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A perspective on problems and prospects for academic publishing in Geography

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This commentary highlights problems of inequity in academic publishing in geography that arise from the increasing use of metrics as a measure of research quality. In so doing, we examine patterns in the ranking of geographical journals in the major global databases (e.g. Web of Science, Scopus) and compare these with a more inclusive database developed by the International Geographical Union. The shortcomings of ranking systems are examined and are shown to include, *inter alia*, linguistic bias, the lack of representation of books and chapters in books, the geographical unevenness of accredited journals, problems of multi-authorship, the mismatch between ranking and social usefulness and alternative or critical thinking, as well as differences between physical and human geography. The hegemony of the global commercial publishing houses emerges as problematic for geography in particular. It is argued that the global community of geographers should continue to challenge the use of bibliometrics as a means of assessing research quality.

Key words academic publishing; rankings; web of science

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Introduction

It is apparent that the increasing reliance on 'impact factors' as a measure of scholarly journal status places a heavy burden on the academic community which has fostered a so-called publish or perish mentality. The value of impact factors has been seriously questioned in a number of disciplines, for example in language teaching (Lee 2014) and in higher education generally (Barnes 2014). The imperative of publishing, especially in those journals that enjoy an elevated international status in the most commonly employed citation databases, causes anxiety among the academic community in general, but young and early-career researchers and those for whom English is not their home language are especially likely to feel daunted by the process. A consequence is that academics in countries other than those in which English is the dominant language of communication may be disadvantaged. Indeed, Meijaard *et al.* (2015), in commenting on academic publishing in conservation science, note that some countries have entrenched disadvantages in relation to initiating research projects and producing high-quality research outputs. Van Dijk *et al.* (2014) report that success in the academic job market is strongly correlated with the number of publications in so-called 'high ranking journals' – nearly all of which are published in English only. As long ago as 2001, an international team of authors had expressed concern that '(the) growing use of English privileges the discourse of the Anglophone world even when its members are working about other parts of the world' (Short *et al.* 2001)[1]. For example, while there are more than 200 geography journals published in China, none of these feature in the international scientific journal rankings (Sun *et al.* 2013). This Anglo-American dominance of the academic journal market in general, and within geography in particular, is a form of hegemony that arguably disrupts and destabilises scholarly inquiry (Kitchin 2005). Certainly it demands our attention and should prompt debate.

It is against this background that the International Geographical Union (IGU) has embarked on a project

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to produce a more comprehensive and representative global inventory of the geographical journals (the IGU Journals Project, see www.igu-online.org). The IGU has also encouraged discussion of the issue of journal ranking and its possible effects on publishing within the discipline at its most recent congress (Cologne 2012) and regional conferences (notably in Kyoto 2013). In this commentary, we explore the issue of language bias in scholarly publications in the discipline as an intervention into broader discussions on academic publishing and to stimulate debate among geographers around these contentious issues. The aim is to examine geographical publication citation patterns in the most widely employed major citation databases and to compare these with the IGU journals project list in order to determine the extent of, *inter* alia, language bias in academic journals focused on geography and its various subdisciplines. The implications of inequity and bias in academic publishing in the discipline are outlined and some possible responses, including the role that the IGU could play, are indicated.

Ranking of academic journals and its effect on author behaviour

The basis of journal ranking is the number of article citations computed on the basis of a particular database, most commonly those developed by Thomson Reuters, known as the Web of Knowledge/Web of Science (ISI) (www.webofknowledge.com) and Scopus (www.scopus.com). These two instruments utilise a selection process in determining which journals are included in their respective databases (the Scopus database only extends to 1996). Google Scholar (www.scholar.google.com) is less selective and includes articles from a large number of websites. An impact factor, related to the frequency with which articles in that journal are cited, is published annually for each one in the database. Individual authors are also the subject of metrics, the most widely applied being the H-index, which was developed by Hirsch (2005). The H-index is an attempt to summarise the productivity and citation impact of an academic author and is calculated initially by sorting the publications of a researcher in decreasing order according to their citation frequencies. In both Web of Science and Scopus the index is derived mainly on the basis of articles published by the author that are published in the journals in their database. This situation has had a significant effect on academic author behaviour because, in order to try to increase their H-index, scholars are more likely to attempt to publish their papers mainly, or even exclusively, in the so-called accredited journals, i.e. those in the major databases. There is evidence that the H-index has predictive power in respect of academic careers (Hirsch 2007) and is increasingly being used as a performance indicator for evaluation purposes and grant allocation (Barnes 2014). The reliability of the system can surely be questioned, and while it certainly seems to work for the major publishing houses, the language bias that has been reported in citation analysis (see van Leeuwen *et al.* 2000; Liang *et al.* 2013) represents a considerable impediment to the development of a more inclusive global scholarship, not least within academic geography.

Academics opposed to the use of metrics frequently invoke the Einstein conundrum – a giant of the world of science who scores only low values on the H-index methodology now so widely, and often uncritically, applied. This emphasises the point that the 'ranking' of journals (and their contributing authors) creates sometimes unintended or even perverse consequences. Ranking of journals and researchers alike is based on selective criteria and promotes a geographical and language bias that strengthens the global geo-economic and geo-political power structures of the modern era. The avalanche of publications that began in the latter part of the twentieth century and which has been accompanied by the 'publish or perish' imperative appears to have resulted in a system that values quantity over quality. Indeed, the trend has led to what has been referred to as a 'metrics market' (*Nature* editorial 2014) or even a citation 'game' (Adams 2014).

Databases of geographical journals

The Thomson Reuters system (Web of Science) is the oldest and most influential of the ranking instruments and is based on the impact factor tool originally devised by Eugene Garfield, founder of the Institute for Scientific Information (Shanta *et al.* 2013). The 'Sciences' category in the Web of Science currently lists around 400 journal entries broadly related to 'geography' under the following categories: geography physical; geochemistry and physics; geosciences multidisciplinary; geology; remote sensing; biodiversity conservation; environmental sciences; meteorology and atmospheric sciences; soil science; water resources; and oceanography. On the 'Social Sciences' list there are an additional 300 relevant journal entries under Web of Science categories: geography; area studies; demography; environmental sciences; planning and development; urban studies; and transportation studies. Between these two lists there is some overlap.

In response to the increasing use of bibliometrics in academic geography as a means of assessing the quality of authors and journals alike and recognising that the major metrics in use employed only a particular range of journals, the IGU Executive Committee initiated a journal project in 2008 in an attempt to develop a more inclusive list of academic geographical periodicals globally. The IGU database of geographical journals now contains more than 1300 journals,

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published across the world in dozens of different languages. The intention was, and indeed remains, to list as many geographical journals in the world as possible and to make those journals easily accessible to anyone wishing to access their publication details – academic scope, editorial contacts, websites etc. Online search entries include: country and place of publication, journal name, ISSN number, editor, key words, website URL, among others. The list (Tables I and II) currently contains more than 1300 geographical journals, using a broad definition of 'geography' and which employs the same categories used in the Thomson Reuters ISI system.

In reflecting on the more inclusive list for the IGU's journals project it is obvious that the ISI databases cover only a selection (less than half) of the possible academic journals inventory for geography (Table III). The question arises as to whether or not the world of academic geographers should continue to accept the substantial language bias imposed by a commercial US-based English-focused corporation or is a more balanced assessment of the 'world of geography' in journal publications now necessary? At the very least, the situation warrants discussion and debate. In a critical analysis of 'capitalist publication practices', Paasi (2005) sets out the need for a more representative picture of what constitutes scholarship in geography, although Rodríguez-Pose (2006) takes an opposing view. The publication inequities that the IGU journals listing highlights touch on a much wider discourse about 'hegemonic science' and has become part of 'postcolonial reflections' about countering 'western' dominance (e.g. Pollard *et al.* 2009).

Two particular examples are useful in illustrating the degree of inequity inherent in the widely applied metrics, one from Japan and one from Germany.

1 *Japan*. The IGU database covers 35 geographical journals published in Japan. Six of those journals use English only and two of these have Web of Science recognition (both are in physical geography). Nineteen journals use Japanese as well as (some) English, often only for abstracts; none of these journals appear in the Web of Science. Ten geographical journals published in Japan use Japanese only and, again, none of these are found in the Web of Science list.
2 *Germany*. The IGU list covers 27 geographical journals published in Germany. Only two of these use English only, one of the two is in the Web of Science. Seven journals use both German and English (two of these are on the Web of Science list) and 18 other journals only use German, of which only two are in the Web of Science. As an aside, it is interesting to note that all 18 German-language geography journals can be found on the internet as open access journals, at least for their abstracts, but usually in full text format.

The two cases are starkly indicative of a marked language bias in academic publishing: geography journals from two countries – each with a justifiably proud and historically well established academic tradition in the discipline – are, to all intents and purposes, ignored by

Table II Language representation in the IGU journals database

Language	Number
English	723
Chinese	240
Spanish	108
French	57
Portuguese	25
Russian	19
German	18
Japanese	10
Multi-language	81
Other	29
Total	1310

Table I Geographical representation of the IGU journals database

Continent	Country	Number of journals
Europe (n = 463)	UK	143
	The Netherlands	92
	France	51
	Spain	42
	Germany	27
Americas (n = 398)	USA	256
	Canada	31
	Mexico	29
Asia and Pacific (n = 332)	China	274
Africa (n = 117)	Nigeria	41

Table III Geographical and language biases in the IGU and Web of Science databases

Continent/language	In Web of Science	Not in Web of Science
Americas	265	133
Europe	252	211
Asia and Pacific	20	312
Africa	28	89
Total	565	745
English	500	223
English and other	36	45
Chinese	10	230
Spanish	3	105
French	7	50
Other and unclear	9	92
Total	565	745

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the Web of Science when those journals are published using their respective national languages.

The Web of Science bias is also apparent when considering the top five journals in their categories of 'physical geography' in the Science Citation Index database ($n = 46$) and 'geography' in the Social Science Citation Index database ($n = 73$, with an overlap of six with physical geography). The top five in physical geography journals are listed as *Global Ecology and Biogeography* (6.5), *Cryosphere* (3.5), *Journal of Biogeography* (4.5), *Quaternary Science Reviews* (4.6) and *Landscape Ecology* (4.2). The top five in human geography journals are *Global Environmental Change: Human and Policy Dimensions* (5.1), *Progress in Human* Geography (5.0) *Transactions of the Institute of British Geographers* (3.6), *Landscape and Urban Planning* (3.0), *Economic Geography* (2.7). These top-ranked journals across the discipline are products of the major commercial publishing houses. Five of these journals are published in the UK [by Wiley-Blackwell in Oxford (4) and Sage in London (1)], four in the Netherlands [by Elsevier in Amsterdam (3) and Springer in Dordrecht (1)], and one in Germany (by Copernicus, Gottingen). Perhaps unsurprisingly, all 10 are published exclusively in English.

Ranking in geographical journals compared with other disciplines

Vandermotten (2012) has analysed citation patterns in a large database of journals directly relating to the scope of geography or frequently publishing articles compiled by geographers. Most of the database in his analysis focuses on human geography and only 19% of the journals are located in or around physical geography. Of these 787 journals, the Web of Science only contains 197 of these journals, of which 32% are in physical geography. Significantly more, however, can be found in Elsevier's *Scopus* list (606 journals, of which only 18% deal with physical geography). Vandermotten (2012) went on to explore the *Publish or Perish* database which is an open access and, in principle, unbiased (or less obviously biased perhaps) ranking based on *Google Scholar* (see www.harzing.com/pop.htm). Table IV compares the number of journals in geographical subfields according to the *Publish or Perish* database and includes their so-called average H-index, a measure of citation success of the articles in these journals, an equivalent measure to the impact factor. It is clear that, even within geography, the mean H-index varies a great deal between subfields. For example, papers published in journals in the fields of climatology and meteorology are far more likely to be cited than those found in the broader geographical journals. In general it is clear that there is a premium for physical geography compared with human geography in terms of citation frequency. Of course geographers do not work in an academic and social vacuum. In their departments and universities there are 'most favoured' and 'least favoured' specialisations: journal ranking is field specific (although the academic competition – for example for promotion – is usually not!). Because of the relatively low overall citation success rates for most subfields of geography, some geographers tend to avoid the geographical journals and aim to publish their papers in journals with higher citation indices, such as those in physics or economics. Personal observations suggest that the publication behaviour of the world's most cited geographers indicates deployment of an increasingly diverse range of journals rooted in a number of different disciplines depending on subfield and, arguably, geographical journals now feature rather less strongly than in former times. It emerges that, for geography, there is a marked difference between citation rates in journals that focus *within* the discipline and other journals in which geographers tend to publish their work.

Language bias is apparent in the citation data. Table V shows that there are major differences in citation successes (H factors) between geographical journals using different languages, with English-language journals favoured in all three measurement systems compared (*Publish or Perish*, *Scopus* and *Web of Science*).

Implications of rankings and their manipulations

The growing dominance of rankings in academic circles not only creates an ever more obvious bias against non-English language journals and against journals published outside the USA–UK–Netherlands 'core' – amplifying the already prominent hegemony of the richest countries and universities. Ranking additionally influences how academics publish their scholarship. For example, the approach discourages book-length publications, textbooks and atlases, along with many other negative consequences (Pontille and Torny 2010). Moreover, the system strongly favours commercial international

Table IV Variation in citation success in various subfields of geography

	Mean H-index PoP[a]	*n*
General geographical journals	6.4	123
Area studies	10	99
Geomatics and GIS	12	41
Urban and regional studies	14.7	108
Geomorphology and Quaternary studies	15.9	27
Economic geography and transport geography	16.8	68
Global change, environmental studies, glaciology	17.5	58
Climatology and meteorology	35.3	15

[a]Harzing (2007).

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Table V Geographical journals in different languages: H-index variation according to three measurement systems

	Mean H-index PoP[1]	*n*	Mean H-index Scopus[b]	% of sample	Mean H-index Web of Science3	% of sample
English-language journals published in the Netherlands	32.5	49	32.5	100	41	36
English-language journals published in the UK	18.7	208	19.1	98	25.6	36
English-language journals published in the USA	15.4	137	18	98	25.4	37
German journals (incl. Austria) mostly using English	12.7	48	15.1	88	20.6	33
Chinese, Korean and Japanese Journals	6.6	16	6.5	88	1.0	6
French journals	4.4	83	6.8	30	8.0	4
Spanish and Portuguese journals (incl. Latin America)	4	65	2.4	38	11	3

academic publishers over non-Anglo-American geographical society publishing houses (see Table VI).

The preference for publishing in scientific journals may induce fragmentation of research results into smaller 'slices' (Bertamini and Munafo 2012) which are then spread over the higher-ranking journals of the major commercial publishing houses, are often more expensive and may well be difficult to access in relatively poor university settings. There is also a trend towards multiplication of contributing authors, who all appear as co-authors in journal articles, sometimes in seemingly absurd numbers; 'pseudo ' or 'honorary' authorship also appears to be on the increase (see Kovacs 2013). Ranking practices may undermine the integrity and identity of geography because the most high-profile geographers – and those who are eager to develop their academic careers more rapidly – favour higher-ranked (but usually non-geographical) journals. There has been a tendency to forsake regional geography, since it is difficult to get such papers published in the 'top' journals because such a geographical focus is (mis)-interpreted as being insufficiently global in scope. The inequities in citation success create unfair competition between more 'scientific' geography (e.g. much of physical geography; economic geography) and what are regarded as the 'softer types' of geography (e.g. cultural geography). Ranking also tends to reduce meaningful application of publications to real social issues, since there is a lack of interest for the (local) challenges concerning people and policymakers in marginal regions. Moreover, ranking and the dominance of particular leading journals may undermine innovation and alternative and critical thinking.

Table VI Patterns of citation in journals published by geographical societies

	Mean H-index PoP	% in Scopus	% in Web of Science
Entire journal set	12.7	80	26
Journals of the Anglo-American geographical societies	15.9	100	67
Journals of other geographical societies	6.1	63	17

A more inclusive way of ranking? The CERES/EADI approach

In the Netherlands, the national research school CERES (Research School for Resource Studies for Development, also including researchers and PhD candidates in 'global geography') has developed a more inclusive method of ranking, which has been adopted by the European Association for Development Institutes (EADI). The system focuses the social sciences, broadly defined, but many geographical journals are therefore part of the system and it is possible to apply to the natural sciences as well. To be able to be accepted by the many research institutes in the Netherlands – and subsequently more widely in Europe – not only the Web of Science, but all types of other scientific (in particular books) and non-academic forms of publication are included, thereby creating a much more inclusive method of measuring scientific performance of individual researchers and their institutions. Other academic products are also valued: PhD thesis graduations (for supervisors), films, reports, working papers, funding proposals, etc. At the request of EADI and the CERES Board, the ranking system and the lists of journals and publishers are managed by the CERES secretariat in Utrecht, supported by a small committee, which also looks at complaints, suggestions for including new journals and publishers, and other remarks. The list is updated annually.

Is open access an adequate response?

Many, although not all, geographical journals internationally are now accessible via the internet, including

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inter alia Fennia, *Geo: Geography and the Environment*, *European Journal of Geography* and *The Open Geography Journal*. There is certainly a growing trend which can be seen as part of the move towards 'Open Science' (Leonelli *et al.* 2015). Indeed, an increasing number of journals are exclusively e-publications or at least have the option of online access. The question arises as to whether or not academic geographers should consider encouraging publishers to make their journals open access by refusing to publish in journals (and books) that are not made available in an online format? Perhaps geographers should even go as far as boycotting all journals or books that are unavailable via so-called 'gold' or 'green' open access (see Rizor and Holley 2014)? And, if indeed green open access is available, what is the acceptable embargo period? Should geographers demand that all their scholarly products be made immediately available online on their personal and/or institutional websites? Vandermotten's (2012) research sample indicates that, overall, 20% of the journals on the list are open access journals (some really free; most only quasi-free, i.e. providing abstracts and sometimes first pages or other sections of publications). However, there seems to be what has been interpreted as a 'Latin reaction' (Vandermotten 2012) to the dominance of Anglo-American publishers, by making their journals free online journals, since 60% of French journals, 64% of Spanish–Portuguese journals and 78% of the journals published in Latin America incorporate open access facilities. Among the few Romanian journals, all are free online already. By way of contrast, only 9% of the North American journals in geography are free online, 8% of the German journals, 2% of the journals published in the Netherlands and 0.5% of the journals published in the UK (Vandermotten 2012).

A question that many publishers (and users) ask is: does open access have a positive influence on citation and, therefore, on the impact factor (Gumpenberger *et al.* 2012)? Gunesakaran and Arunachalam's (2014) analysis suggests that for geoscience and social science journals, subscription journals have higher impact factors than open access but the gap is in fact quite small. In Vandermotten's (2012) sample, the average H-index of the total free online access journals is only 4.6, but many of these journals are only recently available in such a format, they are mostly non-English language journals and their average H-index is similar to the other journals from the same countries. These journals indicate considerably more user access than the citation statistics suggest; for example, *Cybergeo*, the most widely read French full online access journal records more than 65 000 visitors and more than 130 000 page downloads each month, albeit its H-index is only 9. *Brussels Studies*, a scientific full online access journal publishing studies on the Belgian capital city is more cited than any other Belgian journal of interest to geographers – but it cannot be found either in Web of Science or in Scopus. Of course open access comes at a price: who will pay for these journals? Increasingly it becomes 'acceptable' that academics who publish in such open access journals pay individually (even if they can sometimes claim such fees from their institutions) for inclusion; more academic funding agencies accept 'publication costs' as part of their contracts with researchers. In full open access circles there is also some debate now to develop alternative quality assessment procedures and there are reported problems with the rather informal system that currently prevails (van Noorden 2014). In reality we are only at the beginning of new ways of publishing and assessing scientific work which may ultimately include collective writing and assessing online, possibly even via the social network platforms. This will make 'Wikipedia-style' contributions to scientific debates more conventional and could indeed stimulate science–policy or science–practitioner interfaces. Brembs *et al.* (2013) go as far as to argue that journals should be abandoned altogether in favour of a collaborative, library-based system of scholarly communication.

Conclusions: how can IGU contribute to the debate?

During the debates at the IGU conferences in Cologne, Kyoto and Krakow, delegates suggested that IGU as a global organisation of geographers should actively confront issues relating to scholarly publications in the discipline. Would it be possible to build an alternative quality assessment procedure acknowledged by the geographical community? Under the auspices of the IGU and its various conference and social media platforms, publication metrics and the higher education structures that deploy them in funding research and hiring and promoting academics are being debated and critiqued. The IGU has already endorsed the objectives of the so-called 'San Francisco Declaration on Research Assessment' (see http://am.ascb.org/dora/) that calls for the elimination of the use of narrow journal-based metrics in funding and appointment considerations and to assess research on its own merits rather than on the basis of the ranking of the journals in which research outcomes are published; and also, to capitalise on the opportunities provided by online publication. This commentary has illustrated the existence of a strong language bias in academic journals in geography that needs to be highlighted and debated lest the hegemony of the commercial publishing houses continue to favour the privileged at the expense of a more inclusive intellectual landscape in geography. Some journals have recognised the issue and have developed some innovative innovations to try and counter it. For example, *Conservation Biology* has instigated double-blind reviewing, waiving of page charges when authors are unable to obtain institutional support to pay them, assisting authors with grammar and structure,

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and facilitating the publication of online versions of accepted articles in languages other than English (Burgman *et al.* 2015). The IGU can certainly lobby editors of geographical journals to adopt similar practices. Burgman *et al.* (2015) also describe how their journal has adopted a partner programme whereby experienced scientists may be paired up with authors who request additional editorial or scientific input. This latter mechanism is perhaps especially relevant to the IGU, for it has an existing international network infrastructure through its 'commissions and task forces' that could well be harnessed to offer a similar service.

Notes

1. At the outset, the University of Amsterdam's Department of Geography, Planning and International Development Studies adopted this project and established the initial database of journals. Cecilia Blaustein, Qiu Li and Jaap Rothuizen conducted the preliminary work in establishing the project. IGU National Committee and Commission chairs added information and corrected mistakes under the guidance of the IGU Executive Committee. In 2012, IGU Secretary General Mike Meadows and his University of Cape Town team took over responsibility for the project, cleaned up the data and made the results available via the IGU website (www.igu-online.org). The database is updated regularly.
2. Both indices as they existed in mid-2015.
3. Details can be found at http://ceres.fss.uu.nl under 'Rating Lists'.
4. A Dutch example with notable success may be found at www.thebrokeronline.eu

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