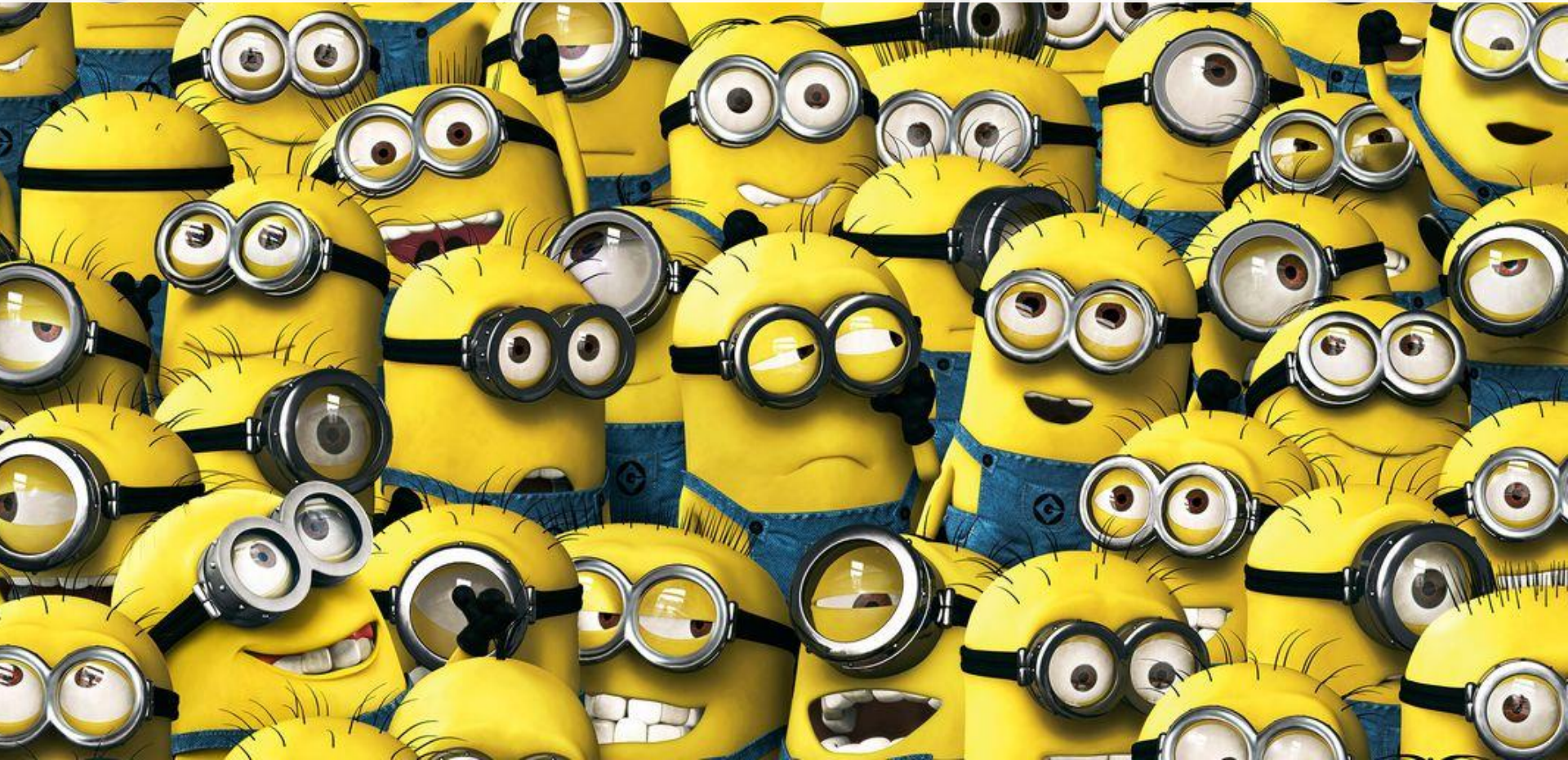




Citizen Science Programs and Observatories

The Role of Citizen Science Observatories and
Crowdsourcing Community for GEOSS, GEO
Plenary XIV in Washington, DC, on OCT 24, 2017

If you had 100,000 people
to help you with your work,
what would you do?



What is Crowdsourcing?

Crowdsourcing is a process where individuals or organizations submit an open call for voluntary contributions from a large group of individuals (“the crowd”), often through an online platform.

- . Citizen science is NOT right for solving
- . EVERY scientific problem, but it can be valuable when applied to the right
- . scientific or engineering problem and
- . when designed properly.

What is Citizen Science?

Contributions of the public to the advancement of scientific and engineering *research and monitoring* in ways that may include:

- Identifying research questions
- Designing/conducting investigations
- Designing/building/testing low cost sensors
- Collecting and analyzing data
- Developing data applications
- Developing technologies for science
- Solving complex problems

Many ways to involve volunteers in scientific research, engineering, and monitoring.

- Samples/specimen collection
- Observations
- Photography
- Makers/Sensors
- Geo-location
- Measurement
- Sample identification

Data collection

Data analysis



Defining research questions

Data processing

Problem Solving

Image analysis

Data entry

Classification or tagging

Transcribing data

Annotate text

Citizen Science Value Proposition

Citizen science can help get more science done more efficiently:

- Collect data with improved spatial or temporal resolutions
- Increase geographic extent or temporal scale
- Analyze imagery and Big Data more rapidly and where computer algorithms don't suffice
- Generate new ideas for data applications/technologies

Some of the Challenges

- Silos
- Trust (Credibility, Data Quality)
- Administrative (policies, regulations around data)
- Legal and Ethical (Privacy, Intellectual Property, Liability)
- Security (Cybersecurity, Safety)
- Sustainability (Volunteer motivations, incentives)
- Data Cyber Infrastructure, tools, services, and collaborations to support long-term management and sharing of citizen science data, metadata, and related media.
- Project Evaluation and Impact
- Value of citizen science (social, economic)

Advancing the “Science of Citizen Science”

US Federal Community of Practice for Crowdsourcing and
Citizen Science



Helping federal agencies accelerate innovation through public participation.



**Australian
Citizen Science
Association**

THE ZONIVERSE WORKS

77,418,575

CLASSIFICATIONS SO FAR BY
1,575,128 REGISTERED VOLUNTEERS

A vibrant community. Zooniverse gives people of all ages and backgrounds the chance to participate in real research with over 50 active online citizen science projects. Work with 1.6

million registered users around the world to contribute to research projects led by hundreds of researchers.



US Federal Citizen Science Toolkit

[HOME](#)[HOW TO](#)[CASE STUDIES](#)[RESOURCE LIBRARY](#)[LAW AND POLICY](#)[CITIZENSCIENCE.GOV](#)

How To: Step by Step

This toolkit shows five basic process steps for planning, designing and carrying out a crowdsourcing or citizen science project. At each step, you'll find a list of tips you can use to keep your project on track. [See the process steps](#)



Case Study Overview

Case studies in this toolkit serve as models and provide success stories and challenges to consider while planning a project. You can browse through agency case studies to get ideas for a project of your own. [Browse case studies](#)



Resource Library

The resource library provides a list of all resources in this toolkit which you can browse through by category. You can also find resources within each of the process steps in the "How To" section of the [View resources](#)

- White House Memo: Addressing Societal and Scientific Challenges Through Citizen Science and Crowdsourcing, 30 Sept 2015
- Section 402 of the American Innovation and Competitiveness Act
- US National Strategy and Plan for Civil Earth Observations



Adaptation of J.M. Flagg's 1917 poster by
Kathy Butterfield and Lea Shanley,
Wilson Center (2013)

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