TROPOS
Leibniz Institute for Tropospheric Research

Long-term trends and process analysis

Atmospheric Aerosols

A major asset of several aerosol studies at TROPOS is the **long-term** aspect of their analysis. Only **long-term** observations and numerical simulations can give reliable evidence on the actual relevance of certain aerosol-related effects upon global climate and human health.

Meanwhile, long-term observations require the scientists' enhanced attention to the issues of **standardisation** and **comparability** of aerosol measurements in time and space.

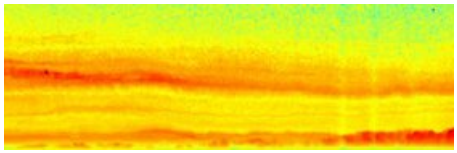
Numerical simulations of long-term trends by models, on the other hand, require extended computational **resources** as well as optimised **parameterisations** of the physical and chemical processes involved.

TROPOS is ready to face these extraordinary challenges on the sides of both, observations, and simulation.

Long-term studies of global relevance

Aircraft-Borne Measurements in the Free Troposphere: IAGOS-CARIBIC

Monthly measurements of aerosol particles and trace gases in the free troposphere from board a passenger aircraft A340-600 from Lufthansa



Aerosol climatology of the atmosphere

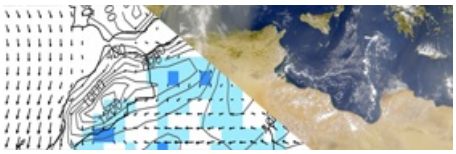
At TROPOS the vertical structure of the aerosol distribution is observed. Long-term measurements provide aerosol climatologies for key regions of the Earth.

Boundary layer aerosols worldwide

Long-term measurements in clean and hotspot areas

Ship measurements of marine aerosols

Ship-borne measurements help elucidate the oceans' role as a source of atmospheric particles



Identification of dust sources using satellite data

Satellites provide observation data within a relatively highly resolved spatial and temporal scale.

Long-term observation of aerosol at CVAO (Cape Verde Atmospheric Observatory)

Interaction s between athmosphere and ocean can be oberved without important antropogene influences.

Long-term studies of regional importance and air quality

Regional Research Station Melpitz

GUAN - a network to measure ultrafine particles

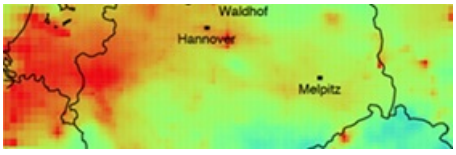
A new observation network for black carbon (BC) and ultrafine particles (UFP)

Are Low Emission Zones (LEZs) helpful for air quality?

TROPOS' contribution to a controverse political issue

UFIREG

Ultrafine particles in the context of Europe's regional environmental health policy



Modeling of regional and urban air quality

Modeling systems for simulation of dynamics of primary and secondary aerosol particles and their radiative feedback

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