

AAAC Demographics Working Group

Next Teleconference 2015 February 9 -18 ??

2015: Jan 14 Teleconference Agenda and Minutes

2014: Dec 19 Teleconference Agenda and Minutes

2014: Nov 7 Teleconference Agenda and Minutes

2014: Oct 23 Teleconference Agenda and Minutes

2014: Oct 3 Teleconference Agenda and Minutes

2014: July 15 Teleconference Minutes

Gathering Information from various sources

NASA Astrophysics Committee Liaison: Brad Peterson, Keivan Stassun

NASA Heliophysics Committee Liaison: Todd Hoeksema

NASA Planetary Committee Liaison: Jim Buckley

NSF Astronomy Committee Liaison: James Lowenthal

NSF Particle Astrophysics Committee Liaison: Angela Olinto

DOE Cosmic Frontier Committee Liaison: Prisca Cushman

AAS Community Information Liaison: Todd Hoeksema, James Lowenthal

Working Group Plans

1. Include a status report on our work in the AAAC March report.
2. A Summary will be in the body and the first “report” will be in the appendix
3. The draft report is being written now.
4. AAS will help make up a survey on the impact of reduced success rate on researchers, then give to AIP for a professional survey. James Lowenthal and Todd Hoeksema are making a first pass on the questions. (AAS Public Policy)
5. Include a summary of the AAS questions we hope to ask in report, but survey will not begin until Fall 2015.
6. Continue to determine the data we need – consider solutions and their implications.
7. Hoping for a final report (which includes survey results) by the end of 2015.

American Astronomical Society

Questions and Available Data

- Our digital job register data goes back to 2003.
- Our digital membership data goes back at least 10 years.
 - Demographic information is self-reported and not broadly consistent with federal standards of classification.
 - Our membership data will have the unclear bias of “people who choose to be AAS members.”
 - It is not obvious how this would bias the information.
 - Possible examples:
 - Are we undersampling small institutions?
 - Are some other institutions over or under-represented based on local department culture?
 - Are astronomers from certain types of institutions more likely to be AAS members?
 - In addition, the overlaps between our membership and the proposing-and-funded or proposing-and-not-funded cohorts are unclear.
 - We think we could provide a secondary estimate of the field demographics to compare to the agencies' datasets, but as a primary source, our data would introduce unclear biases.

Links to Existing talks, trending graphs, relevant information

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Outline of March Demographics Progress Report Outline

Mission Statement

Define the Problem

Defining the Problem should be high level. For each agency provide:

- 1. Funding available trends (plus some detail about proportions of projects and individual grants)*
- 2. Success rate trends*
- 3. Number of proposals submitted trends*
- 4. Requested and awarded funds per proposal*

Impact

1. Effect on Agencies

Cost and Manpower in reviews

More time spent to collect enough reviewers.

2. Effect on Review Process

Fairness of review process,

COI, pool of reviewers

3. Effect on Researchers

Work load (both writing proposals and reviewing others)

How does it affect your work? How does it change your proposal writing strategy?

Young people leaving field

Include AAS Survey on self-reported researcher motivation and pressures

4. Effect on the Field and Quality of Science

We need a short paragraph from each agency describing effect in cost and manpower. Also general impression of stress on review process

Outline of March Demographics Progress Report Outline

Drill down to answer questions

1. Who is writing the proposals?

Some general demographics on Jr vs Sr researchers, gender, minority

2. Why are there more proposals?

More astronomers or more proposals per astronomer?

Plot of the types of proposals vs time, with bump-ups after exciting breakthroughs (e.g. accelerating universe, exoplanets...)

Examine increasing membership in AAS, APS, AGU

Examine new PIs demographics: total numbers, type of institution

3. What is the quality of new Proposals (determine a metric for this)

Are there just more poor proposals or are we losing out on very good ones.

4. Why are proposals asking for more money?

Document trends in funding per proposal.

Determine drivers to cost (University vs Project vs Lab)

e.g. rising overheads, number of students & postdocs, research staff

Does higher cost per proposal reduce success rates overall?

Outline of March Demographics Progress Report Outline

Possible Responses

Describe some of the options

One proposal per PI, every 2 years, Pre-proposal step, funding caps, enforce number of grants, programmatic rules, others?)

List of places where this has been tried and what the results were.

Since unforeseen consequences can occur → data required

Targeted data needed. Determine data still needed to answer these questions.

Future Plans

Find the answers to the targeted questions

Survey of proposer and reviewer pressures by AIP as follows:

Draft from AAAC Demographics

Iterate with CAP

Present case and set of questions to AIP

AIP allocates funds to do a professional survey of the membership of AAS, APS (relevant divisions) and AGU.

Write up report and disseminate results.

**Success Rates are going down because there are more proposals,
yet funds are steady (NASA) or declining (DOE, NSF). Why more proposals?**

Multiple proposals per PI? NO

Only modest growth (NSF) in 2 per PI category: ~9% (FY08) → ~13% (FY15)

More postdocs moving into faculty positions ? NO

Proportion of submitting PI less than 15 years since PhD: ~50% (FY06) → ~45%

(FY15)

More small non-traditional institutions with single PI? NO

See “Proposals from Different Institution Types – AAG”

Scientists moving into Astronomy from other fields?

Con: Increase in *proportion* of AAS members submitting

1990: ~ 7% of the AAS full members (~220 PIs/3000 full members)

2014: ~13% of the AAS full members (~600 PIs/4500 full members)

Pro: Rising number of AAS members

Sharp rise in proposals for fields with breakthroughs (exoplanets, dark energy)

Why? Funding drying up in other fields ?

DOE HEP: Large collaborations may drive people away

Perceived easy route (same “division) from Energy frontier to Cosmic

The number of Excellent Proposals funded is going down

Quantifying this takes a figure of merit

NASA has some data we can use:

The fraction of proposals rated VG or better dropped from 46.7% → 41.9% (-10%)

Decrease in success rate (VG and above) 51% → 39% (24%)

Decrease in funding/proposal too – which kept rates from being even worse.

Caution (Paul): Reduced average grant size can be accounted for by a change in the MIX of grants. The number of ADAP proposals (\$110K/yr) has grown faster than the number of APRA proposals (\$370k/yr) since NASA has grown the ADAP budget recently (to accommodate archival Kepler data analysis).

Reviewer rating is not a good merit indicator for NSF AST

What about DOE Cosmic Frontier?

Anecdotal evidence for NSF, and DOE is in line with data from NASA

Request that agencies write a paragraph explaining their review process and how it can or cannot be used to provide a figure of merit, for our report