AERONET-OC: An Overview

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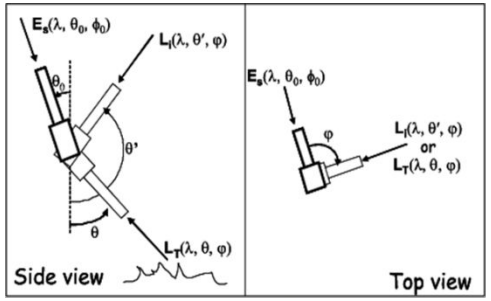
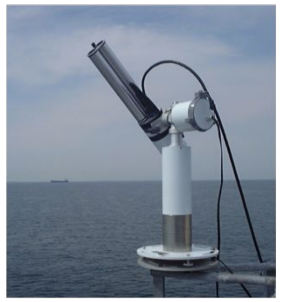
AERONET-OC: sites

The Ocean Color component of the Aerosol Robotic Network generating globally distributed time-series of standardized $L_{WN}(\lambda)$ and $\tau_a(\lambda)$ measurements targeting the validation of satellite ocean color data products



$(\varphi = \varphi_0 + 90^0; \theta = 40^0; \theta' = 140^0)$



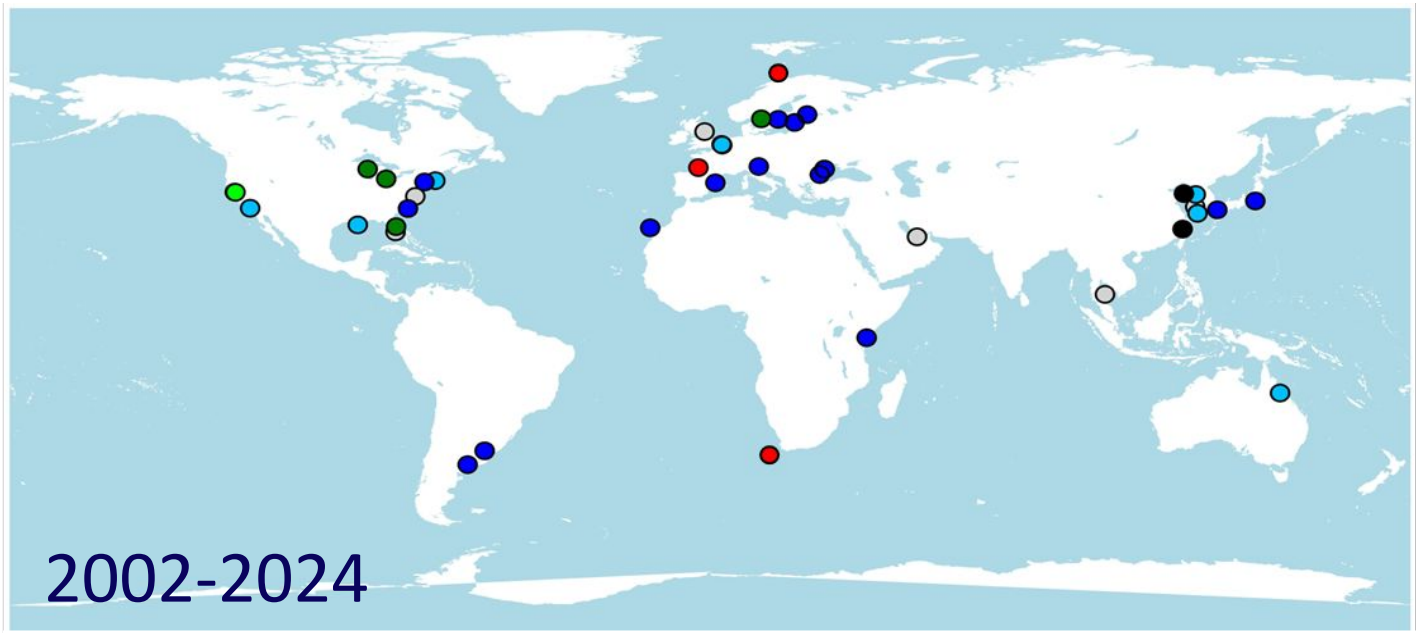
Sky-radiance: L_i

Sea-radiance: L_T

$$L_W(\varphi,\theta,\lambda) = L_T(\varphi,\theta,\lambda) - \rho(\varphi,\theta,\theta_0,W)L_i(\varphi,\theta',\lambda)$$

$$L_W(\lambda) = L_W(\phi,\theta,\lambda)C_{f/Q}(\lambda,\theta,\phi,\theta_0,\tau_a,Chla,W)$$

$$L_{WN}(\lambda) = L_W(\lambda)\left(D^2 t_d(\lambda)\cos\theta_0\right)^{-1} C_{f/Q}(\lambda,\theta_0,\tau_a,Chla)$$



CE-318 (9-channel)

CE-318T (12-channel)

Active marine

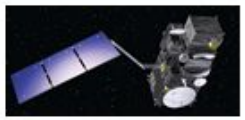
Active inland

Potential

Dismissed

Standardized marine and inland waters spectral band configurations

AERONET-OC: expansion (2002-2020)



Ocean Color missions

OLCI - Sentinel 3B (April 2018- ongoing)

GCM-C1 (December 2017- ongoing)

VIIRS – JPSS 1 (November 2017- ongoing)

OLCI - Sentinel 3A (February 2016- ongoing)

VIIRS – SUOMI NPP (October 2011- ongoing)

MODIS – Aqua (May 2002 – ongoing)

MERIS – Envisat (March 2002 – May 2012)

SeaWiFS (August 1997 – December 2010)

2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020

AERONET-OC sites

Venice - AAOT (2002 – ongoing)

MVCO (2004 – ongoing)

Gustaf Dalen Lighthouse (2005 – ongoing)

COVE (2005 – 2016)

Helsinki Lighthouse (2006 – ongoing)

Abu Al Bukhoosh (2006 – 2008)

Palgrunden (2008 – ongoing)

Lucinda (2009 – ongoing)

LISCO (2009 – ongoing)

WaveCIS 6 (2010 – ongoing)

Gloria (2010 – 2019)

USC – USC2 (2011 – ongoing)

Gageocho Station (2011 – 2012)

GOT (2012 – 2016)

Ieodo Station (2013 – ongoing)

Galata Platform (2014 – ongoing)

Zeebrugge (2014 – ongoing)

Socheongcho (2015 – ongoing)

Thornton C Power (2015 – ongoing)

Blyth NOAH (2016 – 2017)

Lake Erie (2016 – ongoing)

Ariake Tower (2018 – ongoing)

Irbe Lighthouse (2018 – ongoing)

Lake Okeechobee (2018 – ongoing)

South Greenbay (2018 – ongoing)

Grizzly Bay (2018 – ongoing)

Casablanca Platform (2019 – ongoing)

Section-7 Platform (2019 – ongoing)

Kemigawa Offshore (2019 – ongoing)

Bahia Blanca (2020 – ongoing)

San Marco Platform (2020 – ongoing)

AERONET-OC: Toward Version 4

Version-3 (https://aeronet.gsfc.nasa.gov/cgi-bin/draw_map_display_seaprism_v3)

- *Relaying on spectrally independent sea surface reflecance factors*
- *Comprehensive and fully automated QC at Level 2.0*
- *Data products (i.e., L_{WN}) corrected for brdf effects according to the Chla- and IOP-based methods.*

Toward Version-4

- *Comprehensive and fully automated QC also at Level 1.5 (i.e., incorporating most of the current quality checks applied for Level 2.0).*
- *Ranking of individual L_{WN} as a function of spectral and temporal consistency for a better assessment of satellite data products.*
- *Statistical determination of L_{WN} uncertainties for individual measurements (under evaluation).*
- *Application of advanced sea surface reflectance factors accounting for spectral dependence as a function of aerosol type, optical thickness, and polarization? (under evaluation since April 2024).*