

High Altitude Student Platform (HASP)

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The High Altitude Student Platform (HASP) is a model multi-payload carrier

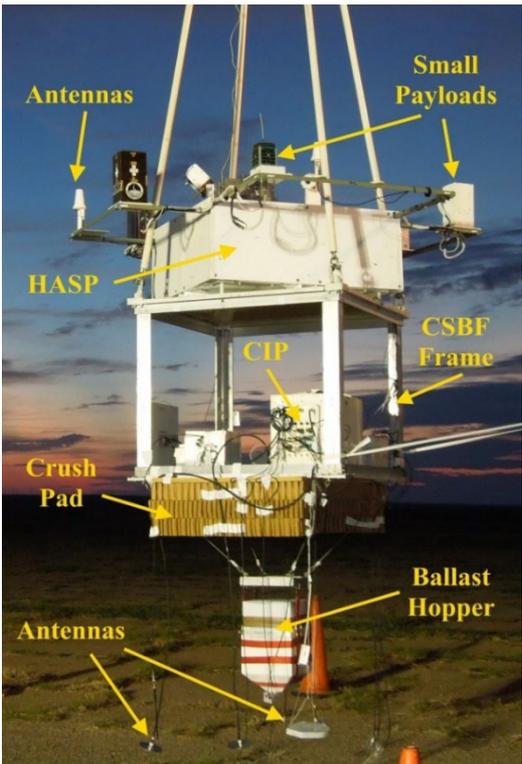
- Operates as a partnership between the **NASA Balloon Program Office (BPO)**, the **Columbia Scientific Balloon Facility (CSBF)**, the **NASA Astrophysics Division of the Science Mission Directorate (APD)** and the **Louisiana Space Grant Consortium (LaSPACE)**
 - BPO / CSBF provides balloon, launch and flight services
 - APD provides funding for maintaining HASP, mentoring the student payloads, and HASP flight support by LaSPACE personnel
- Developed in 2005 to assist in training the next generation of aerospace scientists and engineers.
- Provides a regular flight opportunity for student groups across the world.
- A multiple experiment balloon platform, similar to HASP, might have application beyond student training programs.
- Complete system redesign in 2022-2024, with the first Science flight in 2025



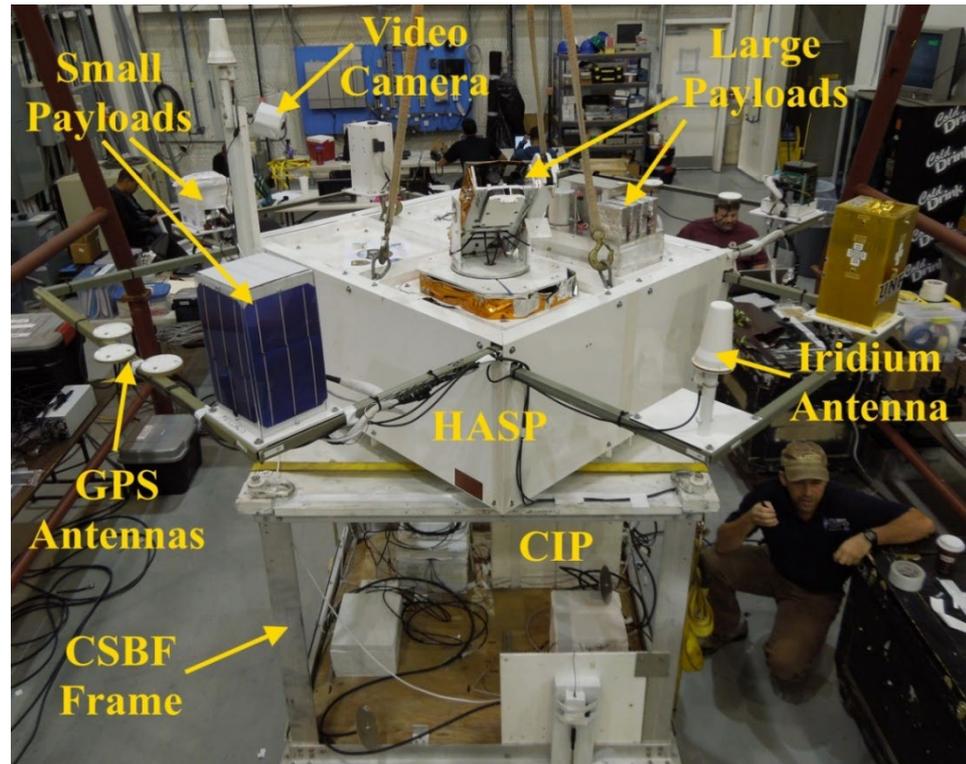
HASP Supports Multiple Payloads

Support up to 16 small payloads < 3 kg and 8 large payloads < 20 kg per flight
HASP supplies payloads with serial downlink & uplink in near real-time, 26-30 VDC @ 2.5 A power, discrete commands, analog downlink.

Video cameras provide real-time imaging of payloads and environment



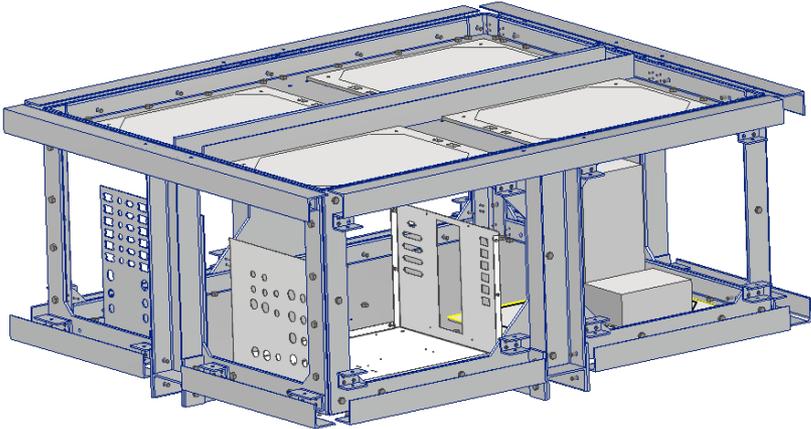
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HASP LaSPACE Annual Meeting



New HASP Specifications



	Small Student Payloads:	Large Student Payloads:
Total number of seats:	up to 16	up to 8
Maximum Payload weight:	3 kg (6.6 lbs)	20 kg (44 lbs)
Maximum footprint:	15 cm x 15 cm (~6" x 6")	38 cm x 30 cm (~15" x 12")
Maximum height:	30 cm (~12")	30 cm (~12")
Supplied voltage:	26 - 30 VDC	26 - 30 VDC
Available current:	0.5 Amps @ 30 VDC	2.5 Amps @ 30 VDC
Maximum serial downlink (bit stream):	<1200 bps	<4800 bps
Serial uplink:	2 bytes per command	2 bytes per command
Analog downlink:	two channels in range 0 to 5 VDC	two channels in range 0 to 5 VDC
Discrete commands:	Power On, Power Off (with possibility of 2 additional)	Power On, Power Off (with possibility of 4 additional)
Power, Analog, & discrete interface:	EDAC 516-020	EDAC 516-020
Serial interface:	1200 baud, RS232 protocol, DB9 connector	4800 baud, RS232 protocol, DB9 connector
HASP provides realtime 2-way data communication to all payloads and at least 1 video downlink from the flight.		



Typical HASP Timeline

August 22, 2025	HASP 2026 Call for Proposal Released
September 26, 2025	Q & A Teleconference
October 6, 2025	Notice of Intent Letter Due
October 17, 2025	Application Development Teleconference
November 3, 2025	Application due date
December 5, 2025	Announce student payload selection
January 16, 2026	HASP Kick Off Meeting
February –November 2026	Monthly status reports and teleconferences
March 27, 2026	Preliminary PSIP document due
April 24, 2026	NASA Integration Security Document due
June 26, 2026	Final PSIP Document due
June 26, 2026	NASA Flight On-Site Security Document Due
July 17, 2026	Final FLOP Document due
July 20 - 24, 2026	Student payload integration at CSBF *
August 24 - 25, 2026	HASP flight preparation *
August 29, 2026	Target flight ready *
August 31, 2026	Target launch date and flight operations *
September 4-7, 2026	Recovery, packing, and return shipping *
December 11, 2026	Final Flight / Science Report due

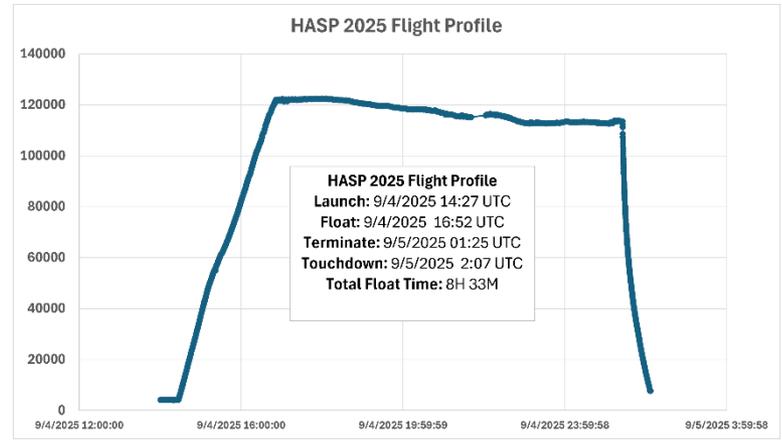
*These dates are preliminary and subject to change



HASP Flight in Early September



Uses a ~311,000 cubic meter zero pressure balloon to carry ~725 kg total suspended weight to an altitude in excess of 36 km for an average of 13 hours





Characteristics of each HASP Flight

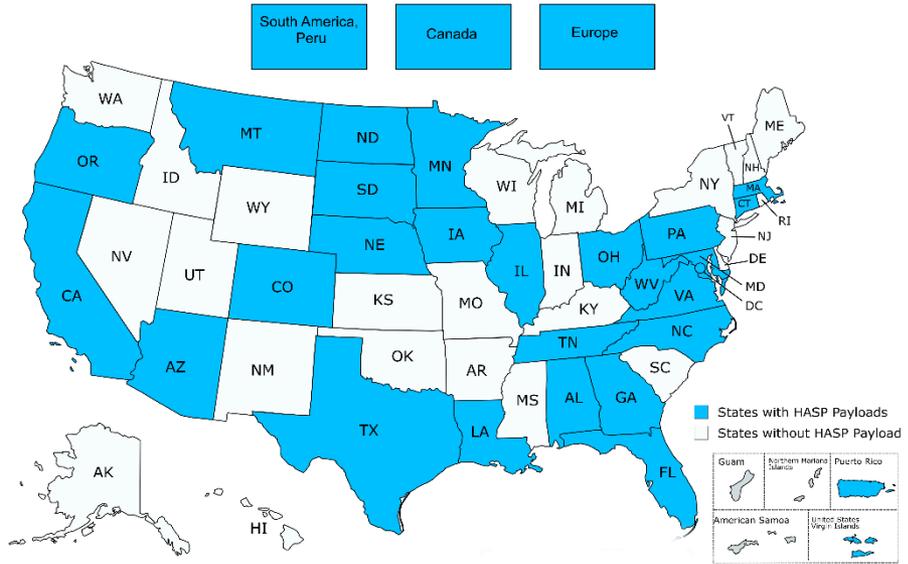
Year	Launch Date	Float Duration (hours)	Students	Payloads		
				Accepted	Flown	Success
2006	September 4, 2006	15.0	25	8	8	6
2007	September 2, 2007	16.5	70	11	10	8
2008	September 15, 2008	31.8	96	13	12	6
2009	September 11, 2009	12.0	50	10	6	6
2010	August 31, 2011	8.0	78	11	8	8
2011	September 8, 2011	15.7	117	11	5	5
2012	September 1, 2012	8.8	93	14	11	10
2013	September 2, 2013	10.5	101	12	10	10
2014	August 9, 2014	5.6	103	10	7	7
2015	September 7, 2015	23.1	107	12	10	9
2016	September 1, 2016	15.2	121	12	12	12
2017	September 4, 2017	10.6	156	12	12	12
2018	September 4, 2018	9.0	165	13	13	11
2019	September 5, 2019	7.6	136	12	10	8
2021	September 14, 2021	14.2	117	12	10	10
2022	September 8, 2022	18.0	101	9	8	8
2023	September 7, 2023	10.1	93	7	6	6
2024	September 4, 2024	9.1	110	12	11	11
2025*	September 4, 2025	8.5	120	12	12	12
Total 06 to 25		249.3	1959.0	213.0	181.0	165.0
Ave 06 to 25		13.1	103.1	11.2	9.5	8.7
Value/Year**	2021 - 2025	12.0	108.2	10.4	9.4	9.4



HASP Historical

- Supported by NASA SMD APD, BPO, CSBF, and Louisiana Space Grant
- HASP has flown 19 missions from 2006 through 2025
 - 20th flight scheduled for Aug/Sept 2026.
- Over 1900 students from 50 institutions across 26 states plus Puerto Rico, US Virgin Islands, Canada, Europe and South America have been involved in developing a HASP experiment.
- Over 200 publications, presentations papers, etc
 - Including at least 5 theses or dissertations

Locations of Unique Institutions that have Participated in HASP as of June 2025





HASP 2025

Supported by NASA SMD APD, BPO, CSBF, and Louisiana Space Grant

12 student teams selected for 2025 including 7 U.S. (2 Florida / North Dakota collaboration), 3 from Peru South America, 1 High School from Belgium, and 1 from Canada

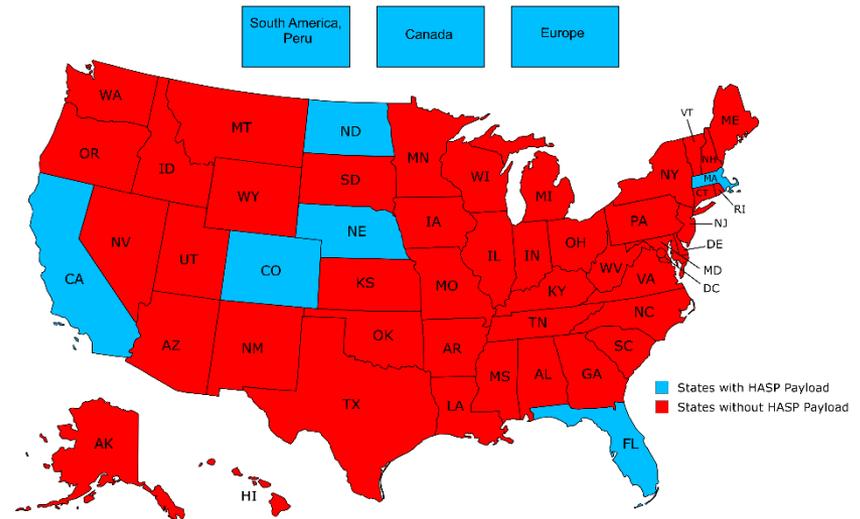
- On board experiments include an Ozone detection system and an Electron Spectrometer Telescope.
- Flight test of experimental hardware for larger future experiments, including several cubesat payloads.

Used the new Starlink system for HASP to ground communication.

Integration: 7/26 – 8/1 at CSBF

Flight Ops: 8/25 – 9/10 at Ft. Sumner

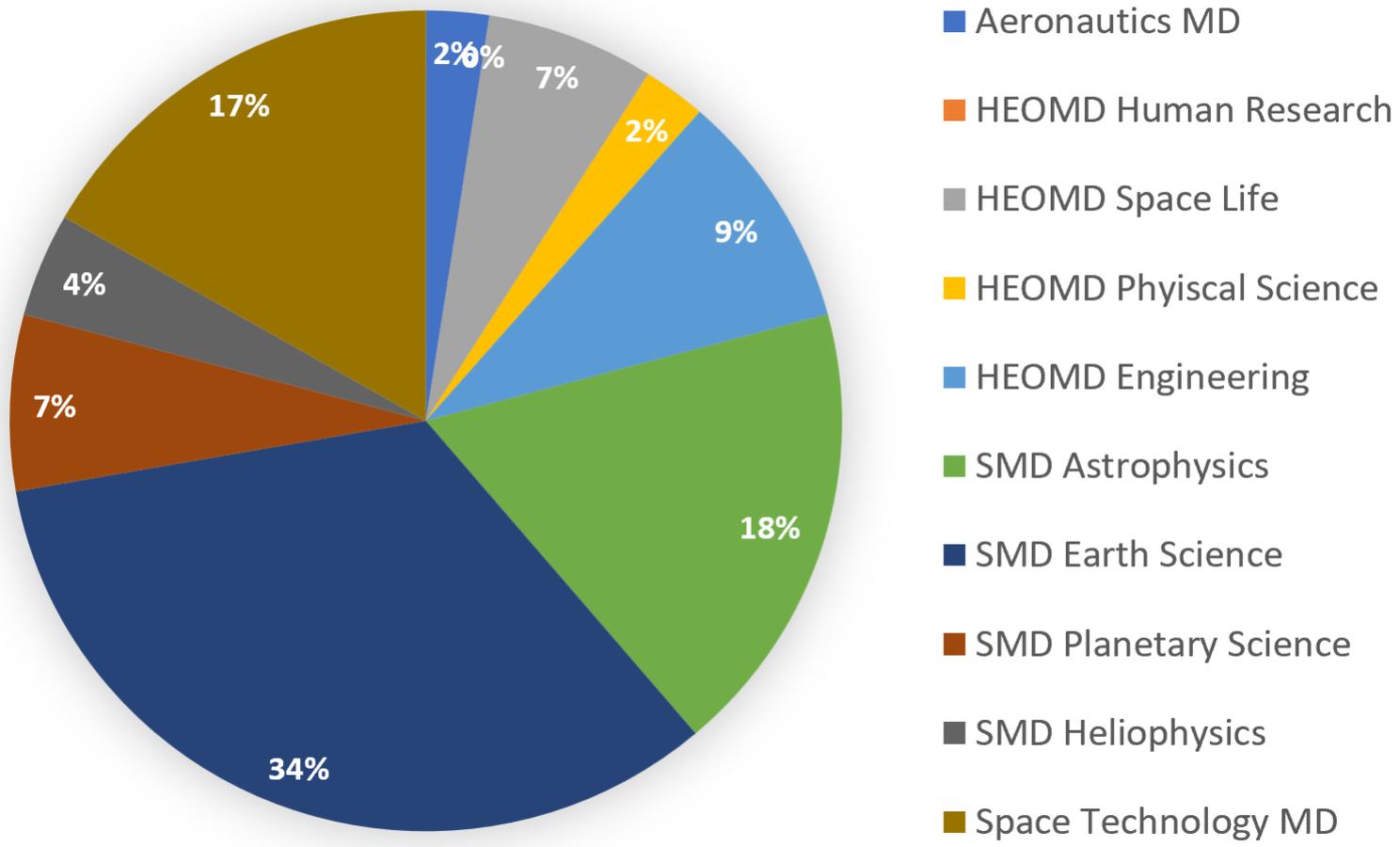
HASP 2025 Payloads Jurisdictions





The Reach of the HASP Program

NASA Mission Directorate breakdown for HASP Payloads





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