The study air pollution in more details about NO_2.

NASA and European Space Agency (ESA) pollution monitoring satellites detected significant decreases in nitrogen dioxide (NO_2) over China from January 1 to February 25, 2020. The maps show concentrations of nitrogen dioxide, a noxious gas emitted by motor vehicles, power plants, and industrial facilities. Figure 1. and 2. presents NO2 values across China from January 1-20, 2020(before the quarantine) and February 10-25, 2020(during the quarantine)*. The data were collected by the Tropospheric Monitoring Instrument (TROPOMI) on ESA's Sentinel-5 satellite. A related sensor, the Ozone Monitoring Instrument (OMI) on NASA's Aura satellite, has been making similar measurements*. It is not only in China, most of countries are similarity as well. Many scientists have been talking about air pollution being reduced greatly. This evidence absolutely shows the relation to anthropogenic pollution. People already realize that human activities such as burning of fossil fuels, deforestation, mining, pesticides, fertilizers, etc. are the main cause of air pollution. However, there are many parameters that have relation to NO_2 and air pollution such as latitude (surrogate of solar zenith angle), temperature, ozone, HCHO (surrogate of chemical radicals), etc.

This project will present more details about NO_2 and air pollution in many perspectives. The project presents the relationships between NO_2 with

1. Population (surrogate of anthropogenic pollution)
2. Latitude (surrogate of solar zenith angle)
3. HCHO (surrogate of chemical radicals)
4. Temperature
5. Ozone

Public Data Resource:

1. https://s5phub.copernicus.eu/dhus/#/home
2. https://urs.earthdata.nasa.gov

The study will gather the data set within 2 years of all over the world.

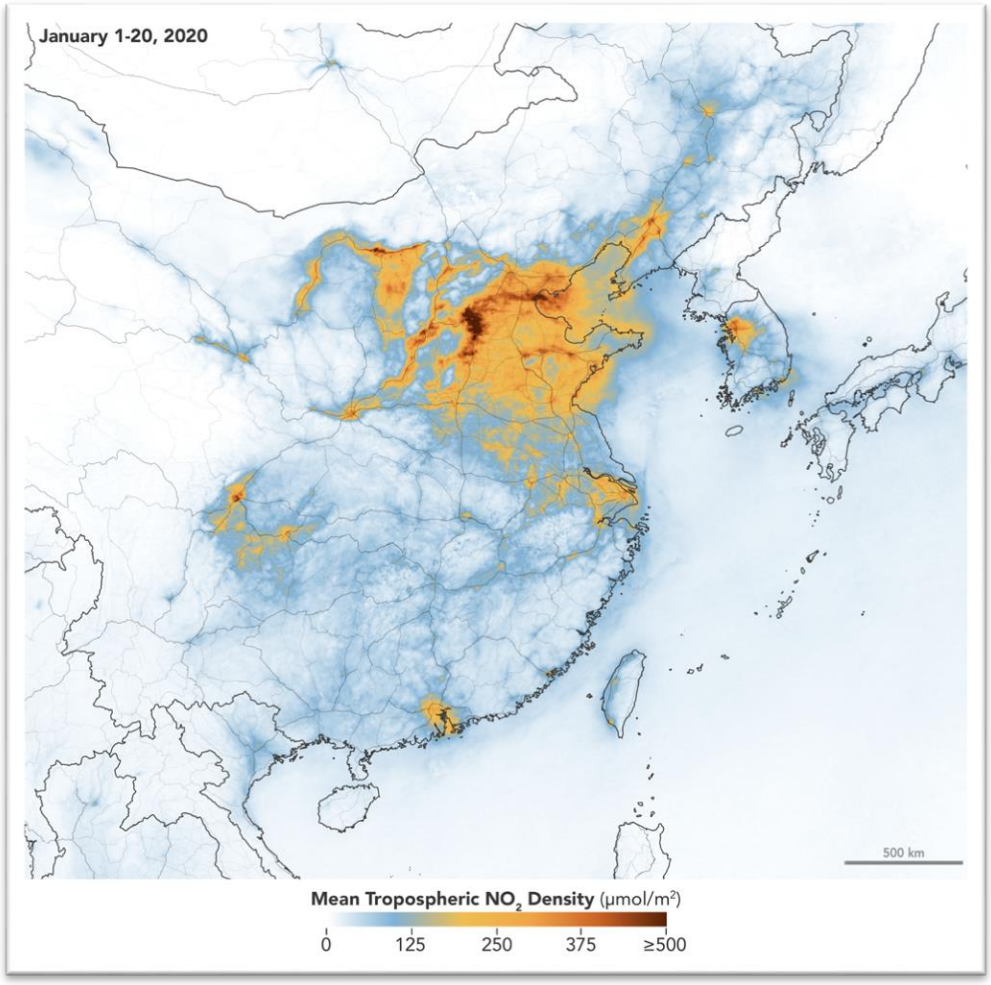
January 1-20, 2020
500 km
Mean Tropospheric NO2 Density (µmol/m2)
0
125
250
375
≥500

Figure 1.

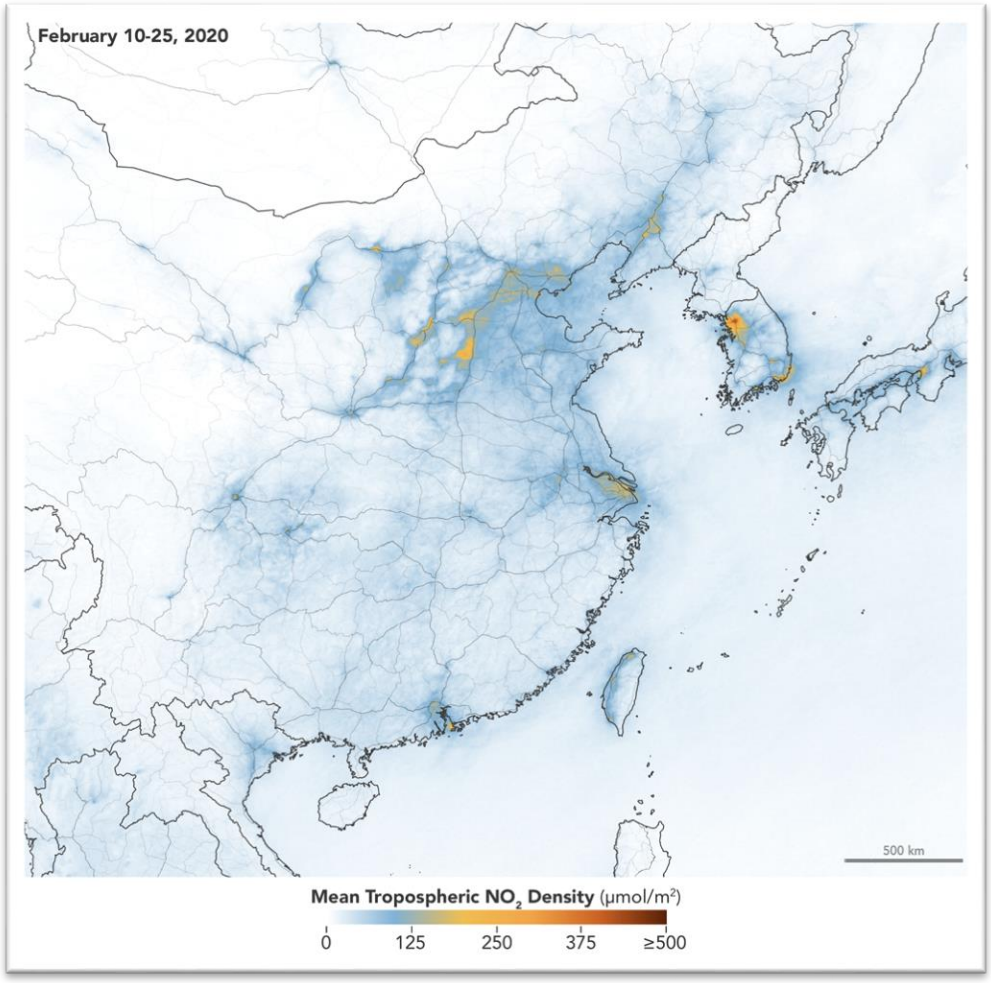

Figure 2.

Reference: * Airborne Nitrogen Dioxide Plummets Over China (2020).

https://www.earthobservatory.nasa.gov/images/146362/airborne-nitrogen-dioxide-plummets-over-china