Citizen Science In Libraries: Results and Insights From a Unique NASA Collaboration

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INSTITUTE for GLOBAL ENVIRONMENTAL STRATEGIES

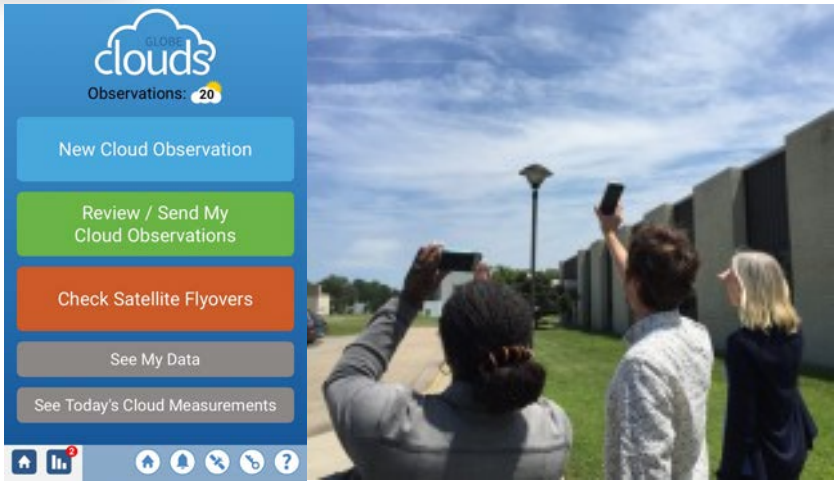
STAR net
Science-Technology Activities & Resources For Libraries

NASA@ My Library

GLOBE Observer

Background

- Ongoing collaboration between NASA Earth Science Education Collaborative (NESEC) and *NASA@ My Library*
- For Earth Day 2017, supported 100 U.S. libraries (>50% serving rural communities) to bring authentic STEM experiences and resources to learners in public libraries
- Libraries offered locally-relevant programs related to clouds and weather resources, and using GLOBE Observer (GO) citizen science
  - ✓ GO cloud observations are matched to satellite observations and help understand clouds, which play an important role in transferring energy from the Sun to different parts of the Earth system.



2017 Earth Day Collaboration

NESEC and *NASA@ My Library* bring unique STEM assets and networks to support this collaboration.

NESEC

- Citizen Science: GLOBE Observer App
- Subject Matter Experts: Earth science and education
- Programming resources: activities and educational resources to support programs related to clouds and weather

NASA@ My Library

- STAR Library Network (*STAR Net*)
- Subject Matter Experts: library STEM programming
- Online event resource center and event support (e.g., webinars, registration, etc.)

www.starnetlibraries.org/earth-day

Insights from Library Focus Groups and Evaluation

- Requested resources
- Programming ideas and approaches
- Promising practices

Requested Resources

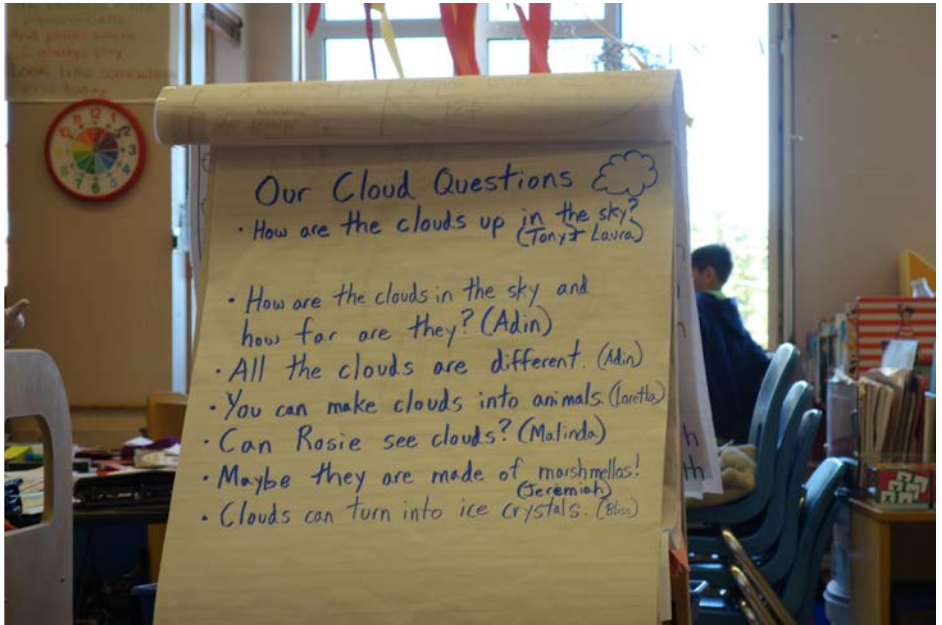
NASA resources have credibility and built-in excitement for both library staff and their audiences

- Displays/printables/promotional flyers. Leave space for libraries to customize
- Background materials/links
- Presentation template, plus images to create presentations
- Activities: simple, kid friendly, make-and-take, hands-on, introduces and reviews concepts
- Station activities
- Spanish language resources
- Information about NASA STEM professionals
- Brief videos
- Book lists related to science topic

Programming Ideas and Approaches

Libraries conducted **wide-ranging programs** on or around Earth Day with different

- **Duration** – from storytime to an hour to a day-long event
- **Audience** – general public, youth, families, adults
- **Event type** – drop in/self-guided, fixed-duration program, community Earth Day event
- **Learning outcomes**



Pitched as an Earth Day event centered on NASA science through clouds and weather, libraries saw many other connections to their community's interests:

- Environmental awareness/ nature appreciation
- Conservation/stewardship/ pro-environmental behaviors
- Community or local sustainability; "green living"; rain barrels
- Local/library cleanup
- Reduce/re-use/recycle
- Gardening, planting, or community gardens
- Photography
- Agriculture
- Ecology
- Water cycle
- Nature walk
- Sky or atmosphere
- Weather hazards and major weather events

Promising Practices

Flexibility is key

- ✓*P*rovide resources and programming ideas for use in a variety of settings

Organize Resources in ways that are meaningful for library staff

- ✓ Audience level/age (e.g., families, children, teens, adults)
- ✓ Level of engagement (beginner → advanced)
- ✓ Stage in the event (e.g., promotion, entry display, self-guided activities, follow-up, etc.)
- ✓ *Provide scenarios and real examples from library programs:* e.g., "We have a photography class every Saturday and I will work with Jack Wild, our professional photographer, to discuss photographing the clouds."

Differentiate options by audiences

- ✓ Example: GO app too complicated for small children, better option for this age is to facilitate a group observation using cloud ID chart

Highlight connections to non-science topics

- ✓ Examples: community, nature, exploration, local hazards, arts and crafts, improving your home and environment

Emphasize Resources are Evergreen – not just for Earth Day!

Promising Practices

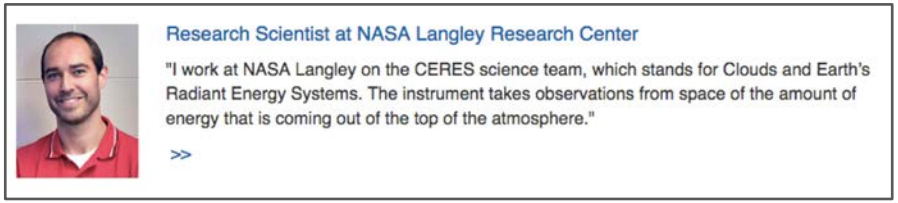
Subject Matter Expert (SME) Engagement

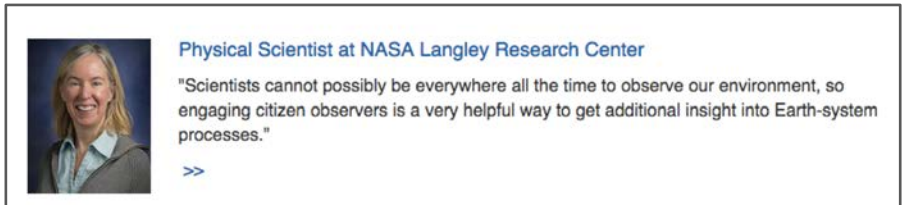
- Highlight scientists and how the data is being used (e.g., blogs, Facebook Live, Video)
- Leverage scientist networks like GLOBE Program Partners

✓University AK-Fairbanks GLOBE Partner: SMEs and knowledge of local community

✓Need to be proactive in reaching out to a local library and hosting an event

✓Start early and set clear timelines/guidelines, well in advance of the registration deadline (for 2018, planning started November 2017)





Sneak Preview: Earth Day 2018

Focus: Land cover with emphasis on historical change, leveraging:

- GLOBE Observer Land cover app (new in early 2018)
- Prior *STAR Net* exhibit and campaign: change over time in their community collecting old photos
- NASA Earth science resources and activities related to change (e.g., Landsat/Google Earth Engine)
- NASA Networks, including GLOBE Partners

For more information

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