Comments on "a bibliometric study of earthquake research: 1900–2010"

Yuh-Shan Ho

In bibliometric research, the tool chosen for data extraction is of critical importance. With an inappropriate tool database analysis may lead to inaccurate results and wrong conclusions. The paper titled "a bibliometric study of earthquake research: 1990–2010" by Liu et al. (2012) may have committed such an error. It will be argued that the filter chosen to delimit the data is inadequate and generates misleading results. The authors performed bibliographic searches using the following search words: "earthquake", "seismology", "seismic", and "quake", and located publications that contained these search words in their titles, abstracts, or keywords. The authors identified "nineteen document types were found among the total 84,051 publications, and the most frequent document type was peer-reviewed journal articles (67,932), which accounted for 81.0 % of the total publications". A check on the extraction (updated 17 October 2012) using the same search method generated 89,962 publications and 71,986 articles in the same period 1900–2010. Seven percent and 6.0 % different could be found for total publications and articles respectively. The analyses and results present in Liu et al. (2012) were based on a underestimated method with mistakes, and thus may have presented misleading results. The authors claim that "Along with the common explanations such as technological development and social awareness of hazards, we conjectured that this increasing number of publications on earthquakes co-occurred with earthquake disasters. For example, we observed a significant leap in the number of published articles in the US around 1990 after the Loma Prieta earthquake in 1989." In total, 828, 1,632, and 1,594 articles were found from SCI-Expended and SSCI databases in 1990, 1991, and 1992 respectively. This overlooks the fact since 1991, abstract information has been included in it the SCI database (Ho et al. 2010). In 1990, only 20 % articles had abstract information in Web of Science. However, since 1991 more than 90 % of articles include abstract information. Queries for the search words within the article title generated 726 (88 %), 732 (45 %), and 683 (43 %) articles in 1990, 1991, and 1992 respectively. The change between 1990 and 1991 is an artifact that arises from a policy change by the Web of Science with respect to abstract information.

Y.-S. Ho (✉)
Trend Research Centre, Asia University, No. 500, Lioufeng Road, Wufeng,
Taichung County 41354, Taiwan
e-mail: ysho@asia.edu.tw

Articles specifically related to "Loma Prieta" were few in number 34 (4.1 %), 54 (3.3 %), and 38 (2.4 %) in 1990, 1991, and 1992 respectively so that the Loma Prieta earthquake was not the reason for the significant leap in the number of published articles (Table 1). Figure 1 shows world earthquake publications in SCI-Expended and SSCI. It is thus clear that analysis of publications before 1991 is not appropriate for investigating publication trends. I notice that "the authors are thankful to Prof. Yuh-Shan Ho (Peking University, China) for his pioneering work in the bibliometric methods that were employed in this study." in their acknowledgments. Unfortunately I had no sight of their article before its submission and thus decline their acknowledgement. Valid bibliometric research can only be conducted if one understands the limitation of bibliometric databases. In the case of Liu et al. (2012), one sees the impact on results when using an inappropriate search filter. This limitation confers a special responsibility on the owners of the databases to communicate any significant policy changes to their (paying) user communities.

Table 1 Comparison of publications in 1990, 1991, and 1992

Years	SCI & SSCI	TA	%TA	AB	%AB	TI	%TI	LP	%LP
1990	510,276	828	0.16	165	20	726	88	34	4.1
1991	524,618	1,632	0.31	1,490	91	732	45	54	3.3
1992	530,718	1,594	0.30	1,490	93	683	43	38	2.4

SCI & SSCI total number of articles in SCI & SSCI databases, *TA* total number of earthquake related articles, *%TA* percentage of TA in SCI & SSCI, *AB* total number of earthquake related articles with abstract information in Web of Science, *%AB* percentage of AB in TA, *TI* total number of earthquake related articles searched by article title only, *%TI* percentage of TI in TA, *LP* total number of earthquake related articles with "Loma Prieta", *%LP* percentage of LP in TA
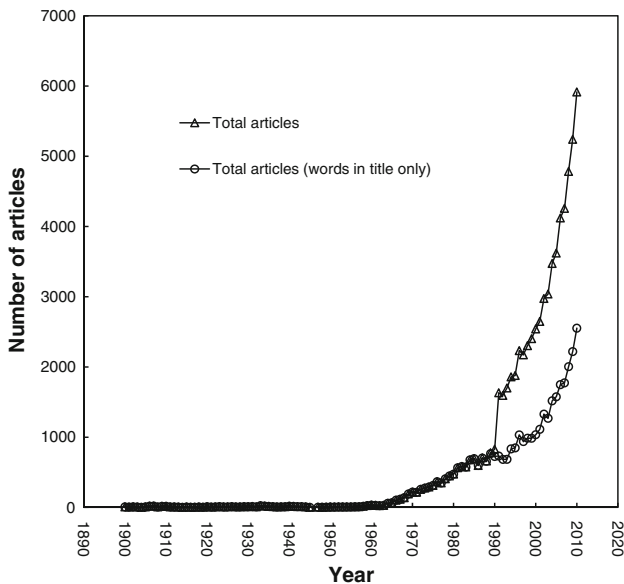

Fig. 1 World earthquake publication trend in SCI-Expended and SSCI

References

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