Scientometric profile of the journal Mausam

K.C. Garg, Praveen Sharma, Suresh Kumar
National Institute of Science, Technology and Development Studies (NISTADS), Pusa Gate,
Dr. K.S. Krishnan Marg, New Delhi – 110012, E mail: gargkc@nistads.res.in

An analysis of 369 items published in Mausam during 2003-2006 indicates that 72% items were papers, 23% letters to the editor, 4% report on “Weather in India” and the rest 1% as articles. Indian researchers belonging to India Meteorological Department contributed most of the items. Climatology, agricultural and environmental meteorology, synoptic meteorology, hydrometeorology, numerical weather forecasting and physical meteorology constituted about 56% of the total output. Time lag between receipt and acceptance of the manuscript is about 11 months, while the time lag between acceptance and publication of the manuscript is about 9. Editorial board members belonged to domestic institutions. The references cited by the journal are mostly international like other journals in the field. However, majority of the citations are older than 10 years. Based on the pattern of citations the journal received in the international literature its impact factor for 2005 and 2006 is almost the same (0.19). However, of the 49 Indian journals indexed by SCI-E in 2005, 18 have impact factor less than or equal to Mausam.

Introduction

Government of India established the India Meteorological Department (IMD) in the year 1875, bringing all meteorological work in the country under a central authority. It is the National Meteorological Service of the country and the principal government agency in all matters relating to meteorology, seismology and allied subjects. Recognizing the importance of the publication of scientific results in the concerned subjects, Blanford introduced the publication of the “Memoirs of the IMD”. In January 1950, IMD started publishing Indian Journal of Meteorology and Geophysics; a quarterly research journal devoted to meteorology and allied subjects. In 1975 its name was changed to Indian Journal of Meteorology, Hydrology and Geophysics, and in the year 1979 it was renamed as Mausam.

The journal publishes results of original scientific research in the field of meteorology and atmospheric sciences. During the last five decades of its publication there has been a gradual transition in its focus from observation-based studies and their synoptic and statistical analysis to numerical modeling and computer simulation. The journal has strived to maintain high quality of its scientific content and has grown in its popularity in India as well as abroad. Despite being published for more than last 50 years and being the only journal from this part of the world dealing with aspects of meteorology and related fields, the journal is still not being indexed by the Science Citation Index Expanded (SCI-E). However, some other journals published from India in other disciplines are being indexed by SCI-E.

The study presents a scientometric profile of the journal “Mausam” using the following parameters:
- Domestic versus international contributors;
- Sub-fields of research;
- Time lag between receipt, acceptance and publication of the manuscript;
- Editorial Board of the journal;
- Referencing pattern of the published articles in respect of the literature it cites and their age, and;
- The citations received by the articles published in it.

Data and methodology

Research material for the study was compiled from the published items of Mausam that provides information about the contributors of the journal for the years 2003 - 2006. The data consists of type of article, name of the first author with its affiliation, date of receipt of the manuscript, its acceptance and the date of its publication, type of literature cited, name of the cited journal with
its year of publication and citations of the published items to calculate immediacy index and impact factor.

Google Scholar was used to examine the citations of the published items.

Results

*Mausam*, a quarterly earth science journal is published in January, April, July and October of each year. The items published in *Mausam* are classified into four categories. These are papers and letters that deal with research-oriented work related to meteorology and allied subjects, articles and reports on “Weather in India”, compiled by the staff of the IMD. During 2003-2006, the journal published 16 issues including three special issues. In these 16 issues, the journal published 369 items, of which 85 were published in special issues. Based on the classification used by the journal, 264 (72%) items were categorized as papers, 85 (23%) as letters to the editor, 16 (4%) as report on “Weather in India” and the rest 4 (1%) as articles.

Domestic Versus international contributions

Based on the first author’s affiliation there are 349 items (papers and letters to the editor) that came from ten different countries including India. India contributed 320 items and Brazil, USA, and Bangladesh contributed 10, 7 and 4 items respectively. Egypt and Germany contributed two items each, while Australia, Switzerland, Nigeria, and France contributed one item each. There were 92 institutions involved in the publication of these items, of which 16 were from abroad. Appendix 1 lists seven prolific institutes those have published 10 or more papers during 2003-2006. Most of the domestic institutions belonged to IMD. Of the total 241 authors contributing these items, 14 belonged to foreign countries.

Sub-fields of Research

Analysis of 349 papers published during 2003-2006 indicates that these papers dealt with 50 different sub-fields of meteorology and atmospheric sciences. Six sub-fields, namely climatology, agricultural and environmental meteorology, synoptic meteorology, hydrometeorology, numerical weather forecasting and physical meteorology constituted about 56% of the output. The number of papers in these sub-fields was 70, 51, 27, 17, 17 and 14 respectively. Rest of the papers were scattered in other sub-fields.

Time lag between receipt, acceptance and publication of submitted manuscript

Time lag between receipt, acceptance and publication of a manuscript is an indicator of the quality of the journal. The information provided in the journal, indicates that the time lag between receipt and acceptance of the manuscript is about 11 months, while the time lag between acceptance and publication of the manuscript is about 9 months. Time lag between receipt and acceptance of the manuscript for *Quarterly Journal of Royal Meteorological Society Part B*, an international journal is about 9 months, while the time lag between acceptance and publication of the manuscript is about 5 months.

Composition of the editorial board

The composition of editorial board of a scientific journal is an indicator of its international visibility and prestige. Data provided in the journal suggests that all the editorial board members belonged to India. These were Director-General and Deputy Director-General of the IMD, who acted as editor of the journal. Other editorial board members belonged to Antarctic Study Center (Goa), Space Application Center (Ahmadabad), Indian Institute of Technology (New Delhi), Indian Institute of Tropical Meteorology (Pune), Cochin University of Science and Technology (Cochin), National Center for Medium Range Weather Forecasting (New Delhi), and Air Headquarters (New Delhi), besides senior ex-employees of the IMD.

References cited by the journal

Of all the 1605 cited items in the year 2005 by *Mausam*, 1270 (79%) were journal items, 204 (12.7%) were books, 89 (5.5%) reports of various agencies, and the rest - 42(2.6%) conference papers. Of the 1270 journal items cited, 220 (13.7%) were self-citations and the rest were to other journals. List of journals most commonly cited by *Mausam* in the year 2005 is given in Table 1. All the cited journals are of foreign origin, except *Proceedings of the Indian Academy of Sciences (Earth and Planetary Sciences)* and *Current Science*. All the cited journals listed in Table 1 are indexed by *Science Citation Index*. Examination of the age of the cited references reveals that about 15% are less than five years old, and 18% are between six to 10 years old, and the rest 67% are older than 10 years. The corresponding figures for some well-known journals for meteorology and atmospheric sciences (as seen from Journal Citation
Reports 2005) are given in Table 2. A comparison of data provided in Table 1 and Table 2 indicates that *Mausam* quotes a higher percentage of older literature as compared to some selected core journals of meteorology.

### Citedness of items published in *Mausam*

Frequency of citation of an article is a measure of the influence of the journal and provides quantitative information on the visibility of the article. Two measures most commonly used to measure the visibility of the journal are Immediacy Index and Impact Factor. Immediacy index is a measure of how quickly the average article in a particular journal is cited. A journal’s immediacy index considers citations made during the year in which the cited items were published. Impact factor is basically a ratio between citations and citable items and is calculated by dividing the number of current year citations to total articles published in that journal in two previous years.

Mathematically,

\[
\text{immediacy index} = \frac{\text{Citations in year } X \text{ to articles published in year } X}{\text{Total number of articles published in year } X}
\]

\[
\text{impact factor} = \frac{\text{Citations in year } X \text{ to articles published in year } (X - 1)}{\text{Journal articles published in year } (X - 1) \text{ and } (X - 2)}
\]

In the present case, we calculated immediacy index and impact factor for the years 2005 and 2006.
Discussion

Based on the affiliation of the first author, 92% of papers were from India and only 8% papers from abroad. Considering the large proportion of domestic contributions and composition of the editorial board, it appears to be a domestic journal. The journal needs to include eminent scientists / researchers of the field from abroad in its editorial board to encourage contributions from abroad. This will help in larger circulation of the journal as well as in raising the impact factor of the journal. The journal should also consider a change in its name to English language as the present title Mausam is of Arabic origin adopted in popular Hindi language, which is not understood by the international scientific community. Time lag between receipt and acceptance of the manuscript is about nine months, which is comparable to Quarterly Journal of Royal Meteorological Society Part B, an international journal in the field of meteorology and atmospheric sciences. However, the time lag between acceptance and publication of the manuscript has to be reduced, as it is twice that of Quarterly Journal of Royal Meteorological Society Part B.

The references cited by the journal are mostly international like other journals in the field. Based on the pattern of citations the journal received in the international literature its impact factor for 2005 and 2006 is almost the same (0.19). However, of the 49 Indian journals indexed by SCI-E in 2005, 18 have impact factor less than or equal to Mausam. These journals are:

- Annals of Arid Zone (0.153),
- Asian Journal of Spectroscopy (0.083),
- Defence Science Journal (0.172),
- IETE Journal of Research (0.052),
- IETE Technical Review (0.010),
- Indian Journal of Agricultural Sciences (0.084),
- Indian journal of Animal sciences (0.090),
- Indian Journal of Engineering and Material sciences (0.160),
- Indian Journal of Fiber and Textiles (0.190),
- Indian Journal of Physics (0.072),
- Indian Journal of Pure and Applied Mathematics (0.073),
- Indian Veterinary Journal (0.052),
- Journal of Advanced Zoology (0.000),
- Journal of Applied Animal research (0.132),
- Journal of Camel Practice Research (0.174),
- Journal of Food science and Technology, Mysore (0.123),
- National Academy Science Letters (0.057),
- Proceedings Indian Academy of Sciences: Mathematical Sciences (0.154).

While calculating the impact factor of the journal, it has been observed that letters to the editor are not cited in the literature. In view of this, it is suggested that letters to the editor are published as full-length research items. This will result in increase of the impact factor of the journal.

Conclusion

It can be concluded that the journal duly meets most of the criteria required by Thomson Journal Selection Process and is thus a potential candidate for its inclusion.
in SCI-E. The editors of the journal should make efforts to get it included in *SCI-E* that would enhance its international visibility and would attract more articles from abroad. Details are available on the website of the Thomson Scientific.

**References**

1. The work of pioneers available at [http://www.imd.ernet.in/doc/history/work-of-pioneers.htm](http://www.imd.ernet.in/doc/history/work-of-pioneers.htm)

2. Editorial (Special Commemorative Volume on Completion of 125 years of IMD and 50 years of Mausam), *Mausam*, January 2001.


4. The Institute of Scientific Information (ISI): Journal Citation Reports, Philadelphia, USA


---

**Appendix 1**

**Most prolific institutions publishing in Mausam**

<table>
<thead>
<tr>
<th>Name of the Institution</th>
<th>Place</th>
<th>Number of papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>India Meteorological Department</td>
<td>New Delhi</td>
<td>57</td>
</tr>
<tr>
<td>Meteorological Office</td>
<td>Pune</td>
<td>42</td>
</tr>
<tr>
<td>India Meteorological Department</td>
<td>Pune</td>
<td>38</td>
</tr>
<tr>
<td>Indian Institute of Tropical Meteorology</td>
<td>Pune</td>
<td>27</td>
</tr>
<tr>
<td>Instituto Nacional de Pesquisas Espacials</td>
<td>Brazil</td>
<td>10</td>
</tr>
<tr>
<td>Regional Meteorological Centre</td>
<td>Chennai</td>
<td>10</td>
</tr>
<tr>
<td>Space Application Centre</td>
<td>Ahmadabad</td>
<td>10</td>
</tr>
</tbody>
</table>