

Engaging the Public through Citizen Science Gaming



A Presentation at:
Future Services Now

**JOHN MCCLAUGHLIN/GSA (DETAILEE)
DAVE MILLER/NIH**

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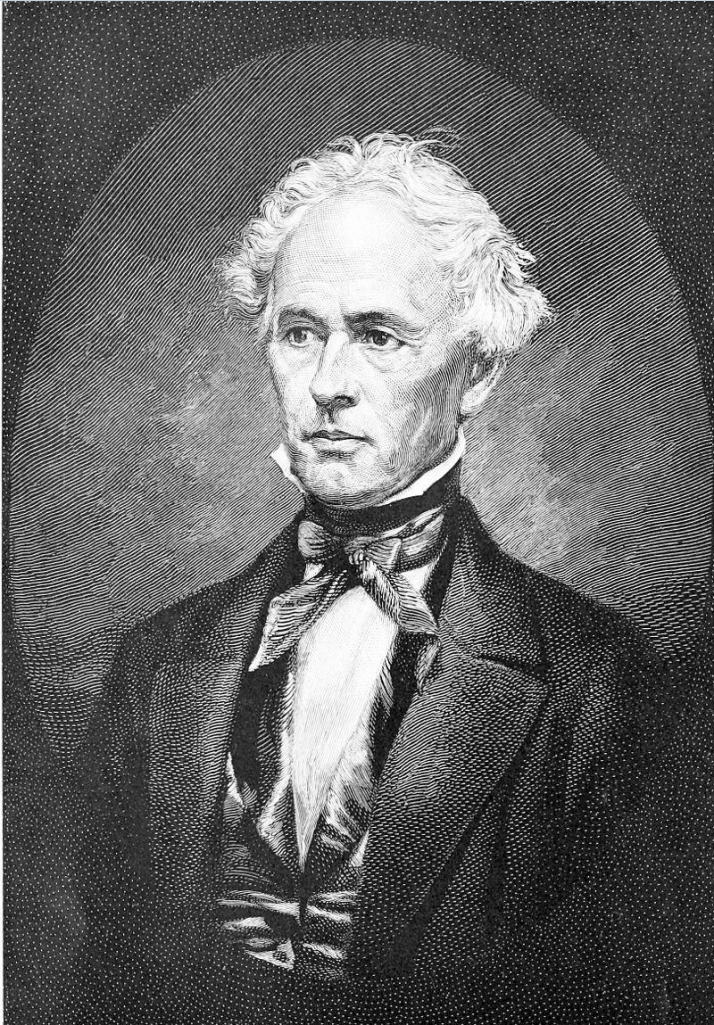
Citizen Science

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The public participates voluntarily in the scientific process, addressing real-world problems in ways that may include formulating research questions, conducting scientific experiments, collecting and analyzing data, interpreting results, making new discoveries, developing technologies and applications, and solving complex problems.

William C. Redfield (1789-1857)

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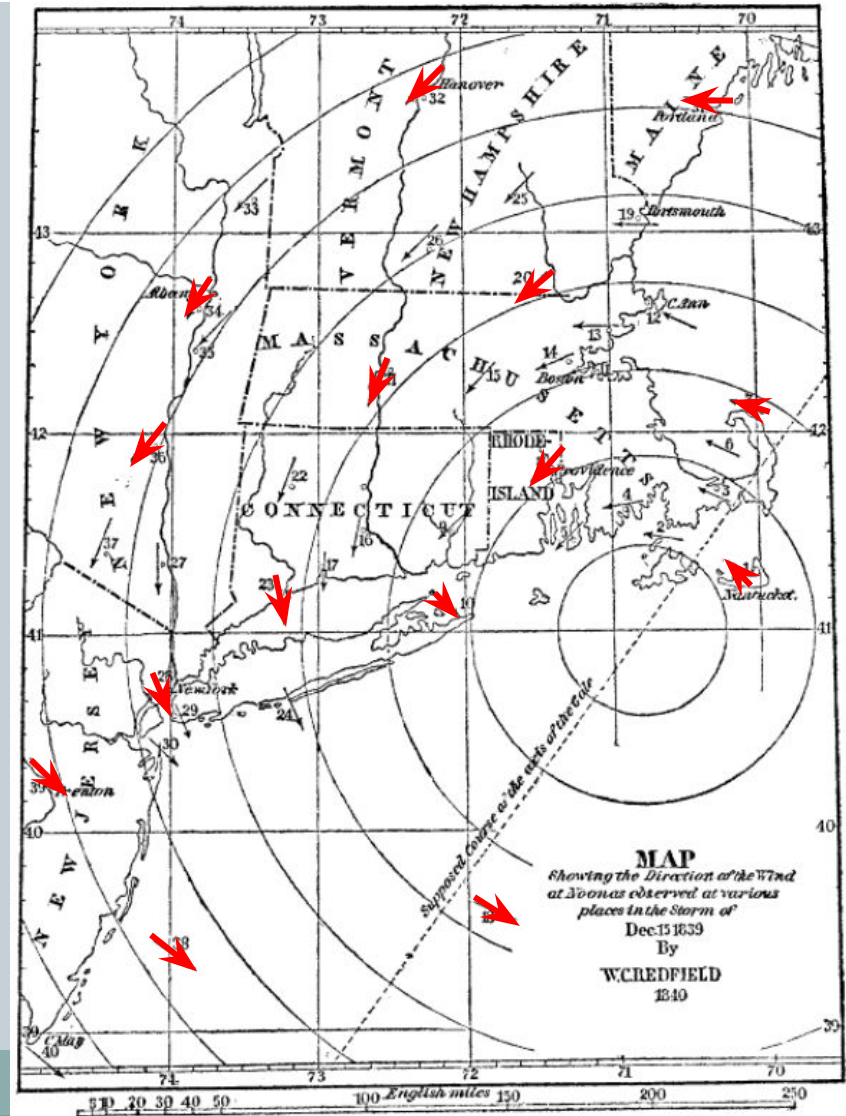
- A saddle maker, steamboat captain, and self-taught amateur meteorologist from Middletown, CT
- Noticed something interesting a few months after the New York Hurricane of 1821
- In 1831, published his observations that trees had fallen northwestward in the eastern part of CT and southeastward in the western part

Harnessed the Power of People

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- During a storm in 1839, Redfield had a network of observers record the wind direction at noon
- Helped prove existence of cyclonic storms

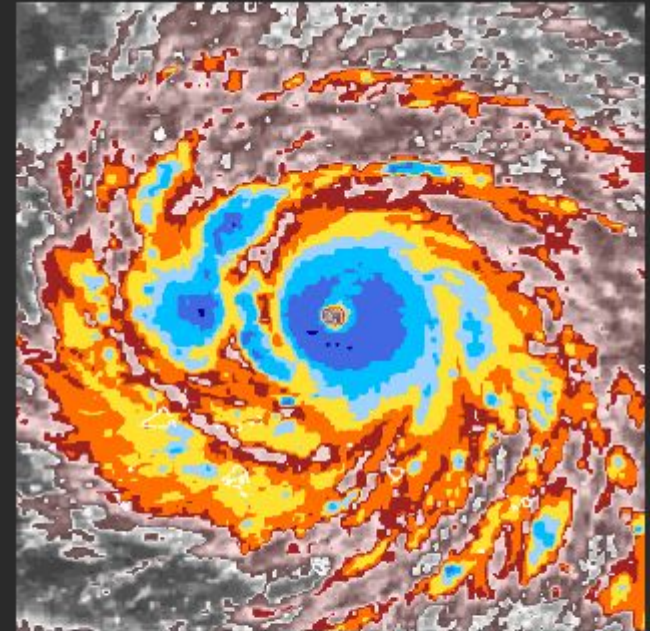
Observations on the Storm of December 15, 1839
William C. Redfield
Transactions of the American Philosophical Society, Vol. 8 (1843), pp. 77-82



Today we have Cyclone Center

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- *How is the intensity of tropical cyclones changing?*
- Volunteers classify storm intensity from satellite images by answering questions
- 16K+ participants have submitted over 878K classifications
- Published study of accuracy of these classifications



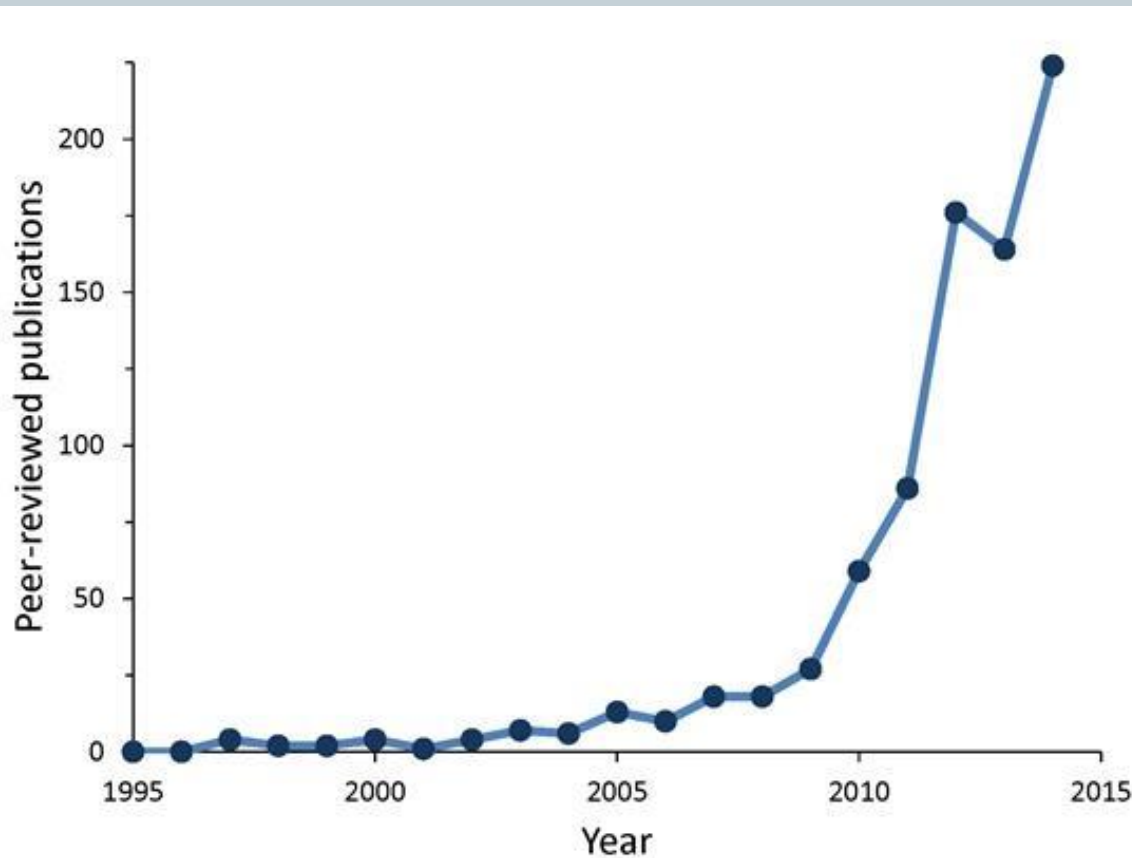
Which colors completely surround the eye?



Field is growing, rapidly

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David Hanych, an NSF Program, described it as a “coming tsunami”



Results for a search of the Web of Science for the keyword “citizen science”
McKinley et al (2015) Issues in Ecology 19.

Citizen Science and Crowdsourcing Can...

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- Enhance scientific research
- Provide hands-on learning and increase STEM literacy
- Address societal needs



New Participation Pathways

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Source: CBS News

Millions can Respond to Events

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Crowd sourcing of satellite imagery empowered public to aid in search for Malaysia Airlines Flight 370



Crowdsourcing and Citizen Science Act

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- Bipartisan bill signed into law January 2017
- Grants agencies the authority to:
 - accept volunteer services
 - partner broadly with the private sector and other government entities
 - use appropriated funds and solicit outside funds and in-kind services
 - perform other functions to carry out projects



Our Site Supports this Work

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Helping federal agencies accelerate innovation through public participation.

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Leveraging the Power of Gaming

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- Online games provide can broaden the audience for citizen science.
- The rise in popularity of augmented reality opens the door to new ways of collecting observations.

Learn and Connect

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- Visit CitizenScience.gov
- Follow us on Twitter at [@FedCitSci](https://twitter.com/FedCitSci)
- Let us know of ideas for collaborating