



BALLOON FLIGHT SUPPORT APPLICATION

Payload Acronym: _____

Payload Name: _____

This form identifies science group requirements for NASA/CSBF Conventional, Long-Duration Balloon (LDB), Super-Pressure Balloon (SPB), and Piggyback (PB) flight support.

Submit applications to CSBF as follows:

TYPE	PREVIOUSLY FLOWN PAYLOADS	FIRST FLIGHT PAYLOADS
<i>Conventional</i>	One to two years prior to requested launch date	Three years prior to requested launch date
<i>LDB/SPB</i>	Three years prior to requested launch date	Three years prior to requested launch date
<i>Piggyback</i>	Six months prior to integration with primary payload	Six months prior to integration with primary payload

Please complete and sign a separate application in as much detail as possible for each individual balloon flight planned and return to:

E-MAIL TO: HUGO.FRANCO@NASA.GOV
ROBERT.C.RENKO@NASA.GOV
WFF-CSBF-FLIGHTAPPS@MAIL.NASA.GOV

General instructions and other information regarding this application are contained in support documents available on the CSBF Web site at <http://www.csbf.nasa.gov/docs.html>. Conventional support documents can be found at <http://www.csbf.nasa.gov/convdocs.html>, and LDB documents at <http://www.csbf.nasa.gov/ldbdocs.html>.

PART I FLIGHT TYPE

CONVENTIONAL FLIGHT	
Is this a conventional flight (typically from Palestine, TX or Fort Sumner, NM)?	Yes No

LDB TEST FLIGHT	
Is this request for an engineering or science validation mission for a future LDB/SPB flight? (An engineering or science validation flight, normally from the continental United States, is considered a conventional balloon flight.)	Yes No

LDB FLIGHT	
Is this request for a Long-Duration Balloon (LDB) flight?	Yes No

SPB FLIGHT	
Is this request for a Super Pressure Balloon (SPB) flight?	Yes No

PIGGYBACK	
Is this a request to fly as a Piggyback on a science flight?	Yes No

PART II SCIENCE

DISCIPLINES					
Check the discipline applicable to the flight covered by this application.					
Astrophysics Division		IR, Submillimeter, Radio	Heliophysics Division		Geospace Sciences
		Cosmic ray, particle			Solar and Heliospheric Physics
		X-ray			Upper Atmosphere Research
		Ultraviolet and Visible	Solar System Exploration		
		Gamma-Ray	Special Projects		

SCIENCE DESCRIPTION	
Please describe the scientific experiment and its objectives. This description will be used to brief senior NASA officials and in press releases by the NASA Public Affairs Office. It may also be used by CSBF in our outreach and public relations programs. Use layman’s terms to the maximum extent possible.	
Description	
Objectives	

PART III CONTACTS

PRINCIPAL SCIENTIFIC INVESTIGATOR			
Principal Scientific Investigator Name			
Organization Name			
Mailing Address			
Telephone Number			
Cell Phone Number			
Fax Number			
E-Mail Address			
Project Web Site		May we link to this site on the CSBF web site?	Yes No

Co-INVESTIGATOR	
Co-Investigator Name	
Organization name	
Mailing address	
Telephone number	
Cell Phone Number	
Fax number	
E-mail address	

PROJECT OFFICER	
Project Officer or Delegate familiar with engineering aspects of experiment	
Organization name	
Mailing address	
Telephone number	
Cell Phone Number	
Fax number	
E-mail address	

PART IV FUNDING

FUNDING			
NASA SPONSORED		NON-NASA SPONSORED	
NASA Program		Sponsoring Agency	
Sponsoring Directorate		Program	
Science Discipline Chief		Program Executive	

PART V FLIGHT PROFILE

LAUNCH SITE	ESTIMATED SITE ARRIVAL DATE	REQUESTED FLIGHT DATE

FLOAT REQUIREMENTS		
CRITERIA	MINIMUM	DESIRED
Float Altitude		
Time at Float Altitude		
NOTE: <i>Fort Sumner launches are only conducted in the morning. If you require night data collection, a morning launch must be considered when factoring time at float altitude.</i>		
Altitude Stability		

FLOAT REQUIREMENTS		
CRITERIA	MINIMUM	DESIRED
Launch Time		

OTHER THAN NORMAL FLIGHT PROFILE REQUIREMENTS			
Ascent/descent rates		Valving	
Altitude stability		Other	
Altitude variations		Other	

PART VI MINIMUM SCIENCE SUCCESS CRITERIA

SCIENCE OBJECTIVES	DESCRIPTION	MINIMUM	DESIRED
Briefly state the minimum and desired scientific objectives which must be met to achieve a mission success.			
Provide a summary of the minimum and desired performance for the experiment (detectors, pointing systems, etc.).			

BALLOON AND SUPPORT SYSTEMS	DESCRIPTION	MINIMUM	DESIRED
Provide full details of any pertinent balloon and/or CSBF support systems (telemetry, commanding, recovery, etc.) performance requirements for minimum and desired criteria.			

METEOROLOGICAL SUPPORT	DESCRIPTION	MINIMUM	DESIRED
Provide details on any other data source or support element separate from the balloon flight but necessary to achieve mission success (instrumented sounding balloons, instrumented aircraft, satellite overpass, independent ground station measurements, or National Weather Service radiosonde data).			

PART VII PAYLOAD / GONDOLA DATA

The gondola design documentation available on the CSBF Web site at <http://www.csbf.nasa.gov/docs.html> defines NASA certification policies for gondolas and pressure vessels, along with GSFC fastener integrity requirements. Please verify that you have the appropriate documentation and procedures in place to comply with these policies.

PAYLOAD/GONDOLA					
Dimensions of scientific payload (attach drawings or photos if available)	L:		W:		H:
Estimated weight of scientific payload (only experimenter-supplied equipment including experimenter-supplied batteries)					
Has CSBF flown this payload before? If yes, indicate where, when, and the flight number. NOTE: First-time long-duration payloads require a conventional "test flight" prior to an LDB mission.	Yes		No		
	Date	Flight #		Site	
Have any structural changes been made that affect your previous mechanical and/or pressure vessel certifications?	Yes	No If Yes, enter explanation:			
Are there any restrictions on the proximity of the scientific payload to other equipment, electronics, ballast, or to the balloon?					
Is there anything that will be intentionally released/separated from the payload (e.g., sensor packages, drop articles, etc.)? If Yes, provide the dimensions: <i>(Attach drawings or photos if available, and additional information will be required.)</i> If Yes, provide the estimated weight of article to be intentionally released/separated from the payload:	Yes	No			If Yes, explain when the item(s) will be intentionally separated from the balloon:
	L:		W:		H:

PART VIII SPECIAL REQUIREMENTS

ROTATOR	
Do you plan to fly a pointing rotator / free swivel? (LDB/SPB missions require Slip Rings for TM through Rotator / free swivel.)	Yes No
Are you requesting to use the NASA rotator?	Yes No
Please describe your pointing requirements to include the direction of pointing and duty cycle of pointing for each of your observations or reason for a swivel requirement.	

ROTATOR	
Has this rotator/swivel been previously flown?	Yes No
When was it last flown?	
When was it last modified?	
When was it last pull-tested?	

HIGH-GAIN ANTENNA (LDB/SPB FLIGHTS)	
Do you require a data rate higher than 10kbps?	Yes No

PART IX SAFETY

The Balloon Flight Application Instructions (<http://www.csbf.nasa.gov/docs.html>) delineates CSBF policies regarding hazardous materials, systems, and equipment. Please verify that the appropriate documentation and procedures are in place to comply with these policies.

You may be required to generate a special ground and/or flight safety plan to address hazardous conditions. If hazardous materials are used, you must furnish Material Safety Data Sheets (MSDS). Please forward any applicable safety documentation or plans that have been generated as part of your own institutional safety program as part of your project.

Each scientist is required to furnish CSBF with a Sealed Source Device Registry (SSDR) Safety Evaluation Sheet to be on file at CSBF before the source can be shipped to CSBF property or remote launch site. Refer to the Balloon Flight Application Instructions for instructions regarding radioactive sources.

HAZARDOUS MATERIALS LIST					
	HAZARD TYPE	PALESTINE		LAUNCH SITE	
		Calibration	In Flight	Calibration	In Flight
<p>The table at right lists hazards typically associated with balloon payloads. Please confirm those that are applicable to this project with Yes, No, or Unknown.</p> <p>Please indicate any additional hazardous materials, systems, or equipment not falling into these categories (i.e. toxic gases, super-conducting magnets).</p>	Chemicals				
	Cryogenic materials				
	High intensity light source				
	High voltage				
	Lasers				
	Magnets				
	Pressure vessels				
	Pyrotechnics				
	Radioactive materials				
	Science Li-ion rechargeable batteries				
	Science RF sources				
	Ultraviolet light source				
	Other				

RADIOACTIVE MATERIALS		
List radioactive sources to be used and the maximum activity/wattage. Identify materials in Ci, μ Ci, and/or nCi.		
SOURCE TYPE	ACTIVITY / WATTAGE	
	PALESTINE	LAUNCH SITE

PART X EXPENDABLE SUPPORT REQUIREMENTS

LDB payloads require pre-deployment integration and testing with all flight systems in the "FULL UP" mode to include LDB support systems and Science instruments, electronic systems and any flight computer software. All gondola fabrication must be completed at this time as well. All pre-deployment integration and testing is normally performed at the CSBF facility in Palestine, Texas during July for upcoming Antarctica flights, during March for upcoming Sweden flights, and in November for flights from Wanaka, New Zealand. Please delineate the location (Palestine pre-deployment integration or launch site) when answering the following.

GAS / CRYOGEN ESTIMATE					
Gases and cryogenics in support of science missions (expendables) must be paid for directly by the experimenter's group or from monies transferred to NASA and made available to the CSBF. Science groups are responsible for reimbursement of these costs.					
GAS/CRYOGEN	PURITY	CONTAINER SIZE	PSI	QUANTITY DESIRED	
				PALESTINE	LAUNCH SITE

NOTE:
Gas/cryogen estimates you provide on this application are used ONLY for CSBF forecasting and planning purposes; no gas/cryogen order for your program will be generated based on this application form.

Place gas/cryogen orders at least 30 working days before your required delivery date:

1. Download the gas/cryogen order form from the CSBF Web site at <http://www.csbf.nasa.gov/bids.html>
2. Complete the form.
3. E-mail or fax the form to CSBF:

E-mail: WFF-DL-CSBF-Cryogenics@mail.nasa.gov
F- Fax: 903-723-8068, ATTN: Cryogenics

BALLAST			
CSBF normally provides steel shot as ballast. Non-magnetic ballast (sand) may be used if justified by science requirements. Please indicate your requirement.	Steel:		Sand:

OTHER EXPENDABLES		
Other than those directly required by the CSBF for its flight support, expendables must be paid for directly by the experimenter's group or from monies transferred to NASA and made available to the CSBF. The CSBF will assist in determining whether these items are considered routine support. List those items that you expect CSBF to provide for you.	PALESTINE	LAUNCH SITE

PART XI IN-FLIGHT POWER REQUIREMENTS

BATTERIES													
<p>CSBF can procure primary lithium batteries (non-rechargeable) for use with science instruments. The batteries provide the main power source during most conventional missions. They also can be used as a backup power source during LDB missions. The standard pack for science is the SR182175 battery pack. It has an unloaded voltage of approximately 30V with a 50Ah capacity. CSBF previously provided the B7901 battery pack unloaded 30V, 33V and 36V variations. These packs are now obsolete. Moving forward if a science group requires a custom solution battery pack they will need to coordinate this with the electronics manager. Please email David.Webb@nasa.gov for your non-standard pack needs. Non-standard packs will have longer lead times as they will need to be designed and tested. Additional information for the SR182175 can be found on the CSBF website.</p>													
<p>Indicate if you want CSBF to purchase batteries for your scientific payload. Yes No</p> <p>Comments:</p>													
<table border="1"> <thead> <tr> <th rowspan="2">BATTERY</th> <th rowspan="2">LOADED VOLTAGE</th> <th rowspan="2">AMPERE HOUR*</th> <th colspan="2">QUANTITY DESIRED</th> </tr> <tr> <th>PALESTINE</th> <th>LAUNCH SITE</th> </tr> </thead> <tbody> <tr> <td>SR182175</td> <td>26</td> <td>50</td> <td></td> <td></td> </tr> </tbody> </table>		BATTERY	LOADED VOLTAGE	AMPERE HOUR*	QUANTITY DESIRED		PALESTINE	LAUNCH SITE	SR182175	26	50		
BATTERY	LOADED VOLTAGE				AMPERE HOUR*	QUANTITY DESIRED							
		PALESTINE	LAUNCH SITE										
SR182175	26	50											
<p>* De-rate ampere hour ratings for temperatures below -20 degrees Celsius.</p>													

NON-CSBF SUPPLIED BATTERIES	
<p>Do you intend to use non-CSBF supplied batteries? Yes No</p> <p>If so, please provide the type of battery, number of batteries, rechargeable or non-rechargeable.</p>	

PHOTOVOLTAIC SYSTEM	
<p>Do you intend to use a photovoltaic (PV) power system? (CSBF does not provide PV power systems for experimenters. However, CSBF can assist you with selection of a vendor for an LDB-suggested PV power system.)</p>	<p>Yes No</p>

PART XII GROUND SUPPORT

The CSBF has environmental test facilities in Palestine that can be made available for your use during pre-deployment integration. Such services are limited or non-existent at remote launch sites. List any such services you require.

ENVIRONMENTAL TEST FACILITIES (IN PALESTINE ONLY)

NETWORK AND IT REQUIREMENTS			
CSBF normally provides one publicly visible IP for established launch sites (Palestine, Fort Sumner, Australia). Scientists are strongly suggested to provide their own router/firewall to provide connectivity behind the IP.			
NETWORK/IT	PALESTINE	LAUNCH SITE	DOWN RANGE
Number of static IP addresses			
Number of dynamic IP addresses			
Specific ports required for firewall traversal			
List Operating Systems being used. NOTE: EOL OS are not permitted to connect to CSBF provided networks.			

AC POWER		
List your AC power requirements to include voltage, phase, line frequency, and nominal current. Please identify peak current loads you may impose.	PALESTINE	LAUNCH SITE

LIFT EQUIPMENT	
Do you plan to use your own lifting equipment? If so, please describe what equipment you intend to provide. More information may be required.	Yes No If yes, explain:

SCIENCE PROVIDED PRESSURE REGULATORS	
WFF Certified Pressure Regulators are required. More information will be necessary to obtain approval. CSBF normally does not provide WFF approved regulators. Do you require Certified Pressure Regulators for Gas?	Yes No If yes, explain:

PART XIII TELEMETRY AND ELECTRONICS SUPPORT

CONVENTIONAL FLIGHTS

CSBF TELECOMMAND SYSTEM				
The CSBF command system allows for a 16-bit parallel command word and a maximum of 77 discrete commands. Please reconfirm the following information from the Flight Support Abstract. See the <i>CIP Interface User handbook</i> at http://www.csbf.nasa.gov/convdocs.html for instructions for command integration.				
Do you plan to use your own command encoder and transmitter to meet science payload requirements?	If yes, please fill out:			
	FREQUENCY	POWER	AUTH. NO.	AREA OF AUTH.

AIRBORNE TELEMETRY			
Indicate the nature of telemetry signals from the scientific instrumentation.	SIGNAL	FREQUENCY (BPS)	CODING (NRZ, BIO, ETC.)
CSBF normally furnishes telemetry transmitters. Do you plan to use your own telemetry transmitter or have any RF emitters (including low-power ISM Band units)?	FREQUENCY	AUTH. NO.	AREA OF AUTH.
Describe special or unusual electronic requirements, indicate constituent signals comprising science furnished composite video, and indicate any TV video requiring CSBF-supplied transmitters.			

CONVENTIONAL EVTVM SUPPORT	
CSBF is now providing the LOS EVTVM solution for science instruments. This allows for science to provide a UDP data stream and receive that stream on the ground. Current support allows up to 12Mbps for LOS. Details of implementation can be found on the CSBF website.	<p>Would you like to request EVTVM support?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

GROUND TELEMETRY	
List any special requirements for ground station equipment (i.e. bit syncs, test equipment, special or unusual electronic requirements, and specific voltage signal level or format requirements).	
Downrange ground station support requirements.	

LDB/SPB FLIGHTS

LDB/SPB Telemetry and Electronics support differs from support for Conventional balloon flights. Please refer to the Science Enclosures on the CSBF Web Site (<http://www.csbf.nasa.gov/ldbdocs.html>) as a guide and reference for completing this section of the flight application form.

TELEMETRY REQUIREMENTS
Please place a check mark in each category for the type of telemetry subsystem you plan to use. Currently, the SIP uses the TDRSS and IRIDIUM satellite networks for communication. The systems are accessed via the COMM1 and COMM2 flight computers. The Science Stack is normally used for those experimenters who do not have a flight computer of their own with which to interface to the COMM1 and COMM2 science ports (but can be used for redundancy). Commanding via the COMM systems is available through the COMM science ports or to the Science Stack.

GROUND TELEMETRY	
List any special requirements for ground station equipment (i.e. bit syncs, test equipment, special or unusual electronic requirements, and specific voltage signal level or format requirements.	

PART XIV OTHER EXPERIMENTERS

If other experimenters are participating with you in the flight(s) covered by this request, please provide their names and organizations.

NAME	ORGANIZATION

If this is a cooperative program, describe each party's degree of involvement:

NAME	INVOLVEMENT

Please provide names of all participants in your group who will be supporting the flight. This list must include all personnel at the launch site. In case of campaigns outside the United States, the CSBF and NASA are required to inform the host country about the nationality of all campaign participants.

FOREIGN NATIONAL SCREENINGS		
Each science team member who is a foreign national must register with CSBF three months before arrival at any integration or launch site, domestic or foreign. U.S. Citizens who remain (or plan to remain) on site for longer than 29 days will also be required to provide this information and register at least one week prior to exceeding 29 days at the facility . Personnel will not be granted physical access to facilities without the required information.		
NAME	E-MAIL ADDRESS	COUNTRY OF CITIZENSHIP

PART XV FUTURE REQUIREMENTS

In an attempt to meet the future needs of the scientific community, it is critical that you provide detailed information on any balloon flights planned for the next five years to assist NASA/CSBF in developing flight support services. Considerable advanced planning is required for complicated missions, e.g., Australia, Canada, and Antarctica. Even if you are only thinking about proposing, identifying potential requirements facilitates the planning process. Include the anticipated number of flights and the location and seasonal requirements of each. Also note any special support, services, or capability requirements not presently offered by the CSBF.

IMPORTANT
THIS FLIGHT APPLICATION **MAY NOT BE REUSED** FOR PROJECTED FUTURE FLIGHTS. A SEPARATE FLIGHT APPLICATION MUST BE SUBMITTED FOR EACH FLIGHT.

PAYLOAD NAME	FLIGHT DATE	FLIGHT LOCATION	SPECIAL SUPPORT	ADDITIONAL SERVICES

PART XVI AGREEMENT

I have read and agree with all requirements and conditions set forth in the Balloon Flight Support Application and related handbooks and materials available from the CSBF website.

Name: _____

Organization: _____

Signature: _____

Date: _____

PART XVII CONTACTS

CSBF CONTACTS				
P.O. Box 319 • PALESTINE, TX 75802 • 903-723-0271				
INFORMATION	NAME	PHONE	FAX	EMAIL
General operations, scheduling	Hugo Franco	903-723-8091	903-723-8056	hugo.franco@nasa.gov
Integration, flight dynamics, telemetry, launch, and recovery	Juan Perez	903-731-8549	903-731-8509	juan.perez@nasa.gov
Gas/cryogen questions and orders	Purchasing	903-729-0271	903-723-8054	csbf-cryogens@lists.hq.nasa.gov
Visitor screening and badges				wff-dl-csbf-badging-services@mail.nasa.gov