NASA Earth and Space Science Fellowship (NESSF) Program – 2018

NASA received a total of 875 applications in 2018 to the NASA Earth and Space Science (NESSF) Fellowship Program announced in November 2017. Each application was submitted to one of four research programs of the Science Mission Directorate (SMD) at NASA Headquarters: Earth Science Research, Heliophysics Research, Planetary Science Research, and Astrophysics Research.

These four SMD science divisions make respective selections of applications for award on a competitive basis. Criteria for evaluation included: (a) the scientific merit of the proposed research; (b) the relevance of the proposed research to NASA’s objectives in Earth or space science; and (c) academic excellence based upon an applicant's personal statement, transcripts, the letter of recommendation by the student's academic advisor, the degree to which the applicant’s academic background supported the proposed research, and the applicant’s curriculum vitae. Evaluation was conducted via either mail or panel review, or both, and by the relevant expertise in the science divisions of SMD.

The purpose of the NESSF is to ensure continued training of a highly qualified workforce in disciplines required to achieve NASA’s scientific goals. Awards resulting from the competitive selection are made in the form of training grants to the respective universities and educational institutions, with the faculty advisor serving as the principal investigator.

NESSF awards are made initially for one year and may be renewed for no more than two additional years, contingent upon satisfactory progress, as reflected in academic performance, research progress, and recommendation by the faculty advisor, and the availability of funds. An award is $45,000 per annum, including $35,000 student stipend and an allowance of $10,000, consisting of $5,000 for student expenses and $5,000 for university expenses.

The student allowance may be used for tuition; fees; travel in support of the research investigation to conferences, symposia, or collaborative meetings; books; expendable laboratory supplies; page charges for journal articles; printing of a thesis; health insurance; and other similar expenses related to the proposed research investigation. The university allowance may be used for tuition or research expenses, if agreed upon by the student and faculty advisor; it may also support research-related travel for the advisor (i.e., to accompany the student to a scientific meeting, oversee the student’s research, etc.); or by the student. A request may be made to change the amounts in any category. The total of all may not exceed $45,000, and a short justification must be provided.

An individual accepting this award may not concurrently receive other Federal fellowships or traineeships. However, NASA may allow an applicant to receive supplements from other U.S. Federal agencies to cover expenses not covered by NASA's graduate fellowships; for example, the purchase of equipment, which is not permitted through a NASA fellowship.
The names of the students and their faculty advisors, institutions, and proposal titles of the 2018 NESSF selections are listed below by one of the four SMD science divisions. The announcement for 2019 NESSF is anticipated in November 2018. The release will be posted at http://nspires.nasaprs.com/external/, and the deadline for submission of new applications to NASA will be February 1, 2019.

Inquiries about the program may be directed to:

Program Administrator for NESSF Earth Science Research – Claire Macaulay at 202/358-0151 or by E-mail at claire.i.macaulay@nasa.gov.

Program Administrator for NESSF Heliophysics Research, Planetary Science Research, and Astrophysics Research – Marian Norris at (202) 358-4452 or by E-mail at mnorris@nasa.gov.

**Planetary NESSF18 Selections**

NASA received a total of 223 applications for the Planetary Science Research Program and selected 24 for award. Pending acceptance of the fellowship offer by each applicant and their respective institution, the selections are:

Anderson, Kassandra (Student); Dong Lai (Advisor)
Cornell University
**Orbital Evolution of Giant Planets with External Perturbers, Stellar Spin-Orbit Dynamics, and Insights into Hot Jupiter Formation**

Anzures, Brendan (Student); Stephen Parman (Advisor)
Brown University
**Volatile partitioning in silicates at very low oxygen fugacity**

Casar, Caitlin (Student); Magdalena Osburn (Advisor)
Northwestern University, Evanston
"**Biofilms in the Deep Subsurface: Implications for Planetary Habitability**"

Ge, Huazhi (Student); Xi Zhang (Advisor)
University Of California, Santa Cruz
**Tropospheric Dynamics of Jupiter: Insights From Tracer Distributions From Juno and Ground-based Observations**

Graykowski, Ariel (Student); David Jewitt (Advisor)
University of California, Los Angeles
**Systematic Investigation of Cometary Fragmentation**

Hadnott, Bryne (Student); Sarah Horst (Advisor)
Johns Hopkins University
**Characterization of tholins in aqueous media: implications for detecting prebiotic molecules on Titan's surface**
Kashyap, Srishti (Student); James Holden (Advisor)
University Of Massachusetts, Amherst
**Novel Mechanisms of an Early Microbial Process: Fe(III) Oxide Reduction in a Hyperthermophilic Crenarchaeon**

Labrado, Amanda (Student); Benjamin Brunner (Advisor)
University Of Texas, El Paso
**A novel microbial native sulfur formation pathway**

Lejoly, Cassandra (Student); Walter Harris (Advisor)
University Of Arizona
**Coupled dust and gas evolution in the inner coma of comets of differing activity levels**

Marusiak, Angela (Student); Nicholas Schmerr (Advisor)
University of Maryland, College Park
**Single-Station Seismometer Analogs and Approaches for the Investigation of Icy Worlds.**

McCain, Kaitlyn (Student); Kevin McKeegan (Advisor)
University of California, Los Angeles
**Reconstructing the timing and chemistry of aqueous processing of carbonaceous chondrite parent bodies: A systematic in-situ investigation**

Phillips, Deanna (Student); Richard Miller (Advisor)
University Of Alabama, Huntsville
**New analysis of Apollo 17 seismic data: implications for lunar structure and surface processes**

Ray, Soumya (Student); Meenakshi (Mini) Wadhwa (Advisor)
Arizona State University
**A combined investigation of iron and silicon isotopes in meteorites: Implications for planetary accretion and differentiation.**

Roeten, Kali (Student); Stephen Bougher (Advisor)
University Of Michigan, Ann Arbor
**Investigation of the Structure and Variability of the Martian Thermosphere using Global Circulation Modeling and MAVEN NGIMS Wind Observations**

Scheller, Eva (Student); Bethany Ehlmann (Advisor)
California Institute of Technology
**Composition, Geological History, and Impact Deformation of Noachian Basement in the Surroundings of the Isidis Impact Basin**

Schoenfeld, Ashley (Student); An Yin (Advisor)
University of California, Los Angeles
Quantifying tectonic deformation of icy satellites in the outer solar system based on observations from Saturn's moon Enceladus

Scudder, Noel (Student); Briony Horgan (Advisor)
Purdue University

Signatures of basalt weathering under cold and icy conditions on Mars

Sharkey, Benjamin (Student); Vishnu Reddy Kanupuru (Advisor)
University Of Arizona

Investigating Composition and Origin of Primitive Bodies Captured by Giant Planets

Steigmeyer, August (Student); Mark Skidmore (Advisor)
Montana State University, Bozeman

Chemoautotrophy in Subglacial Lake Mercer, Antarctica

Steinrueck, Maria (Student); Adam Showman (Advisor)
University Of Arizona

Implications of Atmospheric Circulation for Cloud and Haze Formation on Neptune and Sub-Neptune-Sized Exoplanets

Styczinski, Marshall (Student); Erika Harnett (Advisor)
University Of Washington, Seattle

Modeling asymmetry in Europa's oceans

Trowbridge, Alexander (Student); Andrew Freed (Advisor)
Purdue University

The evolution of impact basins as a window into the Moon's thermal history

Weber, Tristan (Student); Dave Brain (Advisor)
University Of Colorado, Boulder

The Role of Crustal Magnetic Fields in Atmospheric Escape at Mars

Zderic, Alexander (Student); Ann-Marie Madigan (Advisor)
University Of Colorado, Boulder

Self-Gravity in the Outer Solar System