

**REQUEST FOR AIRCRAFT SUPPORT**  
PNNL Gulfstream G-1 Aircraft  
Pacific Northwest National Laboratory  
P.O. Box 999, MSIN K9-30  
Richland, WA 99352  
W. R. Barchet (509) 372-6158

**A. PROJECT IDENTIFICATION**

1. Requestor's Name:	2. Title:	3. Organization:	
4. Address:		5. Phone:	
		6. Date:	
7. Title that describes this activity:			
8. Abstract of proposed aircraft use:			
9. Previous airborne research experience of requesting scientist:			
10. Other personnel who will participate in this activity and their responsibilities:			

11. Educational Activities: Anticipated involvement of students or other university personnel?
12. After flight operations are complete, how much time will be required for data analysis?
13. Where and when do you expect the results of the airborne observations to be published?

**B. RESEARCH SPONSOR**

1. Name of sponsor:	2. Contract officer name/telephone:
3. Address:	
4. Funding: Approved      Pending	
5. Title of research project:	
6. Principal Investigator(s):	

**C. OTHER AVIATION FACILITIES**

1. Will other aircraft participate in the proposed measurement program?
2. Identify aircraft and aircraft contact person:
3. How will aircraft be used in proposed measurement program? Describe operations relative to the PNNL aircraft.

**D. FLIGHT OPERATIONS**

1. Proposed flight period	
From:	To:
2. Number of flights required:	3. Number of flights/hours per day Number of consecutive flying days:
4. Estimated duration of each flight:	5. Will you require over water operations?
6. Proposed base of operations:	7. Alternate base of operations:
8. Average flight radius from base:	9. Desired flight altitudes:
10. Typical takeoff time (local time): Length of duty day:	11. Expected number of flight days within proposed program:
12. Sketch or describe desired flight patterns, state priorities, and estimate number of flights for each (use additional sheets if needed):	
Pattern No. 1:	
Pattern No. 2:	
13. How many scientific observers will you require on each flight?	

**E. SUPPLEMENTAL INFORMATION FOR COMPLIANCE WITH DOE 440.2**

The aircraft is operated by PNNL for the Department of Energy in accordance with DOE Order 440.2.

1. Names, titles, and duties of personnel onboard the aircraft (do not include PNNL pilots or PNNL scientific crew):

2. Analysis of hazards associated with proposed mission(s) (e.g., unusual maneuvers, meteorological conditions, terrain, heavy air traffic areas, chemicals, voltages, heat, lasers, hazardous chemicals, radioactive materials)

3. Actions taken to mitigate associated hazards:

4. Expected flight conditions (e.g., visual flight rules, instrument flight rules, night flight, meteorological conditions):

5. Proposed deviations from Federal Aviation Regulations and justification (e.g., flights below 500 feet):

**F. SCIENTIFIC PAYLOAD**

1. List Details of Required Measurements Using Research Aircraft Facility Instruments and Systems:					
Measurement	Range	Resolution	Data Output Rate	Priority	Remarks
<b>Real-time Particles</b>					
Particle size (FSSP)					
Particle size (PCASP-100X)					
Particle image (OAP-2D)					
Liquid water content (KLWC-5)					
Liquid water content (PVM-100A)					
Aerosol Light Scattering, bscat (MRI 1560/1590)					
Total/Back Scatter (Normco)					
Ultrafine Particle Concentration (TSI 3025A)					
<b>Real-time Gases</b>					
SO <sub>2</sub> (TECO 43S)					
NO <sub>x</sub> /NO <sub>2</sub> /NO (LMA-3/LNC-3)					
O <sub>3</sub> (TECO 49)					
CO (TECO 48)					
<b>Time-Integrated Sampling</b>					
47-mm Filter Pack (dual)					
PAN (PNNL GC/ECD)					
Canister sampler					
<b>Radiometric Measurements</b>					
UV irradiance (Eppley)					
Surface/Sky IR temperature (PRT-5)					
Short-wave irradiance (Eppley pyranometer)					
Long-wave irradiance (Eppley pyrgeometer)					
Spectral radiation (PNNL MFR)					
<b>Meteorological State Variables</b>					
Temperature (Rosemount Pt)					
Dewpoint temperature (GE 1011B)					
Absolute Humidity (AIR Lyman-alpha)					
Pressure/Altitude (Rosemount absolute)					
Vector winds (Rosemount differential, GPS)					
<b>Aircraft Variables</b>					
Position (Loran, GPS)					
Aircraft attitude (GPS)					
Altitude (Radar)					



**H. GROUND SUPPORT FACILITIES**

1. Describe any field site data access/processing requirements (floppy disk, tape, network, software compatibility, etc.):

2. Describe ground support needs for user-supplied instrumentation:

On flight days:

A. Preflight needs (prior to takeoff):

Access \_\_\_\_\_ hrs.

Power \_\_\_\_\_ hrs

B. Postflight needs (after landing):

Access \_\_\_\_\_ hrs

Power \_\_\_\_\_ hrs

C. Any special support needs:

On nonflight days:

A. Routine maintenance/calibration:

Access \_\_\_\_\_ hrs

Power \_\_\_\_\_ hrs

B. Any special support needs:

3. Describe office, technical work area, storage, logistics requirements (telephones, desks, etc.):

4. Other information/remarks:

**I. APPROVALS**

	Name (print)	Signatures		Date
		Approve	Disapprove	
1. Requestor:				
2. PNNL Lab Safety:	R. E. Johanson			
3. PNNL Environmental Compliance Representative:	R. R. Nielson			
4. PNNL Aviation Safety Point of Contact:	R. V. Hannigan			
5. Research Aircraft Facility Manager:	W. R. Barchet			

cc: PNNL Field Services Representative  
 PNNL Hazardous Materials Transportation