# SESYNC Feedbacks

News from the National Socio-Environmental Synthesis Center


## FEELING THE FREEZE | Addressing Climate Change Impacts

When we talk about climate change, we often hear the phrase global warming—which implies that only increasing temperatures are a consequence of a changing climate. However, extreme weather events in general, including intense cold spells, are also a dangerous outcome.

After a fierce winter storm brought snow, sleet, and ice to a large portion of the United States last week, much of the Northeast—including SESYNC—has since been experiencing frigid temperatures. In fact, meteorologists have deemed it the longest cold spell that the Washington, D.C. area has experienced in 150 years. Scientists have shared that this storm and extreme cold were the result of warm seas in the Arctic combining with cold land, which stretched the polar vortex south.

These kinds of extreme weather events are growing more and more common as the effects of climate change become increasingly tangible. With such once-in-a-lifetime weather events increasing with alarming frequency, many are left asking the questions of what can we do and how can we talk about it.

SESYNC has a series of resources that are ideal for considering climate change as a socio-environmental issue with human behavior, beliefs, and choices placed at the center of the conversation. We include some of those resources below.

Additionally, we're highlighting some of the work that past SESYNC researchers have done—examining climate change as a socio-environmental issue. We hope these resources can provide some hope.

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### Survive the Century Lesson: Climate Change Journalists of Tomorrow

This lesson centers around **"Survive the Century"**—a climate fiction, choose-your-own-adventure game designed by a SESYNC research team. It allows the player to select among important policy choices that affect climate change in each decade of the 21st century with the goal of surviving to the year 2100. **In this exercise, learners play the game to pursue two alternate outcomes: ecotopia and ecocide.** As they play, they will be immersed in creative newspaper headlines that mark climate and environmental justice events caused by their scenario choices. Their creative challenge is to write short, proleptic (future-narrative), newspaper articles that develop these headlines in detail. The assignment will require them to integrate factual information (logos) with creative writing that articulates future events: fact-based climate fiction.


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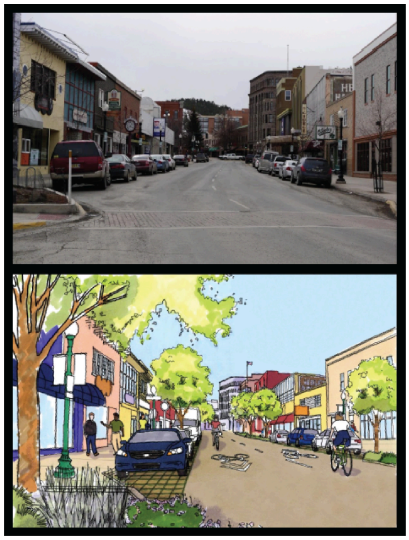

## Survive the Century Lesson: Climate Change Decisions for Your Grandchild

**This scenario-based creative lesson** builds off the first Survive the Century lesson above. It challenges learners to design their grandchild's hometown in the year 2100, while limiting global warming to the 1.5–2° Celsius (C) range (the ambitious lower end of what we can achieve). By playing Survive the Century game in parallel with the En-ROADS Simulator, learners will test out various scenarios of environmental adaptation, technology, fossil fuel taxation, population, and green infrastructure to envision their grandchild's hometown in 2100—a place that is not only survivable, but more equitable, beautiful, and sustainable.

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## Introduction to Qualitative Methods for Sustainability Lesson: Narrative and Identity in Climate Beliefs

Socio-environmental scientists may prefer numerical, statistical, and iterative modeling methods, but the integration of qualitative measures allows the player to add individual perspective and emotion. Qualitative methods can trace how individuals and groups form their identities, as well as how they make sense of and value their socio-environmental situations, and these methods can reveal submerged power relations. **This lesson develops learners' ability to apply qualitative methods to navigate complex socio-environmental dynamics in climate change knowledge**. It also teaches them how to enrich their work with a diversity of human perspectives.

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## Audio Interview: Accounting for Human Behavior in Climate Change Models

**Accounting for Human Behavior in Climate Models**

Succinct Science—Audio Interviews f... • By The National Socio-Environmental Synthesis C... • Jul 28, 2022

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The issue of climate change is both existential and urgent. Climate activists around the world continue to call for systemic changes from governments, green technology investments from industries, and sometimes even scientific acceptance from individuals. But that begs some questions, what if we did change our behaviors? What if we as individuals, conglomerates, and perhaps most importantly, political governing bodies, heeded our own advice—how much would that change the projected increases in global temperatures? **In this interview, we talk with experts in the rather new field of integrating human behavior into climate change models: Drs. Brian Beckage and Katie Lacasse.**

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## Climate Change and Choices: Change Behavior, Mitigate, or Adapt?


No longer viewed as a potential or as something happening far into the future, global climate change is here. **This lesson briefly reviews introductory concepts around climate change,** including how emissions cause warming, which gases are involved and how they are produced, and what international policy is doing with respect to the Paris Agreement. Then, individuals select a climate change-related problem, conduct research on it, and develop a presentation on its causes, as well as potential mitigation and adaptation strategies.

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## Critical Discourse Analysis Lesson: Visual Discourse Analysis and Climate Change

Researchers use visual discourse analysis (VDA) to reveal how images mediate themes like time, truth, and power in socio-environmental (S-E) discourse. **This lesson illustrates how scholars—including those studying S-E systems and problems—can use VDA techniques to better understand how rhetoric and representation affect environmental knowledge**. The elements analyzed in this lesson will help learners become critical viewers who recognize editorial choices, bias, connotation, and subtext in climate change imagery. The aim is to help learners grow more aware of the complex ways in which images construct environmental realities, and thereby influence public opinion and policy.

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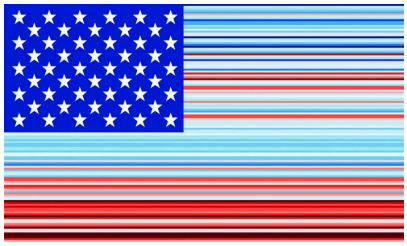
## Critical Discourse Analysis Lesson: Visualizing Climate Change Data



**In this lesson, learners will investigate the power of climate change visualizations such as the one of the flag at right.** This image uses the technique of climate stripes to show stark increases in global temperatures in the last 125 years. Small groups will review several distinct techniques for climate change visualization for their factual,

rhetorical, emotional, and aesthetic powers, and they will appraise each visual's success in capturing public awareness and concern about climate change.

## SESYNC RESEARCH | Focusing on Climate Change

Explore some SESYNC research highlights below focused on different dimensions of climate change and socio-environmental systems.

### Using Kindred Climate Cities to Transform Climate Change Conversations & Plans

In a ***One Earth*** paper, former SESYNC postdoctoral fellow **Dr. Renee Obringer** and colleagues described their approach to tackling the division between scientists, the public, and utilities in planning for climate adaptation.

Rather than using typical models or climate simulations, the researchers used climate analogs or "sister cities" to help provide a more realistic understanding of climate change impacts. This approach involves pairing one city that's currently experiencing a climate with one that will experience a similar climate in the future. They then used machine learning to calculate the demand for coupled water and electricity in 46 major U.S. cities.

Obringer explained, "The climate analogs provide these nice proxies that you can say OK, you currently live in Washington, DC. In 60 years, the climate of DC will most be like the climate of northern Arkansas. It gives you a more tangible understanding that that is what my day-to-day life would be like." **Continue reading this article**.

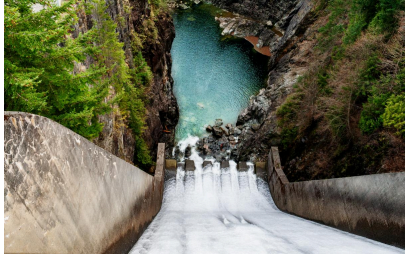
### How Politics, Society, and Tech Shape the Path of Climate Change

Politics and society largely dictate climate policy ambitions and therefore the trajectory of greenhouse gas emissions, yet climate change models and projections rarely include political and social drivers. A study from the University of California, Davis, simulated 100,000 possible future policy and emissions trajectories to identify relevant variables within the climate-social system that could impact climate change in this century.

**The study, published in the journal *Nature***, indicates that public perceptions of climate change, the future cost and effectiveness of climate mitigation and technologies, and how political institutions respond to public pressure are all important determinants of the degree to which the climate will change over the 21st century.

"Small changes in some variables, like the responsiveness of the political system or the level of public support for climate policy, can sometimes trigger a cascade of feedbacks that result in a tipping point and drastically change the emissions trajectory over the century," said lead author Frances C. Moore, a professor with the UC Davis Department of Environmental Science and Policy. "We're trying to understand what it is about these fundamental socio-political-technical systems that determine emissions." **Continue reading this article**.

### Framework Developed by SESYNC Team Adopted by UNESCO



Since its publication by the United Nations Educational Scientific and Cultural Organization (UNESCO), the **Climate Risk Informed Decision Analysis** (CRIDA) methodology has come to embody “actionable science”—with its adoption and implementation by decision makers around the world.

The CRIDA methodology is a framework developed for water resource managers and policy makers to integrate the uncertain effects of climate change into water resource management and adaptation. It emerged from the SESYNC project **EcoEngineering Resilience**, led by Drs. LeRoy Poff and John Matthews, with co-development from the U.S. Army Corps of Engineers.

“The heart of what we were trying to address is a really long-standing gap, specific to how we make decisions around water management,” said Matthews, Executive Director of **Alliance for Global Water Adaptation**. He explained how traditionally engineers and economists have had the greatest involvement in decision making about water resources, without much input from ecologists. Their SESYNC project aimed to change that. **Continue reading this article**.

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