What is pure air?

Information packages for “Arktista imua puhtaalla ilmalla”

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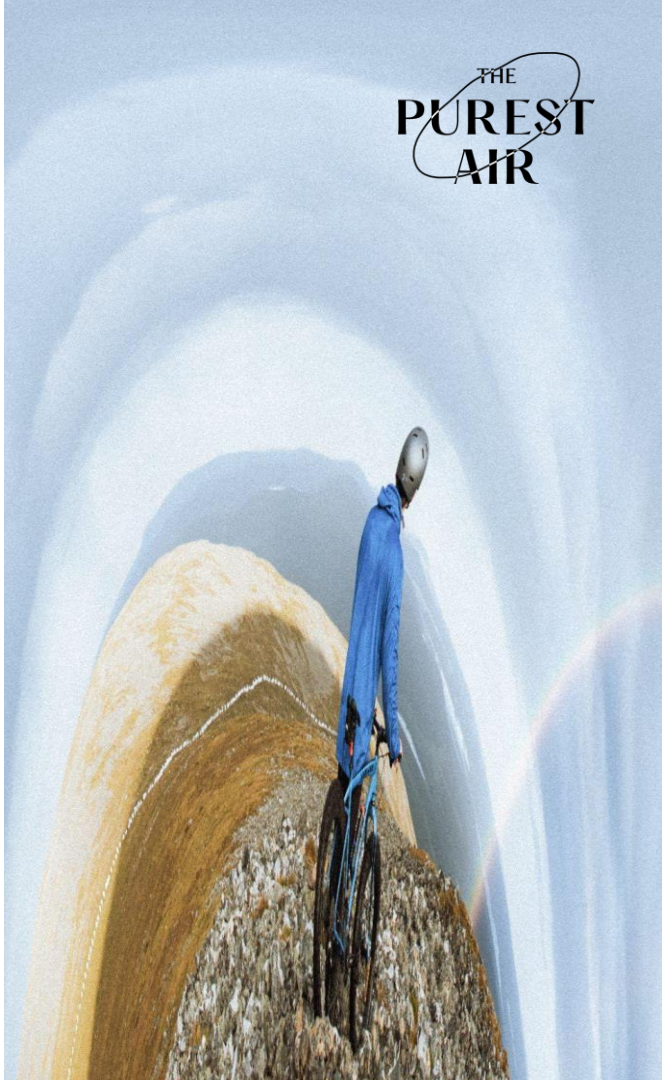
Pure Air

The main components of pure air are **nitrogen** (78%), **oxygen** (21%) and varying amounts of **water vapor**. Even clean air also contains various different particles and trace gases (< 1%). There are thousands of trace gases, the most famous perhaps being **carbon dioxide CO_2** (currently 0.04%). Trace gases in clean air are also the so-called **volatile hydrocarbons (VOC)**, which cause e.g. the smell of the forest and flowers, **methane CH_4** produced by the microbial activity of wetlands and **ammonia (NH_3)** and other **nitrogen compounds** (e.g**. NO_x**) produced by decomposition of organic matter.

Also, **dust** from deserts and **sea salt** from the oceans, as well as various gaseous and particulate emissions caused by natural forest fires and volcanoes, must be considered to be part of clean air. In the atmosphere, these substances participate in the biogeochemical cycle of the Earth's climate system (atmosphere/oceans/land/biosphere), and the result is **natural “pure" air**.



Air pollution

How ever **Natural “pure” air** balance is disrupted by emissions from human activities. **We talk about pollution when there is an unusually large amount of chemical ingredients in the air that can cause damage to living organisms.**

Many of these "pollutions" can also be found in clean air as trace gases or particles, but they become pollutants if there are harmful amounts of them. The production, transportation and use of fossil fuels for energy production upsets the delicate balance of the global climate system the most.

When entering the atmosphere, pollutants react with other parts of the climate system, transform into other chemical compounds and/or change their form (e.g. from gas to particles), dilute as they travel with air currents and settle on the ground, seas, vegetation or otherwise become used by organisms.

The "lifetime" of a pollutant in the atmosphere depends on its chemical-physical properties (e.g. reactivity, solubility, volatility, particle size, etc.) and can be from minutes to hours or days to weeks. Concentrations of short-lived pollutants are highest near a strong emission source, while long-lived (months, years) pollutants accumulate in the air and the concentrations almost level out due to mixing, e.g. over the entire hemisphere.

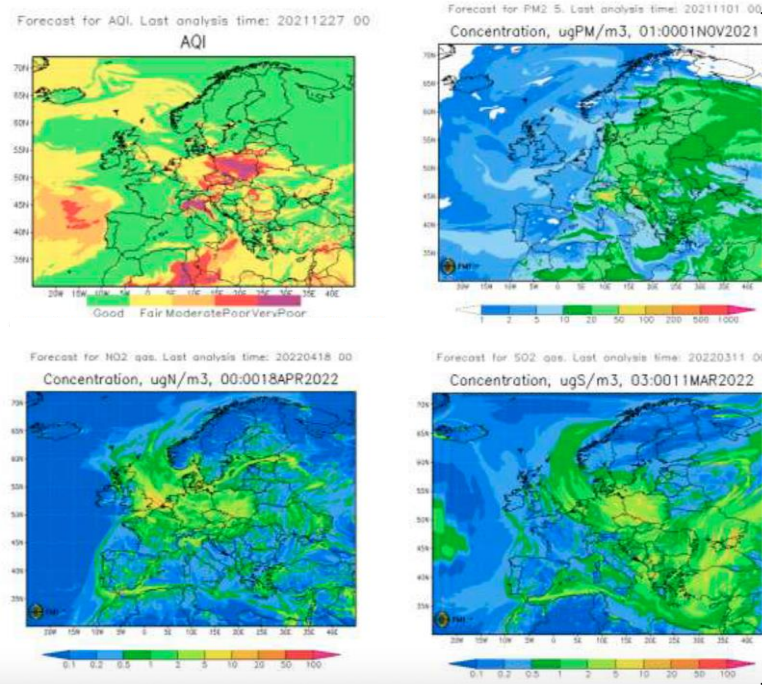
THE PUREST AIR

In terms of air quality, the location far from significant human emission sources is the key factor for the pure air of Pallas-Yllästunturi National Park.

In addition, there are no strong natural sources in the vicinity either (e.g. forest fires, volcanic activity, deserts). Therefore, the park's air quality is determined by long-distance pollution that occasionally travels from hundreds, even thousands of kilometers away to the area.

Useful links

- Info about Pallas Atmosphere-Ecosystem Supersite
- SILAM-Modelling of Atmospheric composition



With Finnish Meteorological Institute's SILAM- modelling of Atmospheric composition, you can follow long-distance pollutions on a global scale and watch forecasts

THE PUREST AIR

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