

Overview



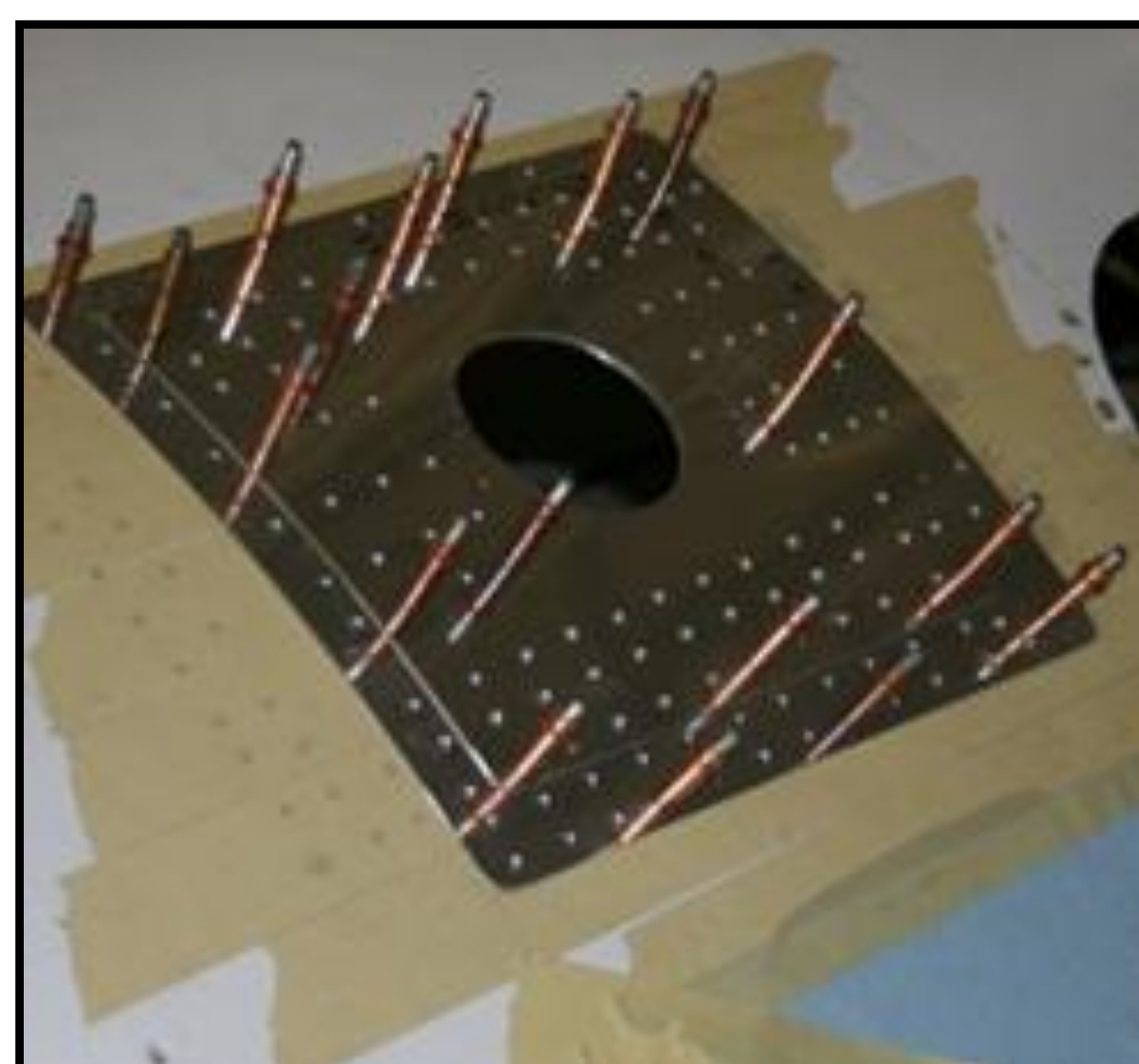
The Cessna Citation II twin-engine fanjet aircraft that the University of North Dakota (UND) has used on many field projects since the 1970s is now operated by Weather Modification International (WMI) of Fargo, North Dakota. WMI and UND working together provide a platform capable of conducting a wide range of field projects in a cost-effective manner, while providing a unique educational experience for students. The Citation Research Aircraft has a number of design and performance characteristics that make it an ideal platform for a wide range of atmospheric studies, including sampling at high altitude (40,000 ft) and the ability to be flown at the slower speeds necessary for many types of measurements. WMI has the experience to install the custom scientific instrumentation required for a specific field project and the expertise to conduct the most demanding aircraft sampling, including thunderstorm in-situ measurements. UND provides the scientific knowledge of how to obtain measurements at the required accuracy and the ability to quickly process data to ensure flights obtain the necessary observations. The WMI/UND team has provided the complete solution for conducting very challenging airborne field projects that have obtained the data set required to meet all scientific objectives.

Specifications

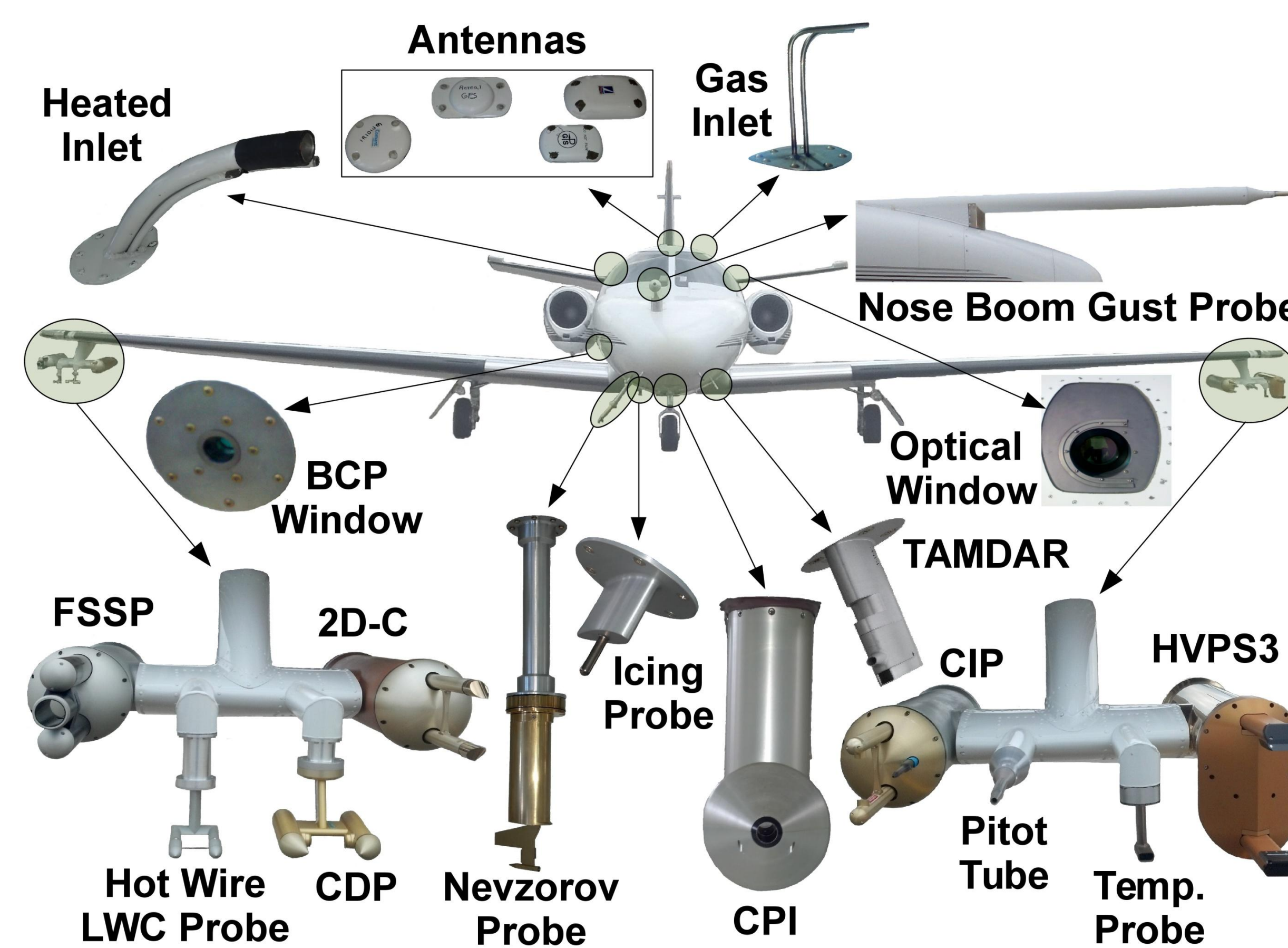
Payload	1528 – 2528 lbs.
Range	1200 nmi
Ceiling	43,000 ft
Time to Climb: 25,000 ft / 35,000 ft	13 / 24 min
Endurance	3 - 5 hours
Weather	Known Icing Storm Penetration 45 dBz
Sampling Airspeeds	150 – 225 KIAS

Modifications

Two Wing Tip Pylons
Five Reinforced Fuselage Locations
Six Ports for Electric Field Mills
Side-looking Window Insert
Anti-iced Gas Sampling Inlets



Aircraft Measurements



Probes onboard UN D' Cessna Citation II Research Aircraft in the Fall of 2012.

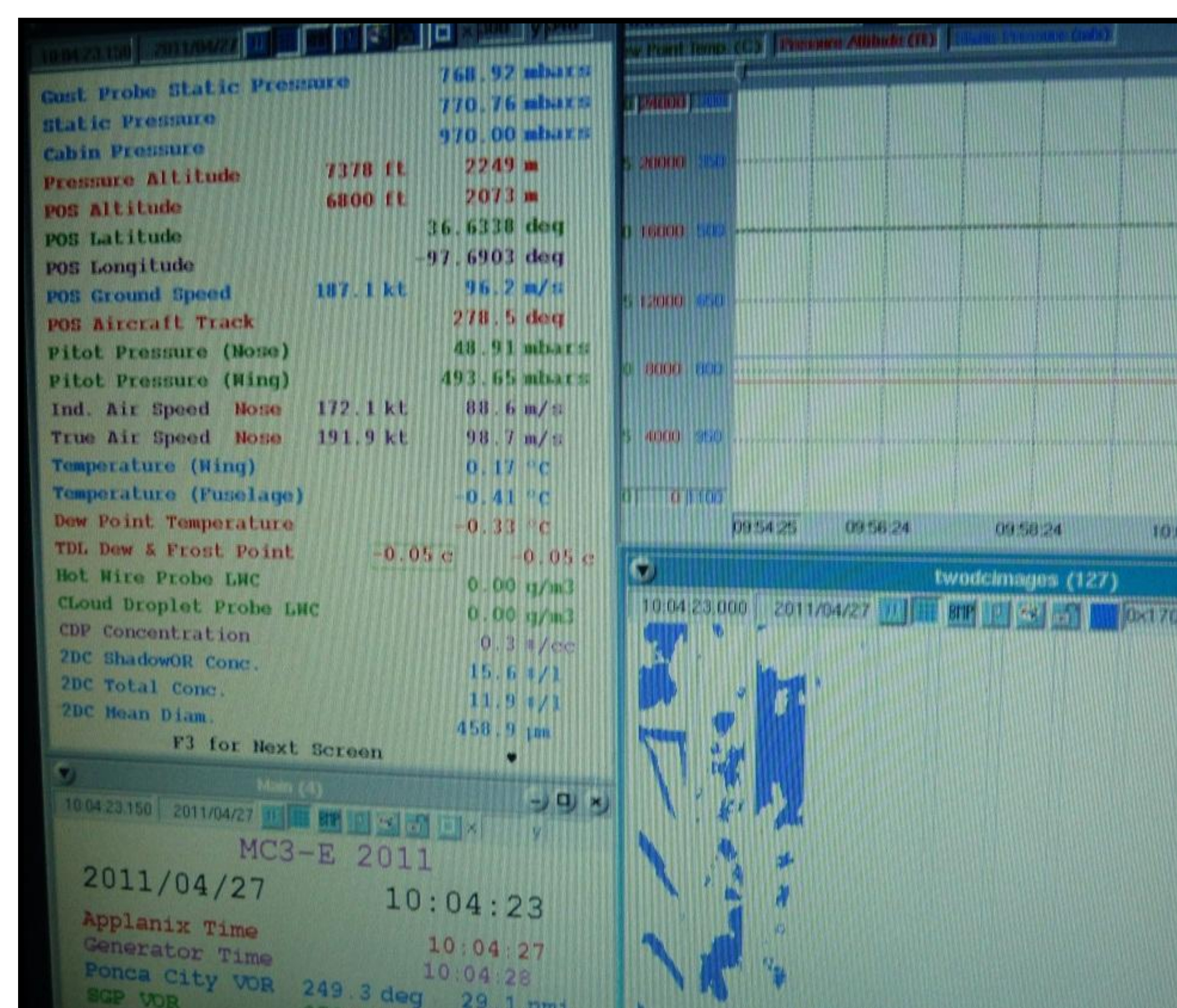


Research Power

Total	Below 35,000 ft: 7,300 W
	At or Above 35,000 ft: 5,400 W
AC	4 KW 110VAC 60Hz
DC	80 A 28VDC Instrument Anti-icing
	40 A 28VDC Instrument Power

Rack Space

130 inches of 19 inch Wide Rack Space
Specialized Racks, Cabin and Un-pressurized



Aircraft Data Processing



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delene@ice:/nas/und/NorthDakota/2014/Aircraft/CitationII_N55DS/FI
[delene@ice 20140306_174537]$ process_all_ophir
Processing the 14_03_06_17_45_37.sea file ..... Done
Creating 14_03_06_17_45_37.applanix.1Hz ..... Done
Creating 14_03_06_17_45_37.analog.1Hz ..... Done
Processing the 14_03_06_17_45_37.analog.??? file ..... Done
Processing the 14_03_06_17_45_37.2dc file ..... Done
Processing the 14_03_06_17_45_37.serial.GPS.raw ..... Done
Creating 14_03_06_17_45_37.physical.clean ..... Done
Creating 14_03_06_17_45_37.physical.filtered ..... Done
Creating the 14_03_06_17_45_37.physical.10Hz file ..... Done
Creating the 14_03_06_17_45_37.physical.1Hz file ..... Done
Processing the 14_03_06_17_45_37.physical.? file ..... Done
Creating 14_03_06_17_45_37.basicP1T1.1Hz ..... Done
Creating 14_03_06_17_45_37.basicP1T2.1Hz ..... Done
Creating 14_03_06_17_45_37.basicP2T1.1Hz ..... Done
Creating 14_03_06_17_45_37.basicP2T2.1Hz ..... Done
Creating 14_03_06_17_45_37.basic.1Hz ..... Done
Processing the 14_03_06_17_45_37.counts.pcasp.raw ..... Done
Creating 14_03_06_17_45_37.basic.8Hz ..... Done
Processing the 14_03_06_17_45_37.counts.cdp.raw ..... Done
Creating 14_03_06_17_45_37.king.raw ..... Done
Processing the 14_03_06_17_45_37.applanix.raw ..... Done
Creating 14_03_06_17_45_37.angles.applanix.1Hz ..... Done
Creating 14_03_06_17_45_37.king.1Hz ..... Done
Creating 14_03_06_17_45_37.conc.cdp.1Hz ..... Done
Creating 14_03_06_17_45_37.egg.raw ..... Done
Creating 14_03_06_17_45_37.wind.raw ..... Done
Creating 14_03_06_17_45_37.nevwc.raw file ..... Done
Creating 14_03_06_17_45_37.nevwc.1Hz ..... Done
Creating 14_03_06_17_45_37.serial.GPS.10sec ..... Done
Creating 14_03_06_17_45_37.REAL.winds.1Hz ..... Done
Creating 14_03_06_17_45_37.550nm.scats.raw ..... Done
Creating 14_03_06_17_45_37.conc_stp.pcasp.raw ..... Done
Creating 14_03_06_17_45_37.oph file ..... Done
Creating 14_03_06_17_45_37.air file ..... Done
Using 14_03_06_17_45_37.2dc to create 2DC images ..... Done
[delene@ice 20140306_174537]$
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Data processing done with the open source Airborne Data Processing and Analysis (ADPAA) software package, <https://sourceforge.net/projects/adpaa/>.



Towards Community Software Development

