



Air quality estimates in Mediterranean cities using high resolution satellite technologies

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Satellite imaging is an essential tool for monitoring air pollution because, unlike ground observations, it supplies continuous data with global coverage of terrestrial and atmospheric components. Satellite-based Aerosol Optical Depth (AOD) retrievals reflect particle abundance in the atmospheric column. This data provide some indication on the extent of particle concentrations. However, it is difficult to retrieve AOD at high spatial resolution above areas with high surface reflectance and heterogeneous land cover, such as urban areas. Therefore, many crowded regions worldwide including Israel, AOD climatology are still uncertain because of the high ground reflectance and coarse spatial resolution. Recently, a new Multi-Angle Implementation of Atmospheric Correction (MAIAC) algorithm was developed for MODIS which provides AOD at 1 km resolution. This study aims to investigate the spatial variability of AOD within Israeli and several other Mediterranean cities. In addition, we aim to characterize the impact of climatic condition on pollution patterns in-and-between cities and to identify days when cities exhibit the highest variability in AOD. Furthermore, we assessed the differences in pollution levels between adjacent locations. We will report on spatial variability in AOD levels derived from high 1km resolution MAIAC AOD algorithm on a temporal basis, in relation to season and synoptic-meteorological conditions.