



ENVIRONMENT

Air Pollution 101©

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Vocabulary & pronunciation study by Laurent Dufour©

Words are explained alongside the text

Stressed syllables are underlined and in bold*

We **measure** air pollution in terms of the concentration of a set of **identified substances** in the air. The main ones are gases such as **carbon**, **sulfur** and **nitrogen oxides** but there are also **particulate** matter, **metals** and **ozone**.

Different types of activities – be they **anthropogenic** or **natural** - **generate** different types of air pollution, some worse than others. These days we are often above the **recommended** levels of air particulate matter, famously known as PM10 and PM2.5. The numbers **denote** the size of those super small **particles** floating around in the air and **entering** our **lungs**.

PM10 particulates have a **diameter** between 10 and 2.5 **micrometers**. This is about 5 times smaller than the diameter of a human hair. They **include pollens**, all types of dust, **molds**, sand, etc. PM2.5 particulates have a diameter smaller than 2.5 micrometers. You need a special type of **microscope** to be able to see one of these. They are mainly **produced** by different types of combustion such as domestic wood burning and **forest** fires, and also **motor vehicles** and **power plants**.

Outdoor air pollution is a serious **societal** problem. We are now **recognizing** that it is a high-risk factor in **respiratory** and **cardiovascular diseases**, and lung **cancer**. Each year a global **estimate** of nearly 4 million people die **prematurely** due to outdoor air pollution.

Air pollution has **adverse effects** not only on our human health but also on the **environment** around us, for example **affecting crop yields** and water **qualityresulting** in big **economic** losses and more health **hazards** for all of us.

There are many sources of **pollutants** but the ones that we

anthropogenic (adj.)
caused or produced by humans

to denote (vb.) to signify, indicate

lung (n.) either of the two organs in the chest with which people breathe

mold (n.) growth of very small fungi on vegetable or animal matter

power plant (n.) factory where energy is generated

adverse(adj.) negative, unpleasant

crop yield (n.) agricultural output

hazard (n.) something causing danger, peril

are most **exposed** to and that we should have the power to **control** as a society are **industrial processes** and transportation, especially road **transport**. **Factories** and industrial units **continuously emit** pollutants such as Carbon **Monoxide** (called C-O) or Sulphur **Dioxide** (called S-O-2) while transportation **releases** particulate matter of all sizes as well as CO2 and nitrogen oxide.

Today you can find air pollution **monitoring** stations **installed** more or less everywhere. The **European Environmental Agency maintains** a **regional** air quality **database** called Airbase. It **contains** data on over 3,000 cities in **dozens** of countries. Anyone can **access** the **historical** data and you can even find it in real-time on "airqualitynow.eu". In Ile-de-France there is a local agency called AirParif that **audits** air pollution in the region and **informs** citizens when there is a high-pollution **alert**. For the rest of France you can look on "esmeralda-web.fr". With this data we can see that some **areas** are highly polluted by one **particular** source of pollution and not at all by other sources. The **geographical location** of pollution sources is a big factor in **determining** the level of air pollution.

However there is a second major factor which is how it travels. **Indeed** some pollutants stagnate in the air while others **disperse** quite easily. How **molecules** travel **depends** on their weight and composition as well as how they react to local **atmospheric** conditions such as **humidity** or **temperature**. So relocating factories outside city centers does not **reduce** pollution however it reduces direct **human exposure** to pollution, if the wind doesn't bring it right back into the city...

So what is it like where you live or work? Go and have a look on one of the websites I've **mentioned** to have an idea of the type of air pollution you should keep an eye on.

Bye everyone! Stay tuned for a future 10 minutes for the Planet **episode** on how to **limit** your exposure to outdoor pollution.

to release (vb.) to emit

to monitor (vb.) to watch and check a situation carefully

location (n.) place, position

***Tip!** Syllable stress can help us to understand spoken words. Let's take the words 'particle' and 'particulate' as an example. First count the syllables: 'par.ti.cle' has 3 syllables, 'par.tic.u.late' has 4 syllables. Syllable stress is when you say one of the syllables slightly louder or with more emphasis. So in this example we say: **particle** and **particulate**.