PRESS RELEASE

Satellite data monitors air pollution from space during COVID-19, helps inform policymakers

As evidence mounts of the association between air pollution levels and higher COVID-19 death tolls, a joint study by UNDP and the European Space Agency (ESA) provides insight on the impact of the pandemic on the air quality in the Republic of Moldova and Ukraine.

An estimated 7 million people die prematurely from diseases caused by air pollution. Carbon monoxide, carbon dioxide, nitrogen dioxide, sulphur dioxide, hydrocarbons and lead— acute concentrations of fine particles cause inflammation of the respiratory, pulmonary and cardiovascular tracts. "In combination with a viral infection, these inflammatory factors can lead to a serious progression of the disease," says Mario Rohrer, researcher at the Institute for Environmental Sciences of the Faculty of Sciences of UNIGE and director of Meteodat.

In a bid to assess the impacts of the pandemic 'from space', the study, COVID-19 Impact on Air Quality in Ukraine and the Republic of Moldova, uses satellite data to understand air pollution, how it changed during the lockdowns and which regions are the most vulnerable.

Using Earth Observation (EO) data to complement traditional monitoring systems, the study sheds new light on the impact of COVID-19 on air quality and emissions due to transport and industry, allowing for a new level of insight for policy makers and practitioners.

Overall, the level of air pollution in Moldova was see as relatively low compared to other European countries, and largely within the limits of Air Quality Guidelines provided by the World Health Organization (WHO).

One of the main findings of the study was that, while the lockdown in the spring of 2020 caused a serious economic downturn and led to cleaner air in some regions, the overall change in air pollution data was not considerable.

In Ukraine, where air pollution is one of the three major environmental concerns of the population, the research team could spot major polluted areas based on particulate matter concentrations in the 3 years of observation, but also detected a reduction of air pollution concentrations during the COVID-19 lockdown. The combination of information from citizen-led initiatives, state monitoring posts and satellite data could provide a real impetus for effective environmental policy and for innovative solutions in software, health, data modelling and smart notification systems.

"These results suggest the value in building data collaboratives in Moldova, Ukraine, and beyond. Participants from different sectors – be it government, private companies, or development partners – can exchange their data for creating public value and work collectively to recover better and

quicker from any future shocks," said Ms. Mirjana Spoljaric, Mirjana Spoljaric, Assistant Administrator and Regional Director for UNDP's Bureau for Europe and the Commonwealth of Independent States.

"The present study can be seen as part of ESA's efforts to contribute to shedding new light on societal and economic changes currently taking place due to the coronavirus pandemic," said Mr. Maurice Borgeaud, Head of the Science, Applications and Climate in the Directorate of Earth Observation Programmes, European Space Agency.

Air pollution is the greatest environmental risk to human health and one of the main avoidable causes of death and disease globally. With COVID-19 affecting mainly the respiratory system, satellite data can provide reliable and life-saving information for people with a predisposition to cardiovascular and respiratory diseases, and for other vulnerable groups on the quality of the air they breathe.

Citizens aware of the fact that air pollution is affecting their health can request authorities to tackle causes at the city or the country level, including inefficient modes of transport, fossil fuel and waste burning, and industrial activities. An important step in reducing the illnesses that exposure to air pollution is causing is to make air quality information as accessible as data from a thermometer outside a window.

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Photo caption. Satellite images play a key role in helping policymakers monitor changes. In Ukraine, data visualization show that big industrial cities have a more significant impact than other sources of pollution in each region.