



## **Assessment of the MODIS-Terra Collection 006 aerosol optical depth data over the greater Mediterranean basin and inter-comparison against MODIS C005 and AERONET**

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Aerosols are one of the key factors determining the Earth's solar radiation budget. The aerosol radiative effects are strongly dependent on aerosol optical depth (AOD) which is a good measure of atmospheric aerosol loading. Therefore, understanding better the spatial and temporal patterns of AOD at both global and regional scales is important for more accurate estimations of aerosol radiative effects. Nowadays, improved globally distributed AOD products are available largely based on satellite observations. Currently, one of the most acknowledged accurate AOD dataset is the one derived from measurements of the MODerate resolution Imaging Spectroradiometer (MODIS) instrument onboard the twin Earth Observing System (EOS) Terra and Aqua satellite platforms. The MODIS aerosol retrieval algorithm, which is used to produce AOD data, is continuously improved and updated, leading to releases of successive series, named as Collections. Recently, MODIS Collection 6 (C006) dataset has been made available. Despite their advantages, satellite AOD products have to be assessed through comparisons against ground based AOD products, such as those from AERosol Robotic Network (AERONET).

The aim of the present study is to assess the newest MODIS C006 AOD product over the greater Mediterranean basin. The assessment is performed through comparisons of the MODIS-Terra C006 Level-3 AOD data against corresponding data from the previous C005 MODIS dataset, as well as versus AOD data from AERONET stations within the study region. The study period extends from 2001 to 2012 and our comparisons are performed on a monthly basis. Emphasis is given on differences between the MODIS C006 AOD data and corresponding previous C005 data, as to their spatial and temporal, seasonal and inter-annual, patterns. The results show a better agreement of MODIS C006 than C005 AOD data with AERONET, while the C006 data offer a complete spatial coverage of the study region, specifically over the northern African and Arabian deserts, which were not covered by the C005 data.