



# The ENSO Student Research Campaign

## Taking Data to the Next Level!

Webinar 2: October 18<sup>th</sup>, 2016



Brian Campbell, ENSO Campaign Lead  
Implemented by:  UCAR

# What Does “Taking Data to the Next Level” mean?


- We want students to not just collect and enter data via the GLOBE protocols, but we want the students to understand what the data means.
- We want students to understand what the data means at a local level.
- We want students to understand that what is happening locally in their area is not the same as in other parts of the world.
- We want students to share their stories about what their data means, via the H2yOu Project, Story Maps, GLOBE International Virtual Science Symposia, GLOBE Regional Science Fairs.



Sponsored by:

Supported by:



Implemented by:  UCAR

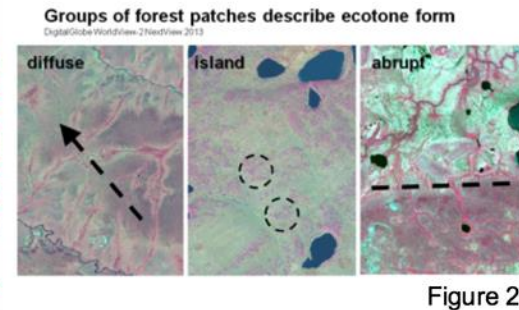
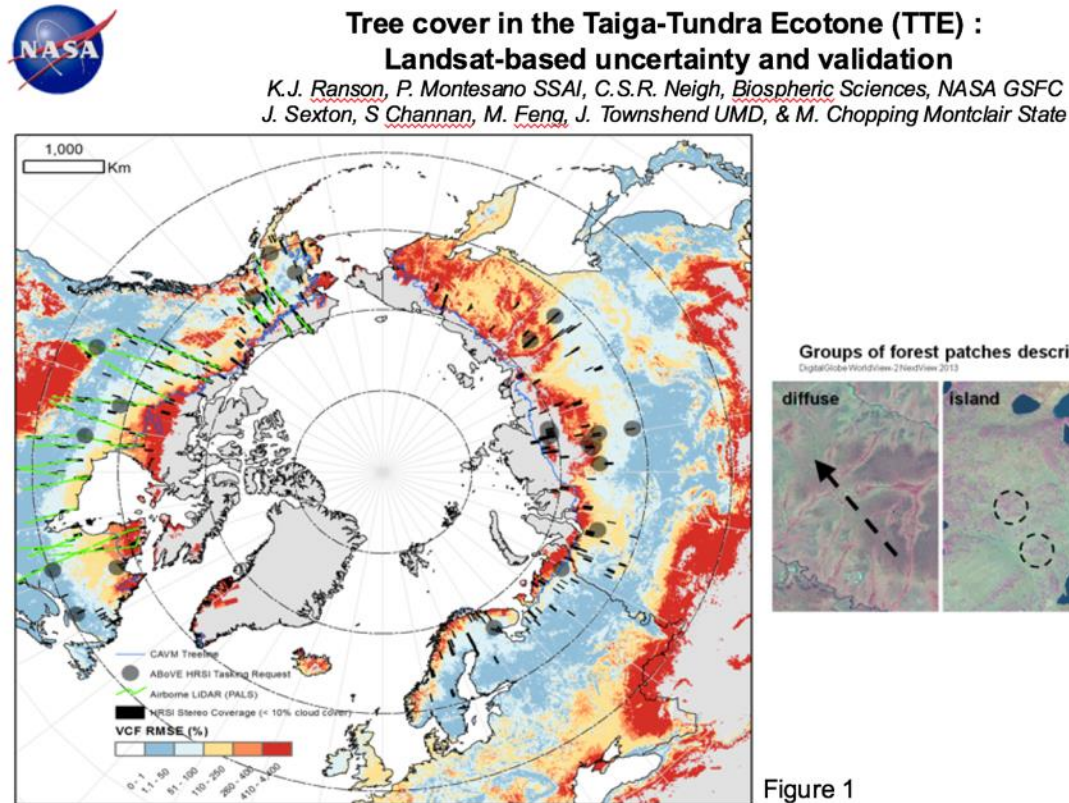
Brian Campbell, ENSO Campaign Lead

# ENSO Campaign Guiding Research Questions

- How can the data collected be used to determine if we are experiencing atypical weather for our location?
- Are there atypical weather patterns occurring in other locations around the world?
- How does ENSO influence local monthly temperature compared to the climatological average?
- How is monthly precipitation affected by ENSO?
- How does your local data compare to global data during an ENSO event?
- How did the 2015-2016 ENSO event affect human well-being and lifestyles?
- What were some of the changes that occurred as a result of the 2015-16 ENSO in your location?
- How do the environmental effects during an ENSO event differ from a non-ENSO year?

# NASA Always Takes Their Data to the Next Level

Example 1



Climate change is expected to alter the tree line. A validated moderate resolution baseline is required to monitor change.

Earth Sciences Division – Hydrospheric and Biospheric Sciences



# NASA Always Takes Their Data to the Next Level



## Nansen Ice Shelf GPS and tiltmeter field data to validate ice shelf flexure visco-elastic modeling.

Christine F. Dow, Cryospheric Sciences, NASA GSFC and NASA NPP  
Ryan T. Walker, Cryospheric Sciences, NASA GSFC and University of Maryland

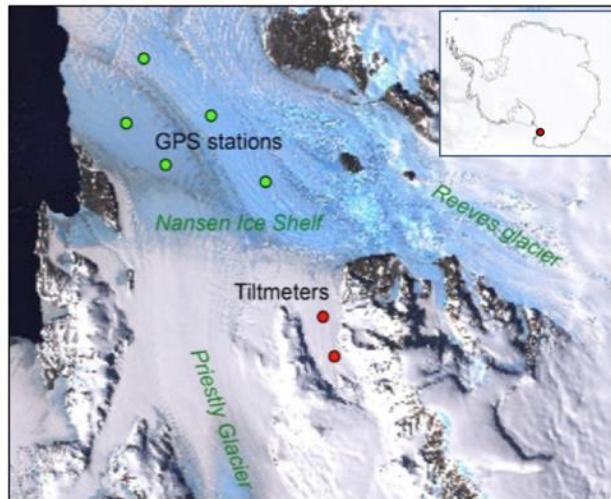


Figure 1

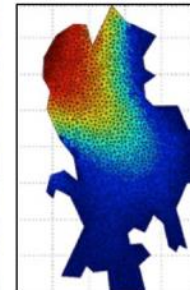


Figure 2

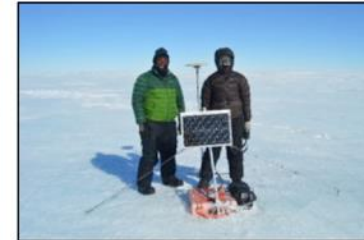


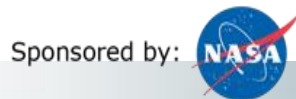
Figure 3



Figure 4


Fieldwork on the Nansen Ice Shelf in November and December 2015 involved successful installation of 5 GPS units and 2 tiltmeters to investigate ice flexure up to the ice grounding line. Results will be used to validate models of visco-elastic ice shelf flexure and to estimate the impact of tidal variation on ice shelf and glacier dynamics.

Earth Sciences Division – Hydrospheric and Biospheric Sciences



Supported by:




Implemented by:  UCAR

Brian Campbell, ENSO Campaign Lead

Example 2

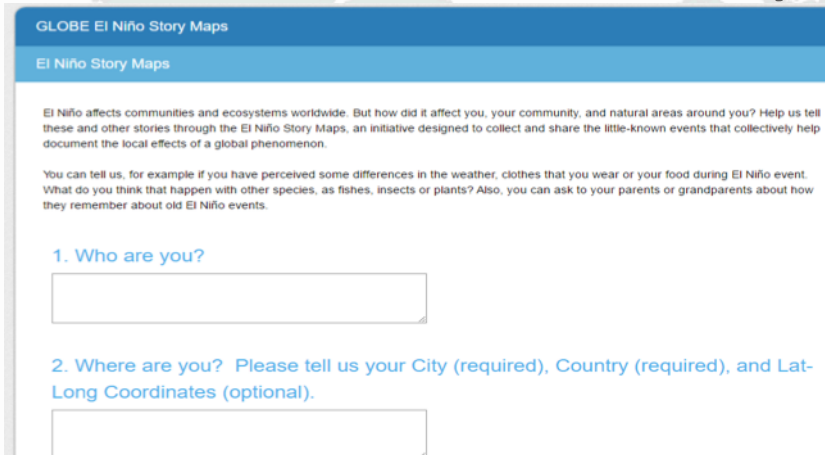
# Story Tellers:

## How Does El Niño Affect Us?

- 
- We want to invite you to investigate more about what happens with El Niño in your region and to tell a story about it
  - The stories can be amazing educational tools because they connect with the student, involve the use of metaphors and are emotionally significant
  - To start, you can make a list of events,
    - Determine the lead characters for your story.
    - Decide how the characters relate to the facts of El Niño.
    - Use all your creativity!

ENSO: Japanese character that means circle. Absolute symbolizes enlightenment, fortune, elegance and creativity.

# Share Your Stories: Story Maps



**GLOBE El Niño Story Maps**

**El Niño Story Maps**

El Niño affects communities and ecosystems worldwide. But how did it affect you, your community, and natural areas around you? Help us tell these and other stories through the El Niño Story Maps, an initiative designed to collect and share the little-known events that collectively help document the local effects of a global phenomenon.

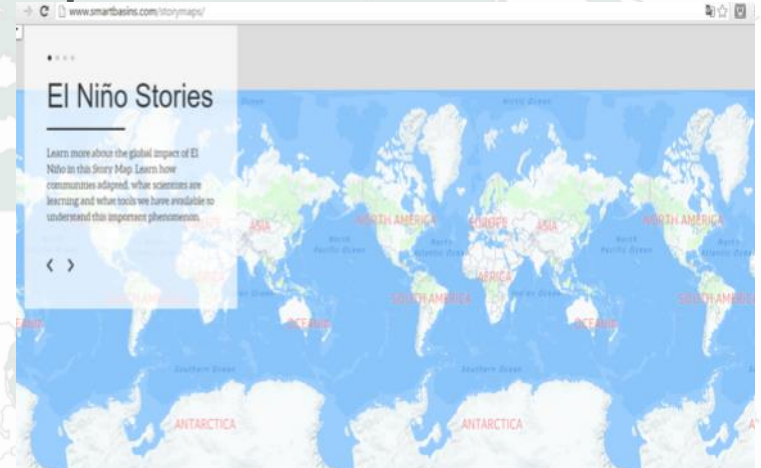
You can tell us, for example if you have perceived some differences in the weather, clothes that you wear or your food during El Niño event. What do you think that happen with other species, as fishes, insects or plants? Also, you can ask to your parents or grandparents about how they remember about old El Niño events.

1. Who are you?

2. Where are you? Please tell us your City (required), Country (required), and Lat-Long Coordinates (optional).

<https://www.surveymonkey.com/r/LFVK7H3>

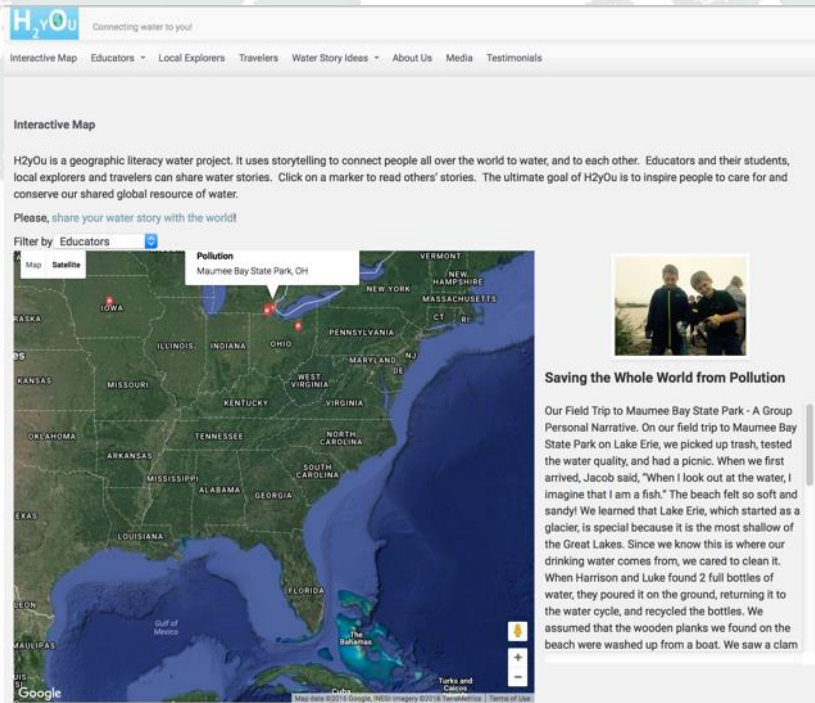
If you have links to photos or videos you can do it through this link.



You can also share your photos and stories by sending an email to

[stories@smartbasins.com](mailto:stories@smartbasins.com)

# Sharing Stories: H2yOu Project



**H<sub>2</sub>yOu** Connecting water to you!

Interactive Map Educators Local Explorers Travelers Water Story Ideas About Us Media Testimonials

**Interactive Map**

H<sub>2</sub>yOu is a geographic literacy water project. It uses storytelling to connect people all over the world to water, and to each other. Educators and their students, local explorers and travelers can share water stories. Click on a marker to read others' stories. The ultimate goal of H<sub>2</sub>yOu is to inspire people to care for and conserve our shared global resource of water.

Please, share your water story with the world!

Filter by: Educators

**Pollution**  
Maumee Bay State Park, OH

**Saving the Whole World from Pollution**

Our Field Trip to Maumee Bay State Park - A Group Personal Narrative. On our field trip to Maumee Bay State Park on Lake Erie, we picked up trash, tested the water quality, and had a picnic. When we first arrived, Jacob said, "When I look out at the water, I imagine that I am a fish." The beach felt so soft and sandy! We learned that Lake Erie, which started as a glacier, is special because it is the most shallow of the Great Lakes. Since we know this is where our drinking water comes from, we cared to clean it. When Harrison and Luke found 2 full bottles of water, they poured it on the ground, returning it to the water cycle, and recycled the bottles. We assumed that the wooden planks we found on the beach were washed up from a boat. We saw a clam

- How does water affect you and your region?
- Educators and their students, local explorers and travelers can share water stories
- Read others' stories from around the world and compare and contrast your stories

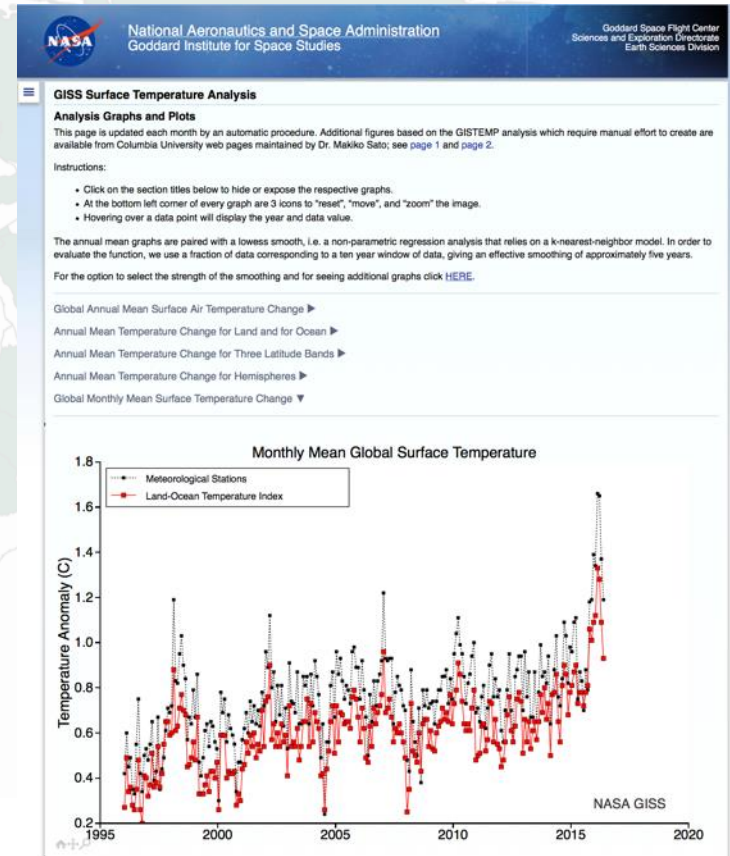
- <http://h2youproject.com> Brian Arnold, J. St. Campaign Lead



# Panoply: A Tool for Analyzing Data

Scientists at the NASA Goddard Institute for Space Studies use a tool called Panoply to view and analyze Earth science data for research and education. With this tool, GLOBE students can pull GLOBE data from their site or any other site and analyze single to multi-sets of data in one application. This tool is ideal for making sense of the GLOBE protocol data collected. This could also serve as a springboard for science fair projects and the GLOBE Science Symposia.

<http://www.giss.nasa.gov/tools/panoply/>



# Science Fairs and International Science Symposia

- Students will be encouraged to enter their local, regional science fairs and the 2017 GLOBE Virtual Science Symposium
- With GLOBE, students learn the practices of science through hands-on investigations in their own communities, sparking their curiosity and interest in science. This often leads to inquiries that help solve real-world problems and further understanding of our global environment.
- We will be promoting this event as a way for ENSO Student Research Campaign students to take their data to the next level.
- We will have webinars that focus on having students understand what their data means and how best use it in their own research.

<https://www.globe.gov/news-events/globe-events/virtual-conferences/2017-international-virtual-science-symposium>



Supported by:



Implemented by:  UCAR

Brian Campbell, ENSO Campaign Lead

# Data Counts for the ENSO Student Research Campaign

Data Counts collected by Ann Martin, SSAI

**September 21, 2016 – October 17, 2016**

Protocol	Precipitation	Air Temperature (Standard/Noons/ Current/Max)	Surface Temperature (Standard/Noons)	Soil Temperature (Standard/Noons/ Dailies)	SMAP Soil Moisture	All Biometry (biomass, trees, vegetation cover, greenings, land cover classification)	Biometry Canopy & Ground Cover
<b>Sites</b>	138	262	43	61	22	12	requesting *
<b>Observations</b>	3,015	167,195	685	11,147	171	70	requesting *

Note: The data counts listed above include some observations from automated weather stations, especially for precipitation and temperature protocols.

**March 1, 2016 – October 17, 2016**

Protocol	Precipitation	Air Temperature (Standard/Noons/ Current/Max)	Surface Temperature (Standard/Noons)	Soil Temperature (Standard/Noons/ Dailies)	SMAP Soil Moisture	All Biometry (biomass, trees, vegetation cover, greenings, land cover classification)	Biometry Canopy & Ground Cover
<b>Sites</b>	383	759	117	186	93	265	requesting *
<b>Observations</b>	22,841	1,105,692	4,073	141,308	1,309	5,061	requesting *

Note: The data counts listed above include some observations from automated weather stations, especially for precipitation and temperature protocols.

\* Requesting means that the data counts for the Biometry Canopy & Ground Cover are not currently available on the GLOBE Visualization system nor the GLOBE Advanced Data Access Tool (ADAT).



Supported by:



Implemented by:  **UCAR**

Brian Campbell, ENSO Campaign Lead