

The Climate Lab: An Innovative Partnership between Climate Research and Middle-School Practice

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This project will develop and test an education partnership model focusing on climate change (The Climate Lab) that features inquiry-oriented and place-based learning. Curriculum development will begin with a prototype program pioneered by the Manomet Center for Conservation Sciences, and a design-based implementation research (DBIR) approach will be used to develop a curriculum that is aligned with key elements of the Next Generation Science Standards (NGSS). The project partnership includes scientists at three research centers, education researchers, and middle school teachers. The completed curriculum will provide opportunities for middle school students and teachers to compare their locally collected data with historic data to create unique and powerful learning opportunities. The collaboration between scientists and schools introduces middle school students to local, community citizen science endeavors with multiple stakeholders.

The project is innovative in linking direct exploration of current, local conditions with archived data to examine long-term changes in natural phenomena that cannot be directly perceived. Components of the model being developed will include:

- a standards-aligned curriculum;
- field and lab activities that engage students in collecting and analyzing data on local biotic and abiotic indicators of climate change;
- integration with a current climate science research program;
- support materials for teachers and scientists (print and electronic) and a digital teacher professional development program; and
- a project Website.

During development of these curricular components, barriers to implementation of this learning strategy will be identified and studied. The findings of this project have the potential to broadly impact middle school science education practices by introducing a curricular model that links direct data collection with analysis of archived data to study long-term environmental changes that are not directly perceived.