

Why is Citizen Science Important?

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RACC Mediated Modeling Workshop

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RACC

Research on Adaptation
to Climate Change

For Academics

- Citizen science has evolved over the past four decades. Recent projects place ***more emphasis on scientifically sound practices and measurable goals for public education***. Modern citizen science differs from its historical forms primarily in the access for, and subsequent scale of, public participation; ***technology is credited as one of the main drivers of the recent explosion of citizen science activity***
- The "**Green Paper on Citizen Science: Citizen Science for Europe**" refers to "the ***general public engagement in scientific research activities when citizens actively contribute to science either with their intellectual effort or surrounding knowledge or with their tools and resources***. Participants provide experimental data and facilities for researchers, raise new questions and ***co-create a new scientific culture***. While adding value, volunteers acquire new learning and skills, and deeper understanding of the scientific work in an appealing way. As a result of this open, networked and trans-disciplinary scenario, ***science-society-policy interactions are improved leading to a more democratic research***, based on evidence-informed decision making as is scientific research conducted, in whole or in part, by amateur or non professional scientists.
- (2) the ***engagement of nonscientists in true decision-making about policy issues*** that have technical or scientific components; and (3) the ***engagement of research scientists in the democratic and policy process***.

Citizen Science

- **Public engagement**
 - **Needed to create a sustainable society**
 - **Increase awareness and ecological literacy**
 - Making observations reconnects us to environment
 - **Deepen web of relationships**
 - Understand networked systems: human and natural
 - **Environmental monitoring**
 - Geolocated technology in smart phone
 - **Check on business, government, scientists**
 - ‘Policing’; social pressure, responsibility
 - **Crowd sourcing: open access**
 - **Source of ‘free’ data**
 - **Needs active web management**

Challenges

- **Needs active creative management**
 - **New paradigm**
 - **Dynamic social network**
 - **Conflicts with ‘individualism’ (free country)**
 - **Open access conflicts with govt./scientists know best: trust us - with our obscure jargon!**
 - **Sensitive to diverse population beliefs**
 - **Aware of technical challenges**
 - **Data quality issues: need for protocols**
 - **Cyber-attacks [climate change, press freedom]**

History

- **Once we had citizen scientists**
 - Now society funds scientific research
 - Costs unsustainable for many challenges
 - Public uneasy worshipping ‘experts’
 - Social issues now central
- **Example Networks**
 - Birds: <http://ebird.org/content/vt/>
 - Phenology: <https://www.usanpn.org/>
 - Science for Citizens: *add your project*
<http://scistarter.com/index.html>
 - Research: <http://www.citizen-sciencealliance.org/>
 - [Facebook](#): *US.NationalWeatherService.Burlington.gov*

Many sensitive issues

- **“Control of information”** (*BBC: WW2*)
 - Ideological manipulation of ‘truth’
 - vs. Scientific integrity
 - vs. Natural world complexity/many unknowns
- **GMOs**
 - Public disclosure vs. industry bottom-line/secretcy
- **Renewable energy opposition**
 - Wind-farms; solar arrays (No change – NIMBY!)
- **Medical ‘expert’ model**
 - vs. well-networked/informed patient groups

Crowd Sourcing

- **Creative use: transformative technology**
 - **Social projects**
 - Share the Sun (<http://us.waka-waka.com/>)
 - ELF (<http://organictransit.com/>)
 - **New financial models bypass**
 - Rutland winter farmers market
 - Community solar: 7% tax-free return
 - **Empowerment**
 - Let us create the community we really want
 - VECAN
 - Transition town movement

Solar Roof Electric Tricycle

<http://organictransit.com/>



EXERCISE YOUR POWER!

Lessons for RACC

- **NSF EPSCoR bubble**
 - History, rules, academic objectives
 - Seeks innovation (well-controlled/measured)
 - Dynamic conflict: academia vs. societal change
 - Measure/Assess vs. Facilitate
- **State, Federal and local partners: *progress!***
- **What can we facilitate/create?**
 - To better manage LCB over coming decades?
 - To give citizens an active role
 - To build a consensus for sustainability
 - To ensure students leave with new vision