

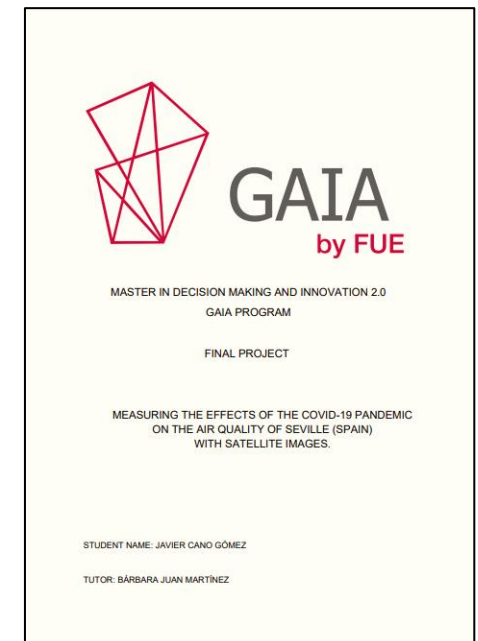


**GAIA**  
by FUE

*MEASURING THE EFFECTS OF THE COVID-19 PANDEMIC ON THE AIR QUALITY OF SEVILLE (SPAIN) WITH SATELLITE IMAGES.*

Javier Cano Gómez

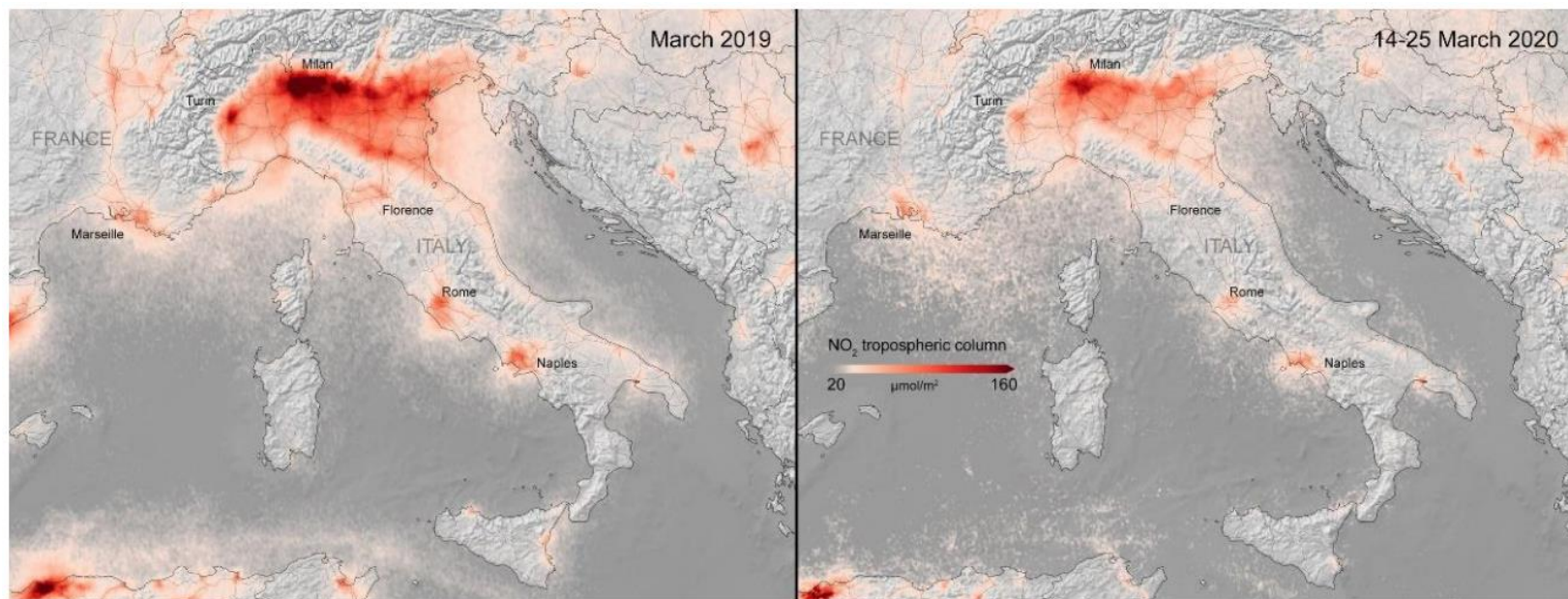
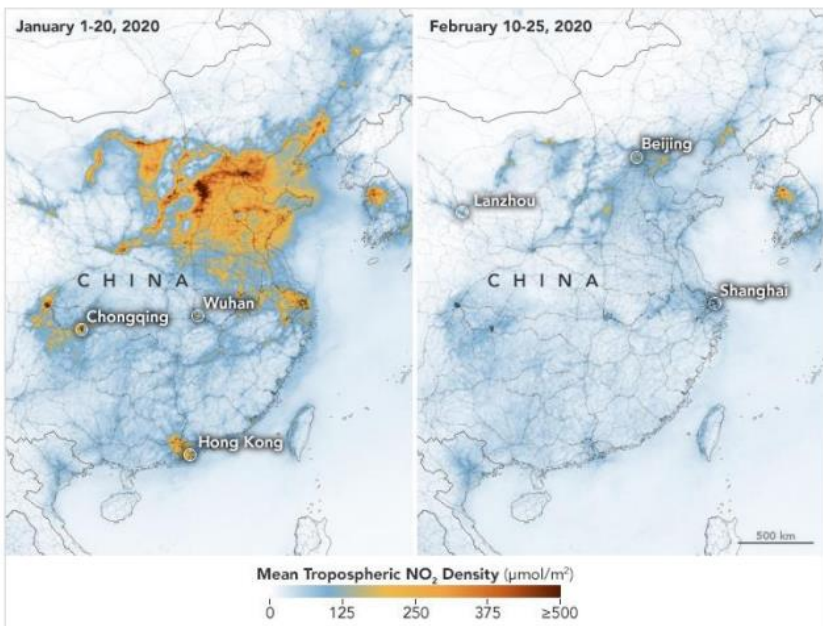
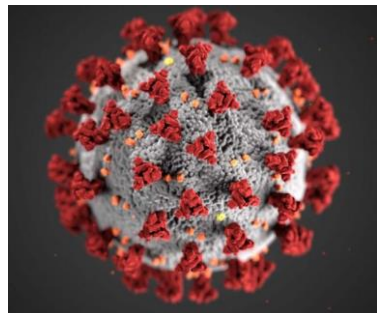
Final project: MASTER IN DECISION MAKING AND INNOVATION 2.0  
GAIA PROGRAM



# CONTEXT

COVID-19

A direct and indirect impact

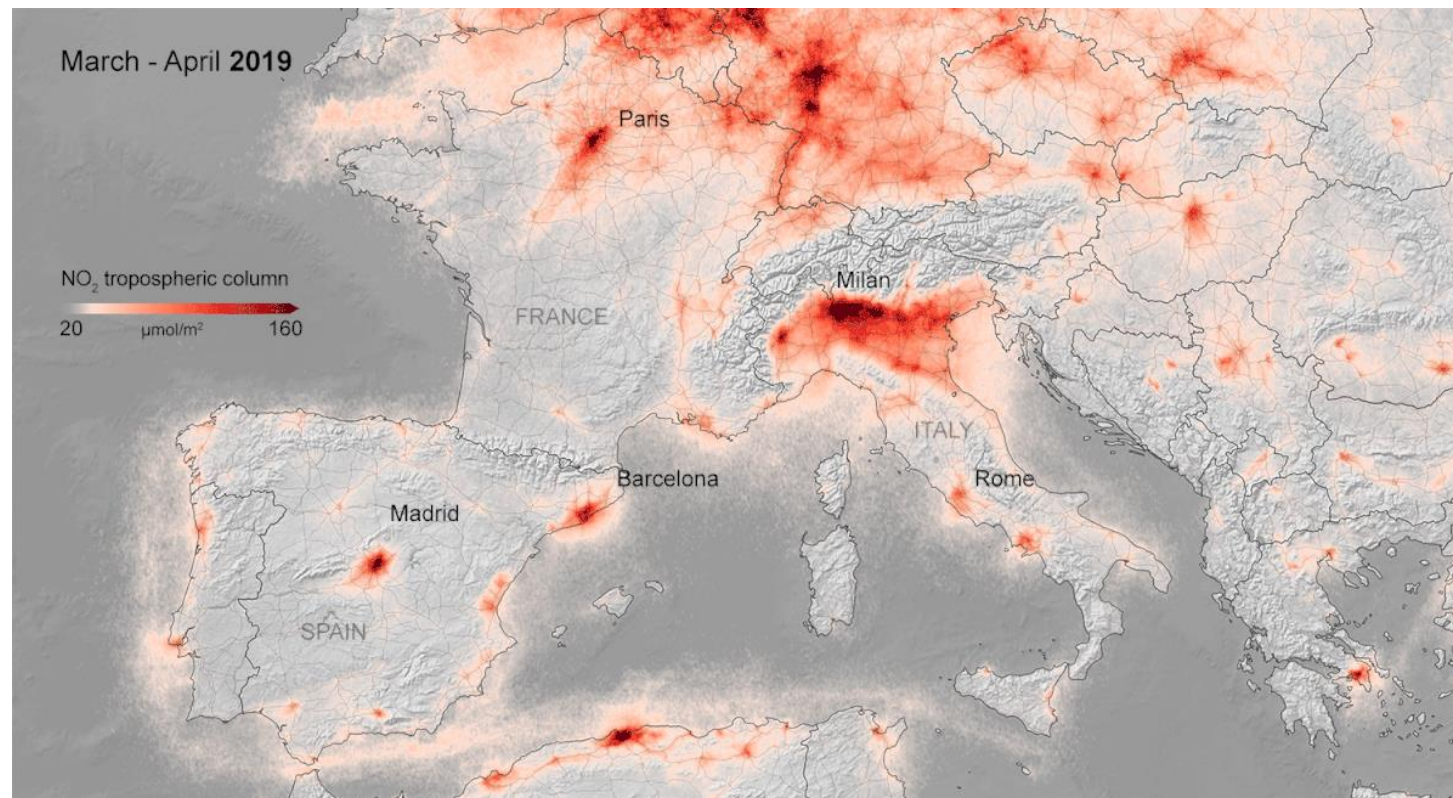
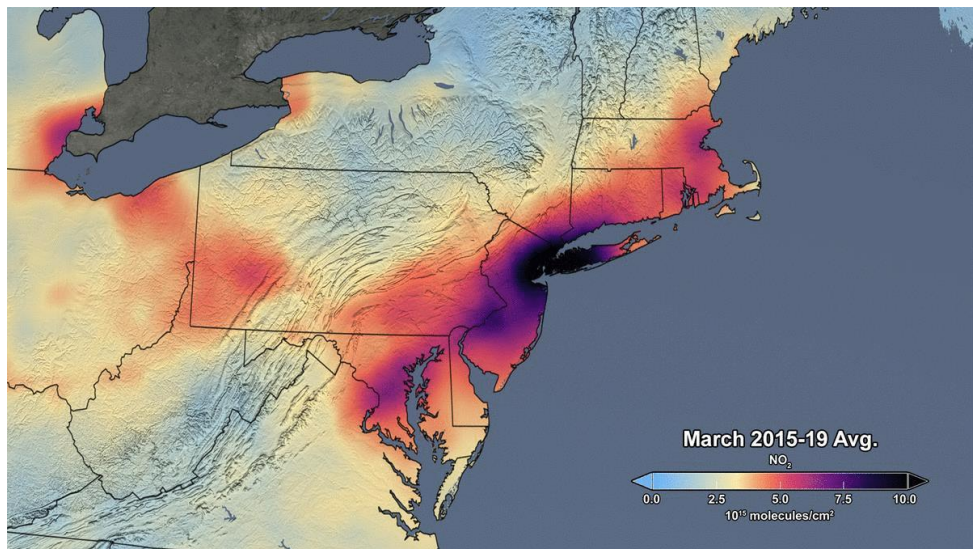
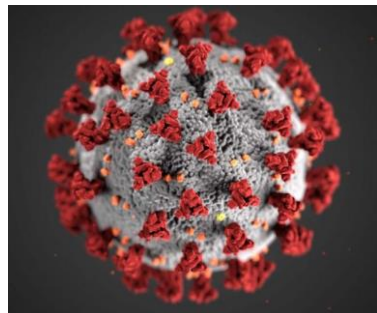


# CONTEXTO

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COVID-19

A direct and indirect  
impact

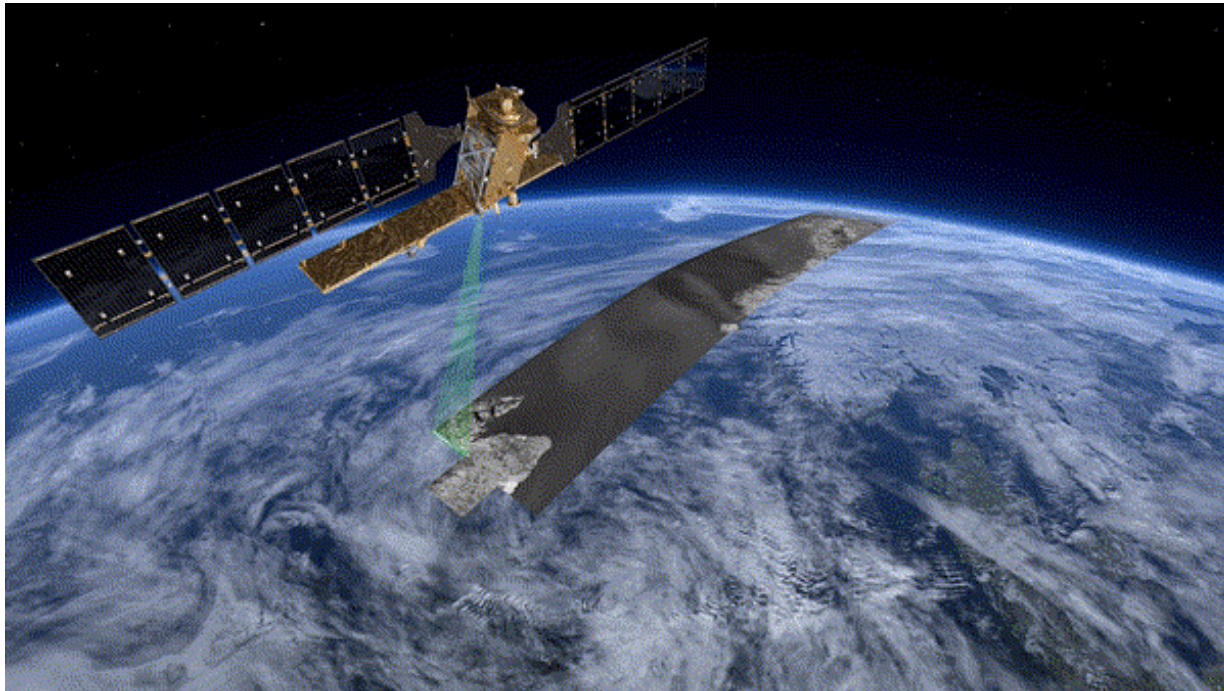


# OBJETIVE

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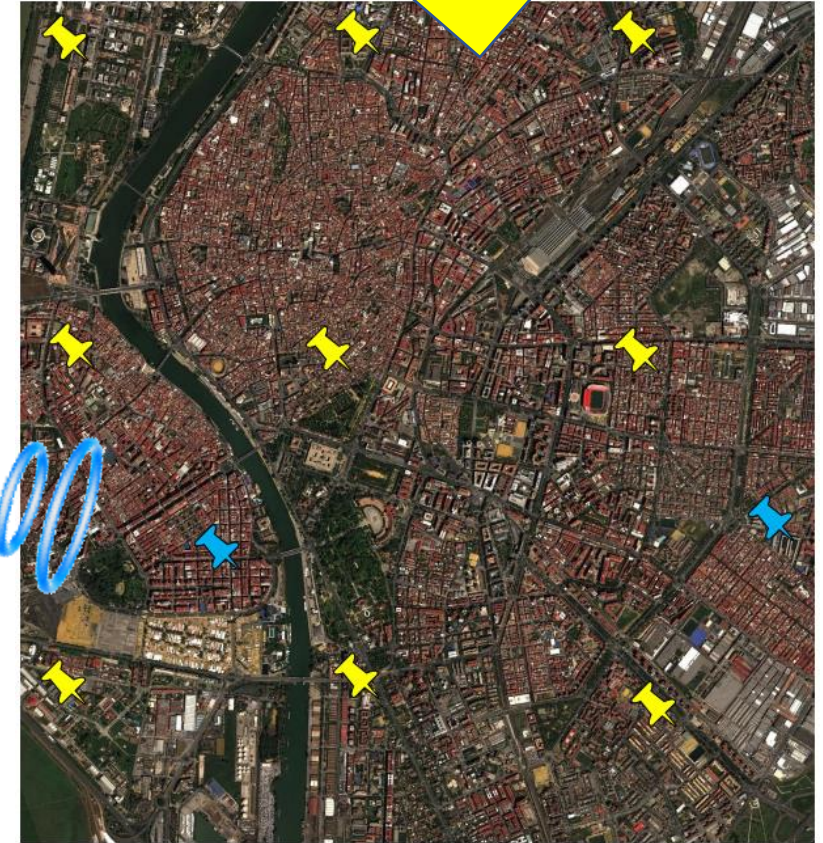
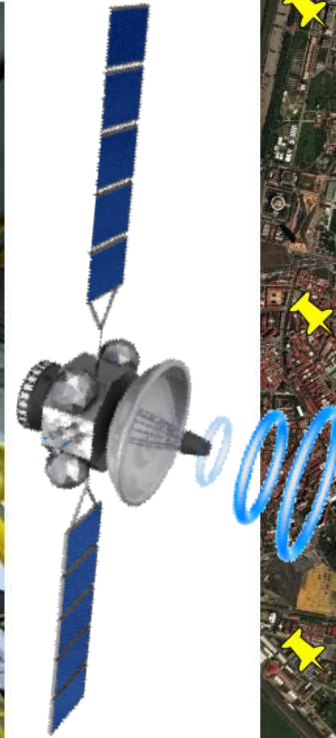
*“Transforming our world: the 2030 Agenda for Sustainable Development”*

UN General Assembly  
New York, September 25, 2015



# METODOLOGY

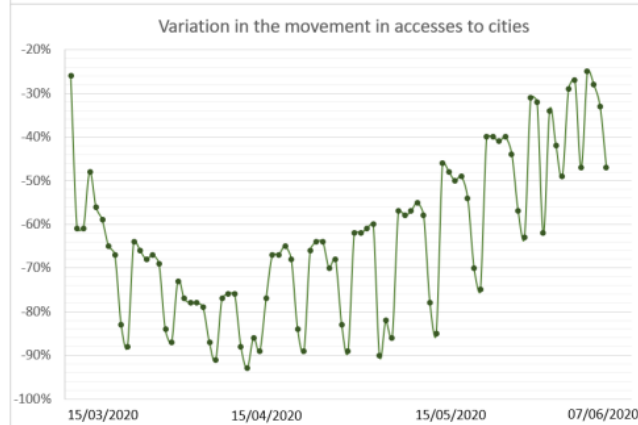
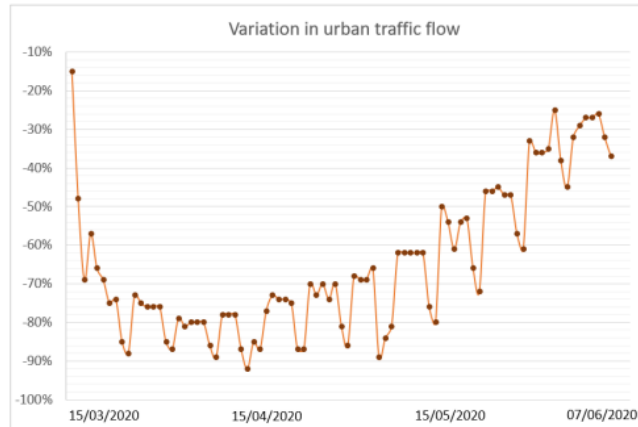
## NoR Project Sponsorship: the image acquired



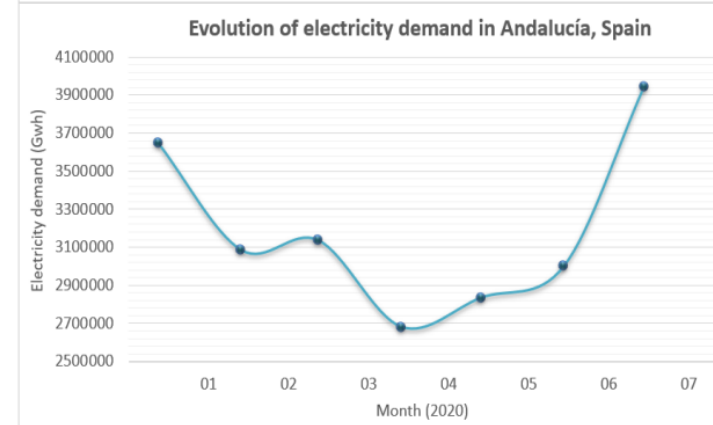
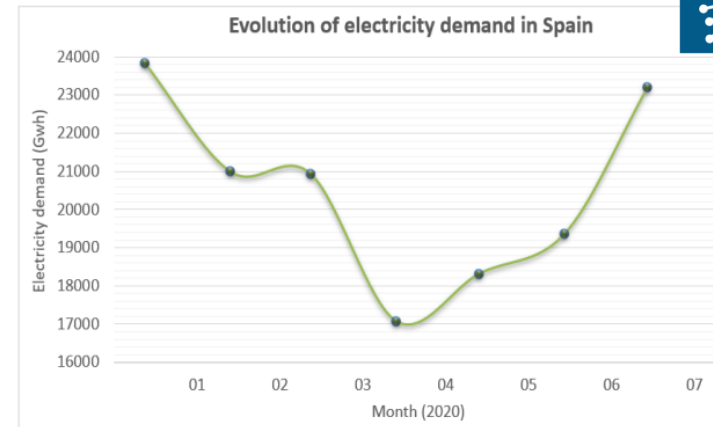
# RESULTS



	Parks	Workplaces	Retail & recreation	Grocery & pharmacy	Residential	Transit stations
Andalucía, Spain	-88%	-65%	-94%	-81%	+21%	-90%
Spain	-89%	-64%	-94%	-76%	+22%	-88%



**RED**  
ELÉCTRICA  
DE ESPAÑA



# RESULTS

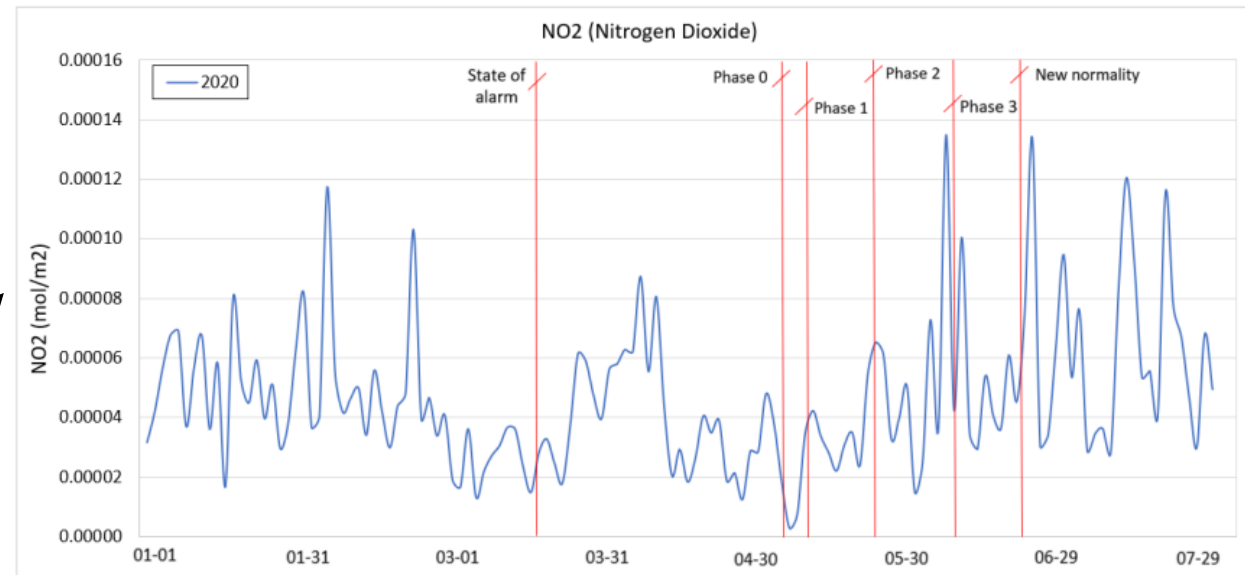
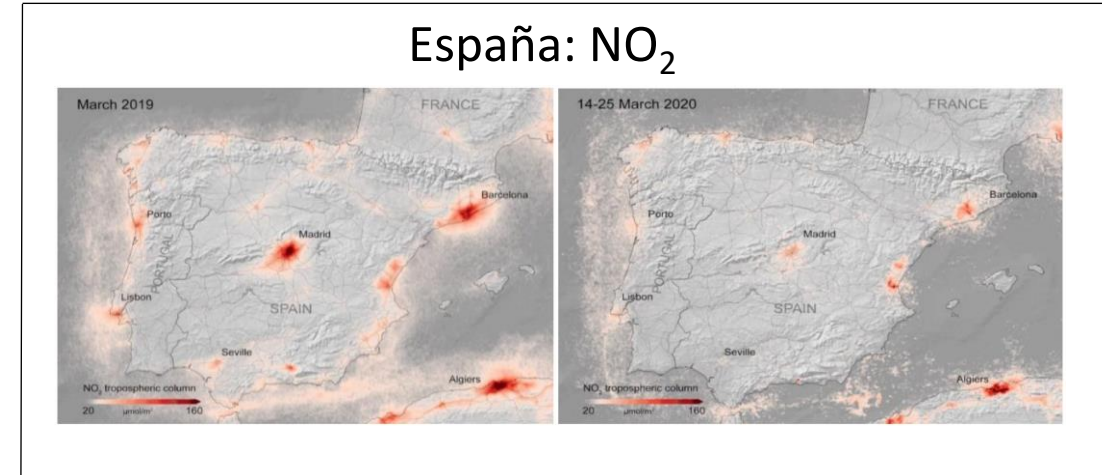
## Sevilla: NO<sub>2</sub>



	18-31/03/2019	16-29/03/2020	15-28/03/2021
<b>Tropspheric No<sub>2</sub> (μmol/m<sup>2</sup>)</b>	53.5	30.9	53.8

(2020)	24/02 08/03	16/03 29/03	04/04 17/04	11/05 24/05	25/05 07/06	08/06 21/06	22/06 06/07
<b>Tropspheric No<sub>2</sub> (μmol/m<sup>2</sup>)</b>	53.9	30.9	29.8	58.4	40.5	30.7	55.6

## España: NO<sub>2</sub>



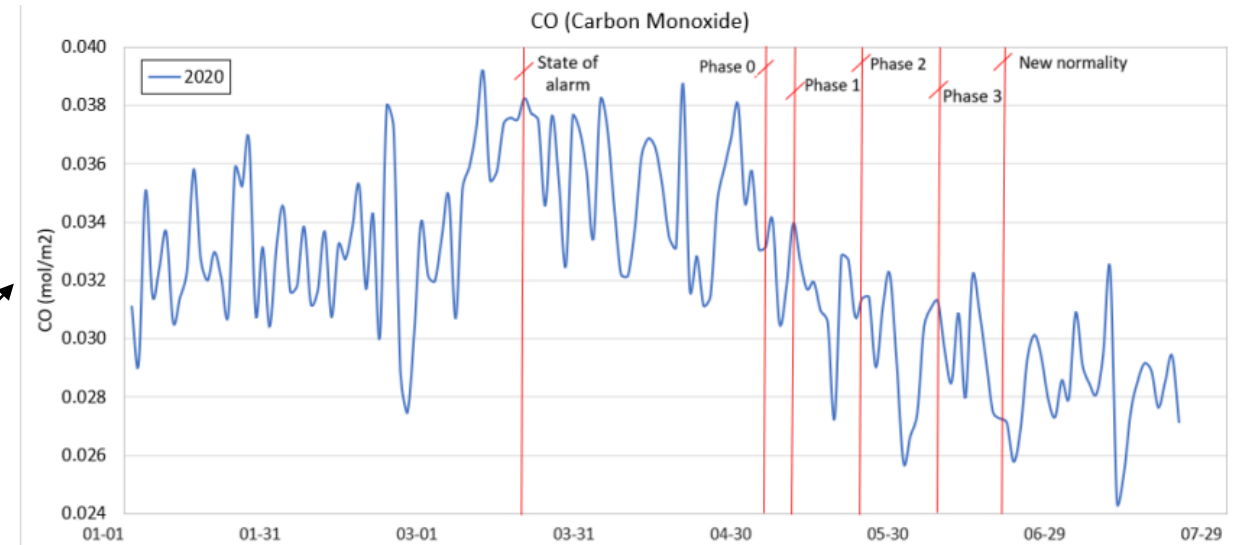
# RESULTS

## Sevilla: CO



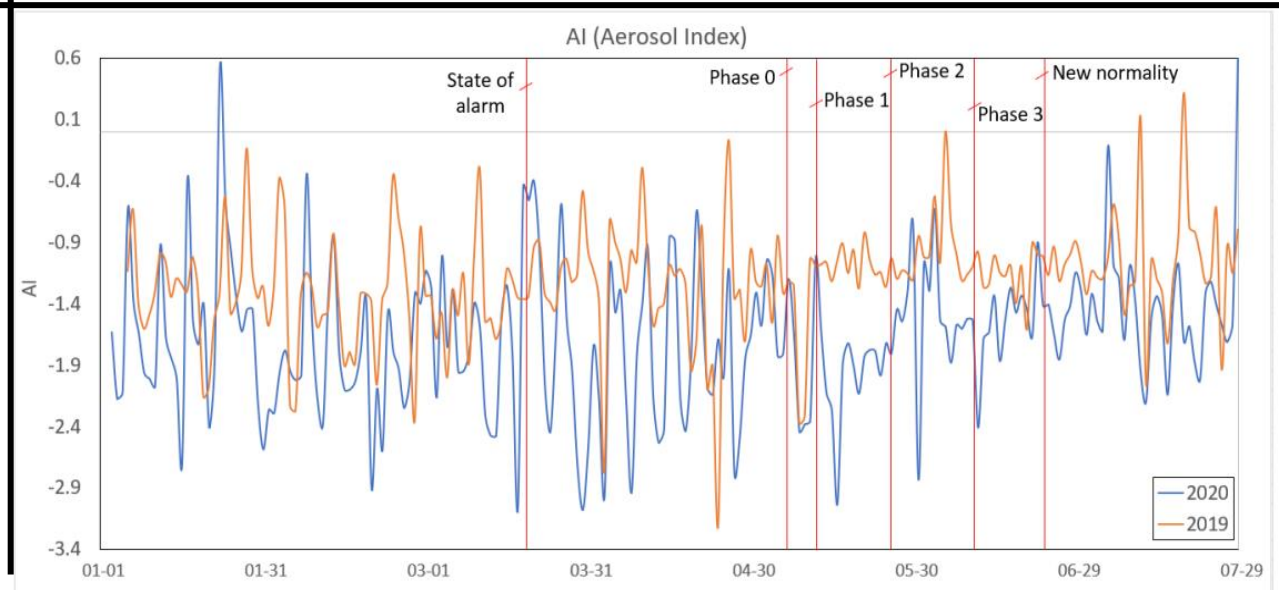
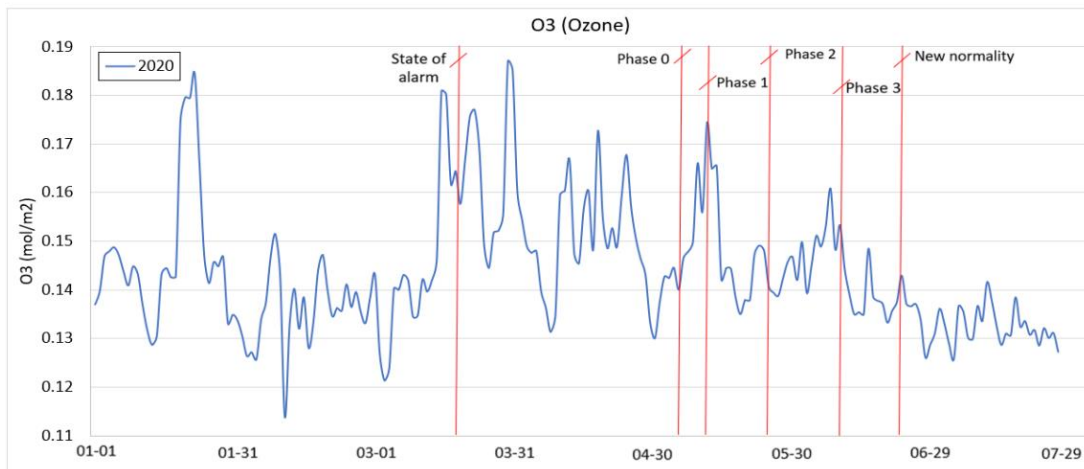
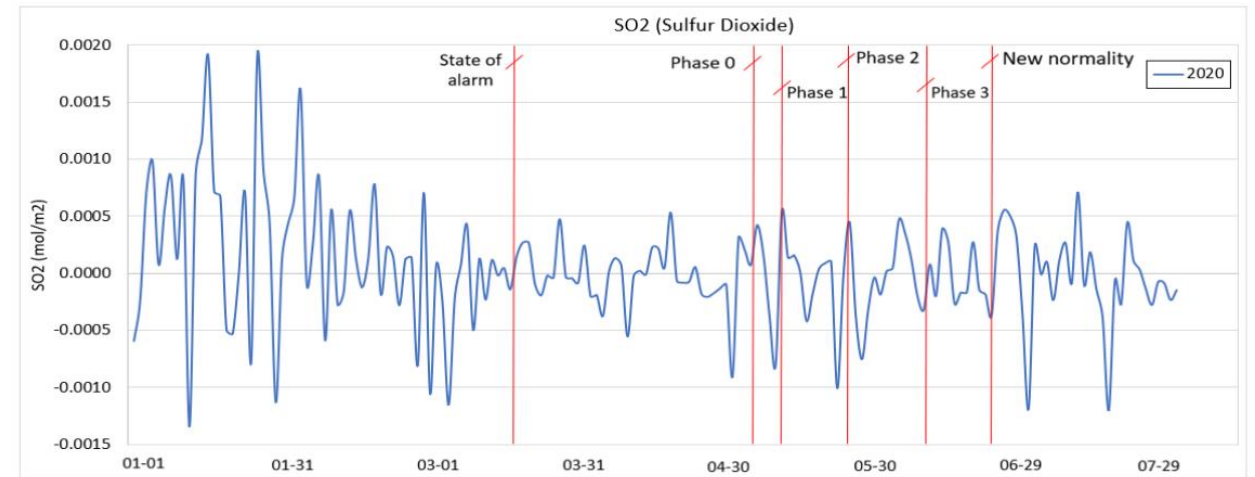
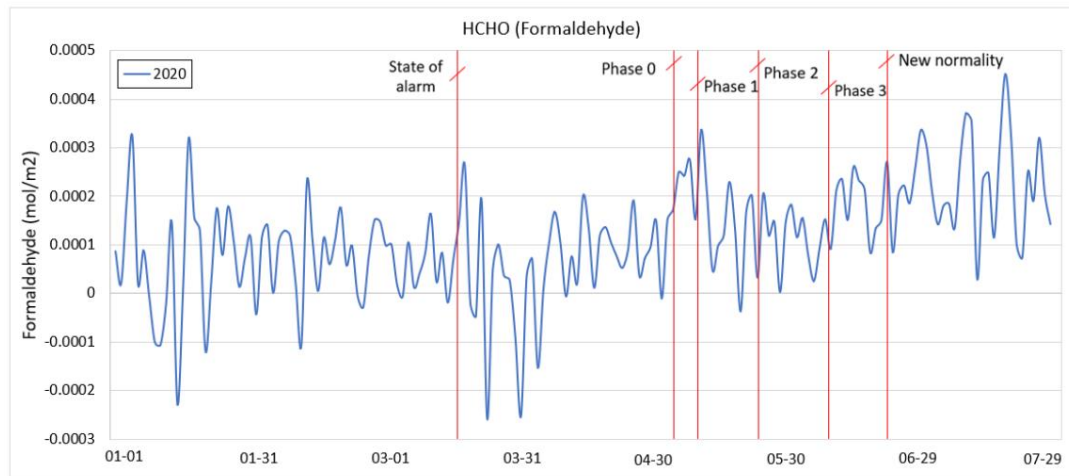
	15-17/03/2019	15-17/03/2020	15-17/03/2021
<b>CO volume mixing ratio (ppbv)</b>	99.1	89.1	98.3

(2020)	12/03 14/03	15/03 17/03	05/04 07/04	12/05 14/05	26/05 28/05	11/06 13/06	22/06 24/06
<b>CO volume mixing ratio (ppbv)</b>	91.6	89.1	99.0	83.9	85.9	79.5	78.2





# RESULTS



# CONCLUSION

The pandemic caused by COVID-19 has had a profound impact on the lives of citizens around the world. Response measures have been carried out by governments and institutions to stop or slow down the spread of this virus and to minimize its impact. These measures have led to a decrease in industrial activity and a drastic reduction in human mobility. This has caused a reduction in the levels of air pollution associated with this lower anthropogenic emission of pollutants. The objective of this work has been to verify this decrease in atmospheric pollution due to the indirect effect of the pandemic through remote-sensing data for the city of Seville, Spain. Thus, pollution data have been used mainly from the Copernicus program of the **European State Agency (ESA)**. This decrease in urban pollution levels reaches 42% in the case of NO<sub>2</sub> in Seville. Results like this should reflect a horizon in the efforts and measures of municipalities to reduce polluting emissions - mainly associated with urban traffic-, such as the creation or consolidation of Low Emissions Zones (LEZ).





**GAI**A  
by FUE

*Thanks to NoR Projects Sponsorship*

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