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NRC Convair-580 Participation in the
HAIC/HIWC Cayenne Field Campaign –

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10-Mar-2015



National Research
Council Canada

Conseil national
de recherches Canada

Canada

Convair during HAIC-HIWC Cayenne mission

- ❖ Overview of aircraft
- ❖ Aircraft schedule
- ❖ Instrumentation
- ❖ Objectives
- ❖ Deployment plan
 - Airport Facilities
 - Crew
 - Working schedule
- ❖ Data



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NRC Convair-580

Crew: 2 pilots + up to 10 project personnel
Endurance: ~ 4 hrs (typical)
Range: ~ 1000 nm
Ceiling: 23, 000 ft
Research Payload: 2000 kg (typical)

- ❖ Atmospheric and aircraft state parameters
- ❖ Cloud microphysics
- ❖ Atmospheric chemistry (Aerosol, IN, CCN...)
- ❖ Airborne remote sensing - radars, radiometers, Lidar
- ❖ Defence research (communication, ISR)



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National Facility – developed by NRC, EC and DND

Aircraft schedule (Paris - 16-Jan)

❖ Jan – Feb:

- Lidar installation and Test Flight – 19 – 22 Jan 2015
- ISR Project Flights – week of 26 Jan 2015
- Icing project flights – Feb 2015
- HAIC-HIWC Project (Jan – May):
 - DFS, Instrumentation task planning
 - finalizing payload
 - determination of additional wiring work – started
 - wire change (IKP)
 - Rack work

❖ Aircraft under maintenance – mid March – mid April



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Aircraft schedule

❖ Jan – Feb:

- Lidar installation and Test Flight – 19 – 22 Jan 2015 - ✓
- ISR Project Flights – week of 26 Jan 2015 ✓
- Icing project flights – Feb 2015 ✓ **Last Flight on 04-Feb**
- Convair HAIC-HIWC Project (Jan – May): - On going
 - DFS, Instrumentation task planning
 - finalizing payload
 - determination of additional wiring work ✓
 - wire change (IKP) ✓
 - Rack work – 50% completed

❖ Aircraft under maintenance – mid March – mid April



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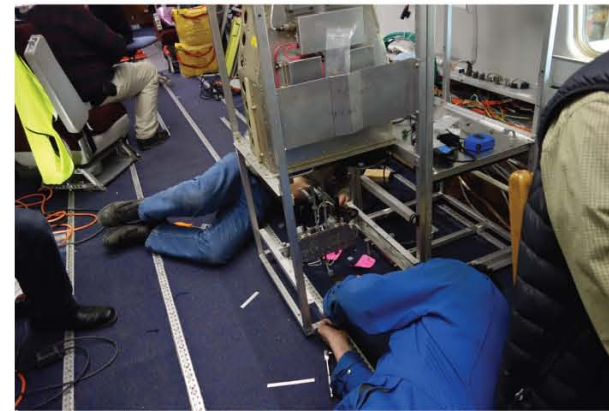
4-Feb



27-Feb



7-Mar



NRC Convair-580 Schedule (Jan-May 2015)

2015	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Jan																																
Feb																																
Mar																																
Apr																																
May																																
June																																

- 8 March - ~ 10 April – Aircraft in Memphis; complete rack work
- 11 – 25 (29) April – Systems' integration, ground and flight test
- 05-May - Aircraft depart for Cayenne
- 09-May – 1st flight
- 50 project flight hours (~ 11 flights)
- 30 May – Transit back to Ottawa



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Convair logistics

❖ Logistics:

- Park on the Civilian side
- So-far discussion is through SAFIRE (Caroline)
- Site visit – 3rd week of March
- Plan to share IKP calibration unit with SAFIRE



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Convair Instrumentation



Deployment plan



Convair Crew: (15-17)

❖ NRC (11-13):

- 2 – Pilots (one pilot swap midway)
- 3 – Aircraft maintenance
- 3-4 - Research scientists
- 2-3 – Technicians
- 1 – Contractor

❖ EC (4):

- 1 – Research scientist
- 1 – Software engineer
- 2 – Technicians



Operations - Timeline

- Fuel – T – 12 (previous night)
- Briefing and decision timeline – similar to Falcon - 20
- Pilot: 24 hours rate after 3 days of continuous 12 hours/day duty; normal operation – 10 hours of duty
- No restrictions for non-pilot crew
- Typically require 2 hours of preparation time before doors close



Data

