



## **GLORIA chemistry mode observations of pollution tracers C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>2</sub>, HCOOH, and PAN above the North Atlantic UTLS region during WISE**

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The Gimbaled Limb Observer for Radiance Imaging of the Atmosphere (GLORIA) is an imaging Fourier transform spectrometer (iFTS) using a 2-dimensional detector array to record emission spectra in the mid-infrared region with high spectral resolution. GLORIA is operated on high altitude research aircrafts, mainly in the limb mode to measure profiles of temperature and atmospheric trace species with high vertical resolution.

In autumn 2017, the Wave-driven ISentropic Exchange (WISE) aircraft campaign took place from Shannon (Ireland). Sixteen flights with the High Altitude and Long Range Research Aircraft (HALO) were performed between 31 August and 21 October 2017 over the eastern North Atlantic region.

GLORIA observations in the so-called chemistry mode were analysed with regard to pollutant species like C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>2</sub>, HCOOH, and PAN which are produced at distinct source regions near the ground and transported to remote regions due to their atmospheric lifetime of several weeks. Enhanced volume mixing ratios of these molecules were detected along some parts of the flight track in the upper troposphere and lowermost stratosphere (UTLS).

Measured profiles of these species are compared to chemical modelling including emission tracer calculations.