

# MEMORANDUM

To: David G. Gregory, NASA COR

From: [REDACTED]

Concurrence: [REDACTED]

Date: September 13, 2019

Subject: Fiscal Year 2020 Candidate Flight Program

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## 1 INTRODUCTION

Attached is the Fiscal Year (FY) 2020 Candidate Flight Program. CSBF has polled our list of scientists from various research organizations for potential projects that could be accomplished using conventional balloon flights during FY2020-2022 and long-duration balloon (LDB) flights during FY2022 and beyond.

From the polling, Principal Investigators returned 28 flight application forms. These included (not all selected); one Super Pressure flight, one Piggyback (COSI) and two hand launches for Wanaka FY2020, three conventional applications for Palestine FY 2020, four conventional applications and five Piggybacks (PB) for 2020 fall Ft. Sumner. Finally, two hand-launch payloads, two LDB flights and three Piggybacks for FY2020 Antarctica

Additionally, three Piggyback applications for Wanaka (not included) will likely NOT be supported during that campaign due to weight restrictions. Those will be further discussed later during the fiscal year and prioritized in conjunction with the Balloon Program Office.

Twenty flights are shown in the Candidate Flight Program for FY2020. The formal flight applications for the LDB flights from Antarctica this season are essentially carryovers from previous fiscal year. Any additional applications will be forwarded as revisions to the Candidate Flight Program.

To assist in assessing and planning the FY2020 balloon program, the attached spreadsheets describe and quantify the proposed program in a variety of ways that may be useful to the Balloon Program Office and NASA Headquarters. Included are:

- Attachment 1: A graphical depiction of the potential FY2020 flight schedule
- Attachment 2: An overall NASA Balloon Program cost summary
- Attachment 3: An overall campaign cost estimate
- Attachment 4: A summary of the number of requests by month
- Attachment 5: Cost estimates categorized by science discipline and individual campaigns

## 2 FLIGHT PROGRAM DISCUSSION

### 2.1 CONTINGENCY FLIGHT APPLICATIONS

No contingency flight applications were received.

## 2.2 FIRST-FLIGHT PAYLOADS

Ten first-flight applications for new or significantly upgraded instruments are listed in Table 1. Some remain from previous fiscal year that have yet to be flown.

Table 1 - First Flight Application Submissions

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	CAMPAIGN
Goddard Space Flight Center	Stephen R nehart	BETTII 3	2023 A ce Spr ngs, Austr a
Jet Propu s on Laboratory	Gautam Vas sht	ECO	2023 A ce Spr ngs, Austr a
Southwest Research Institute	E ot Young	THAI SPICE (Testbed for H gh Acuity Imaging Stab e Photometry Image mot on Compensat on Exper ment)	2019 Pa est ne (or Ft. Sumner)
Oh o State Un vers ty	James Beatty	He x He um Transfer Test	2020 Pa est ne (or Ft. Sumner)
Un vers ty of New Hampsh re	Fab an K s at	SCOTTI (SuperCONducT ng T tan um Imager)	2023 Pa est ne
Montana State Un vers ty	John Samp e	BOOMS (Ba oon Observat ons Of M croburst Sca es)	2022 Sweden
Un vers ty of Ar zona	Chr s Wa ker	LBR (Large Ba oon Ref ector)	2020 Ft. Sumner
CSBF/Dartmouth Co ege	██████████/Robyn M an	GUSTO Pathf nder	2019 Antarct ca (hand aunch)
Un vers ty of Ch cago	Scott Wake y	HELIX (H gh Energy L ght Isotope eXper ment)	2021 Antarct ca
Un vers ty of M nnesota	Shau Hanany	IDS	2023 Antarct ca

## 2.3 CONVENTIONAL FLIGHT APPLICATIONS

Thirteen conventional flight applications for FY2020 are shown in Table 2.

Table 2 - New FY2020 Conventional Flight Application Submissions

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	CAMPAIGN
Oh o State Un vers ty	James Beatty	HELIX Transfer Test	2020 Pa est ne
Ca form a nst tute of Techno gy	Chr s Mart n	F reba 1	2020 Pa est ne
Goddard Space Flight Center	A an Kogut	PIPER	2020 Pa est ne
Goddard Space Flight Center	A an Kogut	BOBCAT	2020 Pa est ne
Pr nceton Un vers ty	W am Jones	Super B t	2020 Pa est ne
Southwest Research	E ot Young	THAI SPICE	2020 Ft. Sumner)
Un vers ty of Ar zona	Chr s Wa ker	LBR	2020 Ft. Sumner
Lou s ana State Un vers ty	Greg Guz k	HASP	2020 Ft. Sumner
Goddard Space Flight Center	A an Kogut	PIPER	2020 Ft. Sumner
Ca form a Inst tute of Techno gy	Chr s Mart n	FIREBa 2	2020 Ft. Sumner
Jet Propu s on Laboratory	Geoffrey Toon	JPL Remote	2020 Ft. Sumner
Wa ops Flight Fac ty	Debb e Fa rbrother	LDB Test Flight	2020 Ft Sumner

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	CAMPAIGN
Goddard Space Flight Center	Aaron Kogut	BOBCAT	2020 Ft. Sumner

Seven conventional flight applications for FY2021 and beyond are shown in Table 3.

Table 3 - New FY2021 and Beyond Conventional Flight Application Submissions

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	CAMPAIGN
Goddard Space Flight Center	Stephen Rehart	BETTI2	2021 Pa est ne
Jet Propulsion Laboratory	Gautam Vasht	ECO	2021 Pa est ne
University of New Hampshire	Mark McConne	GRAPE	2022 Pa est ne
University of New Hampshire	Fabian Ksat	SCOTTI	2023 Pa est ne
Ohio State University	James Beatty	Hex Helium Transfer Test	2023 Pa est ne (or Ft. Sumner)
University of Arizona	Chris Walker	LBR	2021 Ft. Sumner
Applied Physics Lab	Alex Charter	BBC	2021 Ft. Sumner

## 2.4 FY2020 LDB/SPB FLIGHT APPLICATIONS

Six FY2020 LDB/SPB flight applications remain manifested and are shown in Table 4.

Table 4 - FY2020 New LDB/SPB Flight Application Submissions

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	LDB CAMPAIGN
CSBF/Dartmouth College	[REDACTED]/Robyn Man	GUSTO Pathfinder I	2020 Antarctica
CSBF/Dartmouth College	[REDACTED]/Robyn Man	GUSTO Pathfinder II	2020 Antarctica
NASA Balloon Program Office	Debora Farrow	SPB Test	2020 New Zealand
CSBF/WFF	[REDACTED]	TRAVEL A Hand Launch	2020 New Zealand

Previously submitted LDB/SPB flight applications for FY2020 are shown in Table 5.

Table 5 - Previously Submitted FY2020 LDB/SPB Flight Application Submissions

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	LDB CAMPAIGN
Washington University in St. Louis	Bob Bnns	SuperTIGER II	2020 Antarctica
University of Pennsylvania	Mark Devn	BLAST	2020 Antarctica

## 2.5 FY2021 LDB/SPB FLIGHT APPLICATIONS

LDB/SPB flight applications for FY2021 remain shown in Table 6.

Table 6 - New FY2021 LDB/SPB Flight Application Submissions

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	LDB CAMPAIGN
Princeton University	B Jones	SPIDER	2021 Antarctica
University of Chicago	Scott Wakey	HELIX	2021 Antarctica

## 2.6 FY2021 LDB/SPB FLIGHT APPLICATIONS

LDB/SPB flight applications for FY2021 remain from previous fiscal year.

*Table 7 –FY2021 New LDB/SPB Flight Application Submissions*

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	LDB CAMPAIGN
Max Planck Institute for Solar System Research	Sam Soank	Sunrise 3	2021 Sweden
University of New Hampshire	Mark McConne	GRAPE	2021 Antarctica
University of Hawaii at Manoa	Peter Gorham	ANITA	2021 Antarctica
Washington University in St. Louis	Brian Rauch	SuperTIGER III	2021 Antarctica
University of Chicago	Scott Wakey	HELIX	2021 Antarctica
NCAR High Altitude Observatory	Qian Wu	HIWIND	2021 Wanaka
Washington University in St. Louis	Henry Krawczynsk	XL-Cambur	2021 Antarctica or Sweden

## 2.7 FY2022 AND BEYOND LDB/SPB FLIGHT APPLICATIONS

LDB/SPB flight applications for FY2022 and beyond are shown in Table 8.

*Table 8 - New FY2022 and Beyond LDB/SPB Flight Application Submissions*

ORGANIZATION	PRINCIPLE INVESTIGATOR	PAYLOAD	LDB CAMPAIGN
Montana State University	John Sampel	BOOMS	2022 Sweden
Washington University in St. Louis	Bob Bnns	SuperTIGER	2022 Antarctica
GATS, Inc.	David Frtts	PMC Turbo 2	2022 Antarctica
Washington University in St. Louis	Henry Krawczynsk	XL-Cambur	2022 Antarctica (or Sweden)
University of Minnesota	Shau Hanany	IDS	2023 Antarctica
University of New Hampshire	Fabian Ksat	SCOTTI	2026 Sweden

If you have any questions concerning the FY2020 Candidate Flight Program, please contact me or [REDACTED] at your convenience.

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Distribution: David Gregory  
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