



Collecting Perishable Data
2024 NHERI CONVERGE REU
Maria Huang and Bayley Dickinson

- **Summary**

In this lesson, students will learn and engage in understanding how to collect perishable data in the event of a disaster. Students will be able utilize different methodological approaches and apply their knowledge to hands-on activities. The primary objective of this lesson is to bridge social science ethics with the engineering knowledge, to better understand and create research in the field.

- **Audience**

- The targeted grade level for this lesson are high school students (grade 9-12). While it would be valuable for a middle or elementary level student to learn about small aspects of data collection, it would be most beneficial and conceptually comprehensible for high school students.

- **Lesson Objectives**

- Define perishable data
- Discuss the reasons hazards and disaster researchers gather perishable data
- Outline the methods used to gather perishable data
- Address the ethical challenges and strategies for the collection and dissemination of perishable data
- Explain the logistical challenges and practical approaches for gathering and sharing perishable data
- Identify established programs that facilitate the collection of perishable data
- Enumerate seven reasons for distributing perishable data
- Provide examples demonstrating how past research on perishable data has contributed to advancements in research, practice, and policy in the hazards and disaster field

- **Educational Standards**



Identify what education standards you will address in your lesson/activity; Then, copy and paste the standards here.

- Create → Students at this level should be able to produce their own work in perishable data such as designing their own experiments and observations
- Evaluate → Students should be able to build on their understanding of perishable data and incorporate it into their own personal knowledge and understanding of the topic
- Analyze → At this level students should be able to comprehend information regarding perishable data and draw connections between ideas
- Apply → Students should be able to apply their understanding of perishable data to real world applications and implement their knowledge in ways beyond the lesson teaching
- Understand → Students should be able to explain ideas and concepts surrounding perishable data
- Remember → Students at this level should be able to recall basic facts and concepts regarding perishable data

- **Material List**

- 8 sets of 20 photos of post-disaster settings
- Data collection toolkit: cameras, notepads, pens
- Stopwatch/timer

- **Introduction**

- Social media apps are a staple to a high school experience in the modern age. One of those apps, Snapchat, is a platform for pictures and messaging that are only available for a short time before they are inaccessible to their recipients. Utilizing this interest for our high school students, we will create a lesson about perishable data, which also disappears if not collected in a timely manner. This hands-on lesson will give students the opportunity not only the ability to understand the complexities of perishable data in the world of natural hazards and disaster but also develop and apply their understanding in similar real world application.



- **Procedure**

- Split into groups of eight teams, students will be given twenty “I-Spy”-like disaster images/scenarios
- Students will only have five minutes to record data using the data collection toolkit and analyze picture scenes before it disappears
- After the five minutes, students will be asked to recall information on a check sheet

- 1. Background knowledge**

- a. Defining perishable data - Perishable data, collected by hazards and disaster researchers shortly after an event, is information that can degrade, alter, or be lost if not promptly gathered. In social sciences, this data collection is known as “quick response” research. Examples include environmental measures, damage assessments, emergency response observations, and personal accounts. This data is crucial for understanding disasters’ impacts on people, communities, and environments, which are challenging to replicate in labs or simulations. However, the unstable nature of disaster contexts can lead to memory loss, changing perspectives, and altered physical environments, making timely data collection essential. The availability of this data varies by discipline, ranging from hours to months post-event, and it often requires a comprehensive assessment of pre-existing factors influencing disaster outcomes. Collecting data across broader geographic and time scales is especially vital as communities face slow-onset hazards and repeated acute disasters.
- b. The importance of collecting perishable data - Collecting perishable data during or immediately after a disaster provides valuable insights for advancing research and practice. Researchers gather this data to identify mechanisms of structural failures, understand natural processes and evacuation behaviors, and evaluate cultural and spiritual perspectives. This information is crucial for improving response and recovery efforts, developing safeguarding plans and policies, and enhancing scholarly understanding for future research. Collecting perishable data is important in all fields of science and research, including social sciences and public health, engineering, and natural and environmental sciences.



- c. Methods and tools for collecting perishable data - Community Assessment for Public Health Emergency Response (CASPER), focus groups, lidar scan, observations, photography, public health surveillance, semi-structured interviews, sensor data collection, surveys

2. Before the activity

- a. Hook students by applying and comparing perishable data with their everyday lives → Snapchat and social media connection
- b. Contextualize perishable data with background knowledge
- c. Introduce the instructions for the activity
 - i. Organize students into teams → create competitiveness for enhanced student engagement
 - ii. Hand out necessary materials

3. During the activity

- a. Follow instructions from the procedure section of the lesson plan

4. After the activity

- a. Return to the large group and discuss results, findings, etc.

● Assessment

- At the end of the lesson, we will give students a 5-question knowledge check quiz to determine how much of the information they retained.

● Wrap-up

- At the end of the lesson and subsequent activity, students will write a reflection, demonstrating the connection between the exercise and what was covered in the lesson background. Specifically, they should be able to identify the positive and negative aspects of the strategies they chose and how that translates to perishable data collection during disaster research.