



# CLIMATE DETECTIVES 2021 – 2022



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## RESEARCH QUESTION

What are the impacts of global warming on tree development?

## SUMMARY OF PROJECT

Trees provide us with food, air and shade. Let's compare Winter and Spring in the Northern Hemisphere with Summer in the Southern Hemisphere, from December 2021 to April 2022. The images of both hemispheres, both real and digital, will be collected by the students through Sentinels satellites.

The use of the ESA resource "Colours on Earth in the four seasons" will be an integrative approach to addressing the impacts on trees in a given region. We will take photographs of various regions in order to have real images to compare with the corresponding images captured by the satellite in its virtual location, using Sentinels and the digital resources of EO Browser.

The 'Time Lapse' feature will be very important for us to make this comparison and to identify the effects of global warming on trees in the regions identified by residents in Europe and Brazil.

The participation of students in weekly virtual meetings carried out through Google Meeting with Brazilian residents in France, Italy, Canada and Portugal will provide them with the possibility of comparing the real images obtained in loco with the collections carried out by Brazilian students from the States of Pará, Fortaleza, Goiânia, Rio de Janeiro, São Paulo, Minas Gerais and Rio Grande do Sul.

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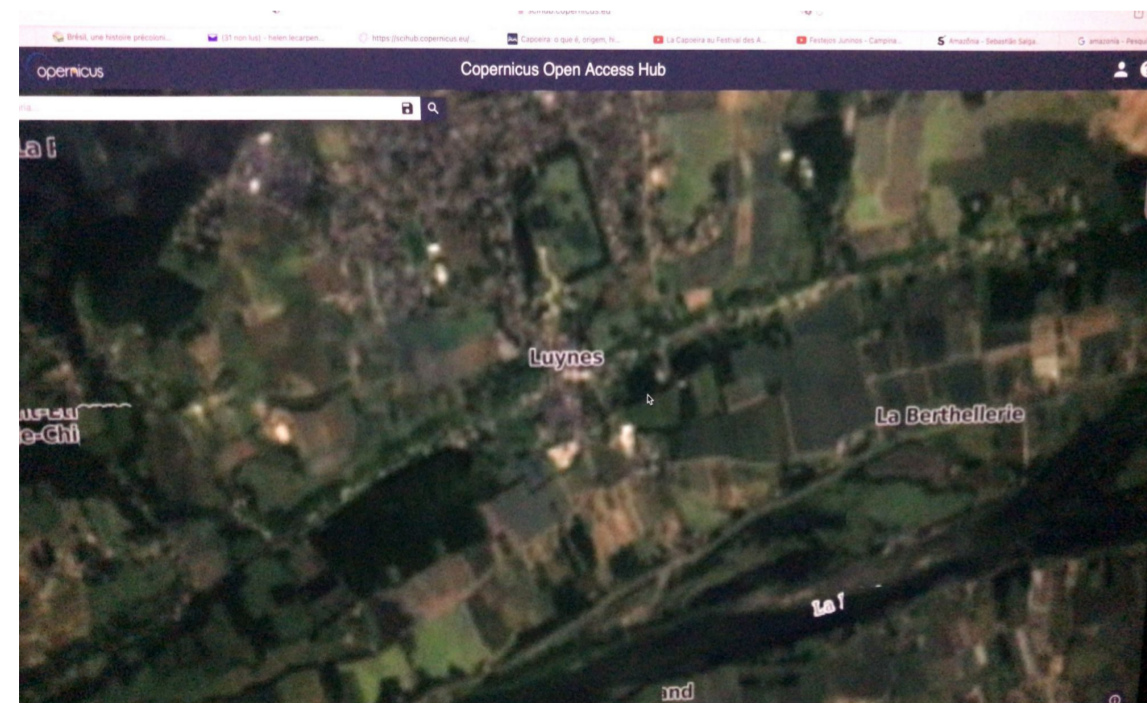


Figure 1: satellite in its virtual location, using Sentinels and the digital resources of EO Browser.

## MAIN RESULTS

What is the best soil type to grow a bean seed? This work aims to follow the development of the beanstalk in three types of containers containing beach sand, earth and cotton. The young scientists that make up this group of scientific studies reside in several locations in Brazil. Anthony from Italy, Theo from France and Ana from Canada accepted the challenge of accompanying their development in the country where they live. Virtual meetings through google meet weekly. Local warming, lack of food will be one of humanity's biggest problems in 2050. Keywords: Development, Observation, Virtual Encounters. INTRODUCTION Food in the 21st century, we are facing global warming, climate change adds to the Earth's temperature rise and food planting will need to be adapted. Creating home planting options like the right type of soil will benefit the family, the community and everyone. Beans have many nutrients and are easy to handle with proper guidance and the creation of infrastructure can OBJECTIVE The project seeks to provide a very specific view of scientific research, as a tool to help teachers work in groups or individually, have their own discoveries, opinions and have their own visual, sound and tactile stimuli, stimulating creativity and teamwork. MATERIALS AND METHODS The variety of soils, the amount of seeds that exist. Several countries spread over 5 continents with a variety of climate, soil and vegetation. Differentiate Food Desert from Food Swamp Planting beans in different soils Planting one frozen seed and one at room temperature. What will happen? METHODOLOGY With the question Will my beanstalk sprout? The activity of planting and questioning about the types of soil, climate and vegetation around the world was carried out. we're waiting. Rommel Saiyd met his frozen and room temperature acerola challenge. The vast majority were in the crowd for the frozen one to sprout first, but the room temperature one showed up all partying showing that it was the first. So far, the frozen has not sprouted! Ana, who lives in Canada, concluded: "So that's why we don't plant anything in winter." The story of the cicada and the ant served as income for the winter. I presented the sprouting of the <https://photos.app.goo.gl/cZuRz5gou3ZR682NA>



Figure 2: Trees near my house to build a herbarium

## ACTIONS TO HELP LESSEN TO THE PROBLEM

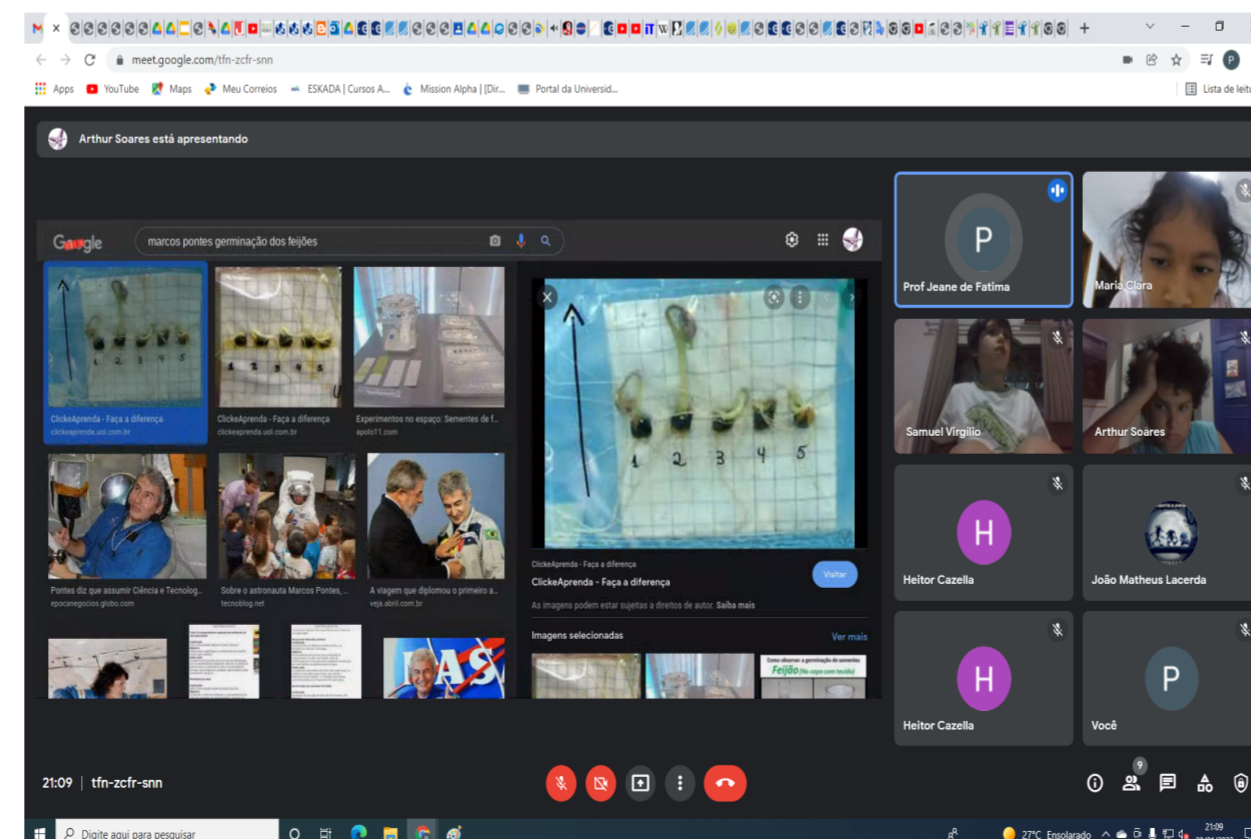


Figure 3: beanstalk development on the ISS experiment Brazilian astronaut Marcos Pontes

Trees near my house to build a herbarium, stick a tree leaf as a souvenir, presenting its shape, its species and classifying it as fruitful or with large foliage for shade or for building houses.

The use of the tree can be varied, reforesting deforested areas.

Planting new trees will be very important.

In an observation we noticed that there are places where there are no trees and in this place the temperature is higher.

We noticed neighborhoods where there are many trees and the temperature is more pleasant.

Neighborhoods with few trees had high temperatures, people are more tired and less willing to carry out simple activities.

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