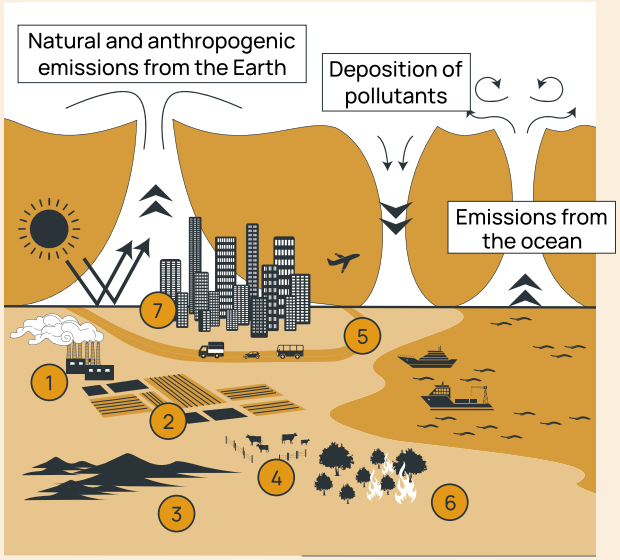
Atmospheric Composition

In the **Atmospheric Composition** group of the Earth Sciences Department at the Barcelona Supercomputing Center-Centro Nacional de Supercomputación (BSC-CNS), we work to better understand and predict the variability of atmospheric pollutants and their effects on weather, climate, health, and socioeconomic sectors. To do so, we develop modelling systems to improve atmospheric composition and air quality forecasts from global to local scales.



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ATMOSPHERIC COMPOSITION

Working to better understand the fate and impact of atmospheric constituents

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

Context

Every day, human activities and natural emissions from deserts, vegetation, and oceans release chemical compounds that interact with other species and are transported by wind, altering the atmosphere's composition from local environments to the global scale.

Who we are

We are a multidisciplinary team of scientists and engineers that research emissions, air quality, atmospheric chemistry, and aerosols to better understand and predict the variations in the atmosphere and their effects on air quality, weather, and climate.

What we do

We develop modelling systems to improve forecasts of atmospheric composition and our understanding of how short-lived species interact with the Earth system. We host one World Meteorological Organization Regional Centers for Dust Prediction and an AXA Chair on Sand and Dust Storms, and we provide the scientific community and society with operational air quality and dust forecasting services.

Why we do it

We aim to better understand aerosol species and the processes they undergo, to determine the origin and cause of air pollution episodes in order to predict them, and to understand dust storms, study their variability and quantify their effects on climate and atmospheric chemistry, as well as on health.

How we do it

We quantify natural and human activities' emissions and develop sophisticated air quality models and forecasts to investigate the impact of physical and chemical processes on the atmosphere's chemical composition. Our models are enhanced with up-to-date observations, which are used both for model evaluation and for feeding our data assimilation system.