

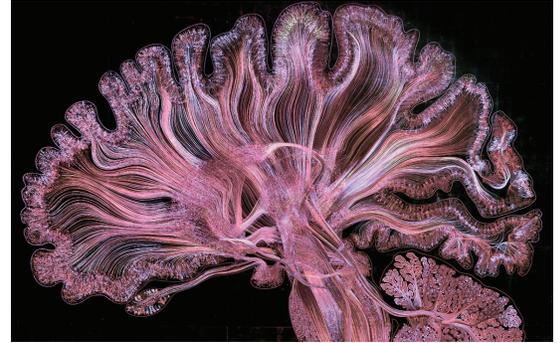


# 10 Quick Reads From NSF.gov

April 05, 2017

## 01 NSF and Popular Science announce winners of the 2017 Vizzies challenge

NSF and *Popular Science* magazine announced the winners of the 15th annual Vizzies challenge honoring the best visualizations from science and engineering. A team of experts at NSF and *Popular Science* pared hundreds of submissions down to 50 finalists; from there, a panel of outside experts picked five Expert’s Choice winners in the categories of photography, video, illustration, interactive, and posters and graphics. *Popular Science* readers chose five People’s Choice winners in the same categories. In applauding the winners, NSF Director France A. Córdova noted, “Scientific visualizations have an exceptional ability to explain, spark interest and inspire.” *Popular Science* online director Amy Schellenbaum said, “Visual representations are a crucial way to communicate scientific ideas to the public.” View the winning visualizations and learn more about the science they depict in NSF’s [Vizzies](#) Special Report.



## 02 Air crews that flew the 2016 medical evacuation mission to the South Pole honored

Two air crews from Kenn Borek Air Ltd. of Calgary, Canada, flew an unprecedented mission in June 2016 to evacuate two patients from NSF’s Amundsen-Scott South Pole Station in Antarctica. The sun had set for the six-month winter and the combination of darkness and extreme cold made flying more hazardous than any previous Antarctic rescue. On March 29, the two air crews received the Smithsonian National Air and Space Museum’s 2017 Trophy for Current Achievement. It was the second prestigious award given to the air crews. On March 2, *Aviation Week & Space Technology* magazine honored the crews with the 2017 Laureate for Heroism. “Antarctic research explores both geographic and scientific frontiers,” NSF Director France A. Córdova noted recently. “I am proud that two of our nation’s respected institutions have recognized these air crews, and grateful to the international teams that, in partnership with NSF, made this globe-spanning success possible.” Learn more about the rescue mission and the awards in this NSF [news release](#).



## 03 Research shows surprising conclusions about fish populations in Wisconsin lakes

Scientists at the NSF North Temperate Lakes Long-Term Ecological Research (LTER) site--one of 28 NSF LTER sites--routinely measure everything from water temperature to nutrient concentrations to fish populations in Wisconsin lakes. Taking advantage of several decades’ worth of data, researchers compared data on various physical, chemical and biological variables--595 variables in total. They found that as the lakes’ temperatures rose and nutrient concentrations increased, so did the number of organisms living there. The findings challenge preconceptions about what a “normal” distribution of averages and extremes looks like for the plants and animals in an ecosystem. Find out more in this NSF [news release](#).



## 04 Celebrating the first national program for earthquake research in the U.S.

On March 27, 1964, a 9.2 magnitude earthquake hit southern Alaska. It was the largest recorded earthquake in U.S. history, shaking rivers and lakes as far away as Texas and Louisiana. The earthquake and resulting tsunami caused 129 fatalities and billions in property losses. The damage helped spur the formation of the National Earthquake Hazards Reduction Program (NEHRP). It was established by Congress with the Earthquake Hazards Reduction Act. For more than four decades, federal funding for earthquake research has led to improvements in building codes, evaluation and design guidelines, and construction practices. The efforts are enhancing societal resilience to earthquakes. NEHRP is a joint effort between NSF, the Federal Emergency Management Agency, the National Institute of Standards and Technology, and the United States Geological Survey. Numerous other federal agencies have earthquake-related programs. NSF gives researchers the tools they need to learn how earthquakes and tsunamis impact buildings, bridges, utility systems and other critical components of today's society. Find out more in this [video](#).

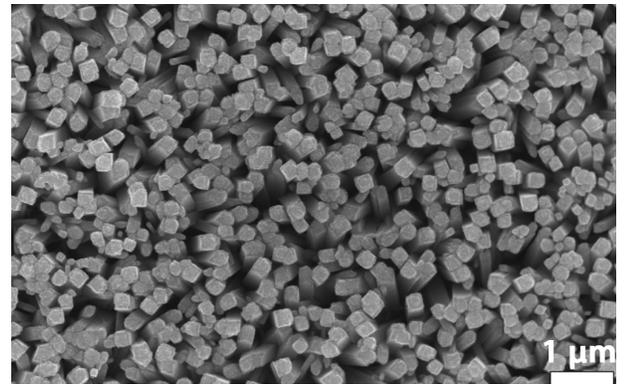
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## 05 Creating an artificial photosynthesis material

Are scientists getting closer to developing a clean renewable source of hydrogen fuel? Rice University researchers, working with colleagues at the University of Houston, have developed an efficient, simple-to-manufacture oxygen-evolution catalyst from three elements--iron, manganese and phosphorus--that pairs well with semiconductors for solar water splitting, the conversion of solar energy to chemical energy in the form of hydrogen and oxygen. Find out more in this News From the Field [item](#) that links to the Rice University news release.

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## 06 Studying the importance of dust to Sierra Nevada forest ecosystems

Collecting dust isn't usually considered a good thing. But dust from as close as California's Central Valley and as far away as Asia's Gobi Desert provides nutrients, especially phosphorus, to vegetation in the Sierra Nevada Mountains. That's the finding of a team of scientists whose study highlights the importance of dust and the phosphorus it carries in sustaining plant life. The research team--including geochemists, a geomorphologist, ecosystem ecologists and microbial ecologists from the University of California (UC), Merced, UC Riverside, University of Michigan and University of Wyoming--worked to quantify the importance of transoceanic and regional dust as a nutrient source to Sierra Nevada ecosystems. The researchers used household items--for example, Bundt pans filled with marbles attached to wooden posts--to capture dust. They also studied microbes hitchhiking on dust particles to pinpoint the dust's origins. Learn more in this NSF [news release](#).

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## 07 Researchers use mathematics to get a handle on bacterial interactions

To harness bacteria for use in medicine or industry, or just to better understand how bacteria thrive and spread, it's helpful to determine the consistency of their actions over time. Georgia Tech researchers have taken physics equations, developed to precisely describe the interactions of atoms and molecules, and applied them to bacteria to predict the action between two opposing strains of cholera. The researchers' goal wasn't to predict who would win, but rather, are the bacteria's battlefield actions predictable each time the enemies meet? So what did the researchers learn? Listen to this episode of The Discovery Files [podcast](#) and find out.



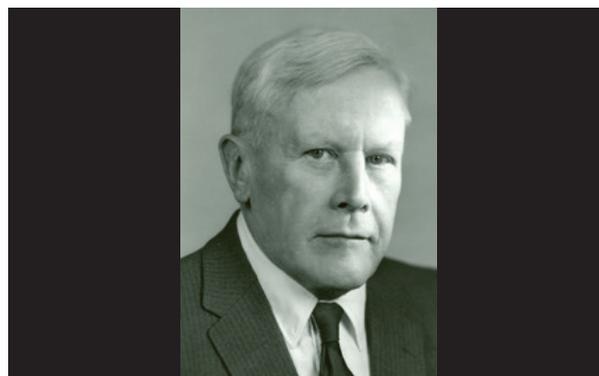
## 08 How NSF enhances the nation's security

NSF is widely known for supporting scientists who go on to win Nobel Prizes, leading exploration of the planet's polar regions and enabling discoveries about the universe, from the subatomic world to distant galaxies. But the foundation also plays an important role in enhancing the nation's security. That's part of NSF's mission, after all. The National Science Foundation Act of 1950 called for the creation of an agency "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." Learn about some of the ways NSF-funded science and engineering research results help strengthen America's security and safeguard infrastructure, and protect communities' and the nation's interests in this [video](#).



## 09 Learn about Alan T. Waterman and NSF's other former directors

He was NSF's first director and there is an award named in his honor, but did you know that Alan T. Waterman was the only agency director born in the 19th century? Vannevar Bush once described Waterman as "a quiet individual, a real scholar and decidedly effective in his quiet way, for everyone likes him and trusts him." Waterman is credited with the decisions to award grants rather than contracts and to use panels of non-NSF scientists and engineers to provide advice to the staff on the quality of proposals. Learn more about Waterman and the other former NSF directors who have shaped NSF in these brief [biographies](#) from the NSF History site.



## 10 NSF names 2,000 individuals to receive Graduate Research Fellowships

NSF named 2,000 individuals as this year's recipients of awards from its Graduate Research Fellowship Program (GRFP). Started in 1952, the program offers fellowships to applicants selected through a national competition. This year's awardees were chosen from over 13,000 applicants. The 2017 fellowship class represents a wide range of scientific disciplines and its members come from all states, as well as the District of Columbia, and U.S. commonwealths and territories. Find out more in this NSF news [release](#).

