



Developing Awareness About Impacts on Land Cover Produced by ENSO Phenomena and Human Activities

Collaborative GLOBE Project
Argentina, Peru and Uruguay
Latin American and Caribbean
Region

Participants

- Argentina: High school students from Buenos Aires and Junín de Los Andes



Participants

Peru: GLOBE Group from National Agrarian University La Molina



Participants

- Uruguay: Scientific Club «Los Bénticos» (GLOBE Alumni)



OBSERVATION

- Our countries are frequently impacted by ENSO phenomena
- Apparently, the impact of ENSO phenomena is not the same in Argentina, Uruguay and Peru
- Human growth is changing habitats around the world

THE **BIG** QUESTIONS

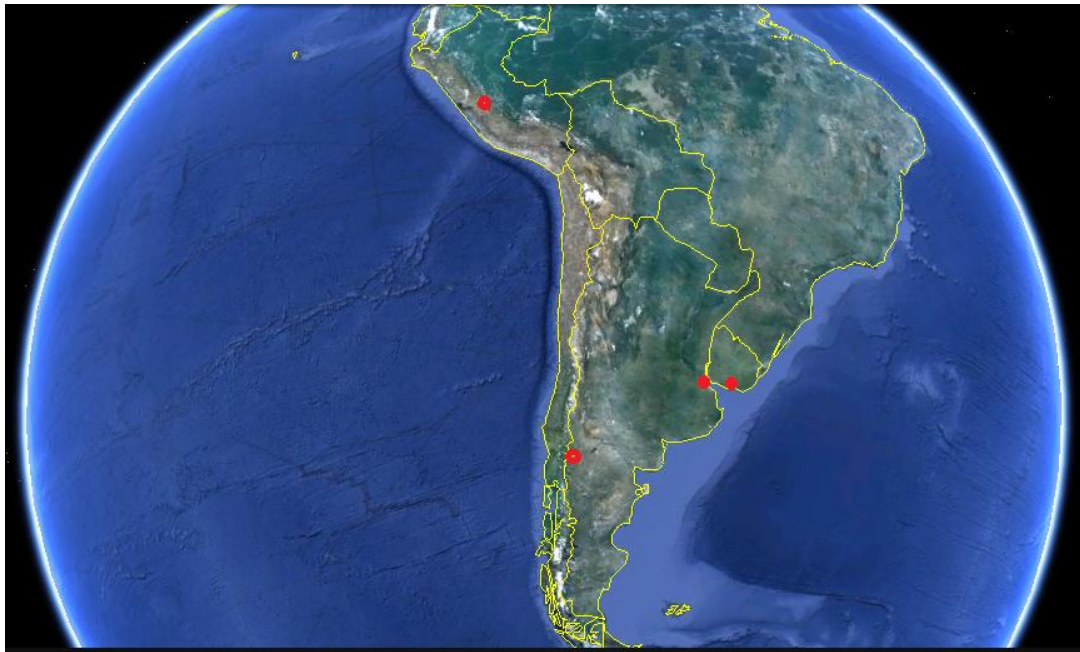
- How does ENSO phenomena change the land cover in our countries?
- Is the magnitude of changes different in each one of our countries?
- How do human activities impact the land cover?

Hypothesis

- La Niña Phenomena negatively influences the NVDI index and El Niño Phenomena positively influences the NVDI index
- During El Niño phenomena, the number of days with temperature above 0°C melt the ice cover
- Big changes on land cover occur due to the influence of human activities

Methodology

- Select study sites between 10° and 40° S with influence from the Atlantic and Pacific Ocean
- Selected sites are marked with red dots



Methodology

- Select dates in which El Niño (2002) and La Niña (1999) phenomena occurred
- Make the classification and validation of land cover based on Landsat images during 2012 and 2013
- Perform biometric studies in each study site
- Analyze changes on the land cover during El Niño and La Niña phenomena, using Landsat Images, in comparison with neutral years (2003 and 2012)
- Analyze atmospheric information of El Niño, La Niña and neutral years selected
- Establish a relationship between NVDI and Atmospheric data
- Observe impacts of human activities on land cover
- Share Results

General Objectives of the Project

- This project includes opportunities to promote ongoing work between countries involved through face-to-face interactions and using online resources such as videoconferencing for meetings and other ICT tools.
- The research plan does not only include different countries, but also incorporates different levels of education (elementary, secondary and university). This involves constant coordination and a large commitment from the participating teachers and students.

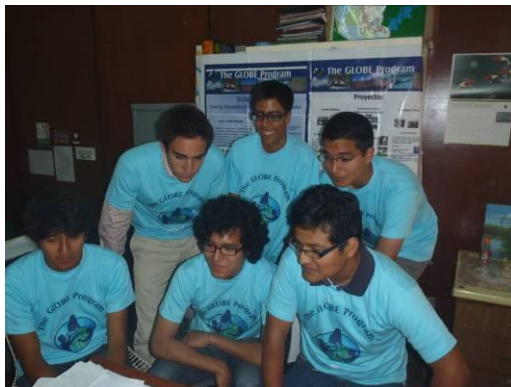
Help of Scientists

- Biologist Vasco M. Mantas, expert in the interpretation of satellite images from the University of Coimbra in Portugal, joined the team to further support students and teachers in the process of scientific interpretation of the images to be used.
- Support of the National University of Comahue in Argentina, represented by Dr. Ricardo Chrobak, Director of Project Learning to Teach Physics and the Environmental Education Research Group



First Meeting: November 30th – December 1st

- Teacher workshop
- Presentation of the research plan
- Videoconference with Peru



NEXT Meeting

Buenos Aires and Montevideo
November, 2013



Students say...



«I am excited to participate in this project because it provides the opportunity to meet students from other countries working with GLOBE, and also because I am very interested in working with Junín National Reserve in Peru as a thesis topic for my degree in Meteorology next year»
Gustavo De la Cruz - Peru



"We learned about and taught GLOBE protocols working in groups with guys from other regions. I sensed it as a whole new experience. The best of all was being able to watch nature, snow, volcanic landscape. I will never forget what we learned, nor the new friends, experiences and everything we observed"
Claudio Lacuesta - Uruguay

The work that we are doing with Argentina, Uruguay and Peru is an excellent GLOBE opportunity to link Latin American countries in a new experience that opens new doors and creates new expectations for the future of our region»
Juan Diego Calvo Pérez - Peru



"I think that the fact of working together with other countries is a great opportunity to see how other people work, how they live, how they are as human beings. To see other realities. We plan to continue this work together, keep getting together in different places and see what changes could be presented to advance the research»
Melissa Cristobal – Uruguay



Students say...



“When I first joined GLOBE at school, I was interested in measurements because I always liked the environmental issue. Taking part in GLOBE program was important. I wish someday we could make something that serves the generations to come, so that they could see what will happen in the future because I think that, in the past, people did not think about what was going on, we were unaware. To me GLOBE is very important and I like the way it works in general, it gives support to the projects you have in mind, offering the help you need”

Diego Valeria, Argentina

“I believe that joining several regions and countries to work together is an important cultural exchange. We had never made a field investigation, not even in San Isidro. It was great to come and see it in an agrotechnical school »

Matías Casares, Argentina



“It very much helped to interact with people from other regions who were practicing this. If we did not know something, we could definitely ask our friends without having to ask teachers all the time; in this way we helped each other”

Agustín Grunauer, Argentina

