



NIWA

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Arrival Heights, Antarctica, as GRUAN site

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Climate, Freshwater & Ocean Science



NIWA

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New Zealand's Arrival Heights Research Laboratory



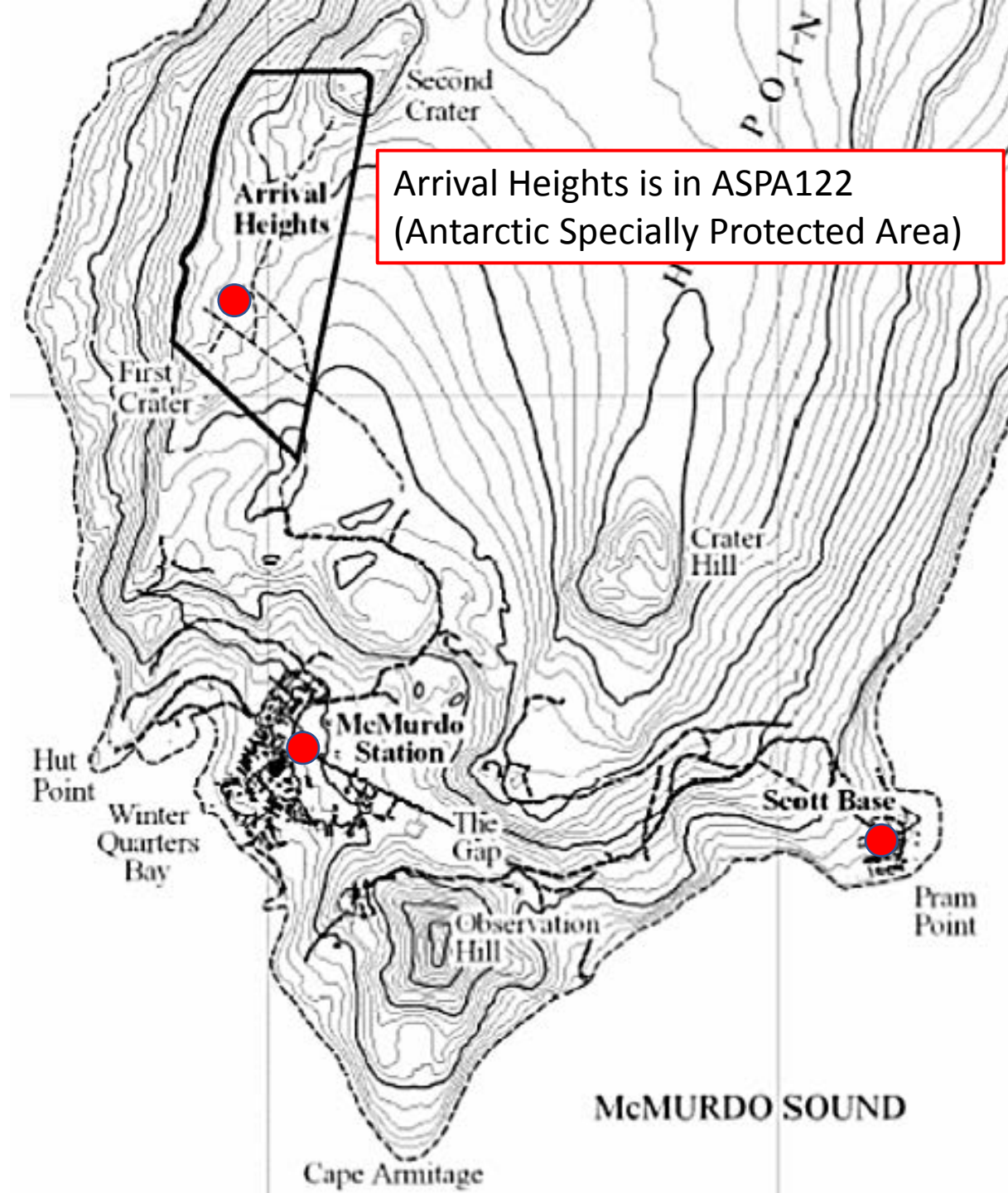
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat
Image U.S. Geological Survey
Image PGC/NASA



Ross Island

- Arrival Heights
- McMurdo Station
- Scott Base

1 km



Arrival Heights, Antarctica

- Latitude = -77.82
- Longitude = 166.65
- Elevation = 200 m ASL



An aerial photograph of McMurdo Station in Antarctica. The station is a complex of various buildings, including large hangars and smaller structures, situated on a flat, snow-covered landscape. Several large, white, cylindrical storage tanks are visible in the foreground. The background shows a vast, icy expanse under a clear blue sky.

McMurdo Station, Antarctica

- Latitude = -77.85
- Longitude = 166.63
- Elevation = 10 m ASL

Photo: USAP

Scott Base, Antarctica

- Latitude = -77.85
- Longitude = 166.78
- Elevation = 22 m ASL



Photo: Ian McGregor

(Greater) Arrival Heights measurements

Data submitted to NDACC, WOUDC, WDCGG (World Data Centre for Greenhouse Gases) and others.

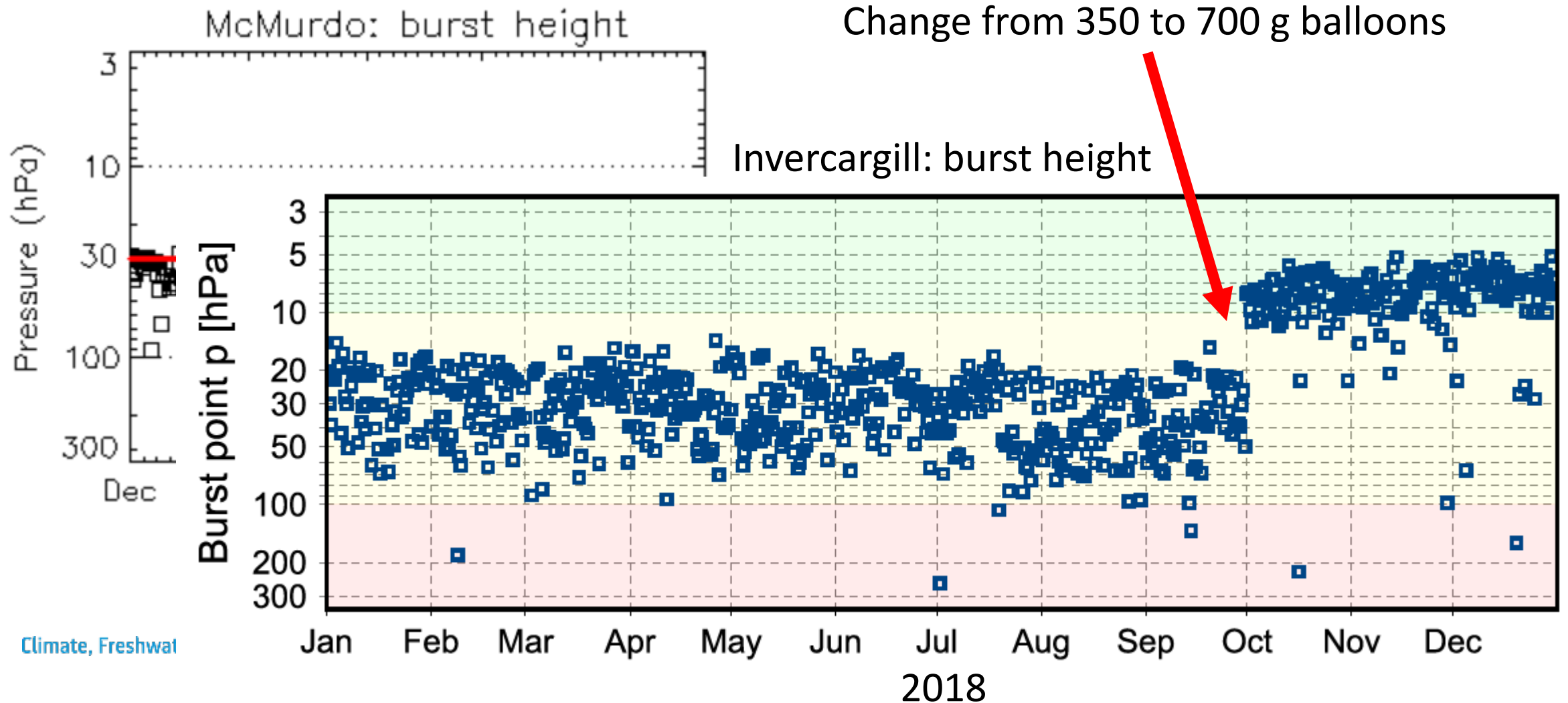
- Radiosondes at McMurdo, from 1956 (63 years)
- UV/vis DOAS, from 1982 (37 years)
- Dobson (D017), from 1988 (31 years)
- Flasks, from 1989 (30 years)
- FTIR, from 1991 (28 years)
- Microwave Radiometer, from 1996 (23 years)
- UV/vis MAXDOAS, from 1998 (21 years)
- Ozone analyser, from 2002 (17 years)
- GNSS receiver, from 2004 (15 years)

Radiosondes at McMurdo Station

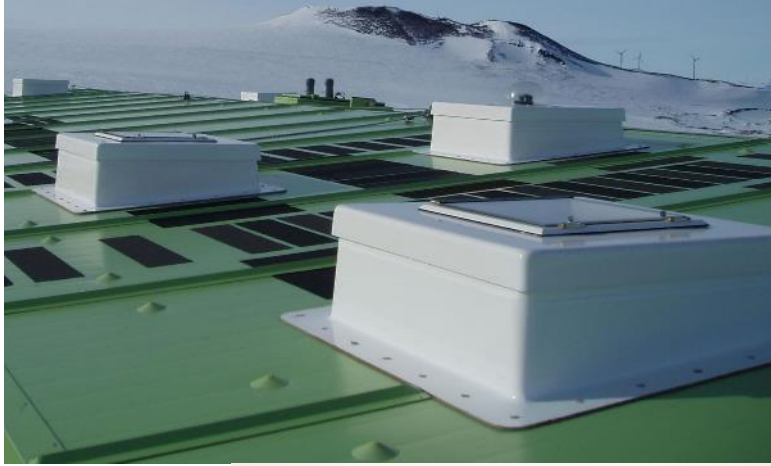
- Twice daily since 1956.
- Currently using RS-41.
- SHC installed October 2018.



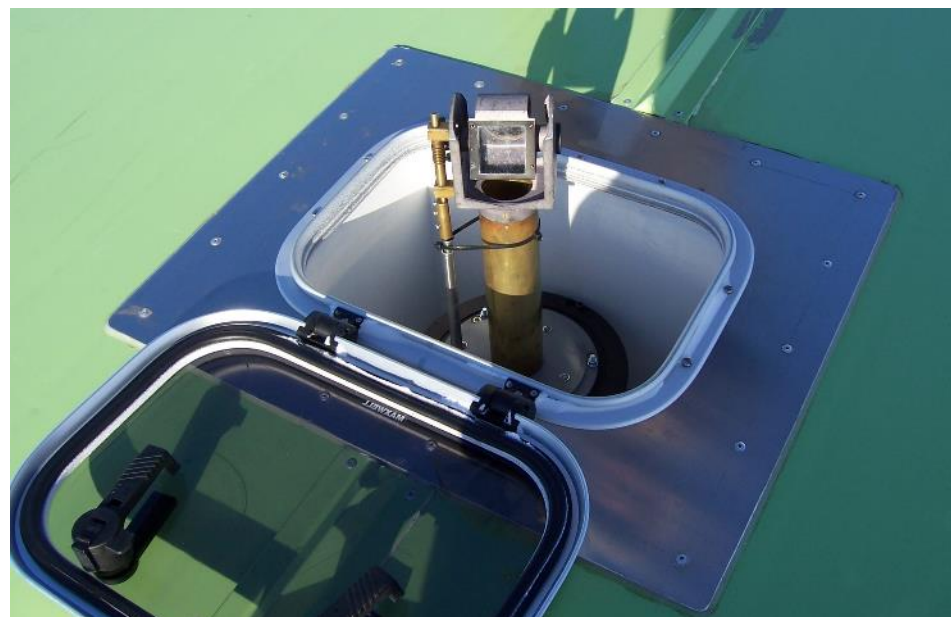
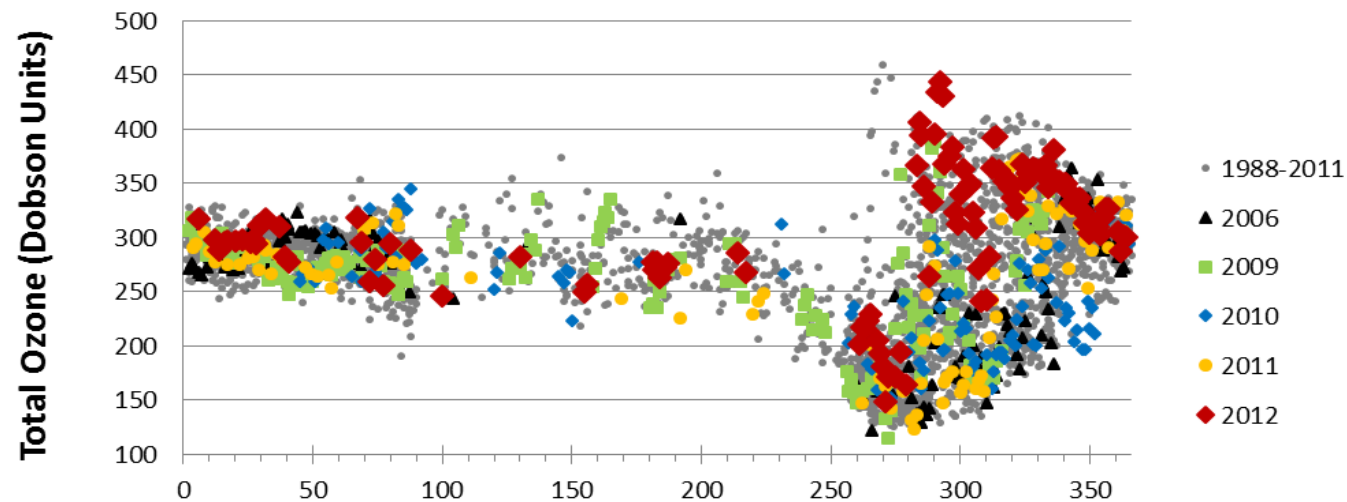
Radiosondes at McMurdo Station



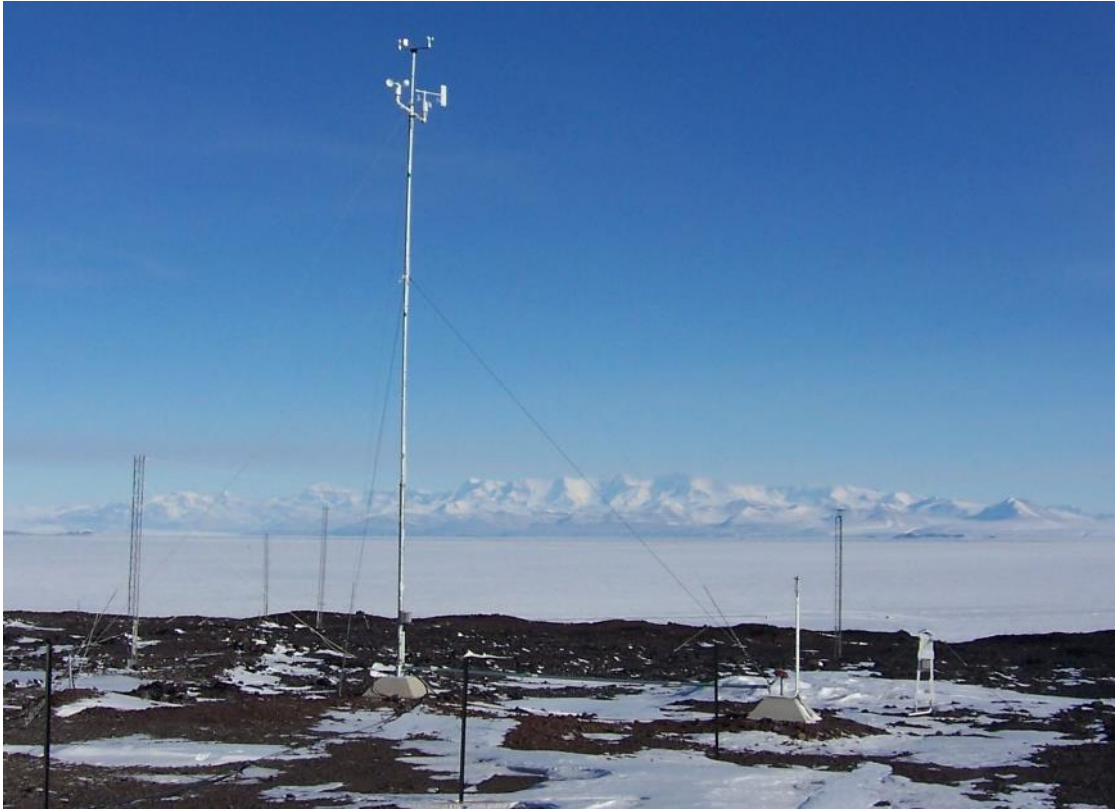
ADAS & the JYs (zenith-viewing UV/Vis grating spectrometers)



Dobson (D017)



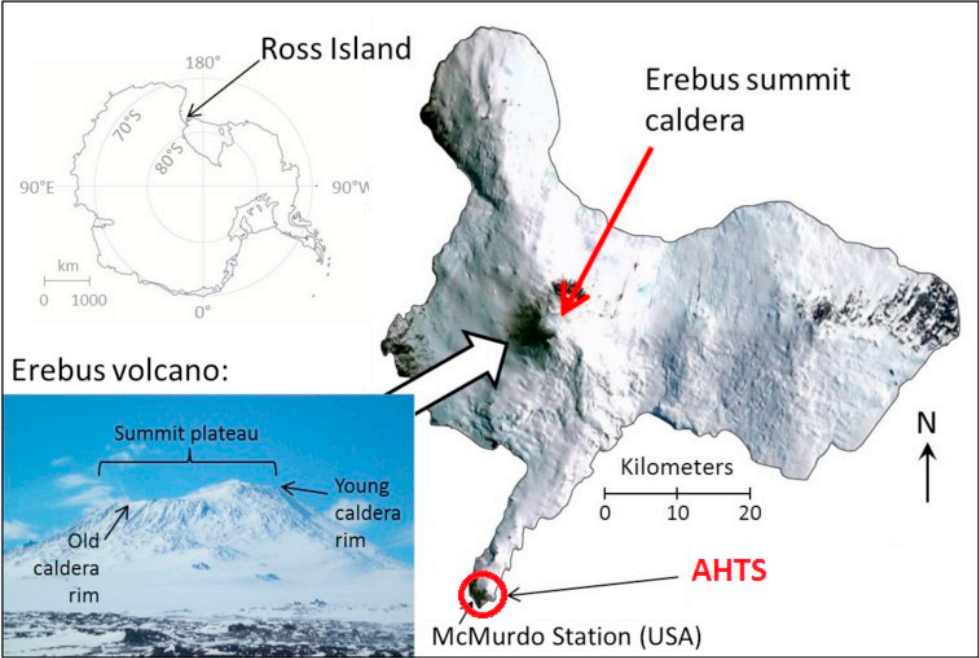
Flask samples (CH_4 , CO , N_2O , CO_2 and accompanying carbon isotopologues: $^{13}\text{C}-\text{CH}_4$, $^{14}\text{C}-\text{CH}_4$, $^{13}\text{C}-\text{CO}$, $^{18}\text{O}-\text{CO}$, $^{14}\text{C}-\text{CO}$ & $^{13}\text{C}-\text{CO}_2$, $^{18}\text{O}-\text{CO}_2$)



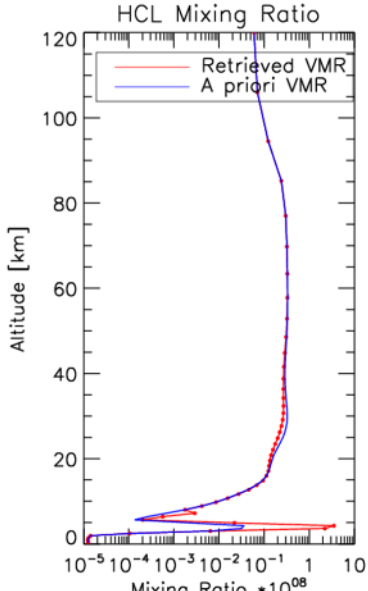
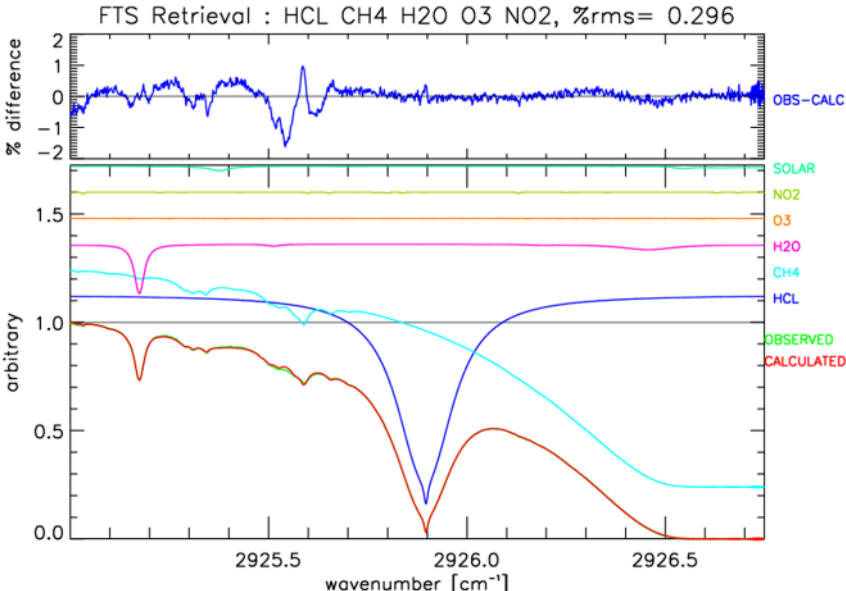
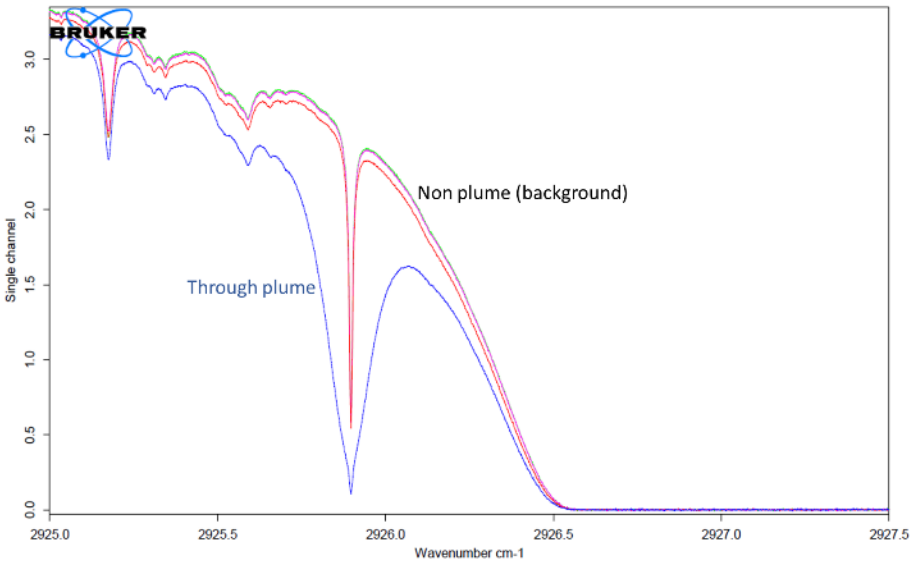
Bruker 125HR FTIR



Erebus

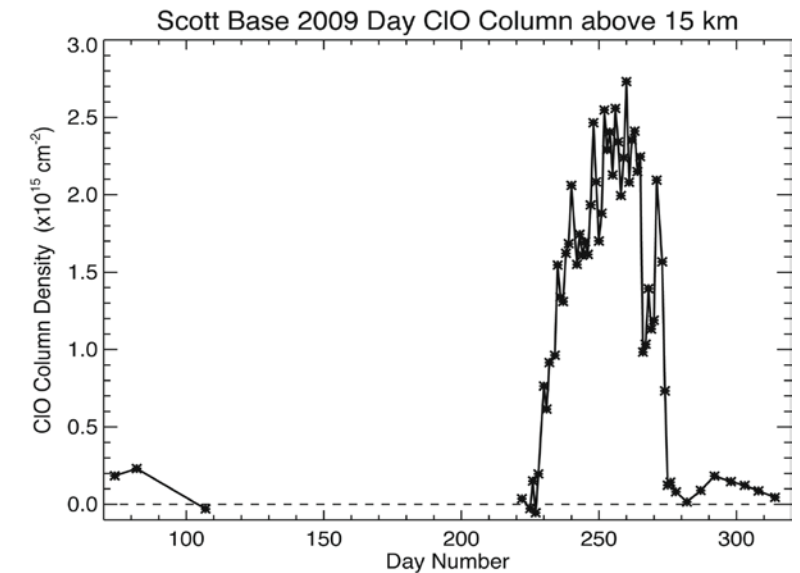


HCl:



Climate, Fre

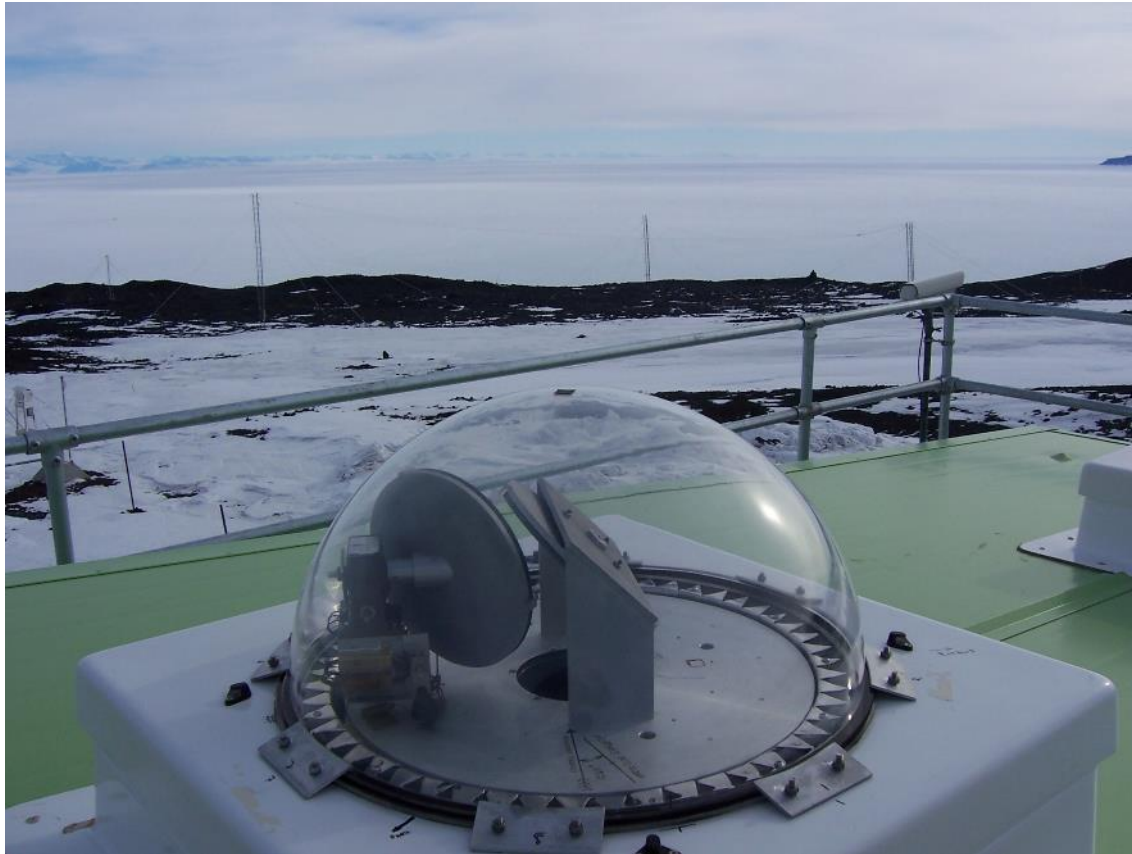
ChIOe (ClO microwave radiometer) at Scott Base



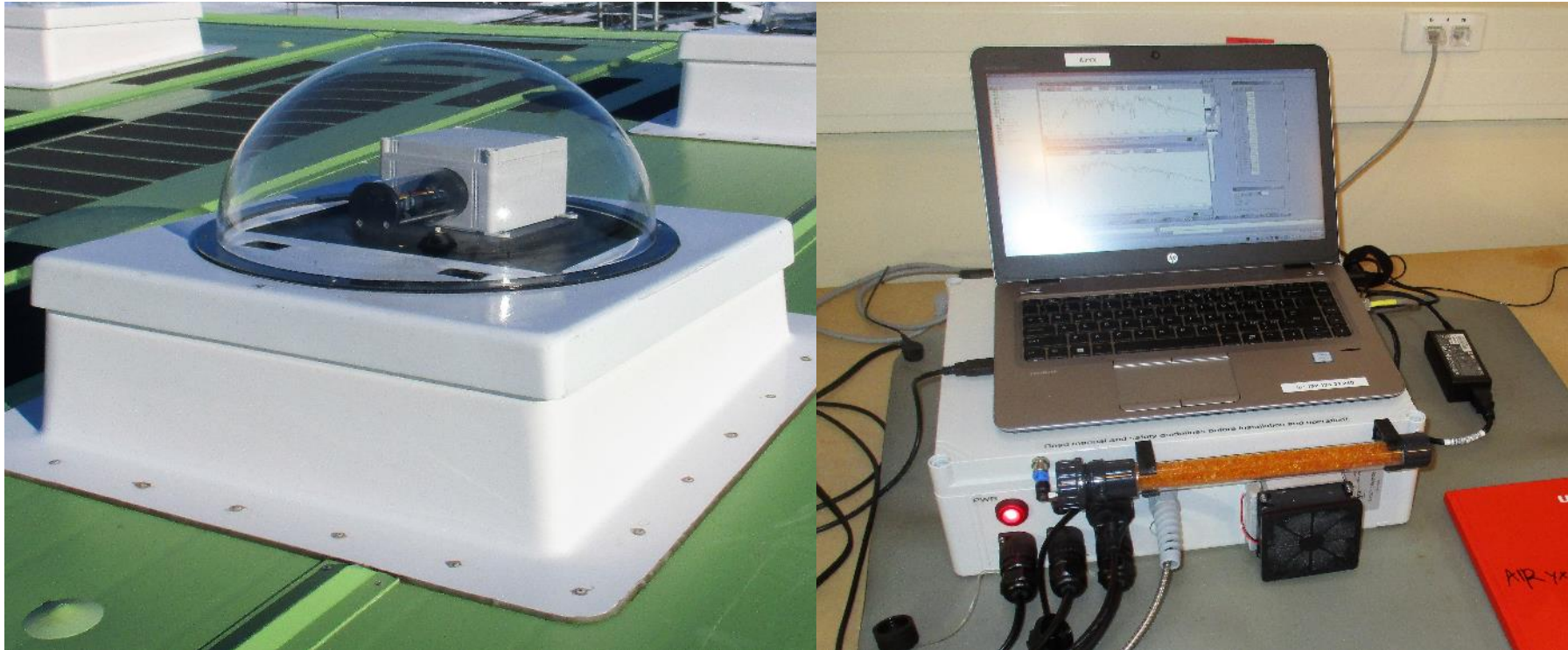
ADAS-2 MAXDOAS

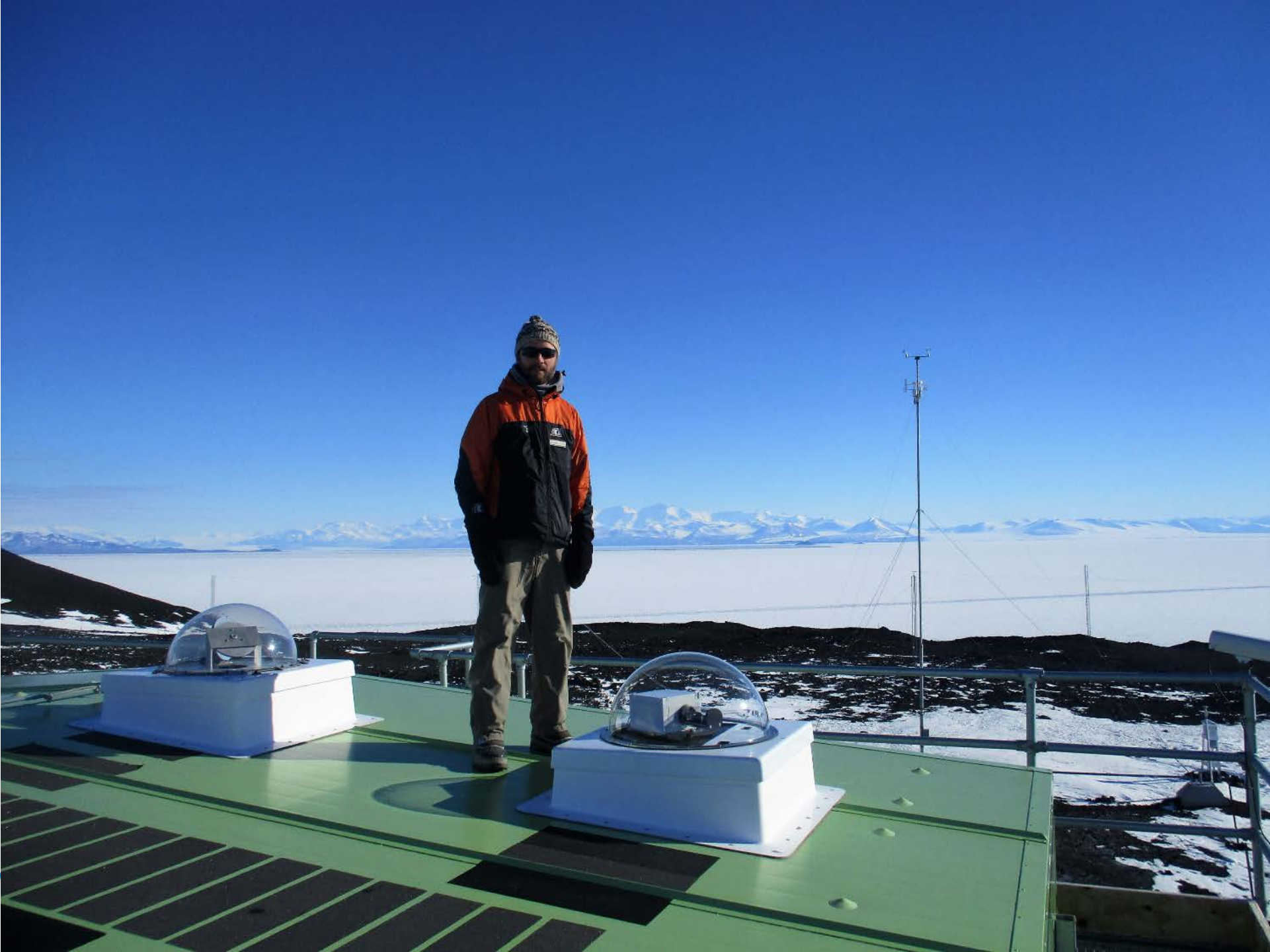


IUP Heidelberg

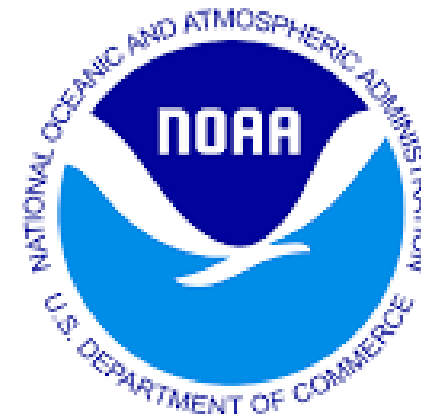


Airyx MAXDOAS (300-550 nm, O₃, NO₂, BrO, OClO, etc.)

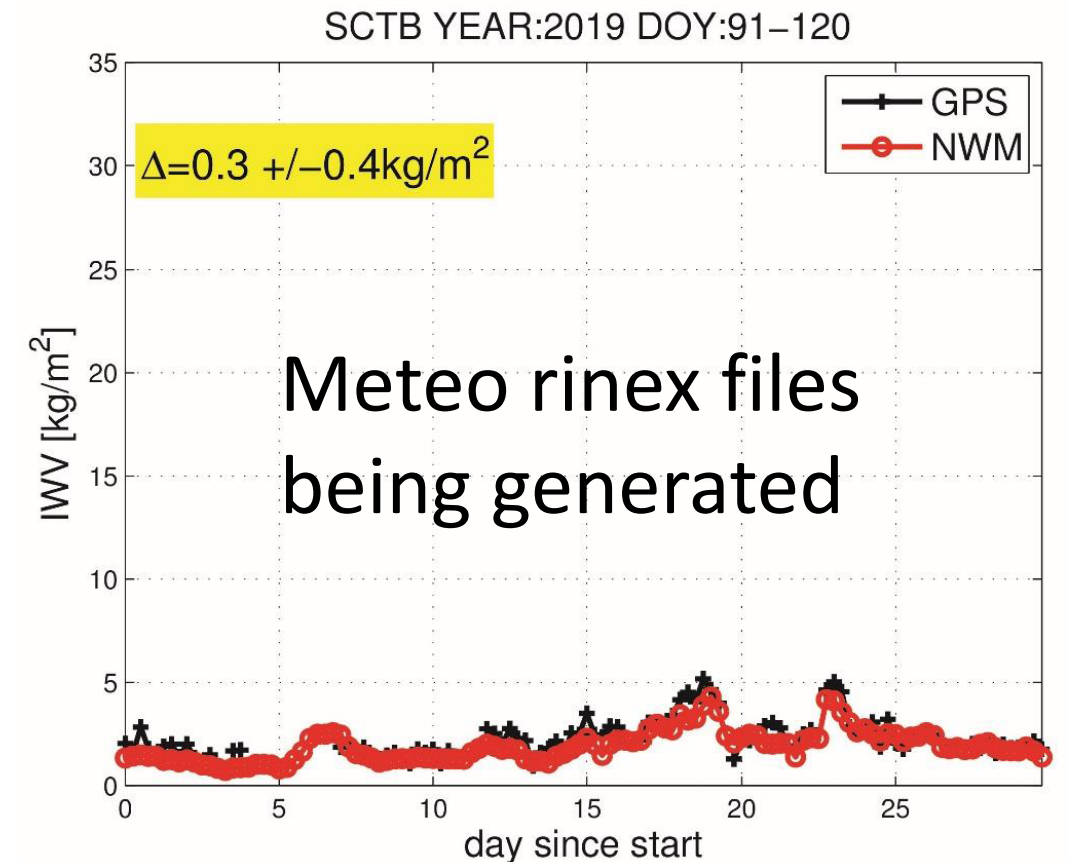




Surface *in situ* ozone analyser



GNSS Receiver above Scott Base

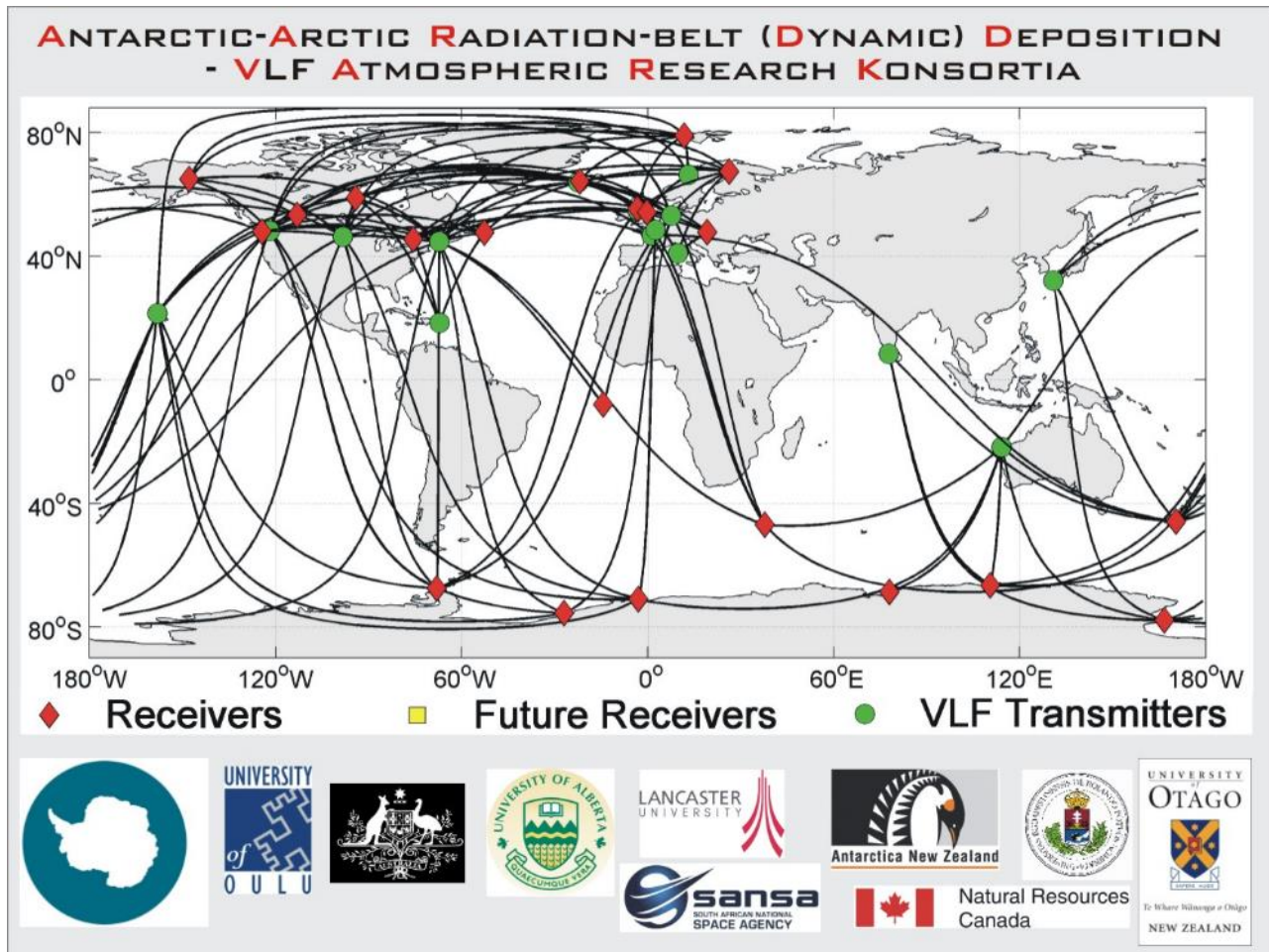


Other measurements at Arrival Heights

Fe Boltzmann LIDAR (372 & 374 nm)



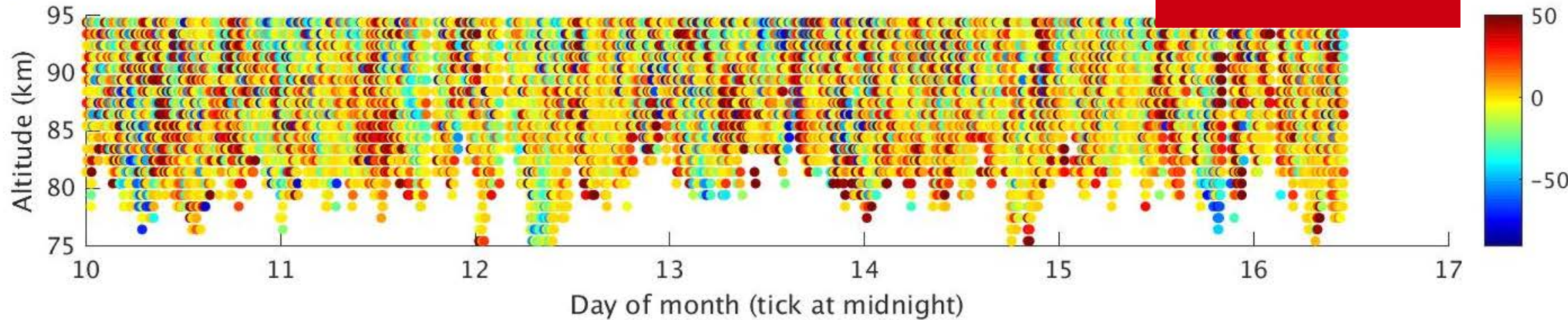
Antarctic-Arctic Radiation-belt (Dynamic) Deposition VLF Atmospheric Research Konsortia (AARDDVARK)



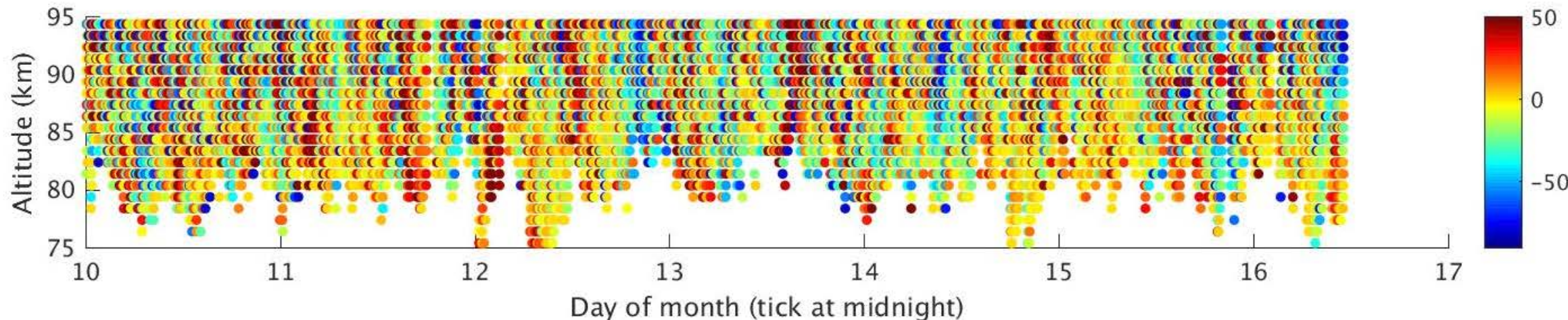
Antarctic Medium Frequency (MF) RADAR

Data from the MF radar wind experiment at Scott Base, Antarctica
Updated every hour (last update: 16-May-2019 12:10:52)

Zonal velocities for the past seven days:



Meridional velocities:



Thank you

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