



# Geospace Science Update

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Section Head



# Outline

- Section Update
  - Staffing
  - Job opportunities
- FY17 Quick Review
  - Program budgets
  - Science Highlights
- FY18 Activities
  - Budgets and the 10 Big Ideas
  - Facilities Update
  - Update on CEDAR, GEM, SHINE Solicitations
  - Cubesats
  - DASI Planning
  - SWORM
  - Collaborations



# GS Staff



SH – Michael  
Wiltberger



STR - Ilia Roussev



AER - Ruth  
Lieberman



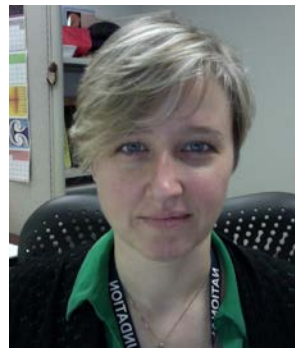
MAG – Search  
Underway



SW- S. Irfan Azeem



FAC- John  
Meriwether



DEP/MAG  
acting –  
Carrie Black



EXP - Sunanda  
Basu



PS - Larissa  
Peterlla




# Job Opportunities



An official website of the United States government

## USAJOBS

 Keywords

atmosphere and geospace

 Location


City, state, zip, or country

Viewing 1 – 1 of 1 jobs

Sort by

Relevance




 [Save this search.](#) We'll email you new jobs as they become available.

### Division Director, Division of Atmospheric and Geospace Sciences, GEO

National Science Foundation

Other Agencies and Independent Organizations

 Alexandria, Virginia

Starting at \$163,519 (ES 00)

SES Career, SES Limited-Term

Appt. (1-3 years) or

Intergovernmental Personnel Act  
(IPA) assignment. • Full-time.



 Open 10/26/2017 to 04/05/2018



# Quick Facts about FY17

- Overall spending in section was \$47.5M up 5% from FY16
  - Support for interdisciplinary projects
  - Funds from division to pay down mortgage rates

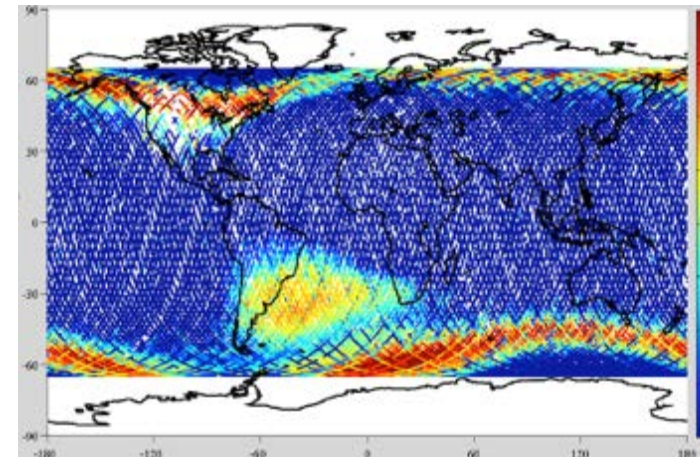
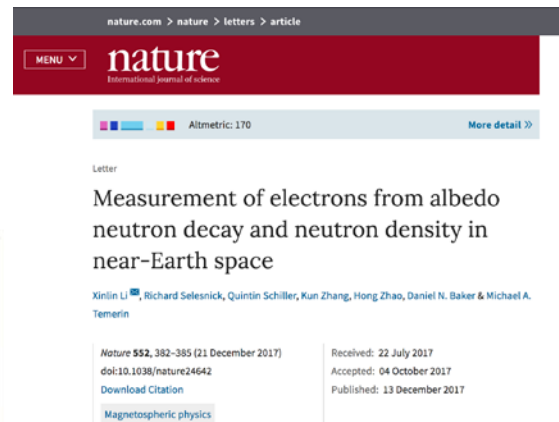
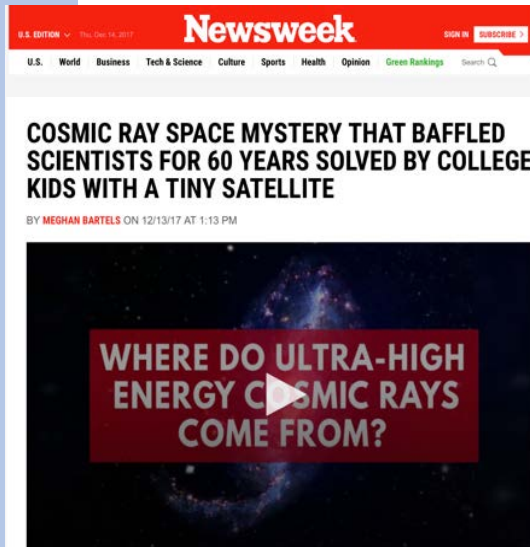
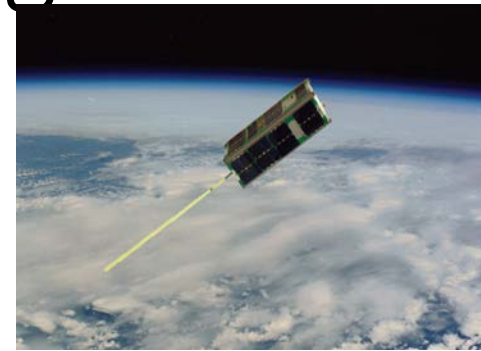
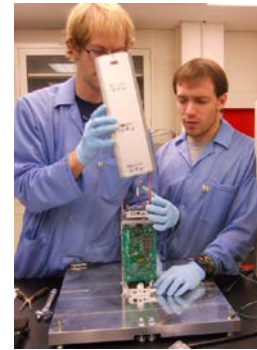
AER	MAG	STR	SWR	FAC
10.6M	8.1M	7.8M	7.0M	13.6M

- Additional facts about AER, MAG, STR grants in 2017
  - 178 Actions resulting 55 new awards
  - 25 CGIs and 30 standard grants
  - 52% average mortgage rate for the section



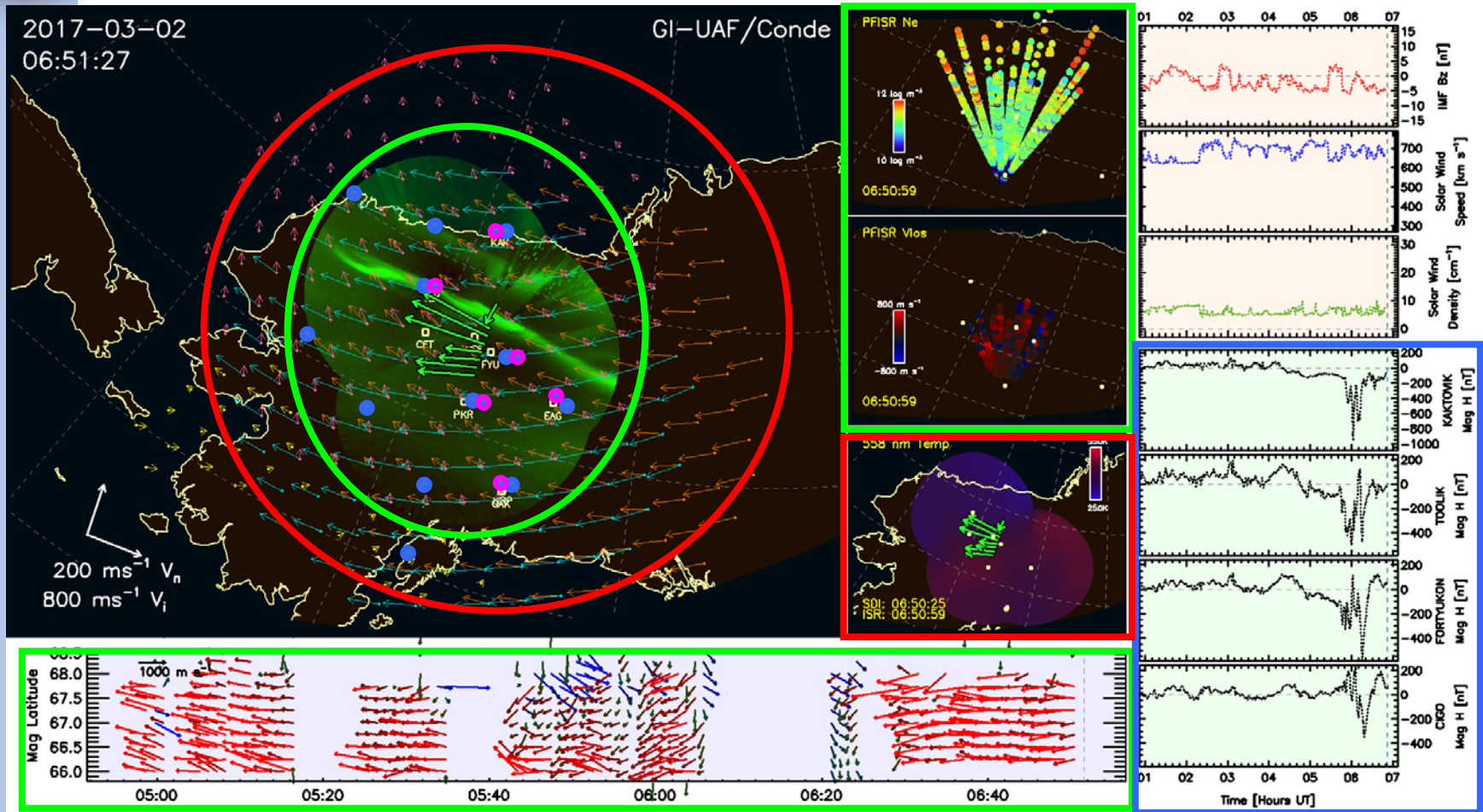
# NSF/GEO CubeSat Program

- 14 Missions and 20 CubeSats
  - Advance space weather research
  - Create educational opportunities
- Colorado Student Space Weather Explorer
  - Measurements of electrons & protons produced a clear picture of the global distribution energetic particles in the near Earth environment
  - Over 19 peer reviewed publications





# A Mesosphere-Ionosphere-Thermosphere Laboratory for ion-neutral interactions in the auroral zone



Poker Flat Incoherent Scatter Radar (PKR) and optics (PKR, TLK, KAK, FYU, EAG)

Scanning Doppler Imager Network (KAK, TLK, PKR, EAG)

Magnetometer arrays (GIMA, USGS, THEMIS)

SuperDARN network (Kodiak, Adak)

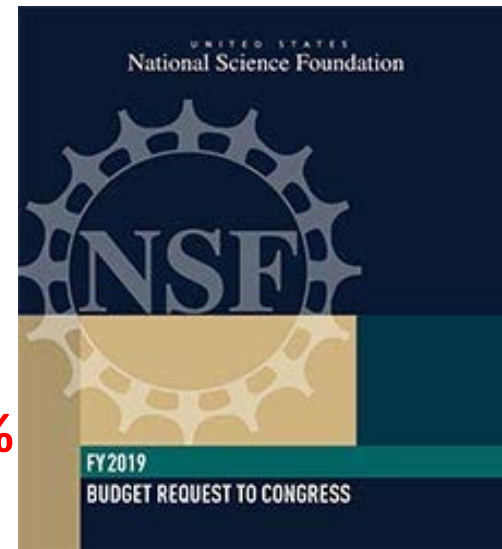
GPS Scintillation Receivers (ASTRA, SAGA, Morton, MACAWS\*)

\* Deployed 2018-2019



# NSF and AGS Budgets

- We have been operating on CR since start of the fiscal year
  - Presents numerous challenges
  - Recall President's request had NSF down **10%**
  - New Omnibus spending bill has NSF up **3.9%**
    - Focuses mainly on top level numbers RRA (**+5%**), MREFC, HER, & AOAM
- On Feb 12, 2018 as part of the budget process the NSF's FY2019 request was submitted to Congress



	FY17 Enacted	FY19 Request	Change
NSF	\$7,504M	\$7,472M	<b>-0.4%</b>
GEO	\$825M	\$852M	<b>+3.3%</b>
AGS	\$253M	\$239M	<b>-5.6%</b>

- Prior to congressional action on budget caps NSF was down **30%**
- GEO increase to support OOI and ARF in OCE
- Detailed information at <https://www.nsf.gov/about/budget/fy2019>





# NSF 10 Big Ideas



- FY19 Request includes \$282M to support the 10 Big Ideas
  - Origin of the 5% reductions in RRA activities within each directorate
- 6 Research Ideas each get \$30M for a total \$180M

Harnessing the Data Revolution	Navigating the New Arctic	Future of Work at Human Tech Frontier
The Quantum Leap	Understanding the Rules of Life	Windows on the Universe

- Process Ideas get \$102M total
  - Midscale Research Infrastructure \$60M
  - INCLUDES \$20M
  - Growing Convergence Research \$16M
  - NSF 2026 Fund \$6M
- [https://www.nsf.gov/news/special\\_reports/big\\_ideas/](https://www.nsf.gov/news/special_reports/big_ideas/)



# Arecibo Observatory

- NSF has selected a UCF – UMET – YEI consortium to operate AO for the next 5 years
  - The award will start on April 1
  - Anticipate reduced funding over the life of this effort, to a total of \$2M per year by the end of the five-year project period (and pending availability of funds)
  - The FY19 president's request is aligned with this plan
- The CR passed on Feb 9 (Public Law 115-119) included \$14.3M in disaster relief funding for repairs to AO
  - Repairing the 430MHz line feed is included in the spending plan for these funds





# Sondrestrom Research Facility

- Geospace Portfolio Review made 3 recommendations related to SRF
  - 7.2 – End ISR observations
  - 7.3 – Support ancillary observations from site
  - 7.4 – Investigate joining EISCAT
- Section is moving forward with these recommendations
  - Community input obtained in response to DCL
  - Support for ISR operations will continue through 3/31
  - Conducting an environmental and engineering assessment of site via CPS
  - Obtained information from EISCAT on levels of involvement



ISR and LIDAR at SRF



# Revision of CEDAR, GEM, & SHINE

- Previously we had announced our intention to make CEDAR, GEM, and SHINE to programs with no deadlines
  - Changes requested by NSF Policy office caused additional delay
- New solicitations for CEDAR and GEM released on Feb 28 and are now accepting proposals
  - Google [NSF CEDAR](#) or [NSF GEM](#) for details
  - PI's encouraged to contact PO before submission
- Not planning to release SHINE during FY18
  - Funding for STR program remains the same
  - RREF workshop next week is part of community input for next SHINE solicitation



Due dates, we don't need no stinking due dates



# Cubesat Plans

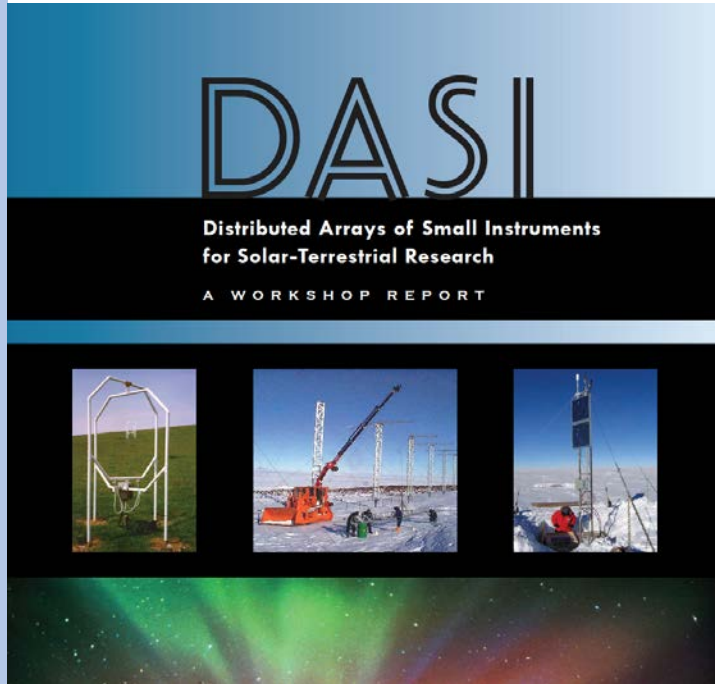
- Geospace Portfolio Review recommended continuing CubeSat program and engaging with rest of NSF to expand program
- Cubesat solicitation was released on March 19
  - Google [NSF CubeSat](#)
  - Support for 1-2 missions at total cost \$1.2M each
  - Submissions are due June 12<sup>th</sup>
- CubeSat-Enabled Science and Engineering meeting has generated significant interest in collaborations with CISE/CNS and ENG/ECCS
  - Focused novel science applications of CubeSats and CubeSat constellations







# Distributed Array of Small Instruments



- Section is beginning to consider how to implement the DASI recommendations in the geospace portfolio review
- Listening sessions at summer CEDAR, GEM, SHINE are also expected



# Support for SWORM

- Goal 1 – Space Weather Benchmarks
  - Initial estimates of 1 in 100 year and theoretical maxima event
  - NSF and NASA are leading a Step Benchmarking activity
    - Finalizing SOW to support workshop and community report
- Goal 5 – Advance Understanding and Forecasting
  - RFI to gather community input on research priorities for space weather is open until April 6<sup>th</sup>
    - Go to [federalregister.gov](https://www.federalregister.gov) and search [space weather](#)
- Goal 6 – International Cooperation
  - Participated in UN/USA ISWI Meeting
  - Attending US/CAN Bilateral SWx Cooperation Mtg
  - Space Weather as UN- COPUOS Thematic Priority 4





# Other collaborations



- Working with NASA on several initiatives
  - Developing NSCI-Space Weather pilot program (includes several divisions at NSF)
  - Support for coordination of ground, ICON and GOLD related research
  - Coordinating efforts on the DRIVE Science Centers
- Coordinating with NASA/NOAA on a tri-agency O2R pilot
  - NSF will accept proposals into the Core programs in AGS and AST
    - Grants for 1-year of funding only See DCL (NSF 18-052) for details
      - [Google NSF Space Weather O2R](#)
  - Beginning discussions with NASA and NOAA for MOU to support second phase
- Establishing an MOU with AFRL to support SuperDARN enhancements



# Questions

- Happy to provide answers 😊