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A Bibliometric Review of The Development of Geotourism Research in The Last Five Years

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ABSTRACT

Geotourism research is a tourist activity that is in direct contact with nature and has a variety of characteristics and uniqueness. On the other hand, we must protect nature so that it is not damaged by tourism activities. Therefore, it is important to know the development of research that has been done about geotourism. This study aims to determine the map of the development of research on geotourism. The application used to collect Scopus-indexed research metadata on geotourism using Harzing Publish or Perish application. Furthermore, the Vosviewer application is used to map research related to geotourism in the period 2018 to 2022. In the last five years, topics related to geotourism that have been widely researched are geoheritage, geosites, and geopark..

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1. INTRODUCTION

Geotourism is a form of special interest tourism by utilizing natural resources such as landscapes, rocks, geological structures and earth history as a tourist attraction (Hermawan & Ghani, 2018). Examples include springs, rivers, lakes, beaches, volcanoes, mountains, caves, forests and ravines. The main element offered in geotourism is the attraction of beautiful, unique, and amazing landscapes as God creation.

Geotourism is a part of tourism that is in great demand by the global community, even in some countries the geotourism sector is the largest contributor to the foreign country exchange (Narisa, 2021). Currently, various countries, including Indonesia, are actively competing to promote and develop geotourism as a strategy to improve the economy of local communities and even to improve the national economy by bringing in foreign tourists (Hari, 2019). The development of geotourism has proven to be able to improve the economy community, such as opening up new business opportunities around tourist sites, reducing unemployment and also increasing people income (Riswanto & Andriani, 2018).

Many tourists choose geotourism because they want to get new amazing experiences by enjoying the beauty of nature as a refreshing alternative in the midst of the boring routine of modern life (Habib, Nisa, Diniati, Ratnaningsih, & Fatkhullah, 2022). Nature tourism is also considered as educational tourism that can provide a lot of knowledge and new experiences for tourists about natural wealth (Wulung, Brahmantyo, & Rosyidie, 2021). In addition, nature tourism is also considered relatively cheap so it is suitable for young people who are active and energetic but want to spend less (Naufal & et al., 2020).

In the midst of high tourist interest, geotourism also has a vulnerability to natural damage. Several previous research results explain that the development of geotourism can increase the amount of waste in nature that pollutes the environment (Habib & Mahyuddin, 2021), damages marine ecosystems (Suriyani, 2018), destroys animal habitats (Asiatoday, 2020), and damages the beauty of landscapes (Fhai ,

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2016). Given the negative impact of the development of geotourism, tourism developers must pay attention to aspects of sustainable development that pay attention to environmental sustainability and social responsibility.

By looking at the increasing interest of the world community in geotourism along with the positive and negative impacts caused, the development of geotourism still needs to be studied a lot. On this occasion, the researcher examines the distribution map of geotourism research from around the world through searches from reputable international journals. It is hoped that this geotourism research distribution map can be used as a first step for sustainable geotourism development, by suppressing negative impacts and increasing positive impacts.

2. DATA AND METHOD

This research study uses the Scopus database from 2018 to 2022. In 2018 Unesco Global Geopark officially added 13 places to the list of geoparks in the world. Two of them are in Indonesia, namely Rinjani Lombok and Ciletuh-Palabuhanratu. With the inauguration of these 13 new geoparks, we want to know the development of research on geotourism by previous researchers.

The method used in this research is bibliometric analysis. The bibliometric method is used to evaluate the research that has been done. The main use of the bibliometric method is to determine the performance of research and science mapping (Zupic & Tomaz Cater, 2014). Therefor with this method it will be known how many authors write journals on the theme of geotourism, how many citations, countries that do a lot of research on geotourism and also the number of journals that have been published by publishers related to geotourism.

Research using bibliometric analysis method uses several steps. The first step is the search criteria of the research field. The second step is search and selection of documents. The third step is software and data extraction. The fourth step is analysis of results and trends (Herrera-Franco, Nestor Montalvan-Burbano, Paul Carrion-Mero, Boris Apolo-Masache, & Maria Jaya-Montalvo, 2020).

The first step is to find the criteria for the research that we will do, and we choose the bibliometric analysis method that we will use to map the research and find out the performance of the research that has been done. In the second step is to find and select data. We use the Harzing Publish or Perish application to search for articles indexed by Scopus from 2018 – 2022 using the keyword “geotourism”. Then we made a selection by eliminating documents with the type of conference paper, book chapter, review, book, editorial, and note. From this process, we got 608 articles. In the third step, we processed and analyzed the articles we got using excel and the VOSviewer application. In the last step, we analyze and draw conclusions on the development and performance of research that has been done on geotourism.

3. RESULT

Development of research on geotourism.

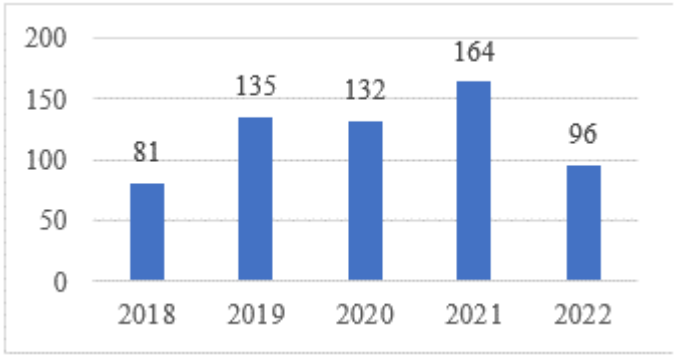


Figure 1: Development of research on geotourism

From the graph, it can be seen that research on geotourism from 2018 to 2022 has increased. In 2020 there was a decrease but not significant. Meanwhile, in 2022 research on geotourism that entered Scopus

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was only 96 because the lunar year in 2022 was still running until August. From the graph of the development of this research, it is very interesting because even though in 2022 the month has not yet ended, but when viewed from the number of journal publications it is still higher than in 2018. This shows that research on geotourism is interesting to study. If seen in 2021, the number of geotourism research as many as 164 of this amount means that research on geotourism will increase by 100% more than in 2018.

Contribution by Country and Region

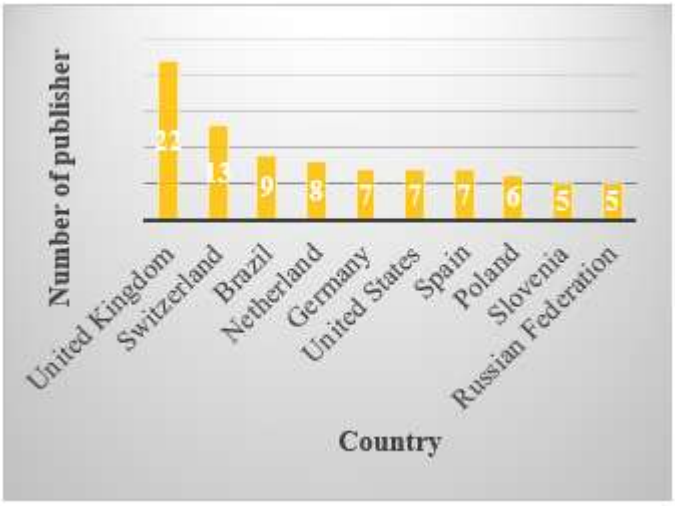


Figure 2: The number of publisher by country publisher

The graph illustrates the contribution of a country to research related to geotourism when viewed from the number of publishers in that country who publish journals about geotourism. The top 10 publishers who publish a lot of journals about geotourism are the United Kingdom, Switzerland, Brazil, Netherland, Germany, United States, Spain, Poland, Slovenia, and the Russian Federation.

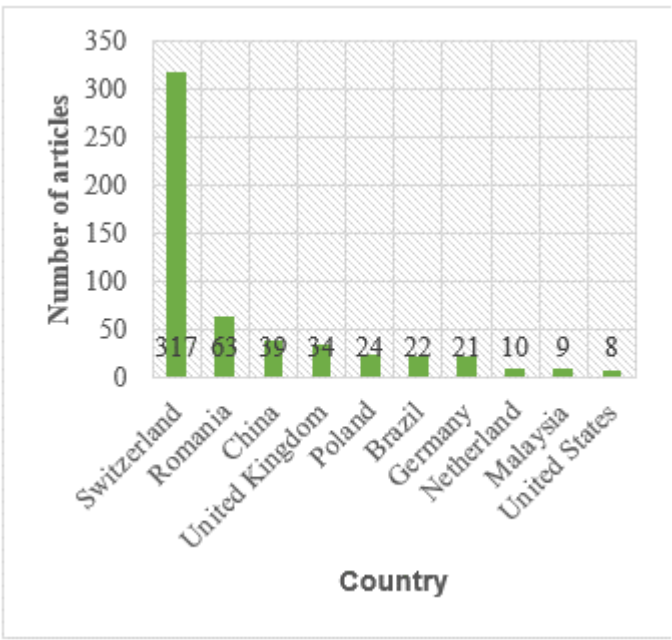


Figure 3: The number of articles by country publisher

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If a country contribution to research on geotourism is seen from the number of articles published, Switzerland ranks first. Nine other countries ranked 2 to 10 are Romania, China, United Kingdom, Poland, Brazil, Germany, Netherland, Malaysia and the United States.

From the comparison of the two graphs, which looks at the contribution of a country based on the number of publishers and the number of journals, there are interesting things. Switzerland with 13 publishers can publish journals on geotourism in Scopus as many as 317 articles. Meanwhile, the United Kingdom ranks first in terms of the number of publishers, but ranks 4th in the number of articles published, with 34 articles. The countries of Romania and China in the ranking of the number of publishers are not included in the top 10, but in the number of published articles they rank third and third, with 63 and 39 articles.

Top Cited Articles

The following are the 10 journal articles with the most citations.

Title	Authors	Journal	Citation
Research trends in geotourism: A bibliometric analysis using the scopus database	(Herrera-Franco, Nestor Montalvan-Burbano, Paul Carrion-Mero, Boris Apolo-Masache, & Maria Jaya-Montalvo, 2020)	Geosciences (Switzerland)	56
Worldwide research on geoparks through bibliometric analysis	(Herrera-Franco, Nestor Montalvan-Burbano, Paul Carrion-Mero, Maria Jaya-Montalvo, & Miguel Gurumendi-Noriega, Worldwide Research on Geoparks through Bibliometric Analysis, 2021)	Sustainability (Switzerland)	38
Geodiversity, geoheritage and geoconservation for society	(Grey, 2019)	International Journal of Geoheritage and Parks	37
Speleotourism in Slovenia: Balancing between mass tourism and geoheritage protection	(Ticar, et al., 2018)	Open Geosciences	36
Some comments to geosite assessment, visitors, and geotourism sustainability	(Strba, Branislav Krsak, & Csaba Sidor, 2018)	Sustainability (Switzerland)	35
Assessing geotourism resources on a local level: A case study from Southern Moravia (Czech Republic)	L. Kubalíková	Resources	34
Exploring the Potential for Speleotourism Development in Eastern Serbia	(Tomic, et al., 2018)	Geoheritage	31
Quantitative and qualitative assessment of the "El Sexmo" tourist gold mine (Zaruma, Ecuador) as a geosite and mining site	P. Carrión-Mero	Resources	28
UNESCO global geoparks, geotourism and communication of the earth sciences: A case study in the chablais unesco global geopark, France	(Justice, 2018)	Geosciences (Switzerland)	28
Malta and sicily joined by geoheritage enhancement and geotourism within the framework of land management and development	(Cappadonia, Paola Coratza, Valerio Agnesi, & Mauro Soldati, 2018)	Geosciences (Switzerland)	27

Network Visualisation

Co-Occurrence Analysis of Keyword

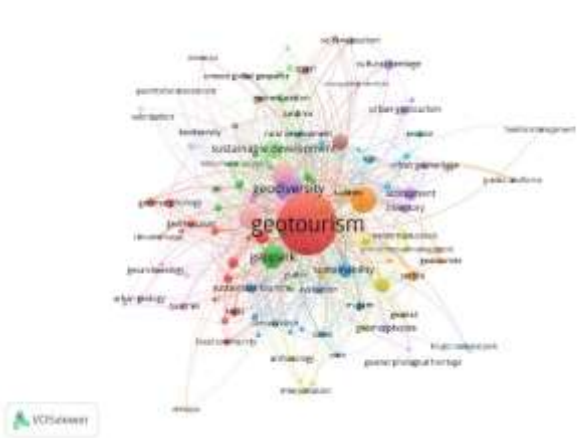


Figure 4: Co-Occurrence Analysis of Keyword

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In the keyword mapping analysis using co-occurrence 3 found 112 keywords that meet the 1716 keywords found. Of the 112 keywords are divided into 18 clusters. The first cluster consists of the keywords cave, climate change, geological heritage, geology, geomorphology, georesources, geotourism, karst, landscape, local community, mapping, natural hazards, southern Italy, Thailand, and UNESCO.

The second cluster consists of bibliometric analysis, building stone, carrying capacity, fossil, geotourism, GIS, granite, heritage, scopus, tourist destination, and vosviewer. The third cluster consists of caves, community based tourism, conservation, education, evaluation, geoethics, m-gam, speleotourism, sustainability, sustainable tourism, and swot. The fourth cluster consists of development, environmental management, geopark, geotrail, mining heritage, mining tourism, natural heritage, tourism, and western Caucasus. The fifth cluster consists of assessment, cultural heritage, fossil, geodiversity, geoprocessing, inventory, urban geoheritage and urban geotourism. The sixth cluster consists of Environmental education, erosion, Iran, mining sites, protected areas, regional development and rural development. The seventh cluster consists of geoconservation, geosite assessment, geotourist, granite landforms, Serbia, Sudetes, and sustainable. The eighth cluster consists of augmented reality, geomorphosities, local development, spain, Unesco Global Geopark, volcano tourism, and volcanoes. The ninth cluster consists of building stones, geoarchaeology, iltaly, quarries, swot analysis and urban geology. The tenth cluster consists of ecosystem services, geoheritage, geosites, geosites, morocco, and quantitative assessment. The eleventh cluster consists of cultural landscape, geo-education, geoheritage evaluation, Sardinia, sustainable development, and volcanic geoheritage. The twelfth cluster consists of biodiversity, cultural tourism, national parks, and valorization. The thirteenth cluster consists of archeology, industrial tourism, interpretation, and natural resources. Cluster fourteen consists of geomorphological heritage, geomorphosite, and management. Cluster fifteen consists of Kruger National Park and South Africa.Cluster sixty is ethiophia. The seventeenth cluster is tourism management and the eighteenth cluster is western desert.

b. Co-Authorship Analysis

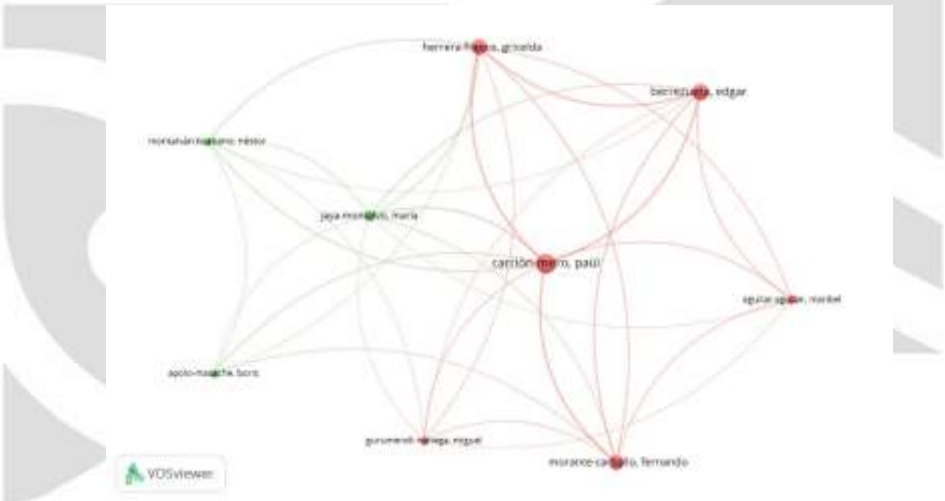


Figure 5: Co-Authorship Analysis

In the coauthorship analysis with a minimum number of document of author 3 found 100 authors from 1783 authors. From the results of the mapping using vosviewer described with 2 clusters. Cluster 1 in red consists of aguilar-aguilar, Maribel, berrezueta, edgar, carrion-mero, paul, gurumendi-noriega, Miguel, Herrera-franco, gricelda and morantel-carballo, Fernando. The second cluster is green which consists of apolo-masache, boris, jaya- Montalvo, maria and montalvan-burbano, nestor.

4. CONCLUSIONS

From the mapping description in this study, it shows that research on geotourism in Indonesia is still very lacking. This is evidenced by the very lack of geotourism research in Indonesia that is included in Scopus data. Even though Indonesia has 6 geoparks. With this potential, it should be balanced with research that will be able to make a positive contribution to geotourism in Indonesia and also the development of science about geotourism.

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