Reviewer #1

The authors present their findings on the impact of aerosol optical properties on the UV Index.

a) Main comment:

The title promises results in respect to the UV Index. Therefore it would be valuable to find the most important findings in respect to the UV Index already in the abstract. (PS: it is not really interesting where the Brewer is mounted.)

The abstract has been focused more on the findings about aerosol effect on UVI: "The aerosol optical characteristics in the urban area of Rome were retrieved over a period of 7 years from March to September 2010-2016. The impact of aerosol single scattering albedo (SSA), optical depth (AOD), estimated at 400 nm, and Ångström exponent on the ultraviolet (UV) index has been analyzed. Aerosol optical properties are provided by a PREDE-POM sun-sky radiometer of the ESR/SKYNET network and the UV index values were retrieved by a Brewer spectrophotometer both located in Rome. Chemical characterization of urban PM10 (particulate matter 10 micrometers or less in diameter) samples, collected during the URBan Sustainability Related to Observed and Monitored Aerosol (URBS ROMA) intensive filed campaign held in summer 2011 in the same site, was performed. PM macro-components were grouped in order to evaluate the contribution of the main macro-sources (SOIL, SEA, SECONDARY INORGANIC, ORGANICS and TRAFFIC). Their contributions were assumed not substantially changed in the other years under study, due to the general stable conditions during summer seasons in Rome, as reported by the literature. The modulation of their concentration, according to theoretical calculations, is expected to strongly affect the absorption capability of the atmosphere over Rome. The surface forcing efficiency, provided by the decreasing trend of UV index with AOD, which is the primary parameter affecting the surface irradiance during clear sky conditions in Rome, was found very significant, probably masking the dependence of UV index on SSA and Ångström exponents. Moreover it was found greater for larger particles and with a more pronounced slope at the smaller solar zenith angle. In Rome large particles are generally less absorbing since related to the presence of SOIL and SEA components in the atmosphere. The former contribution was found much higher in summer months because of the numerous episodes of Saharan dust transport".

Also the "conclusions" should focus on influence of aerosols on UV Index.

The conclusion were corrected removing the details about the average values of the aerosol optical properties and the percentage of PM10 components retrieved during URBS ROMA, both already described in the result section.

b) Minor comments:

l.16-17: 2010-2016 is it 6 or 7 years?

7, corrected

l.20: Optical data (abstract and introduction): please provide details;

Replaced with aerosol optical properties

l.22: delete

Deleted.

l.23: PM10 (abstract and elsewhere): provide definition

Done

l.30: SOIL and SEA type aerosols?

They are clusters in which the mixture of PM macro-components was divided to estimate the contribution of the main macro-sources. Their each composition is explained at the end of section 3. It has been now explained in the abstract.

l.82+l.122: … and at several scattering angles in the almucantar geometry: please clarify, what is the difference/meaning, otherwise delete

Corrected

l.123: … official code ... is it computer code?

Corrected

l.147: Cost-713 not found in references

It already is in the list of references, after C.I.E. A separating line was missed. It as been added

l.163: … ozone air mass….. Please explain. I think that this a technical term is known in the Brewer/Dobson community but rather unknown for other readers.

Explained

Figures: please check labelling of all figures: e.g. Fig.1 axis (second last panel),

Corrected

labelling of color scales,….

Checked