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Earth System Science Data Discussions

Interactive comment on "Compilation of ozonesonde profiles from the Antarctic Georg-Forster-Station from 1985 to 1992" *by* G. König-Langlo and H. Gernandt

Anonymous Referee #3

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The paper is very brief with a rudimentary introduction and overview of the measurements. This is fine since the measurement techniques are well understood. The focus is on ozonesonde data from 1985-1992 at Georg-Forster, which taken by themselves do not constitute a basis for significant findings nor are any claimed. Enough detail is provided that the data can be used and access is simple. The title adequately summarizes the contribution.

Specific comments:

I do not understand the usefulness of the section on related datasets. There are many related ozonesonde data sets in Antarctica, e.g. measurements from Davis, McMurdo,

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Belgrano, Syowa, South pole, Halley, Rothera, Neumayer. Here a subset of these are mentioned with the only criteria appearing to be that the authors of this study, and their colleagues, combined data from those data bases with the Georg-Forster data at some time in the past to write a paper. This is hardly an appropriate criteria. The only really related dataset is that from Neumayer, which is relatively close and is the location for the resources used to extend the German measurements after 1992. The Neumayer data are presented in Figure 3 and are referred to page 7 lines 8-10, as constituting one continuous data set. Also see comments below on Figures 2 and 3 which raise the question as to why the Neumayer data are not available in this publication?

There are many more references included than referred to in the text. The reason for including all these references is not clear, but I suppose that they constitute a list of all references which have made use of the Georg-Forster data. If that is the case then such a statement needs to be included.

Proper credit is not given to previous and related literature when making the following two statements, using page.line-numbers to mark location.

2.6-8: In 1985 these ozone soundings have been the only record showing the change of vertical ozone distribution in the southern polar stratosphere in September and October.

5.15-18: In 1985 these ozone soundings have been the only record showing the change of vertical ozone distribution in the southern polar stratosphere in September and October.

While these statements concerning the uniqueness of these ozone profile measurements in September and October in 1985 are strictly true, they are a little misleading. There have been ozonesonde measurements at Syowa station (69žS) from 1966 to the present, although there were no measurements in 1985 (Chubachi, 1984; Solomon et al., 2005). It would be fairer to state that the Georg-Forster-Station ozone profile measurements began the year the ozone hole was discovered and contribute to other

ESSDD
1, S4–S7, 2008

measurements made prior to and following 1985 at other stations.

Table 1. I do not understand the numbers in this table. The text indicates that measurements were made approximately once per week and more frequently in September and October, yet here there are only shown 10 or fewer soundings per year.

Figure 1 is not necessary just showing one location on a plane geographic projection which highly distorts the world map. A smaller map showing the relationship between Georg-Forster-Station and Neumayer could be useful, but only if the Neumayer data were included.

Why is not Figure 2 extended to 2007 as Figure 3? The authors really should decide if they are going to limit themselves to Georg-Forster-Station or also include Neumayer. Here and in Figure 3 they are trying to have it both ways.

The following changes will help the English

2.4-5: The following weekly ozone soundings mark the beginning of a continuous investigation of the vertical ozone distribution in the southern hemisphere by Germany.

4.11 plus an estimated

5.5-7 The station became known to the international scientific community when the vertical extent of the “ozone hole“ in the southern polar stratosphere was firstly

Fig. 3. Time series of seasonal averaged ozone partial pressure (mPa) (red) and temperature (_C) (blue) from Georg-Forster-Station and Neumayer-Station at 70 hPa.

Chubachi, S. (1984), Preliminary result of ozone observations at Syowa Station from February, 1982 to January, 1983, Mem. Natl. Inst. Polar Res. Jpn., Spec. Issue, 34, 13–20.

Solomon, S., R. W. Portmann, T. Sasaki, D. J. Hofmann, and D. W. J. Thompson (2005), Four decades of ozonesonde measurements over Antarctica, J. Geophys. Res., 110,

ESSDD

1, S4–S7, 2008

D21311, doi:10.1029/2005JD005917.

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