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http://dx.doi.org/10.2151/jmsj.2014-A12

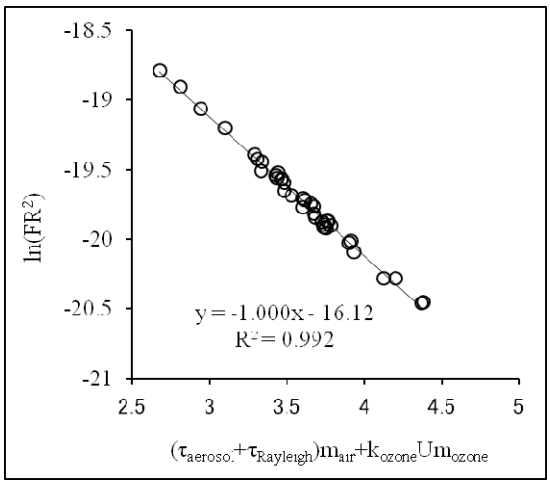

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Fig. 1. Scatter plot between $\ln(FR^2)$ and $(\tau_{aerosol}m_{air}+\tau_{Rayleigh}m_{air}+K_{ozone}Um_{ozone})$ for the most plausible value of K_{ozone} that should produce the strongest correlation and the slope value of the regression line as close as possible to 1.0.

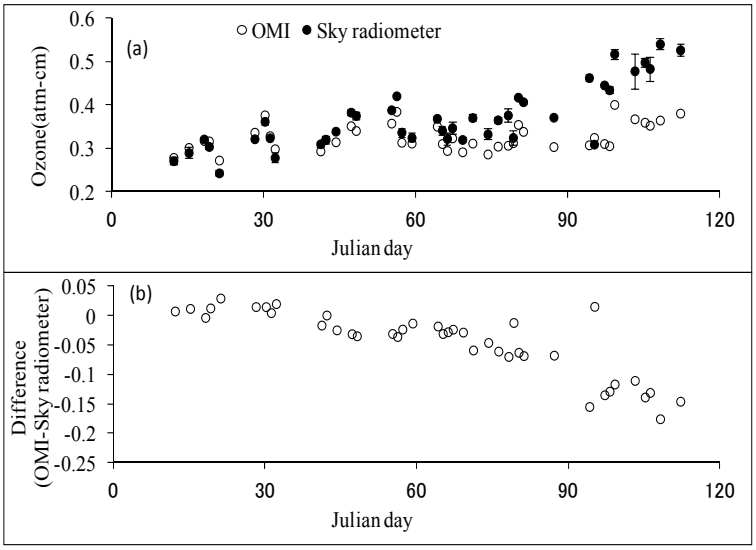

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Fig. 2. Comparison of columnar ozone concentration estimated from sky radiometer and observed by OMI sensor of Aura satellite during the observation period of January-April, 2013. To compare with a single value per day of OMI observation, the sky radiometer results falling within 13:00-14:00 JST are averaged.

- A method and preliminary results related to the estimation of the columnar ozone concentration (U) using the 315nm channel data of the sky radiometer are presented. The proposed method consists in calculating the calibration constant for direct intensity at 315nm wavelength $F_0\,(315nm)$ using in situ observation data, which is an alternative of the traditional Langley method, and then estimating U.
- The temporal values of U at Chiba, Japan for the period of January - April, 2013 were estimated, and they were compared with values observed by the ozone monitoring instrument (OMI). The agreement was satisfactory during the initial period of observation; however, the values from the sky radiometer were observed to be gradually overestimated with time.
- The study suggests that the temporal change of $F_0\,(315nm)$ is the important factor to be considered while estimating U values for long-term observation and that $F_0\,(315nm)$ must be determined periodically.