Maritime Aerosol Network (MAN) as a component of Aerosol Robotic Network (AERONET) – recent developments and achievements

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The paper presents the current status of the Maritime Aerosol Network (MAN). MAN has been developed as a component of the Aerosol Robotic Network. MAN deploys handheld sunphotometers and utilizes the calibration procedure and data processing traceable to AERONET. MAN started collecting data over the oceans from ships of opportunity in the end of 2006. Since then over 300 cruises were completed and data archive of more than 5000 measurement days has been used for various applications.

Recently a significant progress has been made in data collection in the area of Tropical Atlantic influenced by dust transport from Africa. Intensive study areas in the Southern Ocean and off the coast of Antarctica included a number of circumnavigation cruises in high southern latitudes. Optical properties over Red Sea were studied during various seasons. Measurements over Pacific Ocean and areas near the coast of South East Asia, that previously had limited or no coverage provided an important reference point in aerosol optical studies. Several cruises conducted in the Mediterranean and Black Seas, off the East Coast of the US, in areas of Northern Atlantic, and Arctic Ocean made an important contribution to MAN.

The program exemplifies mutually beneficial international, multi-agency effort in atmospheric aerosol optical studies over the oceans. A public domain web-based database dedicated to MAN activity can be found at http://aeronet.gsfc.nasa.gov/new_web/maritime_aerosol_network.html . The ship-borne aerosol optical depth measurements offer an excellent opportunity for comparison with global aerosol transport models, satellite retrievals and provide useful information on aerosol distribution over the World Ocean.

MAN represents an important strategic sampling initiative and ship-borne data acquisition complements island-based AERONET measurements. Data are easily accessible in the web-based public data archive and will stimulate research and international collaboration in various scientific areas.

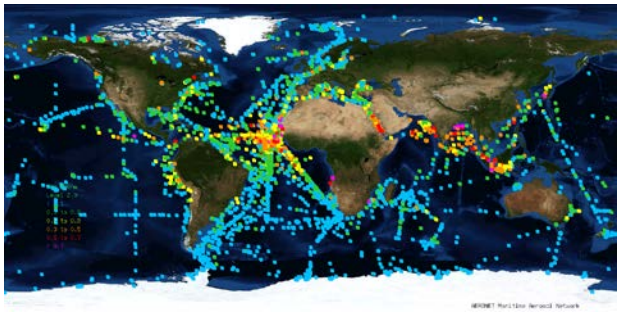

Figure 1. Maritime Aerosol Network global coverage from October 2006 to February 2015: cruise tracks and daily averages of aerosol optical depth at 500 nm (squares are colored with respect to AOD values, i.e. **blue – AOD<0.10**, **green – 0.1≤AOD<0.2**, **yellow – 0.2≤AOD<0.3**, **orange – 0.3≤AOD<0.5**, **red – 0.5≤AOD<0.7**, **purple – AOD≥0.7**).