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Aerosol optical properties climatology over Cuba derived from satellite and groundbased instruments.

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Measurements of AOD and AE from groundbased and from satellite instruments were taken to obtain a climatology of optical properties of aerosols in Cuba. Satellite measurements from MODIS sensor on board Terra and Aqua were used (collection 6.0) to calculate the annual, seasonal and monthly means for the whole country for the period 2001-2015. Areas of maximum and minimum AOD values over the country were identified. Groundbased measurements from a CIMEL CE-318 sun photometer placed at Camagüey site were used to obtain climatological means for the period 2008 – 2018 and to identify six aerosols types over the site. AERONET methodology for calculating daily, monthly and annual means was used. Satellite and groundbase data show a well defined annual cycle with maximum in summer months (June, July and August) and minimum in November, December and January. The mean $AOD_{550}$for whole country is 0.169 ($\pm$0.023) (for Terra and Aqua combined) and almost the 80 % of the values were in 0.125 – 0.175 range. The highest values are located near and on the coasts, fundamentally towards the eastern part of the country and in the Zapata Peninsula. The aerosol type identification at Camagüey site shows a predominance of maritime aerosol for the whole period followed by dust and continental types. High AOD values over Camagüey during summer occurs due to the presence of dust aerosols in addition to maritime type over the site. There is almost no presence of aerosols originated by pollution and biomass burning on the sun photometer site.