



CLIMATE DETECTIVES 2021 – 2022



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RESEARCH QUESTION

How do the increase in temperature and the disappearance of the ozone layer affect the melting of the poles and the rise in sea level?

SUMMARY OF PROJECT

For our project we have used data from EO browser and sentinel satellites, thanks to these and some other sources of information we have compiled data on the ozone level in the area where the Perito Moreno glacier is located (Argentina), the temperature, both around the glacier and in our town in recent years and the surface of the studied glacier as well as the rise in sea level in one of the closest towns near Alcalá la Real.

With all these, we aim to see how the increase in temperature and the disappearance of the ozone layer directly affect the melting of glaciers and how water becomes part of the seas and helps increase their levels, affecting coastal cities.

For this research work, we have created some drive folders in which all the required information has been uploaded and stored, using an excel table to write down the information obtained from each of the aspects studied and folders to upload screenshots on the surface of the glaciers or the amount of ozone allowing us to store and order them to have a visual and quantitative record of it with the images and data in the excel tables. We have also created graphs that help us see the increasing and decreasing levels in some quantities.

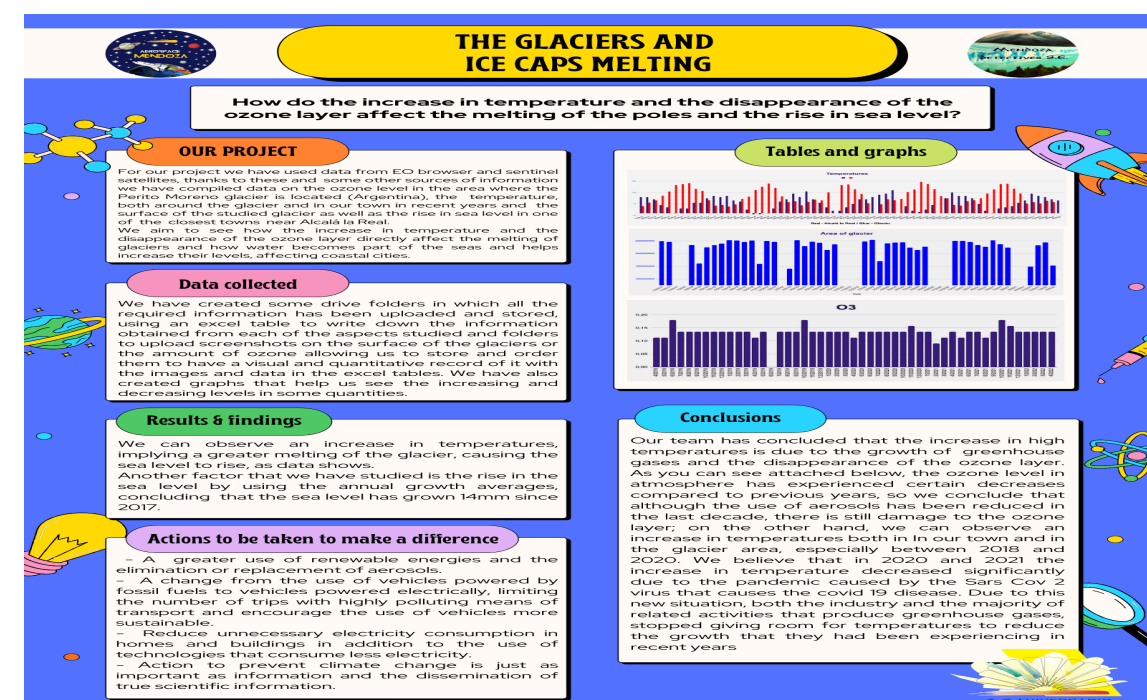


Figure 1: Mendoza Detectives project poster

MAIN RESULTS

After collecting all data, we can conclude that climate change is affecting the Perito Moreno glacier (Argentina) in the following way: We can observe an increase in temperatures, implying a greater melting of the glacier, causing the sea level to rise, as data shows. Our team has concluded that the increase in high temperatures is due to the growth of greenhouse gases and the disappearance of the ozone layer. As you can see attached below, the ozone level in atmosphere has experienced certain decreases compared to previous years, so we conclude that although the use of aerosols has been reduced in the last decade, there is still damage to the ozone layer; on the other hand, we can observe an increase in temperatures both in In our town and in the glacier area, especially between 2018 and 2020. We believe that in 2020 and 2021 the increase in temperature decreased significantly due to the pandemic caused by the Sars Cov 2 virus that causes the covid 19 disease. Due to this new situation, both the industry and the majority of related activities that produce greenhouse gases, stopped giving room for temperatures to reduce the growth that they had been experiencing in recent years. Another factor that we have studied is the rise in the sea level by using the annual growth averages, concluding that the sea level has grown 14mm since 2017.

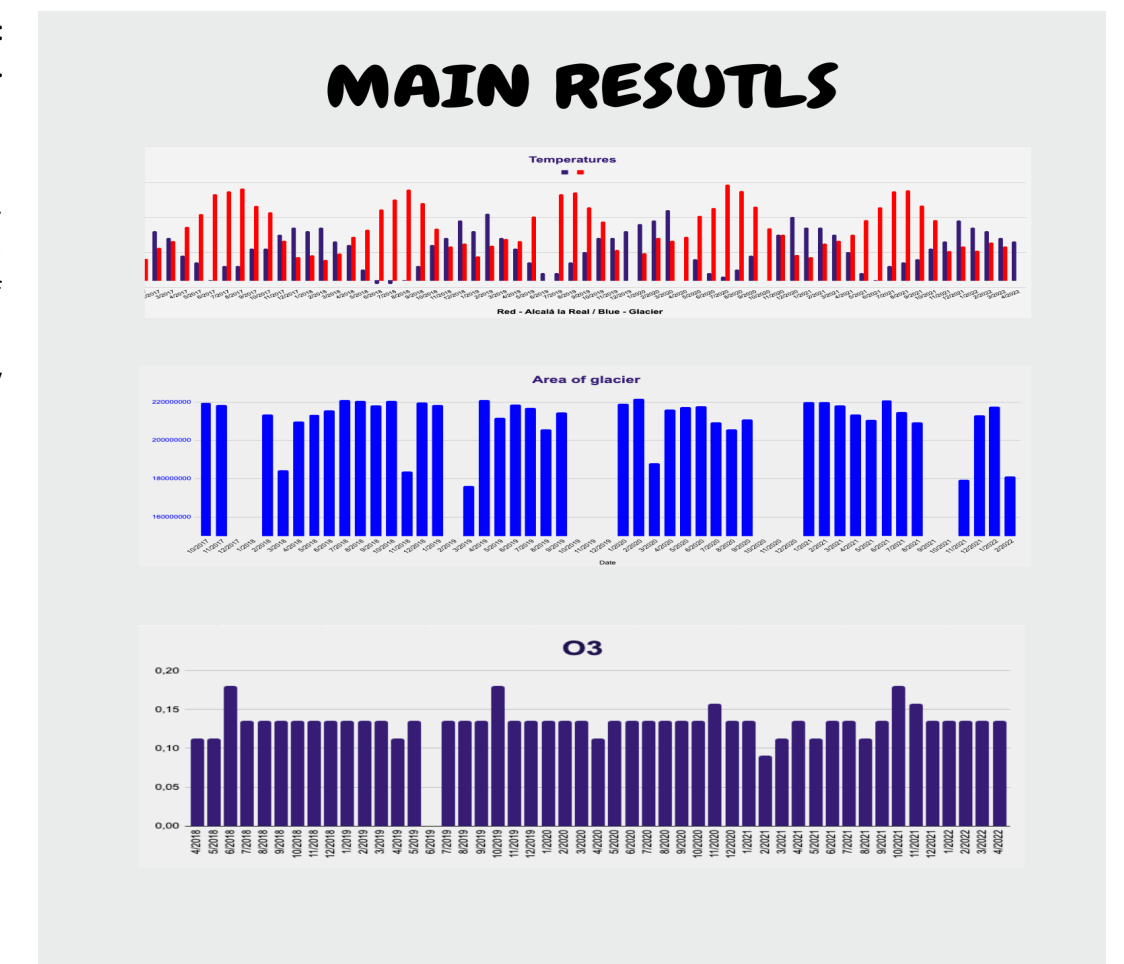


Figure 2: Mendoza Detectives main results

ACTIONS TO HELP LESSEN TO THE PROBLEM

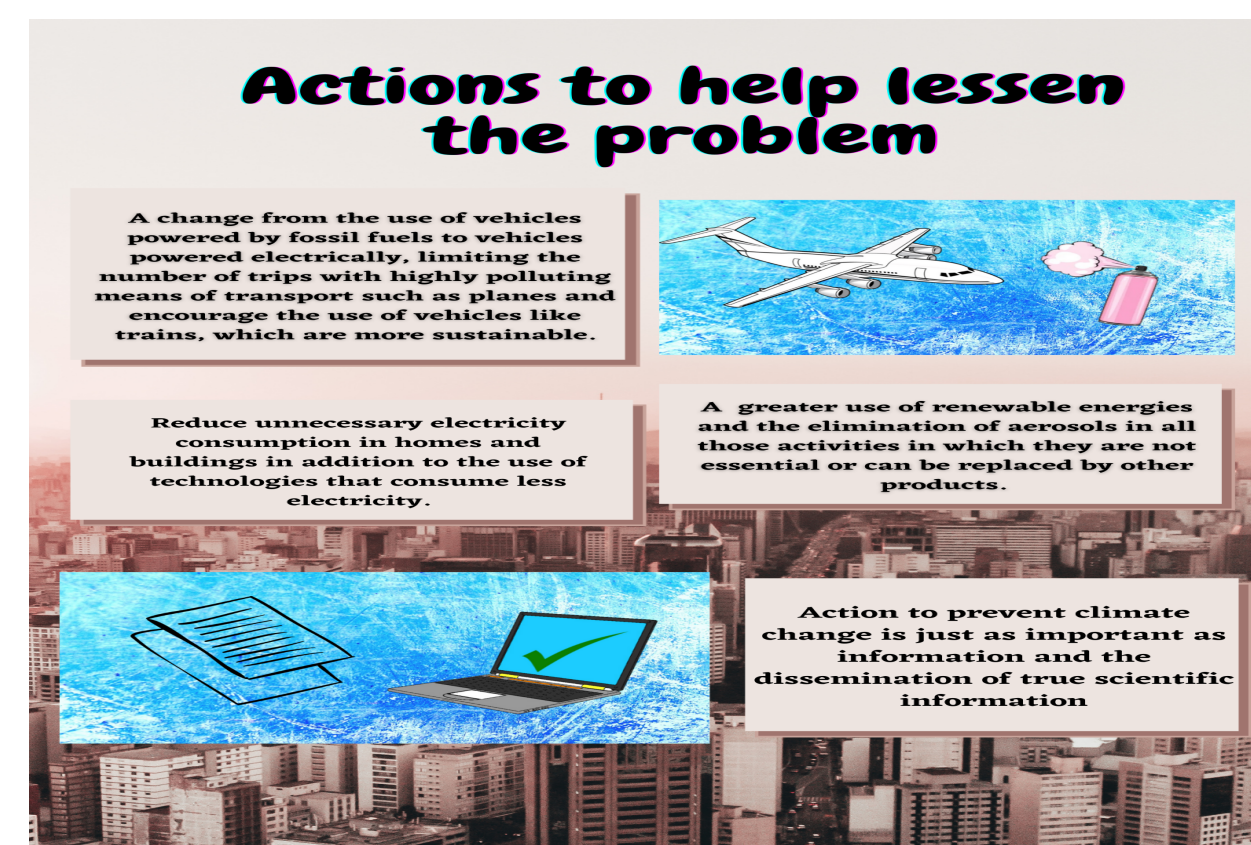


Figure 3: Mendoza Detectives actions to help lessen the problem

The measures that our team thinks could be adopted to reduce the increase in temperature and the disappearance of the ozone layer to prevent the melting of glaciers consist of a greater use of renewable energies and the elimination of aerosols in all those activities in which they are not essential or can be replaced by other products. Another measure is a change from the use of vehicles powered by fossil fuels to vehicles powered electrically or by other methods. To do that, we could limit the number of trips with highly polluting means of transport such as planes and encourage the use of vehicles like trains, which are more sustainable; we can also reduce unnecessary electricity consumption in homes and buildings in addition to the use of technologies that consume less electricity. Finally, we think that action to prevent climate change is just as important as information and the dissemination of true scientific information adapted to the fact that everyone, regardless of their training, is able to understand it. That is why projects like the one we are carrying out help everyone have access to this information and prevent climate change and its effects.