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Trend Analysis in the MODIS Aerosol Optical Depth over Turkey

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The significance of aerosol distribution in the atmosphere has been studied for a long time due to its effects on energy budget, climate, air quality studies and etc. Studies were focused on this issue, since there are still problems that depend on aerosol distribution that need to be solved. The main objective of this study is to figure out the temporal and spatial variability of aerosol load in the atmosphere over Turkey. For this reason, AOD550 from level 3 collection of MODIS/Terra (1 degree resolution) was examined for the period of 2010 – 2013. Turkey was divided into three parts in order to make spatial analyses, as east, middle and west. Statistical analyses have been made to figure out the seasonal and spatial variability of AOD within the study period. Also trend analysis has been applied to find out the changes for the same period..Additionally, MODIS data has been verified using ground-based measurements of AERONET system using one of its stations in the Southern part of Turkey (IMS-METU-Erdemli, 36.56°N, 34.25°E). AOD variability is found higher in Spring and Autumn and lower in Summer due to long-range transport. According to verification, Level 3 AOD dataset is correlated with AERONET measurements, relatively high.