DUST IMPACTS

When winds are strong, large amounts of sand and dust are lifted from bare, dry soils into the atmosphere. Mineral dust particles are transported downwind, affecting regions hundreds to thousands of kilometres away. These particles affect climate, weather, atmospheric chemistry and ecosystems.

In addition to the climate effects of dust particles, sand and dust storms (SDS) represent a serious hazard with multisectorial effects at local, regional and global scales.

In countries within or near desert dust sources, SDS severely compromise human health, livestock and agriculture. Intense dust outbreaks can force the closing of roads and airports due to poor visibility, deteriorate infrastructures and strongly affect commercial solar energy production. In distant regions, dust also affects solar energy production, by reducing solar insolation, transportation and health. Conversely, it can also have positive effects as nutrients contained in the transported desert dust (iron and phosphorous) favours the fertilisation of marine and continental ecosystems, positively affecting agriculture and fisheries.

ABOUT inDust

The overall objective of inDust is to establish a network involving research institutions, service providers and potential end users of information on airborne dust. Its purpose is to coordinate and harmonise the process of transferring dust observation and prediction data to users as well as to assist the diverse socio-economic sectors affected by the presence of high concentrations of airborne mineral dust.

www.cost-indust.eu

inDust is an international network that connects desert dust experts with stakeholders in socio-economic sectors affected by airborne mineral dust.

JOIN THE NETWORK

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COST is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts research, careers and innovation.

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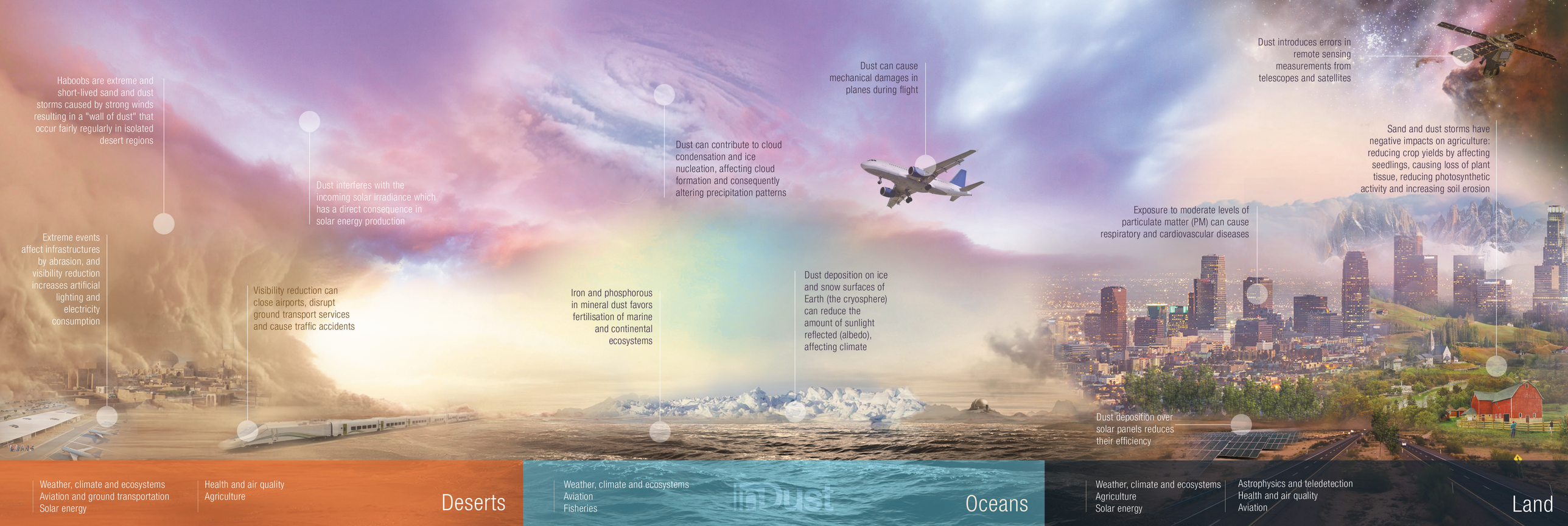
inDust

INTERNATIONAL NETWORK TO ENCOURAGE THE USE OF MONITORING AND FORECASTING DUST PRODUCTS


Haboobs are extreme and short-lived sand and dust storms caused by strong winds resulting in a "wall of dust" that occur fairly regularly in isolated desert regions
Dust interferes with the incoming solar irradiance which has a direct consequence in solar energy production
Extreme events affect infrastructures by abrasion, and visibility reduction increases artificial lighting and electricity consumption
Visibility reduction can close airports, disrupt ground transport services and cause traffic accidents
Dust can contribute to cloud condensation and ice nucleation, affecting cloud formation and consequently altering precipitation patterns
Dust can cause mechanical damages in planes during flight
Iron and phosphorous in mineral dust favors fertilisation of marine and continental ecosystems
Dust deposition on ice and snow surfaces of Earth (the cryosphere) can reduce the amount of sunlight reflected (albedo), affecting climate
Dust introduces errors in remote sensing measurements from telescopes and satellites
Sand and dust storms have negative impacts on agriculture: reducing crop yields by affecting seedlings, causing loss of plant tissue, reducing photosynthetic activity and increasing soil erosion
Exposure to moderate levels of particulate matter (PM) can cause respiratory and cardiovascular diseases
Dust deposition over solar panels reduces their efficiency
Weather, climate and ecosystems
Aviation and ground transportation
Solar energy
Health and air quality
Agriculture
Deserts
Weather, climate and ecosystems
Aviation
Fisheries
Oceans
Weather, climate and ecosystems
Agriculture
Solar energy
Astrophysics and teledetection
Health and air quality
Aviation
Land