

Supplement of Atmos. Meas. Tech., 9, 1907–1923, 2016
<http://www.atmos-meas-tech.net/9/1907/2016/>
doi:10.5194/amt-9-1907-2016-supplement
© Author(s) 2016. CC Attribution 3.0 License.



Supplement of

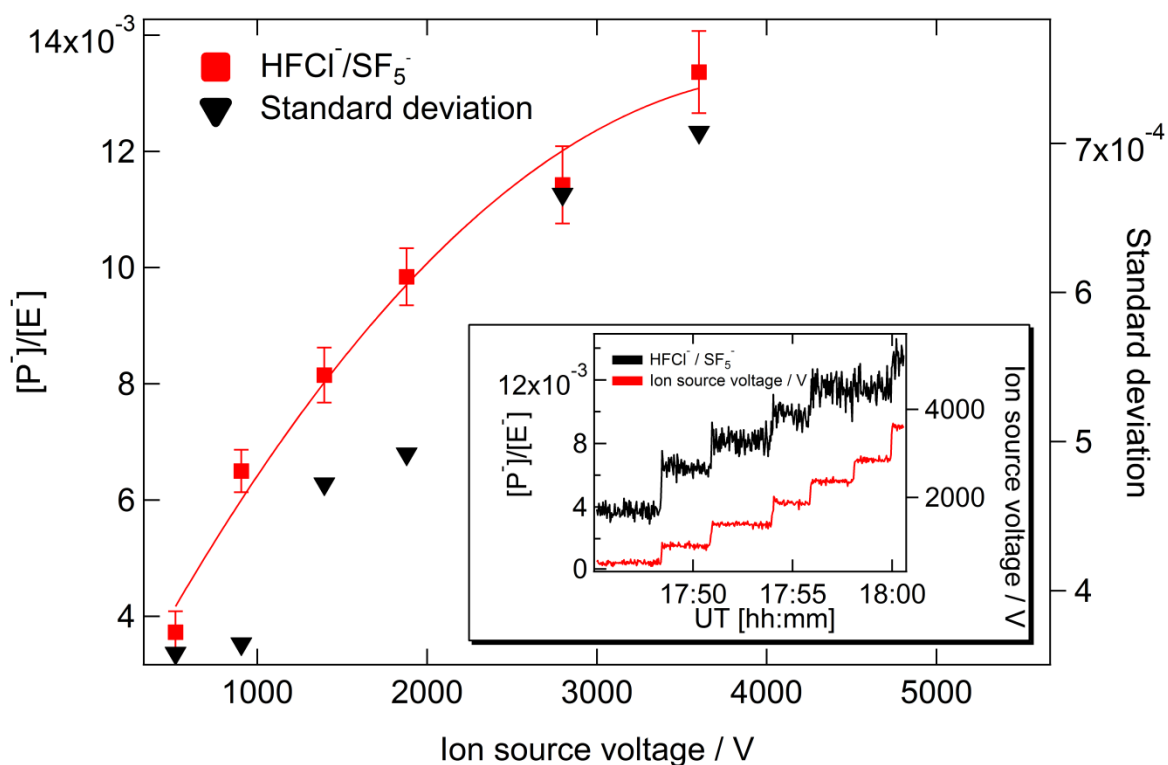
The airborne mass spectrometer AIMS – Part 2: Measurements of trace gases with stratospheric or tropospheric origin in the UTLS

Tina Jurkat et al.

Correspondence to: Tina Jurkat (tina.jurkat@dlr.de)

The copyright of individual parts of the supplement might differ from the CC-BY 3.0 licence.

2



3

4 Figure S1 The ratio of product to reagent ions $[P^-]/[E^-]$ (here $\text{HFCl}^-/\text{SF}_5^-$) during background
5 measurements is shown for different ion source voltages. The inset shows the timeline of the
6 signal, while the larger plot shows the direct correlation of the average values of $[P^-]/[E^-]$ and
7 the standard deviation of the background signal for different ion source voltages. With
8 increasing voltage both background level and standard deviation of the background increase.
9 Generally voltages between 400 and 1400V are used for the AIMS ion source.

10

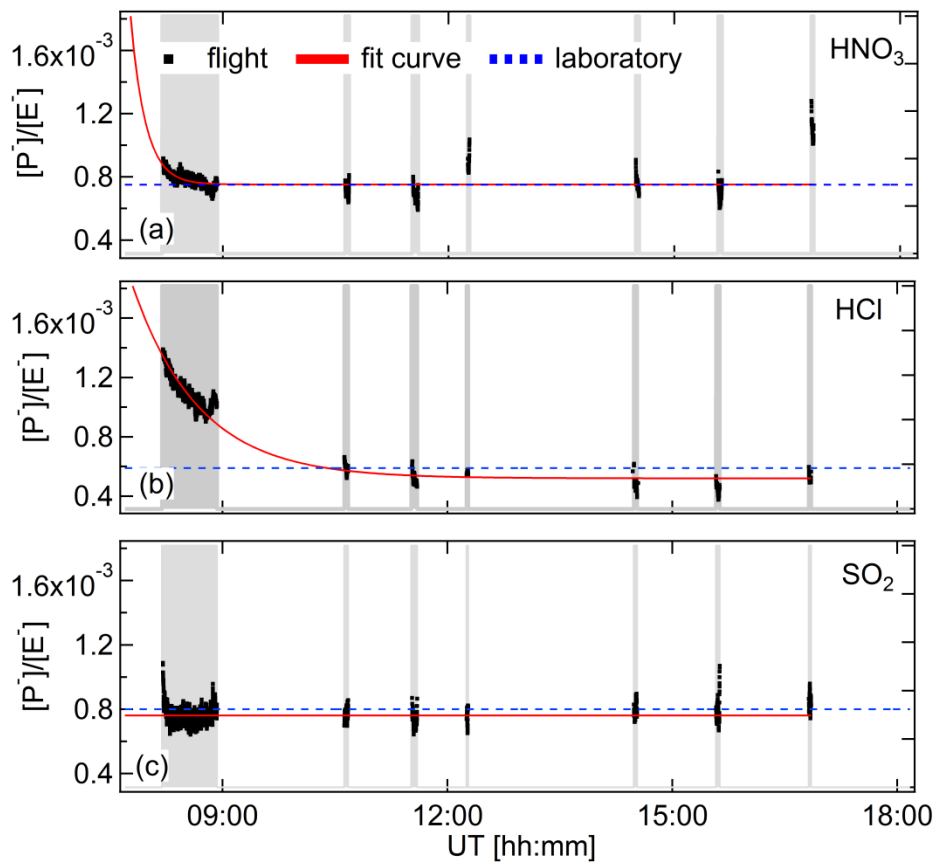
11

12

13

14

15



1

2 Figure S2 Ion ratios during background measurements for HNO₃, HCl and SO₂ during the
 3 flight on 11 September 2012 .Grey shaded are time sequences where synthetic air was
 4 introduced and a stable ion ratio was observed. The red curves represent the fit curves applied
 5 to correct for the instrumental background during atmospheric measurements. Generally
 6 during the first hour, the background follows an exponential fit. For the rest of the flight, the
 7 background can be described by a constant value. For SO₂, a constant value of 0.008 was used
 8 for the entire flight. For comparison, the ion ratio averages measured during laboratory
 9 measurements are given (blue dashed line). Generally, flight and ground based measurements
 10 agree well.

11

12

13