



NASA Earth System Science Award 2020

What is the NASA Earth System Science Award?

The goal of the NASA Earth System Science Award is to increase awareness regarding the importance of scientific research in the area of Earth system science, the study of the complex system and the interconnections that occur on Earth. It is presented for the project that best demonstrates insight into Earth's interconnected spheres. The different spheres that make up our Earth system are the atmosphere, lithosphere, hydrosphere, cryosphere (snow and ice), and biosphere. **The project should incorporate studies including different spheres of the Earth system, their interactions and change over time.** It should include cause-effect relationships based on evidence and demonstrate a clear understanding of how those relationships affect Earth as a system. Listed below are subcategories from which this type of project might be selected.

- **Atmospheric Science (AIR):** Studies of the Earth's atmosphere, including air quality and pollution and the processes and effects of the atmosphere on other Earth systems as well as meteorological investigations.
- **Climate Science (CLI):** Studies of Earth's climate, particularly evidential study of climate change as it relates to Earth's systems.
- **Environmental Effects on Ecosystems (ECS):** Studies of the impact of environmental changes (natural or as a result of human interaction) on ecosystems, including empirical pollution studies.
- **Geosciences (GES):** Studies of Earth's land processes, including mineralogy, plate tectonics, volcanism, and sedimentology.
- **Water Science (WAT):** Studies of Earth's water systems, including water resources, movement, distribution, and water quality.
- **Other (OTH):** Studies that cannot be assigned to one of the above subcategories.

How and why does NASA study the Earth?

NASA uses the vantage point of space to understand and explore our home planet, improve lives and safeguard our future.

Earth's spheres interact in complex ways. Changes in one sphere affect other spheres because they are all interconnected. NASA is involved in numerous research and educational efforts to find answers to questions about these complex interactions. In addition, NASA is developing a scientific understanding of how Earth's system responds to changes that are occurring as a result of natural and human-made causes. Through a variety of Earth system satellite missions, NASA is striving to provide researchers and scientists with the data they need to find these answers. Students are encouraged to use NASA data in their Earth system science projects.



NASA Earth System Science Award Judging Rubric

Line items in bold are required in order to be considered. Other line items are not required but can be considered.

	4 Excellent	3 Above Average	2 Average	1 Developing
RESEARCH QUESTION				
Project exhibits an Earth System perspective focusing on one or more interactions between the different components of the Earth system.				
Project identifies contributions to the field of Earth system science.				
Project is testable using the scientific research process.				
DESIGN AND METHODOLOGY				
Project includes Earth system-related variables, which are defined, appropriate and complete.				
Project demonstrates a well-designed plan and method of data collection.				
DATA COLLECTION, ANALYSIS AND INTERPRETATION				
Project demonstrates systematic data collection, analysis and evidence based on the relationship(s) between components of the Earth system.				
Project contains the possibility of reproducibility of results incorporating Earth system data.				
Project displays appropriate application of mathematical and statistical methods.				
Project contains sufficient data collected to provide evidence to support interpretation.				
CREATIVITY				
Project demonstrates significant creativity in the area of Earth System Science.				
POSTER PRESENTATION				
Poster provides a logical organization of material.				
Poster possesses clarity of graphics, legends and supporting documentation.				
INTERVIEW PRESENTATION				
Student exhibits an understanding of Earth system science relationships relevant to the project.				
Student demonstrates relevant ideas for further research in the area of Earth system science.				
Student conducted the project independently and possesses a clear understanding of the project details (if team project, contributions by all team members are evident).				
Student exhibits clear, concise, thoughtful responses to questions.				
Student demonstrates an understanding of the interpretation and limitations of results and conclusions.				
COLUMN TOTALS				
GRAND TOTAL (SUM OF COLUMN TOTALS)				