



Observing BVOC emissions from Space

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Formaldehyde (HCHO) is formed in the atmosphere as an intermediate from the oxidation of methane and other hydrocarbons such as isoprene, but also from combustion processes. Further, global and accurate measurements of HCHO from space are important since they can be used to infer global isoprene emission (e.g. Barkley et al., 2013), the primary biogenic volatile organic compound (BVOC) that cannot be monitored from space directly. However, isoprene is an important source of ozone and secondary organic aerosol, and a sink for the hydroxyl radical.

HCHO absorbs in the ultraviolet wavelengths range and can therefore be detected by scattered sunlight absorption spectroscopy. Here we present measurements with the GOME-2 instrument. The first of the 3 GOME-2 instruments has been flying on MetOp-A since 2006 and MetOp-B has been launched in 2012. MetOp-C is expected to be launched in 2018.

The University of Leicester retrieval (Hewson et al., 2015) is a well characterised state-of-the-art algorithm which has been used to infer HCHO vertical columns from MetOp-A, and more recently from MetOp-B. The results have been employed for creating a global, multi-year time series. This dataset has been exploited to analyse regional year-to-year variations in HCHO abundances and also to test emission models via comparisons to GEOS-Chem simulations.

Barkley, M. P., et al. (2013), *J. Geophys. Res. Atmos.*, 118, 6849–6868, doi:10.1002/jgrd.50552

Hewson, W., et al. (2015), *Atmos. Meas. Tech.*, 8, 4055–4074, doi:10.5194/amt-8-4055-2015