



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



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

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