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Interactive comment on "2-D reconstruction of atmospheric concentration peaks from horizontal long path DOAS tomographic measurements: parametrisation and geometry within a discrete approach" *by* A. Hartl et al.

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We thank for the useful comments and would like to reply as follows:

1. p.11785, line 21: This sentence is indeed somewhat misleading and will be changed to the following: "Three telescopes emitting four beams were used to cover a horizontal area of 15x10 m2 regularly by three 90°-beam fans sitting in the corners of the area with 39 light paths in total (3x12 light paths plus one additional per telescope for instrumental reasons that are irrelevant for atmospheric measurements. Effectively, this geometry corresponds to the one of Fig. 1c with 36 light paths)."

The reason for the additional light paths being that in the facility hall the parallel, simultaneous light paths leaving the instrument have to pass a couple of meters before they can be seperated and reflected by mirrors into different directions. The common path from the telescope to the mirrors is 'subtracted' by adding an individual beam for this path. For details, we refer in our paper to [Mettendorf,K. U., Hartl, A., and Pundt, I., An indoor test campaign of the tomography long path differential optical absorption spectroscopy technique, J. Environ. Monit., 8, 1-9, 2006].

2. We checked both the geometries used in the calculations and shown in figure 1. They all consist of 36 light paths.

3. The light paths are measured simultaneously using a single telescope/detector system, but lamp reference spectra are taken for each beam individually during the measurement and used later in the DOAS analysis to account for the pixel-to-pixel variability across the CCD. In the same way an individual slit function of the spectrometer is used for each beam to account for the different line shapes. We do not adress these experimental aspects in our paper but refer in it to [Pundt, I, and K.U. Mettendorf, Multibeam long-path differential optical absorption spectroscopy instrument: a device for simultaneous measurements along multiple light paths, Appl. Opt., 44, 23, 4985-4994, 2005] and again [Mettendorf et al., 2006] where the instrument and the experiment above (1.) are discussed in full detail.

4. The typos will be corrected.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 11781, 2005.