Referencing Practices in Cloud Physics

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Abstract

A review of the referencing practices in selected journals published in the United States, the Soviet Union, and England shows that cloud physicists rely to a great extent on material published in the native languages of the authors. This practice has persisted for more than two decades and demonstrates a degree of chauvinism not appropriate in a scientific discipline.

Twenty-five years ago, Baum (1955) noted that atmospheric scientists in the United States were not using research findings published in the Soviet Union. Subsequently, Battan (1969) examined the referencing practices of cloud physicists in the United States, the U.S.S.R., and Great Britain. The phrase "cloud physics" in this article is used to represent studies dealing with the nature of clouds and precipitation, cloud modification, and the use of radar for cloud and precipitation observation. For obvious reasons, the decision as to whether or not an article deals with "cloud physics" is sometimes arbitrary.

The purposes of this brief note are to examine whether or not cloud physicists are staying abreast of developments in other countries and if there have been significant changes in referencing practices over the last 25 years.

Before examining the data it should be noted that translations were credited to the country of origin. In a few cases it could not be established in which country the referenced article first appeared.

Table 1 gives the percentage distribution of references in journals published by the American Meteorological Society. Most of the so-called "other" articles listed under 1978 are in the English language and appeared in material printed in Canada, Sweden, and Italy. The distribution of references in 1978 is not significantly different from the one found in 1968. The authors in American journals rely mostly on English language sources, especially those published in the United States.

TABLE 1. Percentage distribution of references in cloud physics, cloud modification, and radar meteorology articles in journals published in the United States. The initials J.M., J.A.M., and J.A.S. stand for JOURNAL OF METEOROLOGY, JOURNAL OF APPLIED METEOROLOGY, and JOURNAL OF THE ATMOSPHERIC SCIENCES, respectively.

Origin of reference	J.M. 1958	J.A.M. 1968	J.A.M. & J.A.S. 1978
U.S.A.	67%	75%	71%
U.S.S.R.	0.5	2	2
Great Britain	16	8	9
German language	5	2	2
French language	0.4	4	5
Other	11	9	11
Total number of references	805	405	1,277

Table 2 shows the percentage distribution of references in cloud physics articles in the *Quarterly Journal of the Royal Meteorological Society*. A striking point is the decrease from about 40%, the figure found in both 1958 and 1968, to 25% in the frequency of references to articles published in Great Britain. One might speculate that this resulted in part from the fact that the two major figures in British cloud physics, F. H. Ludlam and B. J. Mason, were not active in cloud physics research during the late 1970s.

Those individuals who published in the *Quarterly Journal* in 1977 and 1978 continued to rely mostly on

TABLE 2. Percentage distribution of references in cloud physics, cloud modification, and radar meteorology articles appearing in the *Quarterly Journal of the Royal Meteorological Society*.

Origin of references	Vol. 84 1958	Vol. 94 1968	Vols. 103 and 104 1977 and 1978
U.S.A.	43%	39%	57%
U.S.S.R.	0	2	1
Great Britain	40	44	25
German language	5	3	5
French language	2	0	2
Other	10	12	9
Total number of references	42	137	264

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English language sources. The 19% decrease in British references over the last decade was balanced by an increase in United States sources. References to Soviet articles were very few.

A person unfamiliar with the facts might be led to believe from Tables 1 and 2 that cloud physics research is almost nonexistent in the Soviet Union. That this is certainly not the case is shown by the data in Table 3. It is a tabulation of references in cloud physics articles that have appeared in Soviet Union. It shows that about 68% of the references by cloud physicists who published in *Izvestiia* in 1977 and 1978 were to works by their compatriots. Cloud physicists who published in *Izvestiia* in the late 1970s relied to a lesser extent than they did earlier on articles published in Great Britain and the United States. Publications from these countries are referenced only 16 and 2% of the time, respectively. These results show that Soviet scientists benefit from American research to a greater extent than do Americans from Soviet research. Nevertheless, Soviet scientists still appear to fall short of effectively utilizing research results published in the English language.

The general findings of Baum (1955) and Battan (1969) still apply. There is a general practice among cloud physicists in the United States, Britain, and the Soviet Union of depending too much on material published in their native languages. In light of the fact that cloud physicists in all three countries, for the most part, are pursuing essentially the same research objectives, how can one justify, for example, the fact that American scientists refer to their own journals about 70% of the time while referring to Soviet publications only 2% of the time?

Either the Soviet results are of little worth—an unacceptable assumption—or American (and British) cloud physicists are being distressingly inefficient. It seems unacceptable to continue such practices, particularly when the research is so expensive, and, as is usually the case, it is supported by public funds.

It could be argued that the failure to know and use Soviet results is a consequence of the fact that few westerners can read Russian. This argument is several decades old and is no longer a tenable one. There has been adequate time for the present generation of cloud physicists to learn to deal with the Russian literature.

TABLE 3. Percentage distribution of references in cloud physics, cloud modification, and radar meteorology articles appearing in the indicated Soviet publications.

Origin of references	165 Soviet articles in various journals before 1959	<i>Izvest. Akad. Nauk, Atmos. and Ocean,</i> Vols. 13 and 14 1977 and 1978	
		Vol. 4 1968	
U.S.A.	16%	18%	16%
U.S.S.R.	54	68	68
Great Britain	13	9	2
German language	13	2	4
French language	1	1	2
Others	3	2	8
Total number of references	805	405	294

A substantial quantity of Russian material is being translated into English on a regular basis. In addition, there are translation services eager to convert Russian into English. It would be an efficient use of research funds to translate judiciously selected Soviet articles and books.

Tables 1–3 demonstrate a degree of chauvinism that we would like to think does not exist in science. Surely in the interests of arriving more quickly at solutions to the many problems confronting cloud physicists it is essential that we learn from the work of others, regardless of the nationality of the scientist or the nation of the publication.

References

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