

Citizen Science and Climate Change Database & Webpage development

Goal:

Our ultimate goal is to get the public involved and increase awareness of climate change science through citizen science programs related to climate change, so the information and content we provide on the website should be easy to understand. At the same time, we can use some interesting methods, such as making some small games or some ways that combine interesting elements to spread scientific knowledge, because most scientific knowledge is hard to understand. If we just put all the relevant data and information on the website, this hard to understand information will not attract people to participate. We should combine data information, gamification elements and some social interaction activities to let more students, volunteers and environmental enthusiasts understand and participate in citizen science projects.

Research and Data

We should create a database of climate change science projects in Connecticut, organized into a list, through which we can categorize the projects to design the structure of the database. At the same time, we should provide a brief description of the project topics so that our users can more easily access the content they are interested in by region, topic, etc.

Webpage

1. "Why should I care about climate change?" (I think this is very important. Nowadays, most people don't really care about climate change. At the same time, they feel that climate change will not affect their lives at all and it is none of their business. They think that climate change requires a lot of knowledge to learn or understand. So whether our website can attract more people to participate is a very important step. At the same time, we must let these people have a sense of accomplishment. Climate change needs their strength, so that they will be interested in continuing to browse our website and even willing to participate in climate change projects)

- What is climate change? (Should include a definition, some history, and examples of the impact our efforts have had and some successful climate change scientific projects)
- What is citizen science?(I think citizen science refers to the process of the public actively participating in scientific research. Even if most of us have not learned professional scientific knowledge, ordinary people can contribute to the scientific research around us by collecting data, observing or analyzing. The scope of scientific projects is very wide, but our website is focused on citizen science projects related to climate change. Climate change is a huge global challenge. It is far from enough to rely on the efforts of a small number of scientific researchers and the government. The participation of the public can provide more real data to help our researchers better understand and study the trend of climate change.)(EX:Globe Observer (NASA)
<https://observer.globe.gov/about/citizen-science>)(EX:CoCoRaHS (Community Collaborative Rain, Hail & Snow Network <https://www.cocorahs.org/>)

- Why is everyone's participation important? (Let everyone understand how to promote real climate change scientific research, some changes that have occurred after public participation, and even how they can start involve climate change that they can participate in from their own side)
 - We can explain what climate change is through animations and interesting posters to make learning science more interesting.
2. "What can i do "(We must let users know that they can participate in the project even if they have not learned professional climate scientific knowledge. We should organize some of the simplest projects and information for them, so that they can learn and participate in climate change scientific projects from easy to difficult, and let them understand that science does not necessarily mean research, but can also start from their own side.)
- We will probably have about ten projects on this page temporarily (not all environmental projects involve citizen science).
 - We need to put together a guide that explains how to use our website and how to get involved in climate change, along with answers to some frequently asked questions.
 - In order to let more people know about our website, we can promote it through social media or other platforms, such as sharing the progress of some of our projects or some successful cases. At the same time, we can attach our email and the emails of some project researchers who are willing to cooperate with us. If our visitors have questions about our website or project, they can communicate with us via email. At the same time, I think the most important part is to encourage our visitors to write down their experiences and thoughts in our chat community, and spread our webpages and projects by word of mouth. I think the user's evaluation is the most authentic, so that their friends and family may also be willing to join our project.

3. Engagement

- We can increase users' interest and stickiness through simple games. For example, we can set the game to a points system. Users with higher participation will appear on the leaderboard, and everyone can see who won first place. This healthy competition can stimulate users' desire to win and allow them to participate more deeply in our activities.
- We need to build a community online for our users to share and discuss what they have recently learned and done about climate change. At the same time, we can get some professional scientists involved to share some professional climate change scientific knowledge.

Timeline

Week 1-4

- Preliminary research and data collection

Week 5-9

- Integrate the list and develop it through the collected data, and make relevant guides ,
also, learn how to design a website

Week 10-11

- Create mini games and develop community discussion functions

Week 12

- Test and improve

Week 13

- Final release and provision to relevant units for review

Week 14

- Presentation(5/2/2025)

Deliverables

- A well-structured and easy-to-navigate citizen science climate change database
- An interactive website that is visually interesting and engaging, through our entertaining videos and content, and provides personalized project and knowledge recommendations.
- Develop a long-term plan to ensure our page remains engaging after completion, and how to maintain and improve it going forward

Question list :

1. Project and Data Collection Questions

- What citizen science projects related to climate change and sea-level rise do you currently run?
- Do you have any climate-related public engagement or data collection initiatives that might align with our project?
- What types of climate data do your projects collect, and how is it used?
- Do you see gaps in public participation that our project could help address?

2. Collaboration and Engagement Questions

- Would you be open to collaborating by sharing project details on our platform?
- How do you currently engage volunteers, and what has been most effective?
- Ask them if they would like to have their project plans featured on our website
- Do you see opportunities to gamify citizen science participation in your project?

3. Website and Public Outreach Questions

- What challenges do you face in communicating citizen science results to the public?
- What tools or resources do you think would help increase engagement?
- Does your organization have professional scientists who can regularly impart relevant knowledge to our residents?
- Are there upcoming climate-related events where we could promote our platform?

4. Funding and Support Questions

- Do your projects receive Sea Grant funding, or do you know of related opportunities?
- Are there specific funding sources or grants we should explore to support our initiative?
- Would your organization be interested in a joint grant application to expand citizen science efforts?

Potential projects :

1.Connecticut Sea Grant (CTSG):<https://seagrant.uconn.edu>)

Intro:CTSG is dedicated to promoting the sustainable use and conservation of Connecticut's coastal and marine resources through education, research, and outreach activities

Contact: Dr. Sylvain De Guise, Director

Phone: 860-405-9128

Email: sylvain.deguise@uconn.edu

2.The Long Island Sound Study (LISS):<https://longislandsoundstudy.net>

Intro: LISS is an initiative of federal, state, and local partners to restore and protect the health of Long Island Sound.

Contact: Mark Tedesco, Office Director

Phone: 203-977-1541

Email: tedesco.mark@epa.gov

3.Connecticut Institute for Resilience and Climate Adaptation (CIRCA):<https://circa.uconn.edu>

Intro: CIRCA helps Connecticut meet the challenges posed by climate change through applied research, community engagement, and policy analysis.

Contact: Dr. James O'Donnell, Executive Director

Phone: 860-405-9121

Email: james.odonnell@uconn.edu

4. The Nature Conservancy Connecticut (TNC CT): <https://www.nature.org/en-us/about-us/where-we-work/united-states/connecticut/>

Intro: TNC CT works to protect Connecticut's natural resources and biodiversity through scientific research and community partnerships.

Contact: Frogsong Hoang, Communications Manager

Phone: 203-568-6297

Email: frogsong.hoang@tnc.org

5. Connecticut Audubon Society (<https://www.ctaudubon.org>)

Intro: The society works to protect Connecticut's birds and habitats through education, conservation and advocacy.

Contact: Patrick Comins, Executive Director

Phone: 203-259-0416

Email: pcomins@ctaudubon.org

6. Connecticut river conservation, CRC (<https://www.ctriver.org>)

Intro: CRC works to protect the health of the Connecticut River and its tributaries through monitoring and advocacy.

Contact: Dr. Andrew Fisk, Executive Director

Phone: 413-772-2020 x208

Email: afisk@ctriver.org

7.Connecticut Department of Energy and Environmental Protection ,
DEEP(<https://portal.ct.gov/DEEP>)

Intro:DEEP is responsible for managing Connecticut's natural resources and environment, covering areas such as air quality, water resources, wildlife protection, etc.

Contact: Katherine S. Dykes, Commissioner

Phone: 860-424-3001

Email: deep.webmaster@ct.gov

8.Project Limulus(<https://www.projectlimulus.org>)

Intro:The project uses citizen scientists to collect data to study the ecology and conservation status of the American horseshoe crab

Contact: Dr. Jennifer Mattei, Project Director

Phone: 203-576-4246

Email: matteij@scsu.edu

9.Pomperaug River Watershed Coalition(<https://www.pomperaug.org/>)

Intro:PRWC is dedicated to protecting the vitality of Connecticut's Plumbrug River. The organization uses science to understand how human activities affect the quality and quantity of water in the river and underground aquifers, and shares this knowledge with the community to find practical ways to protect this precious resource.

Email: info@pomperaug.org

This is the first email draft to contact the supervisors of those institutions or organizations.:

Dear Ron,

Hello!

My name is Nico Chen, and I am currently working with Dr. Barrett on a research project on citizen science and climate change, focusing on citizen science projects in Connecticut, especially those related, climate adaptation, and environmental protection. Our goal is to build a webpage with citizen science projects in Connecticut to engage people with the environment and climate research/solutions, as well as to increase public awareness and participation in these important projects. The webpage will provide a description of each project, what type of data a person would collect and the project website. During the research process, I admire your organization's efforts in promoting science projects and public participation, and hope to learn more about the specific content of your project, discuss citizen science projects, data collection methods, and public participation mechanisms. If you have time, we can arrange a convenient time to communicate according to your schedule. If email communication is more appropriate, I am also happy to continue the discussion via email. I look forward to the opportunity to learn from your organization's valuable experience in the field of citizen science, and I also hope that this exchange will bring more attention and cooperation opportunities to your project.

Thank you for taking the time to read this email, and I look forward to your reply!

Best

Nico

University of Connecticut(Environmental Science Student)

Web Page Structure:

1.Header

- Full-screen carousel: Occupies the top of the browser, looping to display volunteer real-life photography such as bird watching, rainfall measurement, and phenological marking, immediately grabbing the user's attention.
- Slogan & action button: "Use your data to protect our home" + "Join now" buttons are placed in the center below the carousel to clarify the entrance.
- Fixed navigation bar: Always visible as the page scrolls, with the site logo on the left and: Project, Quick Start, Mini Games, Community, Resources on the right.

2.Main Content:

Left column:

- Leaderboard: Displays the top 10 volunteer points rankings to stimulate friendly competition. Fixed position, always visible when the page is scrolled.
- Event Notifications: Close to the leaderboard, a scrolling notice bar pushes the next expert lecture and clean-up activity registration link.

Center main area:

- Quick Start: A five-step graphic guide for novices to complete registration → project selection → demo video → form/App → first submission, using card-style display.
- Project List: 10 project cards in a grid layout, each card contains the project logo, name, two-line introduction, climate-related key points and a "View Details" button.
- Fun Game: Placed below the main area, use a question-and-answer carousel and a points progress bar to display the current challenge and player ranking.
- Expert Webinar Preview: Briefly embed the next lecture topic and registration link after the mini-game.

3.Right column:

- Community Feed: Real-time scrolling of the latest discussion posts, likes and comments, supports one-click reply or like, and encourages interaction.
- Quick Share: Social media icon buttons are placed below the community module, and users can share to WeChat, Facebook, and Twitter with one click.

4.Footer

- Contact Us: Three-column layout, left: general consultation, middle: cooperation and sponsorship, right: technical feedback; all links to the form pop-up window.

Final Conclusion:

Overall, our project built a clear, easy-to-use website that showcases most of Connecticut's climate-related citizen science projects. We implemented:

- Homepage with a large carousel and a "Get Started" button
- "Projects" section covering ten projects, each with a brief description and climate science link
- "Quick Start" guide to help new users complete registration, project selection, and first observation
- Fun quizzes, scoreboards, and collaborative verification tools to increase participation
- "Community" section with integrated real-time chat, event notifications, and social features
- Monthly expert talks, and a "Contact Us" support area in the footer

Looking forward, if we continue to have more visitors in the future, I plan to:

- Add filtering and search functions to let users quickly find projects by region, difficulty, or skill.
- Embed real-time weather and map layers to provide immediate environmental context for volunteer observations.
- Develop a lightweight mobile App, supports offline data entry and push reminders.
- Expand multi-language support to cover more community users.
- Launch themed activity months (such as "April Forest Phenology Month" and "September Coastal Cleanup Month") to keep content fresh and focus on different projects.
- These improvements will further enhance the user participation experience, simplify the data collection process, and ensure that the platform and the volunteer community grow together.

