

NRC during STAR

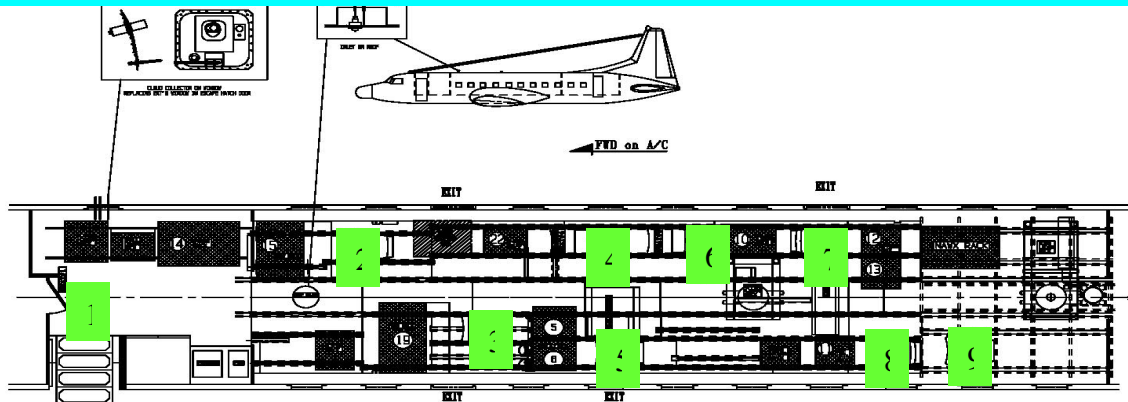
Mengistu Wolde

Flight Research Lab, Ottawa, Canada
Institute for Aerospace Research - NRC

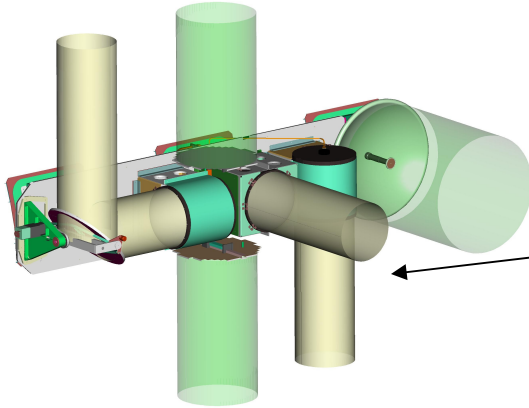


NRC Participation

- ❖ *Overall operation of the Convair-580 – in collaboration with EC*
- ❖ *Instrumentation: Aircraft, 3D-wind, dual-frequency cloud radar, 183 GHz radiometer*
- ❖ *Collaboration in STAR Themes 1-2*



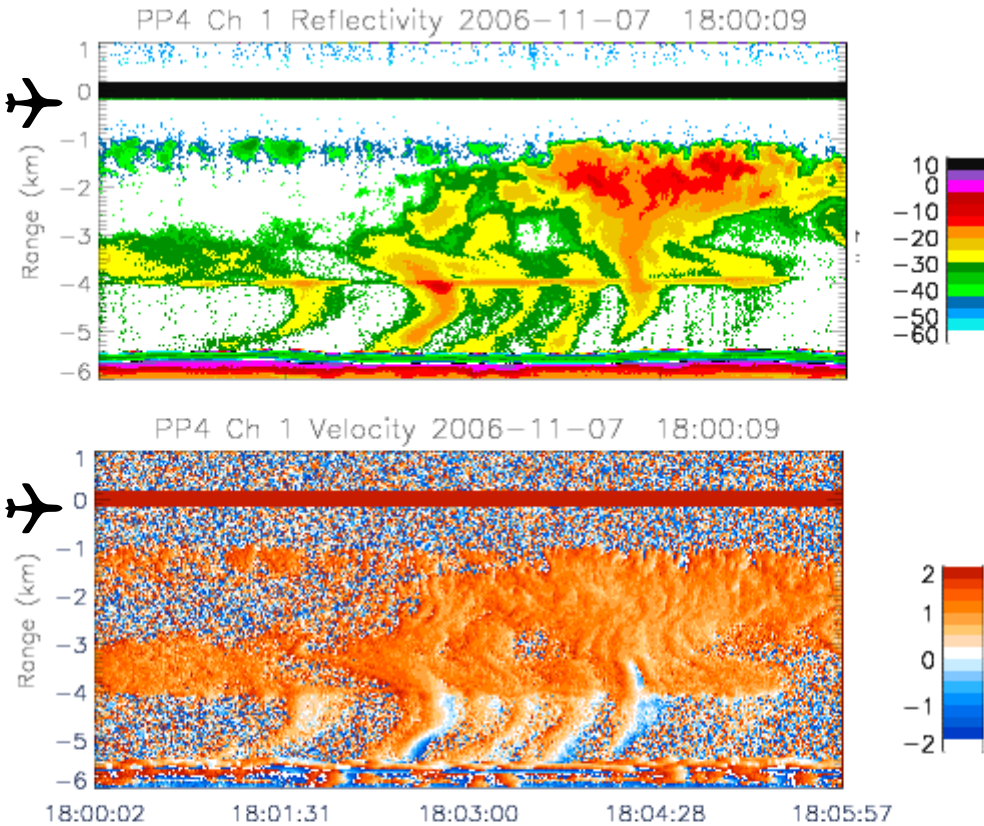
NRC Airborne W and X-bands radar (NAWX)



NAWX	W-band	X-band
Transmitted Frequency (GHz)	94.05	9.41
Peak Power @ Antenna (mW)	0.76×10^6	9×10^6
Max Aver. Power @ antenna (W)	23	9
Pulse Duration (μ s)	0.1 - 10	0.11-1
Max PRF (KHz)	15	5
Ant. 3 dB BW ($^{\circ}$)	0.75	3.5
Antenna ports	5	4
View direction	Up, down and side	Up, down and side

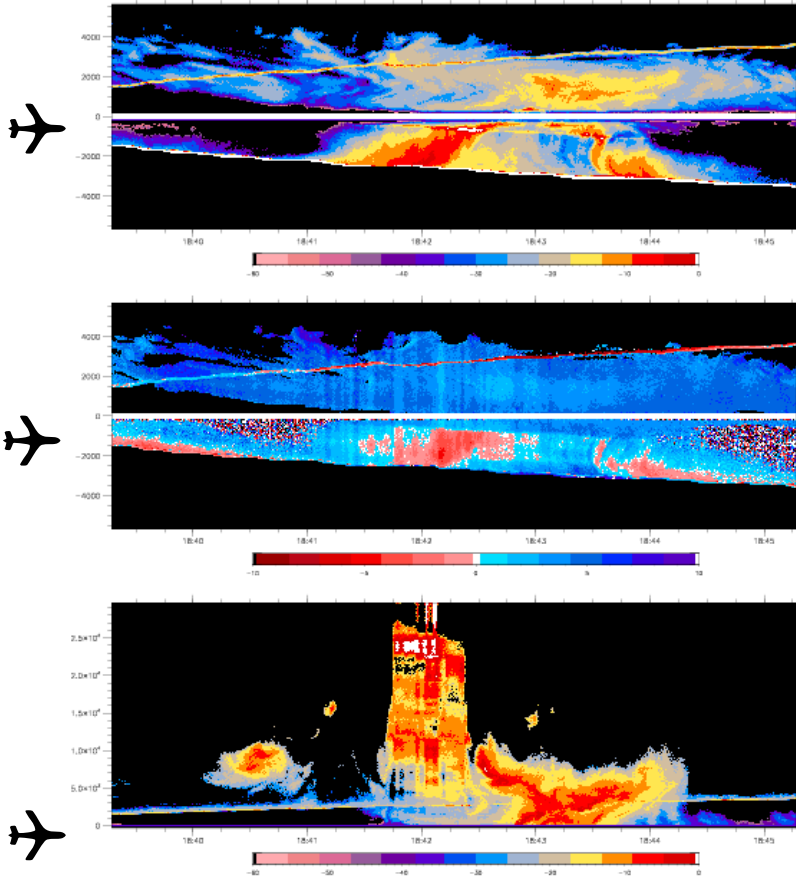
More details/updates: <http://www.nawx.nrc.gc.ca>

NAWX-X



- ❖ *Fully operational*
- ❖ *First project use: C3VP*
- ❖ *Figure: Example of vertical cross-sections of radar reflectivity and Doppler velocity images obtained at altitude of 6 km in one of the C3VP flights*

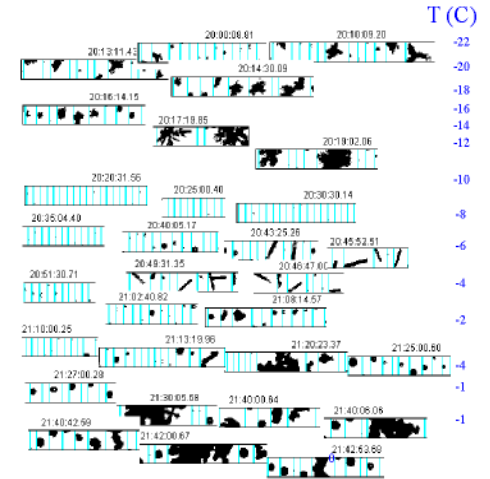
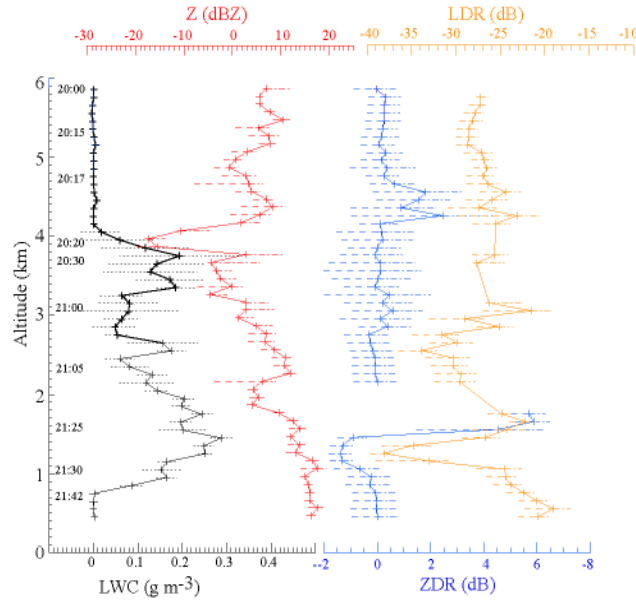
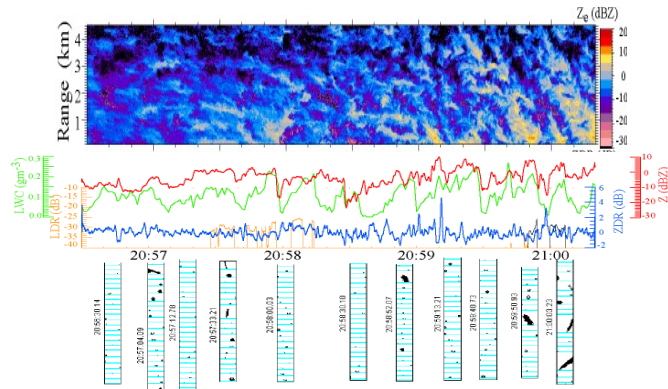
NAWX-X



❖ *Figure: Example of vertical and horizontal cross-sections of radar reflectivity and Doppler velocity from C3VP flight Nov 9, 2006: Ascending through a BB*

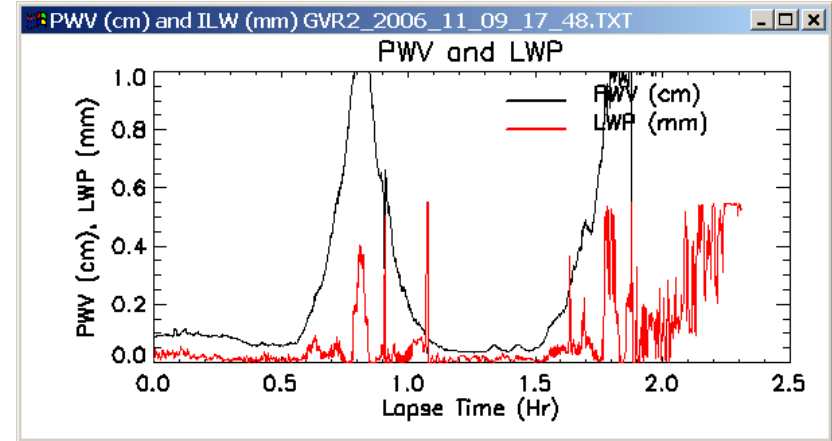
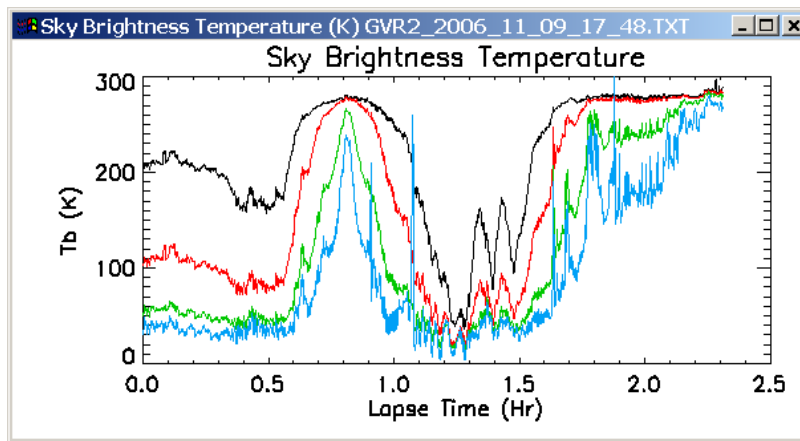
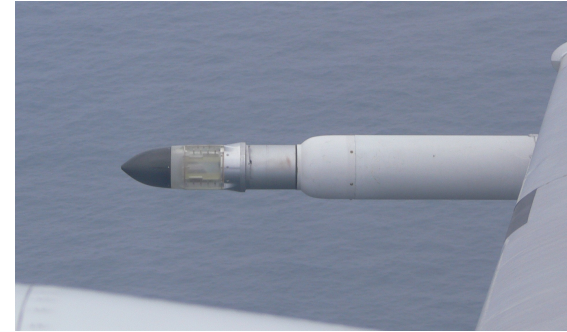
NAWX-W

- ❖ *Ground testing completed*
- ❖ *Installation and test flight – by end of Nov 2006*
- ❖ *First project use: C3VP – starting IOP2*



2D-C sample images

G-band Radiometer (183 GHz) - GVR



❖ *ProSensing Inc. prototype 183 GHz radiometer installed on Convair during C3VP*

❖ *Possible use during STAR*