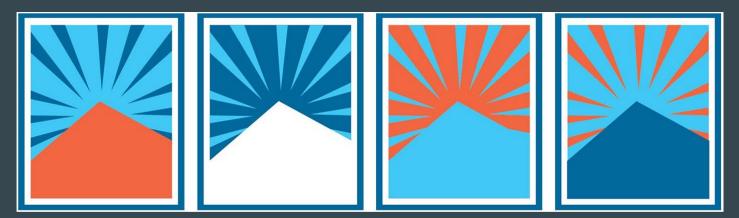
# Connecting Teachers to Climate Change using Science on a Sphere

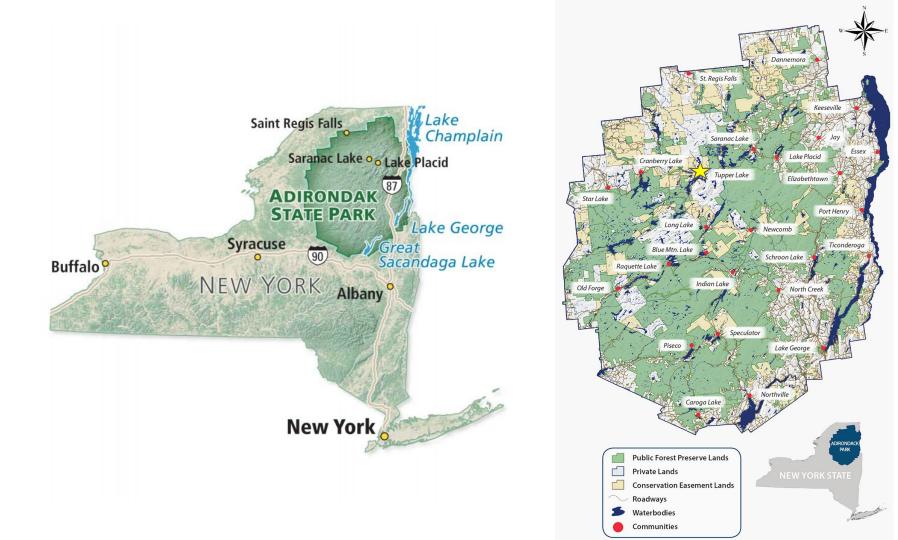




Michael Trumbower- School Programs Coordinator The Wild Center, Tupper Lake, NY



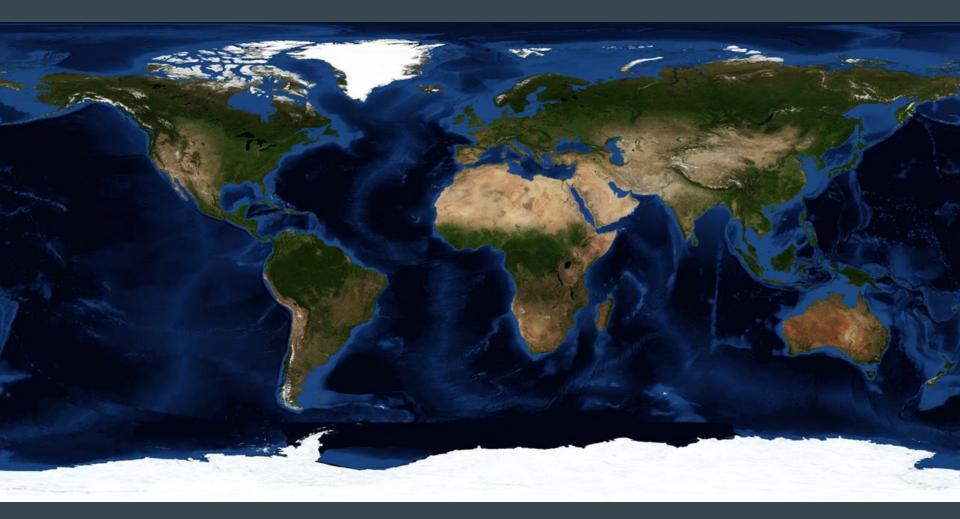


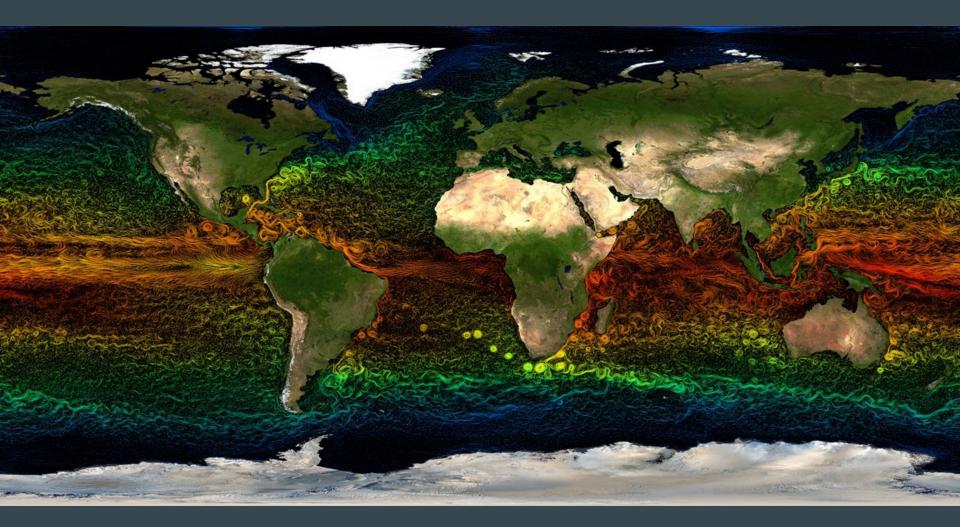


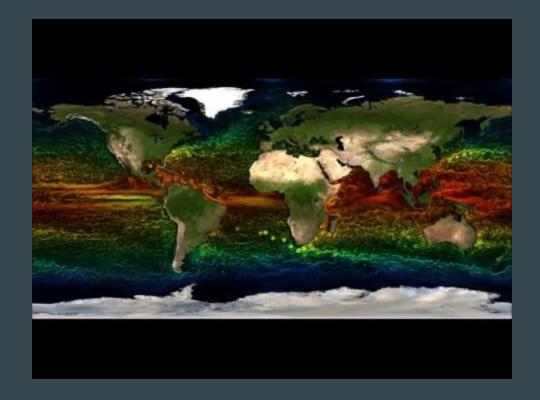


# Engaging with Science on a Sphere

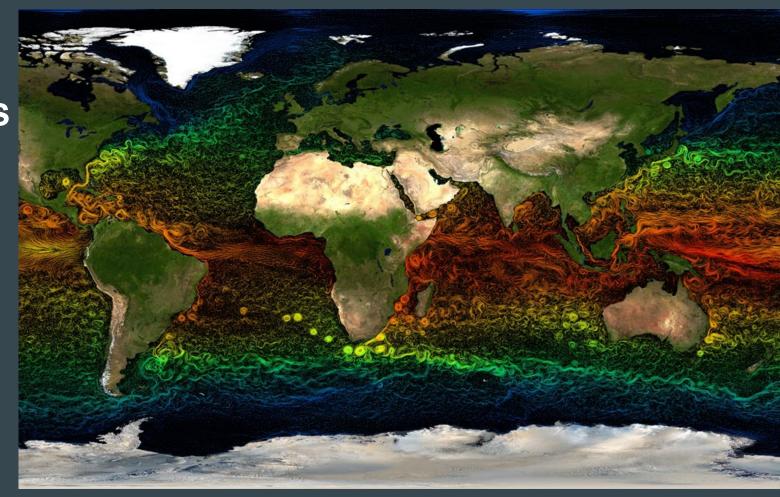
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# Visual Thinking Strategies



Teacher Climate Institutes



# **Teacher Climate** Institute

Get hands-on with exploration of climate change across curriculum

**Collaborate with other educators** 

Experience and take home ready-to-teach lessons that support interdisciplinary **learning and New York State Science** Learning Standards

# **FREE Professional Development Event!**

Located at The Wild Center, 45 Museum Drive, Tupper Lake, NY. 8:00am-3:00pm.

Climate Resiliency:

Empowering

Students Across

Curriculum

October 19, 2018

**BOCES** Franklin

Essex Hamilton

To register, visit www.fehb.org and click the My Learning Plan icon

For questions contact Michael Trumbower, School Programs Coordinator: mtrumbower@wildcenter.org, (518) 359-7800 x112



# The Wild Center's Teacher Climate Institute

Climate Resiliency:

**Empowering Students Across Curriculum** 

Hosted by The Wild Center, Tupper Lake, NY October 19, 2018

### Agenda

8:00 - Arrival at The Wild Center

8:15-8:30 - Welcome & Introduction Presented by Michael Trumbower, and Erin Griffin, The Wild Center

8:30-9:15: Understanding Climate Change in The North Country with Science on a Sphere Presented by Michael Trumbower, The Wild Center

9:15-10:45: Connecting with Climate Change

- Circle of Commonalities, UN Sustainable Development Goals Presented by Erin Griffin, The Wild Center

### 10:45-11:00: Break

### 11:00-12:00: Diving into the Data

- Climate Generations Grades 6-8 Curriculum - Lessons 1+2 – Human Impacts and Reading Graphs

Presented by Nicole Morin and Michael Trumbower, The Wild Center

### 12:00-1:00: Lunch

1:00-2:30: Sustainability & Climate Solutions

Green Technology Tour by Nick Corcoran Sustainable School Activity presented by Michael Trumbower, The Wild Center

### 2:30-3:00: Discussion & Wrap-Up

- Reflection on how to best implement changes in their curriculum
- Post-Surveys

Facilitated by Michael Trumbower, The Wild Center





Adirondack Youth Climate Summit



# **Building Connections**

# Global SOS datasets→ Resources that teachers can use in the classroom

- SOS Explorer (Lite)
- U.S. Climate Resilience Toolkit
- New York State Climate Change Clearinghouse



Steps to Resilience Case Studies Tools Expertise Regions Topics

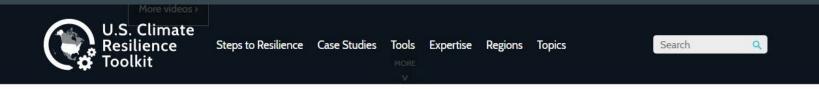
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# Meet the Challenges of a Changing Climate

Find information and tools to help you understand and address your climate risks.





# STEPS TO RESILIENCE

Use this framework to discover and document climate hazards, then develop workable solutions to lower climate-related risks. Watch the overview video or click any step to learn more.





# Steps to Resilience <u>Case Studies</u> Tools Expertise

## s Expertise Regions Topics



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# **Case Studies**

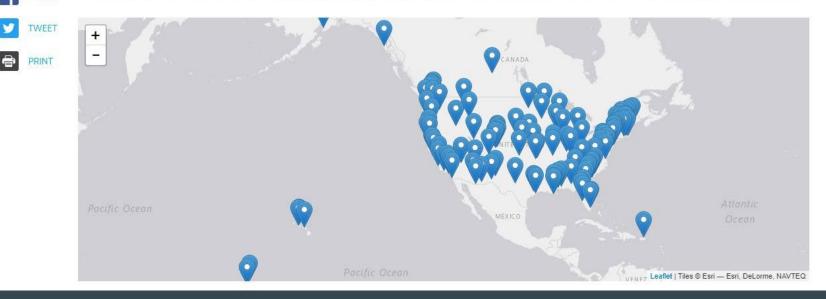
SHARE

Filter by climate threat/stressor: ▼

### Filter by topic: 🔻

Filter by steps to resilience: ▼ Filter by region: ▼

Communities, businesses, and individuals are taking action to document their vulnerabilities and build resilience to climate-related impacts. Click dots on the map to preview case studies, or browse stories below the map. Use the drop-down menus above to find stories of interest. To expand your results, click the Clear Filters link.



# **Exploring Case Studies**

- 1 Break into Groups
- 2 Send a representative to pick a town/state
- 3 Pull out your phone and head
  to <u>https://toolkit.climate.gov/</u>
  4 Scroll down to Case Studies
  find your town/state
  5 Start Exploring!



# CASE STUDIES

Explore case studies to see how people are building resilience for their businesses and in their communities. Click dots on the map below to preview case studies, or browse all case studies by clicking the button below the map.

# Addressing Short- and Long-Term Risks to Water Supply

In 2012, water managers in Fredericktown, Missouri, saw their city's main source of water dwindle. They used the EPA's Climate Ready Water Utilities program to consider

+



options and develop plans to protect their water source.



# **Exploring Climate Resilience**

## **Case Studies around the Nation**

- Head to the US Climate Resilience Toolkit website and select the Case Studies option at the top of the page.
- · Zoom in to locate your group's town or state.
- Take a look at what they are doing to build a more Resilient Community and reflect on your findings below.

Climate Risk/Impact:

Town/State of Case Study:

Who is working on the issue? What is being done to address the issue and build Resilience?

What surprises/interests you in this project?

Can you see using any ideas from this in your community?

# Solutions

What resiliency measures did you explore? Did they surprise or inspire you in any way?

# **New York State Climate Smart Communities**

Requires LEED Silver standards in public

Plans to reduce municipal

greenhouse gases 25%

building construction/renovation.

DEWITT:

by 2020.

### WILLIAMSON

First NY municipality to power all its facilities with solar energy.

### ROCHESTER

Climate action plan will reduce greenhouse gases citywide. ...

#### SKANEATELES:

Solar and geothermal additions to village hall create NY's first net zero --- energy municipal building.

#### ERIE COUNTY:

Employs an energy manager who maximizes ---efficient use of energy countywide.

#### GENEVA:

#### Only NY county getting 100% of its electricity from ranewable sources.

MADISON COUNTY: Sponsored NY's first

SYRACUSE

#### ORANGE COUNTY:

ULSTER COUNTY:

Tracks efficient lighting, heating, cooling, water fotures and alternative fuel vehicles with energy management system.

#### RICHLAND: Gets clean power from 100kW wind turbine.

rom 100kW wind turbine. CLIFTON PARK: Capped its landfill with 3,000 solar panels.

#### WATERVLIET:

First NY municipality with curbside household organic waste composting.

#### KINGSTON:

A waterfront flooding task force prepares community for rising sea levels.

#### BEDFORD:

 Twenty low-emission fleet vehicles and eight EV charging stations.

#### NORTH HEMPSTEAD:

LEED Platinum community center, with EV charging, solar, geothermal, and Nassau County's first "grey water" system.

#### SUFFOLK COUNTY:

Requires bicycle lanes as part of all new road construction.

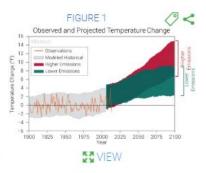
#### HEWYORK SINTER SINTER Communities

Solarize campaigns.

# State Climate Summaries

# <u>MISSOURI</u>

Missouri's location in the interior of the North American continent exposes it to a climate with large ranges in temperature with hot, humid summers and cold winters. The lack of mountain barriers both to the north and to the south, and the state's inland location away from the moderating effects of the oceans, allow it to be influenced by both cold Arctic air masses and warm, moist air masses from the Gulf of Mexico. Average annual temperatures across the state vary over a range of about 10°F from north to south. The year 2012 was the hottest on record, with an average annual temperature of 58.6°F, 4.1°F higher than the long-term average.



Since the beginning of the 20th century, temperatures in Missouri have risen approximately 0.5°F (Figure 1) and temperatures in the 2000s have been higher than any other historical period with the exception of the early 1930s Dust Bowl era. This warming has been concentrated in the winter and spring while average summer temperatures have not increased substantially in the state until the most recent 5 years, a feature characteristic of much of the Midwest (Figure 2). Due to extreme drought and poor land management practices, the summers of the 1930s remain the warmest on record. The recent summer warming has been characterized by much warmer nights (above "Dust Bowl" levels) while daytime highs have only increased a little. The state has also experienced a below average occurrence of extremely hot days (maximum temperature above 100°F) (Figure 3a). In addition to the overall trend of higher average temperatures, the state has experienced an above average number of very warm nights (minimum temperature above 75°F) (Figures 2 and 4). Since 1950, the annual number of these very warm nights has increased by about 2 days per decade at St. Louis Lambert Airport. Also, there is an upward trend in summer humidity since the mid-20<sup>th</sup> Century. The winter warming trend is reflected in a below average number of very cold nights (minimum temperature below 0°F) over the past 25 years (Figure 3b).



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NOAA Science on a Spherentps://sos.noaa.gov/What is SOS/

Visualizing Change http://vischange.org/

US Climate Resilience Toolkit<u>https://toolkit.climate.gov/</u>

NYS Climate Smart Communities <a href="https://climatesmart.ny.gov/">https://climatesmart.ny.gov/</a>

NOAA National Centers for Environmental Information | State Climate Summaries - <a href="https://statesummaries.ncics.org/">https://statesummaries.ncics.org/</a>

LabX-Extreme Event Game https://labx.org/