

Interactive comment on “Technical Note: New ground-based FTIR measurements at Ile de LaRéunion: observations, error analysis, and comparisons with independent data” by C. Senten et al.

Anonymous Referee #3

Received and published: 23 January 2008

General comments:

The authors present first FTIR measurements made at the sub-tropical southern hemispherical site La Reunion. Time series of trace gases observed by ground-based FTIR are shown and discussed. A detailed error analysis is given. In addition, measurements and error analysis have been conducted at two sites differing in altitude. Data have been compared with correlative measurements from O3 sondes, MOPITT, ACE, and HALOE.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



Up to now ground-based data from this geographical area are very sparse. Therefore these measurements made at La Reunion are important and fill in a substantial gap in existing networks.

The paper is well written.

The subject is fully appropriate for publication in ACP.

I would recommend publishing it after revision.

Specific comments:

An extended error analysis is given. Measurement errors are quite large for some species or spectra. A comment is missing why the noise error is large in case of HNO_3 . Of course, the site is quite humid. What's the typical column amount of H_2O at both sites?

Text and Tables 3 + 4 do not agree in all cases with respect to the dominating error source: For O_3 and HCl smoothing is the main error source (Tabs. 3 + 4), not measurement error as stated in the text.

What is exactly the 'random error associated with the relative difference, from the combined sonde and FTIR errors' as given in the last column of Table 5 (about 2 per cent)? If it is a combined error it should be bigger than the sonde error alone which is stated to be 5 per cent.

In terms of error the mountain site seems to be better as compared to the near sea level site. A statement comparing results and errors of both sites is missing.

Furthermore, a comparison with results from Barret et al (JGR 2002) and Schneider et al (JQSRT 2005) or Schneider and Hase (ACPD 2007 or ACP 2008) is missing.

A comment is missing why filter 4 has not been used during the first campaign. The NDACC filter set includes 6 instead of 5 optical filters.

I would suggest moving the comparison with MOPITT data to section 5 'Comparisons with correlative data'.

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)

A short discussion of the time series is included for CO only. It is missing for the other species. Are the values of the column amounts as expected for this latitudinal region?

The correlation of CO with C₂H₆ is helpful to demonstrate the consistency of the results. A correlation of HCl with HF might be useful, too.

Unfortunately, due to different weather conditions, measurements could not be made simultaneously at both sites. However, maybe measurements have been made at both sites on the same day. A correlation of these nearly coincident results from Maido and St. Denis could also be helpful to demonstrate the reliability of the results.

Technical corrections:

- P. 830, line 25: typo in various
- In order to present micro-windows and fits first I would suggest moving Fig. 4 after Figs. 5-8.
- Fig. 4 as a main result is quite small.
- Tick labels of the x-axis are missing in Figs. showing spectral fits.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 827, 2008.

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)