

## **O3-03 MEASUREMENTS OF THE RING EFFECT IN THE NEAR-ULTRAVIOLET**

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The filling-in (FI) of Fraunhofer features (Ring Effect) in scattered sunlight has long been recognized as a potential source of error in DOAS measurements. Measurements of FI are relatively scarce and have often been contradictory, but it is now generally accepted that Rotational Raman Scattering (RRS) is the primary mechanism for FI at near ultraviolet wavelengths. Aerosols and clouds increase or decrease this effect by changing the path of scattered light through the atmosphere. The contribution of FI to DOAS measurements has generally been corrected through the use of measured Ring cross-sections that treat FI as a pseudo-absorber, or by model calculations that assume RRS as the only source. The latter approach is particularly important for satellite observations at shorter wavelengths where the apparent Ring cross-sections are difficult to measure. Further experimental verification of these models is desirable.

In this paper, we describe measurements of FI in the near ultraviolet (320-380 nm) zenith-scattered sky light under clear and cloudy sky conditions in Boulder, Colorado. We examine the impact of aerosols and clouds on the degree of FI and compare the observations with simple single and double-scattering models that assume RRS as the responsible mechanism.