

National Aeronautics and
Space Administration

Headquarters

Washington, DC 20546-0001



Reply to Attn of:

SMD – 5H79

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TO: Distribution

FROM: Science Mission Directorate, Suborbital Science Program Manager,
Cheryl Yuhas, Cheryl.Yuhas@nasa.gov

SUBJECT: FY 2006 Suborbital Science Flight Program

The Suborbital Science Office under the Science Mission Directorate (SMD) announces the annual call for requests to use the NASA Suborbital observing capabilities in Fiscal Year 2006.

The Suborbital Science Program is continuing the transition to the concept of an aircraft catalog augmented with experimental platforms. In 2006 the Suborbital Program will provide access to a mixed fleet of specialized NASA and industry aircraft, listed in Appendix A. The program is also investing in innovative, future platforms and technologies. Incorporating these capabilities will expand the measurement domain currently accessible with conventional assets. Currently three NASA centers are managing the components for the suborbital program office at Headquarters. The structure of the program is as follows:

1. Ames Research Center is the lead for suborbital science mission management, which includes requirements development, field campaign management through the Earth Science Project Office (ESPO), and sensor operations and development through the Airborne Sensor Facility (ASF). Ames manages the suborbital science flight request process.
2. Dryden Flight Research Center is the lead for new technology and prototype aircraft. The focus at Dryden is on advanced mission platform technologies, and Uninhabited Aerial Vehicles (UAV) development in conjunction with the Vehicle Systems Program of the Aeronautics Research Mission Directorate.
3. Wallops Flight Facility is the lead for managing the catalog aircraft program and safety overview of contracted aircraft. Even though the aircraft may reside at other facilities, Wallops will serve as the main point of contact for scheduling and funding of the different platforms.

Suborbital Update

The Suborbital Science Program has incorporated two UAVs into the assets available to the NASA suborbital science community. Both are available through cooperative agreements between NASA and the vehicle owners. One is the Altair UAV, a high-altitude long endurance UAV from General Atomics. The Altair is a successor vehicle to the Altus, used successfully in the DOE ARM-UAV program and the NASA Altus Cumulus Electrification Study. Two inter-agency missions have been conducted with the Altair so far: a NASA/US Coast Guard Mission in Alaska in the summer of 2004, and a NOAA UAV Demo Mission off the coast of California in 2005. The second vehicle is the Aerosonde UAV, a low-altitude long endurance UAV used successfully in several academic and government-sponsored experiments, including the Tropical Clouds Systems and Processes experiment of 2005.

All the airborne laboratories previously provided by the Suborbital Science Program will remain available to the NASA science community, *on a part-time basis*. In addition, the high-altitude WB-57 will join the ranks of Earth Science aircraft, also on a part-time basis. Be aware that because the facilities are now available to us only on a part-time basis, pre-planning your requirements is essential for meeting your schedules. Another change is that user fees will more closely reflect the actual marginal cost of use. The ER-2 will continue to be operated from Dryden, the P-3B from Wallops, and the WB-57 from JSC. The DC-8 will transition to the University of North Dakota under a cooperative agreement for a National Suborbital Education and Research Center (NSERC). A core DC-8 support team, both pilots and crew, will transition with the aircraft.

The catalog also offers several contracted aircraft for use by the science community (see appendix A for a current list of platforms). The contract aircraft in the catalog have all undergone a NASA Airworthiness and Safety Review to certify safe operations for NASA funded research or NASA owned instruments. If there is an aircraft that will be of value to the research community please contact us and after a safety review, it could be added to the catalog. The goal is to continue to expand the catalog to offer a wide range of suborbital capabilities for science research.

Users Fees

All suborbital assets are subject to user fees which are assessed by the organization operating the asset. This is true for either NASA or non-NASA sensors or platforms. Investigators performing non-NASA research may be subject to additional fees for NASA assets. The total cost for each Flight Request will be estimated by the Suborbital Science Office, based on information provided in the Flight Request, and forwarded to the investigator's sponsor for review and approval in the first quarter of fiscal year 2006.

While a Flight Request is necessary in order to schedule an airborne asset through the Suborbital Science Program, it is not a substitute for a proposal. All Flight Requests should be associated with a NASA grant or proposal, or with a program element in the Research Opportunities in Space and Earth Science (ROSES) solicitation (<http://nspires.nasaprs.com/external/>) to which you anticipate submitting a proposal. If no NASA investigation is associated with your request, it will be handled as a reimbursable mission, and you must include justification for use of the NASA facilities.

If you are preparing a research proposal that will require a future suborbital mission, the costs for the mission must be included in your proposal unless otherwise stated in the research call. Please contact the Suborbital Science Flight Request Manager (see below) to initiate a cost estimate with the appropriate aircraft service operator.

Please include on the Flight Request form the name and contact information of a funding sponsor who can review and approve the user fee expense. For SMD investigators, the sponsor is the program manager who has issued your grant or contract. Once a Flight Request is approved and scheduled, the user fees must be forwarded to the performing organization before the flight actually occurs. For SMD funded researchers using NASA assets, the fees will normally be withheld from the investigator's budget and sent by his/her sponsor directly to the NASA aircraft or sensor organization. For researchers using non-NASA assets, payment of the fees will vary and the Suborbital Science business managers are prepared to assist the investigator through the financial procedures.

Submitting a Flight Request

The Flight Request process is now managed by the Earth Science Project Office (ESPO) at Ames Research Center. ESPO has developed an online flight request management system, and it is now the goal to have all flight requests submitted through this online portal. The URL is: <http://www.espo.nasa.gov/suborbital.html>. Over the next year the Suborbital Science Program will be using this site to post information, updates, and the catalog aircraft. If you have any questions regarding the flight request system or process please contact:

Ian McCubbin
Suborbital Science Flight Request Manager
imccubbin@mail.arc.nasa.gov
Tel: 650.604.4388

Questions regarding the Suborbital Science Program can be addressed to:

Cheryl Yuhas	Or	Randy Albertson
Program Manager		Deputy Program Manager
Cheryl.L.Yuhas@nasa.gov		randy_albertson@dfrc.nasa.gov
Tel: 202.358.0758		Tel: 661.276.7540

I re-emphasize that since the suborbital assets are now either shared or experimental platforms, adequate advance planning is critical to ensure the platforms are available and ready to fly on your required schedule. Please submit your completed flight requests no later than COB September 30, 2005.

Sincerely,



Cheryl Yuhas
Suborbital Science Manager
Science Mission Directorate

Appendix A Available NASA Suborbital Science Platforms

Listed below are the currently available platforms, points of contact, and associated user's fees on a per hour basis unless otherwise noted. The below rates do not include mission peculiar costs (MPC) for a given campaign or deployment, it is only the rate of the aircraft from its home base:

Facility	State	Contact Name	Contact Phone	User Fee (per hour)
NASA Platforms:				
DC-8	ND	Anthony Guillory	757.824.2161	\$4000
ER-2	CA	Jacques Vachon	661.276.5318	\$6000/hr +\$1400/day
G-3	CA	Walter Klein	661.276.3243	Call
Learjet 23	OH	Bill Rieke	216.433.2036	\$2700
Learjet 25	OH	Bill Rieke	216.433.2036	\$2700
P-3B	VA	Anthony Guillory	757.824.2161	\$3000
Twin Otter	OH	Bill Rieke	216.433.2036	\$1700
S-3	OH	Bill Rieke	216.433.2036	\$3500
WB-57F	TX	Andrew Roberts	281.244.9543	\$3500
NASA UAV:				
Aerosonde	VA	Anthony Guillory	757.824.2161	\$500
Altair	CA	Frank Cutler	661.276.3988	Call
NASA Contracted Aircraft:				
BAC 1-11	MD	Anthony Guillory	757.824.2161	Call
Boeing 737-200	MD	Anthony Guillory	757.824.2161	Call
Caravan	OR	Jeff Myers	650.604.3598	\$1000
Islander	MD	Anthony Guillory	757.824.2161	Call
Jetstream J-31	OR	Jeff Myers	650.604.3598	\$2000
King Air	NV	Jeff Myers	650.604.3598	\$1050
King Air	VA	Anthony Guillory	757.824.2161	Call
NRL P-3	MD	Anthony Guillory	757.824.2161	\$5700 (dry lease)
Proteus	CA	Bob Curry	661.276.3915	\$3000
Twin Otter	CO	Anthony Guillory	757.824.2161	\$650/hr + \$1200/day

Appendix B Other Non-NASA Aircraft Platform Services

This table of platforms is provided for information only as a service to investigators. NASA is not responsible for maintaining or verifying the accuracy of data on non-NASA web sites. The list represents those platforms for which agreements for access by SMD investigators are in place, in work, or have recently been approved by NASA Aviation Management as airworthy and safe to operate. The list should not be considered all-inclusive, but any platform selected by investigators must comply with NASA aviation safety policies, including the Non-NASA Aircraft Safety Policy.

Each of these providers schedules their own platforms, and many include a formal request and allocation system, similar to the Suborbital Science Flight Request system. Investigators may conclude their own arrangements with a provider of their choice, to be paid from existing grant/contract funds, or may use the NASA Flight Request for assistance in scheduling and pricing from the Suborbital Science Office.

Owner/Operator	Platform	Location	Information
Federal (non-NASA)			
NOAA-AOC	Gulfstream IV	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Citation II-CE550	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Gulfstream AC-690	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	P-3D	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Lake Seawolf	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Aero Commander	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Twin Otter DHC-6	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NSF	HIAPER G-5	NCAR/Boulder, CO	http://www.hiaper.ucar.edu/
NSF	C-130	NCAR/Boulder, CO	http://raf.atd.ucar.edu/Aircraft
ONR/NPS/CIRPAS	Altus 1 (UAV)	CIRPAS/Marina, CA	http://web.nps.navy.mil/~cirpas
ONR/NPS/CIRPAS	Pelican	CIRPAS/Marina, CA	http://web.nps.navy.mil/~cirpas
ONR/NPS/CIRPAS	Twin Otter	CIRPAS/Marina, CA	http://web.nps.navy.mil/~cirpas
ONR/NPS/CIRPAS	Predator (UAV)	CIRPAS/Marina, CA	http://web.nps.navy.mil/~cirpas
USDA Forest Service	Navajo	Carlsbad, CA	Bob Lockwood (909) 315-0181
Industry			
Aero-Metric	Cessna Conquest	Sheboygan, Wisconsin	http://www.aerometric.com
Airpower Inc	Canberra B-6	Lakeport, CA	http://www.airplatforms.com
Dynamic Aviation	King Air	Bridgewater, VA	http://www.dynamicaviation.com
Horizons, Inc.	Cessna Conquest	Montana	http://www.horizonsinc.com
Kenn Borek LTD	Twin Otter	Calgary, Alberta, Canada	http://www.borekair.com
Keystone Aerial Surveys, Inc.	Cessna Conquest	Philadelphia, PA	http://www.keystoneaerialsurveys.com
University			
U North Dakota	Citation	UND, Grand Forks, ND	http://www.aero.und.edu/facilities/fleet
U Wyoming	King Air	UW, Laramie, WY	http://flights.uwyo.edu

ATTACHMENT C – Commercial Sensors/Products

Web links to remote sensing industry organizations that responded to a request for information (RFI) in April 2004 are provided for information only as a service to investigators. A subsequent RFI is expected to be released during calendar year 2006. NASA does not endorse any commercial product or organization, and other comparable systems may exist within the industry. NASA is not responsible for maintaining or verifying the accuracy of data on non-NASA web sites. Investigators are responsible for contacting vendors to determine if the product meets the requirements of the proposed scientific investigation. Before any actual data collection flights, all vendors are subject to airworthiness/flight safety reviews in accordance with NASA Aviation Safety Policy for Non-NASA Aircraft.

Information on commercially available remote sensing services can be found at:

- <http://www.mapps.org>
- https://eserv.asprs.org/eseries/scriptcontent/Custom/sustaining_search.cfm?

Additional information is also available at:

Instrument Type	Instrument	Organization	Website
<i>Hyperspectral Imagers</i>	HYMAP	Hyvista	http://www.hymap.com
	PROBE-1	I-Cubed/Earth Search Sciences, Inc.	http://www.earthsearch.com/Earth_Search's_Probe_1_Sensor.htm
	CASI-550	ITRES	http://www.itres.com
	CASI-1500	Hyperspectral Imagers	
	SASI-640	Northrop Grumman	http://www.northropgrumman.com
	TRWIS-III		
	LWHIS		
<i>LIDAR Systems</i>	Airborne Laser Terrain Mapper	Optech	http://www.optec.on.ca
	SHOALS LIDAR Bathymeter Laser Terrain Mapper (Optec ALTM 2050)	Sanborn	http://www.sanborn.com
<i>RADAR Systems</i>	X-Band IFSAR	INTERMAP	http://intermaptechnologies.com