Response to comments by Reviewer #1

We thank referee #1 for his helpful comments to the manuscript and suggestion for our software. Our responses are listed after referee #1's comments shown in italic.

PDV is an extremely useful software tool and provides multi-functionality for the collection, visualization and more of marine proxy data. PDV combines functionality of radiocarbon calibration (calib), tools like AnalySeries and age depth modeling (Bacon) under one hood. The interactivity and user-friendly operation are impressive. Additionally netCDF is used as a common standard file format to increase the re-usability and collaboration. Thus, PDV gives a significant added value for the analysis of proxy data compared to the hitherto used approaches.The paper is well written and structured and clearly elucidates what PDV is, what it can do and for whom it is developed. It is open source, can be operated on Windows and Mac and additionally a detailed user guide exists.

I definitely recommend the publication of the paper in CP to reach a wide audience of potential users.

I have some general comments, not meant as critics, but rather as a kind of wishlist or stimulations for future versions or activities:

1) The Bacon age model is included, which is nice. Although, it is one of the today's mostly used Bayesian age models, classical age models are still valuable and used. Thus the incorporation of more age depth models would be useful.

We completely agree that the inclusion of other age modelling techniques would be very useful. We are currently planning to integrate a faster method comparable to those provided in Blaauw (2010) or Shakun et al. (2012). We will add this information to the outlook section of the manuscript.

2) A Linux version would be very appreciated, especially because it is possible with C++ and Qt.

We agree that a Linux version would in principle be desirable and possible, but see technical problems with respect to the implementation of some of the required third-party software and libraries. For example, PDV uses Excel files for data import, but Excel cannot be easily used on a Linux system. The compilation of PDV for Windows and macOS can be achieved with minimal code adaptations and at reasonable work load. A Linux version, however, would likely require some changes of the program structure and would hence delay other work, i.e. the further debugging and improvement of the functionality of PDV. Currently, PDV updates are approximately provided at intervals of 2-3 months. We can envision the creation of a Linux version as soon as the update intervals are significantly longer and the proposed additional functionalities have been implemented. We will clarify the technical issues with a Linux version in section 2.1 of the manuscript.

3) NetCDF is perfect as a data exchange format for collaborative work. However today collaborative work has reached a higher dimension with e.g. GoogleDocs or JupyterNotebooks for online collaborative working in real time. Are there any plans for an online version of PDV for collaborative working?

We see PDV mainly as a stand-alone tool for the maintenance of individual data bases. For collaborative projects, data files generated with PDV can be easily exchanged among PDV users (i.e. via e-mail), but since scientists are often careful with their unpublished data, we currently avoid any direct web communication via PDV. Furthermore, we feel unable to provide technical infrastructure, i.e. servers, system administration etc. We also see PDV's potential for collaborative work and will further explore whether it is technically feasible to invoke secure file sharing services, where the PDV data folders can be actively shared and jointly modified and controlled within defined research groups.

4) Furthermore, JuypterNotebooks can be shared and provide the full environment with all settings, code, docs, images etc. What about PDV, ok I can share the netCDF file, but is it possible to share the state of PDV, which includes the look of the GUI, the zoom factors and everything to continue the work of my colleague.

JuypterNotebooks are without doubt a considerable advancement for collaborative work and code documentation for many applications in paleoclimatology. However, the interactive functionalities and visualizations provided by PDV require a programming language that produces fast executable code, which is why we decided to use C++ with the Qt environment. To our knowledge C++ code using the Qt library cannot be executed within JuypterNotebooks because QObjects are currently not supported. However, PDV settings, like the fonts used in the graphics etc., are stored in a file that can in principle be shared. We will clarify in the user manual how the settings can be preserved/shared.

5) Programs like ODV provide the history of all actions applied to the data, which is e.g. important for quality control (flagging). Does PDV provide the history of the dataset, e.g. which QC flags have been changed etc.

In PDV, the downcore raw proxy data are always preserved as imported, and derived/corrected data are stored individually. Meta data and age data can be changed within and there is indeed yet no automatic log of the changes applied to those data types. The user has, however, the opportunity to document any changes applied to the data in form of comments. This can be done in form of general comments in the meta data or as comments to individual core depths. We agree that the preservation of the history of the changes applied to the data can be important and will check whether an automatic log of the applied changes is technically feasible.

6) The "Motivation" states that spatio-temporal analyses are of interest. Is it planned to implement a functionality that creates spatially interpolated age slices?

Indeed, we plan to implement spatial interpolation techniques in order to allow a budgeting or the creation of volume/area weighted averages of specific parameters. We will add this information to the outlook section of the manuscript.

Specific comments:

1. I would suggest to shift the sentence on „Code availability" (page 5, line 30) directly to the end of the abstract. Interested users can then immediately download the software. Additionally, the information on the existing user guide is extremely helpful.

We agree and will move the information on the availability of code and user guide to the end of the abstract.

Technical corrections:

1. Use consistently dataset or data set and database or data base

We agree and will revise the text accordingly.

References

Blaauw, M.: Methods and code for 'classical' age-modelling of radiocarbon sequences, Quat. Geochronol., 5, 512-518, 10.1016/j.quageo.2010.01.002, 2010.

Shakun, J. D., Clark, P. U., He, F., Marcott, S. A., Mix, A. C., Liu, Z. Y., Otto-Bliesner, B., Schmittner, A., and Bard, E.: Global warming preceded by increasing carbon dioxide concentrations during the last deglaciation, Nature, 484, 49-54, 10.1038/nature10915, 2012.