

## ***Interactive comment on “Optimal use of Prede POM sky radiometer for aerosol, water vapor, and ozone retrievals” by Rei Kudo et al.***

### **Anonymous Referee #1**

Received and published: 18 January 2021

This manuscript described a new method, Skyrad MRI v2, to retrieve aerosol columnar properties, water vapor, and ozone for the sky radiometer measurements. The new algorithm improved the algorithms of Skyrad v4.2, v5, and MRI v1 in many places, and the results from the new algorithm can bring out the performance of the sky radiometer more than ever. This work is useful for aerosol observation by using sky radiometer. This manuscript can be published after minor revision.

Specific comments: The writing need to be checked. Such as grammar error in Line 35-36.

Line 55, “. . . aerosol properties, and water vapor and ozone . . .”, delete “and” before water.

Line 80, “PWV”, the full name should be given at the first appearance.

Section 3 Algorithm. In this part, what improvement is made in your inversion algorithm compared to the former algorithms? This may be described clearly, or separately. Is the inversion strategy (section 3.1.1) different from Skyrad v4.2, v5, and MRI v1?

Line 252-253. Did the authors consider the seasonal variation of the vertical profiles of atmosphere parameters?

Section 4.1, Line 339-341. Did this mean that the retrieved data of the new algorithm reduced compared to former algorithms?

Line 372-376. Did the author compare these uncertainties with other algorithms (Such as AERONET)?

Line 491-492. The VSD may be the important improvement of MRI v2 algorithm.

Section 5.1.2. Were these compared to Skyrad V4.2 and V5 algorithms? The aerosol properties retrieved from MRI v2 were improved, then how about the water vapor and ozone?

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Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2020-486, 2020.

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Discussion paper

