ACES 2016 Thursday Lunch Town Hall
December 8, 2016 | 12:00 - 1:05 pm | Grand Ballroom 2

Title: *Ecosystem Services 2.0 - Enabling Civic Ecology through Participatory Science and Open Innovation*

Description:
Imagine having a million or even thousands of volunteers help you with your work. Crowdsourcing, citizen science, and civic hacking are open and participatory approaches for obtaining new ideas, content, or services by soliciting contributions from a large group of people. They are often broad in scope, interdisciplinary in nature, and disruptive to traditional means for conducting science. The increase in internet access, mobile social technologies, and low-cost sensors have enabled new opportunities to collect, analyze, and communicate scientific data from citizens at much broader spatial and temporal scales. There are also now federal policies and curated federal resources like CitizenScience.gov and Challenge.gov to accelerate open innovation efforts through public participation across the U.S. government.

This Lunch Town Hall session is an opportunity to explore and discuss how participatory science and open innovation techniques can enable civic ecology and enhance the field of ecosystem services. The moderator will provide an overview of some of the participatory science and open innovation opportunities that can be applied to ecosystem services by introducing the following participatory science and open innovation concepts along with examples of related work from three speakers.

- **Open innovation** is a paradigm that suggests that organizations can and should solicit contributions from external volunteers, users, and other stakeholders.

- **Citizen science** mobilizes the public to participate in any part of the scientific process to address real-world problems, in ways that include identifying research questions, collecting and analyzing data, interpreting results, making new discoveries, developing technologies and applications, and solving complex problems.

- **Crowdsourcing** is a process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community.

- **Crowdmapping**, a subset of crowdsourcing, is a process where individuals or organizations submit an open call for geographic information or information with an associated geographic location from volunteers to produce collaborative maps.

- **Do-it-yourself (DIY) / Making** shares methods of creating, modifying, or repairing things without the aid of professional experts. Tools created by Makers—for example, low-cost sensors and scientific instruments—can make direct participation in STEM activities more accessible to the public.

The first speaker, Clayton Cox a AAAS fellow at the Environmental Protection Agency (EPA), will discuss the use of citizen science to support participatory environmental governance using examples from a Stream Monitoring pilot project in Serbia, a BioBlitz in Montenegro as well as the development of a watershed social values mobile application.

The second speaker, Elizabeth Tyson from The Wilson Center, will discuss her thesis work that piloted the use of an open-source data collection platform, Open Data Kit, with Mexican coffee farmers to sample key

environmental targets to inform ecosystem services programs like the UN Reducing Emissions from Deforestation and Forest Degradation (REDD) + program.

The third speaker, Joe Morrison from Azavea, will explain some of their crowdsourcing, citizen science, and civic mapping projects related to urban forestry. This speaker will specifically discuss his work on OpenTreeMap, a web and mobile-based platform for mapping urban forests and quantifying their environmental and economic value.

Discussion Questions:
- What types of citizens, crowds, or users directly experience ecosystem services?
- How can crowdsourcing or citizen science enable the identification, measurement, and analysis of ecosystem services?
- What kind of volunteer activities can enable the ecosystem services approach?
- What kind of low-cost sensors could enable the measurement of ecosystem services?
- What challenges and opportunities may arise when engaging the wider public in the ecosystem services approach?
- When is it appropriate and inappropriate to apply these participatory methods to the ecosystem services approach?
- What are the major challenges with the ecosystem services approach that could be explored at a ecosystem services hackathon?

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Town Hall Agenda (55 minutes):
- Introduction by Moderator, Sophia B Liu - (5 minutes)
- Talks by 3 Speakers - (15 minutes)
- Discussion of the Questions Above (30 minutes)
- Synthesize Discussion with Next Steps (5 minutes)

Conference Themes:

This town hall session covers the following conference themes of:
- Successful use of an Ecosystem Services Approach (Public or Private)
- Voice, Agency, Equity: Implications of adopting an Ecosystem Services Framework
- Public-Private Partnerships and Inter-Agency Coordination
- Cultural Values and Traditional Ecological Knowledge
- Methods for Valuation; Quantification, modeling, & mapping; Stakeholder Engagement
- Science & practice of Urban Ecosystems & services, Agriculture & Ecosystem services
- Implementation, Practice, and Policy: Education and Communication

Who Should Attend and Why:
This Town Hall provides participants the opportunity to learn more about participatory science and open innovation techniques and how they can enhance the ecosystem services approach. Scientists, practitioners, managers, and policy-makers from government, academia, NGOs, and the private sector are all encouraged to participate and share their ideas and experiences.

Invited Speakers

Speaker 1:
Clayton Cox, Ph.D., AAAS Science and Technology Policy Fellow Cox.Clayton@epa.gov
Office of Research and Development
U.S. Environmental Protection Agency (EPA)

Speaker 2:
Elizabeth Tyson, Co-Director of Commons Lab   Elizabeth.Tyson@wilsoncenter.org
Program Associate of Science and Technology Innovation Program
Wilson Center

Speaker 3:
Joe Morrison, Product Specialist jmorrison@azavea.com
OpenTreeMap
Azavea

Town Hall Organizer

Sophia B. Liu, Ph.D.
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Qualifications: Dr. Sophia B Liu is the first Innovation Specialist at the U.S. Geological Survey (USGS) in the Science and Decisions Center. She is also the Co-Chair of the Federal Community of Practice for Crowdsourcing and Citizen Science (CCS), as well as the CCS Agency Coordinator for the USGS and the Department of Interior. She currently works on participatory science and innovation projects with the Mineral Resources Program; the Energy and Minerals, and Environmental Health Mission Areas; and the Office of Enterprise Information at the USGS. She also worked at the USGS National Earthquake Information Center, the St. Petersburg Coastal Marine Science Center, and at the USGS National Center as a Mendenhall Postdoctoral Fellow between 2011 to 2015 conducting research on crowdsourcing, citizen science, and civic hacking. Dr. Liu was also awarded a National Science Foundation (NSF) Graduate Research Fellowship in 2006. Her doctorate research at the University of Colorado at Boulder focused on the use of social media pertaining to historically significant crises and the emergence of socially distributed curation as a way of managing crisis information in the social media landscape. As an innovation specialist and user experience researcher, Dr. Liu investigates the Socio-cultural, Technological, Organizational, and Policy (STOP) challenges to improve government services.