

## ***Interactive comment on “The Ozone Monitoring Instrument: Overview of twelve years in space” by Pieternel Levelt et al.***

### **Anonymous Referee #1**

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The overview by Levelt et al. gives a nice summary of OMI, its products and applications. The paper is well written. I have a few suggestions below.

The manuscript lists the science questions that OMI was designed to (help) answer. It also gives examples of how these questions are addressed. It would be nice to draw some general conclusions in respective sections on 1) to which extent these questions have been answered, 2) what are left to be better addressed by future missions such as TropOMI and geostationary instruments, and 3) what would be the key challenges for future missions and applications in addressing these questions.

A major accomplishment of OMI products is their air quality applications, and there are a large amount of papers on air quality characteristics, emission constraint, trends and variability, drivers, and impacts. The present manuscript briefly discusses some works,

which are mainly led or co-authored by the authors here and are mainly focused on the US or Europe. It would be important to expand the discussion to incorporate studies from other researchers and for other parts of the world (especially China and India, the top two populated and polluted countries that have also been heavily studied by using OMI data).

Also, there are a bunch of research products that should be discussed. For example, EOMINO for Europe and POMINO for China are regional NO<sub>2</sub> products that specifically address several retrieval limitations in the standard and NRT NO<sub>2</sub> products, including treatment of surface reflectance and anisotropy, explicit treatment of aerosol absorption and scattering, etc. This helps a potential OMI user to be aware of a variety of products (and their limitations) provided by the whole OMI community, and allows the user to choose the most suitable product for his/her applications.

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