

Reply to: Plates, Plumes, and Planetary Processes (P^4) by AC Kerr

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Plates, Plumes, and Planetary Processes (P^4), a compendium of 45 chapters and associated discussions, covers diverse aspects of the debate regarding the existence of mantle plumes. As we state in the preface, “the idea for the ... book ... was conceived” at the Chapman conference *The Great Plume Debate*, held in Ft. William in 2005. A large number of Ft. William conference attendees, and others, volunteered to write papers on the debate and P^4 was the result.

We wish to correct some of the misstatements in the review of P^4 by Kerr (2008). The papers about evenly divide between plume-advocate, neutral, and plume-skeptic. Authors include, for example, Jason Morgan, Jason Phipps Morgan, Norman Sleep, David Yuen, Peter Hooper, Peter Vogt, Thorne Lay, Gabriele Laske, Godfrey Fitton, Carol Stein, Ian Norton, Don Anderson, James Natland, Alan Smith, Alexei Ivanov, Hetu Sheth, and Warren Hamilton. Plume advocates contributed chapters concerning the possible nature, composition, origin, dynamics, and numbers of mantle plumes. Neutral authors focused on relevant observational techniques and results, and plume-skeptics wrote about non-thermal alternatives for volcanism. The contents of P^4 represent well the spread of opinion both at the Ft. William conference and within the subject. Of the editors, one is plume-skeptic (Foulger) and the other plume-advocate (Jurdy).

Every chapter was rigorously reviewed by scientists who held opinions contrary to those of the chapter author(s). This led to pain and gain throughout the revision process. Perhaps unusually, papers were not rejected because one or more reviewers disagreed with the ideas expressed. Four submitted papers were rejected as lacking sufficient quality for inclusion, and two were voluntarily withdrawn by the authors on the grounds that they could not address the reviewers concerns in time.

The editorial philosophy that guided P^4 was that while we strove to eliminate factual and scientific errors, we leave it to the reader to decide whether s/he is persuaded or not by the interpretations presented in any one chapter. In a debate of this kind any other approach would amount to censorship. P^4 presents the work of the contributors. It does not claim to deliver the truth in every chapter. Indeed, this would be impossible as many chapters advocate views diametrically opposite to those expressed in other chapters!

P^4 was not presented as a record of the Ft. William conference. Because it was an American Geophysical Union (AGU) Chapman conference, the rights to any proceedings rest with the AGU. No proceedings were published. Both P^4 and the Chemical Geology volume edited and promoted by Kerr (*The Great Plume Debate: Testing the Plume Theory*, Ian H. Campbell and Andrew C. Kerr (eds), Chemical Geology, 241, 149–374, 2007) contain papers authored solely by scientists who did not attend the Ft. William conference. Thus, neither volume can be claimed to be a record of the conference. That said, Kerr himself was not at the Ft. William conference. He thus has no first-hand knowledge of what went on there and is not in a position to judge whether or not either book reflects that conference.

The editors of P^4 did not “renege” on any agreement to co-edit the Chemical Geology volume. The lead editor of

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that volume (Campbell) dropped Foulger from the editorship at an early date, informing her that he had replaced her with Kerr. Jurdy was never involved in that book. The Chemical Geology volume was advertised as being invitation-only. It comprises 10 plume-advocate chapters and one plume-skeptic chapter.

The Chemical Geology volume could not have been mentioned in *P⁴* because the latter was typeset before the Chemical Geology issue was published and its contents made public. The Chemical Geology book is a useful additional source of information and opinion. We hope that scholars will study it as well as both *P⁴* and the sister volume *P³* (*Plates, Plumes, and Paradigms*, Geological Society of America Special Paper 388, 2005), of which only a few copies remain unsold.

Kerr criticises the length of *P⁴*. It was never intended to be a quick and superficial read. It is a full reference volume that documents the current state of thinking on this emerging subject. It is disappointing that in his review Kerr does not make any substantive comments on its scientific contents.

We revived the old tradition of Royal Society Special Meetings Monographs of publishing discussions with the papers. Internet technology enabled us to widen the debate beyond people gathered in a single room to the worldwide scientific community. The traditional peer-reviewed publication process is poorly designed to facilitate the expression of minority views and of challenges to reigning paradigms. The debates that follow many of the papers are published to let everyone have their say. Contributions

were edited for form but were not externally peer-reviewed.

The discussion blocks stand as uncensored records of what individuals thought when they wrote their comments. Kerr opines that the discussions should have been fewer, shorter, and controlled by external peer review if permitted at all. This would have defeated the whole purpose of a free debate and been unworkable because of the time delays introduced. In the event, the uptake of discussion opportunity was truly outstanding from both sides of the debate, and those who participated in them or followed them as they grew on the webpage found them exhilarating and enlightening. They impart a true sense of debate to *P⁴*. Let interested persons read them and judge for themselves whether or not the exercise was worthwhile.

We collected donations to purchase copies of *P⁴* for needy scientists, particularly those in developing countries. Through the generosity of donors and the GSA, which contributed matching copies of *P³*, 22 books have been donated to scientists in 12 countries (http://www.mantleplumes.org/P%5E4/P%5E4_Donations.html). The success of this ongoing effort is particularly pleasing; we strongly encourage other book editors to launch similar initiatives.

Reference

- Kerr AC (2008) Gillian R. Foulger, Donna M. Jurdy (eds): *Plates, plumes and planetary processes*. Mar Geophys Res. doi: [10.1007/s11001-008-9047-8](https://doi.org/10.1007/s11001-008-9047-8)