

AIR DIPLOMACY IN INDO-PACIFIC GEOPOLITICS: A STRATEGIC MODEL TO STRENGTHEN TNI AU'S POSTURE FOR NATIONAL DEFENSE

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Abstract

The geopolitical dynamics of the Indo-Pacific region demands for an innovative strategy to face challenges in air diplomacy. This research develops new strategic models in air diplomacy which are based on geopolitical analysis, with a specialized focus on the Indo-Pacific region. By filling the gaps in research regarding the limited integration of bibliometric approach in analyzing international relations and political posture, this research aims to bridge the gaps between theory and practice. The main purpose of this research is to provide strategic policy recommendations for the Indonesian Air Force (TNI AU), in reinforcing its national defense posture. A mixed method approach was utilized to integrate bibliometric analysis and qualitative geopolitical evaluation, to study international relations as well as strategic environments. The findings show potential critical diplomacy to strengthen the role of TNI AU, emphasizing the importance of aligning regional and international factors in defense strategy. Furthermore, this research reveals the urgency of utilising air diplomacy to assuage tension, build partnerships, and increase military capabilities. Implications of this research serves beyond national interests as it offers a framework that may be replicated by other nations in similar geopolitical regions. This research is the first of which combines bibliometric knowledge with geopolitical strategies in air diplomacy, as well as set standards for future research and contribute towards discourse about defense innovation in the Indo-Pacific region.

Keywords: Air Diplomacy, Indo-Pacific Geopolitics, Military Posture, Bibliometric Analysis, Strategic Policy, National Defense Strategy.

1. Introduction

In this day and age, most of the world's population reside in a region called the Indo-Pacific [1]. This region becomes the centre of global attention in geopolitical dynamics and geostrategies, considering its crucial role as a major trade route and the epicentre of competition for the great world powers [2]. This region encompasses countries with strategic interests that intersect with various territorial and maritime disputes, especially in the South China Sea, causing significant risks to regional stability, creating challenges and opportunities for security and diplomacy [3][4]. In this context, air diplomacy can be categorized by three main aspects: using aviation as an international policy, promoting an international image of a country using air assets, and involving the subject of aviation as a diplomatic actor so that it emerges as an important element in building regional stability as well as strengthening national defense [5]. However, the use of air diplomacy as a strategic instrument in supporting the national military posture proves to still be underexplored, especially in the Indo-Pacific region, as portrayed in Figure 1[6]. Air diplomacy does not only function to strengthen bilateral or multilateral partnerships, but also as a specialized branch of military diplomacy which utilizes air power as an instrument of a country's foreign policy. Air diplomacy encompasses coercive and cooperative strategies by using various elements such as aviation, the aeronautics industry, and frameworks for international cooperation [7]. Even so, research that integrates air diplomacy with geopolitical analysis systematically, is still limited. In the context of Indonesia, the Air Force becomes the main tool for strategic defense management in the Asia-Pacific region. This involvement helps to assuage tension, reduce hostility, and shape the principles of a country [8]. Therefore, a more comprehensive strategic approach is needed to maximize the potentials of air

diplomacy in reinforcing national defense posture.



Figure 1. Map of the Indo-Pacific.

Previous research has only been focused on the analysis of maritime diplomacy relations [9], without exploring the profound relatedness between geopolitics that involve control and influence over region and space, which directly affect military strategies, including air force operations for national interests and maintenance of regional stability [10][11]. This approach leaves a significant knowledge disparity, especially in understanding how countries can utilize the potential of air diplomacy as a response towards the ever-changing geopolitical dynamics. This research stands to fill those gaps by using a bibliometric approach of strategic air diplomacy analysis relevant to challenges faced in the Indo-Pacific region such as ethnic, territorial, and maritime disputes, including power competition, which disrupt the stability of countries in the region [12]. Moreover, discovering new insights on patterns of interaction between nations, as well as evaluating Indonesia's strategic position in the geopolitical landscape. This approach allows for the identification of intricate relationships and relevant air diplomacy trends, enabling the establishment of policy recommendations based on data and evidence. The use of bibliometrics in the context of air diplomacy is a fairly new concept, giving a more comprehensive analytical dimension in strengthening national defense.

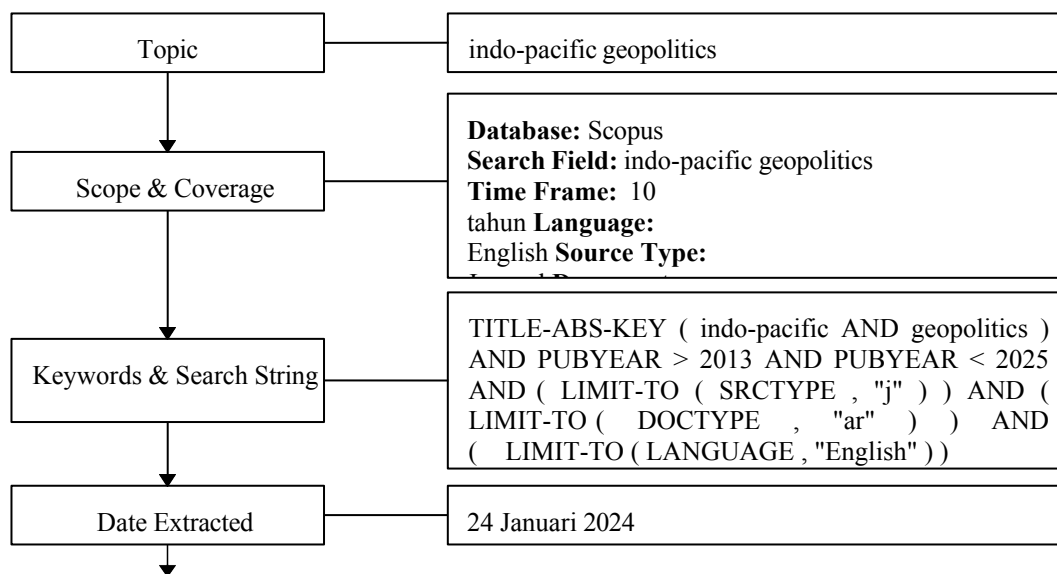
The model developed in this research is not only relevant for TNI AU, but also has a wider implication for other countries within the Indo-Pacific region. By integrating Indo-Pacific geopolitical factors, air diplomacy for strategic air force interests, this research provides a helpful guide for policymakers when planning adaptive and strategic steps in facing regional and global challenges. As the first research to integrate bibliometric analysis and geopolitical approach in air diplomacy, bibliometric method aims for research evaluation, knowledge management, and trend analysis [13]. Co-citation analysis and high dimension data grouping are some of the techniques used to discover and visualize the intellectual domain structure of the research, thus

this method is capable of uncovering the main researcher, main theme, and collaboration patterns of articles [14][15]. Moreover, bibliometrics is capable of observing the performance of articles and journals, the impacts and influence of publications' collaboration patterns amongst academia, institutions, and countries in scientific communities, as well as explore the intellectual structure of research domains in existing literature [16]. On one hand, this research will contribute towards academic literature on diplomacy and air defense. On the other hand, this research offers concrete solutions to support the reinforcement of TNI AU's defense posture, by adjusting the strategies needed for regional and international interests. Therefore, this research is not only relevant for Indonesia, but also for the international community facing similar challenges in the Indo-Pacific region.

2. Materials and Methods

2.1 Bibliometric Data Sources

In this research, data were extracted from Scopus database. Scopus was utilized for bibliometric research which involved analysis such as publication patterns, total citation and author's impact [17]. The selection of article sources was limited to journal types, while books, conference papers and other publications were not included because these types of publications rarely undergo a review process comparable to double-blind peer review [18], to make it easier for readers, the journals selected are journals in English. Collection of data from Scopus database was conducted twice, both on January 24, 2025. The first extraction with keyword "Indo-Pacific geopolitics" was used in searching for publication titles within the span of 2014 to 2024, the search string as follows: TITLE-ABS-KEY (indo-pacific AND geopolitics) AND PUBYEAR > 2013 AND PUBYEAR < 2025 AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")). This search of journal publications about Indo-Pacific geopolitics in the Scopus database resulted in 100 publication documents. This research will implement a systematic review approach by using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [19]. PRISMA is a tool for authors to clearly report why a review has been done, what has been done and found. This is also useful for peer reviewer, editors, and readers to assess the validity and reliability of the reported findings [20]. This protocol has been modified as shown in Figure 2.1 where data was extracted from Scopus database.



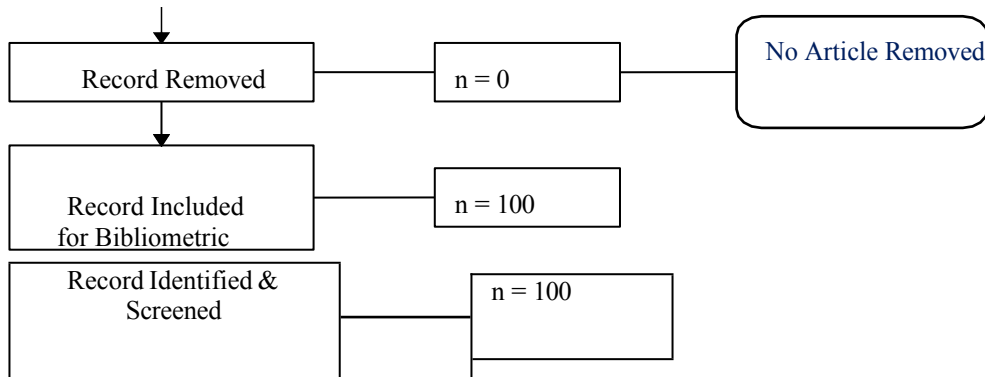
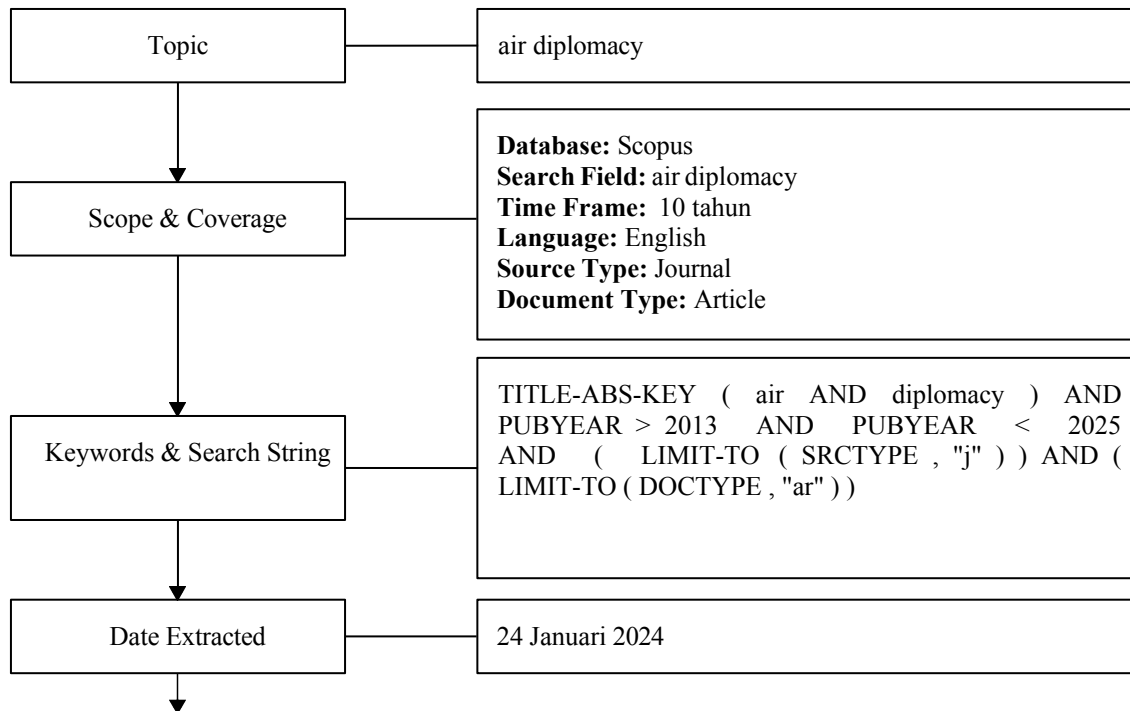


Figure 2.1 PRISMA diagram of search strategy flow.

The second extraction with keyword “air diplomacy” was used in searching for publication titles within the span of 2014 to 2024, the search string as follows: TITLE-ABS- KEY (air AND diplomacy) AND PUBYEAR > 2013 AND PUBYEAR < 2025 AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar")).

This search of journal publications about air diplomacy in the Scopus database resulted in 66 publication documents. The PRISMA protocol for the second search is show in Figure 2.2. Data was extracted from Scopus database.



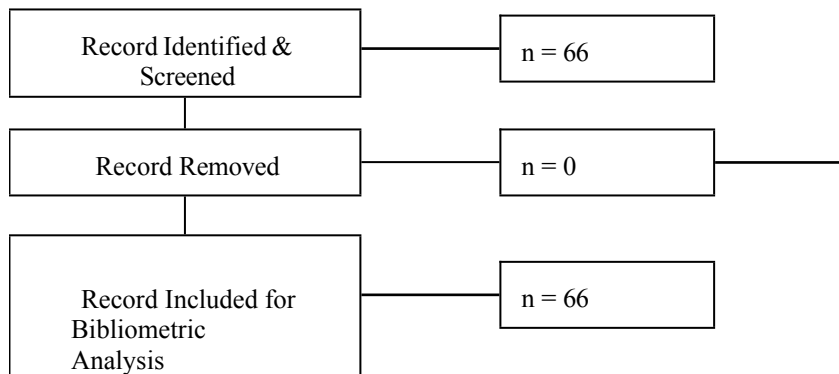


Figure 2.2 PRISMA diagram of search strategy flow.

2.2 Database Management

The purpose of this research is to conduct a comprehensive analysis based on bibliometrics [21]. Bibliometrics can grade individual author's impact, group or institutional research impact by analyzing citation metrics [22]. This analysis can be utilized to predict the direction of growth for air diplomacy in future Indo-Pacific geopolitics. Data analysis and data visualization were conducted using software such as Analyze Result Scopus, Microsoft Excel, and VOSviewer. Analyze Result Scopus helps researcher provide a variety of metrics such as h-index, citations per article, and more. These metrics proved to be helpful in evaluating the performance and impact of authors and institutions [23].

Analyze Result was also used to explore the database for research trends, resulting in 100 journal article publications which discuss Indo-Pacific geopolitics along with its patterns, and 66 journal article publications which discuss air diplomacy along with its patterns. Figure 3 shows the total publications about Indo-Pacific geopolitics from 2014 to 2024, the highest number of publications being in 2024, accounting for as much as 28 documents. The total number of journal article publications within the Scopus database shows that research regarding Indo-Pacific geopolitics is ever increasing. The most significant increase in research happened in 2021, from having had only 10 publications to having 17 publications in 2022.

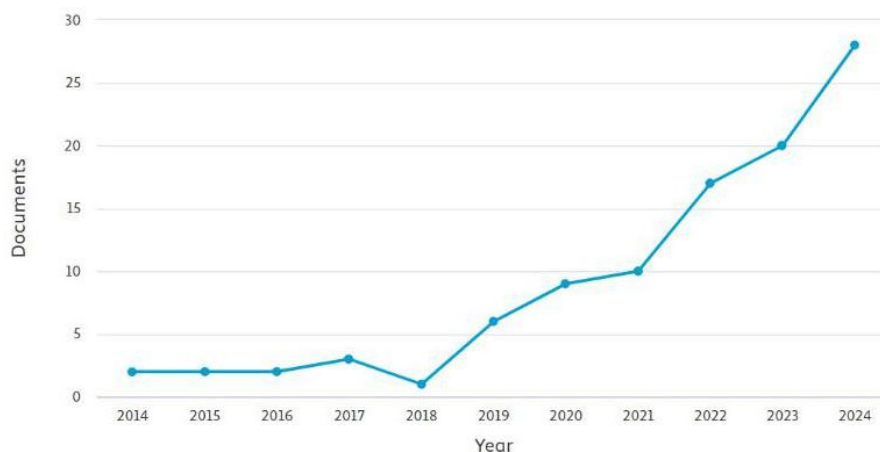


Figure 3. Total number of Indo-Pacific geopolitics documents by year

The number of research regarding Indo-Pacific geopolitics cited can be seen in Figure 4, totalling at 423 citations from 2014 to 2025. The most cited publication was in 2024, totalling at 162 citations. It can be seen that the curve showing article citations experienced an increase from 2018 to 2024.

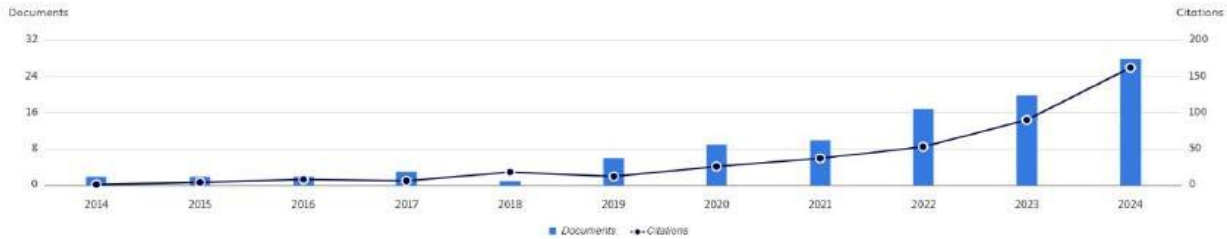


Figure 4. Total number of Indo-Pacific geopolitics citations by year

Moreover, research trends show that 66 journal article publications discuss air diplomacy alongside its patterns and 66 journal article publications discuss air diplomacy alongside its patterns. Figure 5 shows the total number of publications discussing air diplomacy from 2014 to 2024, with the highest number of publications being in 2024, totalling at 3 documents. The number of journal article publications in the Scopus database shows that research discussing Indo-Pacific geopolitics is ever increasing. The most significant increase in the numbers of research occurred in 2021, where it increased from 3 publications to 10 publications in 2022.

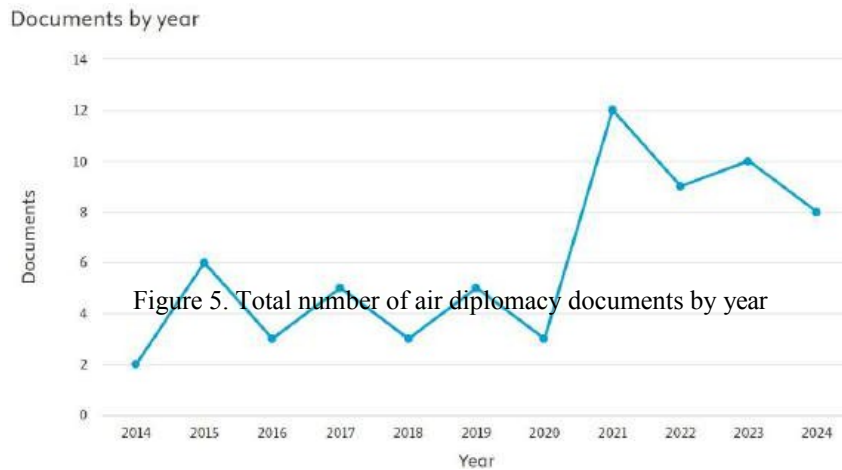


Figure 5. Total number of air diplomacy documents by year

The number of research cited on air diplomacy can be seen in Figure 6, totalling at 250 citations from 2014 to 2025. The most cited publication was in 2024, totalling at 54 citations. This can be seen in the graphics which show article citations experiencing an increase in 2021 to 2024.

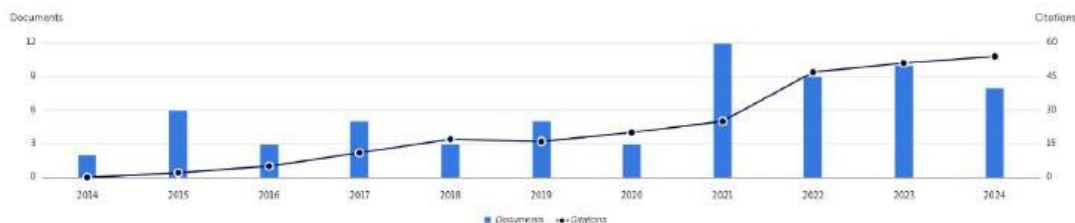


Figure 6. Total number of air diplomacy citations by year

From the data, it is evident that the number of publications using the keyword Indo-Pacific geopolitics shows a significant increasing trend from the year 2014 having only 2 documents, up to its peak in 2024, having 54 documents. Publications using the keyword air diplomacy shows a slight increase from 2014 having only 5 documents to 2024, having 13 documents. This phenomena shows an increasing trend of publication within a 10 year period. There are three main discussions between the years 2014 and 2024 using the keyword Indo-Pacific geopolitics, which include: (a) Geoeconomics, (b) Quad (c) Belt and Road Initiative, and the keywords air diplomacy, which include: (a) Air Power, (b) Aeronautics and (c) Diplomatic Relations. Research on these three main discourses from each keyword has encouraged following research about Indo-Pacific geopolitical air diplomacy in varying contexts as seen in Table 1 and Table 2, the number of cited articles continue to increase each year all the way to 2024 from 2014. This increase in publications shows an increasing recognition regarding air diplomacy which has a strategic and significant role in facing Indo-Pacific geopolitical dynamics.

2.3 Methods

A quantitative method with bibliometric analysis provides data with a wider quantitative perception. Bibliometric method is a series of techniques and quantitative measurements that analyses publications, bibliometrics are generally used on authors in the form of metrics [22]. Metrics produced by the Analyze Results Scopus found 100 publications about Indo-Pacific geopolitics as seen in Table 1 and 66 publications about air diplomacy as seen in Table 2 from Scopus database.

Table 1. Number of Indo-Pacific geopolitics publications and citations based on Scopus Database

Year	Total Publications (TP)	Total Citation (TC)
2014	2	5
2015	3	8
2016	4	18
2017	6	12
2018	5	34
2019	8	20
2020	16	35
2021	20	45
2022	32	87
2023	34	140
2024	54	251

Table 2. Number of air diplomacy publications and citations based on Scopus Database

Year	Total Publications (TP)	Total Citation (TC)
2014	5	2
2015	11	5
2016	7	11
2017	10	18
2018	9	16
2019	13	37
2020	8	43
2021	20	62
2022	15	48
2023	15	50
2024	13	54

According to the data, we implement a number of assumptions to ease the research analysis, which include: (1) Countries, this research assumes that countries which produces many research publications discussing air diplomacy and Indo-Pacific geopolitics are countries which have crucial or even determining roles in future Indo-Pacific geopolitics air diplomacy. (2) Authors, this research assumes that the number of authors and publications reflect the levels of greater influence, significance, and impact that air diplomacy has on Indo-Pacific geopolitics. This is based on a comprehensive research, which can also be used to conclude that observing publication authors can strengthen air diplomacy discourse in Indo-Pacific geopolitics. (3) Citation impacts, this research assumes that articles most often cited each year about air diplomacy and Indo-Pacific geopolitics are articles which will determine the direction of air diplomacy in the future of Indo-Pacific geopolitics. (4) Representatives, this research assumes that publication sources most often cited which are chosen from Scopus database provides samples representative of research that are influential towards air diplomacy in Indo-Pacific geopolitics.

3. Result and Discussion

3.1 Country patterns and country collaborations contributing to publications in the last 10 years

The investigation on country patterns and country collaborations starts by exploring country contributions from 210 Indo-Pacific geopolitics documents and 159 air diplomacy documents in the last 10 years, from 2014 to 2024. Table 3 shows main contributing countries which include India with 47 publications, followed by Australia with 22 publications, and China with 17 publications. These three countries are countries with the highest numbers of contributions towards research in Indo-Pacific geopolitics. This domination shows the crucial roles of the aforementioned countries in future Indo-Pacific geopolitics, both in theory and in application. United States with 13 publications, South Korea with 8 publications, and United Kingdom with 8 publications follow suit as significant contributing countries towards research in Indo-Pacific geopolitics. Table 4 shows main contributing countries which include United States with 34 publications, followed by United Kingdom with 18 publications, and India with 7 publications. These three countries are countries with the biggest contribution towards research in air

diplomacy. This domination shows the crucial roles of the three countries in future air diplomacy, both in theory and in application. Singapore with 7 publications, China with 6 publications, and Russian federation with 6 publications follow suit as significant contributing countries. According to the graph, there is a significant relativity between research contribution and geopolitical relevance in the Indo-Pacific region. India and Australia seem to be countries with high significance in document production, whereas United States and United Kingdom are more significant in citation impacts. Air diplomacy or airspace diplomacy becomes strategic instruments in maintaining the stability of a region by regulating national security interests in the Indo-Pacific area [24], especially in facing challenges such as airspace conflicts which are manifestations of more vast geopolitical strife that involve prominent countries such as China, United States, and their regional allies. These conflicts are marked by territorial disputes, military police and strategic alliances, all of which contribute to the complex regional security landscape [25][26][12].

Table 3. Contributing countries in Indo-Pacific geopolitics publications

No.	Country	T	No.	Country	TD
1	India	47	21	Japan	3
No.	Country	T	No.	Country	TD
2	Australia	22	22	Indonesia	3
3	China	17	23	Spain	2
4	Undefined	13	24	Poland	2
5	United States	13	25	Hongkong	2
6	South Korea	8	26	France	2
7	United Kingdom	8	27	Fiji	2
8	Russian Federation	7	28	United Arab Emirates	2
9	Phillipines	6	29	Macao	2
10	Singapore	5	30	Bangladesh	2
11	New Zealand	5	31	Sri Lanka	1
12	Vietnam	5	32	Czech Republic	1
13	Malaysia	5	33	Saudi Arabia	1
14	Pakistan	4	34	Belgium	1
15	Italy	4	35	Netherlands	1
16	Swedan	3	36	Nepal	1
17	Thailand	3	37	Denmark	1
18	Taiwan	3	38	Brazil	1
19	Germany	3	39	France	1
20	Canada	3			

Notes: TD=total number of documents;

Table 4. Contributing countries in air diplomacy publications

No.	Country	T	No.	Country	TD
		D			
1	United States	34	24	Austria	1
2	United Kingdom	18	25	Belgium	1
3	India	7	26	Czech Republic	1
4	Singapore	7	27	Denmark	1
5	China	6	28	Finland	1
6	Russian Federation	6	29	France	1
7	Australia	5	30	Greece	1
8	Canada	3	31	Israel	1
9	Columbia	3	32	Italy	1
10	Hongkong	3	33	Mexico	1
11	Iran	3	34	Nepal	1
12	Norway	3	35	Netherlands	1
13	Chile	2	36	Nigeria	1
14	Germany	2	37	Peru	1

Notes: TD=total number of documents;

No.	Country	T	No.	Country	TD
		D			
15	Hungary	2	38	Portugal	1
16	Ireland	2	39	Serbia	1
17	Japan	2	40	South Africa	1
18	Poland	2	41	Spain	1
19	Romania	2	42	Syrian Arab Republic	1
20	South Korea	2	43	Taiwan	1
21	Sweden	2	44	Turkey	1
22	Switzerland	2	45	United Arab Emirates	1
23	Argentina	1	46	Undefined	1

Bibliometric analysis results show that India has the highest number of publications in Indo-Pacific geopolitics, followed by United States, China, and Australia, which demonstrate the significant influence in citations and international collaboration. India becomes the main actor with the biggest contribution towards the Indo-Pacific discourse, reflecting its strategic position and its entanglement in alliances such as QUAD (Quadrilateral Security Dialogue), The ASEAN Outlook on the Indo-Pacific (AOIP), AUKUS (Australia-United Kingdom-United States) and more [27][28][29]. Meanwhile, United States still stands as the focal point of the global citation network, with close connections to Australia and India, highlighting its domination in global collaboration regarding security issues and regional strategy. Overlay visualization shows a significant growth in the latest publications from Southeast Asian countries such as Indonesia and Malaysia, indicating this region's expanding roles in geopolitical discourse. Density visualization affirms citation domination on United States and Australia, while India's contribution and the role expansion of Southeast Asian countries show global recognition towards the significance of the Indo-Pacific region. This combination reinforces the need for stronger international collaboration to strengthen diplomacy and Indo-Pacific geopolitical strategies in the future.

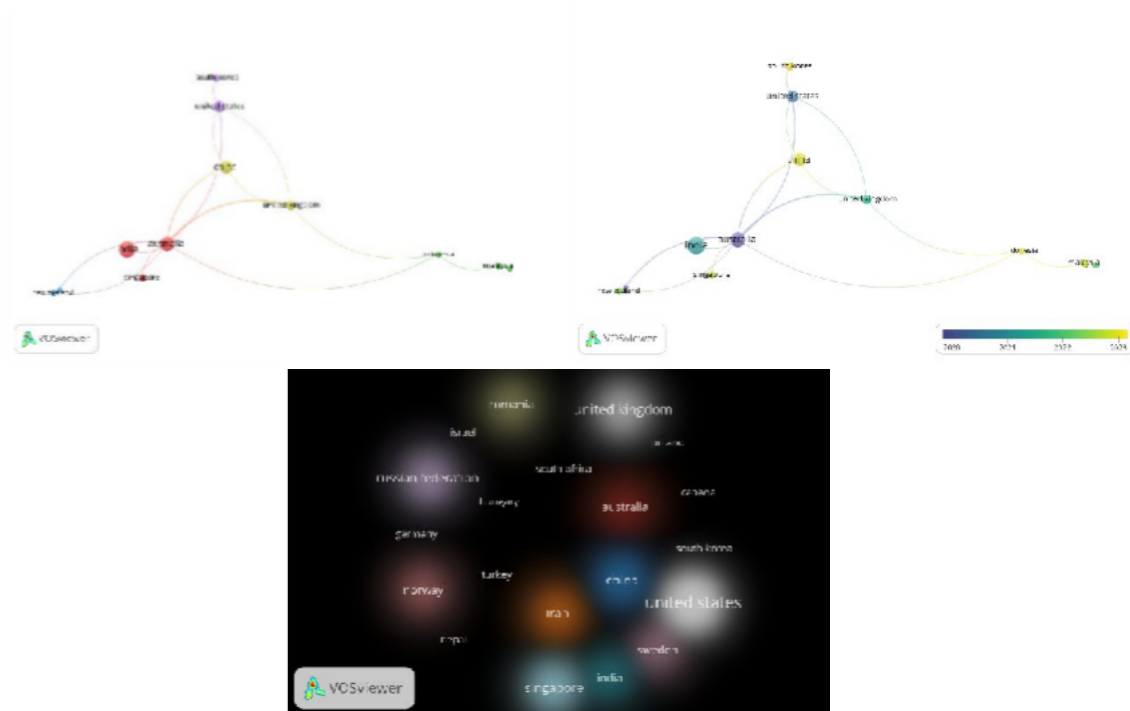


Figure 7. Visualization of VOSviewer from country collaboration networks and its citations

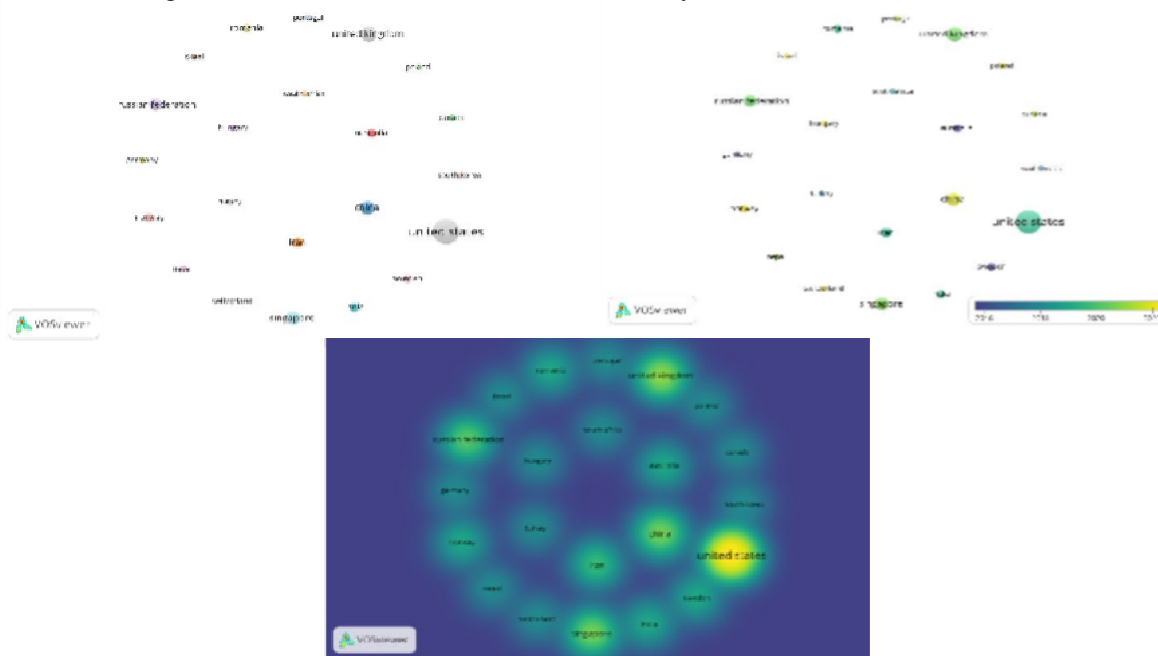
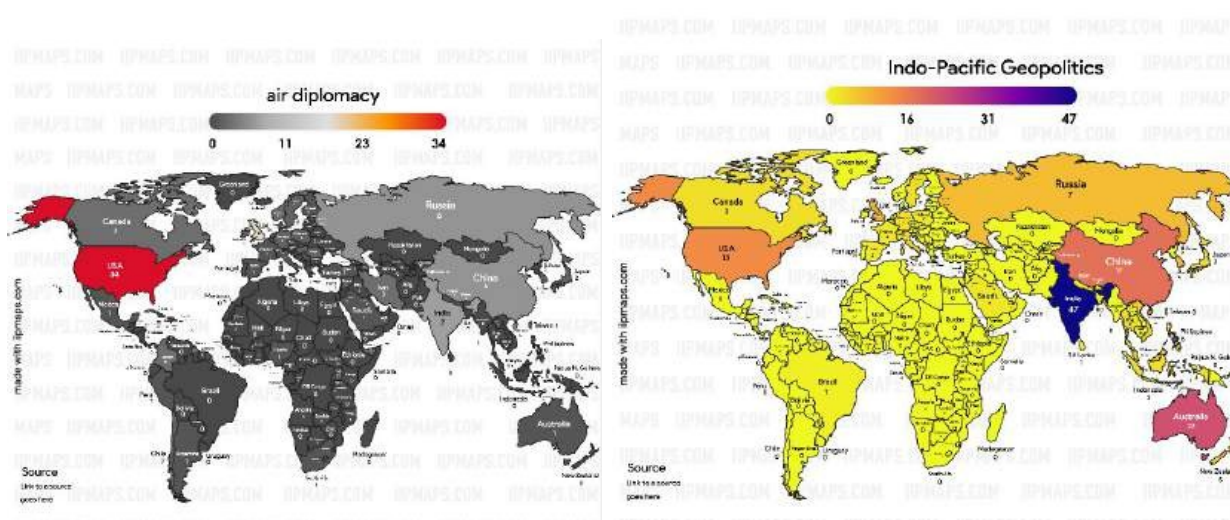


Figure 8. Visualization of VOSviewer from country collaboration networks and its citations

Figure 9. Map of countries contributing in publications



Analysis on Figure 8 determines that United States is a dominating actor in air diplomacy research, followed by United Kingdom and China, which provides significant contribution towards research and citation. China and India shows an increasing trend in new publications, indicating greater attention towards strategic air diplomacy roles. Countries such as Russia and Germany are still relevant though focused more on specific contributions. Singapore's involvement alongside other smaller countries reflect the shift in air diplomacy discourse towards more globally inclusive issues. This combination shows the importance of strengthening international collaboration to optimize air diplomacy as a strategic tool in global relations.

Air diplomacy possesses a strategic role in Indo-Pacific geopolitics, supports regional connectivity, maintains stability in security and strengthens alliances such as QUAD, AOIP, AUKUS. Main actors such as India, United States, and China utilize air diplomacy to secure their strategic interests within a region, meanwhile, Southeast Asian countries, including Indonesia, shows increasing contribution in this discourse. TNI Angkatan Udara take part in an important role by furthering international collaboration through joined training, and advancing strategic air power and defense diplomacy to reinforce Indonesia's position in maintaining the stability and security of the Indo-Pacific region.

The conclusion from country patterns and country collaborations that contribute to publication in the last 10 years shows that air diplomacy has a strategic role in Indo-Pacific geopolitics, especially in supporting security stability, regional connectivity, and alliance reinforcement. The domination of United States, India, and China in publication and citation reaffirms that air diplomacy is used as the main instrument to secure their strategic interests

within a region, for example, for the United States to strengthen its collaboration with India to resist Chinese influence in the Indo-Pacific region. This includes providing advanced defense apparatus for India and supporting its role as security provider [30]. The trend of increasing contribution from Southeast Asian countries, including Indonesia, reflects the shift in geopolitical discourse towards regional inclusivity. In this context, TNI AU can strengthen its position through advancing strategic air power, furthering international collaboration through joined training and defense diplomacy. This strategy will ensure Indonesia’s role as a key player in maintaining stability and Indo-Pacific security, as well as strengthen its influence in the midst of the increasingly complex Indo-Pacific geopolitical dynamics.

3.2 Authors and co-citation network most productive in the last 10 years

We try to find authors and co-citation networks most productive in the last 10 years, that are most cited for Indo-Pacific geopolitics and air diplomacy. Tables 5 and 6 show a list of authors that have contributed in publications from the years 2014 to 2024. As much as 82 authors have contributed about Indo-Pacific geopolitics and 83 authors have contributed about air diplomacy in the last 10 years of publications. We used the software VOSviewer to establish the minimum number of documents per author to a threshold of 1 and the minimum number of citations per author to mean that each author has published at least 1 article and has been cited eight times. Tables 5 and 6 contain authors’ names and their number of publications, whereas in bibliometric analysis using VOSviewer, authors with their number of documents which has been cited a minimum of 8 times, are displayed.

Based on tables 5 and 6, research in air diplomacy and Indo-Pacific geopolitics show a widespread contribution patterns with the majority of authors only having one publication, reflecting the developing topics. Leading authors such as Scott, D. in Indo-Pacific geopolitics and Booi, L. in air diplomacy demonstrate significant focus in each topic, however, there have yet to be a notable integration between the two. This presents a great opportunity for interdisciplinary research which integrates the two issues, thus enabling the discovery of new knowledge about power dynamics, stability, and regional connectivity. Collaboration amongst authors such as Scott, D. and Booi, L. can become important references in bridging gaps in this research.



Figure 10. Visualization of VOSviewer based on citations and authors about Indo-Pacific geopolitics

Analysis of Figure 11 shows Dittmer, Jason, Dodds, Klaus, and Wilkinson, Paul are the most influential authors in air diplomacy discourse with significant contribution in themes such as international relations strategies and air security. Authors like Heemsbergen, Luke Justin and Chadha, Tandeep S. show potential for expanding further discussions through ground-breaking contributions. Time distribution and connections between authors indicate that air diplomacy is a dynamic topic with opportunities for new collaborations in varying strategic, technological, and geopolitical aspects. This highlights the importance of interdisciplinary research to broaden knowledge in air diplomacy as a crucial instrument in international relations.

The conclusion from authors and co-citation network most productive in the last 10 years via bibliometric analysis from air diplomacy plays a strategic role in strengthening Indo-Pacific geopolitical discourse as evident in the bibliometric analysis in Figure 9 and Figure 10. Prominent authors such as Scott, D. and Medcalf, R. in Indo-Pacific discourse, as well as Dittmer, Jason, Dodds, Klaus, and Wilkinson, Paul in air diplomacy, show that these two topics are highly interrelated, especially in the context of regional security, great power relations, and alliance strategies like QUAD. Air diplomacy, with focus on air security and international relations, becomes key elements in supporting the stability and connectivity of the complex Indo-Pacific region. The contribution of entities such as ASEAN in Indo-Pacific geopolitics also display the importance of multilateral diplomacy which can be reinforced by air collaboration to advance strategic coordination and response to threats within the region. New authors such as Heemsbergen, Luke Justin and Chadha, Tandeep S., alongside senior authors, have the potential to integrate air diplomacy as a key element in Indo-Pacific strategy, through both interdisciplinary research or international collaboration. This relationship between air diplomacy and Indo-Pacific geopolitics highlights the need for further research to understand how control of air space can be utilized as a strategic tool in maintaining stability and security in this global focal point of a region [32].

3.3 Most prominent keywords and its citations in the last 10 years

The next analysis focuses on top keywords in bibliometric analysis results in the last 10 years from the most cited articles about air diplomacy and Indo-Pacific geopolitics. This analysis was conducted using co-occurrence based on all keywords in VOSviewer. With the minimum number of occurrences of two keywords, the Indo-Pacific geopolitics keyword produces 82 keywords and Figure 11 shows the author's keywords are divided into 9 clusters. Keyword results according to co-occurrence based on all keywords as seen in Table 7 where we have displayed the top 20 keywords. The keywords air diplomacy produces 49 keywords and Figure 12 shows the author's keywords are divided into 5 clusters. Keyword results according to co-occurrence based on all keywords as seen in Table 8 where we have displayed the top 20 keywords.

Analysis results of keywords occurrences between air diplomacy and Indo-Pacific geopolitics can be analyzed from the occurrence of a number of keywords in both tables. Keywords such as China, United States, International Relations and Diplomatic Relations occurred significantly in both topics, indicating that prominent actors and international relations are key elements in both Indo-Pacific geopolitics and air diplomacy. In Indo-Pacific geopolitics, United States and China are involved in strategic competition to maintain and expand their influence in the Indo-Pacific. This competition is evident in various fields, including military, economy, and technology, meanwhile, in air diplomacy there lies a specified military diplomacy sector which utilizes air power to support a country's international policies. Air diplomacy includes coercive measures and collaboration efforts, by utilizing various elements such as pilots, the aeronautic industry, and international cooperation frameworks [7].

Moreover, keywords such as Power Relations and International Cooperation which occurred in both tables highlight how air diplomacy can become instruments for power balancing

and strengthen international cooperation in the Indo-Pacific region. Other issues such as Climate Change and Air Pollution shows air diplomacy’s relevancy in facing international issues which has an effect on a region’s geopolitics, especially regarding the sustainability and environment security of a region. Therefore, air diplomacy does not only support Indo-Pacific geopolitics through bilateral relations but also reinforces a collective approach towards global challenges.

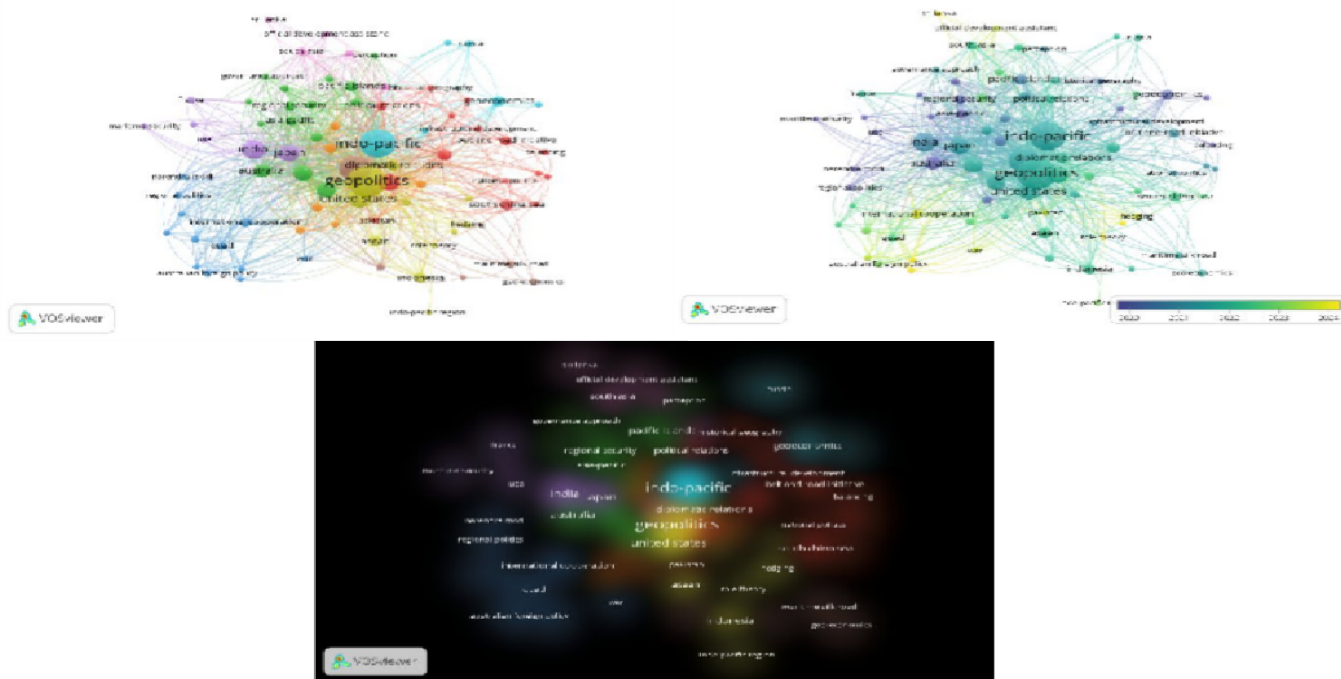


Figure 11. Visualization of VOSviewer based on citations and keywords about Indo-Pacific geopolitics

Bibliometric analysis from Figure 11 regarding Indo-Pacific geopolitics shows that the main issues that have become the focal point involve key players such as United States, China, India, Japan, and Australia. Keywords such as geopolitics, diplomatic relations, foreign policy, and regional security shows the importance of international relations in this strategic region. Issues like South China Sea, Belt, and Road Initiative and Maritime Silk Road also indicate significant focus on maritime strategies as a part of geopolitical dynamics. This analysis highlights the pertinent connectivity pattern between great countries, in the form of both alliances and competition, to influence the balance of power in the Indo-Pacific. The visualization from this bibliometric also reflects diplomacy relevancy in creating stability and mitigating potential conflict in a region that has become the center for economy and global trade. The use of strategic approach through diplomatic cooperation and management of regional issues places this region as a room for main strategic competition in modern global politics.

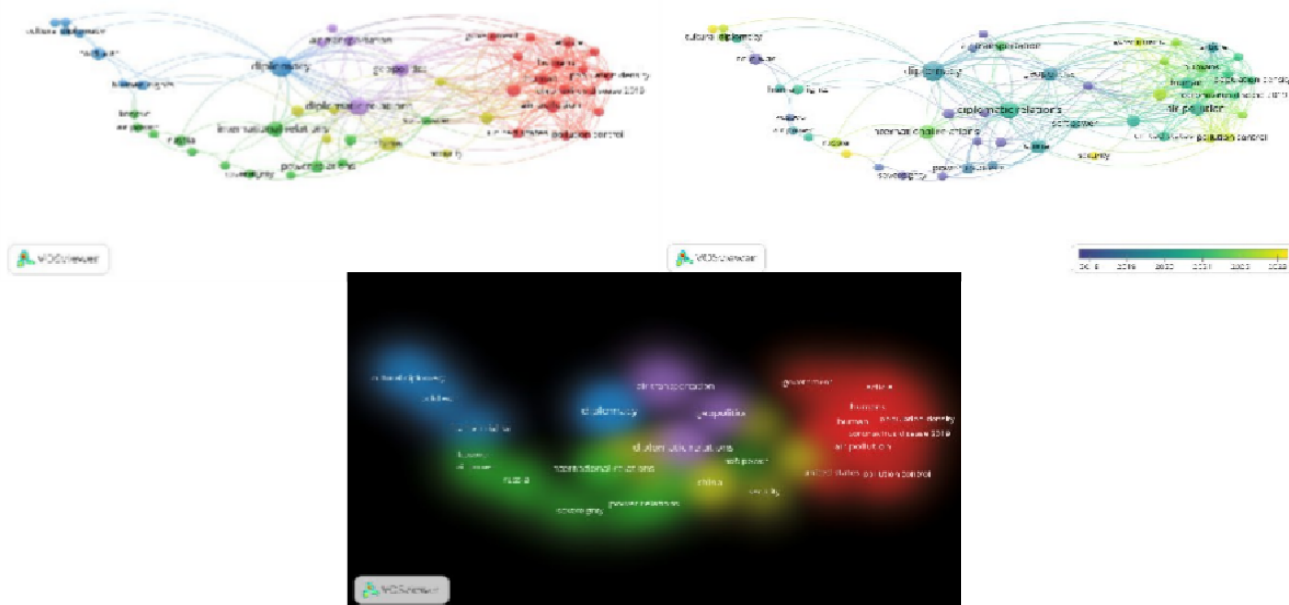


Figure 12. Visualization of VOSviewer based on citations and keywords about air diplomacy

For the keyword air diplomacy, bibliometric analysis shows that main keywords such as diplomacy, diplomatic relations, and international relations have close connection with global issues like geopolitics, China, United States, and air transportation. Additionally, themes like air pollution, climate change, and Covid-19 are indications of the crucial roles of air diplomacy in handling international challenges, in the contexts of both the environment and health crisis. Connections with main actors such as China, United States, and Russia show that air diplomacy becomes an important medium in strengthening international relations and soft power. Visualization also reflects how air diplomacy plays a strategic role in the geopolitical context by facilitating global cooperation, through air transport, strategic air management, or even distribution of humanitarian aid. Connections to issues like power relations and sovereignty also highlights the use of air diplomacy to manage political influence and defend state sovereignty amidst global competition. Thus, air diplomacy does not only become a means of transportation and logistics, but also as a strategic medium in establishing alliances and global stability.

The conclusion from the most prominent keywords and its citations in the last 10 years from a bibliometric analysis shows that air diplomacy has close connections with the Indo-Pacific geopolitical dynamics, which can be seen through keywords such as China, United States, International Relations and Diplomatic Relations. This shows that big actors utilize air domain as a strategic tool to reinforce their influence in this strategic region. Issues like Power Relations and International Cooperation also highlight the role of air diplomacy in establishing power balancing and strengthen international cooperation. Furthermore, themes like Climate Change and Air Pollution highlights the relevancy of air diplomacy in handling international issues which influence the sustainability and environment security in this region. TNI AU is capable of playing a strategic role in supporting Indo-Pacific geopolitics by reinforcing the monitoring of strategic air space, active involvement in multilateral air diplomacy missions, as well as logistical support for humanitarian aid. Furthermore, TNI AU can utilize air diplomacy to build regional alliances which support regional stability, such as air security cooperation with countries in the Indo-Pacific.

3.4 Sources most active and influential in the last 10 years and its characteristics

Exploring the most active sources and its characteristics in journals from 2014 to 2024 about air diplomacy in Indo-Pacific geopolitics by analyzing information on the source from Scopus database to identify journal articles from the past 10 years. Keywords Indo-Pacific geopolitics with the minimum number of 1 document and minimum number of 3 citations, thus finding 8 sources which were sourced from Scopus database, then analyzed as seen in Table 6. Keywords air diplomacy with the minimum number of 2 documents and minimum number of 0 citation, thus finding 4 sources which were sourced from Scopus database, then analyzed as seen in

Table 7.

Table 6. Most active sources

Source Title	TP	TC	Publisher	Cite Score	SJR 2020	SNIP 2020
Australian Journal Of International Affairs	10	218	Routledge	3.2	0,636	1,385
China Review	4	32	Chinese Univ. Of Hongkong Press	12.4	1.86	1.871

East Asia	3	19	Springer Science And Business Media B.V.	1.8	0.278	0.641
India Quarterly	6	13	Indian Council Of World Affairs Ltd	1.1	0.236	0.658
International Penelitanes	3	11	Sage Publications India Pvt.	1.3	0.192	0.555
Journal Of Territorial And Maritime Penelitanes	3	14	Mcfarland And Company, Inc	0.9	0.14	0.505
Pacific Review	5	12	Routledge	3.2	0,636	1,385
Strategic Analysis	4	8	Routledge	3.2	0,636	1,385

Notes: TP=total number of publications; TC=Total Citation; SNIP= Source Normalized Impact per Paper
 SJR=SCImago Journal Rank

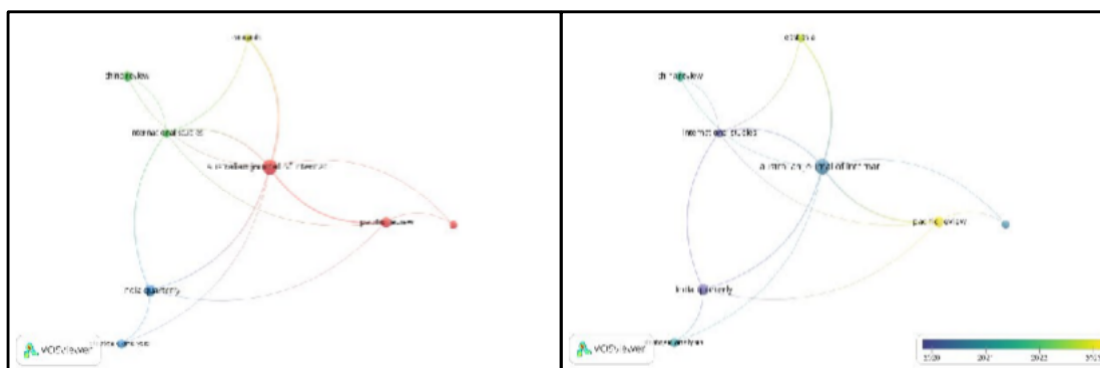


Figure 13. Visualization of VOSviewer based on sources about Indo-Pacific

Data in Table 6 show that journals such as the Australian Journal of International Affairs and Pacific Review which has SNIP scores from Q1 journals with average of above 1,0 SNIP are metrics by which the impact of a scientific journal is measured, is normalized for the differences in citation practices in various fields [33][34]. This journal becomes the most active and relevant journal in discussing the topic of Indo-Pacific geopolitics. Both of these journals have relatively high CiteScore and impact at 3.2, indicating that research published there have significant scientific relevancy levels. Additionally, journals like the China Review and Strategic Analysis also have imperative contribution in exploring strategic issues and international relations related to main actors such as China, India, and Australia. Meanwhile, bibliometric visualizations show that journals like the Australian Journal of International Affairs and Pacific Review hold central positions and close connections to other journals. This shows that these two journals are key platforms for scientific discussions regarding Indo-Pacific geopolitics. Close connections with other journals such as the China Review, India Quarterly, and Strategic Analysis, reflect significant academic collaboration in studying strategic topics and international relations within this region.

Moreover, the central position of Australian Journal of International Affairs indicate its dominating powers as a main reference in discussing issues of geopolitics and international policies, especially ones related to Australia as one of the main actors in the Indo-Pacific. Meanwhile, the Pacific Review focuses on multilateral and regional analysis, including issues of maritime and regional economics. Other journals such as the China Review and India Quarterly are more specific in exploring the perspectives of certain actors, which are China and India.

Table 7. Most active sources

Source Title	TP	TC	Publisher	Cite Score	SJR 2020	SNIP 2020
Geopolitics Quarterly	2	3	Iranian Association of Geopolitics	0.7	0,197	0.684
International Journal Of Heritage Penelitanes	2	1	Routledge	3.2	0,636	1,385
Nuova Antologia Militare	2	0	Gruppo editoriale Tab	0.1	0.137	0.271

Source Title	TP	TC	Publisher	Cite Score	SJR 2020	SNIP 2020
World Economy And International Relations	2	0	S.r.l. Russian Academy of Sciences	1.1	0.249	0.577

Notes: TP=total number of publications; TC=Total Citation; SNIP= Source Normalized Impact per Paper
 SJR=SCImago Journal Rank



Figure 14. Visualization of VOSviewer based on sources about air diplomacy

Data from Table 7 and Figure 14 show that journals geopolitics Quarterly and International Journal of Heritage Penelitanes are the most active sources in the topic of air diplomacy, even though their total citations (TC) was still low at respectively, 3 and 1. Geopolitics Quarterly’s position reflect its focus on geopolitical perspectives within the international and regional contexts which are relevant in understanding the utilization of air domain as an instrument for diplomacy. Meanwhile, the International Journal of Heritage Penelitanes provides a different type of contribution, with its focus being on the connection between air diplomacy and preservation of international culture heritage which includes management of air transportation to support multilateral cooperation. Journals Nuova Antologia Militare and the World Economy and International Relations also adds a unique perspective, especially in in the contexts of the military and international economy connections relevant to strategic analysis in air diplomacy. The low CiteScore and SJR in a number of journals indicate that research on air diplomacy is still relatively developing and requires further academic attention. Bibliometric visualization shows moderate relatedness between journals, which indicate potential interdisciplinary collaborations to advance analysis.

By observing the most active and influential sources in the last 10 years, it can be concludes in close connections between air diplomacy and Indo-Pacific geopolitics, especially through journals like the Australian Journal of International Affairs, Pacific Review and Geopolitics Quarterly. The central positions of these journals affirms the importance of air diplomacy as a strategic element in building international relations and managing global issues such as maritime security, regional economics, to the preservation of international culture heritage. The low numbers of citations on the topic of air diplomacy shows a great potential for further research, especially with integrating military, economy, and international relations perspectives. Based on these findings, TNI AU can assume a strategic part by utilizing air diplomacy to strengthen bilateral and multilateral relationships, especially with main actors such as Australia, China, and United States.

4. Conclusion

Bibliometric analysis from the last 10 years affirms that air diplomacy possesses a strategic role in Indo-Pacific geopolitics, especially in maintaining security stability, supporting regional connectivity, and strengthening alliances such as QUAD. United States, India, and China stand in dominating positions in publications and citations, showing that they are actively using air diplomacy to secure their strategic interests within this regions. Furthermore, the increase in contribution from Southeast Asian countries, including Indonesia, reflect geologic dynamics that are increasingly inclusive, where regional actors also play important roles in

discourses on air diplomacy and regional security.

In the context of authors and citation networks, figures like Scott, D., Medcalf, R., and Jason Dittmer show that the relationship between air diplomacy and Indo-Pacific geopolitics focus on regional security, great power relations, as well as multilateral alliances strategies. This is reinforced by the contributions of organizations like ASEAN which affirms the importance of multilateral diplomacy to face regional challenges, including air security, climate change, and other international issues. Interdisciplinary research and international collaboration becomes increasingly necessary to understand how control of air space can be used as a strategic instrument in establishing power balancing and international cooperation.

TNI AU has a great potential to assume a strategic role in strengthening national defense posture by developing strategic air power that is adaptive and modern. Steps such as increased monitoring of strategic air space, active participation in international joined training, and involvement in multilateral air diplomacy missions can reinforce Indonesia's position as a key player in the Indo-Pacific region. Moreover, TNI AU can utilize air diplomacy to strengthen bilateral and multilateral relationships with key countries, including United States, China, and Australia, to establish mutually beneficial cooperation in supporting regional stability and security.

With an increasingly complex dynamics, TNI AU needs to integrate innovative air diplomacy approaches, not only in supporting regional security stability but also to face international issues like regional security and humanitarian aid. Utilizing air space as a strategic element, TNI AU can reinforce the country's defense posture, while ensuring that Indonesia has an active and significant role in maintaining power balance as well as encouraging international cooperation in the Indo-Pacific. This strategy will increase Indonesia's influence within the global geopolitical order.

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