



EAR TO THE GROUND

The Division of Earth Science (EAR) is part of the Directorate for Geosciences (GEO) at the National Science Foundation (NSF).

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GALS is a week-long summer camp for rising 7th - 9th grade girls interested in exploring Minnesota’s geologic history



Credit: GALS Program, Carleton College.

UPDATE FROM THE DIVISION DIRECTOR

By: [Carol Frost](#)



NSF Ideas for Future Investments

The Division of Earth Sciences exists to support basic research in the Earth Sciences and to promote the professional development of the next generation of Earth Scientists. We do this mainly through our core programs, which are dedicated to investigator-driven basic research. NSF also identifies focus areas, or “initiatives,” that are ripe for investigation and which may result in transformative discoveries. Current initiatives in which EAR researchers are heavily involved include INFEWS (Innovations at the Nexus of Food, Energy, and Water) and PREEVENTS (Prediction of and Resilience against Extreme Events).

UPDATE FROM THE DIVISION DIRECTOR (cont.)

Director France Córdova has recently identified a number of “Big Ideas” for future investment. They are described briefly below. I call them to your attention at this early stage, so that you might think about ways that the EAR community could participate. Please let me or any EAR program officer know your thoughts.

CAROL FROST

Division Director, Earth Sciences

TEN BIG IDEAS FOR FUTURE NSF INVESTMENTS

In the nearly seven decades since it was founded, the National Science Foundation (NSF) has played a critical role in establishing U.S. leadership in science and engineering (S&E), creating innovations that drive the nation’s economy and educating the next generation of scientists and engineers.

As we look ahead to the coming decades, we must envision bold questions that will drive NSF’s long-term research agenda -- questions that will ensure future generations continue to reap the benefits of fundamental S&E research.

This vision is the reason behind these 10 “big ideas.” They capitalize on what NSF does best: catalyze interest and investment in fundamental research, which is the basis for discovery, invention and innovation. They are meant to define a set of cutting-edge research agendas and processes that are uniquely suited for NSF’s broad portfolio of investments, and will require collaborations with industry, private foundations, other agencies, science academies and societies, and universities.

Funding these ideas will push forward the frontiers of U.S. research and provide innovative approaches to solve some of the most pressing problems the world faces, as well as lead to discoveries not yet known.

Extended descriptions of the ideas are available at: [10 Big Ideas for NSF Investment](#).

- **Harnessing Data**

NSF proposes to develop a national-scale initiative aimed at fundamental data science research, research data cyberinfrastructure, and the development of a 21st century data-capable workforce. We must fund research, develop innovative learning opportunities, and foster partnerships.

- **Shaping the New Human-Technology Frontier**

NSF would build on investments we’ve made in research in machine learning and efficient engineered systems and fund studies on how technology affects learning, human behavior, and social organizations. We will investigate how humans can shape the future of technology so that it serves to better human life.

- **Rules of Life**

To understand the “rules of life” will require convergence of research across biology, computer science, mathematics, the physical sciences, behavioral sciences and engineering.

- **The Quantum Leap: Leading the Next Quantum Revolution**

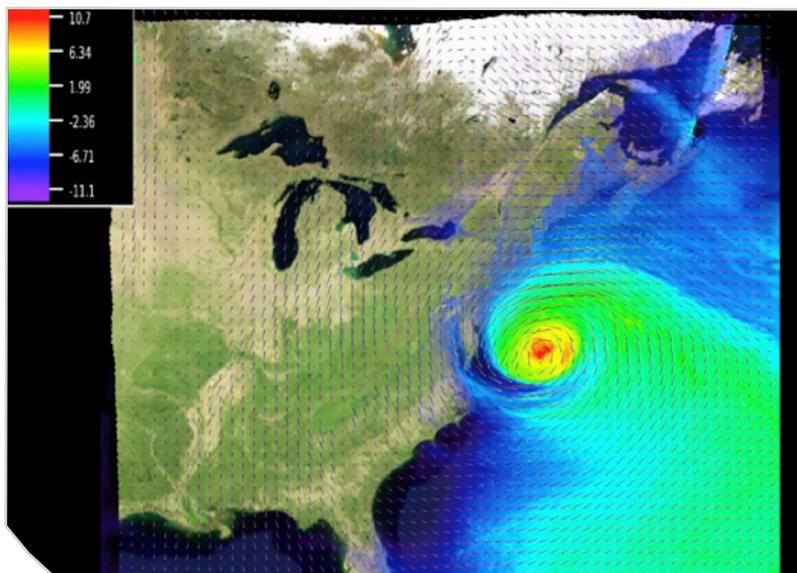
NSF would invest in research that addresses the manipulation of quantum states, and the control of material-light interactions, involving physicists, mathematicians and engineers. There will be strong connections to industry, other federal agencies, and international partners.

- **Navigating the New Arctic**
NSF would establish an observing network of mobile and fixed platforms and tools across the Arctic to document biological, physical and social changes, and invest further in theory, modeling and simulation of this changing ecosystem and its broader effects on the planet.
- **Windows on the Universe: The Era of Multi-Messenger Astrophysics**
NSF continues to pursue evidence that would validate theories of our universe's origins and expansion. We would increase our investment in the large number of potential U.S. users, exploit the big data that observatories are producing, and increase the sensitivity of facilities.
- **Growing Convergent Research at NSF**
NSF would bring together varied disciplinary knowledge to frame challenging research questions at inception, and foster the collaborations needed for successful inquiry.
- **Mid-scale Research Infrastructure**
Lowering the threshold for MREFC expenditures, with appropriate modification of processes, would increase the flexibility for excellent science to be done across the agency.
- **NSF 2050: The Integrative Foundational Fund**
NSF wants to create a breakthrough scientific pathway to its centennial in 2050. With this initiative NSF would dedicate a special fund to invest in bold foundational research questions that are large in scope, innovative in character, originate outside of any particular directorate, and require a long-term commitment.

A CLOSER LOOK AT PREEVENTS: Prediction of and Resilience against Extreme Events

By: [Susanna Ehlers](#) and [Greg Anderson](#)

Simulation of Hurricane Sandy



Between 2003 and 2013, natural disasters caused \$1.5 trillion in economic damage and killed almost 1.2 million people worldwide (International Disaster Database – Centre for Research on the Epidemiology of Disasters; EM-DAT CRED). Over that same decade, the United States experienced nearly \$650 billion in losses due to disasters caused by natural hazards (NOAA National Centers for Environmental Information; NCEI). NCEI estimates that “from 2003–2013, there were 9 drought events, 8 flooding events, 2 freeze events, 44 severe storm events, 16 tropical cyclone events, 7 wildfire events, and a winter storm event with losses exceeding \$1 billion each across the United States.”

Credit: Alan Norton, Mel Shapiro, Tom Galarneau, Perry Domingo, NCAR; Peter Johnsen, Cray Inc.; Mark Straka, NCSA, University of Illinois at Urbana-Champaign

The need for better identifying and mitigating of the risks posed to the United States by natural hazards is clear and consistent with the mandate of the National Science Foundation (NSF) “...to promote the progress of science [and] advance the national health, prosperity, and welfare...” It is also an overall priority for the Federal government, as outlined in Presidential Policy Directive/PPD-8: National Preparedness, which is “aimed at strengthening the security and resilience of the United States through systematic preparation for the threats that pose the greatest risk to the security of the nation, including [...] catastrophic natural disasters.” One only needs to read or watch the press coverage on the devastating floods in Louisiana this August to realize the critical importance of this national need.

The Directorate for Geosciences (GEO) has supported, and continues to support, basic research in scientific and engineering disciplines vital to understanding these natural hazards and extreme events, through multiple core programs in the directorate as well as participation in cross-NSF activities like the Interdisciplinary Research in Hazards and Disasters (Hazards SEES) program.

The Prediction of and Resilience against Extreme Events (PREEVENTS) program is designed as a logical successor to Hazards SEES and is one element of the NSF-wide Risk and Resilience activity, which has the overarching goal of improving predictability and risk assessment, and increasing resilience, in order to reduce the impact of extreme events on our life, society, and economy. PREEVENTS provides an additional mechanism to support research and related activities that will improve our understanding of the fundamental processes underlying natural hazards and extreme events in the geosciences.

PREEVENTS seeks projects that will (1) enhance understanding of the fundamental processes underlying natural hazards and extreme events on various spatial and temporal scales, as well as the variability inherent in such hazards

and events, and (2) improve our capability to model and forecast such hazards and events. All projects requesting PREEVENTS support must be primarily focused on these two targets.

PREEVENTS has a two track proposal system, with Track 1 proposals meant to support conferences that encourage new scientific directions in natural hazards and extreme events and Track 2 proposals for research projects in a multitude of sizes, with durations up to five years. Track 1 proposals are accepted at any time and are generally less than \$50,000; interested PIs should contact the PREEVENTS team at the address given below. Those considering a Track 2 proposal must submit a letter of intent prior to submitting a full proposal. The deadline for the Letter of Intent was July 29, 2016 (thereafter, the last Friday in July every other year). The full proposal deadline for Track 2 proposals has been changed to September 20, 2016 (in future years, the deadline will be the third Monday in September every other year). Track 2 proposals may not request support for generation or collection of new data and/or measures (e.g., field instrument deployments), but may request support for analysis, synthesis, and/or modeling efforts that use existing data and/or measures. Because we get asked about this all the time, I'll send you where we send our PIs: to our newly updated [NSF 16-105, Frequently Asked Questions \(FAQs\) for NSF 16-562!](#)

To date, PREEVENTS has co-funded 34 proposals for a total of \$9 million across all GEO divisions. The projects covered a wide range of natural hazards, including earthquakes, coastal erosion/flooding, severe thunderstorms/monsoons, volcanoes, space weather, sink holes, and extreme pollution. Through co-funding, PREEVENTS has enabled other GEO programs to support projects they might not otherwise have been able to; for instance, opening a door for early career scientists to be competitive.

Want more information? Check out our solicitation and matching FAQs

[Prediction of and Resilience against Extreme Events \(PREEVENTS\) \(NSF 16-562\)](#)

[NSF 16-105, Frequently Asked Questions \(FAQs\) for NSF 16-562 \(PREEVENTS\)](#)

Please note that prior Dear Colleague Letters and FAQs have been superseded by the new solicitation and new FAQs. You can also email us at preevents@nsf.gov

INTEGRATED EARTH SYSTEMS (IES) REVISED SOLICITATION

By: [Richard Yuretich](#)

A revised version of the solicitation for [Integrated Earth Systems \(IES\) \(NSF 16-589\)](#) has been issued. The new solicitation clarifies that the program is open to a diverse array of innovative, interdisciplinary research projects in the Earth Sciences that transcend the boundaries of the regular core programs: "The IES program will support research in Earth systems from the core through the critical zone that includes all or part of the terrestrial, lithospheric and deeper Earth subsystems over the entire range of temporal and spatial scales. Appropriate topics may include (but are not limited to) lithospheric and mantle impacts on continental systems; terrestrial or surficial Earth systems that involve physical, chemical, and biotic dimensions; linkages among tectonics, climate, and landscape evolution; the coupling of the Earth's climate, depositional and biotic systems; global cycles that include core and mantle processes; or other systems of similar scope." The deadline for proposals is November 14 annually. If you have a research idea that you think may be suitable for IES, please contact either [Leonard Johnson](#), [Richard Yuretich](#), [Dennis Geist](#) for further advice or discussion.

TOP TEN “SECRETS” THAT NSF PROGRAM OFFICERS WISHED ALL PI’S KNEW

Please contact ear-communication@nsf.gov if you have any questions.

- 1** You can [subscribe to NSF e-mail alerts](#) or [compose an e-mail to NSF from the NSF Funding page](#). New solicitations and Dear Colleague Letters are issued all the time and this is the easiest way to discover new programs of relevance.
- 2** Questions regarding grant management issues (e.g., allowable costs) should be directed to the Cognizant NSF Grants Official named on the award letter, not the Program Officer. Questions about changes in an award’s scope of work or direction should be directed to the Program Officer. Some changes (e.g., remove/add a PI or Co-PI; change in Participant support Costs) require official NSF approval via a Notification and Request in FastLane.
- 3** The Research at Undergraduate Institutions (RUI) solicitation does not have a separate pot of funding; it flags the proposal as coming from a primarily undergraduate institution and allows an additional 5 pages of narrative regarding the educational mission of the institution. RUI proposals are submitted to, reviewed by, and funded by core NSF programs (e.g., Tectonics), using their deadlines (if any).
- 4** Program Officers are happy to answer questions about specific funding opportunities. Email is the best way to initiate that conversation. We will comment on whether your proposal idea is appropriate for a specific program, but generally we will not comment on the Intellectual Merit of the idea.
- 5** Education and outreach are a component of Broader Impacts, but they are not the only ones. There are many additional activities that can be included in proposals.
- 6** In EAR, with the exception of fellowships paid to individuals, NSF awardees are institutions, not the submitting PI. Thus, if the PI relocates, the institution is allowed to keep the award and name a substitute PI or agree to transfer the award to the institution where the PI is transferring. If EPSCoR co-funding is involved, the grant will likely have to stay at the institution.
- 7** Find out your institution’s policies on using Participant Support Costs before preparing your budget.
- 8** Annual reports are due no later than **90 days prior** to the end of the current budget period. Overdue annual and final reports prevent any other award action to be processed for you, your Co-PI’s and their Co-PI’s. When reports are not submitted in a timely manner, they create big headaches for NSF program staff.
- 9** All awardees are eligible to request a Grantee-Approved No Cost Extension to add 1 year to their award (with no additional funding). The request must be submitted through FastLane **at least 10 calendar days** prior to the end date specified in the grant. This No Cost Extension triggers the requirement to submit an additional annual report.
- 10** The [Proposal and Awards Policy and Procedures Guide \(PAPPG\)](#), which includes the Grant Proposal Guide (GPG) and Award Administration Guide (AAG), should be read by all PIs thoroughly; it has the answer to most of your questions.

RESEARCH OPPORTUNITIES AT OTHER FEDERAL AGENCIES: NASA Earth Surface & Interior (ESI) Focus Area

[Ben Phillips](#), Focus Area Lead; [Craig Dobson](#), Program Manager; [Gerald Bawden](#), Program Scientist; [Amy P. Chen](#), STEM PMF on rotation from NSF EAR to NASA ESI

The [NASA Earth Surface and Interior \(ESI\) Focus Area](#) is probably no stranger to many EAR to the Ground readers. ESI supports the development and implementation of space and airborne missions targeting the solid Earth (including the ongoing [GRACE](#), [UAVSAR](#), [Terra](#), and [Swarm](#); and upcoming [GRACE-FO](#), [NISAR](#), [SWOT](#), and [HyspIRI](#)) as well as related data products that are routinely used by researchers in the EAR community and beyond. Over the years ESI has also partnered with the NSF Division of Earth Sciences (EAR) to support facilities and communities around common interests, such as the development, construction, operation, and maintenance of geodetic infrastructure as a major contributor to UNAVCO and the Geodesy Advancing Geosciences and EarthScope (GAGE) facility. In concert with core GAGE activities such as the operation of the Plate Boundary Observatory, ESI's support to UNAVCO enables the maintenance and upgrade of NASA's Global GNSS Network, and contributes to NASA's [Space Geodesy Program](#) buildout of a next generation Space Geodesy Network of integrated, multi-technique space geodetic observing stations. Recently, EAR and NASA jointly funded the recovery of vital GNSS data spanning the 2015 Nepal earthquake, thereby ensuring the availability of these data to the research community and advancing our understanding of major thrust earthquakes.

Just like EAR, NASA ESI provides basic research funding through its competitive grant solicitation process. The range of ESI supported research activities, however, transcend many EAR program boundaries and instead have in common their utilization of NASA's unique observational resources and capabilities. The 2016 ESI program welcomed hypothesis-driven proposals from two broad themes:

- 1** Deep-Earth Processes: research that advances the understanding of the Earth's deep interior by leveraging remote-sensing observations, including but not limited to Earth orientation & rotation, plate motion & deformation, geomagnetism, and mantle rheology & dynamics.
- 2** Lithospheric Processes: research utilizing time-dependent remote-sensing data sets that advances the understanding of lithospheric processes or properties at regional to global scales, including but not limited to earthquakes (induced & natural), tsunamis, landslides, volcanic eruptions, magma dynamics, and anthropogenic perturbations to the Earth system.

You may view the most recent [ESI solicitation on-line](#), you may also view a [list of recently funded project abstracts](#), and [volunteer your time as an ESI reviewer/panelist](#) (one of the best ways to learn more about the program; women, members of underrepresented minority groups, and persons with disabilities are especially encouraged to serve). Upcoming opportunities include a call for the next NASA [Sea Level Change Science Team](#) (notice of intent and proposals due Oct. 14 and Nov. 15, 2016, respectively), and the [Interdisciplinary Science](#) solicitation, which includes a call for Understanding the Linkages Among Fluvial and Solid Earth Hazards (proposals due Sept. 29, 2016).

Going forward, the topics for annual solicitations will be updated to best address scientific and programmatic priorities, as outlined in guiding documents such as the Solid Earth Science Working Group (SESWG) report [Living on a Restless Planet](#) (2002). Potential ESI PIs would be interested to know that ESI recently supported a process to engage the Earth-sciences community in updating SESWG. We are grateful to our EAR colleagues who participated in the NASA Challenges and Opportunities in ESI (CORE) Workshop held in November 2015 and we are pleased to

announce that the workshop report will be published in September 2016. The report presents a holistic evaluation of ESI science impact since 2002, as well as an update to challenges and opportunities for the coming decade.

NASA has continued to pursue the ambition of an EarthScope InSAR through (1) provision of data from international spaceborne SARs (e.g., RADARSAT-1, ALOS PALSAR, Sentinel-1), (2) operation of the airborne UAVSAR, and (3) development of a next-generation spaceborne InSAR for systematic observation of surface dynamics. The NASA ISRO Synthetic Aperture Radar (NISAR) is a dual-frequency (L- and S-band) mission being developed in partnership with the Indian Space Research Organization (ISRO). NISAR mission requirements are drawn from across NASA Earth-science focus areas (ESI, Terrestrial Ecosystems, and Climate). The main objectives of NISAR are to better understand the response of the cryosphere (ice sheets, sea ice, glaciers and permafrost) to climate change, the dynamics of terrestrial carbon storage in forested, agricultural, wetland and permafrost systems, and the dynamics of Earth's surface associated with hazards (earthquakes, volcanoes, and landslides) and surface displacements associated with subsidence and the withdrawal/recharge of subsurface reservoirs. NISAR will transition from formulation to implementation in fall 2016 with an expected launch in 2021. The NISAR baseline acquisition plan calls for systematic observation of nearly all land and ice surfaces every 12 days from both ascending and descending orbit directions at L-band with more limited geographic coverage at S-band. This will be an unprecedented opportunity for geodetic imaging of dynamic processes with approximately 24 Tb/day downlinked to the NISAR project.

Processed data will be made freely and openly available. More [details on NISAR](#) are available on-line.

NASA-supported spaceborne SAR data (such as SeaSAT, RADARSAT, PALSAR, ERS-1/2, and Sentinel-1) are available at the [Alaska Satellite Facility \(ASF\)](#), airborne SAR data (such as UAVSAR, GLISTIN-A, and AirMOSS) are available through [ASF](#) and the [Jet Propulsion Laboratory \(JPL\)](#), multispectral volcano data are available at the [ASTER Volcano Archive \(AVA\)](#), and GNSS and other space-geodetic data are available through the [Crustal Dynamics Data Information System \(CDDIS\)](#). All NASA datasets are cataloged in the [Earth Observing System Data and Information System \(EOSIDS\)](#) and available through the complete set of EOSDIS [Distributed Active Archive Centers \(DAACs\)](#).

NISAR is a dual-frequency (L- and S-band) mission being developed by NASA in partnership with the Indian Space Research Organization (ISRO). NISAR's main objectives are to better understand cryospheric responses to climate change, terrestrial carbon dynamics, and Earth's surface dynamics associated with hazards.



Credit: NASA/JPL

OUTREACH: GALS Summer Camp

For the past three summers, Sarah Titus from Carleton College, has run a one-week summer camp for local middle school girls as part of the outreach for her EAR-CAREER grant. The camp is called GALS, which stands for Girls' Adventures in Learning Science. She teaches this camp along with four female undergraduate geology majors – in total, 11 different women have worked in this Teaching Assistant (TA) role. They target middle-school girls because studies show this is the age when girls lose interest in science.

Each day, one of the undergraduate TAs is in charge of the mixture of activities focused on a single theme such as “Minnesota used to be under a sea” or “Minnesota used to have glaciers.” They might run experiments, solve puzzles, show demonstrations, play games, look at samples, make posters, sing science songs, all related to theme for the day. Even lunch-packing can be geology-related – each of the layers of the sandwich forms a stratigraphy. The daily highlight is a field trip. They visit a gravel quarry with its mountains of sand (to ski down), an excellent fossil-hunting road-cut, and a park with a stream running along bedrock, a waterfall, and a huge glacial erratic boulder.

GALS is an exceptionally rewarding experience, for Sarah, for the TAs, and from what they can tell, the girls. Sarah's favorite thing about teaching this age-group is their joy of being outside. The girls always take off their shoes to play in the stream and stand on the waterfall's edge. Her undergraduate students never do that. She has also been impressed at how clever they are – they solve puzzles designed for her own college-level Introductory Geology course, making connections between field trips and the puzzles. For the TAs, the experience of being the lead teacher is empowering – they have to figure out how to distill the theme into activities, how to answer questions at the right level, and how to make science interesting. For the girls, evaluations give us a good sense that they enjoy the camp. They say things like “It showed me it is fun being a scientist” and “It made science seem really active, which is good.” And they offered advice for how to improve the camp in the future: “make it last longer.”

Teaching Assistants lead a discussion about rock types along a local road cut.



Credit: GALS Program, Carleton College.

Girls make sketches of sand and gravel layers from glacial outwash at a local quarry.



Credit: GALS Program, Carleton College.

Students using hexbugs to make “trace fossils” in sand.



Credit: GALS Program, Carleton College.

Student finds a brachiopod in Ordovician rocks.



Credit: GALS Program, Carleton College.

Students using flubber to run experiments on glacial flow.



Credit: GALS Program, Carleton College.

The 2016 summer class posing in front of a glacial erratic boulder.



Credit: GALS Program, Carleton College.

Student finds a brachiopod in Ordovician rocks.



Credit: GALS Program, Carleton College.

For more photos from previous years, visit these links:

[GALS Photos 2016](#)

[GALS Photos 2015](#)

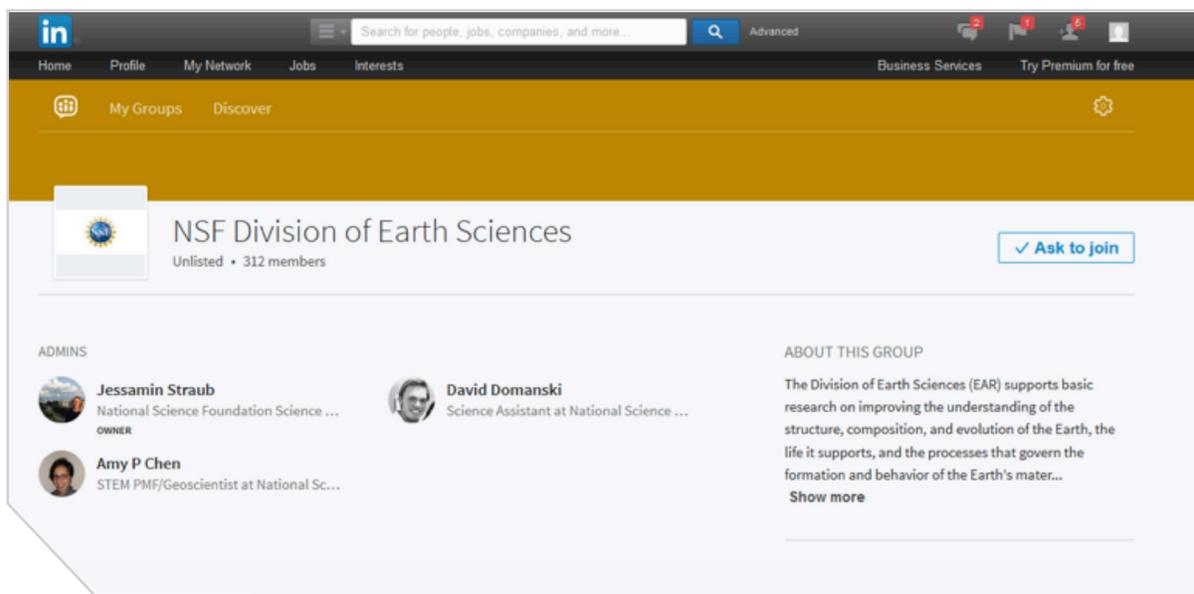
[GALS Photos 2014](#)

For more information contact [Sarah Titus](#).

NEW EAR LINKEDIN PAGE

EAR is excited to announce the newly launched NSF Division of Earth Sciences LinkedIn Group. We hope this professional social media platform will foster networking, collaboration, and, most importantly, camaraderie among the 20,774 undergraduate students (including REU), graduate students, and post-docs who have been supported through EAR grants or fellowships). EAR will also use this virtual space to communicate program, division, and agency updates especially relevant to its members.

EAR's New LinkedIn Page



Credit: [EAR LinkedIn Page](#)

The success of the EAR LinkedIn Group, and ultimately its members, depends on you! We currently don't have reliable, up-to-date contact information for EAR-supported students and postdocs. As such, we ask you to please forward this LinkedIn group information to as many current and former students and post-docs supported by EAR grant as you can, and encourage them to join the EAR LinkedIn Group. We especially encourage everyone to reach out to those who have graduated and moved on from their institution, in academia or not, as they will no doubt be sources of great advices and/or benefit from the group.

What: NSF Division of Earth Sciences LinkedIn Group, launched in May, 2016. This is an unlisted LinkedIn group, memberships need to be approved by one of the Group moderators, and content is for members only.

Who: Any student (undergraduate, graduate, REU) or post-doc who has received support from EAR. EAR PIs.

Why: Network, collaborate, build camaraderie, participate in career development discussions, receive EAR updates

How: To join, you must first have a [LinkedIn account](#). Once signed into LinkedIn, go to [EAR LinkedIn page](#) (you may need a new browser tab), and request to join the Group. One of the Group moderators will process the requests once every few days.

Questions? Please send them to: EAR-Communication@nsf.gov

STUDENT SPOTLIGHTS



RACHEL BERNARD
U-Texas graduate student

Rachel Bernard is a PhD student at the University of Texas at Austin and former EAR Science Assistant. She is supported through the NSF Graduate Research Fellowship Program, and by a Tectonics award made to her advisor, Dr. Whitney Behr. Rachel uses xenoliths from young cinder cones in the Mojave region of southern California to better understand the rheological properties of the lower crust and upper mantle in this active tectonic environment. She has presented results of her research at several meetings, including two AGU annual meetings and a Southern California Earthquake Center (SCEC) annual meeting. Rachel is spending this summer at the Smithsonian National Museum of Natural History through the NSF-funded Graduate Research Internship Program, where she is being mentored by Dr. Liz Cottrell. During this internship, Rachel is expanding her research by making use of the museum's extensive xenolith collection, while also gaining experience in collections management and informal scientific outreach. Rachel credits her current success in graduate school with her experience as a Science Assistant in the Surface Earth Processes section. Reading proposals and sitting in on panels for two years helped her discover her love of research and rock deformation.

STAFF NEWS: EAR Welcomes



DENA SMITH
New EAR program director
in Sedimentary Geology
and Paleobiology

Dena Smith joined NSF in late June as a Program Director in the Sedimentary Geology and Paleobiology Program. Her research program has focused on understanding the evolutionary and ecological underpinnings of current insect biodiversity. Specifically, she uses the fossil record to study the macroevolution of beetles, insect response to climate change, co-evolutionary relationships between insects and plants and the nature of the fossil record itself. Prior to her arrival at NSF, she served as the Executive Director of the STEPPE (Sedimentary Geology, Time, Environment, Paleontology, Paleoclimatology and Energy) Coordinating Office, as the Curator of Invertebrate Paleontology at the CU Museum of Natural History and as an Associate Professor in the Department of Geological Sciences at the University of Colorado, in Boulder. She received her Ph.D. in Geosciences with a minor in Entomology from the University of Arizona and her B.A. in Biology and Environmental Studies from the University of California at Santa Cruz.

EAR SUMMER INTERNS



ASHLEY JENNINGS
EAR Summer Intern

Ashley Jennings is originally from New Jersey, and went to school in the Washington DC metropolitan region for most of her life. After graduating high school, she went on to attend Saint Andrews University in Laurinburg, NC pursuing an Engineering degree while also on the Women's Basketball team. Now, she is currently attending Bowie State University in Upper Marlboro, MD. She will be a junior pursuing her Bachelor's degree in Computer Technology, Cyber Security. This upcoming fall semester she will continue to be a student athlete. She plans to obtain her Master's degree in Computer Technology after her senior year at Bowie State and serve as a graduate assistant to the Women's Basketball team. Ashley is excited to be connected to an organization that supports each area of science and cannot wait to learn more and expand her horizons within NSF.

EAR SUMMER INTERNS



CYDNEY WALTERS
EAR Summer Scholar

Cydney Walters will be a junior at the University of Arizona this fall. She is a double major in Environmental Science and Electrical & Computer Engineering, and also a double minor in American Indian Studies and Education. Cydney is from the Navajo Tribe and now resides in a small town in Navajo, Arizona after being relocated from Coal Mine, AZ. She is a first-generation university student and the only one in her family to pursue a bachelor's degree. After graduation, she hopes to pursue a Master's degree in Engineering and a Doctoral degree in Environmental Science. She feels very fortunate to be a summer scholar at the National Science Foundation and is excited to learn about NSF and the different departments and their impact on young scientists.

Under the guidance of Dr. Karletta Chief, she is conducting research on the water resources in the Navajo Nation and the effects of water contamination on the environment and its relation to the future of the Navajo nation. Cydney notes that the group is working on more effective ways to clean up contamination since the incident of the Gold King Mine Spill. In addition, she is researching Indigenous perspectives on sustainable water practices in the southwest and in other native communities. She works with current high school juniors and seniors, who are interested in a STEM field, on a project that will help spark their interest in getting a higher education degree. She is very interested in hydrology and the department that she works with at the University of Arizona, Early Academic Outreach, implemented the new program called the Native American Science and Engineering Program to help her gain insight about future policy work that would help her achieve her goals. Cydney is excited to be working in the Directorate for Geosciences with three great mentors this summer.

EAR SUMMER INTERNS



KSEAN WILLIAMS
EAR Summer Scholar

KSean Williams is from Jacksonville Florida. This fall, he will be a sophomore at Fond Du Lac Tribal Community College (FDLTCC), where he is pursuing his degree in Associates in Arts. His plan is to transfer to University of Florida or Florida Southern to pursue a degree in Geology. KSean is a 2016 Summer Scholar at National Science Foundation where he is compiling information on postdoctoral fellows such as finding out their current positions and where they received their PhD from to research the impact of EAR awards on their careers. This project gives him the opportunity to interact with researchers and scientists. His Future plans include getting his associates degree at FDLTCC (a two year institution) and then get his bachelor's degree at a four year institution. KSean eventually plans to pursue a PhD!

EAR GOODBYES



HAILIANG DONG
Former EAR Program Officer in
Geobiology and Lower Temperature
Geochemistry Program

Dr. Hailiang Dong has returned to Miami University after two years of service to the National Science Foundation as a Program Officer in the Geobiology and Low Temperature Geochemistry program. In addition to the regular duty with the program, Hailiang was a GEO representative of the Sustainable Chemistry, Engineering, and Materials (SusChEM) program. In the first month after his departure from NSF's life, Hailiang co-organized 3 meetings: Geobiology and Biogeochemistry; Microbial conversion of organic matter (coal and petroleum) to methane; and an ICDP-sponsored workshop on a multi-well deep underground laboratory in the Songliao Basin of NE China. Hailiang is pleased to report that a review paper will be published in Nature Reviews Microbiology. Recently, he also picked up some more editorial and professional service activities. At the moment, he is looking forward to an exciting semester in the fall when he is scheduled to teach Geomicrobiology and Chemistry of Earth Systems at Miami University.

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UPCOMING DEADLINES AND TARGET DATES

Advancing Digitization of Biodiversity Collections (ADBC)	(NSF 15-576)	Full Proposal	October 14, 2016
Cooperative Studies Of The Earth's Deep Interior (CSEDI)	(NSF 16-572)	Full Proposal	September 27, 2016
Earth Sciences: Instrumentation and Facilities (EAR/IF)	(NSF 15-516)	Full Proposal Accepted	Anytime
EarthScope	(NSF 15-578)	Full Proposal	November 15, 2016
East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI) ^N	(NSF 13-593)	Full Proposal	November 10, 2016
Experimental Program to Stimulate Competitive Research: Workshop Opportunities (EPS-WO) (EPS-WO) ^N	(NSF 12-588)	Full Proposal Accepted	Anytime
Facilitating Research at Primarily Undergraduate Institutions ^N	(NSF 14-579)	Full Proposal Accepted	Anytime
Genealogy of Life FY 2016 (GoLife)	(NSF 16-522)	Full Proposal	March 22, 2017
Geobiology and Low-Temperature Geochemistry	(NSF 15-559)	Full Proposal Accepted	Anytime
Geoinformatics (GI)	(NSF 11-581)	Full Proposal	July 3, 2017
Geomorphology and Land Use Dynamics	(NSF15-560)	Full Proposal Accepted	Anytime
Geophysics (PH)	(NSF 12-598)	Full Proposal	December 7, 2016 June 7, 2017

Graduate Research Fellowship Program (GRFP) ^N	(NSF 16-588)	Full Proposal	October 24, 2016 October 25, 2016 October 27, 2016 October 28, 2016
Hydrologic Sciences	(NSF 15-558)	Full Proposal	Anytime
Improving Undergraduate STEM Education: Pathways into Geoscience (IUSE: GEOPATHS) ^C	(NSF 16-584)	Full Proposal	October 11, 2016
Innovation Corps Teams Program (I-Corps Teams) ^N	(NSF 12-602)	Letter of Intent	September 15, 2016
Innovation Corps- National Innovation Network Sites Program (I-Corps Sites) ^N	(NSF 16-574)	Full Proposal	December 30, 2016
Integrated Earth Systems (IES)	(NSF 16-589)	Full Proposal	November 14, 2016
Major Research Instrumentation Program: (MRI) ^N	(NSF 15-504)	Full Proposal	January 10, 2017
Management and Operation of the National Geophysical Observatory for Geoscience (NGEO)	(NSF 16-546)	Full Proposal	December 30, 2016
National Science Foundation Research Traineeship (NRT) Program ^N	(NSF 16-503)	Letter of Intent Full Proposal	December 9, 2016 February 7, 2017
NSF Earth Sciences Postdoctoral Fellowships (EAR-PF)	(NSF 15-568)	Full Proposal	Waiting for new publication
Origin of Life ^C	(NSF 16-570)	Full Proposal	December 19, 2016
Paleo Perspectives on Climate Change (P2C2)	(NSF 13-576)	Full Proposal	October 17, 2016
Partnerships for Innovation: Accelerating Innovation Research-Technology Translation (PFI: AIR-TT) ^N	(NSF 16-583)	Letter of Intent Full Proposal	September 8, 2016 October 11, 2016

Partnerships for International Research and Education (PIRE) ^N	(NSF 16-571)	Preliminary Proposal Accepted	September 14, 2016
		Full Proposal Accepted	April 24, 2017
Petrology and Geochemistry (CH)	(NSF 15-557)	Full Proposal Accepted	July 14, 2017
Prediction of and Resilience against Extreme Events (PREEVENTS)	(NSF 16-562)	Letter of Intent	July 29, 2016 (Track 2)
		Full Proposal Accepted	August 1, 2016 -January 4, 2017
			September 19, 2016 (Track 2)
Research Experiences for Undergraduates (REU) ^N	(NSF 13-542)	Full Proposal Accepted	August 24, 2016 May 26, 2017
Science of Learning Centers (SLC) (PD 07-7278) ^N	(PD 07-7278)	Supplement Accepted	Anytime
		Full Proposal Accepted	Anytime
Sedimentary Geology and Paleobiology (SGP)	(NSF 16-536)	Full Proposal Accepted	Anytime
Tectonics	(NSF 16-556)	Full Proposal Accepted	January 13, 2017

Proposal & Award Policies & Procedures Guide (PAPPG), (NSF 16-001) has been issued and became effective on January 2016.



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