



# CLIMATE DETECTIVES 2020 – 2021

## CLIMATE CHANGE IN BADAJOZ

Detectives del SanFer I  
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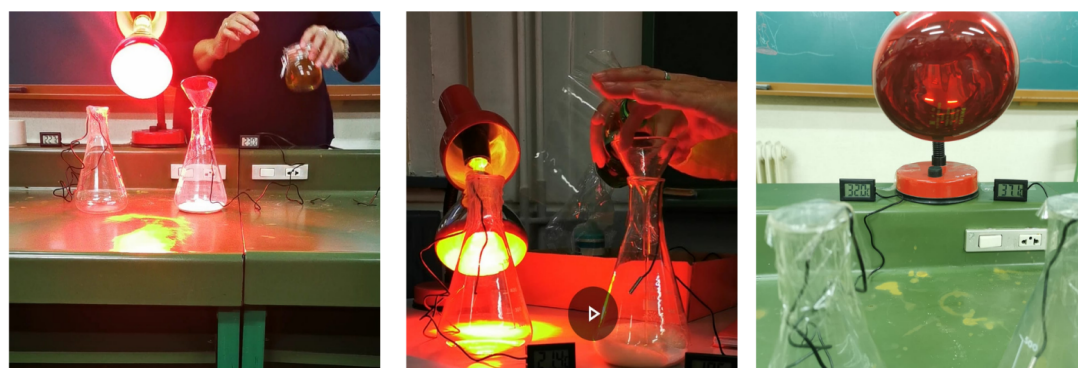


### RESEARCH QUESTION

To what extent can one perceive the effects of Climate Change in Badajoz?

### SUMMARY OF PROJECT

During this first semester we have conducted several activities in class aiming to understand both the causes and consequences of climate change on our planet. At the same time, we have tried to understand if this problem is really affecting our region. In order to better understand this topic we have designed two experiments. The first one allowed us to explore whether or not an increase in CO<sub>2</sub> in an atmosphere is able to increase the temperature of that same atmosphere. Secondly, the second experiment enabled us to inspect the impact of climate change on the sea level. In order to deepen our understanding of the Antarctic, we have participated in an IBERCIVIS initiative of civic collaboration in Science titled “Desafío Bajo Cero”- in collaboration with Spanish scientist we have obtained these satellite pictures from Deception Island <https://earth.google.com/earth/d/1yTX6F-4eHf58-YQmx1qp9NzL9sbdO-Af?usp=sharing>. Since we could not use a weather station, we asked the AEMET (State Weather Agency) to provide us with information about precipitation and temperature of our city. We analyzed the historical weather data of Badajoz from 1991 to 2020, calculating statistical measures and drawing graphs. Finally, we have conducted several advertisement campaigns in our school center, encouraging our students to recycle and a radio program presenting the UN's campaign Act Now (<https://radioedu.educarex.es/sfradio/2020/12/18/actua-ahora-1oeso-a/>)



Gases efecto invernadero

Figure 1: EXPERIMENTO GASES EFECTO INVERNADERO

### MAIN RESULTS

Through our experimental models we were able to verify the increase of CO<sub>2</sub> in an atmosphere makes infrared radiation increase significantly the temperature of the atmosphere. Furthermore, we have seen how the melting of the Antarctic is going to contribute to an increase in the sea level. We have conducted an analysis of the climate data from the past 30 years in our city (1991-2020). Our team has focused mainly on the study of temperatures. After conducting some calculations and graphing our data we have observed the following signs:

The average temperature of our city has increased progressively these past years. During the past 30 years it has increased by 1°C (Figure 1)

As one can see in the graph, temperatures from May and October have increased significantly in the period under study. This is evidence that warm seasons in Extremadura are becoming longer. (Figure 2)

In the climograph conducted with the temperatures and precipitation of these past years, we can see that May has been included in the dry months. (Figure 4)

Therefore, we can conclude that the effects of climate change are starting to appear in our region, increasing the average temperature and englobing May and October in the warm seasons. Maximum and minimum temperatures are also increasing.

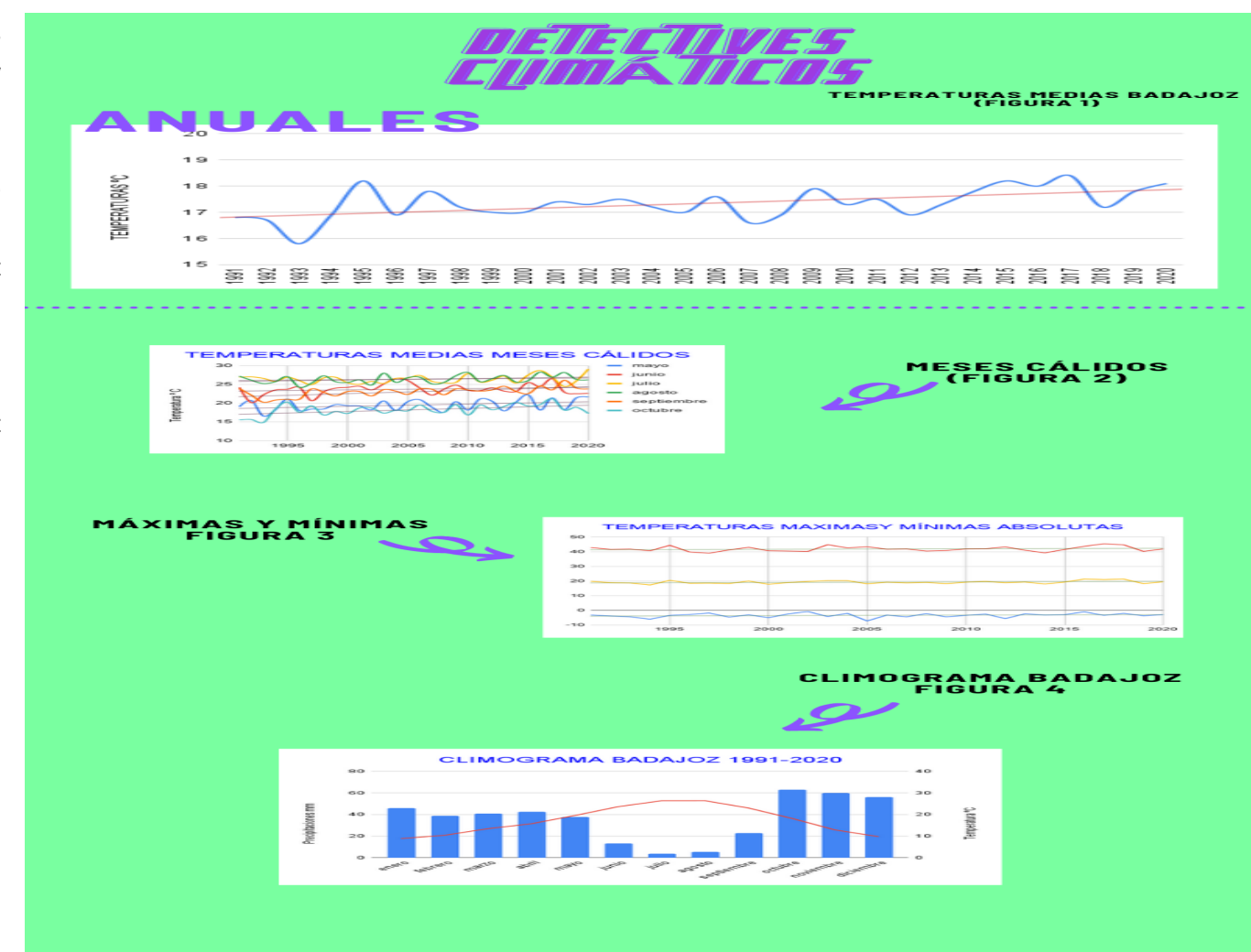


Figure 2: GRÁFICOS TEMPERATURAS Y PRECIPITACIONES

### ACTIONS TO HELP LESSEN TO THE PROBLEM



Figure 3:

Since the very first moments of the project, we wanted to guide our students to become real change makers. They will start to help to reduce the impact of climate change in the world starting in their homes, their school, their region... We clearly saw that it was extremely necessary to spread the word among their classmates, families, and political figures involved in this challenge, so we started to work on it. We installed a recycling site in each class where we can separate waste collection and recycle-- plastic and cans go in the yellow bin, paper in the blue bin and food waste in the brown one.

We also have an eco point in the hall of our high school for batteries, lightbulbs and small electrical items. Moreover, we have collaborated with a regional business called La Hormiga Verde that actively works in improving the planet through recycling practices (<https://www.lahormigaverde.org/es/nosotros>)

Additionally, we started different campaigns among our colleagues with concrete ideas so every person can initiate their own change. We have become UN ambassadors in our school center, collaborating with the campaign ACT NOW (<https://www.un.org/en/actnow>) We have conducted different workshops to foster the re-use of daily materials and goods.