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# Impacts of Sand and Dust Storms on Oceans

## *A Scientific Environmental Assessment for Policy Makers*

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Global Partnership on Nutrient Management GPNM

GPA Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

GESAMP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection

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# Glossary

| | |
|---|---|
| aerosol | minute particles suspended in the atmosphere |
| algal bloom | large proliferations of microalgae involving up to millions of cells per litre |
| archaea | type of microbe that emits carbon dioxide into the atmosphere via the process of respiration |
| aspergillosis | disease that affects coral; also known as sea fan disease |
| autotrophy | mode of nutrition that uses solar radiation as the energy source; the dominant form of autotrophy is photosynthesis |
| bioaerosol | minute particles from plant or animal matter, or from microorganisms, suspended in the atmosphere (e.g. bacteria, pollen, spores) |
| bioavailability | measure of the amount of an element available to organic life |
| biogenic | produced or brought about by living organisms |
| biological carbon pump | process by which photosynthetically produced organic matter in the ocean is exported from the surface to depth by a combination of sinking particles, vertical mixing and transport by animals |
| calcification | build-up of calcium salts |
| combustion | the process of burning |
| cryosphere | portion of Earth's surface that is frozen throughout the year |
| cyanobacterium | major type of photosynthetic bacteria that contain a bluish pigment |
| desiccation | loss of moisture leading to extreme dryness |
| dinoflagellate | one-celled aquatic organism |
| eutrophication | excessive load of nutrients in a body of water |
| glacial–interglacial cycles | fluctuation between Ice Ages (glacials) and periods of warmer climate (interglacials) |
| gyre | large system of circulating ocean currents formed by the Earth's wind patterns and the forces created by the planet's rotation |
| heterotrophic bacteria | type of microbe that emits carbon dioxide into the atmosphere via the process of respiration |
| heterotrophy | mode of nutrition that uses carbohydrate as the sole source of energy |
| Ice Age | see 'glacial–interglacial cycles' |
| immunosuppression | partial or complete suppression of an immune response |
| marine snow | decaying material sinking from upper waters to the deep ocean |
| oligotrophic | low in nutrients and relatively unproductive in terms of aquatic animal and plant life |
| pathogenicity | the property of causing disease |
| pelagic | relating to the open sea |
| photic zone | layer of the ocean reached by enough sunlight to allow plant growth |
| photochemistry | chemical effects of light |
| photophysiological | physiology of processes (e.g. photosynthesis) that involve light |
| red tide | algal bloom that discolours the surface of the sea |
| septicaemia | a serious infection of the bloodstream |
| solubility | property of a substance to dissolve in a liquid |
| symbiont | organism living in symbiosis with another |
| trace metal | element that normally occurs at a very low level in the environment |
| troposphere | the lowest region of the atmosphere |

## Acronyms and abbreviations

| | |
|---|---|
| AOD | aerosol optical depth |
| AVHRR | Advanced Very-High-Resolution Radiometer |
| CBD | Convention on Biological Diversity |
| DMS | dimethyl sulphide |
| GESAMP | Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection |
| HAB | harmful algal bloom |
| HNLC | high-nutrient, low-chlorophyll |
| LNLC | low-nutrient, low-chlorophyll |
| MEA | Multilateral Environmental Agreement |
| ppm | parts per million |
| SDG | Sustainable Development Goal |
| SDS | sand and dust storms |
| SST | sea surface temperature |
| UNCCD | United Nations Convention to Combat Desertification |
| UNEP | United Nations Environment Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WMO | World Meteorological Organization |

### Note on units of mass:

g (grams) are used throughout this report for consistency.
Gg (Gigagram) = one thousand tonnes.
Tg (Teragram) = one million tonnes