

Open Science, Community Science, and AGU's Thriving Earth Exchange.

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Climate change, environmental degradation, and increased vulnerability to natural hazards place humanity, and the planet, in a precarious position. Science is necessary, but not sufficient, to address these challenges and chart a course to a sustainable future. Traditional models of scientific research need be augmented with new models of engagement and application that are more open, more transparent, and better connect scientific evidence, data, and ways of thinking to civic action.

One such model of engagement is community science, in which scientist and community leaders design and carry out scientific activities to advance community priorities. Thriving Earth Exchange, a five-year old program of the AGU, contributes to open science by advancing Community Science. Thriving Earth Exchange has launched over 90 community science projects all over the United States and world. Projects include working with community leaders to improve the carbon inventories so that cities can identify and mitigate emissions by sector or region and working with neighborhood residents to design rain gardens that prevent local flooding and sequester carbon. AGU is seeking to expand Thriving Earth Exchange internationally and advance the practice of community science around the world.

Drawing on experience in Thriving Earth Exchange, this poster will document the practices of successful community science projects. Successful projects involve partnership and shared decision making at every stage of the scientific process—from defining scientific questions, to deciding how and what data to collect, to applying new understanding to local issues. The most successful projects put scientific knowledge in a larger context and offer science with awareness of and respect for local decision processes. Community science, therefore, appreciates other ways of knowing and deciding, and never insists on the superiority of scientific perspectives. Finally, successful community science projects advance equity by providing a way for communities—especially communities who have been historically neglected, marginalized or oppressed—to help guide and use science to advance their priorities. This poster will offer also offer scientists tips for doing community science- tips gleaned from AGU's experience with the Thriving Earth Exchange. These tips involve practicing humility, being willing to balance research and application, attending to equity and power, and respecting local and community knowledge. Community science also requires a willingness to work across disciplines, to get comfortable with messy problems, and to apply systems perspectives. Some of the things that scientists bring to this work, in addition to the deep expertise, are their ability to frame problems, their ability to find and access scientific knowledge and data, and the professional and personal networks that come with being part of privileged institutions.

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