

Local atmospheric pollutant forecast service

Why Environmental Observation Services Matter: A conversation with Arctic communities about how environmental information can inform climate policy

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Ilaria Crotti¹, Alice Cuzzucoli², Paolo Fazzini^{2,3}, Marco Montuori³, Antonello Pasini² & Srdjan Dobricic¹

¹ *European Commission, Joint Research Centre, Ispra, Italy*

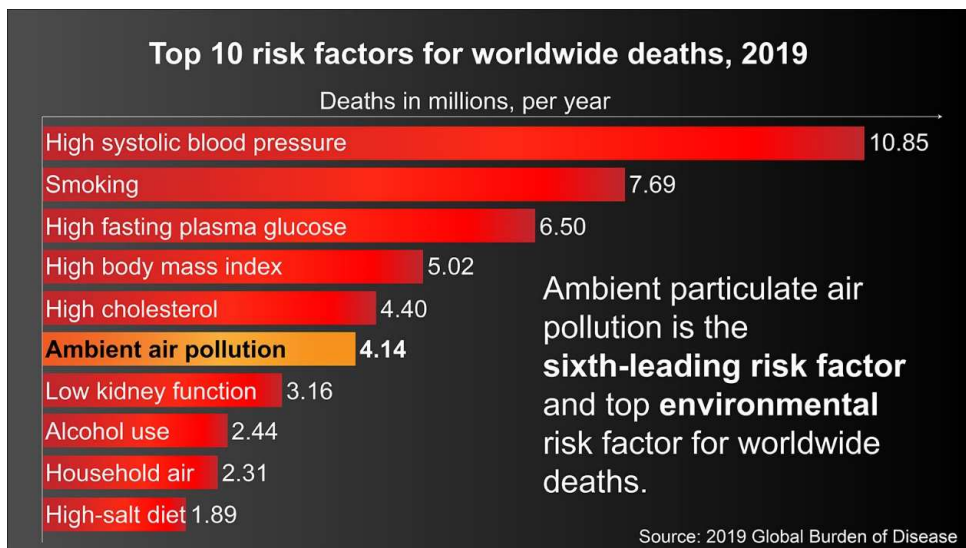
² *Institute of Atmospheric Pollution Research, National Research Council, Rome, Italy*

³ *Institute for Complex Systems, National Research Council, Rome, Italy*

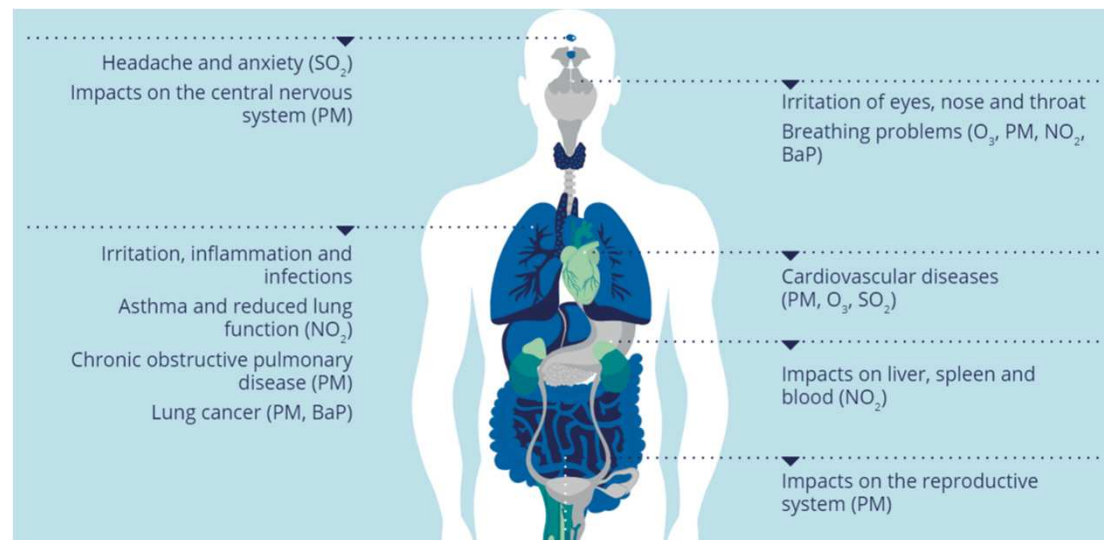
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Air pollution and health effects



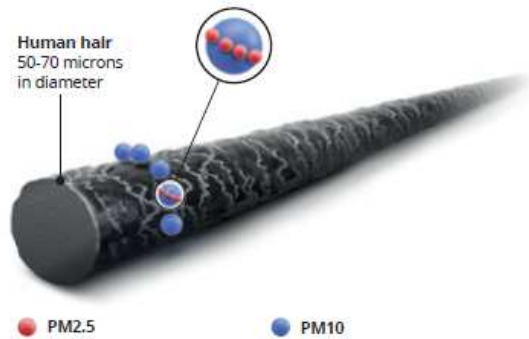
Source: NASA/JPL-Caltech / CC BY-NC-ND (<https://climate.nasa.gov/>)



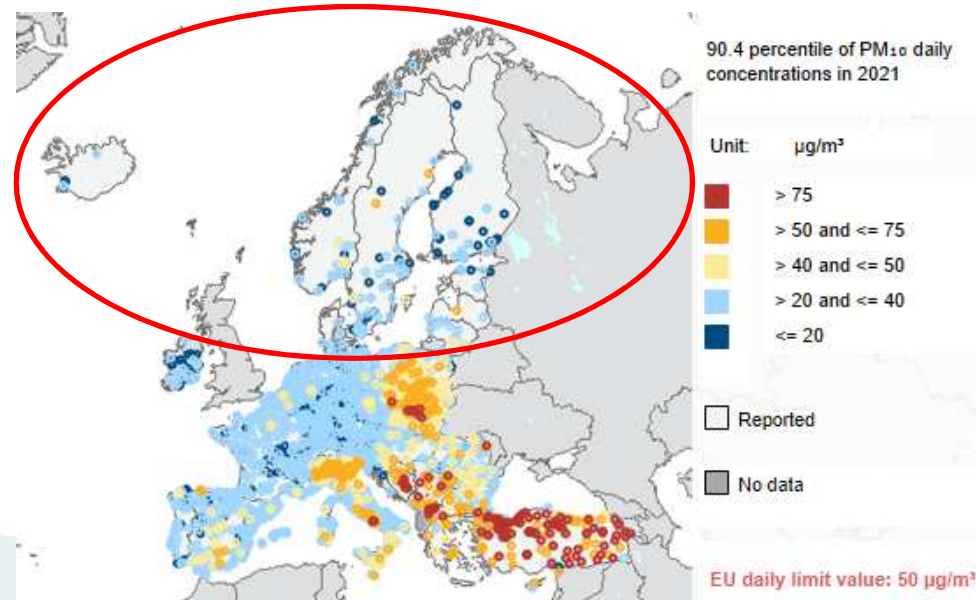
Health impacts of air pollution (European Environmental Agency, <https://www.eea.europa.eu/>)

PM₁₀ in the Arctic

	Daily mean concentration (µg/m ³)	Annual mean concentration (µg/m ³)
EU Directive (2008/50/EC)	50 (max 35 days/year)	45
WHO (2021 guidelines)	45	15



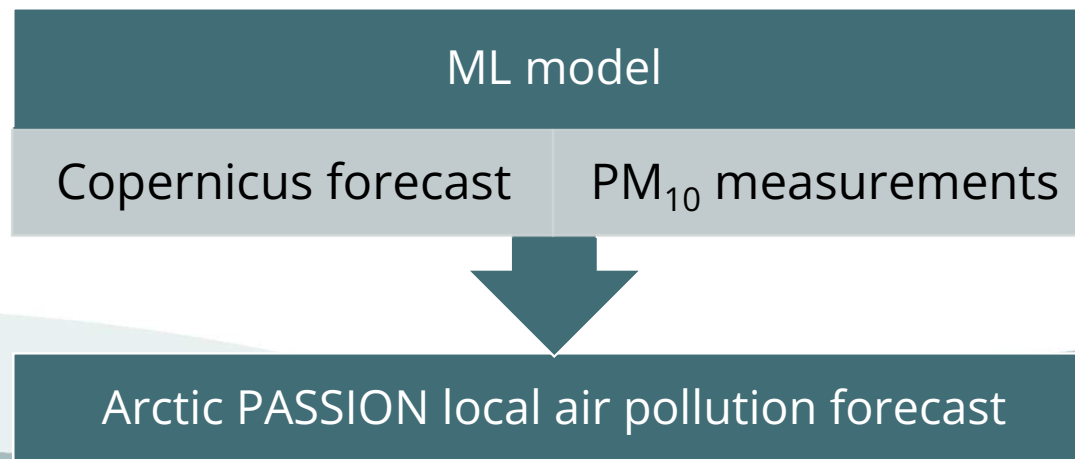
Source: AMAP 2021 report



Source: European Environmental Agency (www.eea.europa.eu/)

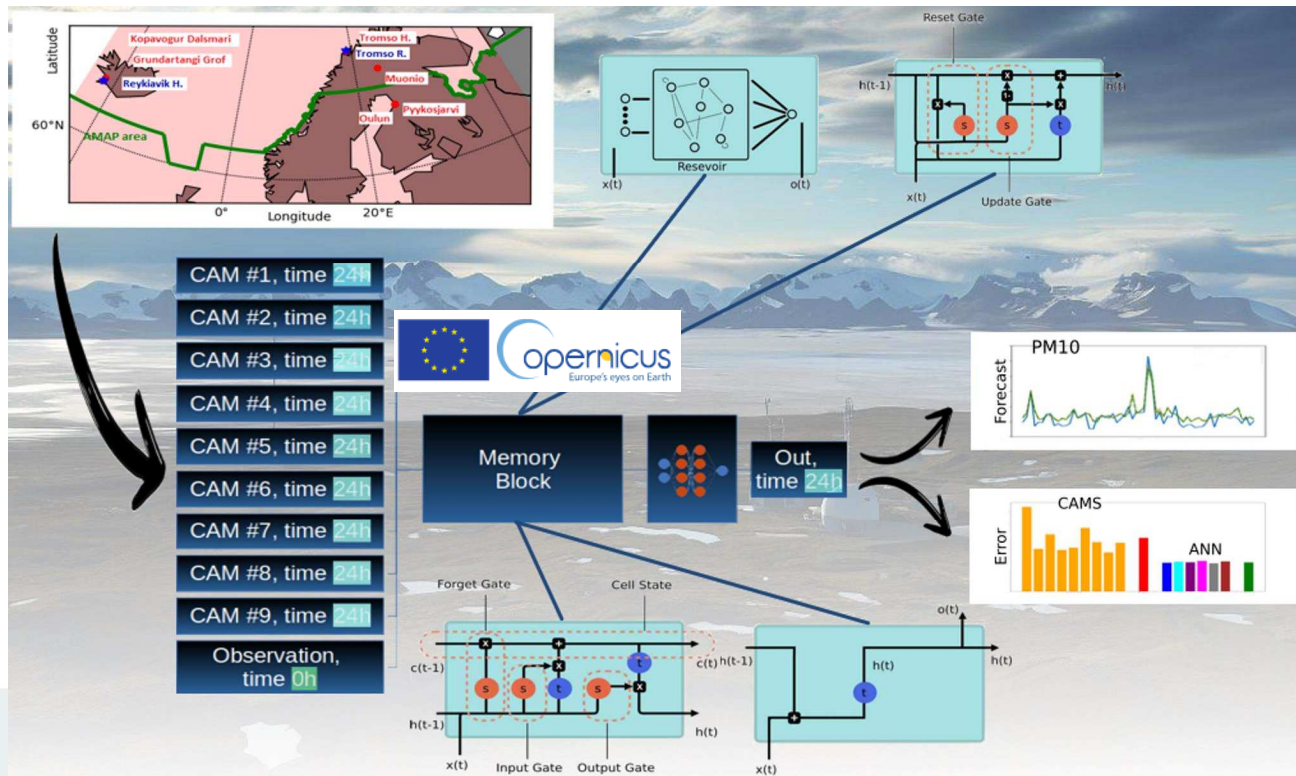
Arctic PASSION local air pollution forecast service

- Air pollution forecasts are essential for mitigation of pollution and for emergency preparedness in Arctic villages and cities
- Improve the PM₁₀ concentration forecast in the European with Machine Learning models tailored for the Arctic
- A dedicated dashboard is created to visualize the Arctic PASSION PM₁₀ forecast and provide information to local communities and policymakers



PM₁₀ machine learning forecast for the Arctic

Our new study shows that Artificial Neural Networks PM₁₀ 24 h forecast outperforms Copernicus models (CAMS) forecast



Source: Forecasting PM10 Levels Using Machine Learning Models in the Arctic: A Comparative Study (Fazzini et al. 2023)

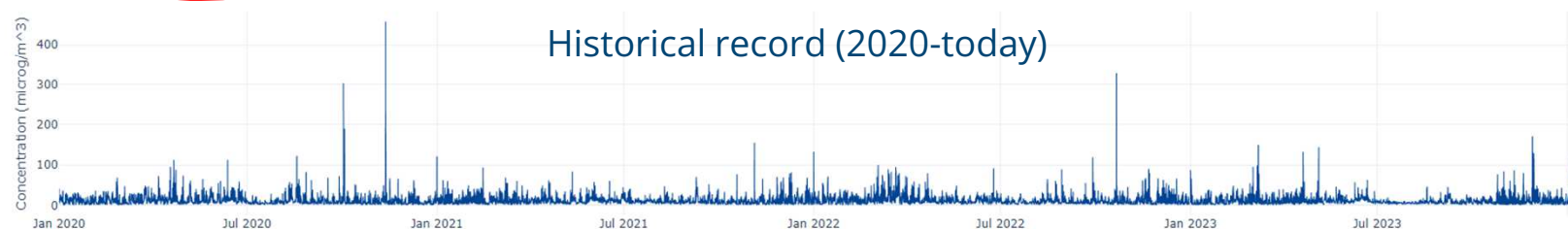
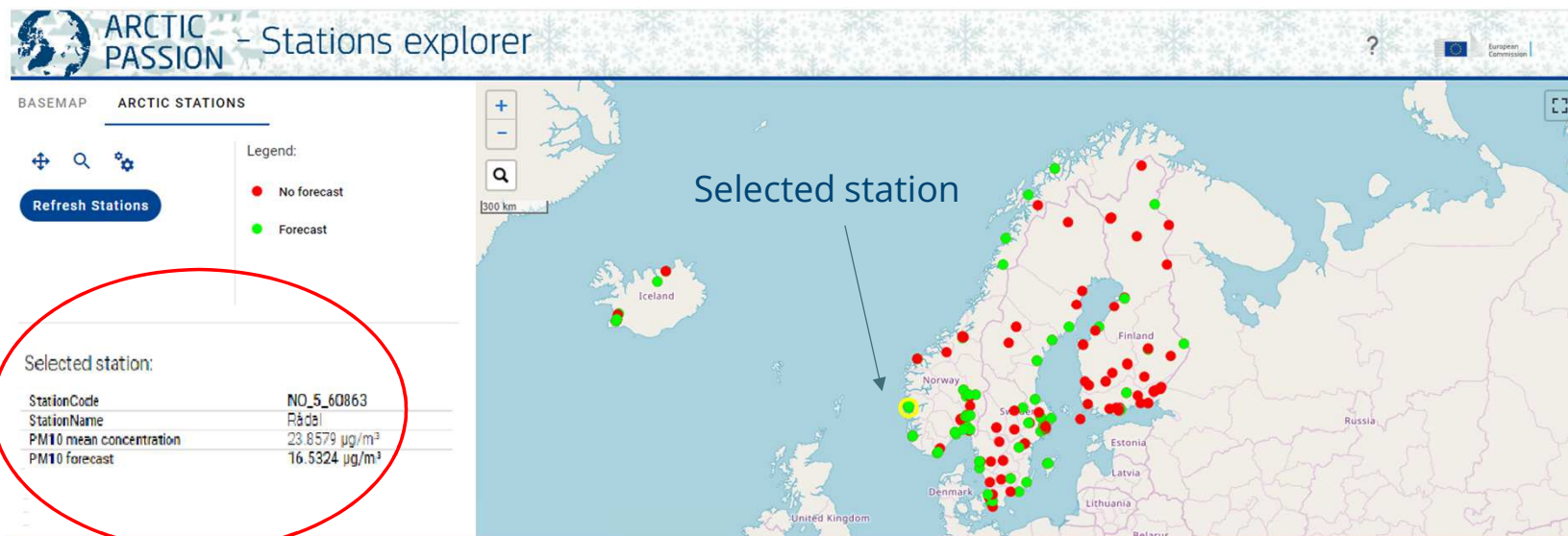
Dashboard for local air pollution forecast service

PRELIMINARY VERSION!

Interactive dashboard

- 200 stations (EEA and FMI networks)
- Daily PM₁₀
- 24h PM₁₀ forecast

PM₁₀ concentration + forecast + information on the station



Future developments

OPEN DISCUSSION!

Our plans

- The web platform will be accessible to everyone after free registration
- Interactive map: for each station the measured and the 24h forecast
- Concentration will be displayed using different colours depending on the level of pollution
- Users will be able to download past PM₁₀ data and Arctic PASSION forecast for each station as text file

What do you think?

- Would you like to add/change a feature to the web platform?
- Would be helpful to provide a forecast up to 48 or 72 hours?
- Would you like to have the opportunity to download a daily bulletin?
- All comments/suggestions/feedbacks are welcome!

TAKE PART IN OUR SURVEY!



You can vote at [Slido.com](https://www.slido.com) with #7954736



THANK YOU!

ilaria.crotti@ec.europa.eu