Chapter 8
A scientometric analysis of AIAA journals

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ABSTRACT

American Institute of Aeronautics and Astronautics (AIAA) is a professional organization, integral part of the aerospace community who monitors and often records the activities of its members, through books, papers, journals and conferences AAIAA's mission is to address the professional needs and interests of the past, current, and future aerospace workforce and to advance the state of aerospace science, engineering, technology, operations, and policy to benefit our global society topics. One of the important contributions of these Journals is review and survey papers by experts. The present study in this chapter evaluates the document contributions in these journals based on the data collected from Web of Science over a period of thirteen years from 2000 to 2012. The study reveals that Chemistry is the subject which produces more number of papers while the multi-authorship also possesses a lead role in this subject.

INTRODUCTION

Scientific research and communication are correlated which influences each for a longer period. Scientometrics which deals with the sociological aspects of science subjects is a unique research area which contributes information to quantify national and international systems of innovation, to develop science and technology policies which have long term economic and social benefits. Scientometric technique has gained significance in Library and Information Science field since it has a widespread applications in measuring the growth rate of scientific research literature of a nation, organization and various branches of science and also deals with the pattern of publication, authorship, productive author, author affiliation, citation behavior of a subject over a period of time and thus offers insight into the dynamics of the area under study which in turn may help to formulate policies.

In 1969 Nalimov, V. V. & Mulchenko, Z. M. (1969) introduced the term "Scientometrics" and they coined the Russian equivalent of the

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"scientometrics" as "naukometria". According to Beck (1978), scientometrics is defined as the quantitative evaluation and inter-comparison of scientific activity, productivity and progress. Brookes (1990) gave a further insight into the use and definition and stated that "the term scientometrics, nurtured by Tiber Braun, has fruitful in science policy studies. The term has established a significant role in the social sciences. Applications are so far been restricted to exploitation of citation data provided by ISI but further refinements are now being critically examined". Tauge-Sutchiffe (1992) defined scientrometrics as a study of the quantitative aspects of science as a discipline or economic activity. It is part of the sociology of science and has application to science policy-making. It involves quantitative studies of scientific activities including, among others, publications and so overlaps bibliometrics some extent. The term gained wide recognition with the introduction of the journal "Scientometrics" in 1978 by Tibor Braun in Hungary. According to De Solla Price (2000), scientometrics is the application of mathematical and statistical methods of scientific literature.

SOURCE

American Institute of Aeronautics and Astronautics (AIAA) is a professional organization in the field of aerospace engineering founded in 1963 by merging American Rocketry Society and the Institute of the Aerospace Sciences. It serves worldwide with the motto "the world's forum for aerospace leadership". AIAA's mission is to address the professional needs and interests of the past, current, and future aerospace workforce and to advance the state of aerospace science, engineering, technology, operations, and policy to benefit our global society. The purpose and promise is to ignite and celebrate aerospace ingenuity and collaboration, and its importance to our way of life and be the vital lifelong link to the aerospace community and a champion for its achievements. Another aspect of AIAA is their standards writing activities. In the past, AIAA standards for aeronautics have been incorporated into broader standards and public laws. These standards help transition innovative aeronautical ideas to everyday usage. As a major activity AIAA currently publishes the following technical journals (table-1) on specialized topics.

Table 1. List of AIAA Journals

Sl No	Name of Journal	Periodicity
1	AIAA Journal	Monthly
2	Journal of Aerospace Information	Bi-monthly
3	Journal of Aircraft	Bi-monthly
4	Journal of Guidance, Control, and Dynamics	Bi-monthly
5	Journal of Propulsion and Power	Bi-monthly
6	Journal of Spacecraft and Rockets	Bi-monthly
7	Journal of Thermophysics and Heat Transfer	Bi-monthly

The AIAA Journal is published on a monthly basis and serves as the flagship journal of the society. A monthly general interest magazine called Aerospace America is sent to all members. AIAA also produces several series of technical books ranging from education to progress in advanced research topics. One of the important contributions of these Journals is review and survey papers by experts.

SCOPE AND METHODOLOGY

The present study includes the contribution of selected three journals of AIAA such as – AIAA journal (v38 – v50), Journal of Spacecraft and Rockets (v36 – v49) and Journal of Propulsion and Power (v16 – v28) during the period of 2000 to 2012. The analysed data has been retrieved from Web of Science which is a database maintained by Thomson Reuters. Journal names were given