



CLIMATE DETECTIVES 2020 – 2021

ENTRENÚCLEOS

ESOESERO_A
IES IBN JALDUN



RESEARCH QUESTION

How has urban sprawl in Dos Hermanas influenced the environment in the last 50 years?

SUMMARY OF PROJECT

The aim of the research is to analyze how the urban growth of Dos Hermanas in recent years as a city in the metropolitan area of Seville, has influenced an area where the Dehesa de Doña María previously existed, a huge olive grove that was part of the local landscape, which offered the town an important flora and fauna. In particular, we want to investigate how it has affected the “Arroyo de las Culebras” and the air quality in that area.

In our research plan we have followed the following guidelines:

Measurement of the air quality in different parts of the city, to compare results between the main urban nucleus and “Entrenúcleos”.

Analysis of orthophotos taken from plane at different times to observe the great urban growth of the city and the consequent loss of green areas, including the “Arroyo de las Culebras”.

Analysis of images taken by satellites to observe the concentration of NOx in the city and its relationship with urban growth.

MAIN RESULTS

The aim of the research is to analyze how the urban growth of Dos Hermanas in recent years as a city in the metropolitan area of Seville, has influenced an area where the Dehesa de Doña María previously existed, a huge olive grove that was part of the Nazarene landscape. which offered the town an important flora and fauna. In particular, we want to investigate how it has affected the “Arroyo de las Culebras” and the air quality in that area.

In our research plan we have followed the following guidelines:

Measurement of the air quality in different parts of the city, to compare results between the main urban nucleus and Internúcleos.

Analysis of orthophotos taken from plane at different times to observe the great urban growth of the city and the consequent loss of green areas, including the “Arroyo de las Culebras”.

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Área de Investigación = 2,5 km²

Entrenúcleos - Arroyo de las Culebras- Dos Hermanas

Figure 2:

ACTIONS TO HELP LESSEN TO THE PROBLEM

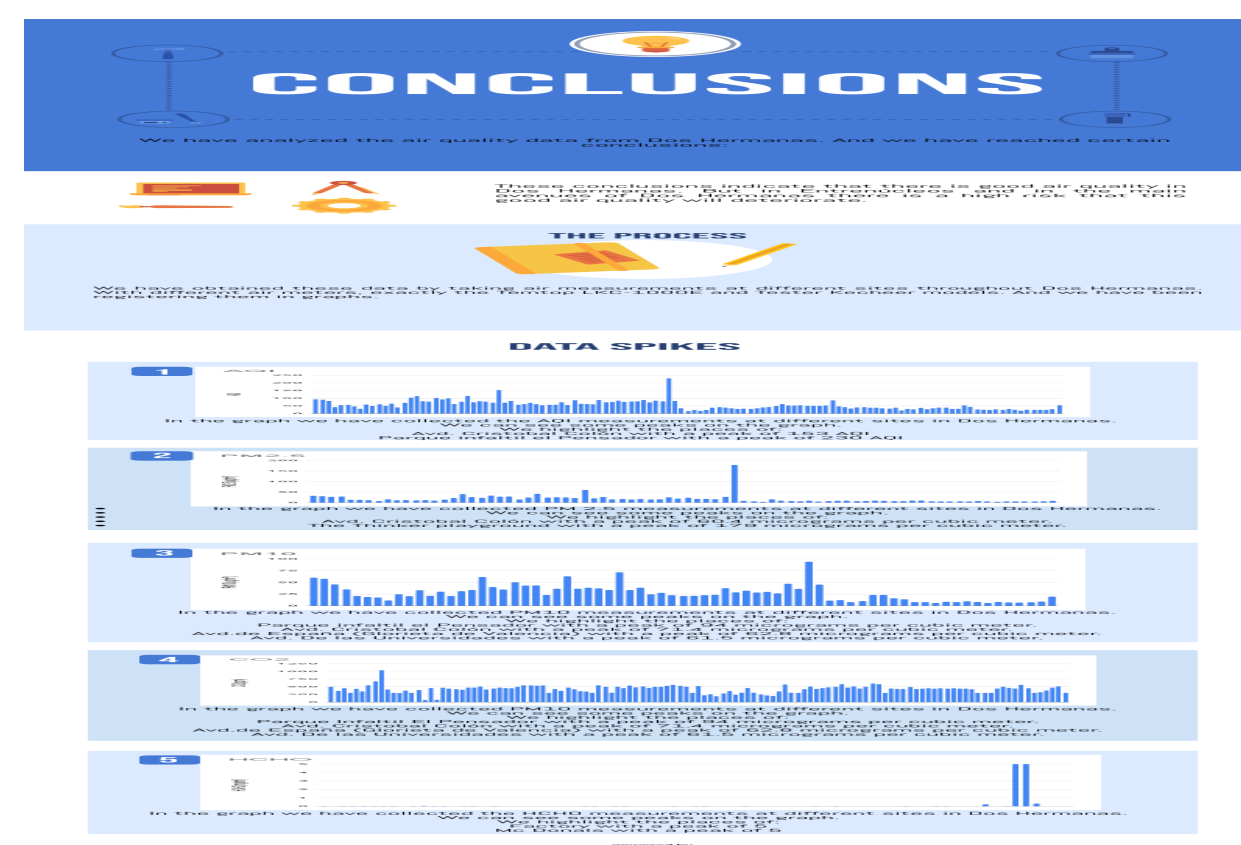


Figure 3:

Regarding the data collection of air quality in the municipality (old town and entrenúcleos) we have obtained the following results:

We have measured CO₂, PM_{2.5}, PM₁₀, HCHO and AQI.

In general, we have found a homogeneity of the data obtained except in certain parts of the city. These points where the quality indicators are not the most adequate coincide with points where road traffic is more abundant.

In addition, these critical points coincide with important avenues of communication in the city, some of them being entrenúcleos, such as Avenida de las Universidades.

In general, the traffic in Entrenúcleos is passing through, that is to say, it is an area in full swing of works and with little population. This suggests that in the coming years road traffic will increase exponentially in this area. We have seen how in the last 50 years the urban growth of the city has been very accelerated, except for the stoppage generated by the 2007 crisis. Currently, construction in this area has been reactivated.

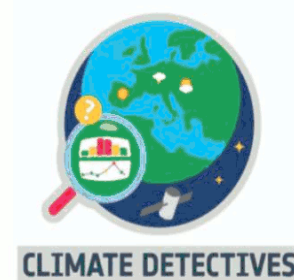


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Figure 1: