NASA received a total of 875 applications in 2018 to the NASA Earth and Space Science (NESSF) Fellowship Program announced in November 2017. Each applications 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.

**Earth Science**

NASA received a total of 424 applications in Earth Science Research and selected 54 for award. Pending acceptance of the fellowship offer by each applicant and their respective institution, the selections are:

Susheel Adusumilli (Student); Helen Amanda Fricker (Advisor)
University of California, San Diego
**Identifying the Atmospheric and Oceanic Drivers of Ice-Shelf Change Using Satellite Altimetry and Airborne Geophysics**
18-EARTH18F-0421

Caitlin Amos (Student); Renato Castelao (Advisor)
University of Georgia, Athens
**The Impact of the El Nino-Southern Oscillation on Sea Surface Temperature Fronts in the California and Humboldt Current Systems**
18-EARTH18F-0114

Kazem Bakian Dogaheh (Student); Alireza Tabatabaeenejad (Advisor)
University of Southern California
**Microwave Behavior of Organic Soil for Remote Sensing of Permafrost**
18-EARTH18F-0337

Clayton Brengman (Student); William Barnhart (Advisor)
University of Iowa, Iowa City
**Applications of Artificial Neural Networks for Strain Detection in InSAR Time Series**
18-EARTH18F-0046

Alexander Brooks (Student); Tim Covino (Advisor)
Colorado State University
**Using Landsat Imagery to Assess Riparian Wetland Condition in the Southern Rockies**
Ben Carlson (Student); Walter Jetz (Advisor)
Yale University
Using Remote Sensing and Animal Tracking to Assess Patterns and Causes of Environmental Niche Variation from Individuals to Species
18-EARTH18F-0295

Parker Case (Student); Owen Toon (Advisor)
University of Colorado, Boulder
Using GEOS-5/CARMA to Improve Interpretations of NASA Satellite Observations of Stratospheric Aerosols
18-EARTH18F-0120

Shane Coffield (Student); James Randerson (Advisor)
University of California, Irvine
Improving Large Fire Prediction with Implications for Decision-Making and Public Health
18-EARTH18F-0054

Cheng Da (Student); Eugenia Kalnay (Advisor)
University of Maryland, College Park
Improving Tropical Cyclone Predictions by Assimilation of NASA IMERG Precipitation
18-EARTH18F-0283

Carlos Deccia (Student); Robert Nerem (Advisor)
University of Colorado, Boulder
Design of a Constellation of GRACE-Type Small Satellites to Improve Temporal and Spatial Resolution of Satellite Gravity Estimates
18-EARTH18F-0380

Dillon Dodson (Student); Jennifer Griswold (Advisor)
University of Hawaii, Honolulu
Droplet Clustering and Turbulence in Marine Stratocumulus Clouds
18-EARTH18F-0310

Orhan Eroglu (Student); Mehmet Kurum (Advisor)
Mississippi State University
Unveiling CYGNSS Land Signatures for High Spatiotemporal Soil Moisture Estimation
18-EARTH18F-0051

Melanie Feen (Student); Melissa Omand (Advisor)
University of Rhode Island
Net Community Production Across Scales: From Autonomous Profiling to Ocean Color Remote Sensing
18-EARTH18F-0013
Samuel Goldberg (Student); Taylor Perron (Advisor)
Massachusetts Institute of Technology
Tectonic and Climatic Controls on Changing Continental River Networks
18-EARTH18F-0016

Sophie Goliber (Student); Ginny Catania (Advisor)
University of Texas, Austin
SpATiaL: Semi-Automatic Glacier Terminus Inventory from Landsat
18-EARTH18F-0323

Joel Gongora (Student); Hans-Peter Marshall (Advisor)
Boise State University
Deep and Shallow Learning in Deep and Shallow Snow: SnowNet
18-EARTH18F-0372

Kyle Gwirtz (Student); Matthias Morzfeld (Advisor)
University of Arizona
Reduced-Scale Modeling and Data Assimilation for Decadal-Scale Forecasts of the Geomagnetic Field
18-EARTH18F-0176

Samantha Hartke (Student); Daniel Wright (Advisor)
University of Wisconsin, Madison
A Framework for Modeling Satellite Precipitation Errors in Data-Limited Regions, and Application to Landslide Hazard Assessment
18-EARTH18F-0007

Allison Hrycik (Student); Jason Stockwell (Advisor)
University of Vermont, Burlington
Testing Effects of Winter Severity on Phytoplankton Production Using Remote Sensing, High-Frequency Monitoring, and Field Experiments
18-EARTH18F-0216

Lidia Huaman Chuquihuaccha (Student); Courtney Schumacher (Advisor)
Texas A & M, College Station
Tropical Propagating Modes in the East Pacific ITCZ
18-EARTH18F-0276

Yiyi Huang (Student); Xiquan Dong (Advisor)
University of Arizona
18-EARTH18F-0088

Kevin Jansen (Student); Margaret Tolbert (Advisor)
University of Colorado, Boulder
Understanding the Factors that Affect the Optical Properties of Brown Carbon  
18-EARTH18F-0212

Xiaomeng Jin (Student); Arlene Fiore (Advisor)  
Columbia University

Using Multi-Satellite Observations to Analyze Ground-Level Ozone Sensitivity to NOx and VOC Precursor Emissions, from Urban to Global Scales  
18-EARTH18F-0254

Siraput Jongaramrungruang (Student); Christian Frankenberg (Advisor)  
California Institute of Technology

OPTIMEEM - OPTImize MEthane Emission Monitoring  
18-EARTH18F-0174

Catherine Kuhn (Student); David Butman (Advisor)  
University of Washington, Seattle

When Atmospheric Correction Matters: Improving Retrievals of Inland Water Properties from Remote Sensing and Field Data  
18-EARTH18F-0061

Mochi Liao (Student); Ana Barros (Advisor)  
Duke University

Physically-Based Correction of Satellite Estimates of Orographic Precipitation Using Inverse Modeling and Big Data Analytics  
18-EARTH18F-0424

Jiun-Ting Lin (Student); Amanda Thomas (Advisor)  
University of Oregon

Rapid Magnitude Assessment of Large Earthquakes from Machine Learning  
18-EARTH18F-0397

Xinyi Ling (Student); Nicholas Meskhidze (Advisor)  
North Carolina State University

Improving the Accuracy of Ground-Level Fine Aerosol Concentration Estimates by Using Novel Remote Sensing Techniques  
18-EARTH18F-0314

Chao Liu (Student); Xinfeng Liang (Advisor)  
University of South Florida, Tampa

Examining the Global Ocean Vertical Salt Transport with a Dynamically Consistent Ocean State Estimate  
18-EARTH18F-0004

Zane Martin (Student); Adam Sobel (Advisor)  
Columbia University

Variability in the Tropical Upper Troposphere/Lower Stratosphere from Sub-Seasonal to Inter-Annual Timescales  
18-EARTH18F-0154
David Miller (Student); Joseph McFadden (Advisor)
University of California, Santa Barbara
Using Imaging Spectroscopy to Quantify Vegetation Condition in Urban Landscapes During a Multi-Year Drought in California
18-EARTH18F-0023

Deanna Nash (Student); Leila Carvalho (Advisor)
University of California, Santa Barbara
Atmospheric River Impact on High Asia Mountain Precipitation
18-EARTH18F-0353

Wesley Neely (Student); Adrian Borsa (Advisor)
University of California, San Diego
Analysis of Soil Moisture Effects on Upcoming InSAR Mission Elevation Change Observables
18-EARTH18F-0412

Rachel Norris (Student); Chris Ruf (Advisor)
University of Michigan, Ann Arbor
Instrument Development and Science Applications for a Possible CYGNSS Follow-on Mission
18-EARTH18F-0124

Michael Nowicki (Student); Tim DeVries (Advisor)
University of California, Santa Barbara
Improving Satellite-Based Estimates of Net Primary Productivity by Assimilating Oceanographic Data
18-EARTH18F-0179

Casey Patrizio (Student); David Thompson (Advisor)
Colorado State University
The Role of Clouds in Northern Hemisphere Extratropical-Tropical Interactions
18-EARTH18F-0128

Justin Pflug (Student); Jessica Lundquist (Advisor)
University of Washington, Seattle
Evaluating Snow Depth Retrievals with Different Spatial Footprints and Temporal Repeats for Assimilation with a Snow Model in Complex Terrain
18-EARTH18F-0026

Michael Pogash (Student); Geoffrey Smith (Advisor)
University of Georgia, Athens
UV-Vis Atmospheric Aerosol Complex Refractive Index Monitoring
18-EARTH18F-0093
Samuel Prager (Student); Mahta Moghaddam (Advisor)
University of Southern California
Software Defined Radar Platform Development for Dynamically Configurable Multistatic and MIMO Smart Sensor Networks
18-EARTH18F-0399

Krishna Rao (Student); Alexandra Konings (Advisor)
Stanford University
High Resolution Vegetation Water Content and Tree Mortality Estimation Using Synthetic Aperture Radar
18-EARTH18F-0057

Naufal Razin (Student); Michael Bell (Advisor)
Colorado State University
The Influence of Tropical Cyclone Rainband Convection on Intensity
18-EARTH18F-0173

Micah Russell (Student); Jan Eitel (Advisor)
University of Idaho, Moscow
Toward Landscape Scale Estimation of Canopy Snow Interception Using Remotely-Sensed Forest Structure Information and Snowfall Event Characteristics
18-EARTH18F-0208

Jacob Schaperow (Student); Steven Margulis (Advisor)
University of California, Los Angeles
Improving Discharge Estimates via Assimilation of Remotely-Sensed Water Surface Elevation: a Case Study in Basins of Varying Climatology and Topography
18-EARTH18F-0378

Benjamin Sumlin (Student); Rajan Chakrabarty (Advisor)
Washington University
Measurement of Aerosol Optical Properties in Support of FIREX-AQ
18-EARTH18F-0363

Simon Topp (Student); Tamlin Pavelsky (Advisor)
University of North Carolina, Chapel Hill
Spatiotemporal Dynamics of Lake Water Clarity from Landsat in the Continental United States
18-EARTH18F-0233

Pedro Valle de Carvalho e Oliveira (Student); David Roy (Advisor)
South Dakota State University
Integrating Airborne LiDAR, Landsat-8 and Sentinel-2 Data to Map Brazilian Amazon Tropical Moist Forest Biome (BATMFB) Canopy Height
18-EARTH18F-0416
Liz van Wagendonk (Student); Van Kane (Advisor)
University of Washington, Seattle
**Determining Forest Resilience to Drought-Induced Mortality with Effects on Carbon Storage**
18-EARTH18F-0068

Lawrence Vulis (Student); Efi Foufoula-Georgiou (Advisor)
University of California, Irvine
**Understanding Changes in Arctic Deltas**
18-EARTH18F-0331

Zach Wallace (Student); Yvette Spitz (Advisor)
Oregon State University
**Significance of Calcifiers to the Iron and Carbon Cycles in the Patagonia Shelf Region: A Modeling and Satellite-Derived Analysis Approach**
18-EARTH18F-0181

Chenyang Wei (Student); Adam Wilson (Advisor)
State University of New York, Buffalo
**Monitoring, Modeling, and Projecting Global Dynamics in Alpine Treeline Ecotones Under Climate Change**
18-EARTH18F-0272

Xueying Yu (Student); Dylan Millet (Advisor)
University of Minnesota
**Constraining and Projecting Wetland Methane Emissions in the Northern United States**
18-EARTH18F-0215

Yan Zhan (Student); Patricia Gregg (Advisor)
University of Illinois, Urbana-Champaign
**Forecasting Volcanic Unrest of Atka Volcanic Center, Alaska, Using the Ensemble Kalman Filter**
18-EARTH18F-0224

Bowen Zhao (Student); Alexey Fedorov (Advisor)
Yale University
**The Role of Cross-Equatorial Winds in ENSO Dynamics Revealed by Satellite-Based Observations and Model Experiments**
18-EARTH18F-0231

Jiawei Zhuang (Student); Daniel Jacob (Advisor)
Harvard College
**Atmospheric Chemistry Modeling on Cloud Computing Platforms: Development of a New Resource for Analysis of Earth Science Data**
18-EARTH18F-0060