



Earth Scientist



Dr. Sadredin "Dean" Moosavi
Earth Scientist

Minnesota State University
NASA BOREAS project

I help future teachers and general education students to understand the Earth as a system and to understand its place in the solar system. I teach, grade papers, and develop materials and activities to help students of many ages learn about the Earth. A big part of my job is developing and leading field trips. From an afternoon trip to a local river to a week-long excursion to look at lava flows, field trips help us to see the Earth and geologic processes on their own time and spatial scales. Students in this setting get the chance to make scientific observations the same way explorers do; by actually going there and seeing how the small pieces fit into the larger puzzle. When I have time, I also go into the field, specifically the Arctic, to investigate how wetlands produce greenhouse gases such as methane and carbon dioxide. This interface among living organisms, the Earth's waters, and the atmosphere is fascinating because it determines the nature of our very existence and the way our planet has evolved to be so different from its neighbors.

Areas of expertise:

- Boreal and arctic wetland Biogeochemistry
- Global climate change
- Greenhouse gas emissions
- Earth science education

How I first became interested in this profession:

When I was an exchange student I was exposed to the problems caused by acid rain in Europe. The desire to help solve these problems drove me toward the environmental sciences.

What helped prepare me for this job:

I was lucky to have a strong public high school background, which focused on science without neglecting the humanities. My decision to keep my coursework program diverse has been crucial to my muinterdisciplinary work. Most importantly, developing good interpersonal skills combined with a genuine interest in a variety of topics has kept me broadly knowledgeable of science and society.

My role models or inspirations:

I was blessed to have grandparents who believed in the importance of integrating science knowledge and experiences in the natural world as a means for learning. I give credit to my high school English teacher for my interest in reading great works of literature and stories of science and scientists like Alfred Wegener. She also helped me develop my writing skills. I also acknowledge my students over the years; that hard work and dedication to learning continues to inspire my efforts.

My education and training:

- A.S., Science, Finger Lakes Community College
- B.S., Environmental Chemistry, State University of New York, College of Environmental Science & Forestry
- M.S., Earth Science, University of New Hampshire
- Ph.D., Earth Science with specialization in Geochemical Systems, University of New Hampshire

My career path:

- Graduate School, University of New Hampshire, 7 years
- High school chemistry, oceanography, physical science teacher, 2 years
- Assistant Professor of geology, Minnesota State University-3 years to present

What I like about my job:

I love the opportunity to share science with so many people, especially the people who will be teaching. I love seeking out and generating new knowledge and traveling to interesting places. It is wonderful to make a difference both for people and the environment. Most of all I love trying to understand our place in the universe.

What I don't like about my job:

There is more to do in this job than you can ever hope to achieve in one lifetime! The downside is that some of your time is lost to the paperwork/bureaucratic tasks. Whether attending meetings, seeking funding, grading papers, etc., the time needed for these unavoidable functions is lost from teaching and research.

My advice to anyone interested in this occupation:

Developing skills in math, writing, public speaking, and ALL the basic sciences is important. Do not overspecialize, but get as broad of scientific training as possible without neglecting the arts and humanities. Keep your eye on both short and long term goals when making decisions in your life--even the most direct route to an objective is not always the best choice. Every day is an opportunity to learn something that has use, even if that use is currently hidden. Approach life with openness, collect experiences and skills, and weave them together to make your own unique future.

Additional Resources:

- American Institute of Biological Sciences
<http://www.aibs.org>
- American Physiological Society
<http://www.faseb.org/aps>
- American Society for Biochemistry and Molecular Biology
<http://www.biophysics.org/biophys/society/biohome.htm>
- American Society for Microbiology
<http://www.asmsusa.org>
- Astrobiology Summer Academy
<http://academy.arc.nasa.gov/>
- Biotechnology Industry Organization
<http://www.bio.org/welcome.html>
- Education Pays Calculator
<http://www.educationpays.org/calc.asp>
- Graduate Student Researchers Program
<http://spacelink.nasa.gov/Instructional.Materials/NASA.Educational.Products/Graduate.Student.Researchers.Program.Brochure/.index.html>
- MATHCOUNTS Competition
<http://mathcounts.org/>
- Minority University Research and Education Programs
<http://mured.nasaprs.com/>
- NASA Cooperative Education Program for college students
<http://spacelink.nasa.gov/Educational.Services/NASA.Education.Programs/Student.Support/NASA.Cooperative.Education.Program/.index.html>
- NASA Jobs
<http://nasajobs.nasa.gov/>
- NASA Office of Life and Microgravity Sciences and Applications
<http://www.hq.nasa.gov/office/olmsa/>
- NASA SHARP Internship Program for high-schoolers
<http://www.mtsibase.com/sharp/>
- NASA Student Employment
http://nasajobs.nasa.gov/stud_opps/employment/index.htm
- NASA Student Involvement Program student contests
<http://www.nsip.net/index.cfm>
- Order NASA career videos such as "Engineers: Turning Ideas into Reality," "Careers: Aerospace Engineer" or "Reaching for the Stars" from NASA CORE.
<http://core.nasa.gov>
- Student's Guide to Astrobiology
<http://www.astrobiology.com/student.html>
- Tech-Interns.com
<http://www.tech-interns.com/>

Please take a moment to evaluate this product at:

http://ehb2.gsfc.nasa.gov/edcats/educational_topic

Your evaluation and suggestions are vital to continually improving NASA educational materials.

Thank you.

