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**Active and passive remote sensing activities at
Thessaloniki, Greece**

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Abstract

Long-term trends of ozone, UV, aerosols and trace gases are estimated from active and passive remote sensing techniques at Thessaloniki, Greece are presented. The longest Brewer total ozone record available at Thessaloniki, shows a negative trend during the period 1982-1996 and a slightly positive trend in the period 1997-2016. Umkehr observations of the ozone profile show for the post 1998 period a positive trend in the upper stratospheric layers. The corresponding UV irradiance trends continue to be positive despite the relative ozone increase. This increase in UV is associated mostly in the negative long-term trends of the aerosol optical depth mostly occurring in the PBL as this is evident from long-term measurements with an aerosol lidar. In addition we present results from the validation of total ozone products within EUMETSAT's and ESA's relevant activities like AC-SAF and Ozone-CCI. Finally measurements of tropospheric NO₂ and HCHO columns at Thessaloniki are analyzed and compared to satellite retrievals.