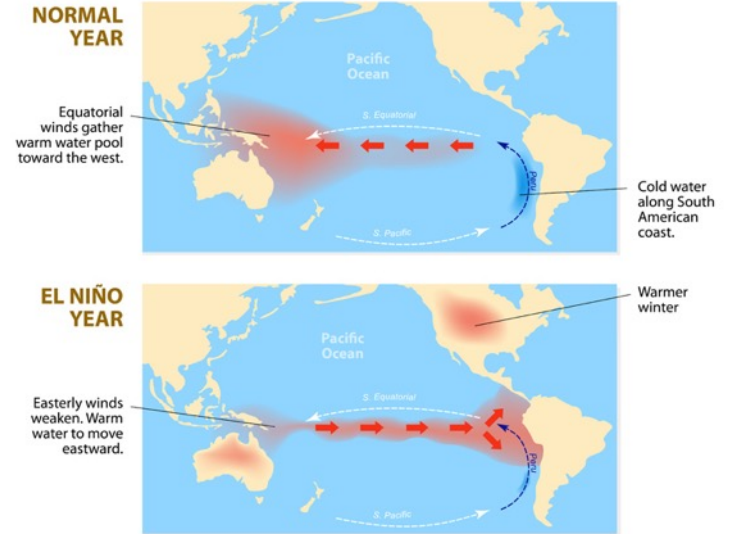




The ENSO Student Research Campaign

What is El Niño?

El Niño and La Niña are important climatic phenomena that can have effects on the global climate.



Understanding El Niño Locally

- What are the main differences between a normal year and a El Niño year?
- Is the effect of El Niño the same in all parts of the world?

How can you participate? – Become a GLOBE School

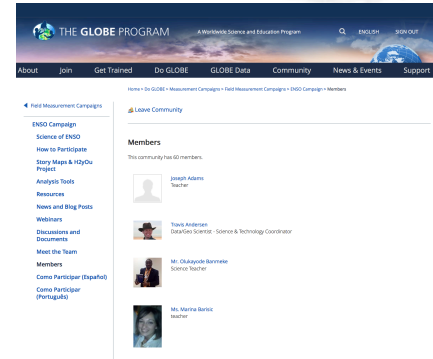
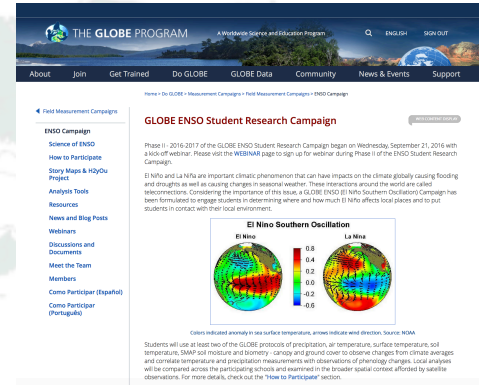
1. Become a member of the ENSO Campaign Community:

- Click on Log in: Enter your username and password

- Go to the El Niño Student Research Campaign website:
<http://www.globe.gov/es/web/el-nino/el-nino-campaign>

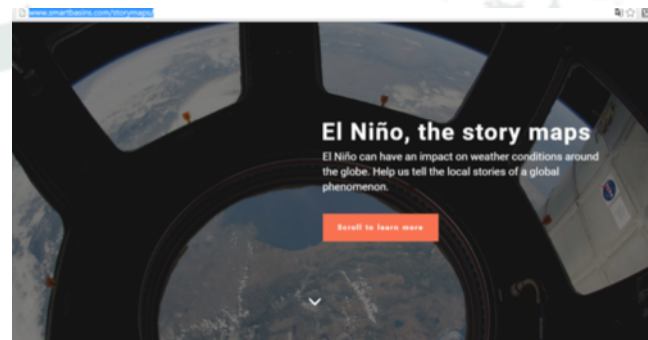
- Select the "members" link of the left menu

- On the "member" page click on "join community" you will see a message in green when you successfully joined the group



Next Steps to Participate

- Record data for at least two of the six protocols in the GLOBE Data Entry
- Fill the form to participate in the webinars (optional, but highly recommended)
- Everyone can share their stories on Story Maps and the H2yOu Project:
 - <http://www.smartbasins.com/storymaps/>
 - <http://h2youproject.com>



Protocols that are part of the campaign: Collect Data for at least two of six protocols



- Precipitation
- Maximum/
Minimum/Actual Air
Temperature
- Surface Temperature

- Soil Temperature

SMAP Soil Moisture

Biometry: Canopy and
Ground Cover



Seasons

Dates	Northern Hemisphere	Southern Hemisphere
March 1 - May 31	Spring	Fall Wet/Dry
June 1 – August 31	Summer	Winter Dry
September 1 - November 30	Fall	Spring Dry/Wet
December 1 - February 28/29	Winter	Summer Wet




Taking the Data to the Next Level

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

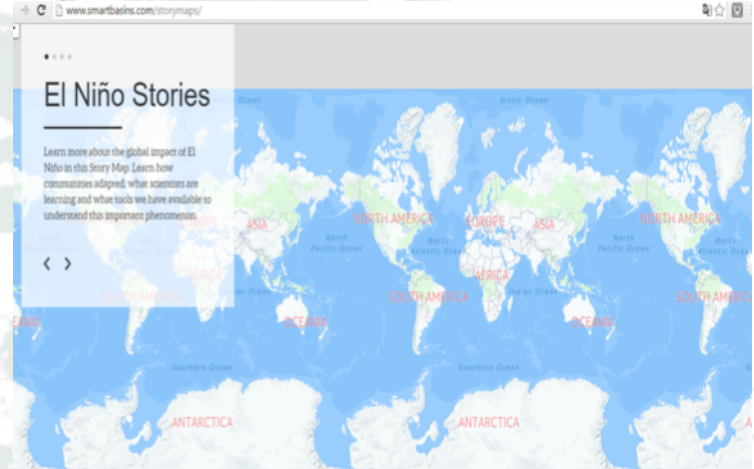
El Niño Story Maps

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).



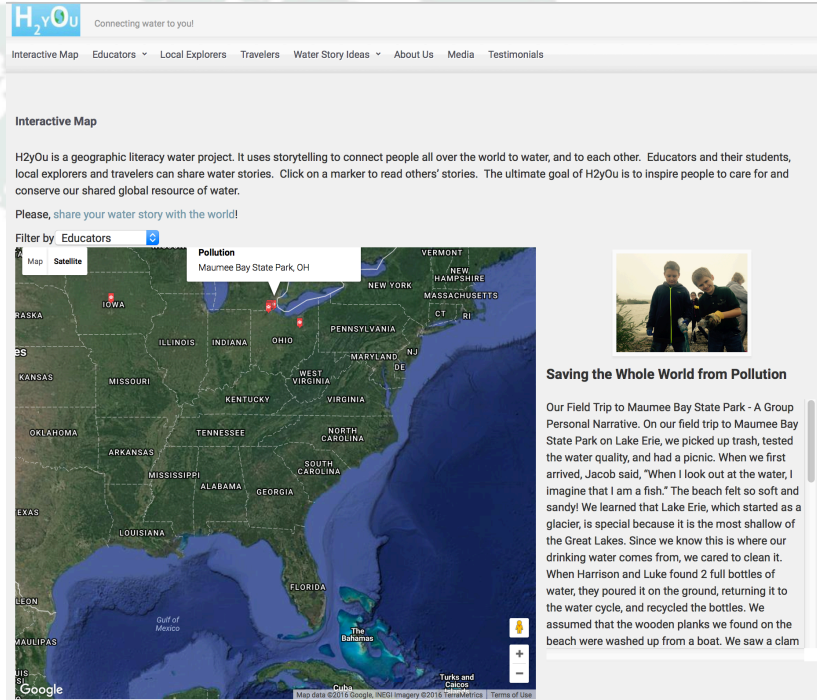
<https://www.surveymonkey.com/r/LFVK7H3>

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

Sharing Stories: H2yOu Project



H₂yOu Connecting water to you!

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

Interactive Map

H2yOu 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 H2yOu 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>

Sharing Stories

- Stories
- Activity with science students
- Observations
- Testimonies
- Collaborative Projects

An Example of a Story and Research



Developing awareness of the impacts of ENSO and human phenomenon activities on land cover

Proyecto Colaborativo GLOBE
Argentina, Perú y Uruguay
Región de América Latina y El Caribe

Con soporte de Portugal 

Collaborative Project: El Niño



Online
Collaborative
Tools



Video conferences



Workshop in Junín de los Andes

Workshop in Buenos Aires





SCIENTIST SUPPORT



Dr. Madeleine Renom from Uruguay (Meteorology Specialist)



Dr. Ricardo Chrobak from Argentina (Specialist on Science Teaching)



Dr. Vasco Mantas from Portugal
(Remote Sensing Specialist)

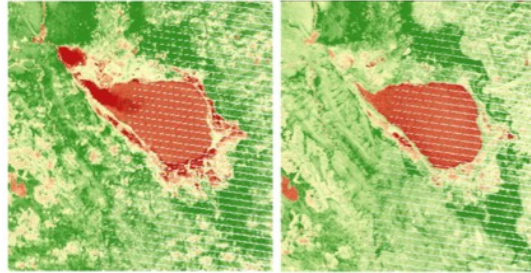
The BIG Questions

- How does the ENSO phenomenon affect each country?
- Does the ENSO phenomenon affect all countries in the same way?
- How does ENSO affect human activities and land cover?

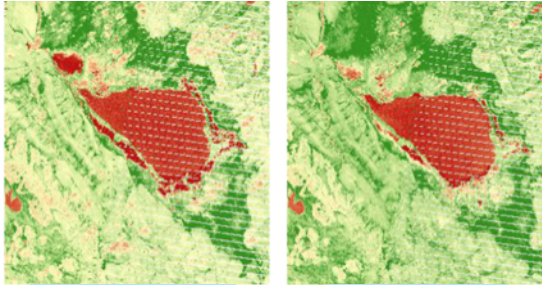


Data Analysis - NDVI

Annual precipitation 940 mm



Annual precipitation 655 mm



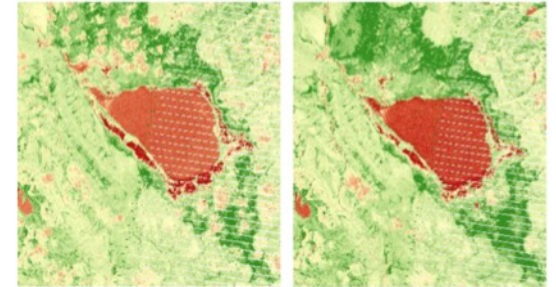
September 2006

October 2006

El Niño period

Neutral Period

Annual precipitation 1476 mm



September 2010

October 2010

La Niña period

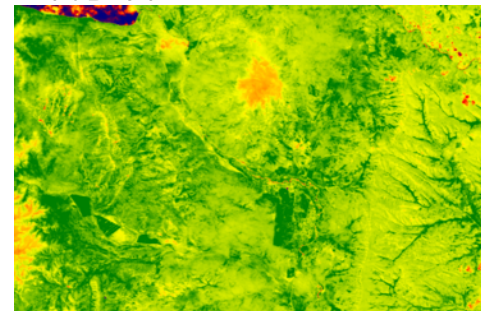
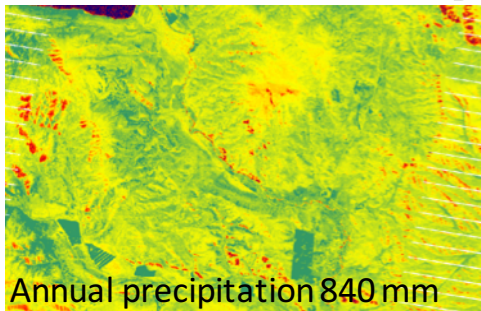




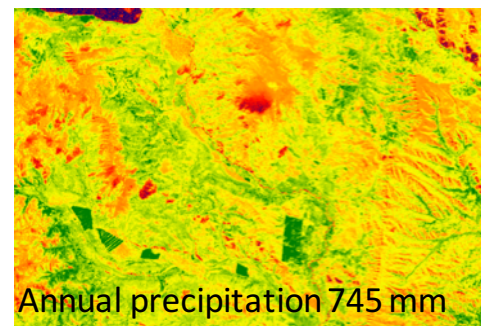
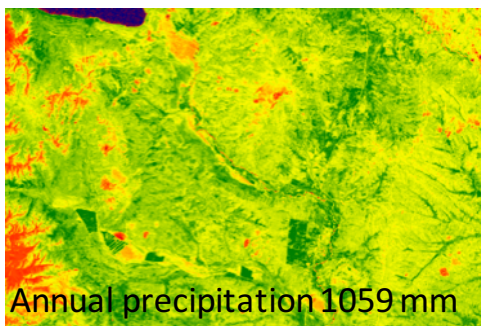
THE GLOBE PROGRAM

Data Analysis - NDVI

Argentina



Neutral Period - 2003

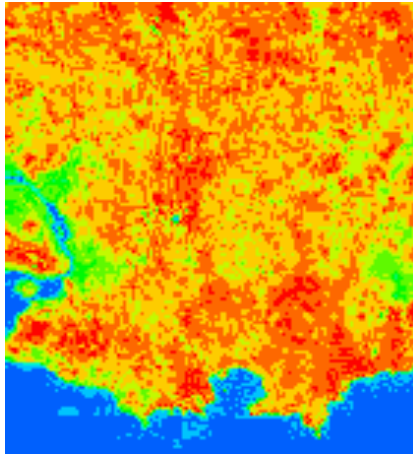


El Niño Period - 2002

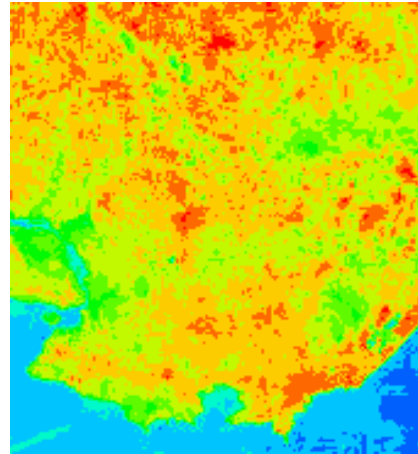
La Niña Period - 1999



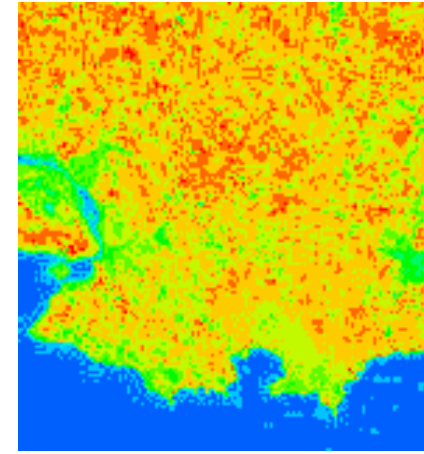
Data Analysis - NDVI



Neutral Period - 2003
Annual precipitation
1240 mm



Niño Period - 2009
Annual precipitation
1350 mm




Niña Period - 1999
Annual precipitation
1240 mm

Conclusions

- Vegetation cover decreases during the period of La Niña in Argentina and Uruguay and increases in Peru
- During El Niño , rainfall is much higher in Argentina and Uruguay, while in Peru rainfall is decreased
- The ENSO does not have the same effect on Argentina , Uruguay and Peru



The Team



• Brian Campbell	NASA Wallops Flight Facility, Lead	(Virginia)
• Dorian Janney	NASA Goddard Space Flight Center	(Maryland)
• Kristen Weaver	NASA Goddard Space Flight Center	(Maryland)
• Peter Falcon	NASA Jet Propulsion Laboratory	(California)
• Matt Pearce	NASA Goddard Institute for Space Studies	(New York)
• Ann Martin	SSAI	(Virginia)
• Kevin Czajkowski	University of Toledo	(Ohio)
• Oluwafemi Olawale	Nigerian Space Agency's CGG	(Nigeria)
• Claudia Caro	National Agrarian University	(Peru)
• Laura Schetter	Toledo Public Schools/H2yOu Project	(Ohio)
• Vasco Mantas	University of Coimbra	(Portugal)
• Kristin Wegner	GLOBE Implementation Office	(Colorado)
• Julie Malmberg	GLOBE Implementation Office	(Colorado)

Thank You!

