

Launch	Date	Mission	LPSU Team		Other	all PSU folks	Outreach folks
Number			names	PSU folks	Institutions		
LPSU 01	Jun-04	Maiden Proprietary Launch	R. Jenson, J. Hatch, D. Roper, J. Cloer, B. O'neel, M. Weislogel	6	none	6	0
LPSU 02	May-05	Image Balloon Satellite	A. Craig, J. Hatch, D. Finnestad, J. Hendrickson, M. Weislogel	5	none	11	0
LPSU 03	Oct-05	Joint OSU/PSU Demo Launch	J. Hatch, B. McGown, D. Finnestad, M. Weislogel	4	OSU, SOU, Civil Air Patrol	12	0
LPSU 04	May-06	Joint OSG/OSU/PSU Sheridan Jr. High	N. Visan, D. Finnestad, J. Jones, J. Eiche, P. Levno, M. Weislogel	6	OSG, OSU, Sheridan Jr. Highschool	10	250
LPSU 05	May-06	Lunar Periscope	J. Eiche, P. Levno, N. Visan, J. Jones, D. Finnestad, M. Weislogel	6	none	12	13
LPSU 06	Jun-06	Joint GFU/PSU Educators Workshop	D. Bolleddula, D. Finnestad, M. Meyer, M. Weislogel	4	GFU, North Coastal k-12 Educators	8	25
LPSU 07	Aug-06	OMSI Summer Camp at Hatfield Center	D. Finnestad, Y. Chen, M. Weislogel	3	OMSI Camp	3	14
LPSU 08	May-07	Panorama	M. Baker, B. Fraz, B. McGown, B. Omart, J. Phillips, J. Salem, P. Vang, M. Weislogel	8	none	11	0
LPSU 09	Apr-08	Launch L.O. Jr. High	J. Zimmerman, R. Bailey, D. Bell, M. Weislogel	4	L.O. Jr. Highschool	5	50
LPSU 10	Dec-08	Launch L.O. Jr. High	Y. Chen, D. Finnestad, B. Semerjian, M. Weislogel	4	L.O. Jr. Highschool	5	300



Purpose	Location	LPSU Notables; Payload/Hardware	Flight data
			Ballon type
Launch and recover a high altitude balloon with 8lb payload to over 100,000ft	Millican, OR	8 lb proprietary payload, team never learned contents. All PSU components <2lbs: tracking, data, imaging, cutter, parachute. 54k ft^3 polyethylene balloon	54,000ft^3 polyethylene
Repeat LPSU 01 feat but with successful imaging	Millican, OR	8Mpx camera at 1 image/min	3000g laytex
Share Launch method and experience with OSU, and in part SOU, who are also developing Balloon Launch programs	Millican, OR	none	3000g laytex
Perform double launch OSU/PSU with OSG of Jr Highschool science project winners in front of entire school	NASA Explorers School, Sheridan Jr. Highschool, Sheridan OR	Multiple high res digital cameras	3000g laytex
ME406 project to image moon rise at 100,000ft	Millican, OR	Periscoping mirror and timed launch to catch 20min window during moon rise. P. Levno design LPSU Logo	54,000ft^3 polyethylene
Hands on-demonstration for k-12 teachers.	Millican, OR	Employ back-up Dog tracker radio transmitter and handheld Yagi antena	3000g laytex
Collaboration with OMSI for their summer camp	Hancock Field Center, Clarno Unit, John Day Fossil Beds, OR	59 8MPx images of flight at 1 per 2 min, 99 5MPx images at top, 8100 320px by 240px low res. images of ascent (1.5Hz for 90 minutes), 36 power wind film camera of flight. First Demo of Donovan Finnestad's tare weight launch apparatus.	3000g laytex
ME 406 class to provide high altitude, high resolution imaging over Portland	7th Story, PSU Parking Structure, Portland OR	Safe H <sub>2</sub> gas system, with 2 full scale balloon flamability tests, 3 10Mpx stitched cameras at 1 Imge per 8 s.	3000g laytex
Support Science teacher G. Mylet in special NASA projects class (as well as take flight data for follow on LPSU projects	L.O. Jr. High lawn, Lake Oswego, OR	H <sub>2</sub> Launch. 3-axis accelerometer and data logger to characterize typical acceleration loading on package for follow-up imaging requirements for Panoram II	3000g laytex
Support Science teacher G. Mylet in special SEED projects class (as well as perform preliminary tests on new tracking method)	L.O. Jr. High lawn, Lake Oswego, OR	H <sub>2</sub> Launch. New SX1-tracking system. Outreach launch for LOJHS SEED program	3000g laytex



						Notes
Tot. payload mass	Free Lift	Ave. Rate Ascent	Peak Altitude	ground distance	Flight Duration	
10lb	~2lb	~1080ft/min	116, 700ft	~22mi	1:54	This was the funnest, geekiest thing ever done in the name of education and college credit. In part supported by Oregon Space Grant. Parachute ripped free on descent. ~8min descent. >700mph. Hit ground at terminal velocity ~70mph. Survived.
?	?	1333	101,039	?	~2:10	Lost or never had gps contact. Tracked visually, observed burst, lost during descent. Mounted serious search attempts. Package found and returned 4.5 months later by ranchers. Great images
~5lb	~2.5lb	~1000	110,500	~50	~2:30	Civil Air Patrol Tracked from 12,000ft to ground. Within eyesight most of the time. Donovan witnesses burst.
~9lb	<2lb	587.6	104,232	~90	3:21	Max ground speed 112mph reached. 1100 image by onboard camera
6lb	1.5	537.5	123,634	120	4:32	Max ground speed 124mph, max elevation, max distance, almost reached NV. 890mi car ride!
~6.5	2lb	?	>90,000	27	?	Teachers built their own experiments <5lb total. GPS failure off the deck, heart broken for teachers. Tracked using dog tracker anyway. Found the next day using this method. Dog tracker works for > 30miles!
2.6kg	3.5lb (?)	960ft/min	114,859	7.5mi	2:28	14 campers and OMSI personnel. Campers (high schoolers) built three small payloads. LPSU took data and images during flight. OMSI viewed flight through telescopes on ground (didn't photograph). Landed in old Rashnish property. Almost everyone saw the balloon burst at >114,000ft with eyes, binoculars, or sighting scopes!
7lb	2.5lb	1223ft/min	113,790	2.4	1:52	First H2 LPSU. First PSU launch from campus, downtown Portland. Lands 2.4 miles from launch site on interesection of freeways I-5 and 405!
8.5lb	3.25lb	950ft/min	114,021	54	~2:31	L.O. Students designed and tested their own payloads. Did well. Cockroach survives. Max ground speed 113mph.
8.17lb	4lb	1350ft/min	113,012	50.6	2:11	L.O. Students designed and tested their own payloads. Did well. Cockroach survives again--the same cock roach! Saw landing, predictions within mile of landing. Elementary students observe landing while at recess, causes stir.



Failures	Status
	Recovered
parachute rips free of payload before cutter time limit. Cheap camera failure, no one knows why.	Recovered
no gps signal. (Originally intended to use 54,000ft <sup>3</sup> polyethylene balloon, but lost it when gust of wind broke string.)	Recovered
none	Recovered
Incorrect payload mass from students leads to slow rise rate, batteries cut out at 14,000ft on descent. No chance of finding in dense dense dense cover--3 serious attempts made anyway	Lost
Low free lift slowed rise rate, missed moon window. Periscope gear seized, but inconsequential in light of the former.	Recovered
Loss of GPS signal off the deck - unit unplugged from radio during last minute handling.	Recovered
	Recovered
PLC quits after only 140 (x3) images. Rough release at launch misaligns cameras limiting post-flight stitching capabilities	Recovered
Opted to follow GPS signal into Cascades. Lost line of sight at 60,000ft. Had to resort to dog tracker, airplane, and snow mobiles to recover	Recovered
Old, but recharged battery in camera fails at 65,000ft, only 25 pics. Dog tracker battery weak too, but didn't matter.	Recovered

