

Interactive comment on “A UT/LS ozone climatology of the nineteen seventies deduced from the GASP aircraft measurement program” by C. Schnadt Poberaj et al.

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The authors of the manuscript make among others a comparison of ozone sonde profiles in the UTLS with the GASP measurements. They comment on the use of the correction factors for ozone sondes and conclude that maybe the correction factor for the ozone profiles at Uccle (included in the particular homogenisation procedure for that station) is too low in the UTLS region. Some comments on the whole correction procedure may be adequate here, as there are many, sometimes partly compensating, errors in the ozone profiles derived from soundings. As discussed earlier in their manuscript and shown in their figure 8 an altitude shift has been introduced in the

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ozone profiles to compensate for the response time of the sensors (which becomes apparent through the large ozone gradient just above the tropopause). Although considerations of the ascent speed and response time lead to an estimated correction of 250 m, a uniform correction of 150 m was applied to all three European stations. However, one of the elements in the homogenisation of the time series at Uccle (see De Backer, 1999, <ftp://ftp.kmi.be/dist/meteo/hugo/publ/1999/o3prof.pdf>) shows that for the considered period an altitude correction of approx 100 m was applied to correct for a time lag in the pressure sensing system. This could explain why in Fig 8 the best correspondence with the GASP set at Uccle is found for a shift of 250 m, while for the other stations it is for 150 m. If a deconvolution technique (De Muer, D. and H. Malcorps, The frequency response of an electrochemical ozone sonde and its application to the deconvolution of ozone profiles, *J. Geophys. Res.*, 89,1361-1372, 1984) should be applied to correct for the response time of the O₃ cell no altitude shift would be necessary. Since the deconvolution might lead to a noisy signal, it could be simplified by using a shift of 250 m. I therefore advise to use a different altitude shift for the Uccle time series than for MOHp and Payerne.

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