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Recent evolution of stratospheric inorganic chlorine (Cl_y) inferred from long-term ground-based FTIR observations of HCl and $ClONO_2$

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Over the past decades, the increase of the stratospheric inorganic chlorine (Cl_y) loading has been the major cause for the ozone layer depletion, a matter of particular concern because of its anthropogenic nature. Fortunately, appropriate decisions have been defined and put into force at the international level, leading to regulations adopted within the frame of the Montreal Protocol and its Amendments and Adjustments, and aiming at the suppression of all chlorine-bearing source gas emissions. Since its formalization, the NDSC (Network for Detection of Stratospheric Change, recently renamed NDACC, Network for the Detection of Atmospheric Composition Change) has given high priority to the monitoring of Cl_y based on solar observations with Fourier transform infrared (FTIR) spectrometers operated at the ground. Within this context, high-resolution solar absorption spectra recorded at Northern and Southern mid-latitudes have been analyzed to retrieve total vertical column abundances of the two main inorganic chlorine species, i.e. HCl and $ClONO_2$. At these latitudes and in the absence of chlorine activation, these two reservoirs account for more than 92% of the total Cl_y loading.

In this contribution, column abundance time series of HCl and $ClONO_2$ for both the Jungfraujoch (46.5˚N) and Lauder (45˚S) NDACC primary stations will be presented. Comparison of these measurements with the 3-D CTM KASIMA model predictions will be shown and discussed critically, with some focus on the time period following

the peak loading. Related trends will be determined and compared to expectations deduced from the most recent emission scenarios.