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## A Scientometric Study on International Journal of Remote Sensing: 2006-2015

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### Abstract

*This study analyzed a scientometric study in International Journal of Remote Sensing during the year 2006-2015. This report reflects citations to source items indexed within Web of Science Core Collection of the performance of remote sensing from all over the world in term of growth during the period of 10 years. It is reported that the distribution of the year wisely, Distribution of the document type, Top 25 Author wise contributions of the International Journal of Remote Sensing, Cited References of the International Journal of Remote Sensing, Institution wise International Journal of Remote Sensing Journal of Top 25 Records and Collaborative index of continents of Remote sensing*

### Keywords

Scientometric Study; International Journal of Remote Sensing; Web of Science

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## INTRODUCTION

Scientometric is one of the metric sciences which are developed in the 21<sup>st</sup> century in library and information science, can be applied to any discipline irrespective of their period of evaluation and quantitative studies of scientific studies. The earlier scientometric study shows that climate change research has grown rapidly, especially since the 1970's (Stanhill, 2001). Scientometric researchers have extensively studied the evolution, dynamics and structures of different scientific fields, but the environmental field is rarely studied (Jappe, 2007). Scientometric studies have shown that the research on the human dimension of global environmental change has grown in the last ten years, the integration of resilience, vulnerability and adaptation research is still weak (Janssen et al. 2006). International collaboration in global environmental change research has increased faster than science on average, although collaboration with developing countries is limited (Engels and Ruschenburg, 2008; Engels et al. 2005; Jappe, 2007). Scientometric analysis is the quantitative study of the growth of a subject by using scientometric indication and statistical tool and technique. It is the study and measurement of the pattern of all forms of published knowledge. It is coined to describe the studies dealing with the quantification of written communication. Tague – Sutcliffe defines “scientometrics is the 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, publication and so overlaps bibliometrics to some extent. (Tague – Sutcliffe, 1992)

## REVIEW OF LITERATURE

Murugan and Ravanan (2016) this paper, based on the work carried out by the Scientometric study of the Research Productivity of Anna University based on Scopus Database in the Year 1979 – 2014. The most of the 36 years in research productivity in the total number of publication 13631 followed by high level 2050 (15.03%), Anna University top most level are 13631 number of published article with first ranks, International collaboration in Research Productivity 17904 research papers published by 50 institutions, among the institutions “Anna University” has published 13631 publications with first ranks among the institutions, Most of the Prolific Authors by Anna

University followed by Ramasamy, P total number of publication in the research papers are 396(5.64%), of research productivity on Anna University in first position occupied. Murugan and Ravi (2016) presented a paper on “A study on SCImago Journal and Country Ranking list of Top 50 Ranking Journals of Library and Information Science.” This paper aimed to find out the top most journals in the field of Library and Information Science. The SCImago Journal and Country Ranking were used to identify the top 50 Journal Publications. The journal Information Systems Research gets the first place with the SCImago Journal and Country Rank 4.397 and h-index number 116 (5.50%). Raja and Murugan (2015) carried out a study on “A Bibliometric Study on Research and Reflections on Education. This paper presents the Bibliometric analysis of the Journal of Research and Reflections on Education from 2004 to 2013 (Ten Years). Maximum number of articles (31) published in the year 2006. 60.76% of the articles (161 articles) is contributed by double authors. 71.94% of the authors of colleges and universities. 83.39% of the articles (221) at state level studies, 15.85% of its articles (42) covered the areas of teaching skills. Selvantony, Ravanan and Murugan (2015) investigate a study on “Research publications of B.S. Abdur Rahman University: A Scientometric Analysis (1995-2014).” A total of 98 articles were downloaded from the Scopus database using the search term B.S. Abdur Rahman University, subjected to Scientometric data analysis techniques. A number of research questions pertaining to publication frequency, country, and individual productivity and collaboration were proposed and answered. Based on the findings, many implications emerged that improve one’s understanding of the identity of engineering and science research area. The pool of articles is drawn from the Scopus database though there are other databases.

**LIMITATIONS OF THE STUDY**

The study undertaken is limited to 10 years, i.e. 1996- 2015. Further, this study throws light on only those articles produced by the International Journal of Remote Sense which have been included in Web of Science.

**OBJECTIVES OF THE STUDY**

The study has been designed with the following objectives:

- To study the pattern of year wise articles during 2006 – 2015.
- To analyze the top 25 author wise contributions of the International Journal of remote sensing
- To identify cited references of the International Journal of remote sensing
- To indicate the Institution wise International Journal of Remote Sensing Journal of Top 25 Records and
- To analyze that the country wise distribution of the articles

**DATA AND METHODOLOGY**

The source journal is a quarterly journal. The data for the study was retrieved from the printed issues from 2006 – 2015 for 10 years. The data consists of years of publication with its year wise article, Top 25 authors, wise contribution, identify cited references, the Institution wise and country. For studying several parameters mentioned under the objectives, complete count method has been followed for the analysis of the data. The data were analyzed the percentage analysis only.

**Table 1:** Year wise Distribution of Publications

S.No.	Publication Year	Records	%
1	2006	355	8.45
2	2007	369	8.79
3	2008	433	10.31
4	2009	405	9.64
5	2010	401	9.55
6	2011	539	12.83
7	2012	420	10.00
8	2013	502	11.95
9	2014	451	10.74
10	2015	325	7.74
	Total	4200	100.00

In Table 1 show that a total of 4200 research publications in International Journal of Remote Sensing Year 2006-2015 were published with an average 420 articles per year. There is an increasing trend in the research production in Remote Sensing and figure.1 represents that year wise distribution of International Journal of Remote Sensing.

**Table 2:** Distribution of the Document Type

S.No.	Document Type	Records	%
1	Article	3901	92.88
2	Proceedings Paper	153	3.64
3	Editorial Material	56	1.33
4	Review	49	1.17
5	Correction	28	0.67
6	Letter	11	0.26
7	Biographical-Item	1	0.02
8	Book Review	1	0.02
	Total	4200	100.00

The research productions have been contributed in 1 bibliographic form and seven forms of documents such as articles, article proceedings paper, editorial materials, review, correction, letter and book review occupy the most of the publications. They occupy 92.88 % of the overall production

**Table 3:** Top 25 Author wise contributions of the International Journal of remote sensing

S.No.	Author	Records	%
1	Li J	38	0.23
2	Li ZL	34	0.21
3	Sobrino JA	33	0.20
4	Chen J	28	0.17
5	Wang L	27	0.17
6	Zhang Y	27	0.17
7	Wang Y	25	0.15
8	Gong P	24	0.15

**Table 4:** Top 20 ranks of Institution with Subdivision

S.No.	Institution with Subdivision	Records	%	Rank
1	Chinese Acad Sci, Inst Remote Sensing Applicat	88	0.91	1
2	NASA, Goddard Space Flight Ctr	59	0.61	2
3	Chinese Acad Sci, Grad Univ	58	0.60	3
4	Unknown	47	0.49	4
5	Beijing Normal Univ	44	0.45	5
6	Chinese Acad Sci, Inst Remote Sensing & Digital Earth	44	0.45	5
7	Chinese Acad Sci, Inst Geog Sci & Nat Resources Res	41	0.42	6
8	Indian Inst Trop Meteorol, Pune 411008	41	0.42	6
9	Wuhan Univ, State Key Lab Informat Engn Surveying Mapping & R	41	0.42	6
10	ISRO, Ctr Space Applicat	40	0.41	7
11	Nanjing Univ, Int Inst Earth Syst Sci	40	0.41	7
12	Univ Maryland, Dept Geog	32	0.33	8
13	Chinese Acad Sci, Grad Sch	30	0.31	9
14	CALTECH, Jet Prop Lab	29	0.30	10
15	Chinese Acad Sci, Ctr Earth Observat & Digital Earth	29	0.30	10
16	Beijing Normal Univ, State Key Lab Earth Surface Proc & Resource Ecol	24	0.25	11

9	Jiang H	24	0.15
10	Cracknell AP	23	0.14
11	Zhang J	22	0.14
12	Wang C	20	0.12
13	Zhang H	20	0.12
14	Zhang XY	20	0.12
15	Foody GM	19	0.12
16	Kuenzer C	19	0.12
17	Li Z	18	0.11
18	Varotsos CA	18	0.11
19	Wang J	18	0.11
20	Chen Y	17	0.10
21	Skidmore AK	17	0.10
22	Zhang L	17	0.10
23	Li XW	16	0.10
24	Lin H	16	0.10
25	Zhang LP	16	0.10

It is seen from Table 3 that Author wise Distribution of scientometric study in International Journal of Remote Sensing. The citing articles are 23337 publications are found. The author wisely found in differently are Li J are 38 (0.23%), followed by Li ZL 34(0.21%), Sobrino JA 33(0.20%), Chen J 28(0.17%), Wang L and Zhang Y 27 (0.17%), Wang Y, 25 (0.15%),Gong,P and Jiang,H 24(0.15%),Cracknell AP, 23(0.14%), Zhang J 22(0.14%), Wang C, Zhang H and Zhang H 20(0.12%) and others are followed by different records.

17	Chinese Univ Hong Kong, Inst Space & Earth Informat Sci	24	0.25	11
18	Beijing Normal Univ, Sch Geog	23	0.24	12
19	Chinese Acad Agr Sci, Inst Agr Resources & Reg Planning	22	0.23	13
20	Commiss European Communities, Joint Res Ctr	22	0.23	13
21	Univ Nottingham, Sch Geog	22	0.23	13
22	Beijing Normal Univ, Coll Resources Sci & Technol	21	0.22	14
23	Chinese Acad Sci, State Key Lab Remote Sensing Sci	21	0.22	14
24	NOAA, NESDIS	21	0.22	14
25	Hong Kong Polytech Univ, Dept Land Surveying & Geoinformat	20	0.21	15
26	Univ Southampton, Sch Geog	20	0.21	15
27	Univ Chinese Acad Sci	19	0.20	16
28	Univ Athens, Dept Appl Phys	18	0.19	17
29	Beijing Normal Univ, State Key Lab Remote Sensing Sci	17	0.18	18
30	Chinese Acad Sci, Inst Elect	17	0.18	18
31	Indian Inst Technol, Dept Earth Sci	17	0.18	18
32	Chinese Acad Sci, S China Sea Inst Oceanol	15	0.16	19
33	Indian Inst Technol, Dept Civil Engn	14	0.14	20
34	Int Inst Geoinformat Sci & Earth Observat ITC	14	0.14	20
35	Natl Cent Univ, Ctr Space & Remote Sensing Res	14	0.14	20

In Table 4 shows that Institution with Subdivision wise International Journal of Remote Sensing among various organizations. The study found that the total research output of the remote sensing journals for the period (2006-2015) published in more journals. As the major portion of the research productivity covered by 99 and selected only 35 institutions. Top twenty produced Mostly 61% of the research output. The

Chinese Acad Science, e Institute of Remote Sensing Application followed by first ranked with 88 records, next NASA, Goddard Space Flight Control are 59 records as ranked with second position and Chinese Acad Sci, Grad University are ranked with third position and followed by other subdivisions respectively.

**Table 5:** Cited References of the International Journal of Remote sensing

S.No.	Cited References	Records
1	CONGALTON RG, 1991, REMOTE SENS ENVIRON, V37, P35, DOI 10.1016/0034-4257(91)90048-B	175
2	Huete A, 2002, REMOTE SENS ENVIRON, V83, P195, DOI 10.1016/S0034-4257(02)00096-2	140
3	Foody GM, 2002, REMOTE SENS ENVIRON, V80, P185, DOI 10.1016/S0034-4257(01)00295-4	131
4	TUCKER CJ, 1979, REMOTE SENS ENVIRON, V8, P127, DOI 10.1016/0034-4257(79)90013-0	125
5	Vermote EF, 1997, IEEE T GEOSCI REMOTE, V35, P675, DOI 10.1109/36.581987	100
6	Chavez PS, 1996, PHOTOGRAMM ENG REM S, V62, P1025	96
7	HUETE AR, 1988, REMOTE SENS ENVIRON, V25, P295, DOI 10.1016/0034-4257(88)90106-X	93
8	HARALICK RM, 1973, IEEE T SYST MAN CYB, VSMC3, P610, DOI 10.1109/TSMC.1973.4309314	91
9	Congalton R., 1999, ASSESSING ACCURACY R	89
10	Benz UC, 2004, ISPRS J PHOTOGRAMM, V58, P239, DOI 10.1016/j.isprsjprs.2003.10.002	80
11	Varotsos C, 2002, ENVIRON SCI POLLUT R, V9, P375, DOI 10.1007/BF02987584	78
12	GREEN AA, 1988, IEEE T GEOSCI REMOTE, V26, P65, DOI 10.1109/36.3001	76
13	HOLBEN BN, 1986, INT J REMOTE SENS, V7, P1417	76
14	SINGH A, 1989, INT J REMOTE SENS, V10, P989	74
15	Gao BC, 1996, REMOTE SENS ENVIRON, V58, P257, DOI 10.1016/S0034-4257(96)00067-3	72
16	Song C, 2001, REMOTE SENS ENVIRON, V75, P230, DOI 10.1016/S0034-4257(00)00169-3	72
17	Pohl C, 1998, INT J REMOTE SENS, V19, P823, DOI 10.1080/014311698215748	70
18	Varotsos C, 2005, ATMOS ENVIRON, V39, P4041, DOI 10.1016/j.atmosenv.2005.03.024	70
19	Holben BN, 1998, REMOTE SENS ENVIRON, V66, P1, DOI 10.1016/S0034-4257(98)00031-5	68
20	Varotsos CA, 2006, INT J REMOTE SENS, V27, P3593, DOI 10.1080/01431160600617236	68

21	Blaschke T, 2010, ISPRS J PHOTOGRAMM, V65, P2, DOI 10.1016/j.isprsjprs.2009.06.004	65
22	KRUSE FA, 1993, REMOTE SENS ENVIRON, V44, P145, DOI 10.1016/0034-4257(93)90013-N	64
23	KONDRATYEV KY, 1995, NUOVO CIMENTO C, V18, P123, DOI 10.1007/BF02512015	63
24	Lu D, 2004, INT J REMOTE SENS, V25, P2365, DOI 10.1080/0143116031000139863	62
25	Varotsos C, 2006, ATMOS CHEM PHYS, V6, P4093	60

In Table 5 shows that contribution of remote sensing by top 99 institutions. CONGALTON RG, 1991, Remote Sense Environ, V37, P35, DOI 10.1016/0034-4257(91)90048-B had published the record of 175 followed by Huete A, 2002, Remote Sense Environ, V83, P195, DOI 10.1016/S0034-4257(02)00096-2 has 140 records and Foody GM, 2002, Remote Sense Environ, V80, P185, DOI 10.1016/S0034-4257(01)00295-4 and others are respectively.

**Table 6:** Institution wise International Journal of Remote Sensing Journal of Top 25 Records

S.No.	Institution	Recs	%	TLCS	TGCS
1	Chinese Acad Sci	429	4.93	341	3300
2	Beijing Normal Univ	148	1.70	174	1652
3	NASA	80	0.92	76	930
4	Wuhan Univ	78	0.90	56	722
5	Univ Maryland	70	0.80	130	989
6	Indian Inst Technol	61	0.70	38	539
7	Nanjing Univ	58	0.67	36	458
8	Indian Inst Trop Meteorol	48	0.55	34	191
9	ISRO	48	0.55	28	292
10	Unknown	47	0.54	22	92

**Table 7:** Collaborative index of continents of Remote sensing

S.No	Country	Records	%	TLCS	TGCS
1	Peoples R China	1022	18.03	730	7477
2	USA	984	17.36	960	11459
3	India	414	7.30	237	2674
4	UK	266	4.69	391	3009
5	Canada	232	4.09	163	2225
6	Germany	213	3.76	234	2531
7	Italy	195	3.44	151	2159
8	France	193	3.40	176	2210
9	Japan	189	3.33	164	1518
10	Spain	160	2.82	120	1561
11	Netherlands	117	2.06	98	1444
12	Australia	112	1.98	84	1109
13	Brazil	110	1.94	90	1007
14	Unknown	97	1.71	88	712

11	NOAA	46	0.53	48	477
12	Univ Valencia	43	0.49	55	600
13	Russian Acad Sci	42	0.48	44	202
14	Chinese Univ Hong Kong	37	0.43	29	260
15	Zhejiang Univ	35	0.40	30	339
16	CNRS	34	0.39	52	512
17	Univ Chinese Acad Sci	34	0.39	15	86
18	Univ Athens	33	0.38	150	396
19	Univ Wisconsin	33	0.38	33	501
20	Univ Southampton	32	0.37	64	399
21	CALTECH	31	0.36	18	295
22	George Mason Univ	31	0.36	19	171
23	Chinese Acad Agr Sci	29	0.33	37	120
24	Univ Helsinki	29	0.33	26	263
25	CNR	28	0.32	24	303

Table.6 describes that the Institution wise International Journal of Remote Sensing Journal of Top 25 Records during the study period of 2006 to 2015 years. It is found that Institute of Chinese Academy of Science 429 records (4.93%) with 341 TLCS and 3300 TGCS followed by Beijing Normal University 148 records (1.70%), 174 TLCS and 1652 TGLS followed by respectively other records.

15	Greece	93	1.64	194	862
16	Russia	85	1.50	77	380
17	Belgium	79	1.39	91	985
18	South Korea	77	1.36	45	364
19	Turkey	65	1.15	38	413
20	Taiwan	58	1.02	38	409
21	Sweden	47	0.83	47	562
22	Malaysia	46	0.81	36	292
23	Portugal	46	0.81	38	378
24	Israel	44	0.78	37	349
25	Finland	43	0.76	47	633
26	Iran	43	0.76	24	266
27	South Africa	42	0.74	37	542
28	Switzerland	41	0.72	30	500
29	Austria	33	0.58	40	478
30	Norway	32	0.56	22	276
31	Mexico	30	0.53	23	438
32	Denmark	29	0.51	24	250
33	Argentina	25	0.44	11	237

34	New Zealand	25	0.44	19	206
35	Ukraine	22	0.39	20	55
36	Chile	16	0.28	11	141
37	Egypt	15	0.26	6	94
38	Estonia	15	0.26	6	106
39	Poland	14	0.25	5	54
40	Thailand	14	0.25	0	44
41	Kenya	13	0.23	8	32
42	Algeria	11	0.19	6	31
43	Indonesia	11	0.19	1	56
44	Singapore	10	0.18	5	59
45	Czech Republic	9	0.16	6	66
46	Jordan	9	0.16	6	45
47	Morocco	9	0.16	14	136
48	Pakistan	9	0.16	7	66
49	Saudi Arabia	9	0.16	0	26
50	Ireland	8	0.14	14	204
51	Tunisia	8	0.14	0	35
52	Bulgaria	7	0.12	5	35
53	Nigeria	7	0.12	0	8
54	Sudan	7	0.12	9	168
55	Zimbabwe	7	0.12	6	119
56	Bangladesh	6	0.11	0	32
57	Byelarus	6	0.11	2	9
58	Oman	6	0.11	0	20
59	Vietnam	6	0.11	2	37
60	Colombia	5	0.09	0	42
61	Hungary	5	0.09	12	91
62	Iceland	5	0.09	1	83
63	Kuwait	5	0.09	1	26
64	Lebanon	5	0.09	1	9
65	Philippines	5	0.09	4	38
66	Sri Lanka	5	0.09	9	158
67	Croatia	4	0.07	0	7

67	Cyprus	4	0.07	2	9
68	Ethiopia	4	0.07	1	31
69	Luxembourg	4	0.07	3	61
70	Botswana	3	0.05	2	15
71	Ecuador	3	0.05	0	7
72	Laos	3	0.05	1	15
73	Mali	3	0.05	2	33
74	Mongol Peo Rep	3	0.05	5	24
75	Peru	3	0.05	1	20
76	Slovenia	3	0.05	0	46
77	Tanzania	3	0.05	8	30
78	U Arab Emirates	3	0.05	1	21
79	Burkina Faso	2	0.04	1	13
80	Cameroon	2	0.04	3	9
81	Costa Rica	2	0.04	0	29
82	French Guiana	2	0.04	0	12
83	Ghana	2	0.04	2	8
84	Niger	2	0.04	0	11
85	Qatar	2	0.04	1	8
86	Rep of Georgia	2	0.04	2	11
87	Senegal	2	0.04	2	9
88	Trinidad & Tobago	2	0.04	2	23
89	Uganda	2	0.04	2	9
90	Uzbekistan	2	0.04	2	37
91	Venezuela	2	0.04	1	5
92	Albania	1	0.02	0	30
93	Azerbaijan	1	0.02	0	2
94	Bolivia	1	0.02	0	3
95	Cote Ivoire	1	0.02	0	0
96	Cuba	1	0.02	0	3
97	El Salvador	1	0.02	0	3
98	Eritrea	1	0.02	2	27

Table.7. Indicates that the country wise distribution of the articles found that 18.03% of the total articles contribute by authors from Peoples R China, followed by USA 17.36%, India (7.30%), UK (4.69%),Canada (4.09%), Germany (3.76%), Italy (3.44%) and France (3.40%). The India occupied is the third position of the articles (7.30%) contributed by authors among 99 Countries.

### CONCLUSION

It is conclude of the study, International journal of remote sensing contributed a paper have in the year 2011 are increase and after the year of 2015 is decreased and the remaining years are continuously increasing. The journal has published the engineering related s of remote sensing and Geoinformatics. This

journal has very informative research, analysis of all over India and other popular countries.

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