

Bibliometric Analysis of Indonesian Journal of Geography from 2015-2022

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Abstract. This bibliometric analysis aimed to determine the growth trend of document publications, the development of journal citations, the distribution of author countries, the most influential documents, and the dominant research topics in the Indonesian Journal of Geography from 2015 to 2022. The data used were extracted from the Scopus database, comprising a total of 280 documents. A bibliographic data mapping was conducted using the VOSviewer version 1.6.18 and Analyze Search Results tools on the Scopus database. The results showed that the number of documents published in the Indonesian Journal of Geography has been increasing over time. Furthermore, journal impact on scientific development has also increased. The authors of the documents included originate from 29 countries. The most influential document addressed the topic of urban research, while key topics developed from 2015 to 2022 included remote sensing and GIS used as main support and technology for understanding and analyzing various geographical phenomena. This research serves as a reference material for prospective authors and also provides an evaluation of Indonesian Journal of Geography in the future.

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1. Introduction

The Indonesian Journal of Geography is a highly influential publication within the field of geography, particularly in Indonesia. As the oldest geographic journal in the country, journal has played a crucial role in advancing geographical research and education. Established in 1971 by the Faculty of Geography at Universitas Gadjah Mada, journal has been indexed in the Scopus database since 1976. The inclusion in Scopus has significantly broadened the reach, enhancing visibility on an international scale. Moreover, as an open-access journal, it provides research and practitioners free access to the content, promoting widespread dissemination of knowledge.

In general, bibliometric analysis is a widely used tool that helps analyze large volumes of metadata and gain an overarching perspective on scientific progress (Donthu et al., 2021). This method is frequently used to track the development of specific research fields (Galetsi & Katsaliaki, 2020; Merigó et al., 2019), assess the impact and performance of journal (António & Rita, 2023; Farrukh et al., 2020; Kumar et al., 2020; Tang et al., 2018; Tur-Porcar et al., 2018), and evaluate individual research performance (Mubarak & Istiana, 2022; Mutz & Daniel, 2018). The primary goal of bibliometric analysis is to examine research productivity, assess performance, and map the landscape of literature within a particular domain.

This research represents the first bibliometric analysis conducted in the *Indonesian Journal of Geography*. Similar research has been performed for other reputable journal, including the *International Journal of Hospitality Management* (António & Rita, 2023), the *International Journal of Energy Economics and Policy* (Solanki et al., 2023), the *Allelopathy Journal* (Singh et al., 2023), the *International Journal of Organizational Analysis* (Tabash et al., 2023), and the *ASEAN*

Journal of Science and Engineering (Nandiyanto et al., 2023). Various others include *Ophthalmic Journal* (Nichols et al., 2023), *International Orthopaedics Journal* (Nichols et al., 2023), *International Journal of Intercultural Relations* (Badola & Agrawal, 2023), *the VINE Journal of Information and Knowledge Management Systems* (Islam & Widen, 2023), and *journal of Futures Markets* (Baker et al., 2021). Geography-focused journal have also adopted bibliometric analyses, such as *journal of Transport Geography* (Serra et al., 2021), a leading publication in transportation geography, and *Progress in Human Geography* (Zhong et al., 2015).

Introducing bibliometric analysis to the *Indonesian Journal of Geography* offers a valuable tool for assessing journal development. Similar to other reputable journal, the *Indonesian Journal of Geography* should present a bibliometric overview to inform authors and readers of the growth and impact. This analysis will provide insights into document trends, citation patterns, author demographics, influential publications, and emerging research themes within journal from 2015 to 2022. The selected period reflects journal continuous indexing on Scopus, which started in 2015.

2. Methods

To conduct analysis, bibliographic data published in the Indonesian Journal of Geography between 2015 and 2022 were retrieved. The search was conducted using the following query: SOURCE-ID (29186) SOURCE-ID (29186) AND (LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2022) on the Scopus Database (retrieved on November 22, 2023). To respond to

the research question, the Analytical Search Results tool from Scopus was used, while the Vosviewer application was used to conduct document topic analysis as well as data presentation in a visual format. A total of 281 documents were identified through the search process. One document type, Erratum, was excluded from analysis unit, resulting in a total of 280 for analysis. Among these, 264 were document documents and 16 were reviews. Moreover, Analysis Search Result tool on the Scopus database was used. The Vosviewer application was used to map the 280 bibliographic data documents and ascertain the dominant topic. The application was used for analysis, using the Co-Occurrence and Author Keyword analysis unit. Figure 1 shows the stages of bibliometric analysis. The threshold number of co-occurrences for a keyword was set at three. Keywords that appeared in the form of location names (Indonesia, Semarang, Nigeria) were removed from the unit of analysis, resulting in a total unit of 29 keywords. Table 1 shows the selected keywords.

3. Result and Discussion

Document and Citation Growth

The growth of documents published in the Indonesian Journal of Geography started in 2019 and reached the highest point in 2021, with a total of 59 documents published. Figure 2 shows the growth of documents published in the Indonesian Journal of Geography. In 2019, there was a significant increase compared to the previous four years.

Figure 3 shows the impact of the *Indonesian Journal of Geography* on the advancement of scientific knowledge. The data presents a consistent upward trend in the number of citations over time, showing that documents published in journal are increasingly being referenced in Scopus-indexed publications. This suggests the growing influence and recognition of journal within the scientific community.

Author Country Distribution

The *Indonesian Journal of Geography*, a reputable, Scopus-indexed international journal, attracts contributions from authors across various countries and continents. The authors of this journal represent 29 different countries, with Indonesia having the highest number of contributors, followed by Nigeria, Malaysia, India, Japan, Bangladesh, the United States, Pakistan, the Russian Federation, and Australia. The prominence of Indonesian scholars as the leading contributors shows that journal holds significant recognition in Indonesia, making it a preferred platform for publishing research outcomes, whether from grants or thesis projects. Figure 4 shows the top ten countries of origin for the authors and the corresponding number of published documents.

The most influential documents

The impact of research or publications can be gauged by the extent of citation by other works. A citation shows that a document has influenced or contributed to other research,

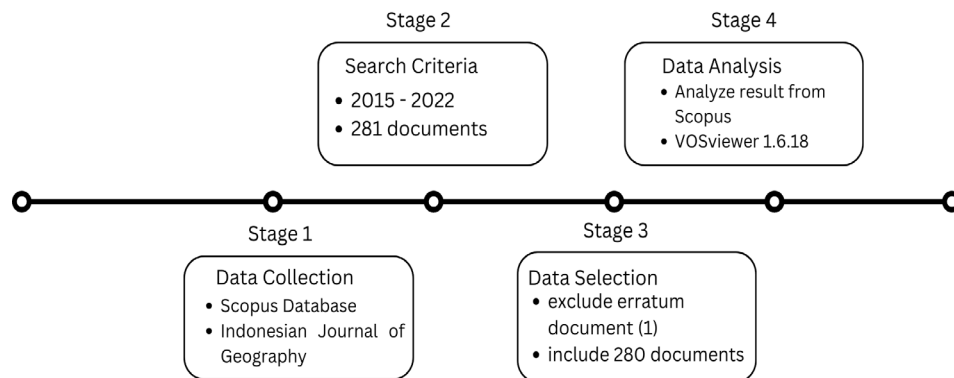


Figure 1. The stages of bibliometric analysis

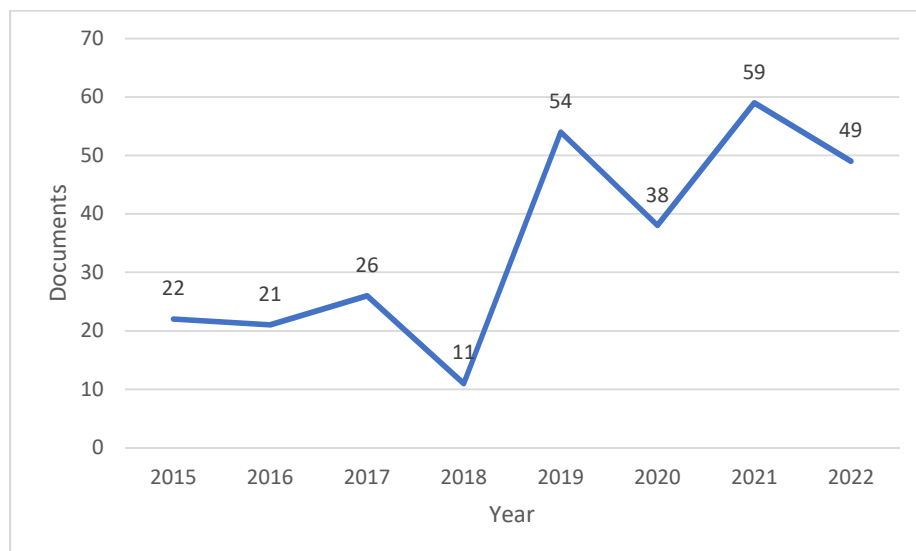


Figure 2. Document growth of Indonesian Journal of Geography.

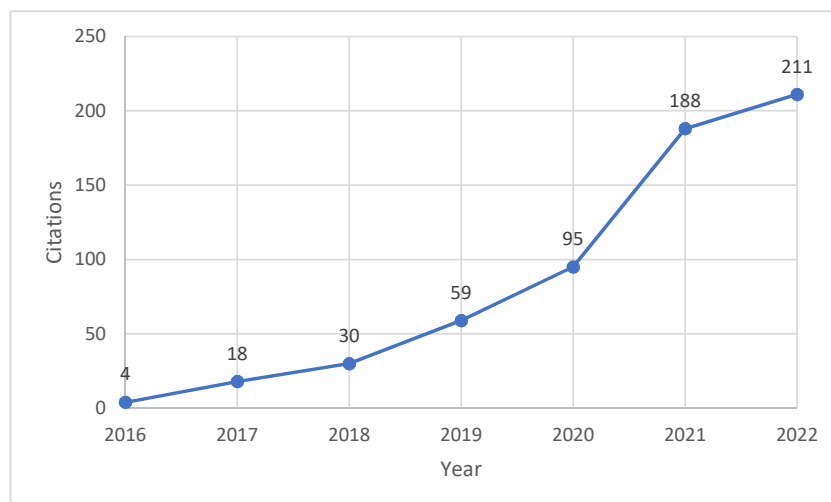


Figure 3. The citation growth of Indonesian Journal of Geography.

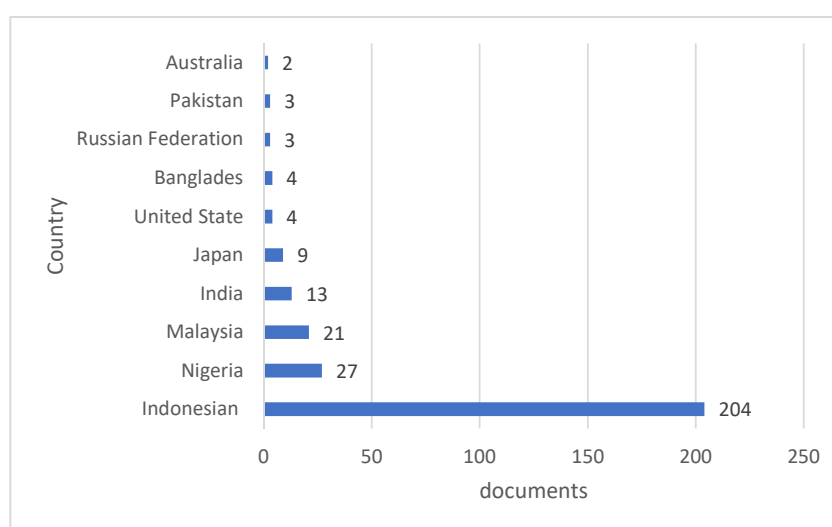


Figure 4. Top-ten author's country origins and number of documents.

thereby playing a role in the advancement of knowledge. The more frequently a document is cited, the greater the perceived impact, specifically when compared to works with fewer or no citations. The most frequently cited document was “Urbanization and Regional Imbalances in Indonesia” by Wilonoyudho, S., Rijanta, R., Keban, Y. T., and Setiawan, B., published in Volume 49, Issue 2, in 2017, with 26 citations. This was followed by research on seagrass remote sensing in coastal areas, which had been cited 25 times, and two documents on urban research, each with 24 citations. Among the top ten most-cited documents, the majority focus on urban and rural areas, with additional topics including education, coastal biodiversity and disaster management, mining, and risk reduction. These trends suggest that journal serves as a key reference for research on urban/rural issues, education, and physical environmental aspects. The top 10 most-cited documents are presented in Table 2.

Emerging research topics

Based on a Co-Occurrence analysis using the VOSviewer application, the Indonesian Journal of Geography prominently featured topics related to remote sensing and GIS between 2015 and 2022, with Table 1 presenting the selected keywords. Remote sensing and GIS have proven to be essential tools

for collecting, analyzing, and representing geographical data. Given the integral role, it is challenging to separate remote sensing and GIS from geographical science and analysis. These sciences and technologies are particularly powerful for understanding the spatial and temporal variations and patterns of geographical phenomena. Consequently, “remote sensing” and “GIS” were found to have the most frequently mentioned keywords.

As shown in Table 1, Remote Sensing and GIS were the predominant topics in the *Indonesian Journal of Geography* publications from 2015 to 2022. Figure 5 shows a visualization of the keyword analysis results, generated using the VOSviewer application. Remote sensing is primarily applied in urban research, vegetation analysis, and spatial modeling, while GIS is used for modeling, education, vegetation research, and water quality assessment. Given the close relationship between remote sensing and GIS, these technologies are frequently integrated to address a variety of geographic challenges.

The mapping of 29 keywords using the Vosviewer application showed the formation of six distinct clusters, as detailed in Table 3.

Cluster 1 comprises four principal items including Geographically Weighted Regression, Poverty, Spatial Analysis, and Spatial Planning. This cluster outlines a thematic

Table 1. Selected keywords from analysis of VOSviewer.

Keyword	Occurrences	Total Link strength
Remote Sensing	13	7
GIS	11	6
Gender	3	5
Education	3	4
Land Cover	4	4
Spatial Analysis	4	4
Urbanization	3	4
Climate Change	6	3
Geographically Weighted Regression	3	3
Poverty	3	3
Urban	3	3
Watershed	6	3
Building Tax	3	2
Coastal	4	2
Deforestation	3	2
Disaster	3	2
Flood	5	2
Land	3	2
Modelling	3	2
Spatial Distribution	3	2
Vulnerability	3	2
Water Quality	6	2
Land Use Change	3	1
Spatial Planning	3	1
Urban Growth	5	1
Conservation	4	0
Interpolation	4	0
Java Island	3	0
Rural Development	3	0

Source: Vosviewer data processing

Table 2. Documents with the most citation

	Title	Authors	Year	Cited by
1.	Urbanization and regional imbalances in Indonesia	Wilsonoyudho S.; Rijanta R.; Keban Y.T.; Setiawan B.	2017	26
2.	Assessing the capability of sentinel-2A data for mapping seagrass percent cover in Jerowaru, East Lombok	Fauzan M.A.; Kumara I.S.W.; Yogyantoro R.; Suwardana S.; Fadhillah N.; Nurmalasari I.; Apriyani S.; Wicaksono P.	2017	25
3.	The dynamics of spatial structure and spatial pattern changes at the fringe area of Makassar city	Surya B.	2015	24
4.	Change phenomena of spatial physical in the dynamics of development in Urban Fringe Area	Surya B.	2016	24
5.	Indonesia's forest resource monitoring	Margono B.A.; Usman A.B.; Budiharto; Sugardiman R.A.	2016	21
6.	Building Ecoliteracy Through Adiwiyata Program (Study at Adiwiyata School in Banda Aceh)	Desfandi M.; Maryani E.; Disman	2017	20
7.	Model development on awareness of education for sustainable school development in Malaysia	Mahat H.; Saleh Y.; Hashim M.; Nayan N.	2016	18
8.	Review on tsunami risk reduction in Indonesia based on coastal and settlement typology	Mardiatno D.; Malawani M.N.; Annisa D.N.; Wacano D.	2017	15
9.	Heavy metals distribution in the Artisanal gold mining area in Wonogiri	Nurcholis M.; Yudiantoro D.F.; Haryanto D.; Mirzam A.	2017	14
10.	Digital divide and poverty eradication in the rural region of northern Peninsular Malaysia	Sheikh Dawood S.R.; Ghazali S.; Samat N.	2019	13

Source: Secondary data processing

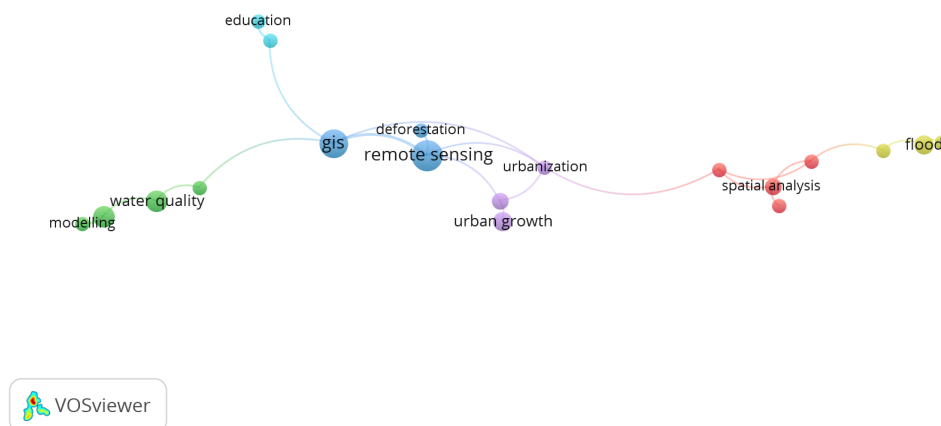


Figure 5. Visualization of Document Keywords

Table 3. Clusters formed from keywords

Cluster 1 (4 items)	Cluster 4 (3 items)
Geographically Weighted Regression	Flood
Poverty	Land Use Change
Spatial Analysis	Vulnerability
Spatial Planning	
Cluster 2 (4 items)	Cluster 5 (3 items)
Modelling	Land Cover
Spatial Distribution	Urban
Water Quality	Urbanization
Watershed	
Cluster 3 (items)	Cluster 6 (2 items)
Deforestation	Education
GIS	Gender
Remote Sensing	

Source: Vosviewer analysis, 2023

convergence between spatial analysis methodologies and socioeconomic factors. Geographically Weighted Regression and Spatial Analysis provide robust tools for examining spatial patterns and variations, thereby enabling a nuanced understanding of geographic influences on data distributions. These techniques facilitate the examination of spatial dynamics impact on and within a variety of contexts. Concurrently, the focus of Poverty and Spatial Planning is on the implications of these spatial factors affecting socio-economic conditions and urban development strategies. Geographically Weighted Regression and Spatial Analysis provide empirical support for identifying and addressing the spatial dimensions of poverty, while Spatial Planning uses these insights to devise strategies aimed at mitigating socioeconomic disparities.

Cluster 2 includes four components namely Modelling, Spatial Distribution, Water Quality, and Watershed. This cluster outlines the integration of GIS and remote sensing in enhancing the understanding of watershed and water quality research for comprehensive watershed management.

Cluster 3 focuses on the integration of GIS and remote sensing technologies in vegetation research, with a particular emphasis on deforestation monitoring. Remote sensing offers a comprehensive view of vegetation dynamics over time through satellite imagery, which is crucial for tracking

deforestation processes at various scales. The application of GIS provides a robust framework for spatial analysis, enabling research to map and quantify changes in vegetation cover with high precision.

Cluster 4 comprises three interrelated themes including flooding, land use change, and vulnerability. Flooding, as a recurrent and often exacerbated environmental hazard, significantly impacts land use patterns and contributes to shifts in ecological and human systems. Changes in land use, such as urban expansion, deforestation, and agricultural intensification can alter natural water flow regimes, increase surface runoff, and thereby heighten the risk and severity of flooding events. These transformations not only affect the physical landscape but also exacerbate vulnerability among communities and ecosystems. Increased vulnerability arises from a combination of altered land use practices and heightened exposure to flood risks.

Cluster 5 includes three distinct items related to urban land cover and the process of urbanization. Figure 5 shows that remote sensing supported analysis of these processes. This cluster focuses on understanding the spatial distribution and evolution of urban areas, which are characterized by significant human modification of the land surface. Urban land cover typically includes areas dominated by built environments

such as residential, commercial, and industrial structures. As urbanization progresses, these areas expand and transform, leading to increased impervious surfaces, alterations in land use patterns, and shifts in ecological dynamics. Furthermore, this cluster aims to analyze changes over time, using remote sensing technologies to monitor the extent and intensity of urban growth.

Cluster 6 focuses on two primary themes namely education and gender. It explores various issues related to educational practices and outcomes, as well as examining gender dynamics.

4. Conclusion

In conclusion, analysis of the Indonesian Journal of Geography from 2015 to 2022 showed several key trends, citation patterns, author demographics, influential publications, and new research themes. Publications in journal started to increase significantly in 2019, reaching a peak in 2021 with 59 published documents. Citation patterns also showed a consistent upward trajectory, particularly from 2021 onwards, with figures doubling those of 2020, reflecting journal growing influence and recognition in the scientific community. The majority of contributors were from Indonesia, with other significant contributions from Nigeria, Malaysia, India, Japan, Bangladesh, the United States, Pakistan, the Russian Federation, and Australia. Influential publications predominantly focus on urban and rural issues, followed by educational and physical environmental topics. Finally, remote sensing and GIS represented trending research themes, as both have shown to be effective tools for the collection, analysis, and representation of geographical data. This research serves as a comprehensive reference for prospective authors and provides valuable insights into the development and future direction of the Indonesian Journal of Geography. Further research can be conducted by comparing several journal with the same focus and scope in the field of geography.

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