



Maritime Aerosol Network (MAN) as a component of AERONET - first results

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The paper presents a concept and the current status of the Maritime Aerosol Network (MAN), which has been developed as a component of the Aerosol Robotic Network (AERONET). The proposed activity includes deployment of hand-held sunphotometers at sea and measurements from various ships of opportunity. Overall MAN will complement island-based AERONET measurements and will expand AERONET program to acquire additional data over the oceans. Scientific objectives of this kind of activity are primarily climate change studies (direct and indirect forcing); satellite retrievals validation; validation of global aerosol transport model simulations; and atmospheric correction in ocean color studies. MAN deploys Microtops hand-held sunphotometers and utilizes the calibration procedure and data processing (Version 2) traceable to AERONET. A web site (http://aeronet.gsfc.nasa.gov/new_web/maritime_aerosol_network.html) dedicated to the MAN activity is described. A brief historical perspective is given to aerosol optical depth (AOD) measurements over the oceans.

Accomplished cruises included transects from Northern to Southern Atlantic, from Northern to Southern Pacific, from New Zealand to Japan, measurements in Southern Indian Ocean, in the Tropical Atlantic, along the western coast of South America, near the coast of Antarctica, in the Mediterranean, Arabian, Beafort, Bering, Barents, Greenland Seas and in the Bay of Bengal. First results are presented. MAN ship-based aerosol optical depth compare well to simultaneous island and near-coastal AERONET site AOD.

We believe that the Maritime Aerosol Network will provide the scientific community with valuable information on aerosol optical properties over the oceans. Employing simple, standard and commercially available instrumentation, traceable calibration, a scientifically sound processing scheme and easily accessible web-based public data archive, the network has strong growth potential. Expanded spatial coverage will contribute to enhanced understanding of aerosol optical properties over the oceans and improve our knowledge of physical processes of maritime aerosol production, transport and distribution. The database may help stimulate research and international collaboration in various scientific areas.