Wyoming King Air (UWKA)

The University of Wyoming's Beechcraft King Air 200T (UWKA) is a twin-engine turboprop aircraft instrumented to support various research missions, notably in cloud physics and boundary layer processes. The aircraft has a 3.7 hour endurance and a range of 1,800 nautical miles. The flight ceiling is 28,000 feet and the maximum payload is 1,850 lbs. In service since 1977, the aircraft is operated by the Donald L. Veal Research Flight Center within the UW Department of Atmospheric Science.

Configuration: Airborne research platform
Number of available systems: 1

University of Wyoming King Air and Airborne Instrumentation Contact
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Prior to making request selections, reviewing the **Wyoming King Air (UWKA) guidance page**and [**facility request overview page**](https://www.uwyo.edu/atsc/uwka/facility-request-overview.html) is strongly recommended.

**UWKA Operations**

**UWKA preferred base of operations**

**UWKA alternate base of operations**

**UWKA operations start date**

**UWKA operations end date**

**What is the total number of research flight hours needed to accomplish the science objectives?**

**Provide the total number of flights requested.**

**Provide the estimated duration of each flight.**

**Provide the particular part(s) of the day for flights.**

**Are night mission flights requested (i.e., landing after midnight or work before 5 AM local time)?**

**Provide the maximum distance for operations (in nautical miles) from the base.**

**Provide the range of flight altitudes (in feet) that are desired.**

**Provide details if there will be operations in foreign or military airspace.**

**Provide the desired number of science team members on each flight.**

**Are aircraft to ground communications in excess of Chat, real-time variables and satellite imagery from the ground required?**

**Flight Patterns/Experimental Design.**Describe your operations plan including: weather conditions you anticipate sampling, how cases will be ‘called’, flight patterns used, etc*.*

**UWKA Airborne Instrumentation**

Before requesting instruments in this section, please consider that some require additional resources and may need special preparation, maintenance, or data handling and processing. The number and/or combination of instruments may exceed personnel availability and/or hardware resource limits. In addition, some instruments are mutually exclusive and may result in the inability to request others in the list.

IMPORTANT NOTE
Prior to submitting this request, it is strongly encouraged to communicate with the UWKA Facility Manager to determine if the basic payload request can be supported and/or if it will require additional resources.

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The number of requested instruments routinely exceeds the available space on the aircraft. We, therefore, ask PIs to indicate the priority of each measurement in addressing their research goals. The rating to be used is as follows:

    • Mission Critical
    • Useful
    • Not Requested

**Cloud Measurements**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mission Critical** | **Useful** | **Not Requested** |
| **DMT Cloud Droplet Probe (CDP)** |  |  |  |
| **Nevzorov LWC/TWC** |  |  |  |
| **DMT LWC-301** |  |  |  |
| **Gerber Particle Volume Monitor (PVM-100)** |  |  |  |
| **Rosemount Icing Detector (871FA)** |  |  |  |

**Aerosol Measurements**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mission Critical** | **Useful** | **Not Requested** |
| **TSI 3010 Condensation Particle Counter (CPC)** |  |  |  |
| **DMT Cabin-mounted Ultra-High Sensitivity Aerosol Spectrometer (UHSAS)** |  |  |  |
| **TSI 3025 Ultrafine Condensation Particle Counter (CPC)** |  |  |  |

**Radiative Measurements**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mission Critical** | **Useful** | **Not Requested** |
| **Heitronics KT-15.85 (Radiative Thermometer)** |  |  |  |
| **Eppley PIR (Pyrgeometer)** |  |  |  |
| **Eppley PSP (Pyranometer)** |  |  |  |

**Water Vapor and Carbon Dioxide Measurements**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mission Critical** | **Useful** | **Not Requested** |
| **Closed Path Licor 7000 infra red gas analyzer (H₂O/CO₂)** |  |  |  |
| **Open Path Licor 7500 infra red gas analyzer (H₂O/CO₂)** |  |  |  |

**Other**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mission Critical** | **Useful** | **Not Requested** |
| **Cabin pressure** |  |  |  |
| **Forward direction Digital Video** |  |  |  |
| **Downward direction Digital Video** |  |  |  |
| **MRI Universal Indicated Turbulence System** |  |  |  |

**Canister-based Measurements (Limited to four)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mission Critical** | **Useful** | **Not Requested** |
| **DMT Cloud Imaging Probe (CIP)** |  |  |  |
| **SPEC, Inc. 2DS** |  |  |  |
| **SPEC, INC. HVPS (High Volume Particle Sampler)** |  |  |  |
| **DMT PCASP (Passive Cavity Aerosol Spectrometer Probe; SPP200)** |  |  |  |

**Remote-sensing Measurements**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Mission Critical** | **Useful** | **Not Requested** |
| **Wyoming Cloud Radar *(please submit linked form)*** |  |  |  |
| **Wyoming Cloud Lidar *(please submit linked form)*** |  |  |  |

**Please provide a scientific rationale for the use of instruments in the proposed project (add justification for each instrument/measurements).**

**UWKA User-supplied Scientific Payload**

Please provide the following information for each user-supplied scientific instrument. \*\*Note: user supplied racks, inlets, and externally mounted instruments will require FAA approval and therefore require a minimum 6-month lead-time.

**User-supplied Scientific Payload.**Download the User-supplied Scientific Payload template and provide the requested information for each user-supplied scientific instrument. Upload one document with the table completed for each instrument.
*No page limit. Multiple documents allowed.*

[**User-supplied Scientific Payload**](https://www.eol.ucar.edu/content/laof-aircraft-user-supplied-airborne-instrumentation-form)

**Will the UWYO King Air support be required in preparing the instrument(s) for use on the aircraft (other than inspection, installation and power hook-up)?**

**Is design and fabrication support for hardware and electronic interfaces from the UWYO King Air Engineering group needed?**

**The standard format for processed UWKA output data is RAF Nimbus-compliant netCDF @ 1 Hz. Other formats and data rates are considered as special processing requests. Do you require non-standard output formats and/or data rates for use with your user-supplied instrument(s)?**

**UWKA Data Files and Distribution**

**Are they any special real-time display requirements (e.g. NexRAD or lightning data displayed on aircraft or aircraft data displayed on the ground)?**

**Quick-look data is provided within 24-hours of the flight. Is other quick-look processing needed?**

**Is high-rate data required (1 Hz rate provided)?**

**Other**

**Are there any special support needs (e.g. dry ice) or anything else the University of Wyoming should know about this request?**

**General Information.**Upload other relevant information as needed in PDF format that pertains to this request.
*No page limit. Multiple documents allowed.*