Update from the Earth Sciences Division, National Science Foundation

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Earth Sciences Division, NSF
SCEC Annual Meeting
September 12, 2016
NSF is a very small agency...

FY15 Federal R&D (total: $136.5 billion)

Modified from AAAS 2015
...with a big impact...

- Only agency whose sole mission is to support basic research
- NSF supplies **54%** of federally-financed, non-defense and non-medical basic research awards to academic institutions
...due partially to low overhead

NSF FY16 Budget by Account (Total: $7.5 billion)

Totals may not add due to rounding.
Federal Science Funding Context

- **Budget process**
  - July: OMB and OSTP issue Multi-agency Science Priorities Memo
  - Fall: NSF prepares budget
  - February: President releases budget request
  - By Oct. 1*: Congress passes budget

*Congress has passed the budget prior to start of fiscal year only twice in the past 25 years*
There is no single “R&D budget”
Responsibility is distributed
NSF appropriations from Commerce, Justice and Science subcommittee
DOE, USDA, USGS are funded by different appropriations subcommittees
Where Are We Right Now?

- FY16 budget escaped directorate allocations
- President’s FY17 budget released in February 2016
  - NSF request is $7.96 billion, up $500 million
  - $100 million of increase is “discretionary”
  - $400 million is one-time “mandatory”
- GEO directorate increase is composed of
  - $1 million in “discretionary”
  - $79 million in “mandatory”
Mandatory vs. discretionary spending

Federal Spending as a Percent of GDP, 1962 - 2019

Source: Budget of the U.S. Government FY 2015. © 2014 AAAS
Where Are We Right Now?

- FY17 Mandatory funding proposal
  - Unlikely to pass...

- FY18 budget preparation awaits new administration
- EAR is planning based on flat budget
“10 Big Ideas for future NSF investment”

- 6 Research Initiatives
  - Harnessing data
  - Shaping the New Human-Technology Frontier
  - Rules of Life
“10 Big Ideas for future NSF investment”

- 6 Research Initiatives
  - The Quantum Leap: leading the next quantum revolution
  - Navigating the New Arctic
  - Windows on the Universe: multi-messenger astrophysics
“10 Big Ideas for future NSF investment”

- 4 Process Ideas
  - INCLUDES
  - Growing convergent research at NSF
  - Mid-scale research infrastructure
  - NSF 2050: the integrative foundational fund
PREEVENTS

Prediction of and Resilience against Extreme Events
### Part of NSF Risk and Resilience Activity

**Risk and Resilience Funding by Directorate**  
(Dollars in Millions)

<table>
<thead>
<tr>
<th></th>
<th>FY 2015 Actual</th>
<th>FY 2016 Estimate</th>
<th>FY 2017 Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISE</td>
<td>$5.50</td>
<td>$6.00</td>
<td>$6.00</td>
</tr>
<tr>
<td>ENG</td>
<td>12.00</td>
<td>12.00</td>
<td>14.00</td>
</tr>
<tr>
<td>GEO</td>
<td>-</td>
<td>17.75</td>
<td>17.75</td>
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<tr>
<td>MPS</td>
<td>-</td>
<td>0.50</td>
<td>0.50</td>
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<tr>
<td>SBE</td>
<td>1.84</td>
<td>4.90</td>
<td>4.90</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$19.34</strong></td>
<td><strong>$41.15</strong></td>
<td><strong>$43.15</strong></td>
</tr>
</tbody>
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Totals may not add due to rounding.

**Overarching risk & resilience goals**
- Improve predictability & risk assessment, increase resilience
- Reduce impact of extreme events on life, society, economy
PREEVENTS in a Nutshell

• **Primary targets – must address both to be eligible**
  • Enhance understanding of fundamental processes underlying natural hazards and extreme events
  • Improve capability to model and forecast such hazards and events

• **Tracks**
  • **Track 1:** Conferences to foster new communities & interdisciplinary approaches, *proposals any time*
  • **Track 2:** Projects addressing both goals, extending beyond typical for GEO programs, *deadline 20 Sept for groups that submitted LOI in July*
  • **Also:** Internal-only co-funding process

• **Questions?** Chat w/Greg, see solicitation (16-562)
SC/EC

an NSF + USGS center
### SCEC5 Review Timeline

<table>
<thead>
<tr>
<th>When</th>
<th>What</th>
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<tbody>
<tr>
<td>1 Oct 2015</td>
<td>SCEC5 proposal submitted</td>
</tr>
<tr>
<td>Oct-Dec 2015</td>
<td>Ad hoc review process</td>
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<tr>
<td>Jan 2016</td>
<td>Simultaneous NSF and USGS site visit panels</td>
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<tr>
<td>Feb-May 2016</td>
<td>NSF deliberations in consultation w/USGS</td>
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<td>31 May 2016</td>
<td>NSF letter to SCEC leadership</td>
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<tr>
<td><strong>15 Oct 2016</strong></td>
<td><strong>Revised budget and work plan due to NSF</strong></td>
</tr>
<tr>
<td>1 Feb 2017</td>
<td>SCEC5 planned start</td>
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