The University of North Dakota owns and operates a Cessna Citation II twin-engine fanjet aircraft for the purpose of atmospheric research. This aircraft type has a number of design and performance characteristics that make it an ideal platform for a wide range of atmospheric studies, including both high performance and the ability to be flown at the slower speeds necessary for many types of measurements.

### Specifications

<table>
<thead>
<tr>
<th>Payload</th>
<th>1528 – 2528 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1200 nmi</td>
</tr>
<tr>
<td>Ceiling</td>
<td>43,000'</td>
</tr>
<tr>
<td>Time to Climb:</td>
<td>13/24 min</td>
</tr>
<tr>
<td>Endurance</td>
<td>3-5 hours</td>
</tr>
<tr>
<td>Weather</td>
<td>Known icing</td>
</tr>
<tr>
<td></td>
<td>Storm penetration 45 dBz</td>
</tr>
<tr>
<td>Sampling Airspeeds</td>
<td>150 – 225 KIAS</td>
</tr>
</tbody>
</table>

### Modifications

- Two wing tip pylons
- 5 reinforced fuselage locations
- 6 ports for electric field mills
- Side-looking window insert
- Anti-iced gas sampling inlets

### State Parameters

- Temperature
- Dew Point Temperature
- Pressure
- Water Vapor Mixing Ratio

### Cloud Microphysics

- Cloud Droplet Spectrum
- Cloud Particles
- Particle Images
- Liquid Water Content
- Liquid and Total Water

### Cloud Parameters

- Supercooled LWC
- Icing Rate Meter

### Air Chemistry and Aerosols

- Particle Spectrometer
- PMS Passive Cavity Spectrometer
- ON Counter
- TSI Alcohol Condensing

### Air Motion and Turbulence

- U, V, W Wind
- Gust boom, INS
- Gust boom, Differential
- Pressure Transducers

### Aircraft Parameters

- Heading, Pitch, Roll, Airspeed
- Ground Speed, Position, Vertical Acceleration
- Cabin Pressure

### Research Power

<table>
<thead>
<tr>
<th>Total</th>
<th>Below 35,000’: 7300W</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>4 KW 110VAC 60Hz</td>
</tr>
<tr>
<td>DC</td>
<td>40A 28VDC Instrument anti-icing</td>
</tr>
<tr>
<td></td>
<td>40A 28VDC Instrument power</td>
</tr>
</tbody>
</table>

### Facility

- UND Aerospace Flight Support Services
- FAA Part 145 Repair Station

### Capacity

- >120 Aircraft, Single engine to Multi-engine turboprop

### Mechanics

- 31 Full Time

### Operations

- Two Shifts, 7 Days/Week

---

Michael Poellot, David Delene, Cedric Grainger

http://atmos.und.edu/Research/ResearchAircraft.aspx