

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



July 09, 2014

TO: Distribution

FROM: Earth Science Division, Airborne Science Program Director

SUBJECT: FY 2015 Airborne Science Flight Program

REVISIONS: Revision No. 1; January 16, 2015
Revision No. 2; March 16, 2015

The Airborne Science Program (ASP) under the Earth Science Division (ESD) of the Science Mission Directorate (SMD) announces the annual call for Fiscal Year 2015 Flight Requests. This call applies to all Earth Science activities anticipated to occur between October 2014 and September 2015 that require NASA aircraft, facility instruments, personnel, or funding. Consult this document for updated summary information concerning instrumentation, aircraft/platform flight hour costs, Points of Contact (POC) and general Flight Request information.

Detailed and continually updated aircraft and instrument information can be found on the Airborne Science Program website (<http://airbornescience.nasa.gov>). This site is a centralized portal for all program components, including the Science Operations Flight Request System (SOFRS), platforms, instrument capabilities, schedules, and Points Of Contact (POC) information. SOFRS can be accessed directly at <http://airbornescience.nasa.gov/sofrs>. In addition, investigators in the pre-proposal planning stage may contact Randy Albertson (661-276-7540) or Matt Fladeland (650-604-3325) for platform selection, integration, feasibility study, or early engineering support.

User Fees

All airborne assets (aircraft and/or instruments) are subject to user fees, which reflect the usage cost, and are assessed by the organization operating the asset. This is true for both NASA and non-NASA assets. A Flight Request is necessary for scheduling through the Airborne Science Program, but it is not a substitute for a science proposal. Flight Requests should be associated with a NASA program, grant, proposal, or, if funded from a non-NASA source, deemed to be directly related to a NASA area of interest. If no NASA investigation is associated with the request, it will be handled as a Reimbursable Mission and may be required to include justification for use of NASA facilities and possibly subject to additional fees.

For non-NASA funded Flight Requests to be considered for the NASA subsidized rate, please include the name and contact information of a NASA sponsor who has agreed to deem the research to be directly related to a NASA area of interest (NASA HQ Science Concurrence) as well as the name and contact information for the Funding Source. 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(s). In most cases, user fees must be available to the performing center(s) before mission activities, such as integration, can occur. For SMD funded researchers using NASA assets, the fees will normally be withheld from the investigator's budget and sent by the sponsor directly to the NASA aircraft or instrument organization. For researchers using non-NASA assets, the fee payment process will vary and the Airborne Science business managers at each center are prepared to assist the investigator with the financial procedures. All ASP missions utilizing NASA instruments, personnel, aircraft or funds must be in compliance with NASA Procedural Requirement (NPR) 7900.3B - Aircraft Operations Management, which can be found at http://nodis3.gsfc.nasa.gov/npg_img/N_PR_7900_003B_/N_PR_7900_003B_.pdf

ROSES, EOS and Multi-Aircraft Missions

All investigators with approved **or pending** proposals from Research Opportunities in Space and Earth Sciences (ROSES) announcements that have a requirement for a supported Airborne Science Program platform and/or instrument **must submit a Flight Request**. The Flight Request is also the method to acquire a cost estimate for inclusion in proposals. Flight Request and user fee information for Earth Observing System (EOS) Investigators can be found in Appendix E. Please note, investigators proposing to participate on large, multi-aircraft experiments, such as the ROSES Call 2013: Studies of Emissions & Atmospheric Composition, Clouds & Climate Coupling by Regional Surveys (SEAC4RS), a single Flight Request will be submitted for each mission by the Project Manager or Project Scientist.

ASP Supported and Other NASA Aircraft

The Airborne Science Program continues to support an inventory of unique highly modified "science-ready" platforms, as well as coordinate access to other NASA aircraft. See Appendix A for the list of current flight hour costs and <https://airbornescience.nasa.gov/aircraft> for a detailed list of available aircraft.

Federal and Commercial Aircraft

NASA instrumentation may fly on non-NASA Federal aircraft as well as Non-NASA commercial platforms for which agreements for access by SMD investigators are in place, in process, or have recently been approved by NASA Aviation Management as airworthy and safe to operate. For non-NASA aircraft, proposals need to include costs associated with NASA safety reviews, which may include travel to off site facilities. Investigators are responsible for contacting the relevant parties to determine if the platform meets the requirements of the proposed scientific investigation. A list of unsupported Non-NASA Federal aircraft can be found in Appendix B.

As reference, the ASP website includes Commercial Aircraft recently used by NASA Science. 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. **Before any actual data collection flights utilizing NASA personnel, property or funds, all vendors are subject to airworthiness/flight safety reviews in accordance with NASA Aviation Safety Policy for Non-NASA Aircraft.**

Facility Instruments

Several remote sensing systems are considered as NASA facility instruments, in part because they support multiple science disciplines, and a variety of NASA science objectives. They are supported by managers in the ESD Research and Analysis program, and/or the EOS Project Science Office, and are made available to the wider NASA science community via the Flight Request process. When using a facility instrument, an operations support team may or may not be required to deploy with the instrument. User Fees for the instrument team and data processing costs may be required in addition to aircraft Mission Peculiar Costs (MPC) and flight hour costs. Approval for use of a facility Instrument is granted by the sponsoring science Program Manager. Appendix C shows available facility instruments with POC info. Appendix D lists Program Managers.

IMPORTANT: AVIRIS-Classic, eMAS, MASTER and UAVSAR investigators are requested to submit FY15 Flight Requests before September 30, 2014, to allow the ASP Program Managers, instrument teams and NASA Headquarters to plan appropriately for the upcoming flight season. Any Flight Requests received after September 30, 2014 may still be approved, but will be accommodated on a “best efforts” basis for FY15 or may be scheduled the following year.

The Flight Request process is managed by the Earth Science Project Office (ESPO) at Ames Research Center. If you did not receive this message directly and would like to be included in further distributions or if you have any questions regarding the Flight Request System or process please see: <https://airbornescience.nasa.gov/sofrs/helpDocs/FRProceduresSTEPbySTEP.pdf> contact:

Marilyn Vasques
Flight Request Manager
Marilyn.Vasques@nasa.gov
Tel: 650-604-6120

Questions regarding the Airborne Science Program can be addressed to:

Bruce Tagg	or	Randy Albertson
Program Director		Deputy Program Director
bruce.a.tagg@nasa.gov		Randal.T.Albertson@nasa.gov
Tel: 202-358-2890		Tel: 661-276-7540

Please submit your completed FY15 Flight Requests as soon in your planning process as possible.

Sincerely,



Bruce Tagg
Director, Airborne Science Program
Science Mission Directorate

Appendix A Available NASA Airborne Science Platforms

Below are the platforms currently available, Points Of Contact (POC), and associated user's fees (on a per hour basis unless otherwise noted). The listed rates are for the aircraft from its home base only and do not include Mission Peculiar Costs (MPC) for a given campaign or deployment. In the event that the cost of fuel significantly exceeds current rates, this additional cost will be included in the MPC.

Note: Dryden Flight Research Center (DFRC) was renamed in 2014 to Armstrong Flight Research Center (AFRC).

NASA ASP Supported Aircraft and Other NASA Aircraft are listed below. Other Agency Aircraft are listed in Appendix B. Commercial Aircraft recently used by NASA Science can be found at <http://airbornescience.nasa.gov/aircraft>.

Facility	Center/ State	Contact Name	Contact Phone	NASA SMD User Fee (per flight hour)
NASA ASP-Supported Aircraft				
DC-8	AFRC, CA	Tim Moes	(661) 276-3054	\$6500
ER-2	AFRC, CA	Brian Hobbs Franziska Becker	(661) 276-2557 (661) 276-7602	\$3500
P-3	WFF, VA	Mike Cropper	(757) 824-2140	\$3500
C-20/G-III AFRC	AFRC, CA	John McGrath	(661) 276-2588	\$3000 (full reimbursable rate \$6000)
G-III JSC	JSC, TX	Jim Alexander Mike Giles	(281) 244.9870 (281) 244.9810	\$3000
Global Hawk	AFRC, CA	Frank Cutler	(661) 276.3998	\$60K/week or \$250K/month for access \$1800/Flt hour up to 150hrs/month
Other NASA Aircraft				
B-200 AFRC	AFRC, CA	David McAllister	661.276.3674	Call
B-200 LARC	LaRC, VA	Bruce Fisher	757.864.3862	Call
B-200 UC-12B	LaRC, VA	Bruce Fisher	757.864.3862	Call
B-200 WFF	WFF, VA	Mike Cropper	757.824.2140	Call
Cessna 206	LaRC, VA	Bruce Fisher	757.864.3862	Call
Dragon Eye	ARC, CA	Matthew Fladeland	650.604.3325	Call
Learjet 25	GRC, OH	Al Micklewright Anthony Royce	216.433.2036 216.433.3868	Call
HU-25C Falcon	LaRC, VA	Bruce Fisher	757.864.3862	Call
C-23 Sherpa	WFF, VA	Mike Cropper	757.824.2140	Call
C-130 Hercules	WFF, VA	Mike Cropper	757.824.2140	Call
Twin Otter GRC (DHC-6)	GRC, OH	Al Micklewright Anthony Royce	216.433.2036 216.433.3868	Call

Facility	Center/ State	Contact Name	Contact Phone	NASA SMD User Fee (per flight hour)
Other NASA Aircraft (Cont.)				
S-3B	GRC, OH	Al Micklewright Anthony Royce	216.433.2036 216.433.3868	Call
T-34C	GRC, OH	Al Micklewright Anthony Royce	216.433.2036 216.433.3868	Call
WB-57F	JSC, TX	Jim Alexander Charlie Mallini Tim Propp	281.244.9870 281.244.3463 281.483.0882	Call
Ikhana	AFRC, CA	Mauricio Rivas	661.276.3678	Call
SIERRA	ARC, CA	Paul Espinosa	650.604. 3150	Call
UH-1 Huey Helicopter	WFF, VA	Mike Cropper	757.824.2140	Call

Appendix B Other Federal Aircraft

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 process, or have recently been approved by NASA Aviation Management as airworthy and safe to operate. The list should not be considered all-inclusive, and any platform selected by investigators must comply with NASA aviation safety policies, which includes requirements for the use of non-NASA aircraft. Please refer to the NASA Aircraft Operations Management Procedure located at:

http://nodis3.gsfc.nasa.gov/npg_img/N_PR_7900_003B_/N_PR_7900_003B_.pdf

Each of these providers schedules their own platforms and many include a formal request and allocation system, similar to the Airborne Science Flight Request System. Investigators may make their own arrangements with a provider of their choice, to be paid from an existing grant/contract funds, or may use the NASA Science Operations Flight Request System for assistance.

Owner/Operator	Platform	Location	Information
NRL	P-3	NAS Patuxent River, MD	http://www.nrl.navy.mil/planes/index.php
NRL	C-12 (B-200)	NAS Patuxent River, MD	http://www.nrl.navy.mil/planes/index.php
DOE	King Air (B-200)	NV	Call Bruce Coffland (650) 604-2864
NOAA-AOC	Gulfstream IV-SP	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Gulfstream Commander 1000 (695A)	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	WP-3D	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Twin Otter DHC-6	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NOAA-AOC	Hawker Beechcraft King Air 350ER	AOC, MacDill AFB FL	http://www.aoc.noaa.gov
NSF	HIAPER G-V	NCAR/Boulder, CO	http://www.eol.ucar.edu/instrumentation/aircraft
NSF	C-130	NCAR/Boulder, CO	http://www.eol.ucar.edu/instrumentation/aircraft
ONR/NPS/CIRPAS	Altus 1 (UAV)	CIRPAS/Marina, CA	http://www.cirpas.org/
ONR/NPS/CIRPAS	Pelican	CIRPAS/Marina, CA	http://www.cirpas.org/
ONR/NPS/CIRPAS	Twin Otter	CIRPAS/Marina, CA	http://www.cirpas.org/
ONR/NPS/CIRPAS	Predator (UAV)	CIRPAS/Marina, CA	http://www.cirpas.org/
PNNL	G-I	Richland, WA	http://www.pnnl.gov/atmospheric/facilities/arm_aerial_vehicle_prog.stm
USDA Forest Service	Navajo	Carlsbad, CA	Bob Lockwood (909) 315-0181

Appendix C NASA Facility Instruments

Several remote sensing systems are considered as NASA facility instruments, in part because they support multiple science disciplines, and a variety of NASA science objectives. They are supported by managers in the ESD Research and Analysis program, and/or the EOS Project Science Office, and are made available to the wider NASA science community via the Flight Request process. In most cases, instrument operating and data processing costs are recovered from the requesting individual or their sponsors:

Facility Instrument	Contact	Telephone
Airborne Visible Infrared Imaging Spectrometer – Classic (AVIRIS-C)	Robert Green	818-354-9136
Airborne Visible Infrared Imaging Spectrometer – Next Generation (AVIRIS-NG)	Robert Green	818-354-9136
Enhanced MODIS Airborne Simulator (eMAS)	Jeff Myers	650-604-3598
MODIS-ASTER Simulator (MASTER)	Jeff Myers	650-604-3598
Digital Camera Systems (DMS, DCS)	Jeff Myers	650-604-3598
Ames Precision Attitude/position equipment (POS-AV)	Jeff Myers	650-604-3598
Wallops (POS-AV)	Mike Cropper	757-824-2140
UAV-Synthetic Aperture Radar (UAVSAR)	Yunling Lou	818-354-2647

AVIRIS-C and AVIRIS-NG

JPL operates the AVIRIS-C and AVIRIS-NG Imaging Spectrometers, which are available as NASA facility instruments for scientific research and applications. Investigators will be expected to pay for JPL Imaging Spectrometer data acquisition, calibration, engineering support and processing costs associated with their investigations. If JPL Imaging Spectrometers requirements were approved as part of the original proposal selection, then these costs should already be provided for in your budget or reserved for this purpose at NASA Headquarters. Please contact your Technical Monitor if you have any questions about this. If your JPL Imaging Spectrometers requirement are new and were not in the originally selected proposal, then resources must be found within your existing budget or secured through an augmentation request to your Technical Monitor or Program Manager at NASA Headquarters.

AVIRIS-NG is a new facility instrument that is now available for campaigns on the commercial Twin Otters. AVIRIS-C is currently flying on the NASA ER-2 on a regular basis, as part of the HypIRI Airborne Preparatory Campaign. The current plan is to fly AVIRIS-C on the ER-2 for cross calibration and inter-comparison with AVIRIS-NG on the Twin Otter. AVIRIS-C can be flown on the Twin Otter for particular investigations, or AVIRIS-NG can be used for flying higher spectral and spatial sampling collections for Visible to Shortwave IR imaging spectroscopy (380 to 2510 nm). Furthermore, scenes from the AVIRIS-C archive (i.e., data that have already been acquired) can be obtained at a nominal cost and can be located at: <http://aviris.jpl.nasa.gov>.

MASTER and eMAS

The MODIS/ASTER airborne simulator (MASTER) is currently available for flights aboard the NASA ER-2. It may also be integrated on the DC-8 or the P-3B, although it's expected to fly mainly on the ER-2 in FY15. The enhanced MODIS simulator (eMAS) is scheduled to start flying again on the ER-2 in late 2014, after a series of modifications. Please confirm availability with the instrument lead. The calibration and data processing (Level-1b and geolocation) are supported by the Airborne Sensor Facility at NASA Ames Research Center. Higher-level products are possible in some instances; these are supported separately by the eMAS science POC (Dr. Steven Platnick), the MASTER instrument PI (Dr. Simon Hook), or other research teams and should not be assumed in any Flight Request.

Additional information on eMAS or MASTER can be obtained from:

Use/Cost Policies: Dr. Steven Platnick (see Appendix E)

Instrument & FY 2015 Schedule: Jeff Myers, Ames Research Center, 650-604-3598

UAVSAR

The Uninhabited Aerial Vehicle Synthetic Aperture Radar (UAVSAR), a high resolution, fully polarimetric, L-band SAR designed for repeat pass InSAR applications, is available as a NASA facility instrument for scientific research and applications. Investigators are expected to pay for UAVSAR data acquisition and processing costs associated with their investigations, unless they were approved as part of the original proposal selection. These costs should already be provided for in your budget or reserved for this purpose at NASA Headquarters. UAVSAR currently flies on the G3 aircraft and has also flown test flights on the Global Hawk. If you are preparing a budget for a NASA proposal, you may estimate the UAVSAR data acquisition costs on the G3 aircraft at <http://uavsar.jpl.nasa.gov/cgi-bin/fps>. If you already have approved flight hours, you may use this website to finalize your flight plans as well. NASA data acquired by UAVSAR are processed at JPL and archived for distribution at the Alaska Satellite Facility (<http://www.asf.alaska.edu/>), where you may download the processed data products at no charge. For more information about UAVSAR, visit <http://uavsar.jpl.nasa.gov>. JPL's Earth Science Airborne Suborbital Instruments and Measurements website can be found at <http://airbornescience.jpl.nasa.gov>

Sat Com MPCs

Satellite communications systems of various types are now installed on most of the core science platforms. Iridium sat-phone modems, with data rates up to 9.6Kb/sec, are standard equipment on the DC-8, ER-2 806, C-130 and P-3 aircraft. These are included in the new NASDAT (NASA Airborne Science Data and Telemetry system) navigation data recorders being deployed in CY2014. Payload use of the Iridium service through the NASDATs is available globally and is provided as part of the flight hour cost of the platform. Inmarsat BGAN (Broadband Global Area Network) airborne sat-com terminals supporting up to 432Kb/sec duplex data rates, are installed on the DC-8, the P-3, and both AFRC ER-2s. Please verify Inmarsat availability on ER-2 806 with Aircraft Manager. The Global Hawk UAS and WB-57F include a Ku-band sat-com system (data rates in excess of 1Mb/sec) as standard mission equipment. Use of either BGAN or Ku systems are quoted as a Mission Peculiar Cost to the Investigator. It should be noted that, unlike the Iridium modems, BGAN and Ku-Band service degrades rapidly at latitudes above ~60 degrees.

Appendix D NASA Program Managers

This table of NASA Program Managers is provided for information only, as a service to investigators.

Name	Organization	Code
SCIENCE		
David Considine	NASA - SMD	Modeling Analysis and Prediction
Paula Bontempi	NASA - SMD	Carbon Cycle and Ecosystems- Ocean Biology and Biogeochemistry
Craig Dobson	NASA - SMD	Geodetic Imaging Program
Kathy Hibbard Eric Kasischke	NASA - SMD	Terrestrial Ecology Program
Jared Entin	NASA - SMD	Hydrology Program
Garik Gutman	NASA - SMD	Land Use-Land Cover
Ken Jucks	NASA - SMD	Upper Atmosphere Research Program
Ramesh Kakar	NASA - SMD	Atmospheric Dynamics and Precipitation Program
Craig Dobson Tom Johnson	NASA - SMD	Earth Surface Interior
Jeff Grossman	NASA - SMD	Astro-Materials Curation
Eric Lindstrom	NASA - SMD	Oceanography
Hal Maring	NASA - SMD	Radiation Science Program
Alex Pszenny	NASA -SMD	Tropospheric Chemistry
Tom Wagner	NASA - SMD	Cryosphere and International Polar Year
Bruce Tagg	NASA - SMD	Airborne Science Program
Woody Turner	NASA - SMD	Biological Diversity
ESTO		
Parminder Ghuman	NASA - GSFC	Earth Science Technology Office (IIP)
Pam Millar	NASA - GSFC	Earth Science Technology Office (AITT)
Mike Little	NASA - LARC	Earth Science Technology Office (AIST)
Joe Famiglietti	NASA - GSFC	Earth Science Technology Office (ACT)
SATELLITES		
Steve Platnick	NASA - GSFC	EOS Project Science Office
Jeff Masek	NASA - GSFC	Landsat Program
APPLIED SCIENCE		
Lawrence Friedl	NASA - SMD	Applied Science Program
Frank Lindsay	NASA - SMD	Disaster Management
Lucien Cox	NASA - SMD	Applied Science

Appendix E
SPECIAL ADDENDUM FOR
EOS INVESTIGATORS
PLANNING FOR NASA'S FY 2015
SCIENCE MISSION DIRECTORATE AIRBORNE SCIENCE PROGRAM

July 11, 2014

Introduction

This addendum contains specific guidance for Earth Observing System (EOS) Investigators in responding to the ASP Annual Call Letter.

EOS investigators have responsibility for instrument support and maintenance, and each investigator should plan on paying the cost of aircraft operations. It must be recognized that there are many demands for aircraft support of other NASA satellite missions, the NASA Science Programs, and other users. Hence, it is not likely that all of the proposed aircraft missions can be accomplished. It is incumbent upon all investigators to plan carefully and combine missions with other investigators whenever possible.

Flight Request

NASA is making the Annual Call Letter for the development of the FY 2015 Science Mission Directorate (SMD) Airborne Science Program plan available electronically at <http://airbornescience.nasa.gov/>. Flight Requests should be submitted at <http://airbornescience.nasa.gov/sofrs>.

EOS Team Members and Instrument Investigators should enter the following in the "Funding Agency Sponsor" box of the Flight Request form:

Dr. Steven Platnick
EOS Senior Project Scientist
NASA/Goddard Space Flight Center
Mail Stop 610
Greenbelt, MD 20771
Phone: 301-614-5636
FAX: 301-614-5620
Internet: Steven.Platnick@nasa.gov

Similarly, Interdisciplinary Investigators should enter the following in the box:

(Discipline Manager)
Earth Science Division
Science Mission Directorate
NASA Headquarters
300 E St. SW
Washington, DC 20546

The EOS review of Flight Requests and setting of priorities will be accomplished by the EOS Senior Project Scientist and the Associate Director for Research for the Earth Science Division. To enable the most equitable allocation of available resources, you are asked to send a copy of your Flight Request to the Team Leader or Principal Investigator of your science team who will be called upon to help prioritize multiple requests from a single investigation team.

In FY 2015, as in previous years, aircraft flight hours costs have been instituted by the SMD Airborne Science Program (see Appendix A). Flight hour fees will be withheld automatically from each EOS investigator's budget and transferred directly to the appropriate flight account at Armstrong, Wallops, Johnson, Langley, Glenn or appropriate contract for cooperative aircraft. However, the EOS Project Science Office will consider supporting up to 50% of EOS flight hour costs from a Special Aircraft Support Fund, subject to scientific priorities, programmatic balance, and availability of funds in FY 2015 with the remaining 50% or more coming from the individual investigator budgets. Depending upon the number and scope of the Flight Requests, the Special Aircraft Support Fund will also be used to pay Mission Peculiar Costs (MPC) in their entirety. The total amount available for both flight fees and MPC will be up to \$300K in FY 2015.

In addition to flight hour costs, certain instrument operation and data production costs ("data fees") have been instituted by the Science Mission Directorate. Data fees, if any, are the responsibility of each individual investigator and will not be subsidized by the Special Aircraft Support Fund in FY 2015. In some cases, investigators may be able to avoid overhead charges by their home institutions by having the government transfer data fees directly from their accounts to the appropriate data account at a NASA Center. An investigator should contact the appropriate Resource Analyst or Contracting Officer to make such arrangements. Data from many instruments, e.g., photography on most aircraft, are available at no cost or only nominal cost for approved flights.

Scheduling and final flight year approvals are the responsibility of:

Bruce Tagg
Director, Airborne Science Program
Earth Science Division
Science Mission Directorate
NASA Headquarters
300 E St. SW; Mail Suite: 3N71
Washington, DC 20546
Phone: 202-358-2890
Email: bruce.a.tagg@nasa.gov