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# Bibliometric analysis of scientific productivity performance of international journal of engineering and geosciences: WoS Example (2016-2024)

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### **Abstract**

This study was conducted to reveal the scientific productivity performance of the International Journal of Engineering and Geosciences (IJEG) in internationally published scientific research. For this purpose, a filtering process was applied in the Web of Science (WoS) database to identify the scientific components associated with the journal, resulting in the retrieval of 182 scientific articles published between 2016 and 2024. Relevant tables and a BibTex data file containing qualitative and quantitative indicators of these articles' scientific components were obtained. Tables and graphs were generated from the WoS database, and the BibTex data file was analyzed using the Bibliometrix R (RStudio) statistical software. Based on the findings, a performance analysis was conducted within the scope of bibliometric analysis to assess IJEG's scientific productivity performance. Key findings include: IJEG published the most articles in \*2024\* and the fewest in \*2016\*. Selcuk University was the most affiliated institution, while the fewest articles were associated with 81 universities (listed as U<sub>43</sub>-U<sub>123</sub> in the relevant table). Turkey was the most frequently associated country, while the fewest articles were linked to 15 countries (listed as V<sub>9</sub>-V<sub>23</sub> in the relevant table). Additionally: In terms of average citations per article, IJEG performed best in 2018 and weakest in 2024. Regarding annual average citation count, the highest performance was in 2023, while the lowest was in 2024. Notably: The article titled "Avc. C, 2023, Int | Eng Geosci" with the Doi 10.26833/ijeg.987605 received the highest number of global citations, demonstrating the journal's strongest scientific productivity performance. Regarding the journal's impact factor: In both 2023 and 2024, IJEG's JIF Quartile (Q) value was  $Q_2$ . The JIF/JCI impact factor was 3.1 in 2023 and 2.5 in 2024. The JIF percentile was 65.9 in 2023 and 53.1 in 2024. In both years, the journal's publication categories were "Engineering" and "Geological". This analysis highlights IJEG's evolving impact and productivity trends in the fields of engineering and geosciences.

### 1. Introduction

Researchers conducting scientific studies rely on scholarly articles published in journals indexed by various databases [1]. As members of the global scientific community, researchers contribute to scientific

collaboration by offering new perspectives and inspiration for further studies [2,3].

As early as the 1960s, many scholars emphasized the critical role of knowledge in both economic and operational efficiency [4]. The concept of **bibliometrics**, introduced by Pritchard in 1960, facilitates the examination of scientific literature from multiple

perspectives [5]. Pioneering bibliometric studies include statistical analyses of comparative anatomy literature (1543–1860), where journal and book titles were categorized by source period and country [6].

Bibliometric analysis is a research method used to identify international research trends within a specific discipline based on scientific publications in databases [7]. This approach consists of two techniques: **performance** analysis and science mapping analysis [8]. Science mapping bibliometric techniques are widely used in research to provide an overview of the current state of scientific data in any given field [9]. Bibliometric analysis is particularly recognized as a method for evaluating scientific journals. Today, bibliometric studies have become a significant research area, frequently employed to analyze the evolutionary changes and development of academic journals [10].

Researchers seek access to the most critical scientific evidence [11] and up-to-date information within their disciplines [12]. This need is met through scientific journals, as peer-reviewed publications serve as the primary dissemination mechanism for scientific findings [13]. Academic journals reflect the progress of a discipline in the literature while also functioning as a key medium for knowledge transfer [3,14].

The focus of this study, the **International Journal of** Engineering and Geosciences (IJEG), is a peerreviewed journal publishing scientific articles in the fields of **engineering** and **geology**. Recognized as an influential journal in these disciplines, IJEG holds a  $\mathbf{Q_2}$ impact factor (2023) and is indexed in the Emerging **Sources Citation Index (ESCI)** among other databases. Since its establishment in 2016, IJEG has continued to publish high-quality research, contributing significantly to the international scientific community [15]. In addition, it was determined that the scientific article titled "Comparison between random forest and support vector machine algorithms for LULC classification" published in IJEG in 2023 and registered to doi address 10.26833/ijeg.987605 was the most cited study (64 citations).

IJEG publishes innovative and original research on the integration of instruments, technologies, and methodologies in **engineering**, **environmental sciences**, **and geomatics applications**. The journal encourages researchers to share detailed **experimental**, **computational**, **and theoretical findings**, fostering advancements in these fields [16]. Thus, IJEG serves as a vital platform for disseminating key scientific discoveries to the global research community.

Bibliometric analyses have been widely applied across various disciplines [17–25], including performance and science mapping evaluations of scientific journals [26–30]. In this context, IJEG stands out as an international journal that publishes significant findings in **engineering and geology**. By disseminating these findings, IJEG enables researchers to leverage existing knowledge for future strategic studies and groundbreaking discoveries.

This bibliometric study examines IJEG's scientific productivity by analyzing qualitative and quantitative

**indicators** of published articles, sourced from the **Web of Science (WoS)** database. Through **performance analysis**, the study identifies leading universities, countries, and the most cited articles in IJEG. The findings aim to provide researchers, private sector stakeholders, and academic institutions with a broader perspective on trends in **engineering and geology** research.

### The study is structured as follows:

- ✓ **Methodology**: Explains the research objectives, significance, limitations, stages, research questions, and materials (datasets, software, etc.).
- ✓ Results and Discussion: Presents analytical findings from BibTex data, including IJEG's scientific performance metrics.
- ✓ **Conclusion and Recommendations**: Summarizes key conclusions and proposes actionable insights for future research.

By evaluating IJEG's scholarly impact, this study contributes to a deeper understanding of its role in advancing engineering and geosciences research.

### 2. Method

While some scholars report obtaining ethical clearance for certain bibliometric investigations [31-36], others explicitly note the absence of such requirements for similar studies [37-41]. The academic community generally recognizes that bibliometric analyses, being fundamentally systematic literature examinations, typically do not necessitate formal ethical approval [42-47].

As a well-established quantitative methodology, bibliometric analysis systematically examines publication patterns by evaluating both qualitative and quantitative metrics across various scholarly outputs, including journal articles, conference proceedings, monographs, dissertations, and book sections. This approach enables comprehensive evaluation of academic journals across multiple dimensions, including: Research domain specialization, Contributing institutions and their geographic distribution, Disciplinary focus areas, Indexing coverage and visibility.

The present investigation employs bibliometric methods to assess the scientific productivity of IJEG through performance analysis. As this study constitutes a secondary analysis of existing publication data, no institutional ethical approval was required.

This performance-based bibliometric analysis evaluates IJEG's complete publication output from its inception (Volume 1, Issue 1, 2016) through its most recent issues (Volume 9, Issue 3, 2024), representing nine years of continuous publication. The Web of Science Core Collection served as the primary data source, ensuring access to reliable bibliographic records and citation metrics. The subsequent sections detail the specific methodological approaches employed in this investigation.

### **Key Methodological Characteristics:**

- ✓ Study Type: Retrospective performance analysis,
- ✓ Data Source: Web of Science (Core Collection),
- ✓ Temporal Coverage: Complete publication history (2016-2024),
- ✓ Analytical Focus: Publication trends and impact metrics.
- ✓ Ethical Status: Exempt as non-interventional research.

This methodological framework aligns with contemporary practices in scientometrics, where the analysis of publicly available bibliographic data does not typically require ethical review. The study design ensures rigorous evaluation of IJEG's scholarly contributions while adhering to established research standards in the field.

### 2.1. Purpose and importance of the research

As previously established, IJEG consistently contributes scholarly articles to international literature in the fields of engineering and geology. This study employs bibliometric analysis to evaluate the journal's scientific productivity performance. Through systematic examination of qualitative and quantitative indicators derived from comprehensive datasets, the research specifically aims to analyze:

- ✓ The temporal distribution of IJEG's publications (2016-2024),
- ✓ Institutional affiliations of contributing authors,
- ✓ Geographic distribution of research contributions,
- ✓ Annual citation patterns across the study period,
- ✓ Global citation impact of IJEG publications,
- ✓ Inter-journal citation relationships,
- ✓ Journal impact metrics based on IJEG's scholarly output.

A comprehensive review of existing literature revealed no prior bibliometric studies examining the scientific productivity of journals in the combined engineering-geology category through both performance analysis and scientific mapping approaches. This research addresses this critical gap by providing the first systematic evaluation of IJEG's scholarly impact.

### The findings hold significant value for multiple stakeholders:

- ✓ Researchers can identify emerging trends and collaboration opportunities,
- ✓ Academic institutions may assess research productivity in these interdisciplinary fields,
- ✓ Industry professionals can discover applicable scientific advancements,
- ✓ Policy makers may utilize the data for research funding decisions.

This investigation represents a pioneering effort to quantitatively assess IJEG's role in advancing

engineering and geological sciences. By establishing benchmark metrics for interdisciplinary journals in these fields, the study provides a foundation for future comparative analyses and contributes to the broader understanding of scientific communication patterns in applied sciences.

The methodological rigor and comprehensive scope of this analysis ensure that the results will serve as an authoritative reference for evaluating research productivity in engineering-geology interdisciplinary studies.

### 2.2 Research universe and sample

The scientific community utilizes numerous databases for scholarly research, including prominent platforms such as Web of Science [48,49], Scopus [50,51], Dimensions [52,53], Google Scholar [54,55], and PubMed [56,57]. These repositories significantly contribute to global scientific advancement through their comprehensive collections of research outputs.

For this study, IJEG's publication records were extracted exclusively from the Web of Science (WoS) database, where the journal is indexed along with ESCI, Scopus, and TR Index. The research encompasses all articles published in IJEG between 2016-2024 (Volume 1, Issue 1 through Volume 9, Issue 3), representing the complete population of the journal's WoS-indexed publications during this period. Consequently, the study employed a complete enumeration approach without sampling, ensuring comprehensive analysis of all available records.

### 2.3. Methodological constraints

While this investigation provides valuable insights into IJEG's scientific productivity, several inherent limitations should be acknowledged:

- ✓ Database Restriction: The analysis is exclusively based on WoS-indexed publications, potentially omitting articles indexed in other databases,
- ✓ Filtering Parameters: Article selection was constrained by publication year, affiliated institutions, and countries of origin,
- ✓ Temporal Boundaries: The study is limited to IJEG's first nine years of publication (2016-2024),
- ✓ Data Processing: Analysis was conducted solely using BibTex data exported from WoS,
- ✓ Analytical Tools: Productivity metrics were generated exclusively through Bibliometrix R (RStudio) and Journal Citation Reports software.

These methodological choices, while necessary for maintaining analytical consistency, may influence the generalizability of findings. The WoS-centric approach particularly warrants consideration when interpreting results, as alternative databases might yield different citation patterns or coverage of IJEG's publications. Nevertheless, the selected methodology provides a robust framework for assessing the journal's performance within the established parameters

### 2.4. Database selection and search/search strategy

It is encountered in the literature that scientists use databases such as Web of Science [58,59], Scopus [60,61], Dimensions [62-64], Google Scholar [65,66], PubMed [67,68] etc. as subjects for their scientific studies and benefit from the data in these databases. At the same time, many scientific studies (announcements, articles, book chapters, books, theses, etc.) that scientists contribute to national or international literature are stored in different databases.

Wos and Scopus databases are frequently used by scientists for literature review and it is stated that these are the most popular databases in different scientific disciplines [69]. In addition, it is emphasized that WoS database is the most widely used and oldest database in the world, while Scopus database is the strongest alternative and competitor [70]. In this context; Although IJEG is defined in WoS and Scopus databases, it was decided to use WoS database in this study because WoS database is the most widely used and oldest database. It is known that search/scan strategies to be performed in each database may be similar but there are also differences. In this study regarding the determination of scientific productivity performance of IJEG, the search/scan strategy used in WoS database was determined. The code related to the search strategy is stated as follows:

✓ Publication Titles: "International journal of engineering and geosciences"

### 2.5. Filtering and data acquisition

The determined search code "international journal of engineering and geosciences" was written into the relevant search field (Publication Titles) of the WoS database and the first search was performed. Later, a second search/scan was performed within the framework of the scientific components determined as the publication year (2016-2024), relevant universities and countries, which scientific articles were associated with in bringing IJEG to the literature. The search/scan application and results performed within this scope can be stated as follows:

- ✓ 1. Search; 193 studies published in IJEG within the scope of all scientific components (publication year, index scanned, research area, countries/regions, universities, publication language, etc.) were reached. Since no time limit was entered in this search, studies from 2025 were also seen.
- ✓ 2. Search; 182 studies published in IJEG within the scope of the determined scientific components were reached.

In order to determine the scientific productivity of IJEG, search/scan and filtering activities were carried out in the WoS database, and the relevant data tables (Tables 1, 2 and 3) and BibTerx data file were downloaded on 03/15/2025 at 06:38.

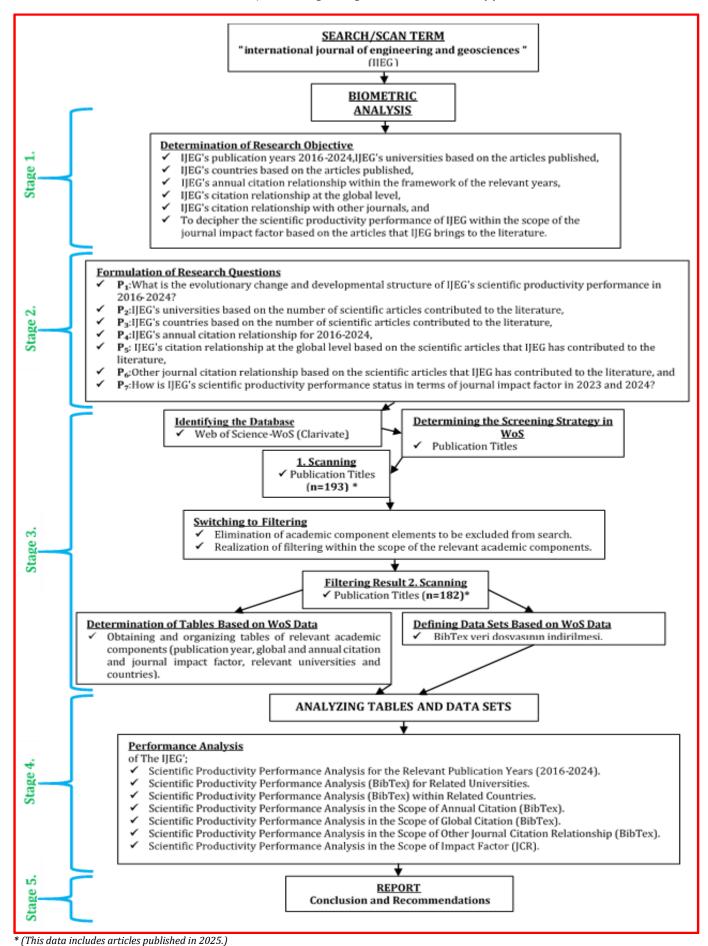
### 2.6. Research Question Parameters

In line with the purposes of the research; 7 question parameters were designed based on the table and data file downloaded from the WoS database. These question parameters are named with the letter "P" and listed as follows.

- ✓ How has IJEG's scientific productivity evolved in terms of publication patterns and developmental trends during the 2016-2024 period?  $(P_1)$
- ✓ What is the institutional distribution of research productivity, as measured by university affiliations of authors publishing in IJEG?  $(P_2)$
- ✓ How does IJEG's research output distribute geographically across contributing countries? (P₃)
- ✓ What annual citation patterns emerge from IJEG's publications across the study period? (P₄)
- ✓ What global citation impact has IJEG achieved through its published articles?  $(P_5)$
- ✓ How does IJEG engage in scholarly dialogue through citation relationships with other journals in its field? (P<sub>6</sub>)
- ✓ What are IJEG's journal impact metrics (JIF) for the years 2023 and 2024, and how do they reflect its scholarly influence? (P<sub>7</sub>)

### 2.7. Stages of the Research

The stages of the "Bibliometric Analysis" carried out within the scope of "performance analysis" to determine IJEG's scientific productivity performance are indicated in Figure 1 below.



**Figure 1.** Bibliometric analysis stages (for scientific journals)

### 2.8. Analysis techniques and methods used in the research

According to the review conducted in the international literature, it is seen that "Performance" and/or "Scientific Mapping" analyses were conducted within the scope of "Bibliometric Analysis" of research topics [71-76], theses [77-81], universities [82-87], countries/institutions/unions [88-91] and scientific journals [92-96].

In the context of determining the scientific productivity performance of IJEG, an international scientific journal; performance analyses were conducted on the tables obtained from the WoS database and the tables obtained as a result of the BibTex data file test within the framework of the determined scientific components (publication year, relevant universities, countries and indexes scanned). In order to facilitate the analyses of the relevant tables, the sequence numbers (SN) were named with "T", "U", "V", "W", "X", "Y" and "Z". The analyses conducted are explained under separate headings.

# 2.8.1. IJEG's scientific productivity performance analysis in relevant years

In order to determine the scientific productivity performance of IJEG based on published scientific article studies within the scope of the publication year (2016-2024)  $(P_1)$ , Table 1 regarding the publication years obtained from the WoS database is examined and presented below for analysis.

**Table 1.** Publication years and article numbers of the articles

SN	Publication Years	n	SN	Publication Years	n
<b>T</b> <sub>1</sub>	2024	34	T <sub>6</sub>	2019	18
$T_2$	2023	30	T <sub>7</sub>	2018	15
<b>T</b> <sub>3</sub>	2022	30	T <sub>8</sub>	2017	14
T <sub>4</sub>	2021	18	T <sub>9</sub>	2016	5
<b>T</b> <sub>5</sub>	2020	18			

In the examination of Table 1; it was determined that the first publication year of IJEG regarding the publication of scientific articles was "2016" (T<sub>9</sub>) and 5 articles were published in the field. It is seen that there is a general increasing trend in the published articles from the year "2016" when IJEG started its publication life to "2024". However, it was determined that the published articles between "2019-2021" were equal. On the other hand, it is noteworthy that there was a significant increase (n=30) in the number of articles published in "2022" (T<sub>3</sub>), the publication year after "2021". In "2023" (T<sub>2</sub>), the same number of articles were published as in "2022". In "2024" ( $T_1$ ), the ninth year of its publication life, IJEG contributed the most articles (n=34) to the international literature in the "English" language and in the "ESCI" field index. Thus, IJEG facilitated the

publication of 182 articles between 2016 and 2024. In Table 1, Graph 1 is arranged based on the data regarding the quality (year of publication) and quantity indicators of scientific productivity performance and is presented below for review.

**Graph 1**. Publication years and rates of articles



\* (The data in the relevant graph can be seen more clearly when zoomed in.)

In the examination of Graph 1; it is seen that there has been a general upward trend in the number of articles published since the year "2016" (T<sub>9</sub>) when IJEG started its publication year. When considered within the scope of 2016-2024; it has been determined that 2.75% of the 182 articles published in English in IJEG were contributed to the scientific world in 2016 (the lowest rate) and 18.68% in 2024 (the highest rate). It is evaluated that the number of published articles is low considering the age of the journal, which has completed 9 years of publication. In this context; as a result of the research conducted on the rejection and acceptance of scientific article studies sent/uploaded to IJEG within the scope of 2022-2024, the obtained "Acceptance-Rejection Statistics" are presented in Graph 2 below [97].

**Graph 2.** Number and rates of acceptance-rejection of articles



\* (The data in the relevant graph can be seen more clearly when zoomed in.)

When Graph 2 is examined; 22 (%36) of the articles sent to IJEG in 2022 were accepted and 39 (%64) were rejected. Again, 21 (%25) were accepted and 62 (%75) were rejected in 2023, and 38 (%18) were accepted and 179 (%82) were rejected in 2024. In parallel with this finding; it is seen that the rejection rate of the articles sent to IJEG is quite high and the rejection rate tends to increase with each passing year. When the year "2016", when IJEG started its publication year, is taken into consideration, it has been determined that the reason for the low number of articles published by the relevant journal according to its age is due to the low acceptance

rate and high rejection rate of the articles within the scope of 2022-2024. IJEG is evaluated as paying attention to the publication of "higher quality" and "higher quality" scientific articles prepared in the categories of "engineering" and "geology", as well as "writing rules", as well as "publication ethics principles" and "publication policy". After these findings, it was determined that IJEG showed its highest scientific productivity performance with 34 articles in 2024 and its lowest performance with 5 articles in 2016 within the scope of the relevant publication years.

# 2.8.2. IJEG's Scientific Productivity Performance Analysis within the Scope of Related Universities

In order to determine the scientific productivity performance of universities based on scientific article studies published in IJEG ( $P_2$ ), Table 2 regarding universities obtained from the WoS database is examined and presented below for analysis.

**Table 2.** Universities and article numbers related to articles

SN	Universities	n
U <sub>1</sub>	Selcuk University	19
$U_2$	Yıldız Technical University	15
$U_3$	Mersin University	13
$U_4$	Istanbul Technical University	12
$U_5$	Eskisehir Technical University	10
$U_6$	Karadeniz Technical University	10
$U_7$	Gumushane University	9
$U_8$	Konya Technical University	8
$U_9$	Kocaelı University	7
$U_{10}$	Necmettın Erbakan Unıversıty	6
$U_{11}$	University Of Tabriz	6
$U_{12}$	Ondokuz Mayıs University	5
$U_{13}$	Aksaray University	4
$U_{14}$	Cumhuriyet University	4
$U_{15}$	Gebze Technical University	4
$U_{16}$	Harran University	4
$U_{17}$	Ankara University	3
$U_{18}$	Celal Bayar University	3
$U_{19}$	Erzıncan Bınalı Yıldırım University	3
$U_{20}$	Hitit University	3
U <sub>21</sub>	Mınıstry Of Environment Urban Plannıng Turkey	3
$U_{22}$	Osmanıye Korkut Ata University	3
$U_{23}$	Uludag University	3
$U_{24}$	Afyon Kocatepe University	2
$U_{25}$	Akdeniz University	2
$U_{26}$	Ankara Hacı Bayram Velı Unıversıty	2
$U_{27}$	Canakkale Onsekız Mart University	2
U <sub>28</sub>	Dokuz Eylul University	2
$U_{29}$	Egyptıan Knowledge Bank Ekb	2
U <sub>30</sub>	Erciyes University	2
$U_{31}$	Eskisehir Osmangazi University	2
U <sub>32</sub>	Harıta Genel Komutanlıgı	2
$U_{33}$	Igdır University	2

II	Island anyn Tashnisal Huyvayatty	2
U <sub>34</sub>	Iskenderun Technical University	2
U <sub>35</sub>	Karamanoglu Mehmetbey University  Kastamonu University	2
U <sub>36</sub>	<u> </u>	2
	Ministry Of Defense Turkey National Institute Of Technology Nit System	2
U <sub>38</sub>		2
	National Institute Of Technology Raipur	2
U <sub>40</sub>	Pamukkale University	2
U <sub>41</sub>	Royal Ctr Remote Sensing	=
U <sub>42</sub>	Samsun University	2
U <sub>43</sub>	Abant Izzet Baysal University	1
U <sub>44</sub>	Acad Tech Art Appl Studies Belgrade	1
U <sub>45</sub>	Academy Of Sciences Of Uzbekistan	1
U <sub>46</sub>	Adekunle Ajasın Univ	1
U <sub>47</sub>	Algerian Space Agency Asal	1
U <sub>48</sub>	Anadolu University	1
U <sub>49</sub>	Aristotle University Of Thessaloniki	1
U <sub>50</sub>	Artvin Coruh University	1
$U_{51}$	Azerbaijan National Academy Of Sciences Anas	1
U <sub>52</sub>	Baku State Univ Azerbaijan Republ	1
$U_{53}$	Bırla Institute Of Technology Mesra	1
U <sub>54</sub>	Cairo University	1
U <sub>55</sub>	Colegio De Postgraduados Mexico	1
U <sub>56</sub>	Cukurova University	1
U <sub>57</sub>	Ecole Nationale Superieure Des Sciences De La Mer Et Amenagement Du Littoral Enssmal	1
U <sub>58</sub>	Emtech Informat Technol Corp	1
U <sub>59</sub>	Gangadhar Meher Univ	1
U <sub>60</sub>	Gazı University	1
U <sub>61</sub>	Gaziosmanpasa University	1
U <sub>62</sub>	Gen Command Mapping Turkey	1
U <sub>63</sub>	Gen Directorate Cadastre Land Registry	1
U <sub>64</sub>	Giresun University	1
$U_{65}$	Goce Delcev University Of Stip	1
U <sub>66</sub>	Helwan University	1
U <sub>67</sub>	Heriot Watt University	1
U <sub>68</sub>	Iav Hassan Iı	1
U <sub>69</sub>	Ibn Tofail University Of Kenitra	1
U <sub>70</sub>	Ihe Delft Institute For Water Education	1
U <sub>71</sub>	Inst Agron Veterinaire Hassan Ii	1
U <sub>72</sub>	Inst Tecnol Nacl Mexico	1
U <sub>73</sub>	Institute Of Geography Of The Azerbaijan	1
U <sub>74</sub>	National Academy Of Sciences	1
	Int Federat Surveyors Fig Int Union Conservat Nat Commiss Ecosyst	1
U <sub>75</sub>	Management	1
$U_{76}$	Istanbul Aydın University	1
$U_{77}$	Itu Fac Cıvıl Engn	1
$U_{78}$	Izmır Katıp Celebı University	1
$U_{79}$	Kabul Polytech Univ	1
$U_{80}$	Kharazmı University	1
$U_{81}$	Kılıs 7 Aralık University	1
$U_{82}$	Konya Metropolitan Municipality	1
$U_{83}$	Kop Adm	1
$U_{84}$	Kto Karatay University	1
$U_{85}$	Lab Nat Resources Sustainable Dev	1

	16.1	
U <sub>86</sub>	Mahapurusha Srimanta Sankaradeva Viswavidyalaya	1
U <sub>87</sub>	Map Trade Ltd Co Bozdogan	1
$U_{88}$	Mehmet Akıf Ersoy University	1
$U_{89}$	Mepco Schlenk Engineering College	1
$U_{90}$	Mımar Sınan Guzel Sanatlar University	1
U <sub>91</sub>	Mınıstry Of Education Of Azerbaijan Republic	1
U <sub>92</sub>	Ministry Of Transport Maritime Communications Turkey	1
$U_{93}$	National Aviation Academy Azerbaijan	1
$U_{94}$	National University Of Uzbekistan	1
$U_{95}$	Natl Inst Hydrol	1
$U_{96}$	Nigde Omer Halisdemir University	1
$U_{97}$	Nowrosjee Wadıa Coll	1
U <sub>98</sub>	Photogrammetry Dept	1
U <sub>99</sub>	Republ Turkey Minist Agr Forestry	1
$U_{100}$	Rl Innovat Inc	1
$U_{101}$	Royal Global Univ	1
$U_{102}$	Samangan Univ	1
$U_{103}$	Shahıd Beheshtı Unıv	1
U <sub>104</sub>	Shizuoka University	1
U <sub>105</sub>	Sıdı Mohamed Ben Abdellah University Of Fez	1
$U_{106}$	State University Of Land Use Planning	1
$U_{107}$	Suleyman Demirel University	1
$U_{108}$	Tai Turkish Aerospace Industries	1
U <sub>109</sub>	Tashkent State Technical University Named After Islam Karimov	1
$U_{110}$	Trakya University	1
$U_{111}$	Turkish Airlines	1
U <sub>112</sub>	Turkıye Bılımsel Ve Teknolojık Arastırma Kurumu Tubıtak	1
$U_{113}$	Turkıye Elect Dıstrıbut Inc	1
U <sub>114</sub>	Universidad Autonoma De Chiapas	1
$U_{115}$	Universidad Juarez Autonoma De Tabasco	1
$U_{116}$	Universiti Teknologi Malaysia	1
U <sub>117</sub>	University Of Barishal	1
$U_{118}$	University Of Cape Town	1
U <sub>119</sub>	University Of Hormozgan	1
$U_{120}$	University Of Peshawar	1
$U_{121}$	University Of Twente	1
U <sub>122</sub>	University Science Technology Houari Boumediene	1
$U_{123}$	West Bengal State University	1
U <sub>123</sub>		1

In the examination of Table 2, it was determined that there are many universities (n=123) associated with scientific articles published by IJEG. Within the scope of the years 2016-2024, it was determined that "Selcuk University"  $(U_1)$  took the first place in terms of its relationship/connection with scientific published in the relevant journal, "Yıldız Technical University"  $(U_2)$ , "Mersin University"  $(U_3)$  took the second place, "Istanbul Technical University" (U4) took the fourth place, and "Eskisehır Technical University" (U<sub>5</sub>) took the fifth place. On the other hand, it was determined that the universities between U24-U123 of the relevant table have less relationship with scientific articles published in IJEG (n=2, n=1). It has been

determined that IJEG has shown higher scientific productivity performance in the publication of scientific articles submitted to it, especially in "Selcuk University", "Yıldız Technical University", "Mersın University", "Istanbul Technical University", "Eskişehir Technical University" and "Karadeniz Technical University", and lower in universities between  $\rm U_{24}\text{-}U_{123}$ . In this context; it has been determined that IJEG is followed by many universities and scientists who carry out education and training activities in the national and international arena, since it accepts scientific articles written in both fields, namely "engineering" and "geology" categories.

# 2.8.3. IJEG's Scientific Productivity Performance Analysis in Relevant Countries

In order to determine the scientific productivity performance  $(P_3)$  within the scope of countries, based on scientific article studies published in IJEG, Table 3 regarding the countries obtained from the WoS database is examined and presented below for analysis.

**Table 3.** Countries and article numbers related to the articles

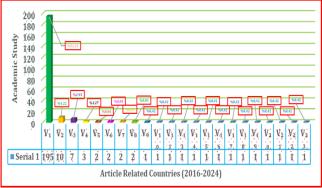
SN	Countries	n
V <sub>1</sub>	Türkiye	195
$V_2$	India	10
V <sub>3</sub>	Iran	7
_	Morocco	3
V <sub>5</sub>	Afghanistan	2
$V_6$	Algeria	2
$V_7$	Azerbaijan	2
$V_8$	Egypt	2
V <sub>9</sub>	Bangladesh	1
$V_{10}$	Greece	1
<b>V</b> <sub>11</sub>	Japan	1
$V_{12}$	Malaysia	1
	Mexico	1
$V_{14}$	Netherlands	1
	Nigeria	1
$V_{16}$	North Macedonia	1
V <sub>17</sub>	Pakistan	1
	Russia	1
V <sub>19</sub>	Scotland	1
$V_{20}$	Serbia	1
V <sub>21</sub>	South Africa	1
$V_{22}$	USA	1
V <sub>23</sub>	Uzbekistan	1

In the examination of Table 3, it was determined that there are many countries (n=23) associated with scientific articles published by IJEG. Within the scope of the years 2016-2024, it was determined that "Turkey" ( $V_1$ ) ranked first in terms of its relationship/connection with scientific articles published in the relevant journal, "India" ( $V_2$ ), "Iran" ( $V_3$ ) ranked second, "Morocco" ( $V_4$ ) ranked fourth, and "Afghanistan" ( $V_5$ ) ranked fifth. On the other hand, it was determined that the countries between  $Z_9\text{-}Z_{23}$  of the relevant table had fewer relationships/connections with scientific articles published in IJEG (n=1). It has been determined that IJEG has shown higher scientific productivity performance in the publication of scientific articles submitted to it, especially in "Turkey", "India" and "Iran", and lower in

countries between  $V_4$ - $V_{23}$ . In this context; it has been determined that scientists from many countries, both nationally and internationally, have shown interest in IJEG due to its acceptance of scientific articles in the categories of "engineering" and "geology".

In Table 3, Graph 3, which is based on the data regarding the quality (related countries) and quantity indicators of scientific productivity performance, is arranged and presented below for review.

**Graph 3.** Number and rates of articles in countries related to articles



\* (The data in the relevant graph can be seen more clearly when zoomed in.)

Graph 3 When the scientific articles published by IJEG from the year "2016" to "2024" are examined within the scope of the countries they are related to/connected with; it has been determined that the most scientific articles (with a rate of 82.28%) are related to "Turkey"  $(V_1)$  and the least scientific articles (with a rate of 0.42%) are related to "Bangladesh", "Greece", "Japan", "Malaysia", "Mexico", "Netherlands", "Nigeria", "North Macedonia", "Pakistan", "Russia", "Scotland", "Serbia", "South Africa", "Usa" and "Uzbekistan" in the "English" language are brought to the scientific world. It is seen that the country associated with the published articles of IJEG is "Turkey" at a remarkable rate. The reason for this is thought to be that the relevant journal continues its academic life in "Turkey" in the "English" publication language and in the "ESCI" field index. According to these findings, it has been determined that IJEG has shown the highest scientific productivity performance in terms of published articles in "Turkey" (V1), "India" (V2) and "Iran"  $(V_3)$  within the scope of 2016-2024, and the least in the countries between  $V_4$ - $V_{23}$ .

# 2.8.4. Scientific Productivity Performance Analysis in Annual Citation Scope of IJEG

In order to determine the scientific productivity performance in terms of annual citations ( $P_4$ ) related to scientific article studies published in IJEG, the BibTex data file obtained from the WoS database was tested in the Bibliometrix R (RStudio) Statistical Analysis program. As a result of the test, Table 4 and Graph 4, which include the "Annual Average Citations and Annual Average Citations per Article" information of the relevant journal within the scope of 2016-2024, were obtained and presented below for review.

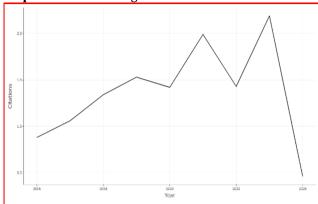
**Table 4.** Annual average and annual average number of citations per article (2016-2024)

SN	Years	N <sub>1</sub>	SN	Years	$N_2$	n
$W_1$	2016	8.8.	X <sub>1</sub>	2016	0.88	5
$W_2$	2017	9.5	$X_2$	2017	1.06	14
$W_3$	2018	10.73	<b>X</b> <sub>3</sub>	2018	1.34	15
$W_4$	2019	10.72	X 4	2019	1.53	18
$W_5$	2020	8.5	<b>X</b> 5	2020	1.42	18
$W_6$	2021	9.94	X 6	2021	1.99	18
$\mathbf{W}_{7}$	2022	<b>5.7</b> 3	<b>X</b> 7	2022	1.43	30
W <sub>8</sub>	2023	6.57	Х 8	2023	2.19	30
$\mathbf{W}_{9}$	2024	0.91	<b>X</b> 9	2024	0.46	34

SN: Sequence number; W and X: Sequence symbol;  $N_1$ : Annual average number of citations per article;  $N_2$ : Annual average number of citations; n: Number of articles

In the examination of Table 4; it was determined that there was a regular increase in the annual average number of citations per article to scientific articles published in IJEG from the year "2016" (W<sub>1</sub>) to the year "2018" (W<sub>3</sub>). However, it is observed that it fluctuated in the form of decrease/increase after the year "2018" (W<sub>3</sub>). Within the scope of the 2016-2024 period; it was determined that the annual average number of citations per article published in IJEG was the highest in "2018"  $(N_1=10.73)$  and the lowest in "2024"  $(N_1=0.91)$ . When the annual average number of citations related to the citations made to scientific articles published in IJEG between the years 2016-2024 is examined; It was determined that the highest number of citations was in "2023" ( $N_2$ =2.19) and the lowest in "2024" ( $N_2$ =0.46). It is noticed that there is an increasing/decreasing change in the annual average number of citations of the journal. In parallel with these findings; Although the number of articles in 2023 and 2024 are respectively (n=30 and 34), it was determined that the annual average number of citations in "2023" (X<sub>8</sub>) is quite higher than in "2024" (X<sub>9</sub>). Although the highest number of articles was published in 2024 (n=34) in IJEG's publication life, it is noteworthy that the total and annual average number of citations decreased significantly in this year.

Graph 4. Annual average number of citations to articles



\* (The data in the relevant graph can be seen more clearly when zoomed in.)

In the examination conducted on Graph 4; it is seen that the annual average number of citations to scientific articles published in IJEG and brought to the international literature tended to increase from "2016" to "2019". However, it was determined that it showed a fluctuating trend in the form of falling/rising from "2019" to "2023". In parallel with these findings, it is understood that there is a strikingly decreasing trend after "2023".

# 2.8.5. Scientific Productivity Performance Analysis in Global Citation Scope of Articles Published in IJEG

In order to determine the <u>scientific productivity</u> <u>performance in terms of global citations</u> to scientific articles published in IJEG ( $P_5$ ), the BibTex data file obtained from the WoS database was tested in the Bibliometric R (RStudio) Statistical Analysis program. As a result of the test, Table and Graph 5, which include the "Most Citations at the Global Level" information of the relevant journal within the scope of 2016-2024, were obtained and are presented below for review.

**Table 5.** Total and annual average most cited articles globally

gioba	11 y			
SN	Author, Yıl, Journal			N <sub>2</sub>
Y <sub>1</sub>	Avcı C, 2023, IJEG	10.26833/ijeg.987605	64	21.33
Y <sub>2</sub>	Kaplan G, 2020, IJEG	10.26833/ijeg.644089	43	7.17
<b>Y</b> <sub>3</sub>	Cömert R, 2019, IJEG	10.26833/ijeg.455595	39	5.57
Y <sub>4</sub>	Yakar M, 2018, IJEG	10.26833/ijeg.378257	37	4.63
Y <sub>5</sub>	Senkal E, 2021, IJEG	10.26833/ijeg.696001	28	5.60
Y <sub>6</sub>	Akar A, 2017, IJEG	10.26833/ijeg.329717	27	3.00
Y <sub>7</sub>	Ahady A.B., 2022, IJEG	10.26833/ijeg.860077	24	6.00
Y <sub>8</sub>	Orhan O, 2019, IJEG	10.26833/ijeg.417151	23	3.29
<b>Y</b> <sub>9</sub>	Sasi A, 2018, IJEG	10.26833/ijeg.328919	23	2.88
Y <sub>10</sub>	Canaz- Sevgen Sc, 2019, IJEG	10.26833/ijeg.440828	22	3.14

SN: Sequence number; Y: Sequence symbol;  $N_1$ : Total number of citations;  $N_2$ : Annual average number of citations

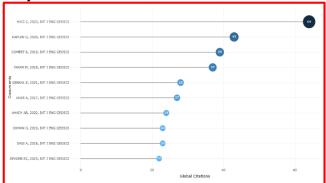
In Table 5; It has been determined that the scientific articles published in IJEG and brought to the international literature and cited the most at the global level are [98-107]. The ranks of the relevant articles according to the " $N_1$ " and " $N_2$ " numbers have been determined. According to the examination of the data of the relevant articles:

"Avcı, C. (2023)'s  $(Y_1)$  article has been found to have the total number of citations  $(N_1=64)$  and the annual average number of citations  $(N_2=21.33)$  and has been found to be the most cited article study at the global level.

"Kaplan, G. (2020)'s  $(Y_2)$  article has been found to be the second with the total number of citations  $(N_1=43)$  and the annual average number of citations  $(N_2=7.17)$ . It was determined that the article by Comert, R. (2019)  $(Y_3)$  ranked third in terms of the total number of citations  $(N_1=39)$ , and the article by Ahady, A.B. (2022)  $(Y_7)$ 

ranked third in terms of the annual average number of citations ( $N_2$ =6.00).

**Graph 5.** Total number of citations to articles



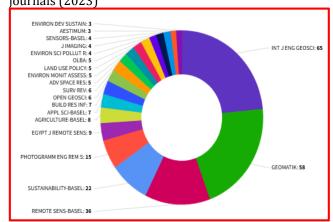
\* (The data in the relevant graph can be seen more clearly when zoomed in.)

In Graph 5, the most cited articles (total number of citations) on a global level, which were published in IJEG and contributed to the literature, and the author, year of publication and journal name of these studies are shown. The length of the lines in the graph and the size of the spherical (circular) shapes at the end of these lines indicate the number of citations made to the relevant article. In this context; it is seen that the total number of citations of the articles published in IJEG supports the determinations made above.

# 2.8.6. Scientific Productivity Performance Analysis of IJEG within the Scope of Citation Relationship with Other Journals

In order to determine the scientific productivity performance  $(P_6)$  based on the citations made by other journals to the scientific articles published in IJEG, Graph 6, which includes the "Journal Impact Relationship" information regarding the citations made by other journals to the relevant journal within the scope of 2023, was obtained from the Journal Cities Reprot **database (24.03.2025-time: 21:32)** and is presented below for review.

**Graph 6**. IJEG's citation relationship status with other journals (2023)



<sup>\* (</sup>Since the values for the year 2024 were not published at the time the study was submitted to the journal, they could not be included in the graph.)

In the examination of Graph 6, it was determined that in 2023, articles published by IJEG were cited 65 times by articles published by IJEG itself.

In the same year; 58 from "Geomatics", 36 from "Remote Sensing-Basel", 22 from "Sustainability-Basel", 15 from "Photogrammetric Engineering and Remote Sensing", 9 from "Egyptian Journal of Remote Sensing and Space Sciences", 8 from "Agriculture-Basel", 7 from "Applied Sciences-Basel", 7 from "Building Research and Information", 7 from "Open" 6 from "Geosciences", 6 from "Survey Review", 5 from "Advances in Space Research", 5 from "Environmental Monitoring and Assessment", 5 from "Land Use Policy", 5 from "Olba", 4 from "Environmental Science and Pollution Research", 4 from "Journal of Imaging", 4 from "Sensors-Basel", 3 from "Aestimum" and "Environment Development" oath It has been determined that 3 citations were made from "Sustainability". Considering the findings; It has been determined that the journals "Geomatik", "Remote Sensing-Basel", "Sustainability-Basel", "Photogrammetric Engineering and Remote Sensing" are at the forefront in citing scientific articles published by IJEG.

# 2.8.7. IJEG's scientific productivity performance analysis within the scope of impact factor

In order to determine the scientific productivity performance of scientific article studies published in IJEG within the scope of journal impact factor ( $P_7$ ), Table 6, which includes the "Journal Impact Factors" (JIF) information of the relevant journal within the scope of 2023, was obtained from the Journal Cities Reprot database (24.03.2025-hour: 21:32) and is presented below for review.

**Table 6.** IJEG's JIF Q, journal impact factor percentage value and category status (2023-2024)

SN	Yil	Dergi	JIF Q Değeri (n1)	JIF/JCI Dergi Etki Faktörü (n2)	JIF % Değeri (n <sub>3</sub> )	Kategori
<b>Z</b> <sub>1</sub>	2024	IJEG	$Q_2$	2.5	53.1	E ve G
$\mathbf{Z}_2$	2023	IJEG	$Q_2$	3.1	65.9	E ve G

SN:Sequence number; Z:Sequence symbol; E and G: Engineering and Geology; Q: JIF Q Value; JIF: Journal Impact Factor; JCI: Journal Citation Indicator

In the examination of Table 6; it was determined that IJEG's JIF Q value  $(n_1)$  was " $Q_2$ ", Journal Impact Factor (JIF/JCI) value  $(n_2)$  was 3.1, JIF % value  $(n_3)$  was 65.9 in the "2023" scope ( $Z_2$ ), and the JIF Q value  $(n_1)$  was again " $Q_2$ ", Journal Impact Factor (JIF/JCI) value  $(n_2)$  was 2.5, JIF % value  $(n_3)$  was 53.1 in the "2024" scope ( $Z_1$ ), and it continued its publication life in the "Engineering" and "Geological" categories in both years.

### 3. Results and Discussion

Based on the findings obtained from the tests and analyses performed on the tables and data files obtained from the WoS database, determinations were made regarding the scientific productivity performance of IJEG. These determinations include: IJEG's publication year (2016-2024), related universities, countries, annual citation status, global citation status, citation relations made by other journals, and scientific productivity performance status within the scope of journal impact factor. The results and discussions reached based on the contents of these determinations are given below. Within the scope of the publication year of IJEG; It was determined that it showed the highest scientific productivity performance in "2024" and the lowest in "2016". In addition, it was determined that the number of articles published within the journal from the year "2016", when the journal started its publication year, to "2024" tended to increase in general (except for 2023-2022 and 2019-2021). In parallel with these findings, it has been determined that with each passing publication year of the journal, the rejection rate of articles sent to it (82% in 2024) has increased, as well as the number of articles published (34 in 2024). Considering this finding; it can be stated that there will be an increase in the number of articles that IJEG will publish in the publication years after "2024". Again, it is thought that there will be no decrease in the rejection rate of scientific articles sent/uploaded to IJEG regarding them being found unsuitable for publication and not being published. In this context; It is interpreted that IJEG's scientific productivity performance will be higher in the publication years after 2024. On the other hand, it is evaluated that scientists who want to publish articles within IJEG should send/upload studies aimed at closing scientific gaps that are needed in the scientific world or that they will determine in the relevant field in the "engineering" and "geology" categories where the journal continues its publication life.

In terms of published articles, IJEG's relevant universities include; "Selcuk University" in the first place, "Yıldız Technical University" in the second place and "Mersın University" in the third place and "U<sub>24</sub>-U<sub>123</sub> (Afyon Kocatepe University, Akdeniz University, Ankara Hacı Bayram Velı University, ..., ..., University Of Twente, University Science Technology Houarı Boumediene, West Bengal State University) has been found to have shown scientific productivity performance in the context of its relationship with universities between.

From this point of view, when the article studies published in the journal from the year "2016", when the journal started its publication year, to the year "2024" are taken into consideration, it can be said that it will maintain its leadership in scientific productivity performance in its relationship with "Selcuk University" in the following periods. At the same time, it can be thought that it can increase its scientific productivity performance in its relationship with the relevant universities that are in the first ranks  $(U_2,\,U_3,\,U_4)$ . It is evaluated that this increase is due to the article studies

that scientists in the mentioned universities will provide to be published in IJEG. Therefore; It is evaluated that IJEG should increase its scientific collaboration regarding uploading/sending more qualified studies and closing the gaps in the literature in order to increase its scientific productivity performance with universities other than "Selcuk University". In this context; It is thought that IJEG can further increase the scientific productivity performance of universities that carry out educational activities in national and international areas. Within the scope of IJEG's relevant countries; It has been determined that the journal shows scientific productivity performance in the context of its relations with the countries between "Turkey" in the first place, "India" in the second place and "Iran" in the third place and the least in the context of "V9-V23" (Bangladesh, Greece, Japan, ......, South Africa, USA, Uzbekistan). In addition, when the articles published in the journal from the year "2016", when the journal started its publication year, until "2024" are taken into consideration, it can be stated that it will maintain its leadership in scientific productivity performance in its relation with "Turkey" in the upcoming publication periods. The reason for this is: In addition to continuing its scientific publishing life in Turkey, IJEG's communication with scientists in Turkey in line with scientific cooperation. In this context; IJEG's scientific productivity performance in relation to other countries other than "Turkey", in order to increase its scientific productivity performance, in order to fill the gaps in the international field, in order to carry out, transmit/upload studies with higher quality/scientific and international studies, in order to establish scientific cooperation/connections with the relevant countries. It is interpreted that it should improve its communications. In this context; It is thought that IJEG can further increase its scientific productivity performance depending on other countries around the world. Within the scope of the citations made to IJEG's articles; in the relevant period, the average number of citations per article; the highest in "2018" ( $N_1$ =10.73 citations), the lowest in "2024"  $(N_1=0.91 \text{ citations})$ , the annual average.

### 4. Conclusion

There are scientific journals in the literature that are the source of many scientific studies. These journals are included in different databases, indexed in different indexes and continue their publication life in different categories. These journals play an important role in transferring scientific studies to the scientific world. Within the scope of these roles undertaken by the journals; determining the scientific productivity performances of the relevant journal in terms of the number of citations (average and annual average citations per article) and journal impact factor, as well as the scientific collaboration/connection with other journals, countries and universities in the future, is important for the scientists, private sector, institutions and organizations that follow in terms of journal and category. In this context, it is seen that many scientific studies are carried out in the literature.

This study includes determining the scientific productivity performance of the "International Journal of Engineering and Geosciences" (IJEG), which is scanned in the TR Index with the "ESCI" and "Scopus" field indexes and continues its publication life internationally in the "engineering" and "geology" categories. In this context, the test and analysis results:

IJEG, within the scope of the publication year (Table 1); maximum in "2024", minimum in "2016", within the scope of the relationship/scientific collaboration with the relevant universities (Table 2); within the scope of the relationship with the higher education institutions between "Selcuk University" and minimum "U24-U123" (Afyon Kocatepe University, ....., West Bengal State University); within the scope of the relationship/scientific collaboration with the relevant countries (Table 3) maximum in "Turkey" and minimum in "V<sub>9</sub>-V<sub>23</sub>" (Bangladesh, ....., Uzbekistan) it was concluded that it showed scientific productivity performance.

In terms of the average number of citations made to the articles published within IJEG (Table 4): It was concluded that the highest scientific productivity performance was in "2018" and the lowest in "2024", and the highest annual average citation numbers were in "2023" and the lowest in "2024".

Within the scope of the global citations made to the articles published in IJEG (Table 5); it was determined that the article study by Avcı (2023) at the doi "10.26833/ijeg.987605" was in the first place, the article study by Kaplan (2020) at the doi "10.26833/ijeg.644089" was in the second place, and the article study by Cömer (2019) at the doi "10.26833/ijeg.455595" was in the third place. With the references made to the relevant article studies, it was concluded that IJEG has demonstrated a significant scientific productivity performance at the global level.

Within the scope of the citation relationship between the articles published in IJEG and the scientific studies published in other journals (Graphic 5): it was determined that the scientific journals "Geomatik", "Remote Sensing-Basel", "Photogrammetric Engineering and Remote Sensing" were cited the most, and "Aestimum" and "Environment Development and Sustainability" were cited the least. It was concluded that IJEG showed a scientific productivity performance mostly based on the scientific journals "Geomatik", "Remote Sensing-Basel", "Photogrammetric Engineering and Remote Sensing", and less on the scientific journals "Aestimum" and "Environment" or the articles published in these journals.

Based on the scientific article studies published in IJEG, it was concluded that the scientific productivity performance within the scope of journal impact factor (Table 6); the relevant journal's JIF Q value for the year "2023" was " $Q_2$ ", the JIF/JCI Journal Impact Factor value was 3.1, and the JIF% value was 65.9, and in "2024", the JIF Q value was  $Q_2$ , the JIF/JCI journal impact factor value was 2.5, and the JIF% value was 53.1, and in both years it was in the "Engineering" and "Geological" categories.

The following suggestions can be made based on the findings and results obtained as a result of the tests and

analyzes carried out to determine the scientific productivity performance of IJEG. It is recommended that researchers engaged in scientific studies within the fields of Engineering and Geological sciences review and take into consideration the scientific articles published in IJEG.

- ✓ The relevant sectors that fall into the publication category of IJEG should benefit from the scientists who have signed important studies in the journal,
- ✓ Considering the journal impact factor, JIF Q value and global citation count of IJEG, the studies that the prominent scientists in the journal have contributed to the literature should be examined by future academicians who are studying in undergraduate/graduate/doctoral programs,
- ✓ IJEG should establish collaborations with other journals, universities and countries in the field with which it has less ties/scientific collaborations or no scientific collaborations in the context of scientific productivity,
- ✓ The reason for the significant decrease in the number of citations of IJEG in "2024" should be determined by the journal management and the necessary initiatives should be taken in this direction.
- ✓ IJEG should increase the JIF Q value from "Q₂" to "Q₁", and the JIF/JCI journal impact factor and JIF % value should be increased. journal management tends towards scientific collaboration.
- ✓ IJEG's bibliometric analyses to reveal its social and conceptual structures are conducted by other scientists,
- ✓ The performance (within the scope of relevant scientific components) and scientific mapping analyses of the leading scientific journals "Remote "Geomatik", Sensing-Basel", "Photogrammetric Engineering and Remote Sensing" in terms of scientific collaboration/connection with IJEG are conducted to reveal their social (authors, universities, countries) and conceptual (author keywords) structures.

### **Author contributions**

The authors contributed equally to the study.

### **Conflicts of interest**

There is no conflict of interest.

### **Ethics Committee Permission Statement**

In this study, Ethics Committee Permission was not obtained due to document analysis and the ethical principles of scientific research and publication were complied with in the research process.

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