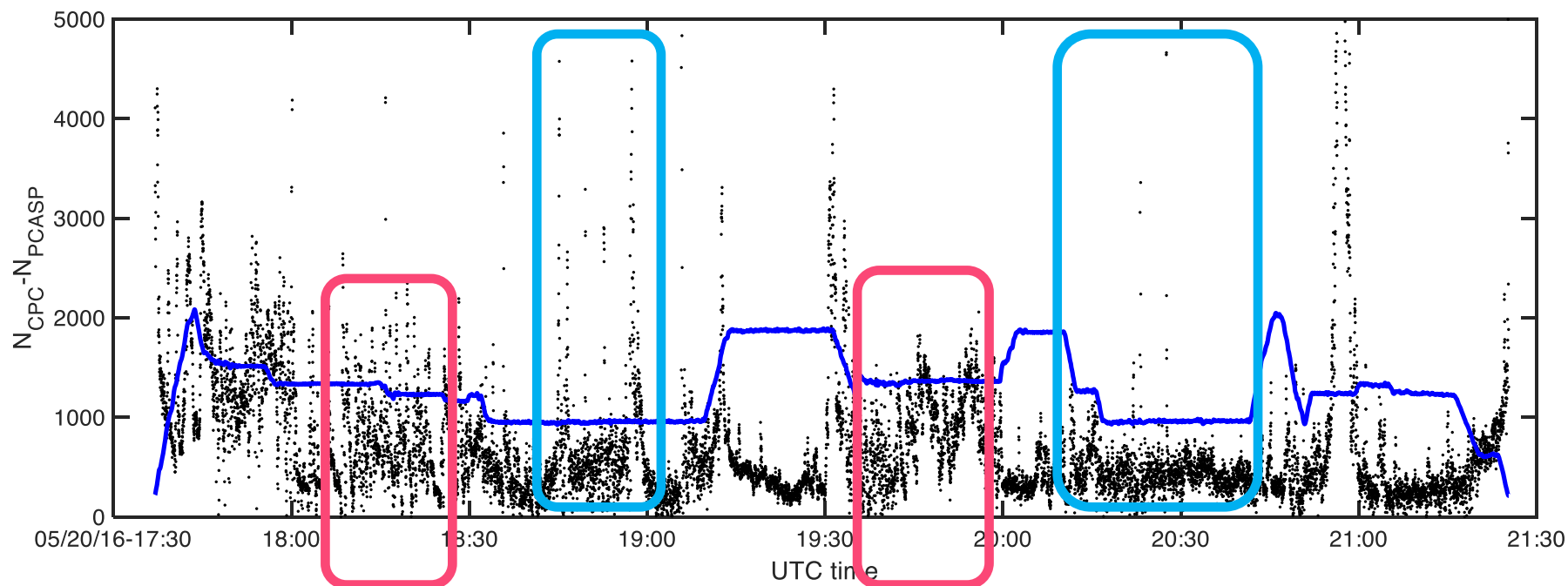


Average activation fraction at each flight leg





More <100 nm size particles (cloud residue) observed in cloud



CCN activation fraction decrease can be partially explained by the size effect.



FIMS size distribution shows a slight shifting

