Barcelona Supercomputing Center
Centro Nacional de Supercomputación

EXCELENCIA SEVERO OCHOA

Mineral Dust Services

"Desert dust and sea salt are the largest contributors to the global aerosol burden"
IPCC, 2013

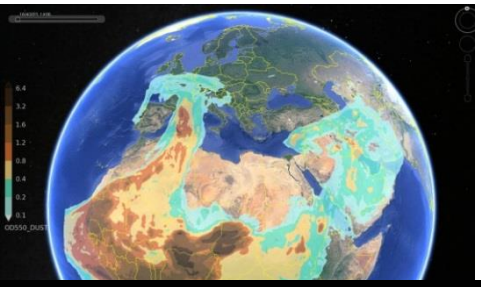
Products

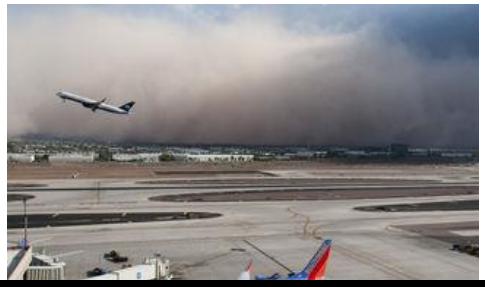
1. Mineral dust assessment

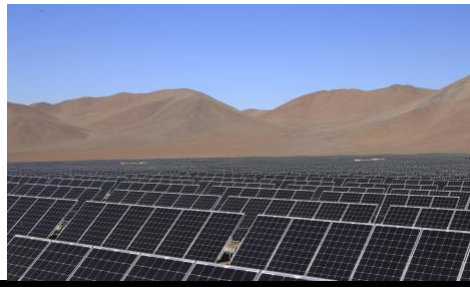
Dust models are developed for short to medium-term prediction of mineral dust events worldwide and for regional climate modelling. Our team has developed the NMMB/BSC Dust model in collaboration with the NOAA's National Centers for Environmental Prediction (NCEP).

2. Forecast system

Early-warning information about current and future dust concentration and derived parameters critical for specific sectors.







Applications

- Solar energy
  - Power forecasting
  - Mid-term maintenance planning
  - Site planning for new projects
- Transportation
  - (air) Visibility assessments for airlines and flight management
  - (ground) Transportation impacts
- Health
  - Early-warning system for people with respiratory problems
- Agriculture/ Insurance
  - Crop damage

Contact us at:
info-services-es@bsc.es

BSC and AEMET are managing the WMO SDS-WAS NAMEE Regional Center (http://sds-was.aemet.es/) and the Barcelona Dust Forecast Center (http://dust.aemet.es/).

UNEP

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Atmospheric Composition Services

"In all zones and agglomerations [...] a combination of measurements and modelling techniques may be used to assess the ambient air quality"
Directive 2008/50/EC

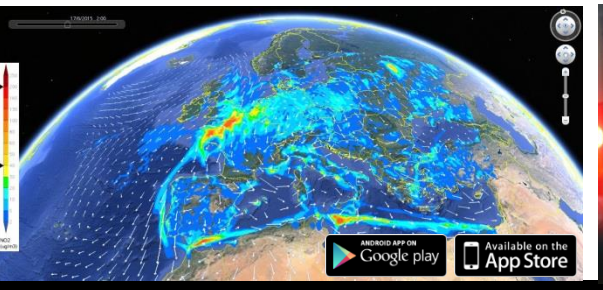
Products

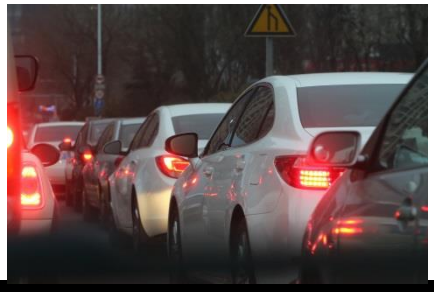
1. Air quality forecast

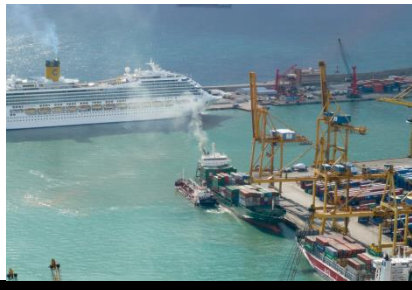
Air quality modelling from global to regional scales provides a comprehensive description of air quality problems, relating emission sources and atmospheric conditions.
CALIOPE models the atmospheric conditions to provide air quality information for short-terms action plans http://www.bsc.es/caliope

2. Air quality impact assessment

Detailed diagnosis of areas with pollution problems to estimate the health impacts and economic benefits of management strategies directed to reduce atmospheric emissions.

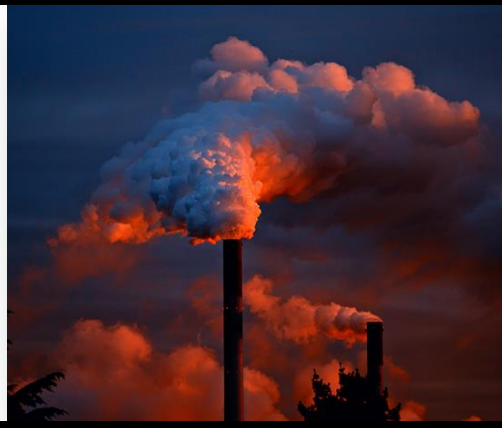






Applications

- Health
  - Early-warning system for people with respiratory problems or those looking for a cleaner itinerary
- Urban planning
  - Integrated pollution and control of heavy industry
  - Road transport management measures
- Infrastructure
  - Infrastructure corrosion by marine aerosol



Our projects on atmospheric composition have received funding from:

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