



NASA STP Flight Opportunities Program[FOP]

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<http://flightopportunities.nasa.gov>

- NASA's Flight Opportunities Program the Space Technology Mission Directorate [STMD].
- The main goal of the program is to develop and mature new technologies (TRL 4+) by providing research flights on suborbital reusable launch vehicles (sRLV) and parabolic aircraft.
 - Promote commercial platforms
- Evaluation Criteria: (technology focused)
 - applicability to OCT Tech Roadmaps, risk reduction
 - readiness to fly (TRL 4-5)
 - research team experience



Payload Accommodations

All Vehicle are Operational and Accepting Payloads

More details in the User Guides...[~.quarterly opportunities](#)

	Zero-G	Up Aerospace	Near Space	Masten Space Systems	Virgin Galactic	Near Space
		Add airship to FPO's platforms?				
Vehicle Name & Type	<i>G-Force One</i> Aircraft	<i>SpaceLoft XL</i> Sounding rocket	<i>Hi-Alt Balloon</i>	<i>Xaero</i> VTVL, sRLV	<i>SpaceShip Two</i> HTHL, sRLV	Shuttle (HASS)
Altitude & Ft. Frequency	40 cycles/day 3-4 days/wk	95-160 km Freq = TBD	30-35 km Freq = TBD	30 km Freq > daily	110 km Freq > daily	<= 30 km
Flight Duration	40 parabolas per day	13 min	~6 hrs	5-6 minutes at 30 km	90 min	24 hr max
Micro-g Environ	20 sec/cycle followed by 2g	4 min	N/A	12.5 sec (10 kg), <0.001 g	3-4 min	NA
Payload Mass & Vol	> 100 kg, > 27 ft3, 3-4 people	36 kg total @ 115 km	1-10 kg	10 kg at 30 km	600kg 500ft3	10 kg 1900 in3
Power	28 vdc, 110vac	3.7 to 32 vdc	no	12 or 24 vdc	28Vdc, 50-100 W	no
Data Storage Provided	no	?	no	no	yes	no
Access to Ext Env	no	yes	yes	yes	yes	yes
Real time down link Telemetry	no	yes	yes	no	No <i>INS, GPS ADS avail</i>	yes
Windowed access to outside	no	no	yes	yes	yes	yes



FOP Payload Solicitation Summary

AFOs = no exchange of funds

AFO #	Released	Closed	Selection	# Proposals Received	# Proposals Selected	JPL proposals Submitted/Awards
1	12/21/10	2/23/11	5/13/11	23	16	0
2	6/6/11	6/28/11	10/4/11	11	9	0
3	11/16/11	12/16/11	3/21/12	35	24	0
4	4/4/12	5/11/12	8/24/12		2	0
NRA 1	2/10/12	3/26/12	7/11/12		13	3/2
5	8/10/12	9/21/12	closed		13	0
6	10/15/12	1/31/13	~4/13			0
7	~May?					
NRA 2	Mid '13?					

- Present FO NRA awards at JPL
 - \$500k: "Armadillo Launch Vehicle Attitude Knowledge Capability Enhancement Using Advanced Micro Sun Sensor," Sohrab Mobasser, Jet Propulsion Laboratory (JPL), Pasadena, Calif.
 - \$150k: "Fuel Optimal Large Divert Guidance for Planetary Pinpoint Landing," Behcet Acikmese, JPL



Game Changing Opportunities in Technology Development (GCOTD) - 2012 NASA Research Announcement (NRA): NNL12a3001n Appendix E: Technology Development for Suborbital Flight Opportunities

- Potential Budget \$1.0M for Topics 1 and 2; \$1.0M for Topic 3
 - awards - \$50k-\$250k
- Topic 1: Development of Space Technology Demonstration Payloads
 - *Remote Sensing Instruments, Observatories, and In-Situ Instruments [TA-08]*
 - Entry, Descent and Landing Technology Demonstrations for Small Earth Return Vehicles [TA-09]
- Topic 2: Vehicle Capability Enhancements and Onboard Research Facilities for Payload Accommodation
 - *Instrument Pointing, Tracking, and Stabilization Systems [TA-08]*
 - Biological Facilities [TA-06]
- Topic 3: Small Spacecraft Propulsion Technology Development - Up to 10 awards - \$100k-\$250k each
- Duration of Awards 1 Year, nominal
- Proposals are due by 17:59 (EST) on **06/17/2013**
- Funding opportunity number for downloading an application package from Grants.gov
NNL12A3001N-E