

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

R. U. Bryson et al.

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We thank the reviews for many insightful comments and have chosen to respond to a few.

Dr. Zielinski was particularly astute in noting the irrelevance of his 1997 article in this context. We clearly cited it in error, confusing it with another of his articles. Some of his other objections are puzzling. We invited Dr. Zielinski to comment on the initial draft of the paper and have followed his suggestions, correcting the errors he drew to our attention at that time. For example, the careful reader will note that at no point in the published document is his name misspelled as he claims. Periods of important climate change in the Holocene are clearly labeled in figure 2, and the database provided with the published article can be easily sorted by latitude, longitude, radiocarbon age, or calibrated age range. We follow standard geological protocol with our designation

“Calibrated Years BP” in the database, and see little utility in referencing the birth of Christ or even less the so called “Common Era” (BCE/CE) as he suggests.

We feel that the database is now clear and user-friendly, having benefited from revisions made to accommodate questions and suggestions from both Drs. Zielinski and Pyle on the initial draft submission. Furthermore, the article is clearly not an exhaustive review of research on the record of paleovolcanism in the cryosphere, nor was it intended to be. It did attempt to argue very briefly for the need to develop alternative proxies for paleovolcanism using the geological record as well as ice cores. This is apparently a more unpopular suggestion than we anticipated.

Dr. David Pyle’s comments were more constructive as well as pertinent to the published document and database. We essentially agree with his “health warning” and admit that recent material has not been incorporated. In fact the project to compile this data ended nearly a decade ago. We have recently calibrated the database, and we felt that instead of simply posting it on our site, we should attempt to alert interested researchers with a brief article. COSIS provided an ideal forum to present and disseminate the data. This might have been done earlier when the end-point of the database was more current, but we hope it is better that we make it available now than never. Dr. Pyle complains that we provide no simple designator in the database to distinguish systematically between the dated events in terms of eruption scale. While this level of description is often available for historic eruptions, it is highly variable for prehistoric ones; the eruptive scale and spatial extent of the ejecta spread cannot be determined with confidence for most cases. We note in the article that the correspondence between the extent of silica ejecta and sulfuric acid is also weak. However we do provide notes and complete references so the user could attempt to determine the type and extent of the eruptions themselves to suit their own needs using the original reports.

Lastly, we remind the readers that our goal was to make this small contribution available to other researchers who could then augment or glean the database as they saw fit so that it could actually begin to serve as a small step forward in what we agree is

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“an important endeavor”. We also wished to stimulate a discussion on the role of paleovolcanism in the climate modeling community, where we feel this potential source of high frequency variation has been underestimated. It is clearly far short of what we actually need to address the questions we have on all of these levels, but we are unaware of a larger, more complete index that is publicly accessible. We hope some readers find it useful.

Interactive comment on eEarth Discuss., 1, 123, 2006.

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