

# Planetary Science R&A

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13<sup>th</sup> Meeting of the Small Bodies Assessment Group

Washington, DC

July 1, 2015

# PSD R&A ROSES 15 Deadlines

Program Name	Step-1 Due Date	Step-2 Due Date
Exoplanets (XRP)	<b>03/27/2015</b>	<b>05/22/2015</b>
Emerging Worlds (EW)	<b>03/31/2015</b>	<b>06/05/2015</b>
Exobiology	<b>05/22/2015</b>	07/24/2015
Solar System Obs. (SSO)	<b>04/10/2015</b>	<b>06/12/2015</b>
Laboratory Analysis of Returned Sample (LARS)	<b>04/24/2015</b>	<b>06/26/2015</b>
Planetary Data Archiving, Resto, Tools (PDART)	<b>05/15/2015</b>	07/17/2015
Cassini Data Analysis (CDAPS)	<b>06/01/2015</b>	08/18/2015
Solar System Workings (SSW)	<b>06/11/2015</b>	09/10/2015 02/25/2016
Planetary Sci./Tech. Throu Analog Research (PSTAR)	07/24/2015	09/25/2015
Mars Data Analysis (MDAP)	08/28/2015	10/02/2015
Lunar Data Analysis (LDAP)	08/28/2015	10/30/2015
Discovery Data Analysis (DDAP)	09/10/2015	11/20/2015
PICASSO	09/14/2015	11/13/2015
Habitable Worlds (HW)	11/20/2015	01/22/2016

# Change in Proposal Load

Program Name	ROSES 2014 Step-1 Submissions	ROSES 2014 Step-2 Submissions	ROSES 2015 Step 1/Step 2
EW	219	159	169/137
SSW	509	384	477/TBD
Exobiology	186	144	247/TBD
SSO	99	71	70/51*
PDART	143	100	117/TBD
CDAPS	101	78	97/TBD
DDAP	32	27	TBD/TBD
LARS	29	24	22/18
XRP	168	134	137/112
MDAP	139	104	TBD/TBD
LDAP	82	51	TBD/TBD
PSTAR	69	46	TBD/TBD
HW	110	72	TBD/TBD
MatISSE	55	44	Not Solicited
PICASSO	112	96	TBD/TBD

# FY15 Budget

Program	Budget
Planetary R&A	\$162.4M
Mars R&A (MDAP)	\$10.0M
Outer Planets Research (CDAPS)	\$8.5M
Discovery Research	\$9.8M
JRPA – SSERVI	\$10.0M
NEOO	\$13M*
Total	\$213.7M

\*Estimate based on Approvals in RAPTOR and no expected solicitation

# Budget FY16

- FY16 Budget will be nearly identical to FY15 for R&A
  - Planetary R&A (811073) - \$162.5M
  - Outer Planets R&A/CDAPS (202844) - \$8.5M
  - Mars Data Analysis Program (203959) - \$10M
  - SSERVI funded with JRPE money - \$10M
  - Discovery Research grows to \$12.3M
- NEOO grows to \$50M in FY16
  - NEO \*will\* solicit competed research in ROSES 2016 under Solar System Observations (SSO)
  - NEO will fund a portion of Spitzer in FY16 – Plan to propose Planetary observations with Spitzer

# NRC Review of R&A Restructuring

- We are asking the NRC/Space Studies Board to review the program elements of the PSD R&A programs following the restructuring
  - This review assumes budgetary realities, \*not\* the projections in the 2011 decadal survey.
- We have a draft charge for the Review Committee to address whether the new program elements:
  - Accurately and appropriately cover the Planetary Science Divisions strategic objectives (2014 Science Plan)
  - Develop the knowledge base and range of activities needed to enable new missions and analyze data from existing missions
- The draft charge must be reviewed by the SMD Science Management Council before it is sent over to the NRC.

# Facilities Future Plans

## Objective:

Ensure that NASA-funded, science-enabling research facilities support the needs of PSD R&A community

## Plans:

- Gauge interest & community needs through RFI's
- Identify existing & future facility needs via LPSC session
- Summarize lessons learned from review of PSD-funded facilities

## New Facilities

- Release a CAN to fund facilities that would answer the needs of the community
- Estimated release date in calendar year 2016

# Current Facilities Lessons Learned

- Progress Report from all PSD Funded Facilities:
  - AVRГ, PAL & RELAB
- Each Facility will have 1 hour to present and 1 hour Q&A
- Presentation to the Panel :
  - ✓ Current Objectives and Accomplishments
  - ✓ Impact on Missions, Planetary Science, and Planetary Science Community
  - ✓ Management Plan
  - ✓ Unique Distinguishing Features
  - ✓ Usage of the Facilities (hours, groups..)
  - ✓ Lessons Learned
  - ✓ Publications List
- Panel will provide a summary with lessons learned, to PSD management
- Volunteers invited (SARA website)  
<http://science.nasa.gov/researchers/volunteer-review-panels/facilities-program-progress-review/>
- Questions: [Doris.Daou@nasa.gov](mailto:Doris.Daou@nasa.gov)



# Procedure for USGS mapping

- Contact the USGS Map Coordinator (currently Jim Skinner) to discuss the mapping project. This should be done as early as possible in the proposal process.
  - The USGS has a form letter that lists the map's technical specifications and affirms that the USGS is able to support the mapping effort.
  - This is purely a statement of technical support and does not constitute an endorsement of the proposal.
- In the proposal submission questions, indicate that a USGS geologic map would be published as part of the project.
- In the full (Step-2) proposal, the USGS letter of technical specifications must be included, as one would include a letter of support.
  - This letter does not remove the responsibility of the proposal to describe and justify the mapping effort within the 15-page main body.
  - Selection of a proposal is contingent upon the inclusion of this letter.
- The USGS will be notified by the Program Officer of selected proposals with a mapping component.

# Conclusions

- FY16 Budget for R&A is expected to be similar to FY15, expectation of increase with inflation for out years
- Kicking off review of PSD-funded facilities with a plan to solicit new facilities in CY16
- Kicking off NRC/SSB review to examine the implementation of R&A restructuring
- Current effort ongoing to examine investments in R&A pre & post-restructuring, complete insertion of keywords into all funded activities
- Don't forget Data Management Plans (DMP in the cover pages)

Back Up

	PDART	CDAPS	DDAP	LDAP	MDAP	SSW
<b>Science Investigation</b>	No "does not accept proposals in which the main focus is hypothesis-based science"	Yes	Yes	Yes	Yes	YES
<b>Laboratory Studies</b>	Yes "may be performed to validate any generated products"	Yes "greatly increase the use of, or significantly facilitate the interpretation of, data from the mission"	Minor "not intended to support investigations whose primary emphasis is ... laboratory measurements"	Minor "provided that the requests are clearly described and that the observations or measurements are essential to the success of the work proposed" and "does not exceed 20% of the proposal's total effort"	Minor	YES
<b>Field Work</b>	No	Yes "greatly increase the use of, or significantly facilitate the interpretation of, data from the mission"	No	Minor "provided that the requests are clearly described and that the observations or measurements are essential to the success of the work proposed" and "does not exceed 20% of the proposal's total effort"	Minor	YES
<b>Comparative Planetology</b>	Yes "may be performed to validate any generated products"	Yes As long as all Cassini Data	Yes As long as all Discovery mission data	No	No	YES "If the proposal analyzes data within the scope of more than one of the [DAPs] in order to perform comparative studies across the Solar System, but is not appropriate to any one [DAP]"
<b>Data Products</b>	Yes	Yes must include a science investigation	Yes must include a science investigation	Yes must include a science investigation	Yes must include a science investigation	YES must include a science investigation
<b>Modeling</b>	Minor "may be performed to validate any generated products"	Yes "greatly increase the use of, or significantly facilitate the interpretation of, data from the mission"	Minor "not intended to support investigations whose primary emphasis is ... the development of numerical models"	Minor	Minor "Improved atmospheric models..." and "Improved models for the Mars gravity field and global topography and planetary figure."	YES
<b>Mission Data Analysis</b>	No "PDART does not support scientific investigations whose primary emphasis is data analysis"	Yes Cassini-Huygens "Proposals to work with Cassini data and also use ground-based or other data are acceptable, provided that the success of the proposal, as written, is dependent upon the Cassini data."	Yes NEAR Lunar Prospector Stardust Genesis Deep Impact MESSENGER Dawn EPOXI Startdust-NEXT	Yes LCROSS M3 LRO GRAIL ARTEMIS LADEE non-US Lunar missions "data analyses that require the use of older mission data sets are allowable in the context of enhancing the analysis and understanding of the data from the missions listed above."	Yes MPF MGs MO MERs MEX MRO PHX MSL	YES "Although this program encourages the utilization of data from planetary missions ... it does not accept proposals eligible for funding by the Data Analysis Programs"

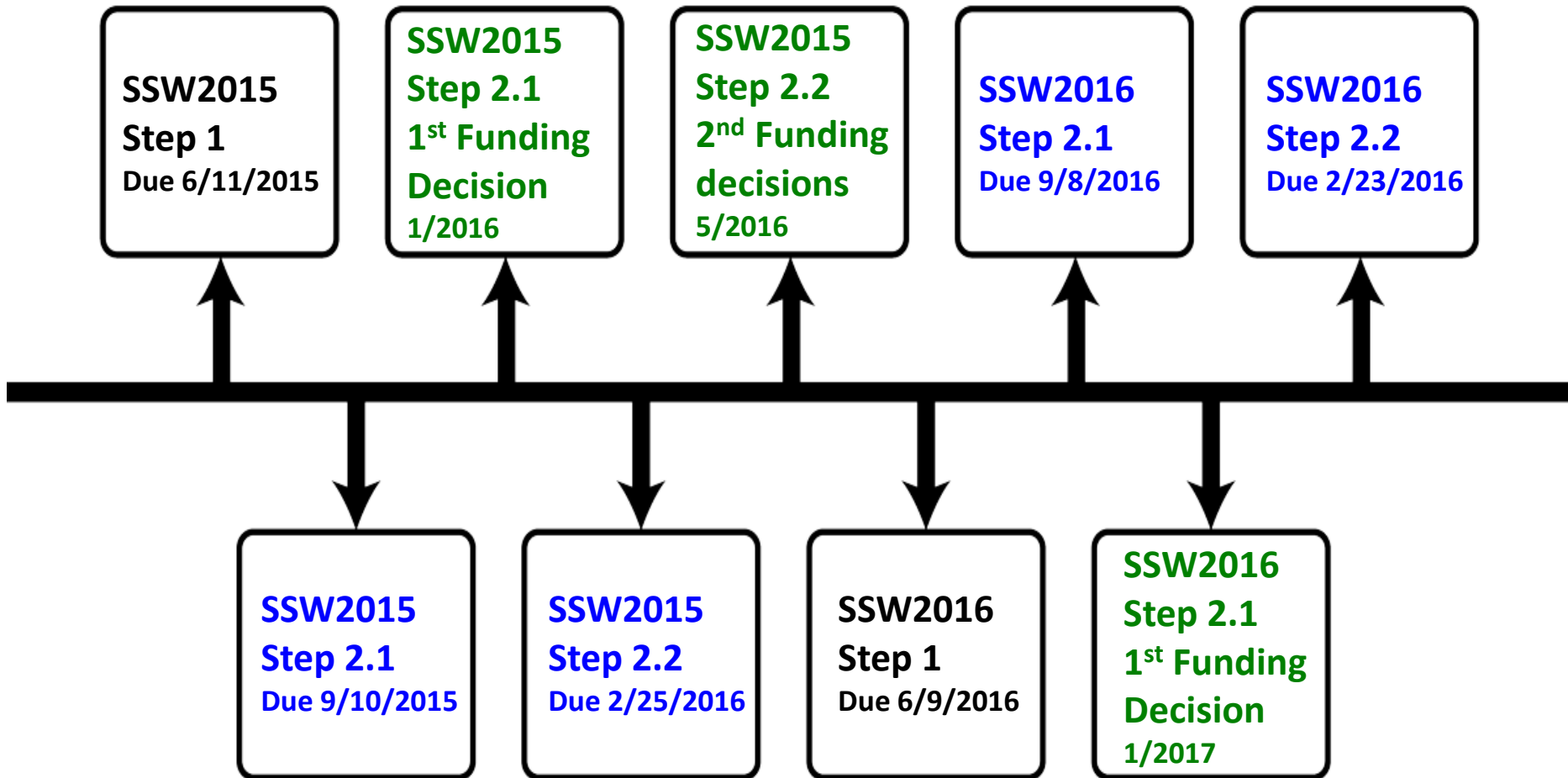
# Notional Timeline for SSW

Single Step 1 per year

Two Step 2 deadlines

Two Funding Decision Dates

~45% from 2.1, ~45% from 2.2 and final ~10% from total remaining selectable proposals





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## NASA Establishes Interdisciplinary NExSS To Find Life-Bearing Planets.

The [NBC News](#) (4/21, Coldewey, 2.71M) website reports that NASA has established the Nexus for Exoplanet System Science (NExSS), "a coalition of research groups and disciplines aimed at finding and categorizing potentially life-bearing planets

"This interdisciplinary

for planets with the  
astronomers, it's of  
"a dozen or more te  
more."

[Venture Beat](#) (

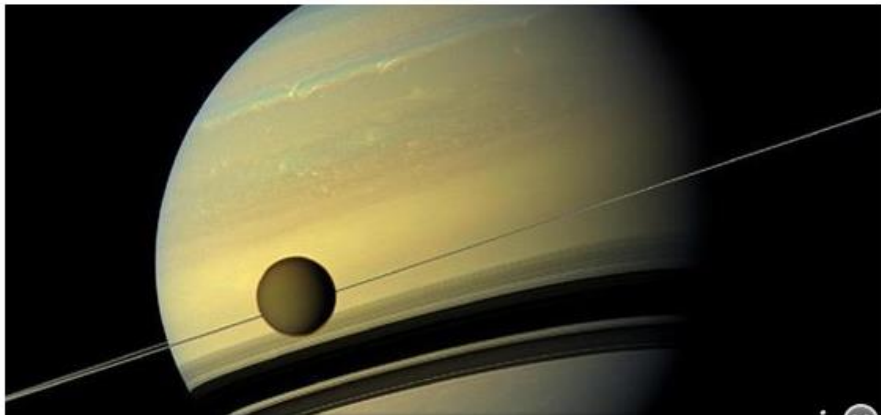
Science

## NASA assembles unprecedented scientific team to find out if we're all alone

## Alien Life: NASA Creates 'All-Star Titan Team' To Hunt for Exoplanets that Could Sustain Life

Are we alone? To get answers to one of humanity's oldest questions, NASA has selected an interdisciplinary research team for a major grant in a new program focusing on the search for clues to life on faraway worlds. As part of this virtual institute - called Nexus for Exoplanet System Science, or NExSS - researchers will help understand how Earth-like planets form and which nearby stars are most likely to host Earth-like planets.

By [Kimberly M. Aquilina](#) [k.aquilina@hngn.com](mailto:k.aquilina@hngn.com) | Apr 22, 2015 04:28 AM EDT



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## NASA NExSS Coalition Leads Search for Life on Exoplanets

NASA has established a coalition of research groups and disciplines aimed at finding and categorizing potentially life-bearing planets throughout our galaxy. The Nexus for Exoplanet System Science (NExSS) will be a program to which not just astronomers, but atmospheric scientists, biologists, geologists and star experts will contribute.



Deep Back Up

# Trends in the PSD R&A Program 2004-2013

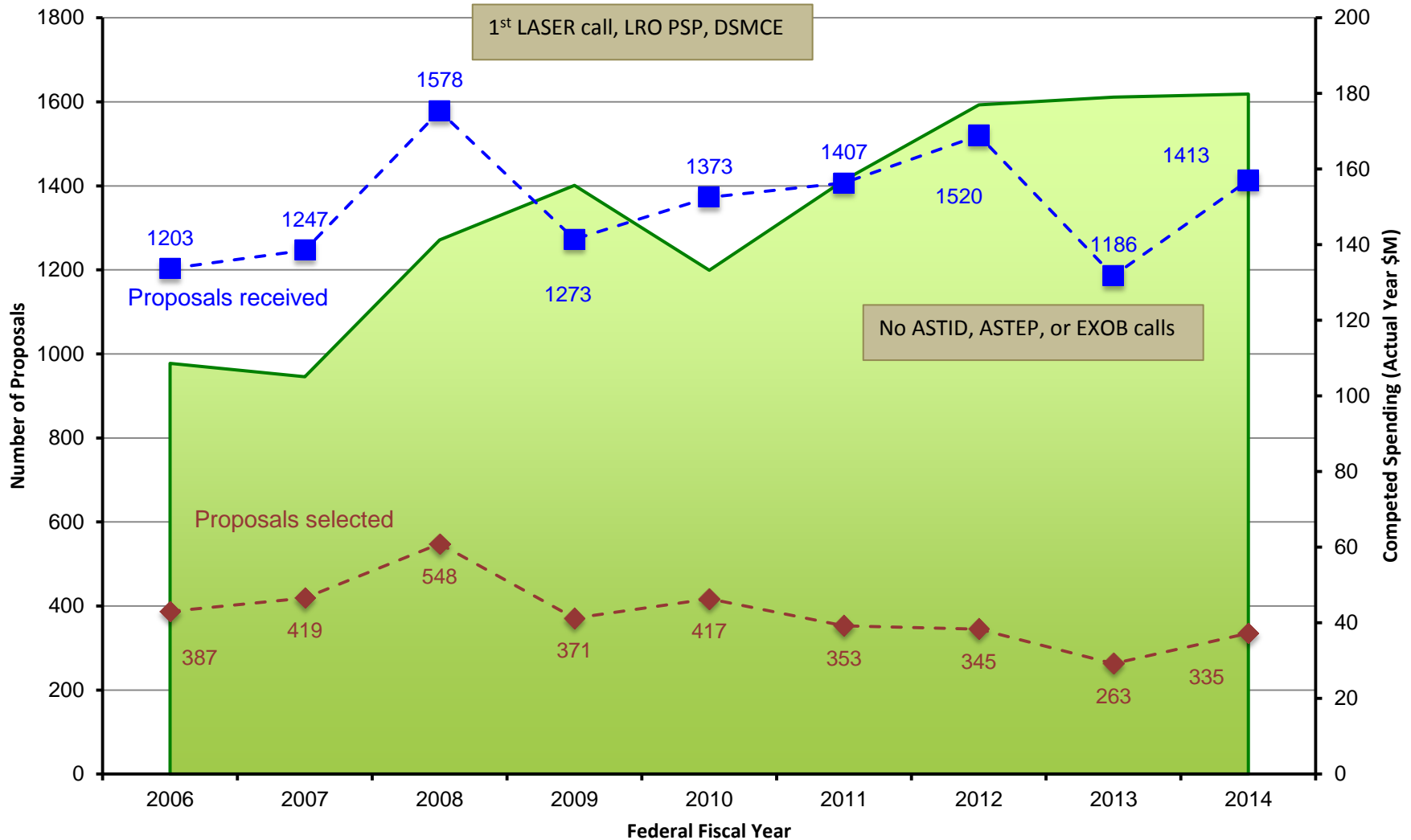
Big thanks to Susan Keddie, Michael New, and Jeff Grossman



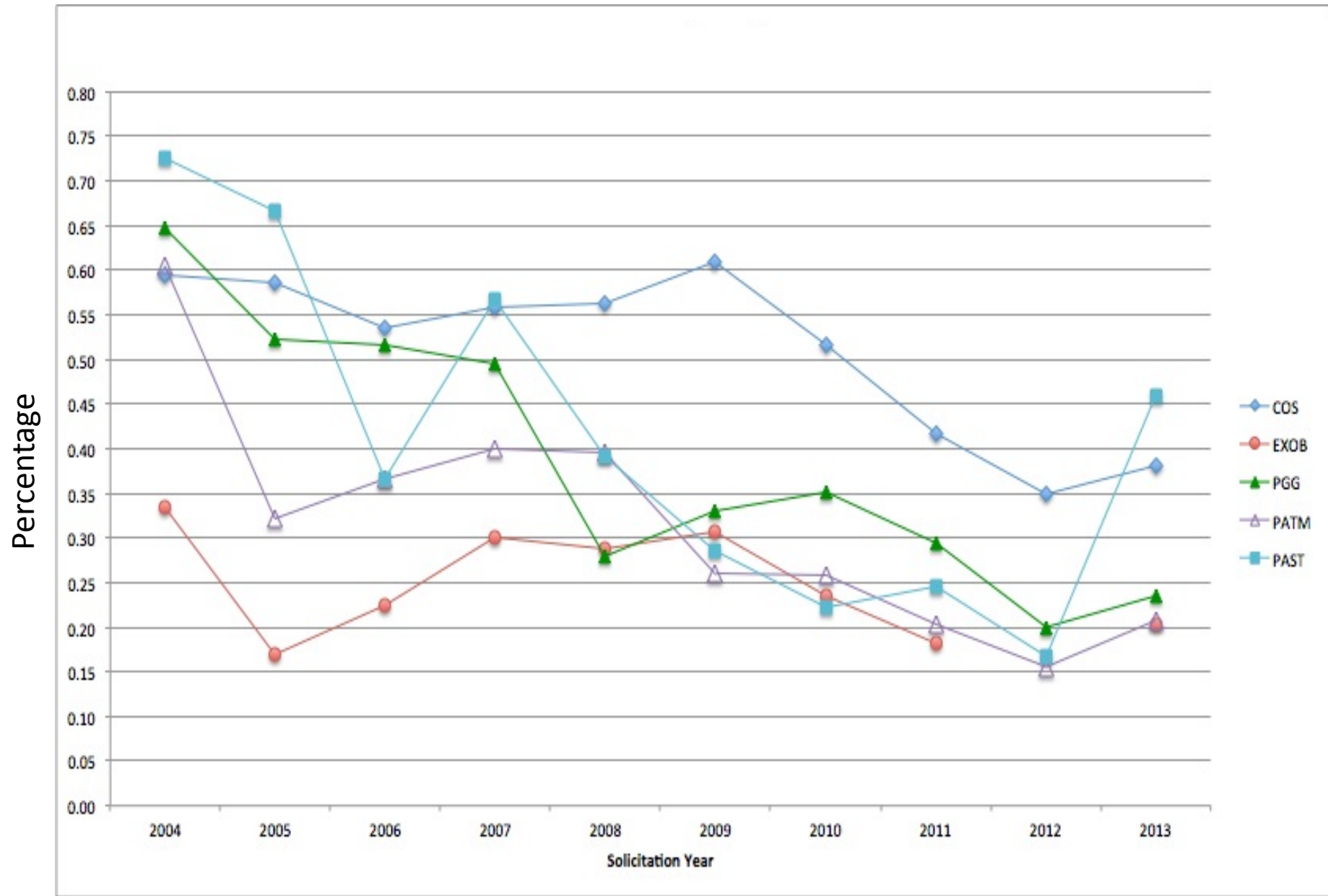
# Data

- 13,330 proposals submitted to solicitations in ROSS-04 to ROSES-13
  - Data from selection spreadsheets (pre-2009) and NSPIRES
- Foreign proposals removed from set
- Any proposals listed as “Selectable” considered “Declined”

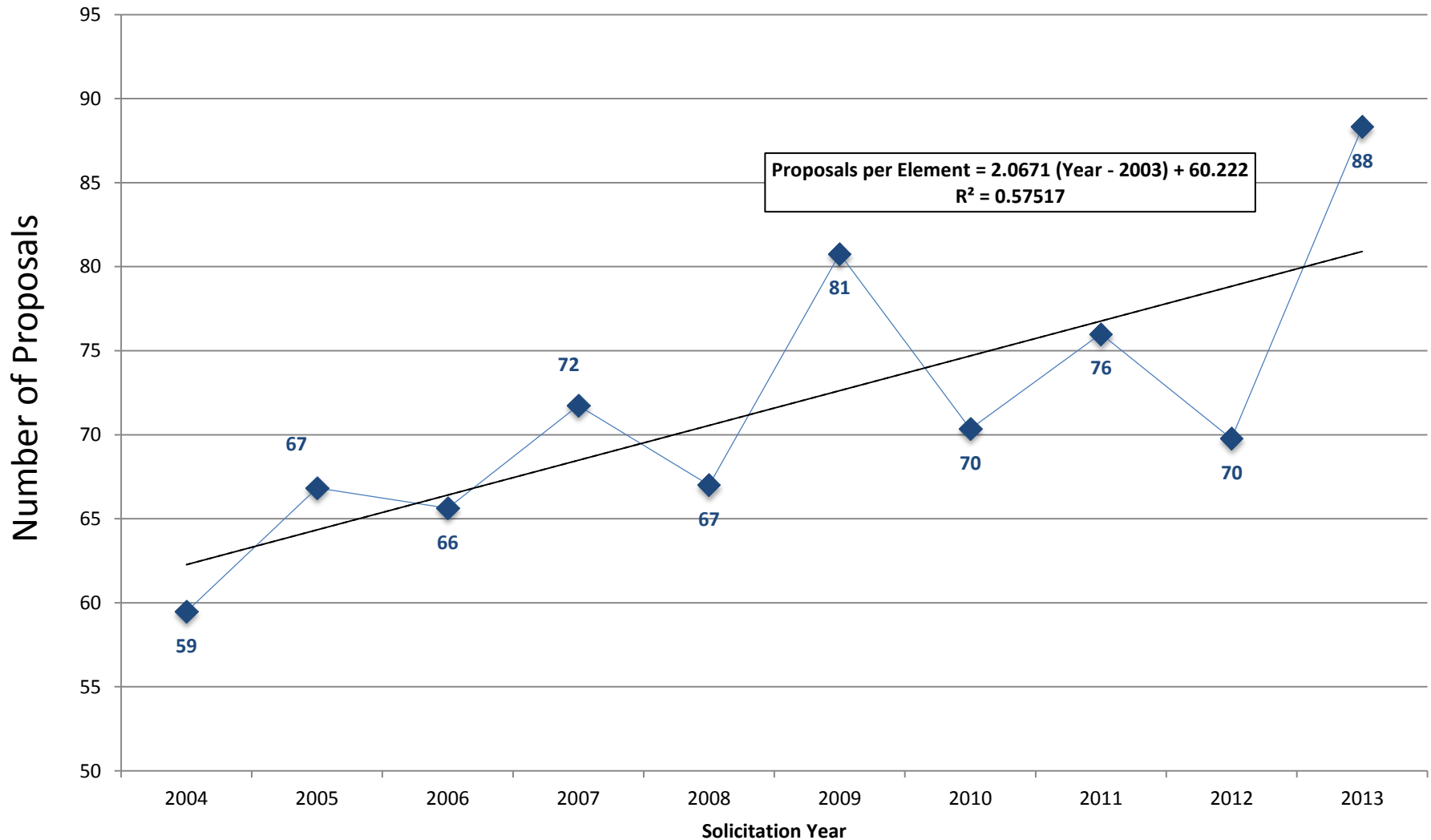
# Proposal Pressure and Budgets



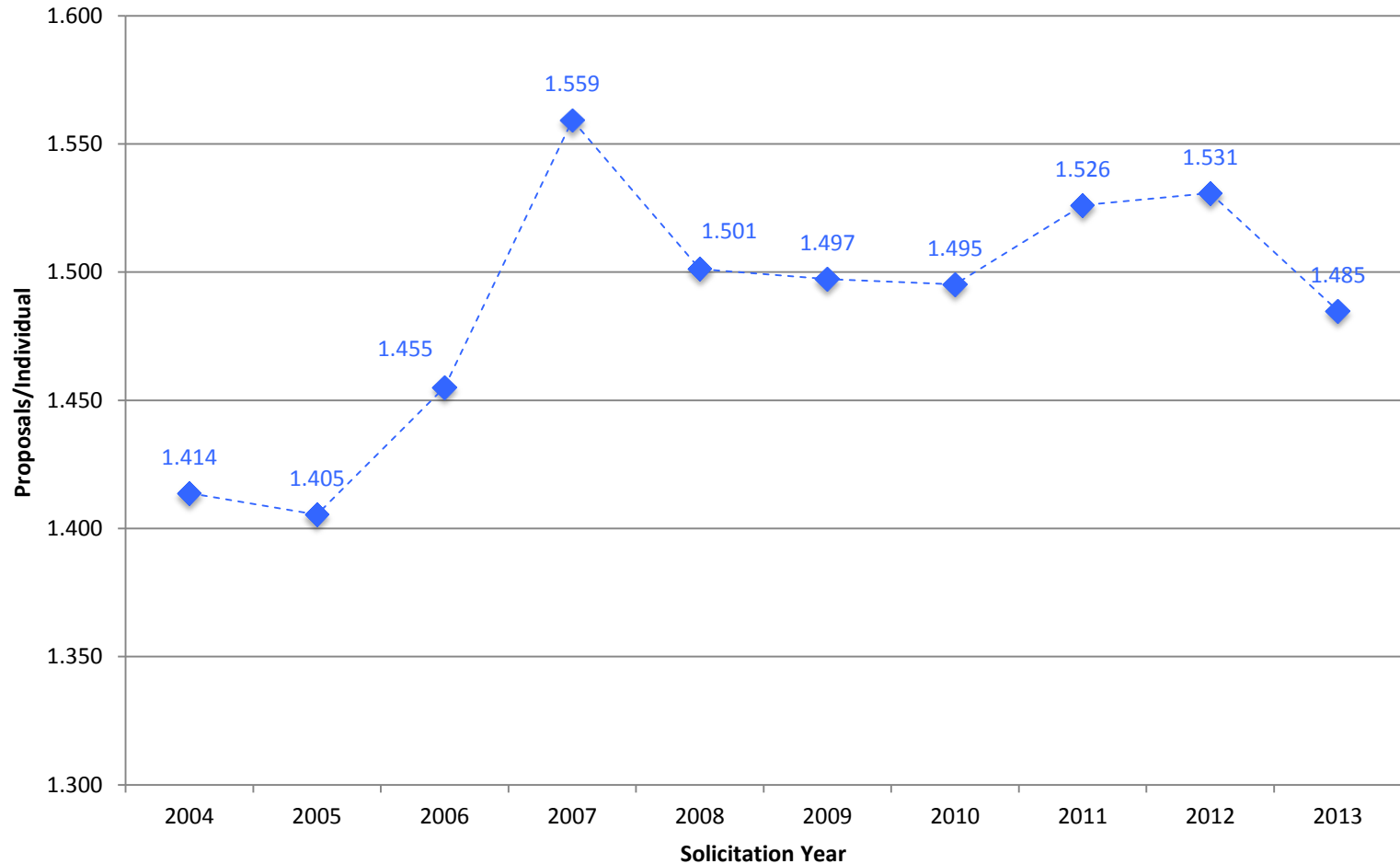
# Success Rates of Core Programs thru time



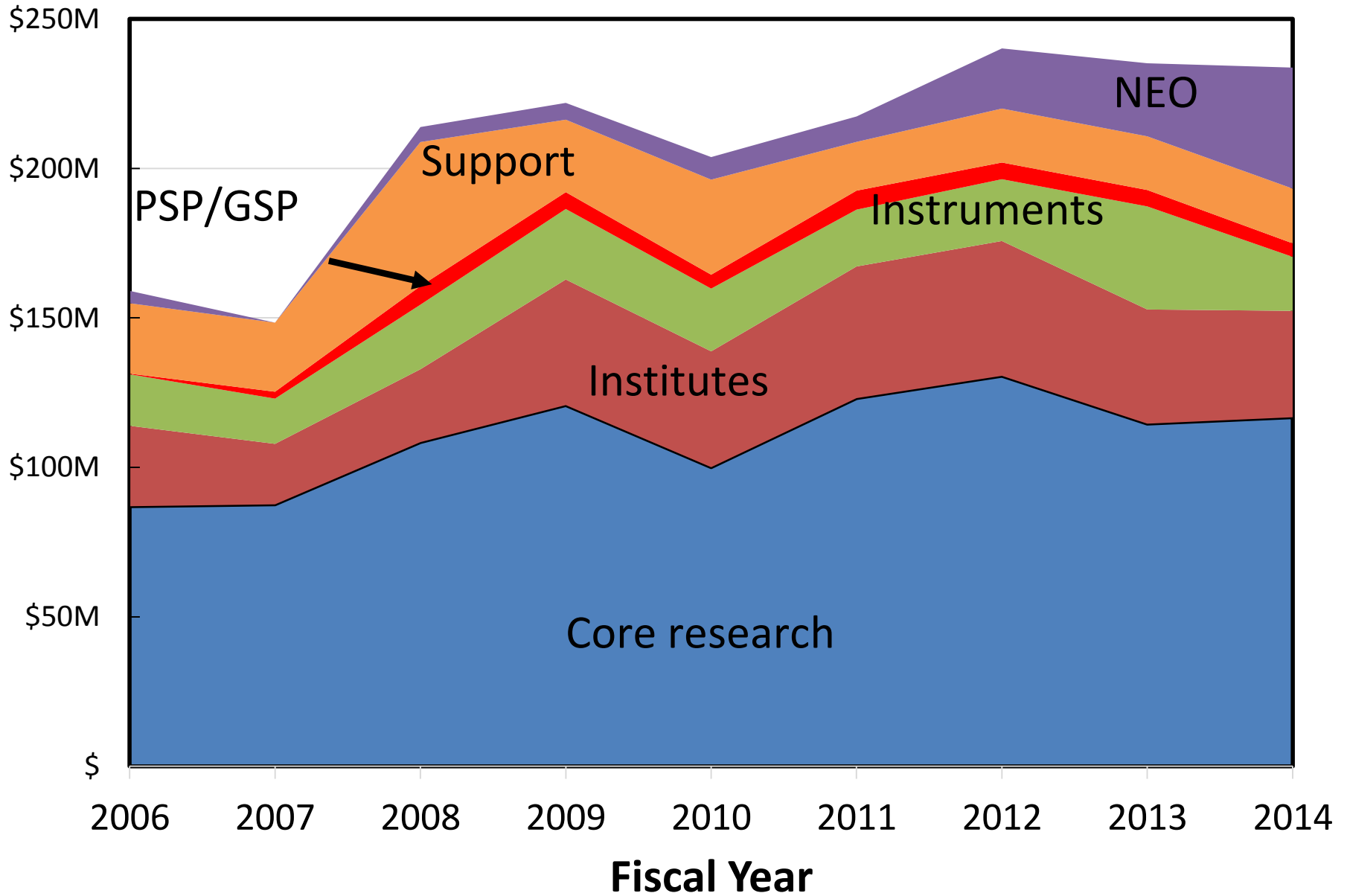
# Remove variation due to number of solicitations



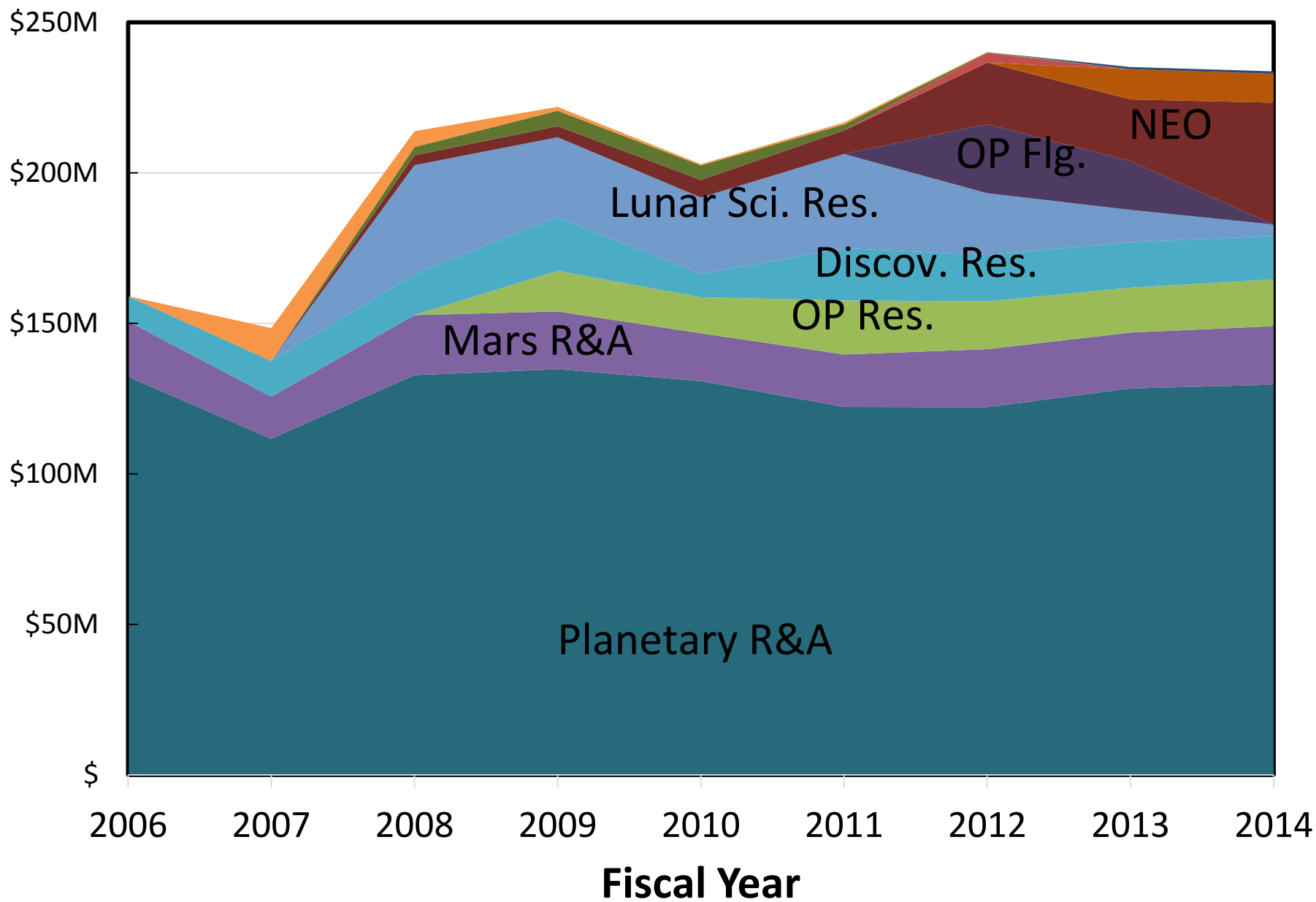
# #Proposals/#Individual PIs



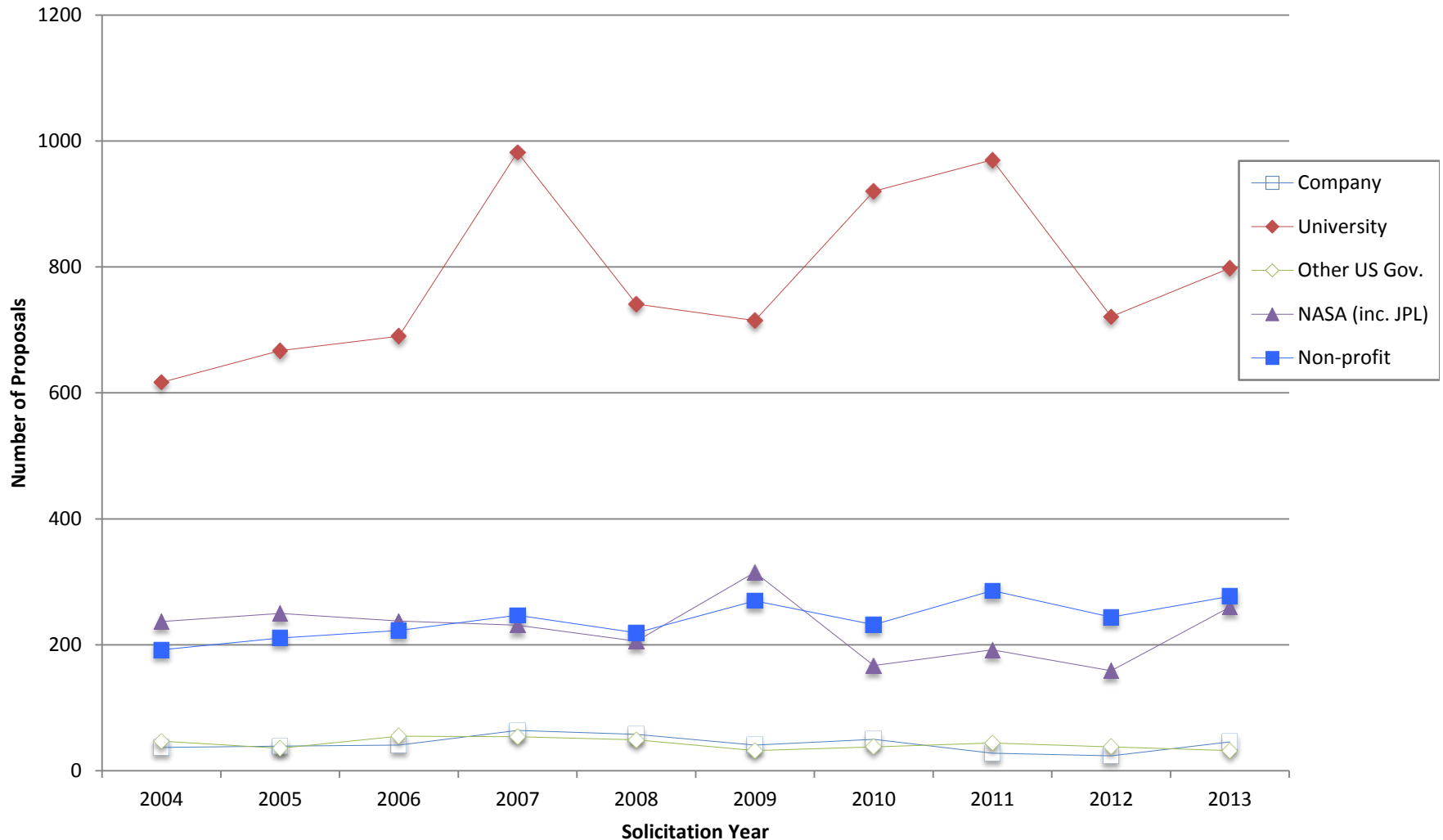
# Planetary Science Research Spending



# Planetary Science Research Funding Sources

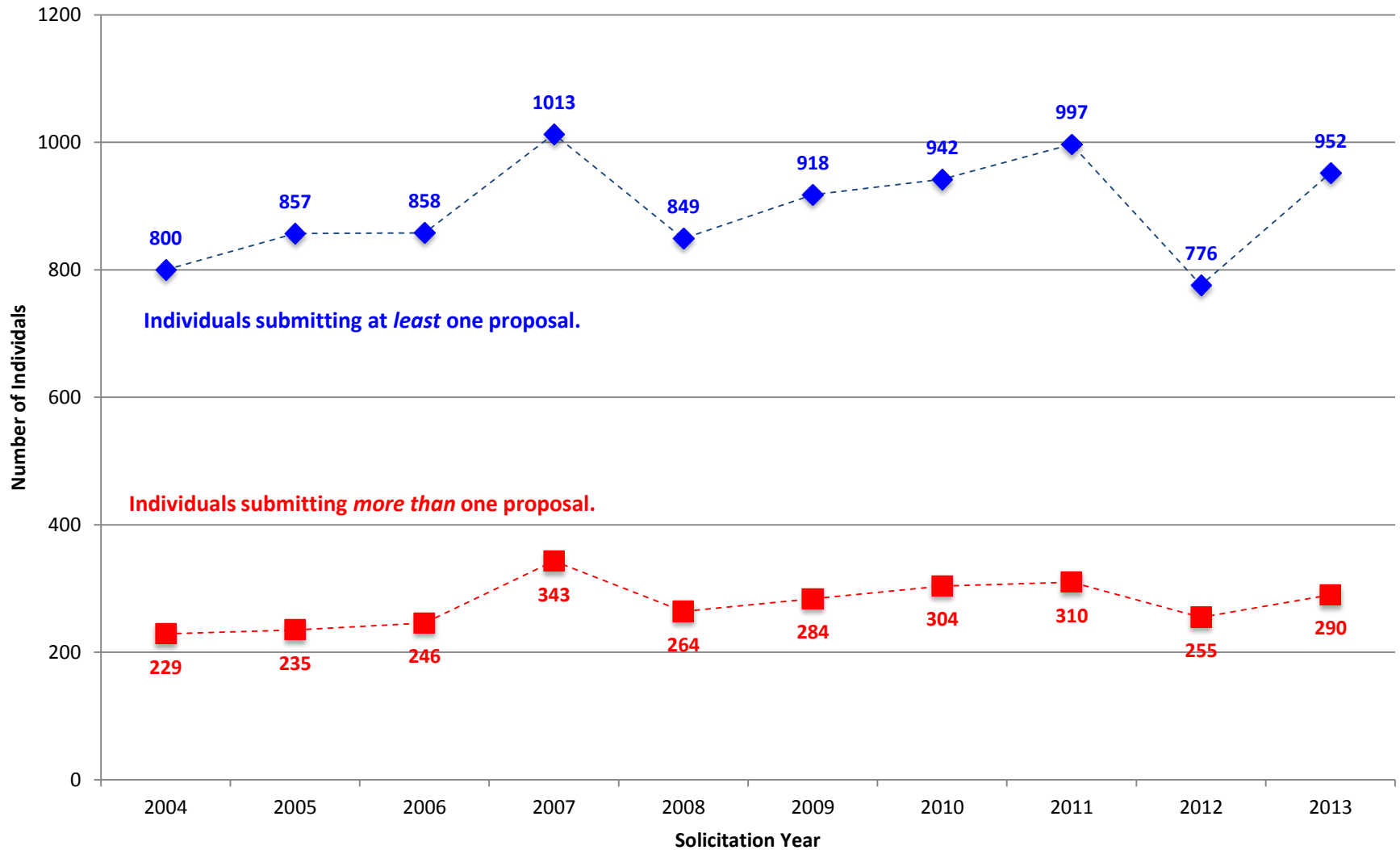


# Proposals by Organization Type

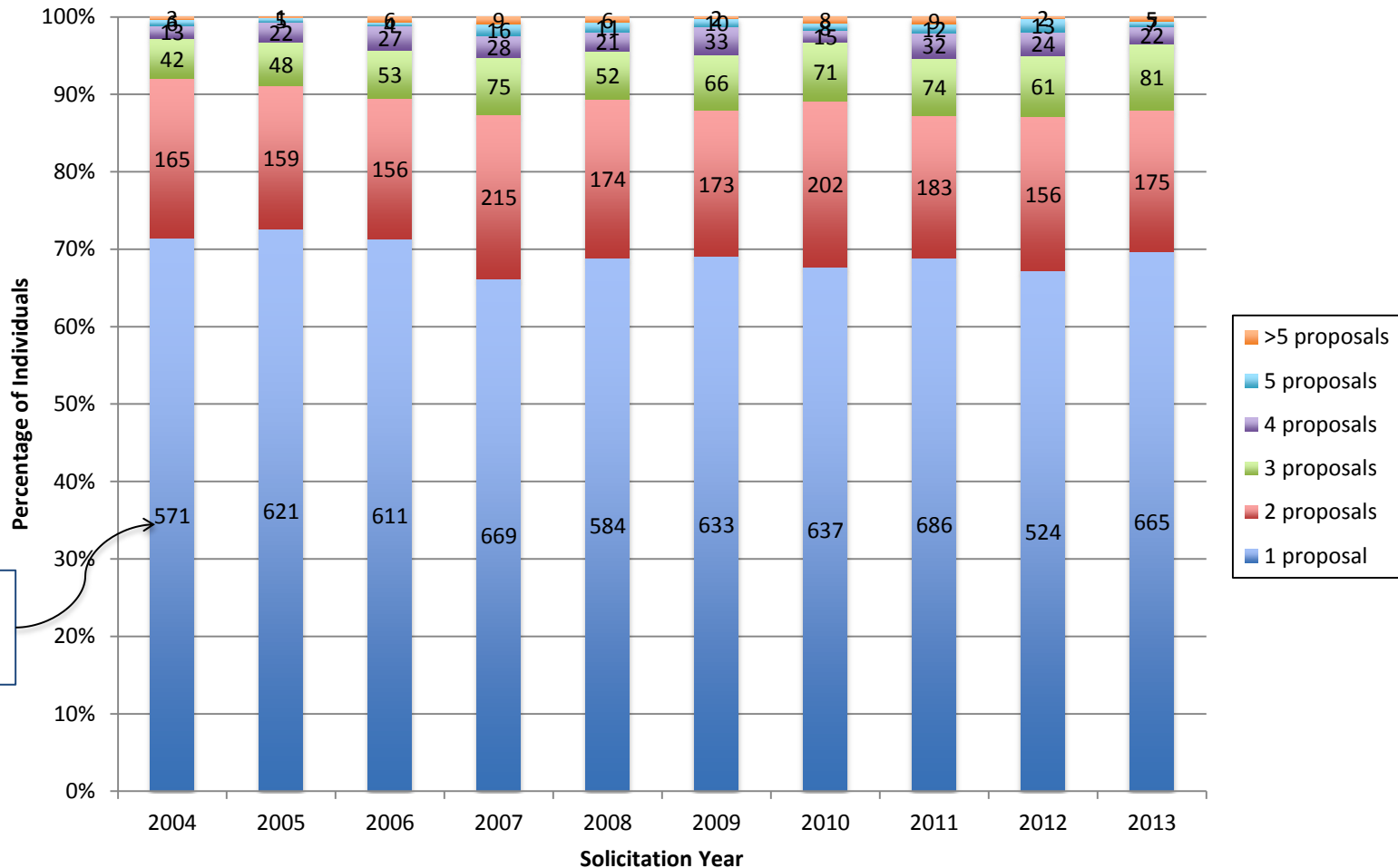




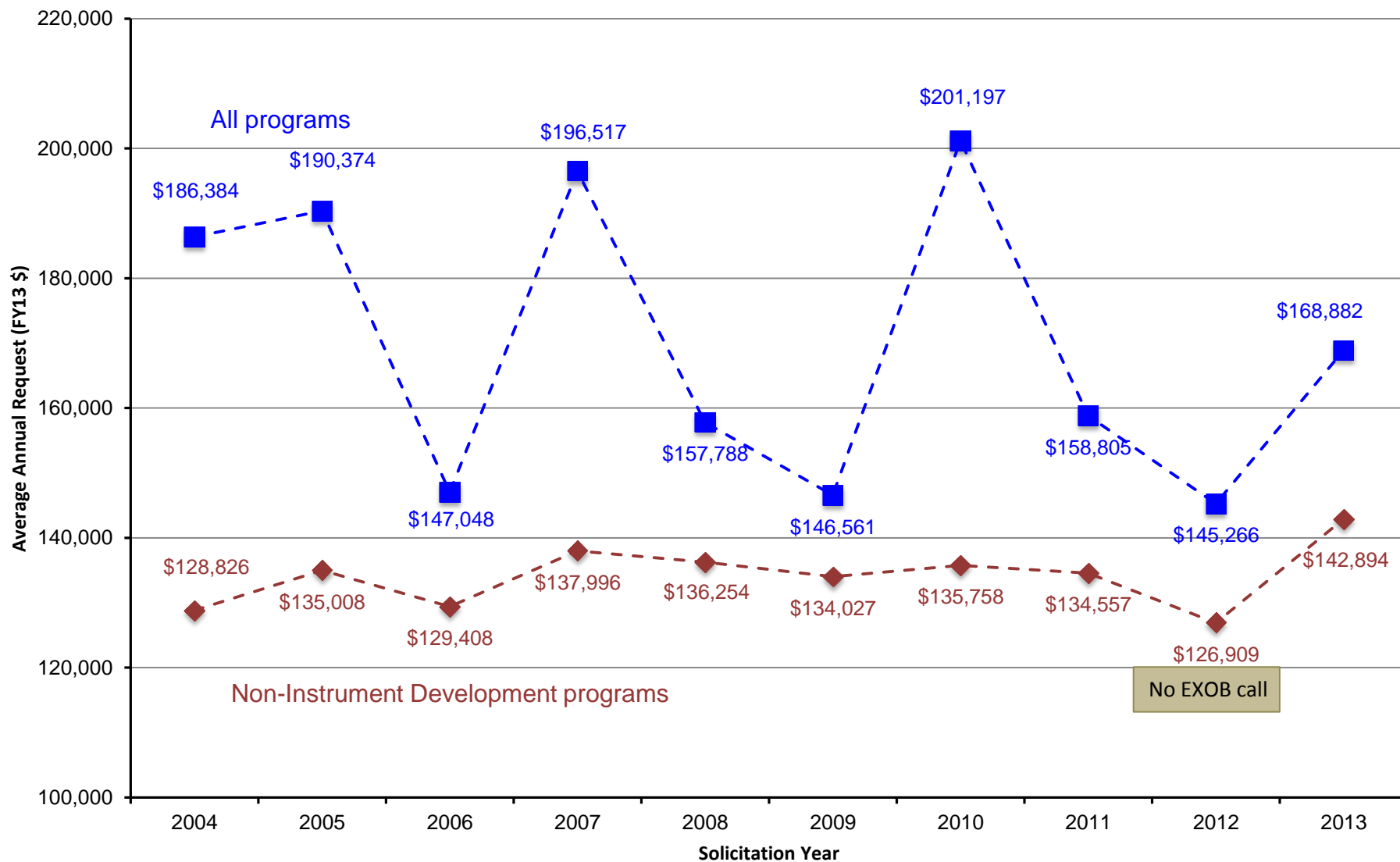
# Community Proposal Workload (1)



# Community Proposal Workload (2)



# Average Budget Requests



# PSD R&A ROSES 15

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