

**Seminar on Physics and Chemistry of the Atmosphere
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Glyoxal tropospheric column retrievals from TROPOMI, multi-satellite intercomparison and ground-based validation

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Abstract

Glyoxal (CHOCHO) is one of the atmospheric Volatile Organic Compound that can be remotely detected. It is mostly produced in the atmosphere as a secondary product resulting from the oxidation of other non-methane VOCs of natural or anthropogenic origin. It is also directly emitted in case of biomass burning events. Therefore, with a short lifetime of a few hours, glyoxal measurements can serve as proxy for non-methane VOC emissions.

The retrieval of glyoxal tropospheric columns from nadir satellite instruments using a Differential Optical Absorption Spectroscopy (DOAS) approach has been pioneered at University of Bremen using the SCIAMACHY instrument. Since then, the approach has been applied to several instruments by different teams. In the framework of the ESA GLYRETRO project, the BIRA-IASB glyoxal algorithm has been further developed and applied to TROPOMI observations. During this seminar, I will introduce this algorithm and the derived TROPOMI glyoxal product, which comes along with a comprehensive error budget. The latest version of the algorithm has also been applied to other sensors such as OMI and GOME-2A/B. Therefore, I will present the corresponding multi-satellite intercomparison as well as some validation results obtained using a series of MAX-DOAS data sets. Finally, I will show a few illustrations of the product.