DATA & APPLICATIONS ONLINE

Satellite-Derived Environmental Indicators

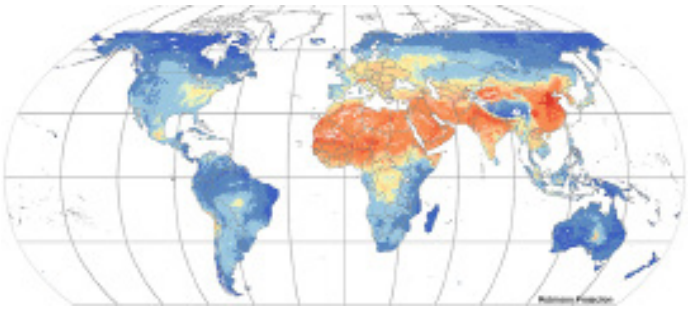
Overview

Environmental indicators simplify complex information about the state of the environment and human-environment relationships, identifying problem areas and revealing underlying trends. Satellite data have many worthwhile characteristics, including broad spatial coverage and consistent measurement over time. The development of a scientifically robust set of satellite-derived environmental indicators may inform policy-making that protects the environment and human health.

Exposure to fine particles is associated with premature death as well as increased morbidity from respiratory and cardiovascular disease, especially in the elderly, young children, and those already suffering from these illnesses. The World Health Organization guideline for average annual exposure to fine particulate matter of 2.5 micrometers or smaller ($PM_{2.5}$) is less than or equal to 10.0 micrograms per cubic meter, whereas the US Environmental Protection Agency (EPA) primary standard, designed to protect public health with an adequate margin of safety, is less than or equal to 12.0 micrograms per cubic meter.

About the Data

The most recent data set in this collection depicts global patterns of $PM_{2.5}$ over nearly two decades: the Global $PM_{2.5}$ Grids from MODIS, MISR and SeaWiFS Aerosol Optical Depth (AOD) with Geographically Weighted Regression (GWR), 1998–2016. The data set consists of estimated annual concentrations (micrograms per cubic meter) of $PM_{2.5}$, with dust and sea salt removed, on a grid of 0.01 degree resolution, or about 1 km at the equator. This version supersedes a previous data set with coarser resolution (0.1 degree, or about 10 km) and data only through 2012. The data set was developed by a team led by Aaron van Donkelaar at Dalhousie University in Canada.



Data Access

Go to bit.ly/1TgCaga to download data, maps, and information.

References

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