Spectronus measurements at the Cabauw tower in the Netherlands

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The spectronus(FTIR-instrument of Ecotech) was installed at the Cabauw tower in December 2014, measuring CO_2, CH_4, N_2O and CO at four measurements heights (20, 60, 120, and 200 m). The spectronus was modified to increase the performance. These modifications includes cell-temperature control and a gold-plated cell (see also oral presentation by Alex Vermeulen et al.)

In order to improve time-integration for the different measurements heights mixing volumes of 20 L were installed. Due to the large air volume used by the spectronus for the measurements the calibration scheme was modified to ensure sufficient lifetimes of the calibration flasks. The timeseries of the spectronus measurements thus far will be presented.

The CO_2 and CH_4 measurements of the spectronus are compared to those measured by the Picarro G2301. In the episode may-august 2015 the Picarro was measuring the outside concentrations of CO_2 and CH_4 directly. From August 2015 onward the Picarro is measuring from the same mixing volumes as the spectronus. The comparison both before and after the addition of the mixing volumes of quality checked data will be shown.

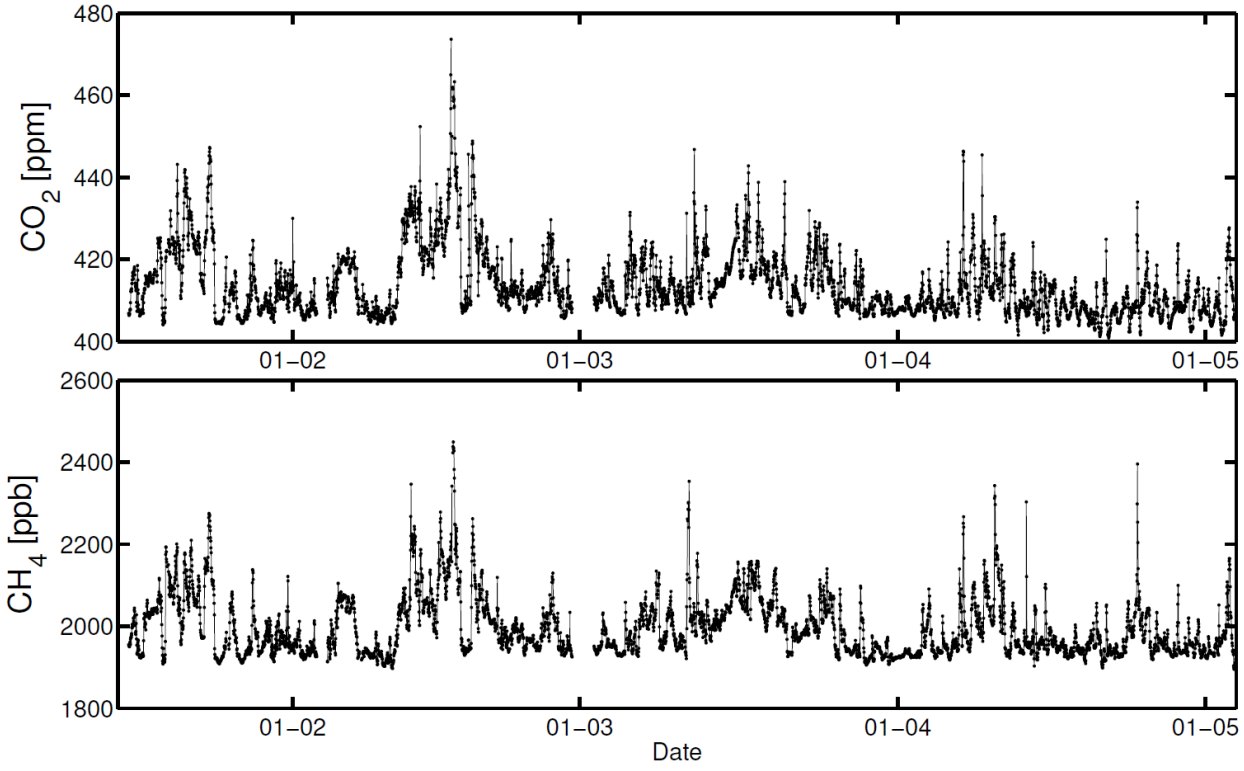

Figure 1: Time series of CO_2 (top) and CH_4 (bottom) measured at 200 m height by the spectronus at Cabauw in 2015.