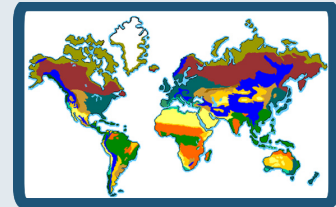


GLOBE: Seasons and Biomes

Principal Investigator: Dr. Elena Sparrow

Co-Investigators: Dr. Leslie Gordon, Dr. Rebecca Boger, Dr. David Verbyla,
Dr. Elissa Levine, Ms. Kim Morris

Performing Institution: University of Alaska, Fairbanks



Description: The Seasons and Biomes Project is an inquiry- and project-based initiative that monitors seasons, specifically their interannual variability, in order to increase K-12 students' understanding of the Earth system. Seasons and Biomes connects GLOBE students, teachers, and communities, with educators and scientists from three Earth Systems Science Programs: International Arctic Research Center (IARC), NASA Landsat Data Continuity (LDCM), and Terra Satellite Missions.

How can studying seasonal change help students better understand Earth as a system? Seasons connect all five spheres of the Earth system - atmosphere, biosphere, cryosphere, hydrosphere and lithosphere - and the interaction between these five spheres affect the timing and duration of seasons. By monitoring seasons, students will increase their understanding of how interactions within the Earth system affect their local seasons and how in turn variations in seasons affect their communities as well as regional and global environments.

What is a Global Learning Community (GLC)? For the Seasons and Biomes Project our GLOBE Learning Community will be an international network of GLOBE schools organized by biomes. A biome is a large geographic area of distinctive plant and animal groups maintained under the climatic conditions of the region. Students in each GLC will monitor their seasons through field campaigns using GLOBE protocols that have been adapted specifically for their biomes. In addition, ice and mosquito phenology protocols will be adapted for Arctic/Subarctic and Tropical regions, respectively. The project will target two GLCs each year and focus on the Tundra and Taiga biomes initially.

What about satellite data? Landsat and MODIS satellite data will be used to teach students what biomes are, how they are classified, and how to identify their region's biome. In turn, the students' field measurements collected during their field campaigns will validate the satellite data.

Science Content Focus: Phenology, biogeography, climate change, and remote sensing.

Intended Audience: K-12 students, K-12 teachers, science experts and community members.

Geographic Scope: The project is global with many opportunities for international participation. The project will initially focus on Tundra and Taiga biomes as phenological changes are so pronounced in these regions. Furthermore, this will allow the entire GLOBE community to participate in the International Polar Year (IPY) (2007-2009) via web casts between IPY scientists, schools located in Polar regions, and schools located in other GLCs. Similar field campaigns will be organized in other biomes in subsequent years of the projects. Countries with multiple biomes can participate in more than one field campaign.

Type of Project: Teacher professional development workshops and regional field campaigns with biome-specific protocol measurements coupled with satellite validation and Web casts between scientists and participating schools. Scientists will also be involved through research collaboration with existing projects that could benefit from student data and input, and mentoring students in developing research projects with seasons, biomes and satellite data.

Web Link to Existing IARC Information: www.iarc.uaf.edu

How to Get Involved: www.globe.gov/seasons

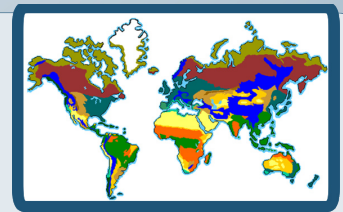
Seasons and Biomes Project Leader: Dr. Elena Sparrow, ffeb@uaf.edu

GLOBE Project Leader: Dr. Sheila Yule, syule@globe.gov



GLOBE: Seasons and Biomes

Meet the Team



Principal Investigator: Dr. Elena Sparrow, research associate professor in soil microbiology at University of Alaska-Fairbanks and Director of Education and Outreach at IARC, with over 25 years research and more than 15 years teaching experience including science education for K-12 teachers. Elena will lead the Seasons and Biomes project development, operation and dissemination.



Co-Investigator: Dr. Leslie Gordon, science educator with 28 years teaching experience at a variety of grade levels from elementary school to graduate level courses at the university. Leslie will lead the evaluation efforts in Seasons and Biomes.



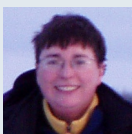
Co-Investigator: Dr. Rebecca Boger, scientist at Brooklyn College teaching GIS. Scientist with extensive experience in facilitating international science collaboration, research science, workshops, building regional capacity, and developing educational materials.



Co-Investigator: Dr. David Verbyla is a professor of remote sensing and geographic information system at the University of Alaska Fairbanks Department of Forest Sciences. David will participate in satellite data and ground data analyses, and mentoring students in developing research projects.



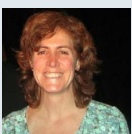
Co-Investigator: Dr. Elissa Levine, soil scientist at the Biospheric Science Branch at NASA Goddard Flight Center, has extensive experience working with K-12 teachers and students. Elissa will participate in ecosystem and soil modeling efforts and assist in data analysis.



Co-Investigator: Ms. Kim Morris has extensive ice and snow research experience in the Arctic and Antarctica and has extensive experience working with students and teachers. She will play a key role in developing the ice phenology protocols for Seasons and Biomes.



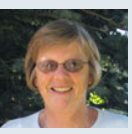
Team Member: Dr. Martin Jeffries, research professor of geophysics at University of Alaska Fairbanks has extensive ice and snow research experience in the Arctic and Antarctica. He will be responsible for coordinating the ice phenology program in Seasons and Biomes.



Team Member: Dr. Jessica Robin, research scientist who has extensive experience in remote sensing, soils, and working with K-12 students.



Team Member: Ms. Martha Kopplin has been a GLOBE teacher since 1997 and is a certified GLOBE Trainer. Martha will serve as project coordinator and will also assist in training workshops, and the recruitment of scientists and community experts to mentor teacher and students.



GLOBE Project Leader: Dr. Sheila Yule, GLOBE School Networks Coordinator and Alumni Coordinator with extensive experience in environmental science education and professional development.