



# CLIMATE DETECTIVES 2021 – 2022



MindLab EDU GR Detectives 2  
Mindlab Edu

## RESEARCH QUESTION

**Are the impacts of climate change appearing in Greece? Can we investigate it through our ground measurements and official climate data?**

## SUMMARY OF PROJECT

The climate problem that we tried to investigate is the global warming and specifically its results in our country. We tried to understand if our country suffers intensively from this phenomenon after observing that there is a difference in the seasons in our country and specifically that one season now overlaps the other.

First we measure ground temperature using an Arduino microcontroller and different sensors to see how scientist study and work on solving Climate problems. To find valid prices we were looking measurements from official sources such as the National Meteorological Services (NMS). We looked for climate data of the past few years in our country but also data from decades ago and gathered them all together. We want to study what happened in the past (related to Temperature) and also how is the situation now. This search was done for various cities as shown in map.

Our country is located in the southeast side of Europe and relatively near Ecuator. Our purpose is to compare measurements and in combination with the research that we will do in official studies and data for this phenomenon, we will try to investigate if Greece is suffering from the phenomenon of climate change.



Figure 1: Cities where measurements and official data taken.

## MAIN RESULTS

By understanding how important is the climate stability in our land, we saw the impact we will have in the case of leaving this climate situation as it is. We worked as scientists trying to have multiple measurements of several days in order to understand the way we should examine a climate problem. Our measurements for Athens and Thessaloniki showed minimum temperature 9 C, maximum temperature 25 C and average 15.6 C, something that shows difference from the official measurements. Problems were also faced in equipment stability in temperature measurements for many days. The students were introduced to the concepts of weather and climate as we observed that our measurements should have been taken for several years.

In order to have more accurate and valid results, we looked in official sources for the temperatures of various cities of our country (Attached Temperatures for Athens and Thessaloniki). First we found temperature prices of past decades to have a picture of the climate of our country in the past. Then we looked for most recent temperature values, past few years, to compare with. What we have noticed is that in the winter months there is an increase in temperature in all the cities we studied and this is something we also observed as civilians. For the rest of the year, the data show us a small increase of temperature but the differences are very small.

Generally we observe bigger temperatures, especially in the winter months, and more smooth transitions from one season to another. That is also seen in the graphs attached but we know that more years of measurements are needed to have safe results.

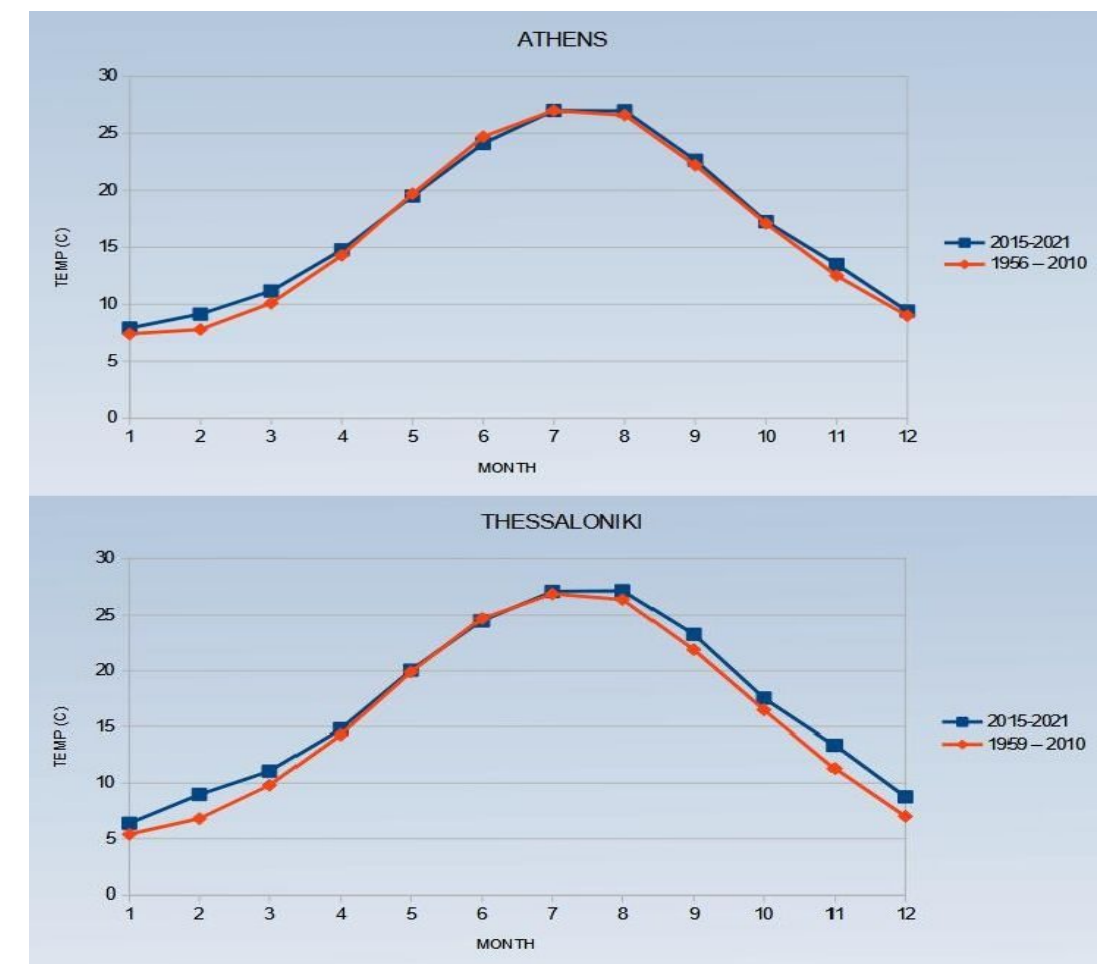


Figure 2: Past and recent Temperatures

## ACTIONS TO HELP LESSEN TO THE PROBLEM

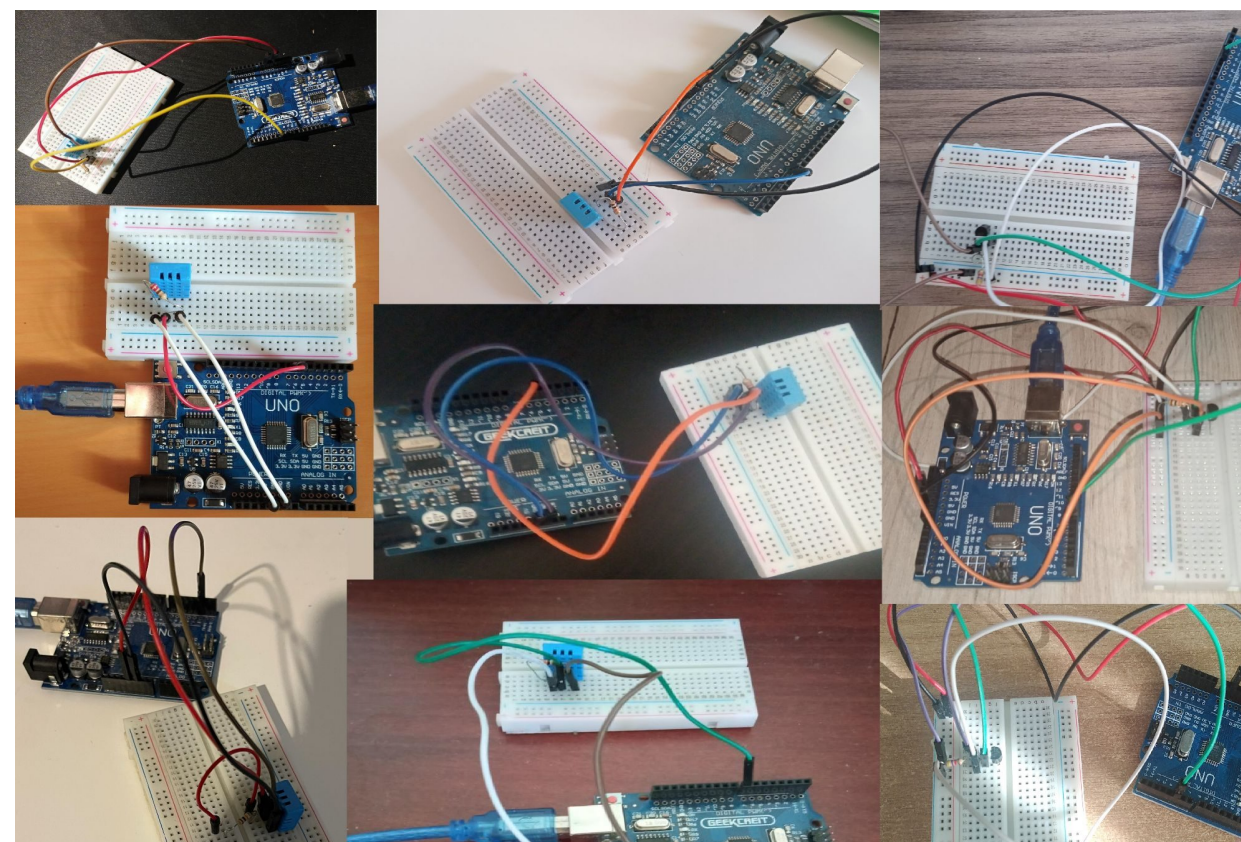


Figure 3: Student's Arduino circuits

Certainly everyone should be informed in order to fully know and understand the subject of climate change and the impact of it in our world. As we did for this project we could all be able to try to take measurements in our home town and see the impact of this phenomenon. Definitely this will lead to awareness of the problem and will make our effort for a better environment most experiential.