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Discussions

Interactive comment on "Processing of water level derived from water pressure data at the Time Series Station Spiekeroog" *by* L. Holinde et al.

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Review: "general comments" The idea of the paper is interesting, the text is clear and well written but the level of analysis and information provided by the authors needed to be largely improved to make this time serie more useful for the scientific community. It seems from my understanding that the authors are not used with the "classical" sea level time serie analysis generally used to retrieve physical parameters (for example : tidal harmonical analysis). I suppose that it came from the background of the authors (?) and the basic purpose of the TSS Spiekeroog. Although nothing is new in the data nor the methods, but due to the importance of the time serie and due to the effort it should have been to maintain the TSS station in these condition I really encourage the authors to improve the paper and give more information that describe the dataset and

its limitation. Basically I would say to limit the analysis of the data and to extend the metadata information to let potential futur users to do their own analysis.

Reply: Thank you very much for your helpful comments and feedback. Especially the comments concerning the metadata are very helpful for improving the paper and make the data more accessible.

Review: There is in my opinion not enough information given in the paper on the settling of the TSS station and the description of the instruments. As it is a data paper, it should be exhaustive about the way the data were collected. The authors should give technical information on the instrumentation : type en sensor, brand, how this sensor were calibrated, raw sampling, integration time of the sensor, is it the same sensor all along the period ? is there a permutation between different pressure gauge ? how this particular station is insert in the national network ? is there more water level gauge around ? what is the particularity of these one ? ... I think you have done a good job by settling and maintaining this station so please tell us the full story.

Reply: Thank you for your remark concerning meta-data of the pressure sensor and measurement station most of the information are available in Reuter et al. (2009). But we will include the missing meta-data in the paper. We will especially focus on adding information for the pressure measurements and the used sensors. But we will also add more information about the time series station. Another measurement station is nearby but the data are currently not accessible.

Review: 1) The trend : as mentioned by the authors by removing a linear trend you cannot use this dataset for sea level trend estimation and secondly you probably remove some real signal. I then suggest not to detrend the data (or just for the temporary purpose of identifying outliers) but just to try to characterize them by comparing the daily or weekly mean (or after a running-mean filter) with neighbouring station to see if the observed trend is due to a local/regional sea level variability or to a drift in the pressure sensor. Then providing a simple table with date of maintenance, estimated

trend during the inter-maintenance period and the possible explanation of the observed trend (drift, fouling, sea level variability, ...) will really add value to the dataset.

Reply: As mentioned in the paper the trend of the time series is contrary to the trend observed by other publications. Nevertheless, we will perform a comparison with water level data from Neuharlingersiel to detect differences and similarities in the trend. In addition, we will add the dates and time of maintenance to the paper for other users to estimate the trend in combination with the raw data available in the published PANGAEA data set. To get an outlier removed data set, it is possible to compare the first two data columns of the published data. Data available in the first column but not in the second indicate outliers that were removed during the second processing step.

Review: 2) Removal outliers : ok

Reply: Thank you.

Review: 3-4) Calculation of supporting point and interpolation : Why do you need to fill the gap if you have less than 5

Reply: We want to provide the user with an easy to analyse data set. This often implies a data set without gaps. The data without gaps are used to validate model results in other projects of our institute But our published data set on PANGAEA contains both the data with and without gaps. So each user can select which he wants to use.

Review: 5) Fast Fourier Transform is not a quality control in itself. And I don't understand why you have such difference in Figure 6 between the original and processed data. If you want to give information about the tide do perform a real tidal analysis with a dedicated software (t-tide, task, ...)

Reply: You are right that a Fast Fourier Transformation (FFT) is not quality control but it is an easy tool to show the most pronounced frequencies of the time series. Using t-tide or other harmonic analysis would yield more information about the input frequencies. But the scope of this paper was not to fully analyze the time series and restricted our

data interpretation to a FFT.