

Interactive comment on “A calibrated radiocarbon database of late Quaternary volcanic eruptions” by R. U. Bryson et al.

G. Zielinski (Referee)

gzielinski@maine.edu

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This paper provides a revised and calibrated global volcanic database of supposedly over 2000 14C-dated eruptions from the Late Quaternary. The goal is apparently to make this database available to all researchers with interest in volcanic eruptions and especially those who are interested in the volcanism-climate system. My first impression of the paper is the extreme carelessness that seems to have taken place in putting the paper together. For instance, there are incorrect and incomplete references, such as Zielinski and Mershon, 1997, a paper that had nothing to do with the volcanic record in the GISP2 ice core nor to increased volcanism from isostatic rebound with ablation of ice masses. That particular paper looked at microparticle trends. Later in the paper they cite this same reference as providing SO₂ information from the GRIP core and

relating those data to deglaciation and volcanism (again, the paper used the GISP2 ice core microparticle dust record to look at overall climatic and environmental change during the last transition). They also misspelled Zielinski in their last reference and within the text. The reference to the work of Goodman (theses) for optical depth measurements is not appropriate given the abundant peer-reviewed published work of individuals like Strothers and Sato. Sato et al. is listed in the references, but not when the brief discussion about optical depths is presented. The work of Strothers and Sato need to be cited appropriately if this paper wants to address that aspect of the volcanic record they produced. The use of volcanism in Holocene climate models noted in the text also is lacking references, such as Crowley's work. Another error in the text is the authors note about SO2 records produced from ice cores, when, in fact, ice core volcanic records are derived from either SO4 concentrations or total acidity not SO2. In addition, the authors also mention that the CalPal program used in this compilation allows interactive plotting with ice-core records such as those available in the GRIP, NGRIP and Vostok cores. There are many other ice core records that contain volcanic records. If the authors were using these three cores as an example then they should have stated that. However, given the other errors I am left wondering if they are aware of the abundant ice-core volcanic records that are available. Another example of the overall poor editing and checking by the authors comes from Figure 2. It states that recent climatic periods like the Little Ice Age and the Medieval Warm Period are noted on the figure, but they are not. Overall, the literature review and citations in this text are very poor, and as result, at least in my mind, it puts the overall reliability and accuracy of the chronology developed into question. As for the database itself, I find the accompanying Excel file to be very poorly put together. The authors have listed the various eruptions calibrated by location following one of the methods of eruption chronology done in Simkin and Siebert's compilations. That is ok in the Simkin and Siebert's books, because they also have tables listed with eruptions in time sequence. In the database for this paper, there is only the listing of eruptions by region. It would be much more beneficial to have the eruptions listed by time or probably by both loca-

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tion and time. One can also question the use of BC and AD for ages. Common Era (CE) and pre-CE are used for calendrical ages these days, so that may be a better way to state those calibrated ages. In summary, the idea of compiling a new calibrated radiocarbon volcanic record could be helpful to many individuals. However, I do not see the database as being reliable nor do I trust the results given the method in which this database is put together and especially the many glaring errors in citations and other aspects of the text for the project.

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