



Ms. Jessica Robin

Soil Scientist

SSAI at NASA Goddard Space Flight Center

Research Specialty: Soil Science and Remote Sensing

Comfortable with the following age ranges: all

Comfortable with the following audience sizes: all

Jessica Robin is a soil scientist for the GLOBE Soil Characterization Investigation Team at NASA Goddard Space Flight Center. The GLOBE Program is an international partnership network of K-12 students, teachers, and scientists working together to study and understand the global environment. Jessica studies how soils affect and are impacted by the Earth system and utilizes data collected by satellites as well as measurements made by students from all over the world in her research. She works closely with GLOBE schools helping them understand with Basic GAPS how their data contribute to this research. Basic GAPS is a computer model of the Earth system that was developed by the Soil Characterization Team specifically for students. Jessica also conducts domestic and international soils trainings for the GLOBE Program.

Presentation Overview and AV Requirements:

Classroom Visit presentations

Earth from Space

Grades 6-12

What does a volcano, a glacier, and a city look like from space? How do we tell what things are on Earth from a satellite image? In this interactive presentation you will take a visual tour of Earth as seen from satellites. You will learn about the different satellites and how scientists use this information to study and monitor change on Earth. Then you will take a visual quiz and see how well you can determine what things are on Earth from space.

AV Requirements: LCD projector, projection screen, and extension cord

Just Passing Through

Grades K-5

How and why do soils differ? This interactive presentation shows you how water flows through soils, how water changes as it goes through soil, and how different types of soils affect water movement. Students time the flow of water through different soils, examine the amount of water held in these soils, and observe the filtering ability of soils.

AV Requirements: Three plastic soda bottles (1/2 gallon), two different kinds of soil, grass clippings, three rubber bands, and one pair of knee high panty hose

Family Science Night presentation

Visible Earth

Have you ever wondered what our planet Earth looks like from space? Or how scientists use satellite images to differentiate a tree from a building and how they monitor change with this information? In this interactive presentation you will have an opportunity to answer these questions as you view images from all over the world taken from Earth observing satellite missions. You will learn which satellites provide us information about land surfaces, oceans, snow cover, and other parts of the Earth system. You'll also learn how long it takes to develop instrumentation for a specific satellite mission and how the data is calibrated and validated.

AV Requirements: LCD projector, projection screen, and extension cord

Ms. Jessica Robin
Formal Bio

Areas of Expertise:

Soil science, remote sensing, biophysical models, soil instrumentation, training.

Education:

PhD, Geography, University of Maryland-College Park, Current

MS, Soil Science, Cornell University, August 1997

MPS, International Agriculture, Cornell University, August 1995

BS, Labor Relations, Cornell University, May 1988

Professional Experience:

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| 2000 – Present | Scientist, Science Systems and Applications, Inc., Greenbelt, Maryland
On-site contractor at NASA Goddard Space Flight Center to provide technical assistance and educational outreach in Earth Science research for GLOBE and other NASA Programs |
| 2000 – Present | Soils Trainer, GLOBE Program
Domestic and international workshops both in English and Spanish |
| 2005 – Present | Instructor, University of Maryland Baltimore County, Maryland
“Geography of Soils” in Dept. of Geography and Environmental Systems |
| 1997 – 2000 | Research Scientist, Cornell University, Ithaca, New York
Designed and managed field and greenhouse experiments; developed and co-authored laboratory manual for introductory soils course |
| 1997 –1998 | Project Coordinator, Cornell University, Ithaca, New York
Developed watershed manual for community water quality compliance of confined animal feeding operations in NY (EPA/USDA project) |
| 1993 –1997 | Research & Teaching Assistant, Cornell University, Ithaca, New York
TA for Intro Soil Science and Environmental Biophysics classes; researched raised field technology, included travel to Bolivia and Peru |
| 1992 –1993 | Project Manager, Planning Assistance, Cochabamba, Bolivia
Developed, implemented, and managed evaluation program of Bolivian agricultural technical assistance and credit projects funded by USAID |
| 1992 | Credit Analyst, Planning Assistance, Cochabamba, Bolivia
Evaluated USAID credit program for small farmers to determine clients’ needs, efficiency of program, and structural changes required in design |
| 1990 – 1992 | Peace Corps Volunteer, Ucurena, Bolivia
Volunteer for a rural agricultural cooperative |
| 1988 –1989 | Program Assistant, Development Alternatives, Washington DC
Provided logistical support and staff recruitment for development projects funded by USAID, World Bank, and other international agencies |

Awards

NASA Graduate Student Researchers Program Fellowship (2003-2006)

NASA Goddard Space Flight Center Award of Excellence in Outreach (2003)
Outstanding Graduate Teaching Assistant (Cornell University, 1996-1997)

Selected Publications and Papers

1. Robin, J., E. Levine, and S. Riha. 2005. Utilizing satellite imagery and GLOBE student data to model soil dynamics. *Ecological Modelling* 185:133-145
2. Melkonian, J., S. Riha, J. Robin, and E. Levine. 2005. Utilizing GLOBE student data for model simulations of drainage and runoff. Submitted. *Journal of Hydrology*.
3. Robin, J., E. Levine, S. Riha, and J. Melkonian. 2004. Soils and Atmosphere Exchange: Simulating Evapotranspiration with GLOBE Measurements and NDVI. Proceedings for the IEEE International Geosciences and Remote Sensing Symposium (IGARSS).
4. Melkonian, J., J. Robin, J., S. Riha, S., and E. Levine, 2004. Basic GAPS Software and Manual. Cornell University, New York. (<http://soil.gsfc.nasa.gov/gaps/>)
5. Robin, J., E. Levine, and S. Riha, 2002. GLOBE meets GAPS: Utilizing student data to model the atmosphere-plant-soil system, World Congress of Soil Science, Thailand.
6. Levine, E. and J. Robin, 2001. A review of NASA Earth science research, Institute for the Promotion of Teaching Science and Technology, Thailand.
7. Robin, J. and S. Riha, 1999. Laboratory manual for soil science, Cornell University, Ithaca, NY.
8. Robin, J. and B. Bellows, 1998. Sandy Creek: a county approach to community-farm watershed compliance. Cornell Cooperative Extension, Ithaca, NY.

Languages

Fluent in Spanish, Proficient in Bahasa Indonesia