

# Impact analysis of the *Journal of Geographical Sciences* during 2009–2015

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**Abstract:** Based on Journal Citation Reports™, Web of Science, Springer data and manuscript statistical data, we analyzed the citation indices of the *Journal of Geographical Sciences* (JGS) from 2009 to 2015. The main indices include the number and proportion of international manuscripts, published articles, downloads, impact factors, total cites, cited journals, citing journals, and highly cited papers. Up to 2015, the JGS had received manuscripts from authors in 80 countries and published papers from authors in 32 countries. The citation indices of JGS show increasing trends in the last seven years. The impact factor of the JGS increased from 0.518 in 2009 to 1.923 in 2015. Total cites increased from 157 in 2009 to 1276 in 2015. The international full-text downloads of the JGS increased year by year, and the number of downloads in 2015 was about three times that of 2009. The published papers were considered to be influential. The results of this study provide scientific guidance for the development of the *Journal of Geographical Sciences* and can be used to improve the quality of other Chinese geographical journals.

**Keywords:** *Journal of Geographical Sciences*; impact factor; total cites; cited journal; citing journal

## 1 Introduction

The *Journal of Geographical Sciences* (JGS) is a periodical covering the natural sciences. It publishes articles related to physical processes and the spatial pattern of the Earth's surface, physico-geographical elements and their interaction, global change and its regional response, characterization and management of natural resources, landscape ecology and environmental construction, remote sensing, geographic information systems and their applications in geographical research, and other related topics. The JGS is co-sponsored by the Geographical Society of China and the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (CAS). The JGS aims to strengthen the academic exchange of geographic information between China and other countries, and to offer a publication for exchanging academic ideas between geographers around the world (Zhao *et al.*, 2014). The JGS was previously named the Journal of Chinese Geography during 1990–2000. It has been indexed in the Science Citation Index Expanded (SCIE) since 2007. The annual journal cita-

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tion report of JGS has been given since 2009. The JGS has been published monthly since 2015 by Science Press and Springer.

The Journal Citation Report (JCR) is published by the Institute for Scientific Information (ISI), and is based on a quantitative statistical analysis of citations among journals. The JCR provides a quantitative tool for the evaluation, ranking, categorization, and comparison of scientific journals. Indicators such as impact factor and total cites are published annually according to a journal's performance during the year (JCR Report). On June 13, 2016, ISI published the Journal Citation Report of 2015 (JCR 2015). In the JCR 2015, the impact factor of the JGS increased to 1.923 from 1.344 in the previous year, i.e., an increase of 43.1%. The JGS was ranked 28th among the 49 international journals in the physical geography category, and 42nd among 185 SCI journals published on the mainland of China. The total cites of the JGS was 1276 times in 2015, compared with 938 times in 2014. This ranked 30th among the 49 international journals in the physical geography category.

In this study, we analyzed the main indicators, i.e., impact factor, total cites, number of full-text downloads, citing journals, and cited journals. These data were obtained from the JCR report, the Web of Science database, and the Springer database during 2009–2015.

## **2 International sources of manuscripts and published papers**

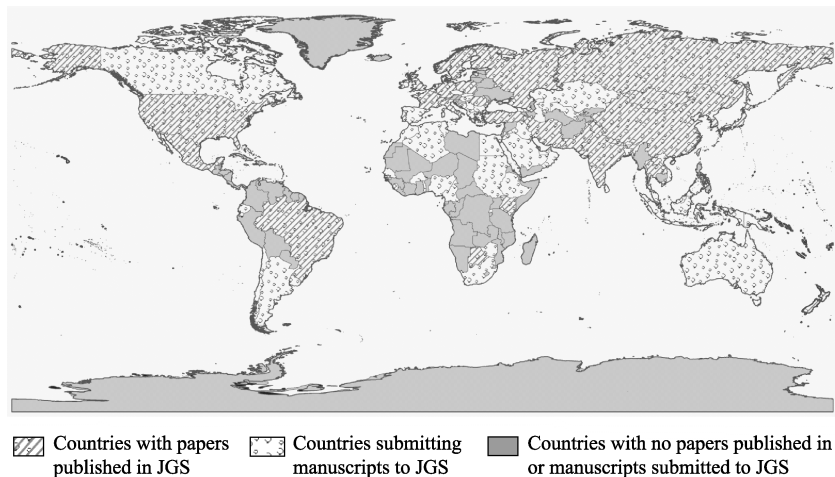
The international sources and quantity of manuscripts and published papers are the main internationalization indicators of a scientific journal. Based on the database of author submissions and published papers in the JGS editorial office, we analyzed the international sources of manuscripts and published papers.

### **2.1 International sources of manuscripts**

The total number of manuscript submissions to the JGS increased from 218 to 526 during the period 2009–2015. International submissions increased from 26 to 252 during this period, which represents a 10-fold increase during the seven years. The proportion of international submissions increased from 12% (2009) to 48% (2015), which represents a 36% increase during the seven years. Figure 1 shows the international distribution of first author and manuscript submissions. The number of countries from which submissions were received increased from 15 (2009) to 80 (2015). The number of countries from which manuscripts were published increased from 10 (2009) to 32 (2015): USA, Germany, France, Sweden, Russia, Belgium, Switzerland, Japan, South Korea, India, Laos, Turkey, Brazil, Botswana, Italy, Mexico, Iran, Kenya, Nepal, New Zealand, Thailand, Finland, Denmark, England, Romania, Jordan, Pakistan, Portugal, Poland, Norway, Austria, and Mongolia. These trends show that the international impact of the JGS has increased within the scientific community.

### **2.2 Quantity of published papers**

The number of published papers to some extent reflects the quantity and variety of information within a journal. The JGS published 549 papers during 2009–2015. During 2009–2014, the JGS was published bi-monthly with approximately 80 papers every year. Since 2015, the JGS has been published monthly with approximately 97 papers every year (the number of articles published annually is shown in Table 1). The number of published papers has increased by 21.3% since 2015.



**Figure 1** The spatial distribution of first author and manuscript submissions to the *Journal of Geographical Sciences*

### 3 Citation indicators of the JGS

Several typical journal citation indicators were selected for use in this study, with analysis metrics including impact factor, total cites, and number of full-text downloads. The data was obtained from the JCR report, Web of Science database, and the Springer database. Table 1 shows the main indicators used to assess the JGS and their growth rates during 2009–2015.

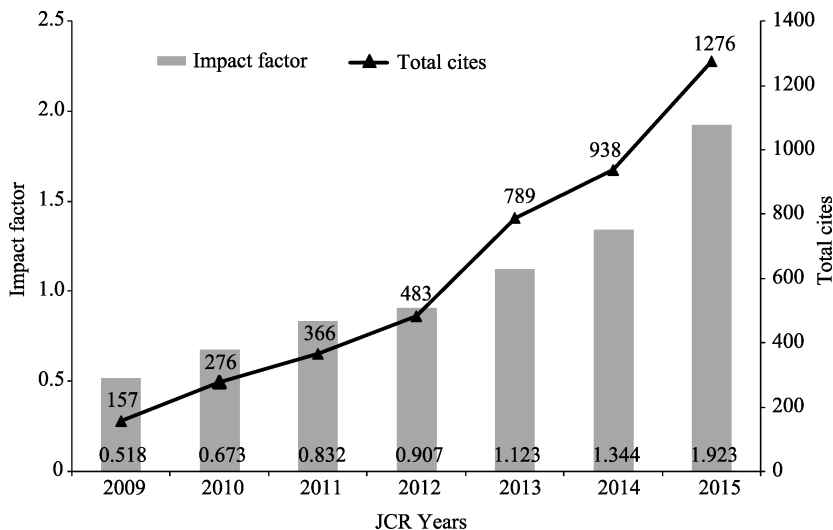
**Table 1** Impact factor, total cites, and their growth rates for the *Journal of Geographical Sciences*, 2009–2015

Year	Impact Factor (IF)	Rank in Category	Quartile in Category	Growth Rate of IF	Total Cites (TC)	Growth Rate of TC	Number of Articles
2015	1.923	28/49	Q3	43.1	1276	36.0	97
2014	1.344	30/46	Q3	19.7	938	18.9	77
2013	1.123	33/46	Q3	24.8	789	63.4	79
2012	0.907	36/45	Q4	9.0	483	32.0	82
2011	0.832	34/44	Q4	23.6	366	32.6	83
2010	0.673	33/42	Q4	29.9	276	75.8	69
2009	0.518	36/36	Q4	–	157	–	62

#### 3.1 Impact factor

The journal impact factor (IF) is the average number of times articles from the journal published in the past two years have been cited in the JCR for the year in question. The IF is an important parameter used by the JCR to statistically evaluate a scientific journal. It is calculated based on the ratio of total cites to total published papers during a certain period. According to the JCR reports from 2009 to 2015, the IF of the JGS has increased rapidly over the period. As shown in Figure 2, the IF increased from 0.518 (2009) to 1.923 (2015). During the past seven years, the rank of the JGS in the geography category of the JCR has also increased (JCR Report). In the rank of international physical geography journals, the JGS was located in last place in 2009, but had increased to 28th among the 49 journals in 2015 (Rank in Category in Table 1). The JGS is one of the most rapidly improving journals

in the physical geography category.



**Figure 2** Changes in the impact factor and total cites of the *Journal of Geographical Sciences*, 2009–2015

### 3.2 Total cites

Total cites (TC) refers to the total number of times that a journal has been cited by all journals included in the JCR database for the year in question. According to the JCR report from 2009 to 2015, the TC of the JGS has increased rapidly since 2009 (Figure 2). The TC increased from 157 (2009) to 1276 (2015). The TC rank of the JGS in the geography category also increased (JCR Report).

Since 2012, the Clout Index (CI) has been used to evaluate the international impact of Chinese academic journals by the China Academic Journal Electronic Publishing House. The CI takes both the total citation frequency and impact factors into consideration. The JGS was continuously ranked in the top 5% during the four years since 2012 and received the 2012–2015 Highest International Impact Academic Journals of China award (He *et al.*, 2016). In the Annual Report for the International Citation of Chinese Academic Journals, the JGS was ranked 110th in 2012, but moved up to 69th in 2015, which represented a dramatic increase of 41 places in the ranking (Annual Report for Chinese Academic Journal Impact Factors (Natural Science), 2011–2015).

### 3.3 Number of full-text downloads

The number of full-text downloads is a quantitative indicator, which reflects a reader's preference toward a journal. The Springerlink database provides statistics regarding the number of full-text downloads for the JGS. Data from Springerlink shows that the number of full-text downloads exceeded 50,000 in 2015 and was three times the number of downloads in 2009, which represented a 30% annual increase (Springerlink). According to the Annual Report for Chinese Academic Journal Impact Factors (Natural Science), 2009–2015, the mean number of downloads of the JGS was the highest of all the Chinese English scientific journals during the previous seven years.

## 4 Citation analysis

Based on data from the JCR report, the Web of Science database, and the Springer database, we analyzed the ranking of the JGS for highly cited articles, the main cited journals, and citing journals. The statistics were updated to September 4, 2016.

### 4.1 Highly cited articles

Table 2 lists the top 20 highly cited articles from the JGS during 2009–2015 (Web of

**Table 2** Top 20 most highly cited articles of the *Journal of Geographical Sciences* during 2009–2015

No.	Title	Volume and Issue	First Author	Times Cited
1	Spatial patterns and driving forces of land use change in China during the early 21st century	2010, 20(4): 483–494	Liu Jiyuan	123
2	Spatiotemporal characteristics, patterns, and causes of land-use changes in China since the late 1980s	2014, 24(2): 195–210	Liu Jiyuan	73
3	Drought hazard assessment and spatial characteristics analysis in China	2011, 21(2): 235–249	He Bin	32
4	The process and driving forces of rural hollowing in China under rapid urbanization	2010, 20(6): 876–888	Liu Yansui	31
5	Extreme drought changes in Southwest China from 1960 to 2009	2013, 23(1): 3–16	Zhang Mingjun	29
6	Simulation on the dynamics of forest area changes in North-east China	2010, 20(4): 495–509	Deng Xiangzheng	29
7	Identification of dominant climate factor for pan evaporation trend in the Tibetan Plateau	2011, 21(4): 594–608	Liu Xiaomang	27
8	Glacier area variation and climate change in the Chinese Tianshan Mountains since 1960	2011, 21(2): 263–273	Wang Shengjie	26
9	Spatial and temporal variability of daily precipitation in Haihe River basin, 1958–2007	2010, 20(2): 248–260	Chu Jianting	25
10	Land consolidation: An indispensable way of spatial restructuring in rural China	2014, 24(2): 211–225	Long Hualou	24
11	Responses of grassland vegetation to climatic variations on different temporal scales in Hulun Buir Grassland in the past 30 years	2011, 21(4): 634–650	Zhang Geli	24
12	Hydrology and water resources variation and its response to regional climate change in Xinjiang	2010, 20(4): 559–612	Xu Changchun	24
13	Spatial and temporal trends of climate change in Xinjiang, China	2011, 21(6): 1007–1018	Li Qihu	23
14	The comprehensive evaluation of China's urbanization and effects on resources and environment	2010, 20(1): 17–30	Chen Mingxing	23
15	Trend in pan evaporation and its attribution over the past 50 years in China	2010, 20(4): 557–568	Liu Min	21
16	Shallow groundwater dynamics in North China Plain	2009, 19(2): 175–188	Wang Shiqin	21
17	The complex nonlinear systems with fractal as well as chaotic dynamics of annual runoff processes in the three headwaters of the Tarim River	2009, 19(1): 25–35	Xu Jianhua	21
18	Climate change and its driving effect on the runoff in the “Three-River Headwaters” region	2011, 21(6): 963–978	Zhang Shifeng	20
19	Glacial change in the vicinity of Mt. Qomolangma (Everest), central high Himalayas since 1976	2010, 20(5): 667–686	Nie Yong	20
20	Spatiotemporal dynamics of electric power consumption in Chinese Mainland from 1995 to 2008 modeled using DMSP/OLS stable nighttime lights data	2012, 22(1): 125–136	He Chunyang	19

Science). The most cited article was “Spatial patterns and driving forces of land use change in China during the early 21st century”, which was written by Prof. Liu Jiyuan from the Institute of Geographic Sciences and Natural Resources Research, CAS. This paper was cited 123 times since August, 2010. These citations resulted in a high impact for the findings reported in the paper. Other articles cited over 25 times were authored by He Bin, Liu Yansui, Zhang Mingjun, Deng Xiangzheng, Liu Xiaomang, Wang Shengjie, and Chu Jianting among others.

#### 4.2 Cited journal data

Cited journal data provides statistics regarding the times a journal (here it is the JGS) is cited by other journals in the ISI database. Table 3 lists the 10 journals that cited the JGS most often during 2009–2015 (Web of Science). These cited journals were ranked based on the number of times the JGS was cited. The main cited journals were from the USA, Switzerland, UK, and China, and covered the disciplines of geosciences, environmental science, meteorology and atmospheric science, and water resources.

**Table 3** Top 10 journals that cited the *Journal of Geographical Sciences* during 2009–2015

No.	Citing Journal	Impact Factor	Journal Location	Subject Category
1	<i>Sustainability</i>	1.343	Switzerland	Green & Sustainable Science & Technology / Environmental Sciences
2	<i>Advances in Meteorology</i>	1.107	USA	Meteorology & Atmospheric Sciences
3	<i>International Journal of Climatology</i>	3.609	England	Meteorology & Atmospheric Sciences
4	<i>Remote Sensing</i>	3.036	Switzerland	Remote Sensing
5	<i>Physics and Chemistry of the Earth</i>	1.297	England	Geosciences / Meteorology & Atmospheric Sciences / Water Resources
6	<i>PLoS One</i>	3.057	USA	Multidisciplinary Sciences
7	<i>Natural Hazards</i>	1.746	USA	Geosciences / Meteorology & Atmospheric Sciences / Water Resources
8	<i>Quaternary International</i>	2.067	England	Physical Geography / Geosciences
9	<i>Journal of Arid Land</i>	1.472	China	Environmental Sciences
10	<i>Chinese Geographical Science</i>	1.145	China	Environmental Sciences

#### 4.3 Citing journal data

Citing journal data provides statistics for other journals in the ISI database that are cited by the target journal (here it is the JGS), and lists all of the other journals that were cited during a certain period. Table 4 shows the 10 citing journals that were most cited by the JGS during 2009–2015 (Web of Science). These citing journals were ranked based on the number of times they cited the JGS. The main citing journals were from the USA, Netherlands, UK, and China, and covered the disciplines of geoscience, ecology, environmental science, physical geography, meteorology and atmospheric science, and multidisciplinary sciences.

**Table 4** Top 10 citing journals of the *Journal of Geographical Sciences* during 2009–2015

No.	Cited Journal	Impact Factor	Journal Location	Subject Category
1	<i>Science</i>	34.661	USA	Multidisciplinary Sciences
2	<i>Journal of Hydrology</i>	3.043	Netherlands	Engineering / Geosciences/Water Resources
3	<i>Chinese Science Bulletin</i>	1.789	China	Multidisciplinary Sciences
4	<i>Journal of Geophysical Research</i>	3.318	USA	Geosciences
5	<i>International Journal of Climatology</i>	3.609	England	Meteorology & Atmospheric Sciences
6	<i>Remote Sensing of Environment</i>	5.881	USA	Environmental Sciences/Remote Sensing/ Imaging Science & Photographic Technology
7	<i>Ecological Modelling</i>	2.275	Netherlands	Ecology
8	<i>Landscape and Urban Planning</i>	3.654	Netherlands	Ecology / Physical Geography
9	<i>Nature</i>	38.138	England	Multidisciplinary Sciences
10	<i>Chinese Geographical Science</i>	1.145	China	Environmental Sciences

## 5 Conclusion and discussion

During the past seven years, the JGS has developed rapidly. The main citation indicators of the JGS have continued to improve and its international impact has kept increasing. The main indicators of this development are as follows. (1) International submissions and the number of countries from which submissions have been received have increased. The submission of international manuscripts has increased from 218 in 2009 to 526 in 2015, which represents a 21% annual increase. The number of countries from which submissions have been received increased from 16 in 2009 to 81 in 2015. (2) The impact factor, total cites, and the number of full-text downloads have kept increasing. The impact factor increased from 0.518 in 2009 to 1.923 in 2015. Total cites increased from 157 in 2009 to 1276 in 2015. The international full-text downloads of papers increased 3-fold from 2009 to 2015. (3) The JGS performs well in terms of highly cited articles. There were 19 articles that were cited over 20 times during 2009–2015. (4) There is a large variety among the cited and citing journals, which are mainly from the USA, Netherlands, Switzerland, UK, and China. These journals cover the disciplines of geoscience, environmental science, meteorology and atmospheric science, water resources, and multidisciplinary sciences.

Despite the improvements made over all of these indicators, the JGS still has room for further improvement, especially with regard to the quality of international submissions, the quantity of submissions from developed countries, and the number of published papers led by international organizations. We plan to improve the scientific quality of the JGS and increase its future impact by organizing special issues and inviting papers from international conferences, improving the journal editing quality, and strengthening internet promotion.

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