Geophysical Research Abstracts
Vol. 16, EGU2014-10851, 2014
EGU General Assembly 2014

Development of KRISS standard reference photometer (SRP) for ambient ozone measurement

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Surface ozone has adverse impacts on human health and ecosystem. Accurate measurement of ambient ozone concentration is essential for developing effective mitigation strategies and understanding atmospheric chemistry. Korea Research Institute of Standards and Science (KRISS) has developed new ozone standard reference photometers (SRPs) for the calibration of ambient ozone instruments. The basic principle of the KRISS ozone SRPs is to determine the absorption of ultraviolet radiation at a specific wavelength, 253.7 nm, by ozone in the atmosphere. Ozone concentration is calculated by converting UV transmittance through the Beer-Lambert Law. This study introduces the newly developed ozone SRPs and characterizes their performance through uncertainty analysis and comparison with BIPM (International Bureau of Weights and Measures) SRP.