A Personal Perspective on the Further Reform of the *Advances in Atmospheric Sciences*

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(Received December 15, 2001; revised January 20, 2002)

First of all, I wish to thank the *Advances in Atmospheric Sciences* (*AAS*) Editorial Board for recommending the publication of this original letter, summarizing my personal perspective on the reform of *AAS*, that was distributed during its 19 December 2001 Board meeting. The letter has now been significantly improved by the incorporation of many helpful comments and suggestions from extensive email discussions conducted among over 60 foreign participants, including several board members of *AAS*, as well as from numerous personal communications (see the acknowledgements section).

1. Prologue

During the past two decades, we have all witnessed enormous progress in Chinese science and technology. Considerable progress has also been made in English-language journal publications, particularly in providing a window through which the international community could see the latest achievements in the atmospheric sciences in China. However, not many of the achievements have received international recognition due partly to insufficient publications in first-class international journals, and partly to the lack of first-class English-language journals published in China. I am pleased to learn that the Editorial Board has recently decided to develop new policies and procedures to further improve the quality of *AAS*. Since most of the papers in *AAS* are currently written by Chinese scientists, it is always difficult to recommend whether or not their best work should be published in *AAS* or in other international journals. However, publishing in first-rate international journals is more challenging than publishing in *AAS* right now (and other national journals). Some young Chinese scientists have managed to publish papers in world-class journals. In my view, all Chinese young scientists should make such attempts in order to understand, through writing and reviewing (i.e., the comments-reply) processes. It should also be in their interest to get more exposure of their research work in world-class journals if they wish to be viewed as future scientific leaders. Undoubtedly, these practices will in turn help improve the quality of *AAS* when their subsequent papers are submitted for publication in the journal.

2. Comments

Based on my reading of *AAS* and other English-language journals published in non-English countries, I have noted the following problematic issues that may need attention.

1) Reviews of previous work are sometimes not up to date and citations of foreign studies

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are limited, indicating either limited access or limited reading of international journal articles. Some literature reviews focus too much on authors' previous work or mention many unrelated studies, showing little care for readers' interests.

2) Some articles provide derivation of equations and description of figures with little deep (dynamical and physical) insight. In my view, some of them should be treated as technical notes rather than scientific journal articles.

Some modeling studies present simulation results with little thorough diagnostic analyses and little scientific understanding of the mechanisms by which the phenomena under investigation develop and evolve.

3) Technical descriptions are often too brief and hard to follow, as compared to those in other international journals in which every procedure is well documented such that one could almost reproduce the work being described. This problem may be attributed in part to the page limit imposed on the journals published in China.

4) Figure quality is often not satisfactory in terms of format, size, and clarity. We all know that one good figure could be worth more than 1000 words, and that articles with good quality figures tend to be cited more often or even used as textbook material.

5) More commonly, there are English grammatical errors and "Chinese English" in an article, which would likely cause it to be declined if it were submitted for publication in the AMS', the RMS' or other international journals. Gross grammatical errors are almost certain to reduce the perceived quality of the scientific content of a journal. Indeed, writing a journal article in decent English is not an easy task, even to many overseas Chinese who have lived in an English environment for decades.

6) Many papers do not contain a section of acknowledgments for scientific collaborations except for funding agencies given in footnotes, indicating either ignorance of appreciation or lack of personal interactions. I have heard complaints that some data, models, physics schemes, or ideas were used or copied without the proper acknowledgement of their source. Even A's model or dataset was renamed as B's after some modifications made by B. This behavior does not facilitate further scientific dialogue or exchange, and may cause mutual blockades among scientists.

7) Some studies are not highly original, and to a certain degree they appear to be duplication of the previous work. In some papers, data analyses are performed with unsound approaches or methodologies, often leading to questionable conclusions.

8) Today's journals consist mostly of articles in climate–related research, appearing like the *Journal of Climate* published by the AMS, with few publications in the areas of severe storms, cloud physics and chemistry, remote sensing, etc. Perhaps the unbalanced scope of publication reflects the current funding situation and the composition of atmospheric scientists in China.

It should be pointed out that the above criticisms are not all applicable to *AAS*, and some are even present, albeit to a much less extent, in other international journals. In my observation, *AAS* has been doing much better than other meteorological English–language journals published in China. In fact, earning the Science Citation Index–Expanded (SCIE) status 2–3 years ago is a testament to *AAS* publication standards. It should also be mentioned that it is by no means my intention to be little the many outstanding achievements made by Chinese colleagues if any of the above is considered offensive. Here, I just try to put all the pertinent issues together as objective, neutral, and honest as possible, hopefully as food

for thought to help stimulate the Board's discussions on the reform of *AAS*.

Some of the above issues could be partly attributed to the lack of English writing skills by some Chinese authors, and partly to the training background and research culture as well as the lack of advanced research facilities. On the other hand, if each issue of the AMS' and the RMS' journals is checked, one may notice that a growing number of journal articles are authored or co-authored by overseas Chinese. Their successes indicate the importance of research training and persistent publications in first-rate international journals. This is why a few of us have recently proposed to initiate a collaborative Ph. D. training program between foreign and Chinese scientists, in which Ph. D. candidates are required to publish their work in first-class international journals before receiving their degrees in China.

3. Recommendations

To address the above-mentioned problems and some related issues regarding past volumes of *AAS*, I would recommend the following measures and actions for your consideration, most of which involve policy and strategic reforms whereas the others just deal with technical or editorial reforms. I am sure that some of them are already in your mind.

1) *Consolidate all the meteorological English journals into one in order to make AAS a more competitive scholarly English journal.* There are too many meteorological English journals published in China, diluting the attention and interests of international subscribers and readers. It is of interest to examine how often the papers published in these and other English journals have been cited, especially by the international community, during the past few years. This might provide us with useful information on whether or not it is necessary to continue this tradition. Furthermore, without submission of plentiful high-quality papers, those viewed as the low-level duplication of science would naturally appear in these journals. Even the U.S. National Center for Atmospheric Research (NCAR) or University Corporation for Atmospheric Research (UCAR) and the European Center for Medium-range Weather Forecasts (ECMWF), where several hundreds of scientists are housed, do not have their own scientific journals other than technical notes. Evidently, several meteorological English journals, co-existed in China, tend to compete with each other not only for resources, but for future growth and international recognition, eventually hurting the entire Chinese meteorological community. Thus, it is highly desirable for the community to reach consensus on how to consolidate all the existing English journals. Since China has now joined the World Trade Organization (WTO), everyone should adapt to the world mainstream and re-consider the ways to conduct business and science, including scientific collaboration and publication. There is no reason that AAS could not stand on a par with the other international SCI journals published in non-English-speaking countries, such as *Journal of the Meteorological Society of Japan* (*JMSJ*), *or Meteorology and Atmospheric Physics* (*MAP*) and *Tellus*, if all the best papers in China were published in AAS with the following steps taken.

2) *Adopt international standards to improve readability and publication quality.* Considerable and persistent editorial and community effort will have to be made along this line, with particular emphasis on the readability of every manuscript published in *AAS*. Specifically, give more attention to the accuracy of each article's title and abstract, since they are often the first to be read before the rest of the article. For instance, nearly half of the titles in the most recent issue of *AAS* (i.e., Vol. 18, No. 6) could be more accurately expressed and a couple of

them do not sound correct. Moreover, when a Chinese title reads as "A and B", which has been used very often, its English translation should read as either (a) "the effects of A on B or B on A," or (b) "a comparison of A with B or correlation (or relationship) between A and B." Print all Chinese names following the English convention, since *AAS* is an *international* professional journal fostering scientific communication between Chinese and foreign scientists. The current way of putting Chinese family names first but foreigners' last is not self-consistent and has been confusing foreign readers in referencing publications and personal communications. A compromise solution is to insert a comma between the family and given names, e.g., Ye, Duzheng and Tao, Shiyan. Provide more detailed figure captions (in case readers are only interested in examining figures), but eliminate the repetition of figure captions in the text. Try to be reader-friendly by including Chinese provincial boundaries and the names of places in the figures, especially when they are mentioned in the text, since many foreign readers are not familiar with Chinese geography. Alternatively, a map of Chinese geography may be printed on the back page of every issue of *AAS*. Provide appropriate acknowledgements as a section for any work, discussion, or data / model that have helped improve the quality of the paper, as well as appropriate citations of previous studies. The lead author's email address can be included in footnotes to facilitate scientific exchange, particularly in case foreign readers request the cited work. Include author and subject indices in the last issue of each year, particularly when more issues per year may be published in the future.

As for the technical standards, it is useful to read the "Authors' Guide" developed by the AMS (1992; or its brief version at http: // www.ametsoc.org / AMS / pubs / agdocs /), and a summary of the trends in atmospheric science journals by Geerts (1999), in which *AAS* was reviewed. It may be necessary for the *AAS* Editorial Board to develop "A Guide for Chinese Authors and Reviewers" that includes manuscript formats, rules for authors and reviewers, editorial procedures, as well as suggestions that target common writing problems. If possible, *AAS* should consider hiring a professional English Editor, as did JMSJ, who will edit the accepted manuscripts with consent of the authors to produce plain yet precise English articles. *Scientific publication quality* could be significantly improved by (a) inviting one or more foreign authoritative reviewers, (b) soliciting high-quality original papers from the international community, and (c) following rigorously international review and revision standards (see AMS 1992) *without any personal hindrance*, for each manuscript submitted to *AAS*. This procedure may initially increase the rejection rate or invoke more intensive revisions for many manuscripts. Yet, this is one of the most effective ways to improve publication quality and elevate the stature of *AAS*. The journal quality can also be improved through international collaborations that would lead to co-authored publications in *AAS*. This practice will likely generate opportunities for more significant scientific collaboration, which is consistent with the current science policy in China. Many overseas Chinese have gone through similar processes (i.e., co-authorships) to improve their English writing skills during the early stages of their career, including myself. This will help improve not only the quality but also the visibility of the co-authored papers and *AAS* itself, through citations of their own publications in other international journals. In particular, this may cause a positive feedback among readers, authors, and subscribers, thereby generating the citation dynamics to facilitate the elevation of *AAS*' stature.

3) *Reformulate the Editorial Board by inviting only those Editors who could contribute significantly to the quality of AAS.* At present, the *AAS* Editorial Board is composed of many invited international scientists. Perhaps most of us accepted this board membership as an honor rather than a commitment to contribute. It is reasonable for the *AAS* Board to ask them to (a) serve as an editor to ensure the publication quality, (b) review a few manuscripts each year, (c) more importantly, *publish their own papers* in *AAS*, (d) solicit high-quality papers from their colleagues, and (e) help improve the journal's circulation and stature. Thus, to minimize any misunderstanding, it will be necessary to specify clearly the responsibilities and expectations (or compensations) in the appointment letters sent to new editors in the future, and even to the current board members. To help elevate the stature of *AAS*, the Editorial Board may be reformulated to consist of one Chief Editor (or 2 Co-Chief Editors), 4–6 Editors, 1–2 Technical Editors and 10–20 Associate Editors with expertise in different fields, like that for the AMS' and the RMS' journals. If possible, the Chief (or one of the Co-Chief) Editor should be internationally well known and appointed without any age constraint. He / she would take full responsibility for the *AAS'* operation and policy implementation, making sure that all the editors follow international standards and procedures in the review and revision processes. Of more importance is that he / she could manage to aggressively solicit high-quality papers from the international meteorological community. Associate editors should also be required to provide candid assessments in cases of disputes between authors and reviewers. Most of the board members should be internationally visible and all highly committed to helping elevate the stature of *AAS*. Because much time and work are involved, the Board may consider providing some token compensation for all editors.

4) *Create a section of "Atmospheric Science Letters" to allow for quick publication of creative work.* The work to be published in this section could be preliminary or a prototype, such as scientific hypotheses, new diagnostic tools, important findings, or new atmospheric phenomena that have never been shown in the literature. This is what the title of *AAS* exactly means. In this regard, *Physics Letters*, *Geophysical Research Letters*, and some other journals have provided great examples for the speedy (short) publication of scientific findings. A more complete work could be submitted later for publication in *AAS* or another journal. Some new ideas, even controversial ones, may lead to subsequent stimulating discussions, arguments, or even critiques that are very much needed in today's research environment. Of course, special procedures, including expert reviewing, editing, and publishing, must be developed to promote such quick, respectable publication and scientific exchange. This may attract more foreign and Chinese scientists to read, and particularly to publish their findings and new ideas in *AAS* ahead of their colleagues whose eyes are only kept on other journals.

5) *Make full use of the section "Notes and Correspondence" to promote more active scientific dialogues.* Many short papers in previous issues of *AAS* could have been treated as "*Notes*". Of equal importance is to encourage scientific exchange through publications of comments and replies as "*Correspondence*", rarely seen in *AAS* or other Chinese journals. Does this absence mean that all the articles published in *AAS* contain something which is few errors or do not have any different arguments? Or have the authors not found any fault in their previous work afterwards? We, as professional scientists, should feel that telling our readers of some mistakes made, if any, in our previous publications is an honest, responsible and respectable, act, particularly for those results generated by numerical models in which no

one could guarantee "bug-free" results. Similarly, we should act professionally in dealing with comments on our previous studies. This is an important part of the "research culture" that we should all promote.

6) *Publish special issues based on materials from conferences or research trends and needs.* As far as I know, there are several international conferences and workshops held in China every year, which could provide an excellent source for high-quality papers organized as special issues. In this case, the workshop organizer(s) may be invited as the guest editor, as done often by other journals. Special issues could also be published on emerging fields, interdisciplinary research, or subjects with Asian characteristics but of international interest. In addition, *AAS* may have special issues dedicated to internationally renowned scientists or events. Special review papers (in a topical series) could also be solicited from active leading authorities in various fields for publication in *AAS*. All of these could help make *AAS* a more attractive journal to search for special research activities.

7) *Increase the international circulation of AAS to improve its accessibility.* The current prices of most English-language journals published in China appear to be too high, especially if one subscribes to them all. Thus, it is often not possible for many libraries to subscribe, particularly when they have budget constraints. Nonetheless, some attractive marketing strategies (e.g., a reduced subscription rate, well-designed flyers, authors' dissemination of reprints, and editors' and overseas scientists' roles in promoting the journal) will have to be developed to increase *AAS'* circulation both at home and abroad. Normally, people would be reluctant to submit their work to a journal that is not on the bookshelf of their library. Moreover, if possible, the price should be reduced so that many individual scientists can afford to subscribe.

8) *Change AAS' layout design and increase page limits to make its appearance more attractive.* Although *AAS* has a layout size similar to that of the RMS' *Quarterly Journal*, it is very thin and consists of many "short" papers. The current cover of *AAS*, looking like a book, is too fancy and may be costly to produce. The Table of Contents may be published on the front and back covers to minimize costs, like most international journals. This appearance will also show the openness of the journal. Furthermore, the Table of Contents should include all the authors' names, rather than using "so and so et al.," minimizing possible arguments for the order of authorship among the authors.

Increase the page limit for each article. This appears to partly affect the clarity and acceptability of some papers being published because of too brief technical descriptions or too small figures and fewer references. In addition, remove the total page limit for each issue, although I have noted that the most recent issue of *AAS* (i.e., Vol. 18, No. 6) is slightly thicker than the previous ones. Nevertheless, the page limit for each issue does not conform to the phenomenal annual growth of meteorological journal pages abroad (see Johnson and Schubert 1989; Geerts 1999). Reasonable page charges may then be requested to pay for additional pages beyond the page limit; this does not seem to be a problem in today's funding environment in China.

9) *Consider online publishing and electronic submission, editing, and reviewing to expedite the publication process.* Most scientists are already accustomed to downloading journal articles and reading them from desktop or laptop computers. Clearly, *AAS* will be more accessible if it has an online version with a lower subscription rate. As we know, the AMS launched an online journal entitled, *Earth Interactions* a few years ago. Another online journal entitled

Journal of Earth System Science Education may appear soon. Thus, publishing online journals and subscribing to the electronic version of journals have begun to become a fashion abroad (Seitter 1996), even for many university libraries. Similarly, manuscripts (and figures) to be edited and reviewed, if not provided in Word or PDF files, can be scanned and sent out via the Internet for editing and reviewing. All these will not only save a lot of trees, bookshelf space, office expenditure and postage, but also speed up the publication process. In particular, expediting the publication process could also make *AAS* a more attractive and competitive journal, since many journals have a long publication turnaround.

10) *Expand AAS' current website to improve its visibility and accessibility*. Abstracts, key words, and full articles starting from *AAS'* first issue can be electronically posted. A search engine may be developed to aid literature search by issue, authors' name, or key word. Similar features have often been seen in many personal websites. A growing number of scientists have become "addicted" to searching for journal articles on the Internet. This will be particularly true for the next-generation scientists who grow up in this computer-Internet era. The journal's visibility and subscription will certainly be improved if *AAS* appears frequently during an Internet search of atmospheric science subjects.

11) *Establish a publication award for the best paper*, in terms of both science and English writing, that has been published in *AAS* in the past 3 or 5 years to promote scientific excellence. (Even two awards may be considered: one for domestic scientists and the other for foreign scientists.) Meanwhile, *establish an Editor's award for the best professional service provided in the journal's growth*, in terms of reviewing effort, improving the journal quality and soliciting high-quality publications. All of these should be made transparent and posted on *AAS'* website.

12) *Develop an efficient communication system and evaluate the performance of AAS on a regular basis*. The former can easily be done using of an email system or password-controlled website. Furthermore, any request or question from an author, a reviewer, or an editor should be handled in a timely manner. The performance of *AAS* should be monitored regularly by checking the number of manuscripts received, acceptance rates, international contributions, the turnaround time, and foreign citations for all papers published during the past few years. The *AAS'* performance should also be evaluated in comparison with other international journals, in a way similar to that by Geerts (1999).

4. Final remarks

I am confident that if the above steps are all well taken, *AAS* will become not only a "must-read" journal for foreign scientists who want to keep informed of atmospheric science research in China, but also a great international journal for them to publish their important findings. Of course, I understand that some of the above recommendations might not be executed or may take some time to be executed due to certain limitations or lack of resources. Nevertheless, substantial organizational and collaborative efforts will have to be made persistently if *AAS* is to be appreciably reformed. This is the right time to develop such measures and take actions in order to make *international connections* in scientific publications. Finally, please keep in mind that many foreign scientists are willing to help bring Chinese meteorological research and journal publications to international recognition through scientific collaboration, participation in manuscript review, and publication of their work in *AAS*.

Please feel free to contact me if you need any elaboration on the above-mentioned comments and recommendations. I will be happy to provide any further assistance.

Acknowledgements. I am very thankful to many of my overseas colleagues and the foreign Board members of *AAS* for their interests and active email discussions on the improvement of this report. In particular, I am very indebted to Drs. Ferd Baer, Ming Cai, C.-P. Chang, Rong Fu, Qi Hu, Xiang-Yu Huang, William K.-M. Lau, Ngar-Cheung (Gabriel) Lau, Zhanqing Li, De-Zheng Sun, Bin Wang (Hawaii), Julian Wang, Lian Xie, Shangping Xie, Ming Xue, Song Yang (NOAA), Ning Zeng, Fuqing Zhang, Guangjun Zhang and Xun Zhu for helpful suggestions and editorial comments. This work was supported by the NSF grant ATM-9802391 and the NASA grant NAG-57842.

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Notice

After eighteen years of effort, ADVANCES IN ATMOSPHERIC SCIENCES (AAS) has become an international journal, playing a valuable role in promoting the exchange of scientific views.

Beginning in the second half of 2002, we will create two new sections in *AAS*. The first is "*Letters*", which will allow for the quick publication of creative works. The published works could be preliminary research or prototypes, such as scientific hypotheses, new diagnostic tools, important findings or new atmospheric phenomena that have yet to be introduced in the literature. In this respect, some new ideas— even controversial ones — may lead to the stimulation of discussions, arguments and even critiques that are very much needed in today's research environment. More complete works could be submitted later for publication in AAS. The second section is "*Notes and Correspondence*". The aim of this section is to promote the more active practice of scientific dialogue and to encourage scientific exchange through publications of comments and replies. This section will also serve as a forum for an author who has found faults in his previously published work to tell our readers of such mistakes made. The page limits for both sections are 2-5 pages.

We welcome your contributions to our journal and thank you for your support in advance.

Editorial Board of *Advances in Atmospheric Sciences*