

King Air Deployment in RICO

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Overview

- Instrumentation
 - Standard and user supplied
 - Additional Requests
- Operations



Wyoming Cloud Radar

- Four Antenna
 - Down
 - Down – slant forward
 - Side/Up – switched with a mirror.
 - Side – slant forward
 - Currently the antenna are switched manually
 - Planning on implementing fast switching
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Cloud Physics

- Cloud Particle Spectrometers
 - FSSP 100
 - 1DC (200X)
 - 2DC
 - 2DP
- DMT LWC-100
- PVM-100 (Gerber)



Fluxes

- Licor 6262 Gas Analyzer
 - Carbon Dioxide
 - Water Vapor
- Friche temperature probe is unavailable
- Reverse Flow Temperature
- User supplied water vapor?
 - Lyman-alpha
 - IRGA

Radiation

- Upward and downward pyranometer
- Upward and downward pyrhemometer
- Radiation Pyronometer (Heimann – surface temperature)
- User supplied upward-looking narrow beam IR?



Other Instruments

- TECO 40 Ozone detector
- Wyoming CCN counter



Satphone

- Provides:
 - Telemetered data
 - Chat room
 - Voice communications



Weather Radar Camera

- The King Air request included the phrase 'weather radar camera'.
- One video recorder. Must select which camera (forward, down, other?)

Operations

- 144 total flight hours
 - 105 research
 - 27 ferry
 - 12 test
- Two pilots
 - Crew duty should not be an issue
- Flights should be limited to four hours

Crewing

- Three or four people
 - Pilot
 - Flight scientist
 - Instrument engineer
 - Fourth seat: CCN counter, chat room, observer.
 - Adding the fourth seat decreases the fuel that can be carried by 200 pounds (20 minutes).
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Operations Concerns

- Coordination of multiple aircraft in cloud.
 - Lowest allowed altitude in cloud.
 - Alternate airports.
 - Low level wind shear.
 - Matching airspeeds, 120 m/s is too fast for the KA.
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Items to Resolve

- Additional water vapor sensor
- Upward looking narrow beam IR sensor
- Weather radar camera
- Intercomparison with C-130 prior to project

