



CLIMATE DETECTIVES 2021 – 2022



"Planet Warriors"
IES "LÓPEZ DE ARENAS"

RESEARCH QUESTION

How have climatic variables such as temperature and rainfall changed in recent decades?

SUMMARY OF PROJECT

In these lands, expressions such as: "Here there is no middle ground, you go from hot to cold and vice versa", or another such as "We have more and more spare clothes for halftime", or maybe this other one, "Yesterday we were in a T-shirt and today we already have the jacket". I could go on enunciating expressions of everyday life that show that something is happening, since the seasons are not very well defined, or at least like they were just 40 years ago.

This group, despite its difficulties, since it is a group with special educational needs (SEN), intends to respond and verify if what is being discussed on the street is really taking place. Is a real change taking place in Marchena's climate?

In the first place, the students will work on theoretical aspects related to meteorology, from its terminology to the physical magnitudes that will be worked on.

Secondly, with this conceptual baggage acquired, it will be possible to move on to the collection of information and its treatment. In this phase of the project, we will work with the installation of a meteorological station in our center, which we will complement with an air quality control station. The data collected at these stations will be published through the Center's website and on different meteorological servers, such as Ecowitt and ThingSpeak.

We will collect the historical series from the data provided by the Andalusian State Meteorological Agency (AEMET). Data that will be complemented by those collected by local meteorology enthusiasts.

Figure 1:

MAIN RESULTS

TEMPERATURE

Average Annual Temperature: We started in 1990 with a temperature of 18,575 °C. If we look at the historical series we see that in the year 2021 the temperature is 19,979 °C. So we can see that there is a difference of 1,404 °C

Number of days $T^a \text{ max} > 35^\circ\text{C}$: We started in 1990 with a sequence of 62 days. If we look at the historical series we see that in the year 2021 it is 52 days. So we can see that there is a difference of 10 days. However, there have been years with more than 80 days with $T^a > 35^\circ\text{C}$.

Number of days $T^a \text{ min} > 22^\circ\text{C}$: We started in 1990 with a sequence of 12 days. If we look at the historical series we see that in the year 2021 there were 15 days. So we can see that there is a difference of 3 days. It should be noted that there have been years with up to 29 days of min $T^a > 22^\circ\text{C}$.

RAINFALL

Annual Rainfall: We started in the year 1990 with rain of 349.0 mm (l/m2). If we look at the historical series we see that in the year 2021 the rain is 214.2 mm (l/m2). So we can see that there is a difference of 134.8 mm (l/m2).

Number of days of rainfall per year: We started in 1990 with 48 days of rain per year. If we look at the historical series we see that in the year 2021 the rain is 50 days. So we can see that there is a difference of 2 days. So, although the number of days it rains is maintained, it falls less and less.

•It is NOT observed that the falling water is torrential.

The tables made with the data obtained. As well as the graphs made are available on the blog that the group has created and the access link is left below.

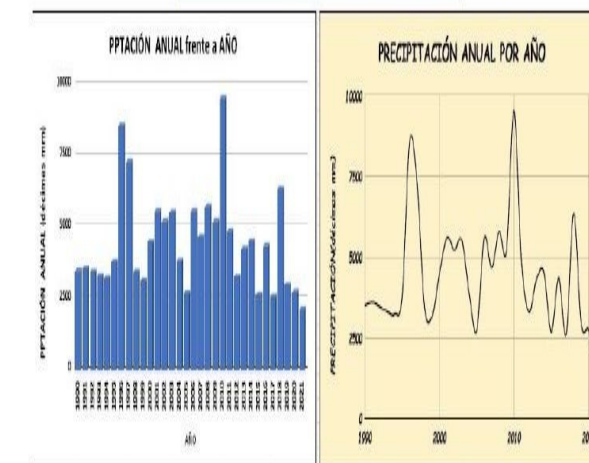
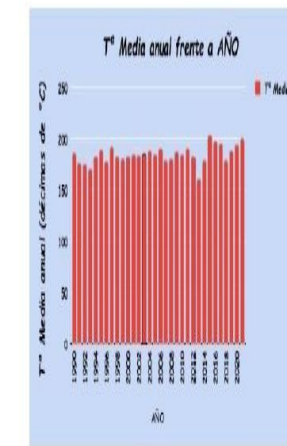


Figure 2: Graphs of mean annual temperature and annual rainfall

ACTIONS TO HELP LESSEN TO THE PROBLEM

EL CALENTAMIENTO GLOBAL



Figure 3: Multimedia presentation cover

An awareness campaign has been developed. To this end, multimedia presentations and short videos have been created to promote the campaign.

The material can be seen on the blog created by the group for this project and the access link is left below.