The choice of language and its relationship to the impact of hydrological studies

Reply to discussions of "Editorial—Quantifying the impact of hydrological studies" *

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We are grateful to the four discussers of our editorial article (Koutsoyiannis & Kundzewicz, 2007) who have complemented and extended our study. Three of them are French. Mahé (2008) contributed with an analysis of information on papers published in *Hydrological Sciences Journal* (*HSJ*) in French over the years and examined their impact. Cudennec & Hubert (2008) analysed the mission of the International Association of Hydrological Sciences (IAHS) and the implications for *HSJ* related to processing and disseminating hydrological knowledge. Klemeš (2880) added a new, less technocratic, dimension to our thoughts and illustrated his arguments with colourful examples from his rich experience, gained during his work in Czechoslovakia and Canada, and in international activities. Needless to say, dedicated readers of Vít, to whom we belong and who have missed his wit and wisdom for years, are now pleased to read his commentary and to find there profound thoughts on ethical and political issues related to science and scientific publishing, on important hydrological topics (e.g. his penetrative comments on the Hurst phenomenon), and even lessons on grammar and writing. We are sorry, though, to hear him claim these "Apocrypha" to be the only breach of his pledge to stop publishing in hydrological journals after 2000.

Among the many informal discussers, who also provided us with thoughtful and encouraging comments, we wish to mention Constantino Tsallis (personal communication), who suggested that the probability distribution we proposed and used to describe bibliographic metrics (number of citations, H-index) could be derived from generalized entropy considerations in its general case (not only for $\theta = 2$, as it appeared in Koutsoyiannis & Kundzewicz, 2007). He had also studied earlier the distribution of citations of scientific papers (Tsallis & de Albuquerque, 2000), deriving from entropy considerations and using a two-parameter form of our more flexible, four-parameter distribution.

Since our article was policy-relevant, it triggered reaction from past and present IAHS decision makers. Vít Klemeš is a former IAHS President and Pierre Hubert is the present IAHS Secretary-General.

Because of the complementary character of the three discussions, which go beyond the original scope of our editorial article, we feel that there is no need to reply or to comment on anything further, except for one point: the bilingual setting of *HSJ* and the choice of language for papers. All the discussion papers touch on this issue, certainly motivated by our postscript encouraging authors to favour English over French in view of better dissemination of their papers. The discussion indicates that this is a sensitive issue within IAHS, yet apparently a controversial one. Whether the bilingual setting boosts the attractiveness, dissemination and impact of *HSJ* or not is not a clear-cut fact. The choice offered to the authors, between two official IAHS languages,

is simultaneously an obstacle for the paper's dissemination to readers who do not know the chosen language. Beyond any doubt, English is currently the most widely used "second" language in the world. For instance, a major institution of tertiary education in Poland at present has one teacher of French and 78 teachers of English. English has become the *lingua franca* for science and technology and for dissemination of knowledge through the Internet. In this respect, the linguistic obstacle in dissemination concerns those authors who choose French, rather than English.

It is often assumed (also in Mahé, 2008) that the bilingual, English–French, setting of *HSJ* is beneficial to hydrologists in developing countries, both authors and readers. However, developing countries in which French is a first or second language are only a subset of a much larger set of all developing countries. From Table 1, showing the twelve most widely spoken languages in the world, it can be seen that there are languages more widely spoken (as first or second languages) than French, both in the world and in developing countries. Should this prompt us to make *HSJ* multilingual rather than bilingual? Our answer is negative for a variety of reasons. Such a change would worsen, rather than improve, the dissemination of knowledge and would lead to partitioning of the readers/authors community into isolated groups. Furthermore, such an option is not feasible, virtually unthinkable, for technical and economic reasons. It would create a range of problems at different stages of processing submitted manuscripts, including identification of referees, decision making, editing and proof reading, with unbearable cost implications. The value of Impact Factor of such a journal would fall dramatically.

Table 2 lists the number of papers published in *HSJ* in 2007 by country of authors' origin and by language used. The wide international coverage and the participation of both developed and developing countries from the six continents is prominent and demonstrates accord with the IAHS mission for participation of scientists and dissemination of knowledge in the international arena. At the same time, it shows that most authors from developing countries (except Tunisia, Côte d'Ivoire and Vietnam) have preferred English for their communication. This can be seen as a pragmatic decision—such choice better serves the broad dissemination of knowledge produced in developing countries.

This statement may disagree with the general conclusion of Mahé (2008), who finds that French papers have been cited as many times as papers written in English during the last years and even more times in 2006 and 2007. To support our own view on language-specific values of citation indices, we give in Table 3 the bibliometric information for papers published in French in *HSJ* during the last five years (2003–2007). We have chosen this five-year period both because it coincides with the digital era of *HSJ* (vol. 48 being the first available online), and because for earlier years there is no disagreement, as Mahé states, that English papers are far more cited in earlier years. The tracking period we use is three years long, 2005–2007, to allow the use of a two-year time window that is relevant to the Impact Factor (see Koutsoyiannis & Kundzewicz, 2007).

Table 1 The twelve most widely spoken languages in the world.

Language	Population: first language speakers (millions)	Including second language speakers (millions)
Chinese (various dialects)	1147	1344
English	341	508
Hindi	366	487
Spanish	322	417
Arabic (various dialects)	280	N/A
Russian	167	277
Bengali/Bangla	207	211
Portuguese	176	191
German	121	128
French	77	128
Japanese	125	126
Korean	78	78

Source: www.nationsonline.org/oneworld/most_spoken_languages.htm.

Table 2 Distribution of the number of papers (incl. discussions) published in *HSJ* in 2007 per country* and per language.

Country	English	French	Total
Europe:			
France	6	3	9
UK	8.33		8.33
Germany	7		7
Italy	2.33		2.33
The Netherlands	2.33		2.33
Austria	2		2
Greece	2		2
Spain	2		2
Ireland	1.5		1.5
Sweden	1.5		1.5
Slovenia	1		1
Belgium	0.5		0.5
Poland	0.5		0.5
Asia:			
India	8		8
China	5		5
Turkey	3		3
Iran	2.5		2.5
Taiwan	2		2
Lebanon	1.5		1.5
Israel	1		1
Japan	1		1
South Korea	1		1
Sri Lanka	0.5		0.5
Vietnam		0.5	0.5
America:			
Canada	3	2	5
USA	4	0.5	4.5
Argentina	1		1
Brazil	1		1
Africa:			
Tunisia	0.5	4	4.5
Côte d'Ivoire		1	1
Morocco	1		1
Kenya	0.5		0.5
Australia:			
Australia	1		1
New Zealand	0.5		0.5
TOTAL	75	11	86

*Papers with authors from two or three different countries are counted as fractions in the respective countries.

Table 3 Bibliometric data of HSJ papers in French for publication years 2003–2007 and tracking years 2005–2007. (Data from ISI as of 31 January 2008).

Publication year	Number of papers in French (and in total)	Number of citations per tracking year:			
		2005	2006	2007	2005–2007
2003: vol. 48	8 (67)	6	2	2	10
2004: vol. 49	7 (77)	9	3	2	14
2005: vol. 50	11 (77)	3	1	6	10
2006: vol. 51	6 (83)		1	0	1
2007: vol. 52*	5 (73)			0	0
Average number of citations per paper		0.692	0.219	0.270	0.946
IF for papers in French only		1.000	0.222		
IF for all papers (in English and French)		1.606	1.201		

* Issue 6 of vol. 52, which contains 6 more French papers, has not been registered in ISI as of 31 January 2008

Interestingly, the publication period chosen includes the *HSJ* paper in French with the second largest number of citations (eight) among all papers ever published in *HSJ* in French. (The largest numbers are 11 and 145, for papers in French and in English, respectively; data from the database of the Institute for Scientific Information, ISI, not including the period of *Hydrological Sciences Bulletin*, for which see Koutsoyiannis & Kundzewicz, 2007.)

The two bottom rows of Table 3 give the average number of citations for a two-year time window, equal, by definition to the value of the Impact Factor (IF). The values 1.000 and 0.222 for papers in French only are thus directly comparable to the IF values of *HSJ* in 2005 and 2006 for all papers (in English and in French), which are 1.606 and 1.201, respectively. We have not given IF values for 2007, because the database entries for 2007 have not been completed so far; however, a temporary value that can be calculated from the above data is currently about one third of the respective value for papers in English for the same period. Clearly, then, the language is not at all irrelevant to the number of citations received and the IF of the journal, and French papers are much less cited than English ones. This is important for authors, as the wide readability and dissemination of papers are not only an *HSJ* target, but also the principal target of individual authors.

To widen the audience of papers written in French, Mahé (2008) proposes that these include an extended abstract in English, as well as bilingual captions of figures and tables. In our view, having different requirements for papers in French and in English would be unfair and should be avoided. Moreover, if such practices were generalized to all papers (e.g. bilingual captions in English papers), they would make *HSJ* less attractive to authors. It is well known that even the requirement for a bilingual abstract (not an extended one) has discouraged many authors from submitting their papers to *HSJ*. For that reason, we have recently abandoned this requirement for the authors and *HSJ* has taken the responsibility for translating the abstract (unless authors are able to provide their own translation).

In our opinion, the main problems related to papers in French lie in their attracting less attention from the wider community and likelihood of being overlooked. This can be explained by the information overload and the unavoidable selection of information items in research. Difficulties in reading papers in a language beyond one's command can be large but not insurmountable. If an item written in French has attracted a reader's interest and has been selected for further study, its reading can be facilitated by current technologies. As a test, a bilingual reader could, for instance, try to automatically translate Mahé's discussion paper into English using e.g. Google Translate, a free service provided on the Internet (requiring just copy, paste and a click), and may find the result understandable even if not directly of publication quality. We find this technique radically preferable to the obligatory provision of an extended abstract and captions in both English and French. Conversely, we can assume that the non-English speaking scientists in traditionally francophone countries could follow the opposite procedure and translate English papers into French. This observation may influence authors' choice of the language for their paper, relieving their worries that, for instance, a paper in English will not be read in francophone countries (cf. Cudennec & Hubert, 2008, who state that the optimal choice by francophone authors depends on the paper's content and target end-user). This automatic translation technology is favourable also because it is not restricted to English and French, but includes many other languages, although currently not all combinations of languages are supported by Google Translate (e.g. French–Greek is not), and the results are not equally good in the existing combinations of languages (e.g. English–Greek is far from being of good quality, yet). The multilingual *International Glossary of Hydrology* maintained by Pierre Hubert and available online (www.cig.ensmp.fr/~hubert/glu/aglo.htm) may help in the translation of hydrological terms that are not correctly interpreted by all-purpose translation machines.

Another important parameter that authors should take into consideration in their choice of language is related to the review process. As detailed in Kundzewicz & Koutsoyiannis (2005, 2006), the review process, in addition to selecting the best papers for publication, provides guidance for improving the content and presentation of papers. The case that a paper was initially ranked as poor-to-fair and then became good or very good, after a major overhaul following

reviewers' suggestions, does happen in *HSJ*, particularly with respect to papers from developing countries. However, authors of papers written in French should take into account that our rosters of francophone Associate Editors and reviewers are limited. There are more options for identification of reviewers being more specialized in a narrow topic if the language of the paper is English. Hence, the benefit for authors from the review process is expected to be higher, in statistical terms, if the paper is in English rather than French.

Having stated all this, we do not propose any change in the bilingual tradition of IAHS and *HSJ*. Traditions have their merit, particularly in old institutions such as these. And given this tradition, it is the authors' right to choose between the two languages, as also pointed out by Cudennec & Hubert (2008). At the same time, we re-iterate our initial encouragement to francophone authors who care about the broadest dissemination of their papers to "think twice before deciding to write their paper in French". And we are very pleased to find an emphatic endorsement of this encouragement by Klemeš (2008).

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