High Altitude Student Platform (HASP) 2018 - 2019 Flights

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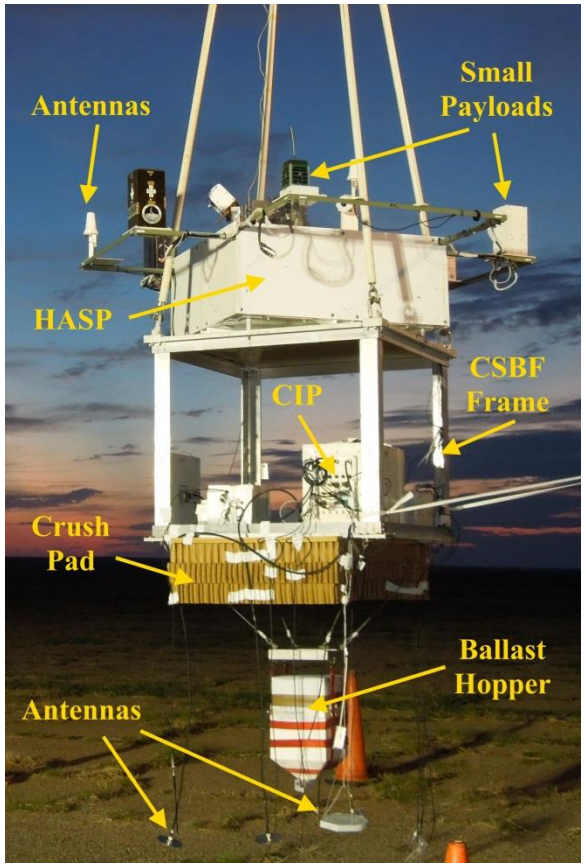
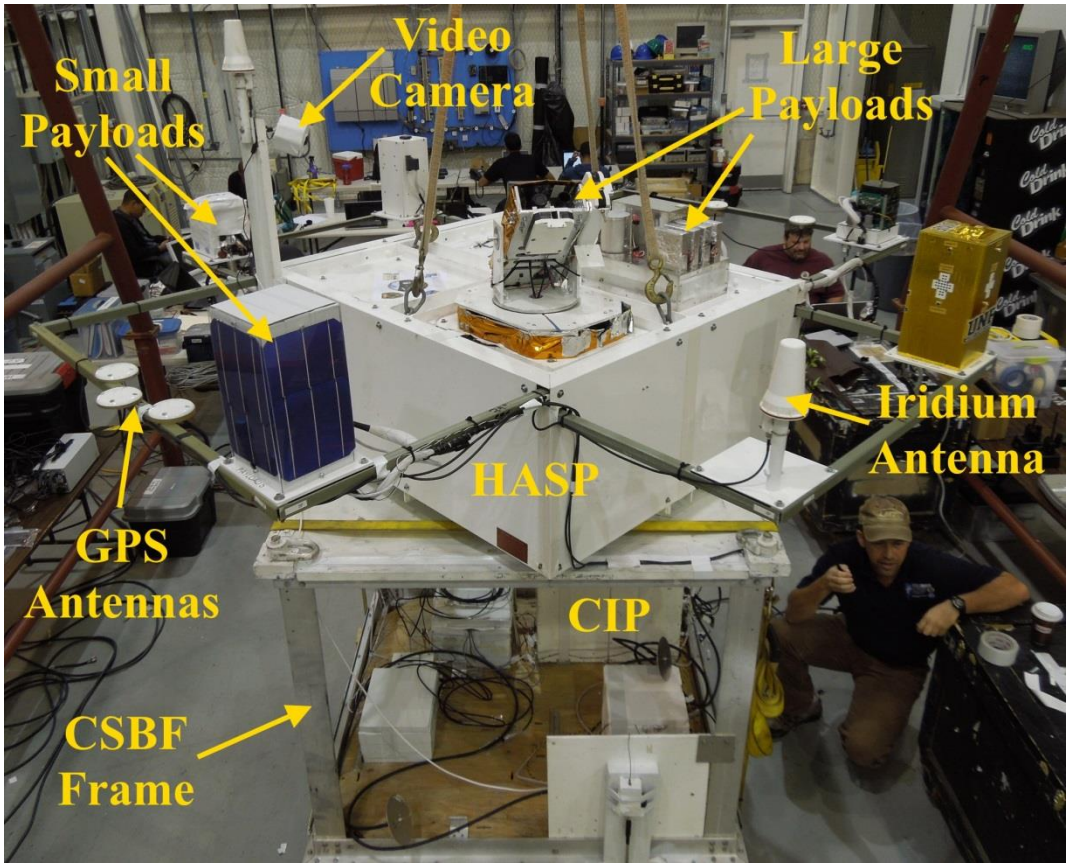
HASP is a Multi-Payload Balloon Platform

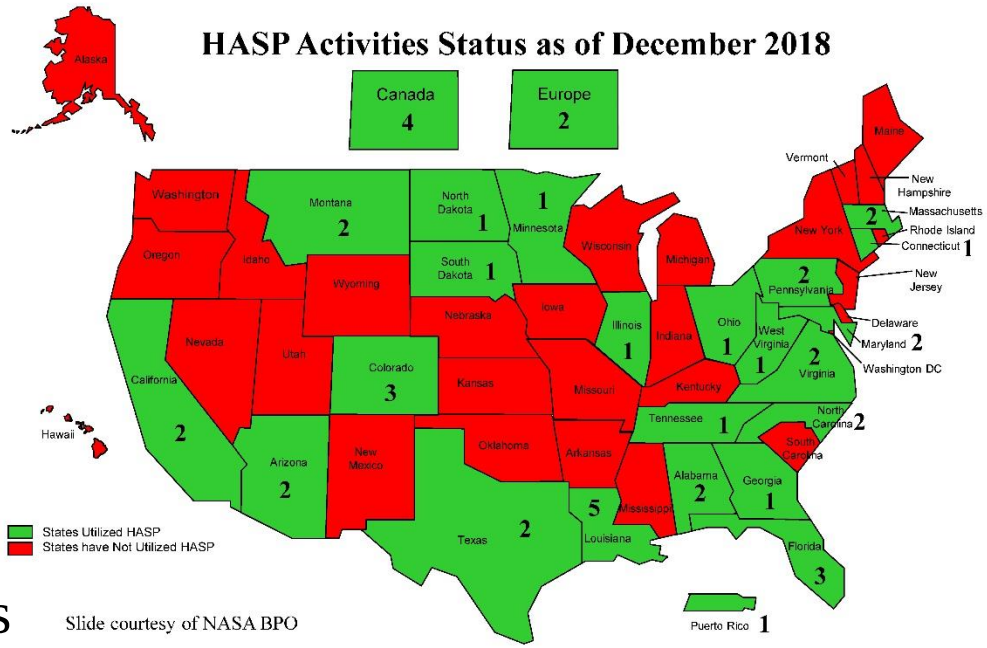
- Support up to eight payloads < 3 kg and four payloads < 20 kg per flight
- HASP supplies payloads with serial downlink & uplink in near real-time, 32 VDC @ 2.5 A power, discrete commands, analog downlink.
- Video cameras provide real-time imaging of payloads and environment





Many individual experiments have flown on HASP over the years

- HASP has flown thirteen (13) missions from 2006 through 2018.
- Accumulated more than 7 1/2 days of flight time at altitudes in excess of 100,000 feet (i.e. at the very edge of space).
- 47 institutions, including universities, community colleges, and high schools, from 23 states plus Canada, Puerto Rico, and Europe have participated in HASP.
- Close to 1300 students have flown more than 120 payloads on HASP.
- Success rate of 89% over 13 years
- LaSPACE and NASA BPO / CSBF are planning to continue flying HASP well into the near future.

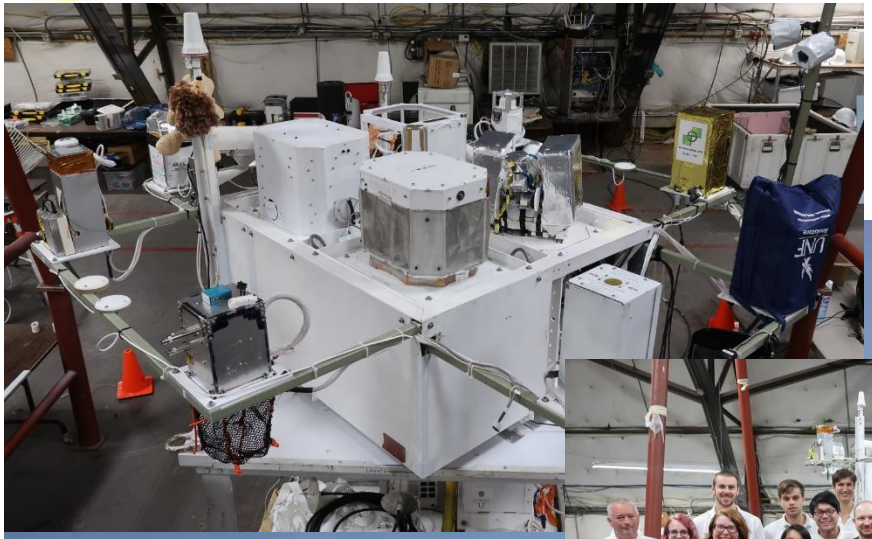


HASP 2018 Student Payload Topics

Institution	Topic
University of Minnesota (MN)	Flight test of CITIES supporting hardware on the High Altitude X-Ray/Gamma-Ray Detector Testbed (HAXDT)
College of the Canyons (CA) (c.c.)	Stratospheric On-board Laminar-flow Acidic Reduction Inspection System (SOLARIS)
McMaster University (Canada)	Stratospheric Measurements of Charged and Neutral Radiation
Fort Lewis College (CO)*	Harmful Algal Bloom Experiment (HABEx)
University of Maryland (MD)	High Altitude Atmospheric Turbulence – Triggered Release Information Carrier (HAAT-TRIC)
Durham Tech Community College (NC) (c.c.)	Robotic Arm Manipulation and Materials Matching: RAM
University of North Dakota (ND), University of North Florida (FL)	Measurements of Good and Bad Ozone
South Dakota School of Mines & Technology (SD)*	CATCHING RAYS – A Mission to Measure Primary Cosmic Rays in the Upper Stratosphere using the HASP
Sint-Pieterscollege Jette, (Belgium) (h.s.)*	STRAINS - STratospheric RAdiation INstrumentS
University of Houston (TX)	SORA 2.0 – Stratospheric Organisms and Radiation Analyzer
University of Colorado - Boulder (CO)	Miura II - Version 2 Expandable Soft-Shell Structure
University of Sheffield (United Kingdom)*	Sheffield University Nova Balloon Lifted Telescope
American River College (CA) (c.c.)*	Stratospheric Spectropolarimeter Gamma-X (SSGX)

c.c. – community college; h.s. – high school; * -- new HASP institution for 2018

HASP 2018 Payloads and Student Teams



HASP 2018 Launch and Flight…

HASP 2018

9/4/2018

Ft. Sumner New Mexico

HASP 2019 Student Payload Topics

Institution	Topic
University of Minnesota (MN)	SHADOMS (Stratospheric Hypersonics Airborne Particulate Optical Measurement System)
College of the Canyons (CA) (c.c.)	Radiation and Germination Experiment (RAGE)
McMaster University (Canada)	Stratospheric Measurements of Charged & Neutral Radiation – Part III
Fort Lewis College (CO)	Sky Polarization and Payload Management Updates
University of Maryland (MD)	HAAT (High Altitude Atmospheric Turbulence)
Durham Tech Community College (NC) (c.c.)	Robotic Arm Materials Matching and Manipulation: RAM3.1
University of North Dakota (ND), University of North Florida (FL)	Measurements of Bad Ozone in the Troposphere and Good Ozone in the Stratosphere
Arizona State University	AWSOME (Atmospheric Water vapor Sounding sensor Operating on Millimeter-wave Equipment)
Arizona State University	Small Mounted Optical Lens Dual-camera Experimental Remote-sensor (S.M.O.L.D.E.R.)
University of Houston (TX)	SORA 3 - Stratopheric Organism and Radiation Analyzer
University of Sheffield (United Kingdom)	Sheffield University Nova Balloon Lifted Telescope
Louisiana State University	Silicon Photomultiplier Array for Capturing Energy Radiation (SPACER)

c.c. – community college