

Interactive comment on “Atmospheric data set from the Geodetic Observatory Wettzell during the CONT-17 VLBI campaign” by Thomas Klügel et al.

Thomas Klügel et al.

thomas.kluegel@bkg.bund.de

Received and published: 9 January 2019

The authors highly appreciate the comments of the referees. They were very helpful to improve the manuscript.

Reply to general comments:

It is generally a good idea to publish atmospheric data sets from other stations having participated in the CONT 17 experiment. Basic information like air pressure, temperature or humidity is contained in the VLBI data files. Additional atmospheric information is usually not provided. The main goal of this paper is to provide an outstanding atmospheric data set including vertical information and model data to have an optimal basis to compare different techniques and to establish a consistent common atmosphere

C1

being valid for all geodetic space techniques operated in Wettzell. For that reason atmospheric data from other stations were not included.

If stored on the same server, data sets from other stations could be linked to the same campaign ("CONT-17") as a different station/event.

During the former CONT experiments, only the standard meteorological ground observations plus WVR data were acquired in Wettzell. Indeed, such a data set would be more complete, however, due to the lack of auxiliary data like radiosonde ascents, the meteorological data sets from former experiments do not contain substantial new information. It could be beneficial to provide similar extensive meteorological data sets for future CONT campaigns, also from other VLBI stations. The authors explicitly support this idea.

Reply to specific comments:

In the context of ZTD determination, the inclusion of GNSS and VLBI analysis data is of high interest. However, since the goal is to provide a sound data base mainly for VLBI analysts, the presentation and description of analysis results and procedures would break the scope of this paper. The presentation of GNSS tropospheric delays is only for the purpose of comparison. As a continuously generated routine product, the analysis procedure for the GNSS ZTD estimation has not been described here.

Table 1 has been changed according to the reviewer's suggestions. The accuracy is a manufacturer information and can't be specified more in detail. The same is true for the given accuracy of the brightness temperature of the WVR.

The good correlation between radiosonde and model data (page 9) is underlined by explicitly mentioning the mean correlation coefficient.

The 2 outliers in fig. 9 are caused by a previous rain event. The text and fig. 9 were adopted accordingly.

Regarding the use of retrieval coefficients from Munich, we actually intended to derive

C2

own retrieval coefficients being valid for the Wettzell site. However, the WVR manufacturer stated that a reliable determination of retrieval coefficients requires continuous radiosonde data over at least 1 year, which were not available at our site. So we chose to use a coefficient set from a neighboring site.

The parameter Tk_BB (blackbody temperature) is now explained in the text.

Regarding the uncertainties of the inferred WVR-parameters, the following sentence has been added on page 14: "Thus the total accuracy of the estimated water vapour and liquid water content, where uncertainties from the brightness temperature measurement and retrieval coefficients sum up, can't be specified."

Technical corrections:

All corrections mentioned by the referee were applied.

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2018-135>, 2018.