Mikoviny Sámuel Doctoral School of Earth Sciences

MISKOLCI EGYETEM
MŰSZAKI FÖLDTUDOMÁNYI KAR
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Scientometrics, Publishing

PhD Course

Prof. Dr. Norbert Péter Szabó

University of Miskolc, Faculty of Earth and Environmental Sciences and Engineering,
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Introduction

Prof. Dr. Norbert Péter Szabó obtained his MSc degree in geophysical engineering in 1999 from Faculty of Mining Engineering, University of Miskolc. He has been continuously working from graduating at the University of Miskolc. He obtained his PhD in 2005. Since 2019, he has been a full professor at the Department of Geophysics. He is currently the head of Geophysical Department and vice-dean for scientific affairs at the Faculty of Earth Science and Engineering. In addition, he is senior research fellow at the MTA-ME Geoengineering Research Group. In 2020, he defended his DSc dissertation at the Hungarian Academy of Sciences. He conduct researches on geophysical inversion and exploratory (multivariate) statistical methods and their applications in earth sciences (mainly water and hydrocarbon prospecting). He participated in several R&D projects commissioned by MOL Plc., NKFIH and other EU organizations. He delivers lectures on well logging, gravitational and magnetic exploration methods, engineering and environmental geophysics and geostatistics in the framework of BSc, MSc and PhD training programs.

Course Objectives

- To get to know the indicators of scientific performance and present the rules and methods of publication
- PhD students should acquire theoretical and practical knowledge that they can use with results in their doctoral training
- Deepening the professional terminology of earth sciences by analyzing quality publications
- Submission of an individual task: (I) preparation of a conference presentation, (II) preparation of a manuscript on a freely chosen topic

Course Outline

- Publication requirements of the Mikoviny Sámuel Doctoral School of Earth Sciences
- Ranking of journals, the quartile system (presentation of the Scimago database), and scientific metrics
- Increasing scientific visibility (Researchgate, Google Scholar, presentation and management of MTMT database)
- Aspects of the preparation of scientific papers, special requirements of the journals. Submission of manuscript, review procedure, conditions for publication
- Practice lectures on the analysis of the form and content of selected scientific articles with the active participation of PhD students
- Practice lectures on the aspects of preparing a conference presentation. Practicing lecturing and developing the ability to debate in a simulated conference

Recommended Literature

- Ecarnot F., Seronde M. F., Chopard R., Schiele F., Meneveau N., 2015. Writing a scientific article: A step-by-step guide for beginners. European Geriatric Medicine 6, 573–579. http://dx.doi.org/10.1016/j.eurger.2015.08.005
- Guyatt G. H., Haynes R. B., 2006. Preparing reports for publication and responding to reviewers' comments. Journal of Clinical Epidemiology 59, 900-906. https://doi.org/10.1016/j.jclinepi.2006.05.004
- Sasvári P., 2022. Science metrics and publication strategy training. Steps to a successful publishing strategy. Workshop material. University of Miskolc
- Author's guides in scientific journals, e.g., in Hydrogeology Journal, Journal of Petroleum Science end Engineering, Geophysics, Mathematical Geosciences etc.

Publication Requirements of the Mikoviny Sámuel Doctoral School

PhD Training Program

- Semester 1-4: „**Training and research**" period with successful complex exam at the end (to apply for a complex exam doctoral student shall fulfill all training credits and shall acquire at least 90 credits, at the end of 4th semester min. 120 credits)
- Semester 5-8: **„Research and dissertation"** period
- Application for absolutory: PhD students shall obtain 240 credits according to the research plan, 4-years period cannot be extended, PhD students must submit dissertation within 3 years after the complex exam

Starting the Process of Acquiring PhD Title

- To apply to doctoral defense process in addition to the required credits, the following publication requirements also must be met
  - at least **five published or accepted publications** related to the research topic as full papers
  - PhD student plays a dominant role in at least two of the latter ones (first author or based on a written declaration from the other co-authors indicating their own shareholding receive a minimum copyright of 50%)
  - **two papers are recognized by international professional opinion** (IF journals, ranked papers) - At least one of these publications in is WoS or SCOPUS referenced, or Q3-Q4 Scimago ranked journal, or at least two EBSCO or ProQuest refereed or accepted by the X. Department of Earth Sciences of the Hungarian Academy of Sciences published in a journal or accepted for publication

Recommended Training Schedule

Activity/Semester	1.	2.	3.	4.	5.	6.	7.	8.
Compulsory subjects	2*5 cr	2*5 cr	2*5 cr	2*5 cr	-	-	-	-
Elective subjects	2 cr	2 cr	-	-	-	-	-	-
Research seminar	0-10 cr	0-10 cr	0-10 cr	0-10 cr	0-10 cr	0-10 cr	0-10 cr	0-10 cr
Report	-	0-10 cr	-	0-10 cr	0-15 cr	0-15 cr		
Complex Examination[1]	-	-	-	0 cr	-	-	-	-
Instruction	0-5 cr	0-5 cr	0-5 cr	0-5 cr	0-5 cr	0-5 cr	-	-
Department research	0-5 cr	0-5 kr	0-5 cr	0-5 cr	0-5 cr	0-5 cr	0-5 cr	0-5 cr
Dissertation workshop[1]	-	-	-	-	-	-	-	max. 20 cr
Individual work	min. 10 cr				min. 20 cr			
Total:[2]	**min 100 + 20 cr - max 154 + 20 cr**				**min 66 cr - max 140 cr**			

Publication credits

Credits Available for Published Materials

Credit points for publications	
Peer-reviewed articles in a foreign language in Q1-Q2 Scimago ranking journals	11 p
Peer-reviewed international articles, book chapter in a foreign language	9 p
Peer-reviewed domestic articles in a foreign language	7 p
Peer-reviewed publication published in a(n)	
international conference proceedings	7 p
local conference proceedings	5 p
Review in a foreign language in a domestic proceeding	4 p
Review in a foreign language in an international proceeding	5 p
Professional translation	1-4 p
Educational material	1-4 p
Conference presentations and posters	
In a foreign language	4 p
Patent	
Submitted	5 p
Accepted (domestic)	9 p
Accepted (international)	12 p
For more than one country, additionally	2 p

Note that

- Non-peer-reviewed articles worth 0 credit
- In the case of co-authored publications, credit points must be divided by the number of authors, except for the first author publication, where half of the credits is due to the PhD student. Among the co-authors, the supervisor of the doctoral student does not have to be considered
- For presentation and poster all credits belong to the performer
- The supervisor(s) of PhD student should not be considered among the co-authors

Scientometrics,
Ranking of Scientific Journals

Scientometrics and Scientific Indicators

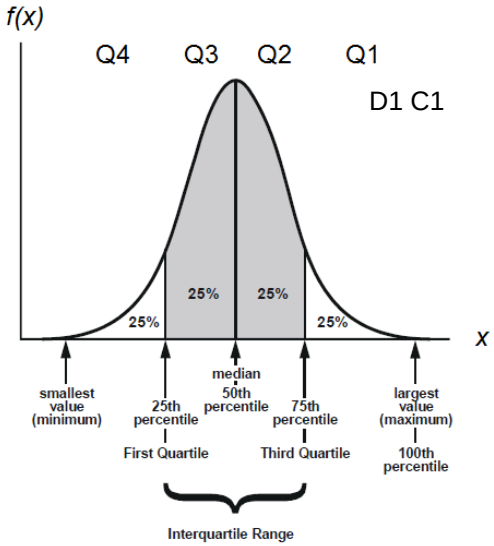
- **Scientometrics** is the field of study which concerns itself with measuring and analyzing scholarly literature. Its purpose with numbers (scientific indicators) to characterize academic performance primarily its impact based on the number of related announcements and the place of publication, i.e., the specific research content without considering
- **Impact factor** (IF) is a ratio of the number of references given in the current year to the publications of a given journal in the previous two years and the number of publications published in the previous two years
- **Independent citations** is the total number of citations given to an article excluding self-citations (the latter is when author or co-author refers to another work of his own)
- **Hirsch index** (h-index): a researcher's index is h if he has at least h articles that received at least h citations (that is, his other articles received less than this number). The researcher with a high h-index therefore published many, highly cited articles

Quartile System of Journal Ranking

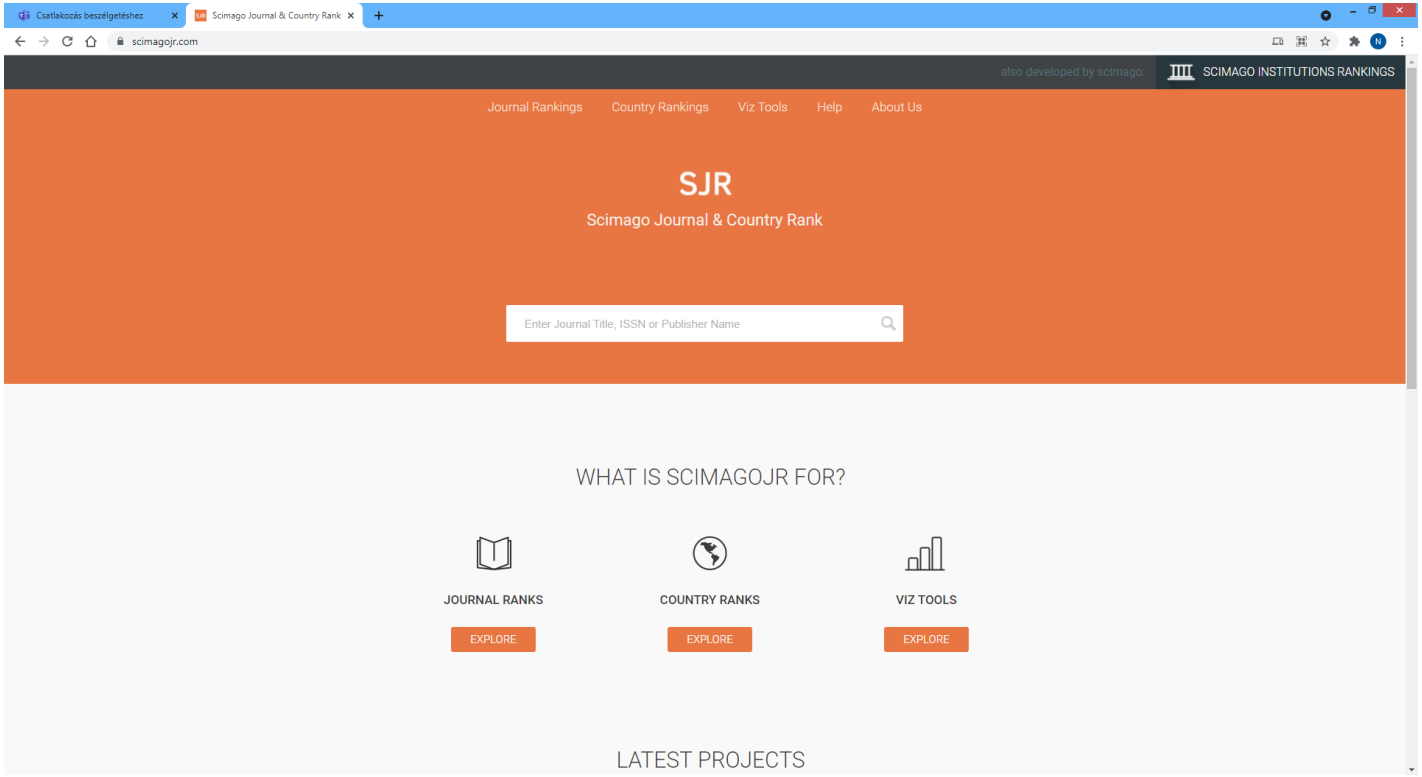
» **Quartile system**: classification of the rank into four SJR categories, which indicates which quarter of the ranking the journal falls into. Because of the four possible values, journals with significantly different metrics can have the same Q value. When comparing two journals, the rank does not indicate how much higher the index is for the more prestigious one

SJR category	Percentile	Position of journal
Q1	75-99	Top
Q2	50-74	Middle-high
Q3	25-49	Middle-low
Q4	0-24	Bottom

» **Other top categories** are C1 (99-100 percentile) and D1 (90-99 percentile)



Scimago for Listing Ranked Journals (https://www.scimagojr.com/)



Scimago Categories for Earth and Planetary Sciences

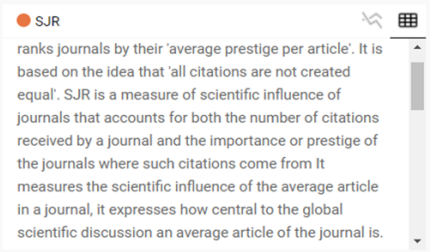
S. No.	Subject Category	Number of Journals
1	Atmospheric Science	118
2	Computers in Earth Sciences	39
3	Earth and Planetary Sciences (miscellaneous)	272
4	Earth-Surface Processes	136
5	Economic Geology	39
6	Geochemistry and Petrology	125
7	Geology	238
8	Geophysics	115
9	Geotechnical Engineering and Engineering Geology	176
10	Oceanography	127
11	Paleontology	98
12	Space and Planetary Science	86
13	Stratigraphy	39

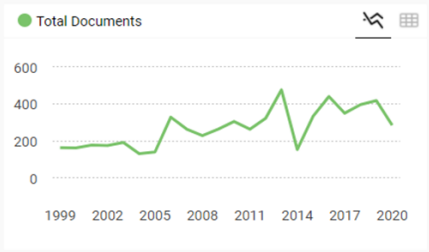
Scimago Ranking List Example
(https://www.scimagojr.com/journalrank.php?area=1900&category=1908)

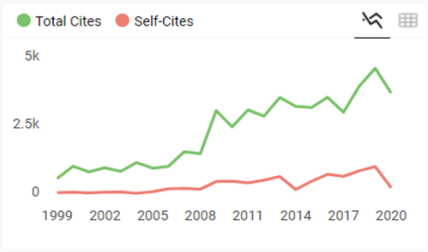
	Title	Type	↓ SJR	H index	Total Docs. (2021)	Total Docs. (3years)	Total Refs. (2021)	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc. (2021)	
1	Reviews of Geophysics	journal	8.527 Q1	167	18	79	6437	2199	76	24.02	357.61	
2	Earth and Planetary Science Letters	journal	2.348 Q1	262	429	1640	23530	9147	1614	5.32	54.85	
3	Journal of Petrology	journal	2.088 Q1	179	107	258	12772	1202	249	3.79	119.36	
4	Tectonics	journal	1.962 Q1	143	186	633	20742	3208	617	4.86	111.52	
5	Surveys in Geophysics	journal	1.956 Q1	85	58	165	5520	1133	158	7.12	95.17	
6	Geochemistry, Geophysics, Geosystems	journal	1.881 Q1	146	320	874	29412	3853	865	4.17	91.91	
7	Geophysical Research Letters	journal	1.857 Q1	291	1839	4688	92980	25943	4619	5.38	50.56	
8	Contributions to Mineralogy and Petrology	journal	1.813 Q1	157	105	312	8722	1224	310	3.75	83.07	
9	Journal of Geophysical Research D: Atmospheres	journal	1.796 Q1	106	832	2271	57082	11585	2260	5.01	68.61	
10	Journal of Geophysical Research: Solid Earth	journal	1.773 Q1	246	799	1970	65041	9129	1950	4.30	81.40	

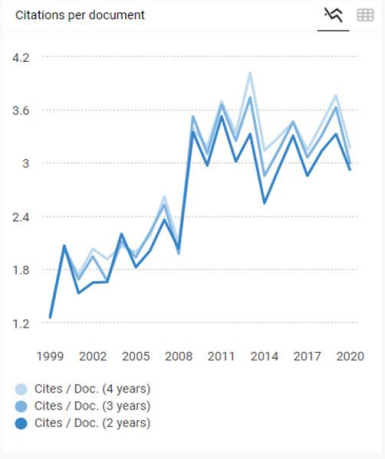
- **SJR indicator**: measure of a journal's impact or prestige, the weighted average of the number of citations received in the selected year by the articles published in the journal in the three previous years
- **H index**: number of articles (h) that have received at least h citations over the examined period
- **Total docs**: number of published articles
- **Total refs**: number of references
- **Cites/doc (impact index)**: average citation per document in two years
- **Ref/doc**: average amount of references per document

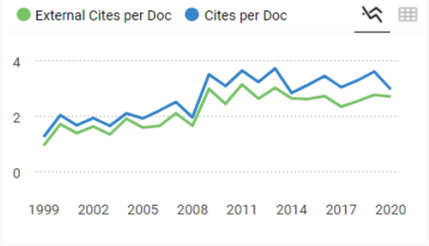
Scimago Journal Analysis Example
(https://www.scimagojr.com/journalsearch.php?q=27965&tip=sid&clean=0)

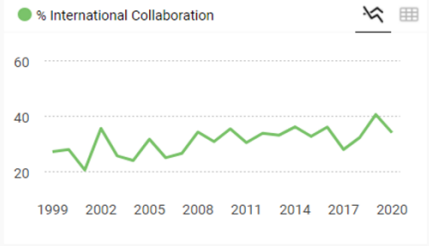


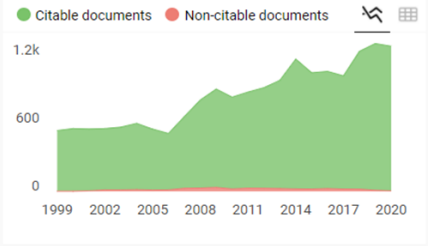


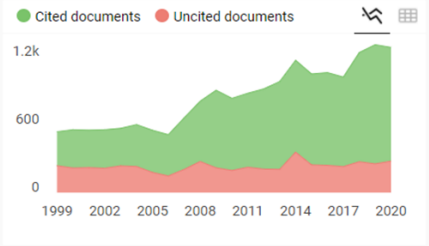


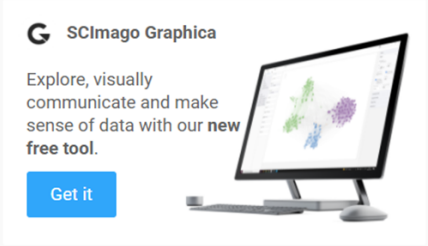










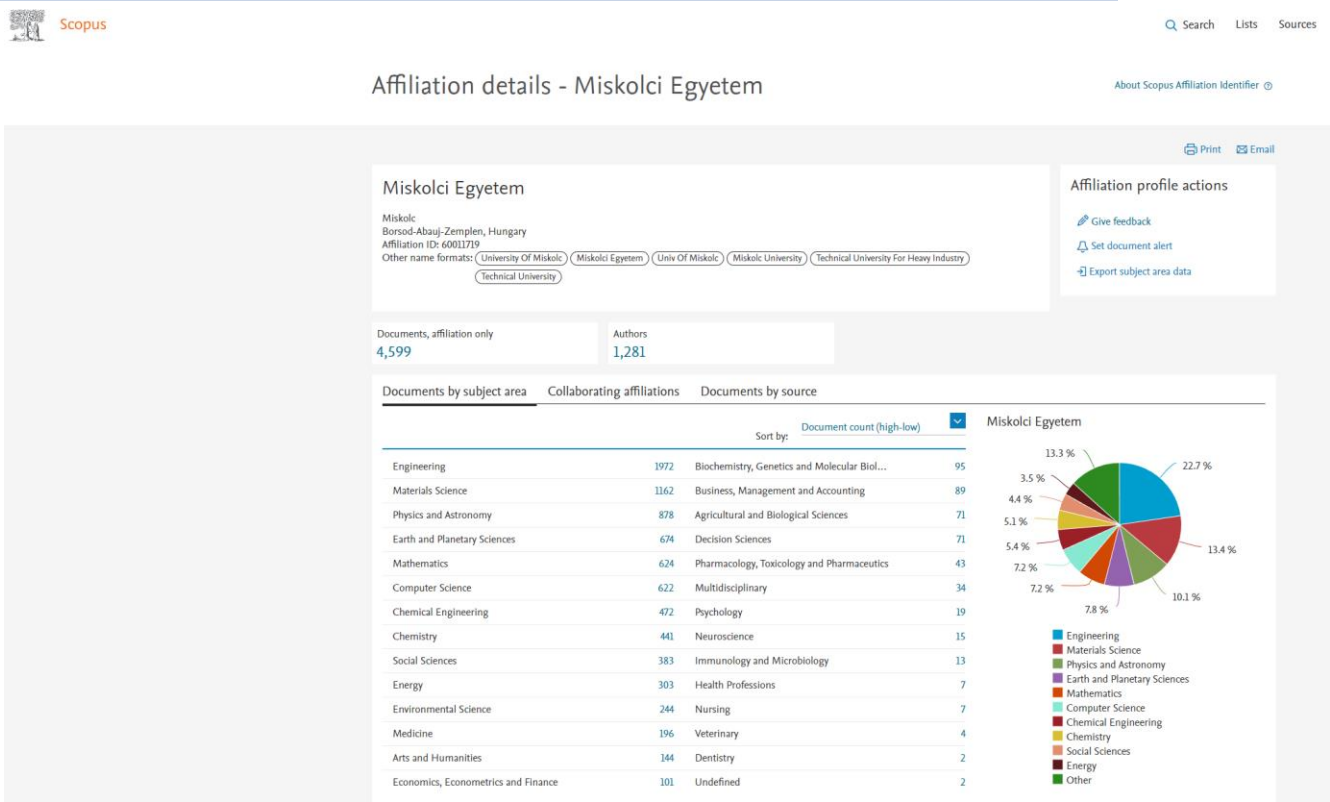


Increasing Scientific Visibility

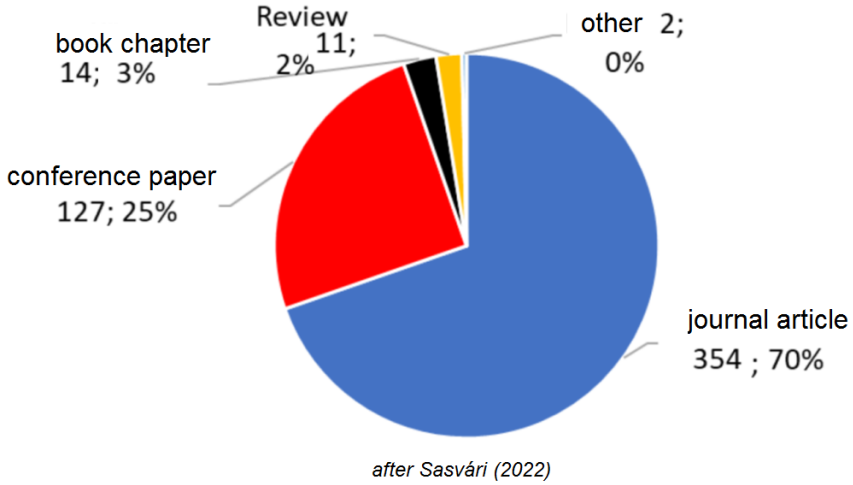
Significant International Publishers

- The annual approx. 60 million pages of published literature including 40,000-50,000 scientific journals, 200,000 technical book
- Full-text databases of the most important international publishers:
  1. **Elsevier** (founded in 1880, Netherlands): 2,500 journals, approx. 420,000 professional publications are published/year (https://www.sciencedirect.com/)
  2. **Springer** (founded in 1842, Germany): 2,900 journals, 320,000 books (https://link.springer.com/)
  3. **Taylor & Francis** (founded in 1852, UK): 2,700 journals and approx. 7,000 new book are published per year (https://www.tandfonline.com/)
  4. **Wiley-Blackwell** (founded in 1807, USA): distributor of 1,400 journals (https://onlinelibrary.wiley.com/)
  5. **SAGE** (founded in 1965, USA): distributor of 1,100 journals (https://journals.sagepub.com/)
- **Science Citation Index** covers more than 9,200 notable and significant journals, across 178 disciplines, from 1900 to the present. These are alternatively described as the world's leading journals of science and technology, because of a rigorous selection process
- Several papers, books etc. of Springer and Elsevier is freely accessed from the area of the University of Miskolc

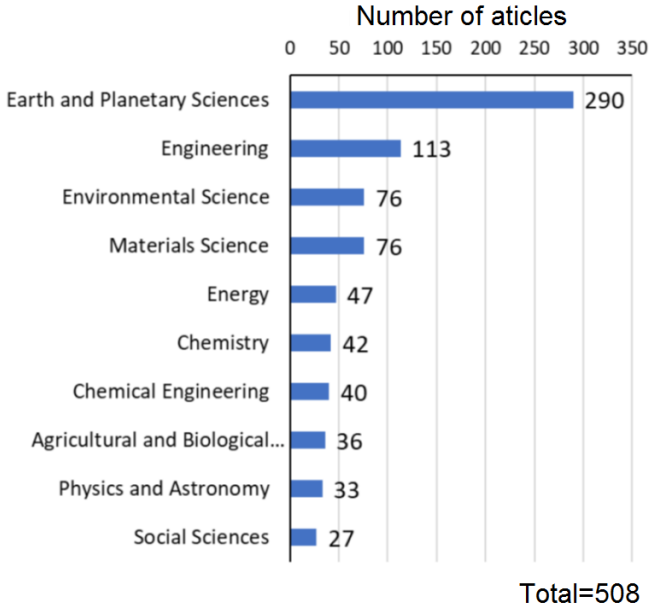
Scopus as Cataloging (Abstract and Citation) Database (https://www.scopus.com/)



Faculty of Earth Science and Engineering (1993-2022)

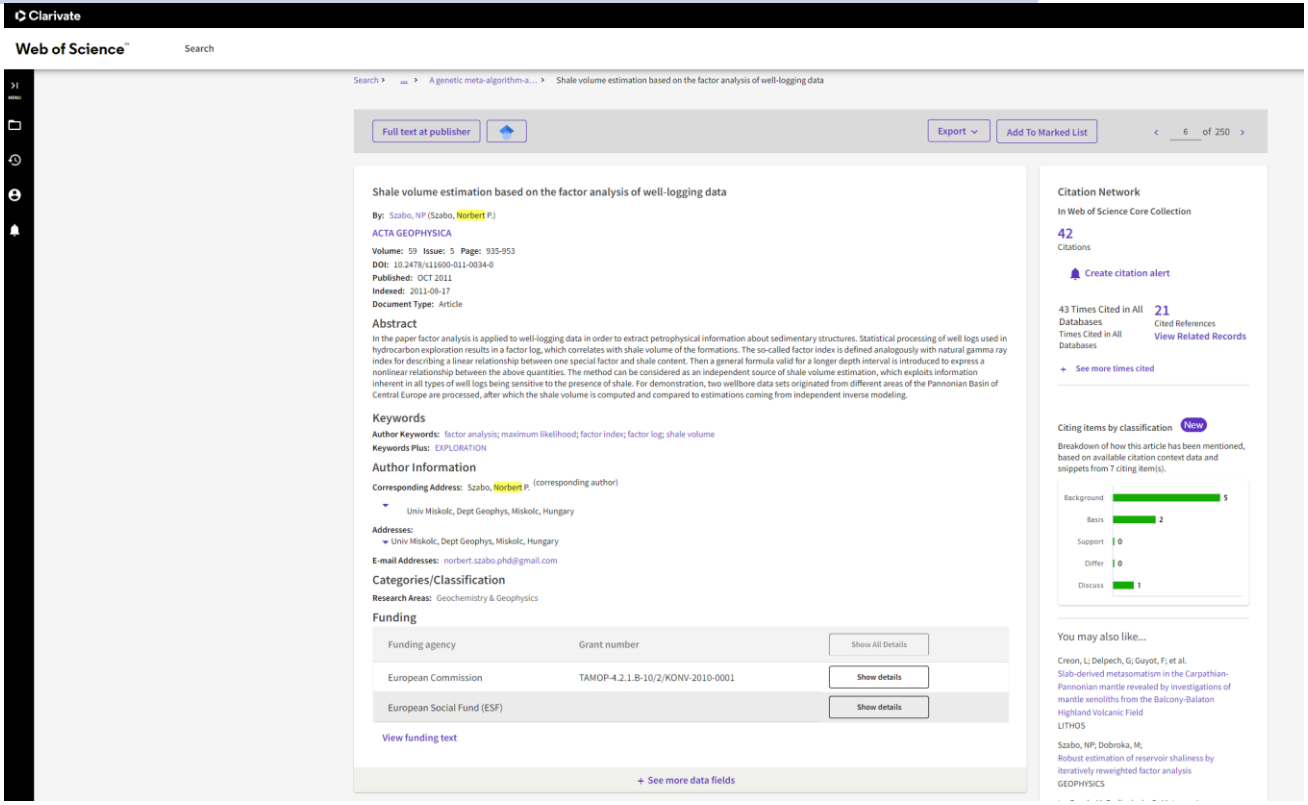


after Sasvári (2022)

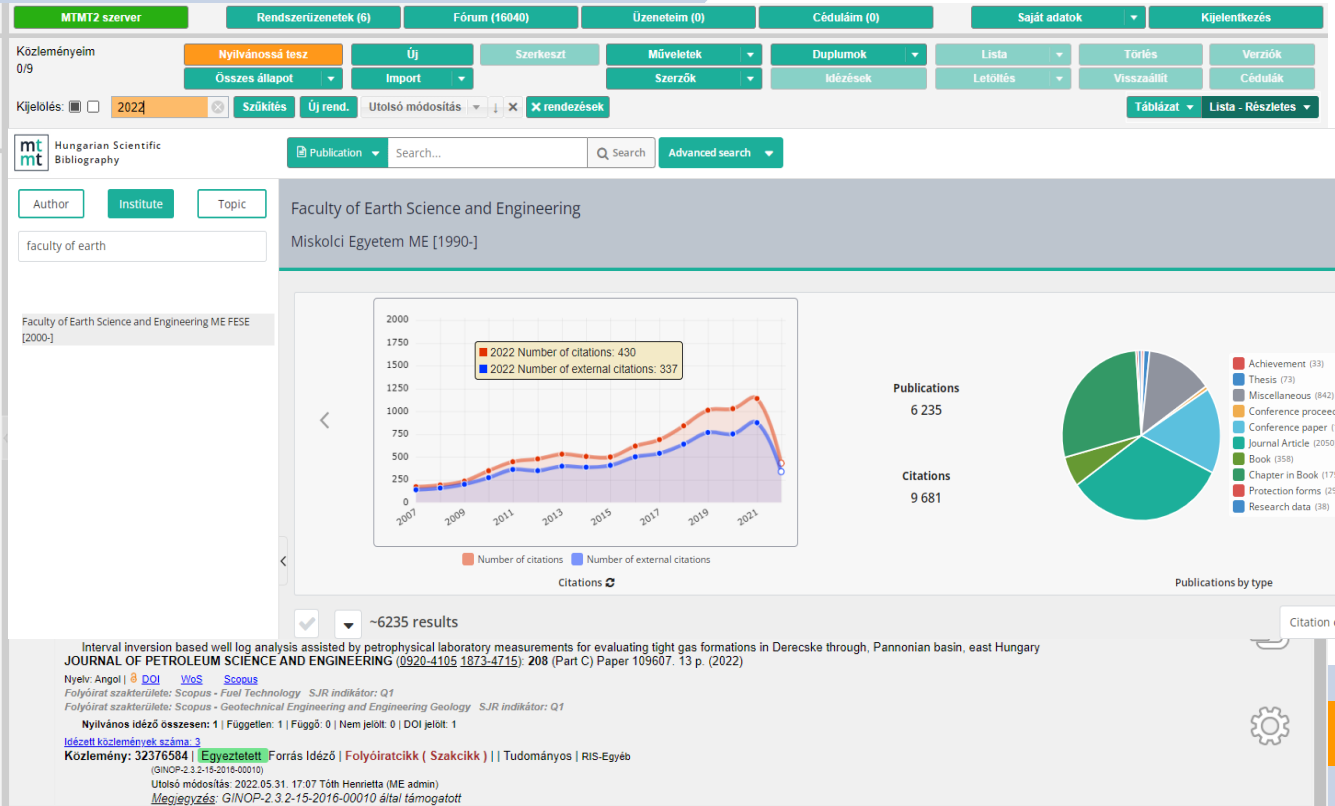


Total=508

Web of Science as Cataloging Database (https://login.webofknowledge.com/)



MTMT Hungarian Database
(https://m2.mtmt.hu/gui2/)



Google Scholar as Scientific Publication Finder (https://scholar.google.hu/)

Norbert Péter Szabó DSc

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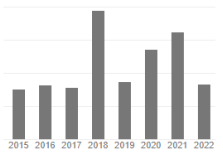
mélyfúrási geofizika geofizikai inverzió geostatisztika

CÍM	HIVATKOZOTT RÁ	ÉV
Shale volume estimation based on the factor analysis of well-logging data N Szabó Acta Geophysica 59 (5), 935-953	80	2011
Interval inversion approach for an improved interpretation of well logs M Dobróka, NP Szabó, J Tóth, P Vass Geophysics 81 (2), D155-D167	42	2016
Artificial intelligent approaches in petroleum geosciences C Cranganu, H Luchian, ME Breaban Springer International Publishing	39	2015
Interval inversion of well-logging data for objective determination of textural parameters M Dobróka, NP Szabó Acta Geophysica 59 (5), 907-934	39	2011
Extending the application of a shale volume estimation formula derived from factor analysis of wireline logging data NP Szabó, M Dobróka Mathematical Geosciences 45 (7), 837-850	33	2013
Interval inversion of well-logging data for automatic determination of formation boundaries by using a float-encoded genetic algorithm M Dobróka, NP Szabó Journal of Petroleum Science and Engineering 86, 144-152	31	2012
Factor analysis of engineering geophysical sounding data for water-saturation estimation in shallow formations NP Szabó, M Dobróka, D Drahos Geophysics 77 (3), WA35-WA44	30	2012
2D inversion of borehole logging data for simultaneous determination of rock interfaces and petrophysical parameters M Dobróka, P Szabó, E Cardarelli, P Vass Acta Geodaetica et Geophysica Hungarica 44 (4), 459-479	27	2009

Hivatkozott rá ÖSSZES MEGTEKINTÉSE

	Összes	2017 óta
Hivatkozások	769	519
h-index	16	13
i10-index	26	17



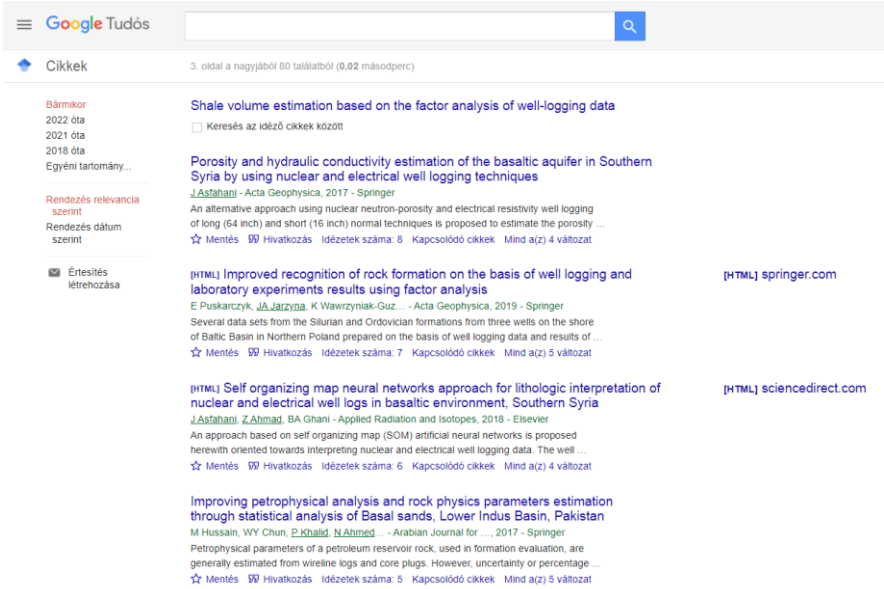
Nyilvános hozzáférés ÖSSZES MEGTEKINTÉSE

3 cikk 16 cikk
nem érhető el elérhető

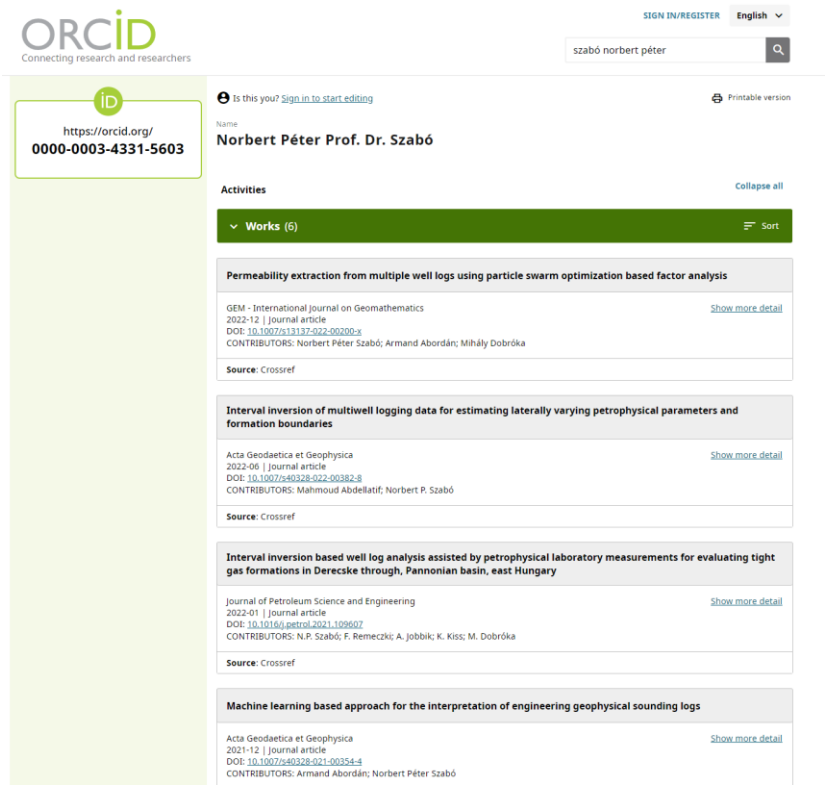
Finanszírozási megbízások alapján

Társszerzők SZERKESZTÉS

- Mihaly Dobroka, Professor of Geophysics, Miskol…
- endre turai, Miskolci Egyetem
- Akos Gyulai, professzor emeritusz, Miskolci E…
- Szucs Peter, University of Miskolc



Open Researcher and Contributor ID (https://orcid.org)



- ORCID is a nonproprietary alphanumeric code to uniquely identify authors and contributors of scholarly communication as well as ORCID's website and services to look up authors and their bibliographic output (and other user-supplied pieces of information)
- This addresses the problem that a particular author's contributions to the scientific literature or publications can be hard to recognize as most personal names are not unique, they can change (such as with marriage), have cultural differences in name order, contain inconsistent use of first-name abbreviations and employ different writing system
- On 16 October 2012 ORCID launched its registration services and the issuance of user IDs
- As of 2 August 2022, the number of live accounts reported by ORCID was 14,727,479
- The organization's membership includes research institutions such as Caltech and Cornell University, as well as publishers such as Elsevier, Springer, Wiley, and the Nature Publishing Group

Digital Object Identifier (https://www.doi.org/)

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Resolve a DOI Name

Type or paste a DOI name, e.g., 10.1000/xyz123, into the text box below. (Be sure to enter all of the characters before and after the slash. Do not include extra characters, or sentence punctuation marks.)

10.1190/geo2015-0422.1 SUBMIT

Clicking on a DOI link (try this one: https://doi.org/10.1109/5.771073) takes you to one or more current URLs or other services related to a single resource. If the URLs or services change over time, e.g., the resource moves, this same DOI will continue to resolve to the correct resources or services at their new locations.

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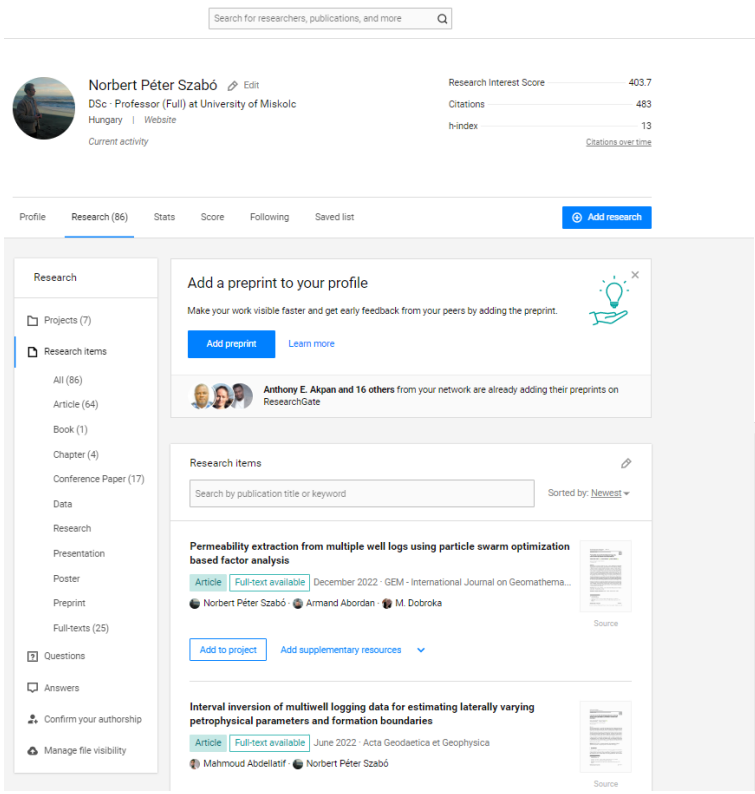
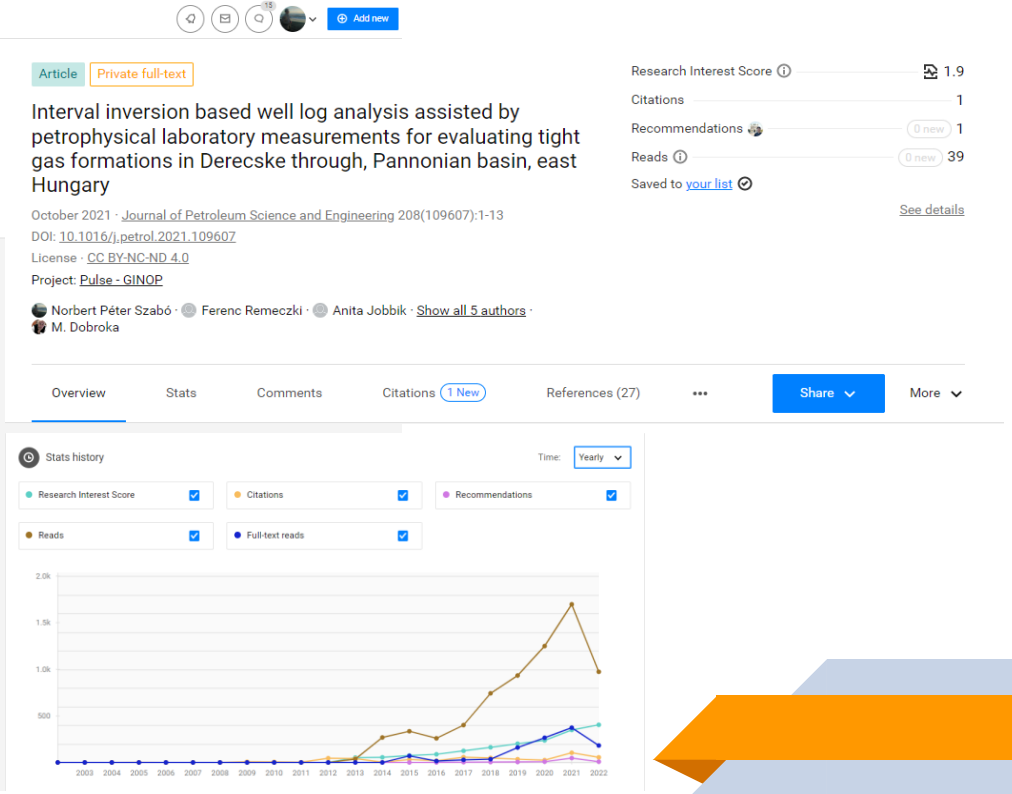
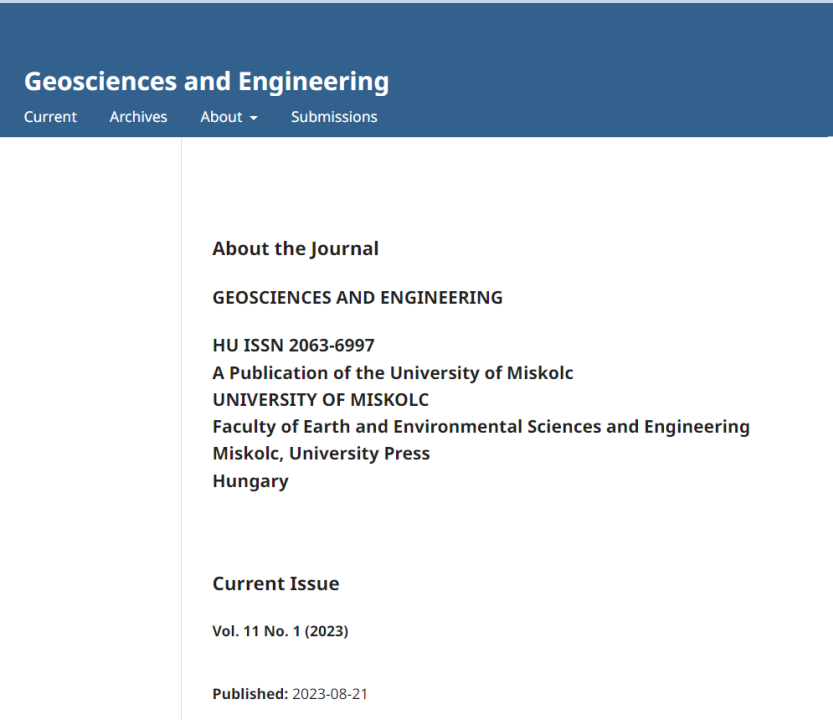
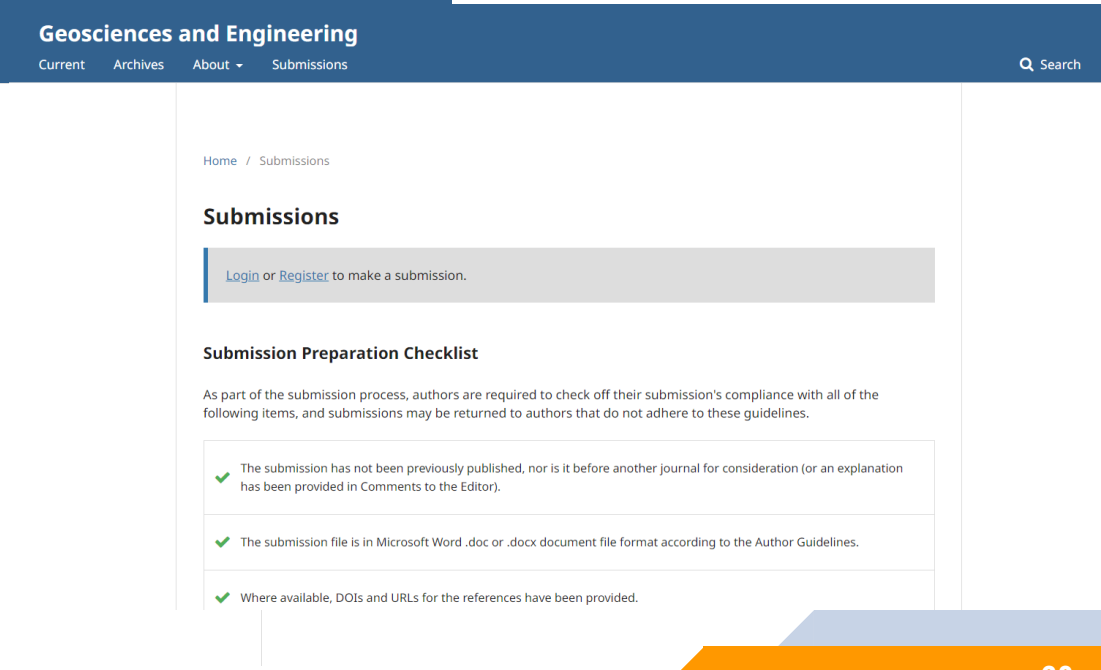




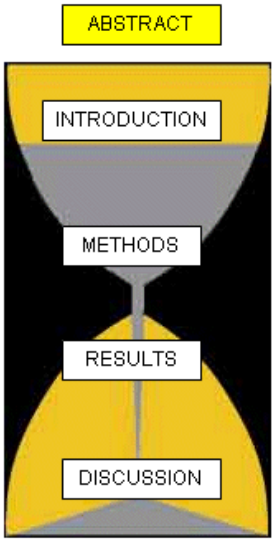
Geosciences and Engineering
(https://ojs.uni-miskolc.hu/index.php/geosciences)





Aspects of Preparation of Scientific Papers

IMRAD (Introduction, Methods, Results, and Discussion)



- **Sand Glass Model** - The introductory part places the research to be presented in a broader context and describes the previous literature results. As the text progresses, the topic should become narrower and narrower, until finally, by the end of the introductory part, it should lead to the specific hypotheses and objectives of the research. The hypotheses, together with the methods part, form the narrowest part of the hourglass, which are specific to our research, just like the results to be presented. The hourglass begins to expand again in its discussion section
- **Introduction section** - Why was the study undertaken? What was the research question, the tested hypothesis or the purpose of the research?
- **Methods section** - When, where, and how was the study done? What materials (data, model) were used?
- **Results section** - What answer was found to the research question; what did the study find? Was the tested hypothesis true?
- **Discussion section** - What might the answer imply and why does it matter? How does it fit in with what other researchers have found? What are the perspectives for future research?

Title and Abstract

- Title should contain keywords to reflect the main issues (findings) in your article
- Title should be simple, short, imaginative and catchy
- Typically, abstract length is between 100 to 500 words containing normally one paragraph
- Should grab the reader's attention
- Should be concise, no citation, figures and formulae are included
- Brief reminder of the context, and a brief statement of the main objective
- The main methods should be outlined
- List the main results, they do not need to be described in detail, the abstract should only anticipate them
- No discussion and conclusions are included
- 5-6 keywords must be given, sometimes also highlights should be added up to 85 characters

Introduction Section

- Literature review on scientific background and relevant research results
- Explaining briefly, using appropriate references, what is already known about this subject
- Describe something that has not applied yet, criticism for existing methods, shortcomings, possible fields of further development or improvement
- Formulation of your objective is of paramount importance, clearly state your working hypothesis, write explicitly your assumptions, cite the exact parameters you plan to measure or study
- Write your strategy implemented to achieve these goals
- It should be understandable not only by specialists in the field
- Why your study/method is innovative? What is new?

Methods Section

- Start with problem description, specify the applied methods, instruments and tools, geological setting etc.
- Should describe exactly what you did including all tests, analyses, modeling process, products etc.
- Give sufficient details, dataset, parameters, relevant literature recources for the reader to be able to reproduce your study
- Mathematical formulation must be consistent, do not use a different notations for the same parameter; for too many parameters write a Nomenclature at the end of the paper; too long mathematical derivations should be avoided, place long derivations to the Appendices at the end of the article; note that generally matrices and vectors are written using bold fonts, while scalars are writen using nonbold italic characters
- Make a flowchart for better understanding your research workflow
- Emphasize the novelties in your methodology, assessment, analysis, expected ouput
- Writing in acive or passive voice, and tenses depend on the journal requirements

Results Section

- Describe the result obtained for every method that was outlined in the methods section without further method description, commentary or discussion
- Not all but the most significant diagrams, sections, plots, tables should be attached; they should show the most important results; they must justify and support the described results and serve to make it easier to understand
- Refer to all tables and figures in the text (in subsequent order); figure caption must be not too long but standalone; explain the figure in details in the text
- When writing use the same voice and tense as earlier
- In highly ranked scientific journals, figures must be prepared at least in 300/600 dpi resolution

Discussion and Conclusions Section

- Start with a brief summary of the main findings of your study, preferably using the same formulation in the Introduction and Methods sections
- Compare the obtained results of different methods
- Make an interpretation of your results; how the assumptions were fulfilled
- You can add extra analyses (from another perspective) that confirm your results
- Put your results in perspective with other reports, papers
- Should explain the significance of your results; explain why they are innovative, advantageous to use, how it fit to the relevant topic; write about the feasibility of the developed methods; what is the scope of validity, what are the limitations of the developed method (mention the negative results)
- Give recommendation for further researches and applications
- Have the manuscript checked by a native English speaker before submission

References Section

- Rigorous formal requirements for references, e.g., in Elsevier journals
- **For papers**: Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. J. Sci. Commun. 163, 51–59. https://doi.org/10.1016/j.Sc.2010.00372.
- **For book**: Strunk Jr., W., White, E.B., 2000. The Elements of Style, fourth ed. Longman, New York.
- **For book chapter**: Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith , R.Z. (Eds.), Introduction to the Electronic Age. E-Publishing Inc., New York, pp. 281–304.
- **Reference to website**: Cancer Research UK, 1975. Cancer statistics reports for the UK. http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/ (accessed 13 March 2003).
- **Other sources:** online documents, dissertation, conference paper, electronic supplementary materials and databases, personal communication etc.
- Cite published references in the text by the authors' name and year in parentheses (use „et al." when more than two authors are cited)

Submission of New Manuscript

- Article type selection (original/full length paper, review article, short communication etc.)
- File uploading (manuscript, cover letter, figure, table, copyright statement, authorship credit statement)
- General information (classifications, normal/special issue)
- Reviewer preferences (suggested/unwanted reviewers)
- Additional information (authors' affiliation, manuscript sent to other journal, data deposition in repository, declarations etc.)
- Comments to editor/publication office
- Checking manuscript data (title, abstract, keywords, authors, funding information)
- Build pdf file for approval
- Submission of manuscript

Review and Publishing Process

- Manuscript processing flow is complex and quite long depending on the journal (from 1 month to ¾ year) involving 2-4 reviewers
- Result of editor decision is (I) accept, or (II) major/moderate/minor revision, or (III) reject wit encouragement to resent, or (IV) final reject
- After revision and acceptance, you can use the DOI number
- Language and technical check
- Proofreading for checking and finalizing the paper
- Online first appearance of the paper
- Printed version with final page numbers
- Paying author fees, open access possibilities

FACULTY OF
EARTH SCIENCE
AND ENGINEERING

THANK YOU FOR YOUR ATTENTION.

Any questions?

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