

Spring 2025

Topic Search

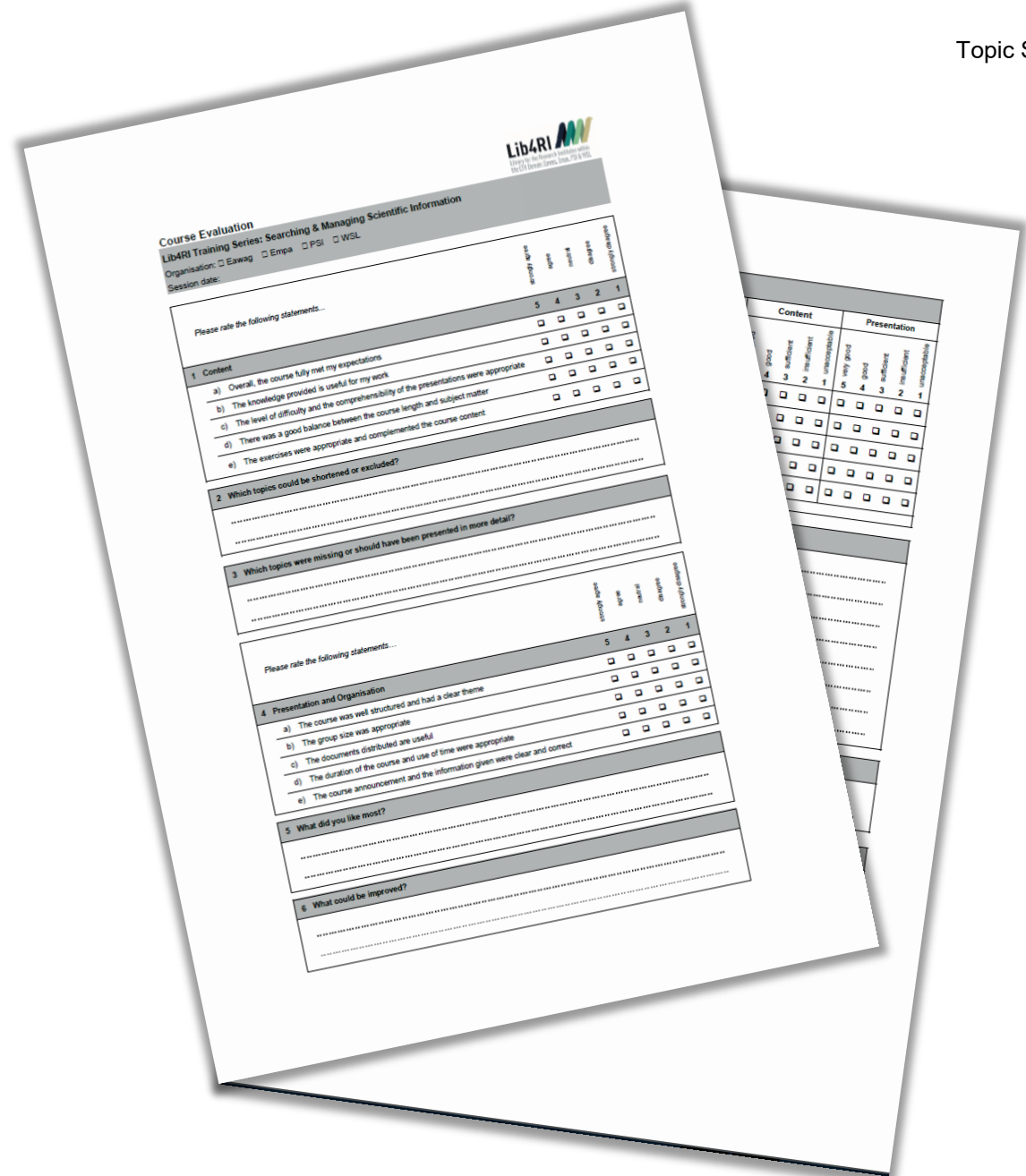
- o Steps before searching
- o AI research assistants (scite.ai and others)
- o Boolean Search: Scopus, Web of Science, swisscovery, ...
- o Refine & evaluate your results

Stephanie Hofmann & Bobby Neuhold

Thanks for your feedback

Help us improve our training by returning the feedback form enclosed in your documentation!

The course slides and supplementary material are available online on our website at www.lib4ri.ch > [Learn](#) > [Trainings](#) > [Searching & Managing Scientific Information](#) > [Course description](#) > [Module 1](#)



Course Evaluation
Lib4RI Training Series: Searching & Managing Scientific Information
 Organisation: ☐ Eawag ☐ Empa ☐ PSI ☐ WSL
 Session date: _____

Please rate the following statements...

	5	4	3	2	1
1 Content					
a) Overall, the course fully met my expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The knowledge provided is useful for my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The level of difficulty and the comprehensibility of the presentations were appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) There was a good balance between the course length and subject matter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) There was a good balance between the course length and subject matter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) The exercises were appropriate and complemented the course content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 Which topics could be shortened or excluded?

3 Which topics were missing or should have been presented in more detail?

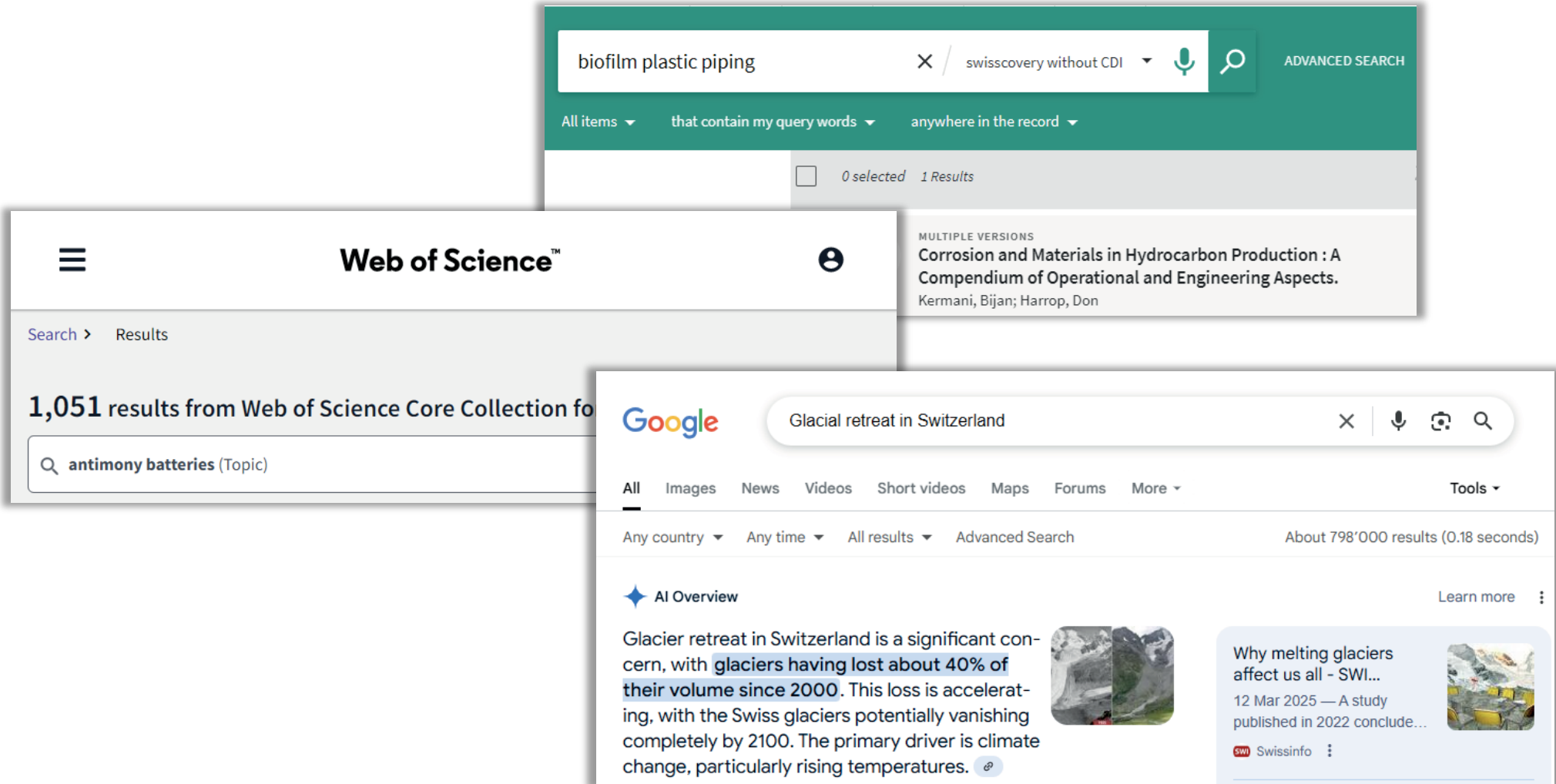
Please rate the following statements...

	5	4	3	2	1
4 Presentation and Organisation					
a) The course was well structured and had a clear theme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The group size was appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The documents distributed are useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The duration of the course and use of time were appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) The course announcement and the information given were clear and correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5 What did you like most?

6 What could be improved?

«Some search in order to find; and some find in order to end the effort of searching.» (Elazar Benyouët)



The image displays three overlapping screenshots of search engines, illustrating different search strategies.

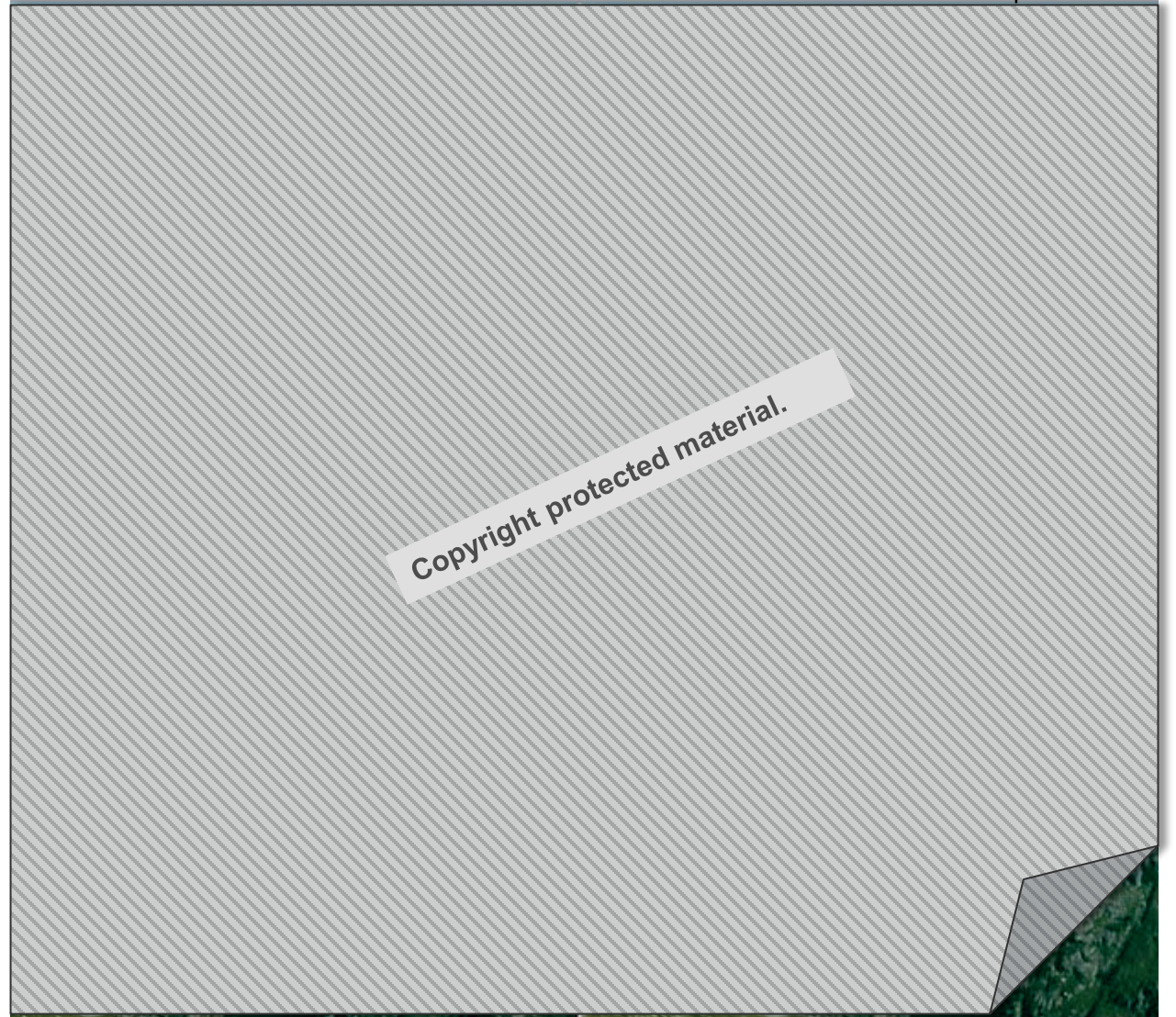
- Top Screenshot (bioRxiv):** A search for "biofilm plastic piping" with filters "swisscovery without CDI" and "ADVANCED SEARCH". It shows "0 selected" and "1 Results".
- Middle Screenshot (Web of Science):** A search for "antimony batteries (Topic)" showing "1,051 results from Web of Science Core Collection for". It includes a sidebar with "Web of Science™" and a user profile icon.
- Bottom Screenshot (Google):** A search for "Glacial retreat in Switzerland" showing "About 798'000 results (0.18 seconds)". It features an "AI Overview" section with a summary of glacier retreat in Switzerland, a "Learn more" link, and a snippet from "Swissinfo" dated "12 Mar 2025".

Retreat of Glaciers in Switzerland

Topic search

Thematic search

Topic Search



Rhône Glacier, Valais, 1850 and 2000

Foto: Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW) at ETH Zurich

Before searching – analyse your topic

- **How extensive should your search be?**
Do you need everything about your topic or simply the documents providing an overview?
Tip: combine your search terms with «overview», «introduction», «survey», «review», ... or use corresponding filters (if available)
- **Which material do you need?**
Books, PhD theses, articles,
→ different document types often require diverse search tools.
- **Which time period should be covered?**
Since when could there be publications on the topic?
Which period is covered by the search tools?

Before searching – analyse your topic

○ Orientation / definition of the terms

- Reference works (encyclopaedias, dictionaries, etc.)
- Manuals
- Wikipedia
- Some key papers/books you already have

○ Comprehensive searches with current issues

- Articles, conference proceedings, reports
- Books
- Standards, guidelines and patents (depending on the research topic; advanced level)

○ Historical searches

- Bibliographies
- Card index
- Archives

Before searching – analyse your topic

Analysis of the central terms of the topic

Define core concepts:

- Include synonyms, beware of homonyms
- Define super- and subordinate terms
- Check related terms
- Translate the search terms (if necessary)

Tip: Start from a few seminal papers and/or relevant reference works and follow an iterative search strategy

Note:

- Spelling BE and AE (covered by Scopus & WoS)
- Previous or other spellings
- Ambiguous and uncommon abbreviations
- Singular and plural forms (covered by Scopus & WoS)

→ Bring the concepts/search terms in a meaningful order, using a table.



Truncation, placeholders and wildcards

Electronic search tools generally seek character strings, not meanings.

→ Grammatical and spelling variations are often not taken into account

Truncation via placeholders and wildcards facilitate the search, e.g.:

\$ Represents zero or one character (WoS)

→ Topic search: colo\$r, finds color and colour

? Represents any one character (Scopus, WoS)

→ Author search: Ma?er, finds Maier and Mayer

* Represents zero or more trailing, leading or enclosed characters (Scopus, WoS and many more, but NOT Google)

→ econom* finds: economy, economist, economic, economically

Note: Too much truncation might lead to unwanted results.

Note: Check, what symbols you can use in which database.

Important: WoS and Scopus include lemmatisation, word stemming and spelling variations. These are automatically turned off when using truncations (often still better)

Phrase search

Search for documents with words in a sequence (phrase)

→ Phrase search: in “quotation marks”

Web of Science search for **energy transition**: 370,229 hits

Web of Science search for **”energy transition”**: 7,396 hits

☐ 48
 How to promote **energy transition** in China: From the perspectives of interregional relocation and environmental regulation
[Huang, LY](#) and [Zou, YJ](#)
 Oct 2020 | [ENERGY ECONOMICS](#) 92
 This study investigates the impacts of interregional clean energy relocation and environmental regulation on energy transition with panel data of 30 provinces in China from 1997 to 2015. Instead of applying the production data of clean energy directly as prior studies did, we calculate the actual consumption of ... [Show more](#)
[Get it @ Lib4RI](#) [View full text](#) ...

6
Citations
 45
References
 Related records

☐ 49
 Will small **energy** consumers be faster in **transition**? Evidence from the early shift from coal to oil in Latin America
[Rubio, MDM](#) and [Folchi, M](#)
 Nov 2012 | [ENERGY POLICY](#) 50, pp.50-61
 This paper provide evidence of the early transition from coal to oil for 20 Latin American countries over the first half of the 20th century, which does not fit the transition experiences of large energy consumers. These small energy consumers had earlier and faster transitions than leading nations. We also provide evider ... [Show more](#)
[Get it @ Lib4RI](#) [Free Accepted Article From Repository](#) [Full Text at Publisher](#) ...

36
Citations
 66
References
 Related records

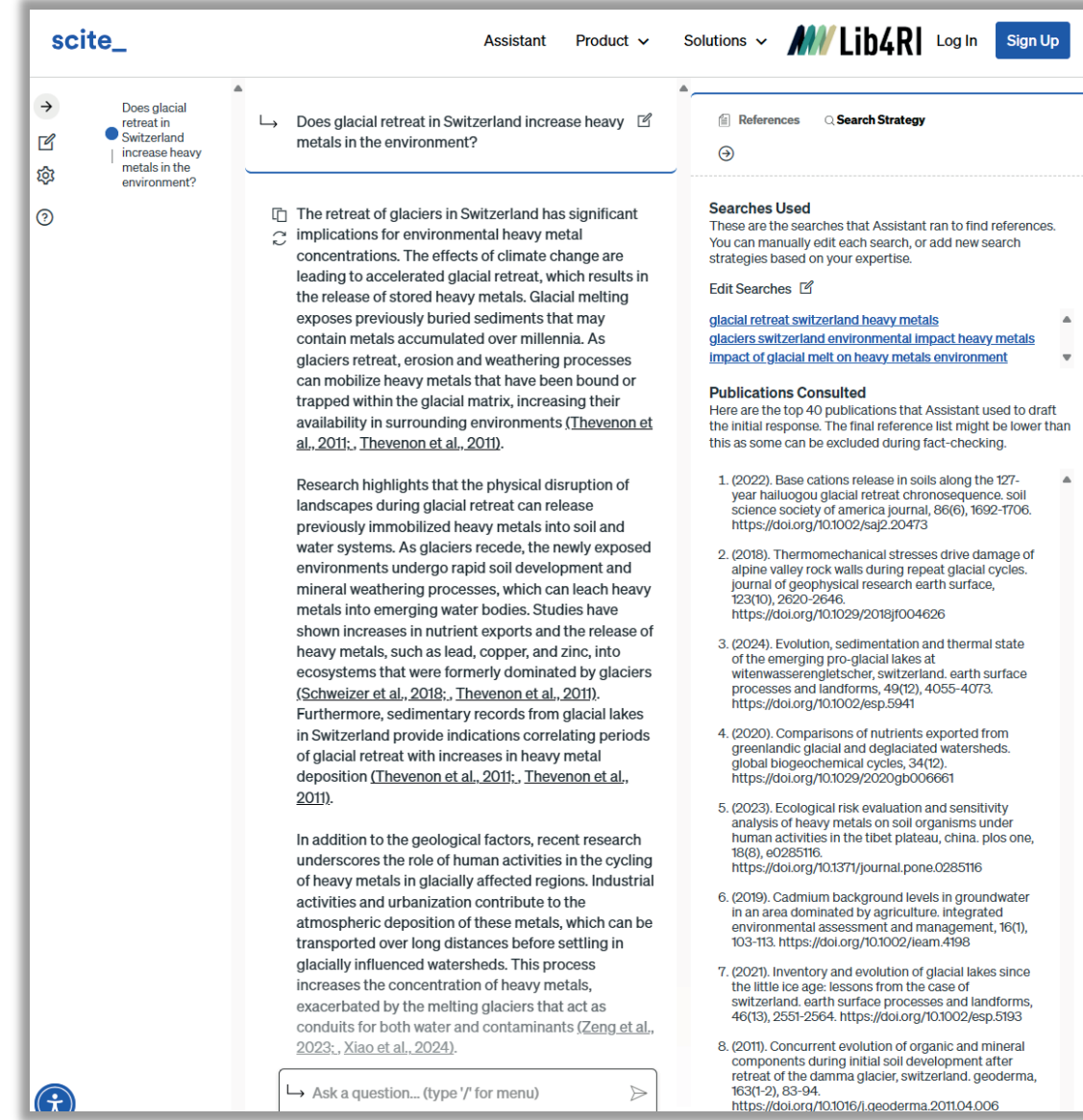
Without the quotes, the space in between **energy transition** is interpreted as a logical **AND** neglecting order and location of the search terms

Important: WoS turns off lemmatisation and word stemming for words in quotes; Scopus, however, does NOT (unless truncation is in place)

Tip: Also works with swisscovery, Google and many more

Scite AI - Research Assistant and Citation Database (scite.ai)

- get quickly acquainted with a general topic or a specific research question using natural language
- “Glacial retreat in Switzerland”
- “Does glacial retreat in Switzerland increase heavy metals in the environment?”
- receive a (detailed) summary with key references incl. supporting / neutral / contrasting citations statements
- find relevant terminology and key references for a more comprehensive or systematic search, e.g. in Scopus and Web of Science



The screenshot displays the Scite AI web interface. At the top, there's a navigation bar with 'scite_' logo, 'Assistant', 'Product', 'Solutions', 'Lib4RI' logo, 'Log In', and 'Sign Up' buttons. The main content area is divided into three panels. The left panel shows a sidebar with a search icon, a settings icon, and a question icon. The middle panel displays the search results for the query 'Does glacial retreat in Switzerland increase heavy metals in the environment?'. It includes a summary of the research highlights, a list of references, and a section for 'Publications Consulted'. The right panel shows a 'References' section with a 'Search Strategy' dropdown and a list of references.

Does glacial retreat in Switzerland increase heavy metals in the environment?

The retreat of glaciers in Switzerland has significant implications for environmental heavy metal concentrations. The effects of climate change are leading to accelerated glacial retreat, which results in the release of stored heavy metals. Glacial melting exposes previously buried sediments that may contain metals accumulated over millennia. As glaciers retreat, erosion and weathering processes can mobilize heavy metals that have been bound or trapped within the glacial matrix, increasing their availability in surrounding environments (Thevenon et al., 2011; Thevenon et al., 2011).

Research highlights that the physical disruption of landscapes during glacial retreat can release previously immobilized heavy metals into soil and water systems. As glaciers recede, the newly exposed environments undergo rapid soil development and mineral weathering processes, which can leach heavy metals into emerging water bodies. Studies have shown increases in nutrient exports and the release of heavy metals, such as lead, copper, and zinc, into ecosystems that were formerly dominated by glaciers (Schweizer et al., 2018; Thevenon et al., 2011). Furthermore, sedimentary records from glacial lakes in Switzerland provide indications correlating periods of glacial retreat with increases in heavy metal deposition (Thevenon et al., 2011; Thevenon et al., 2011).

In addition to the geological factors, recent research underscores the role of human activities in the cycling of heavy metals in glacially affected regions. Industrial activities and urbanization contribute to the atmospheric deposition of these metals, which can be transported over long distances before settling in glacially influenced watersheds. This process increases the concentration of heavy metals, exacerbated by the melting glaciers that act as conduits for both water and contaminants (Zeng et al., 2023; Xiao et al., 2024).

References

Searches Used
These are the searches that Assistant ran to find references. You can manually edit each search, or add new search strategies based on your expertise.

Edit Searches

- glacial retreat switzerland heavy metals
- glaciers switzerland environmental impact heavy metals
- impact of glacial melt on heavy metals environment

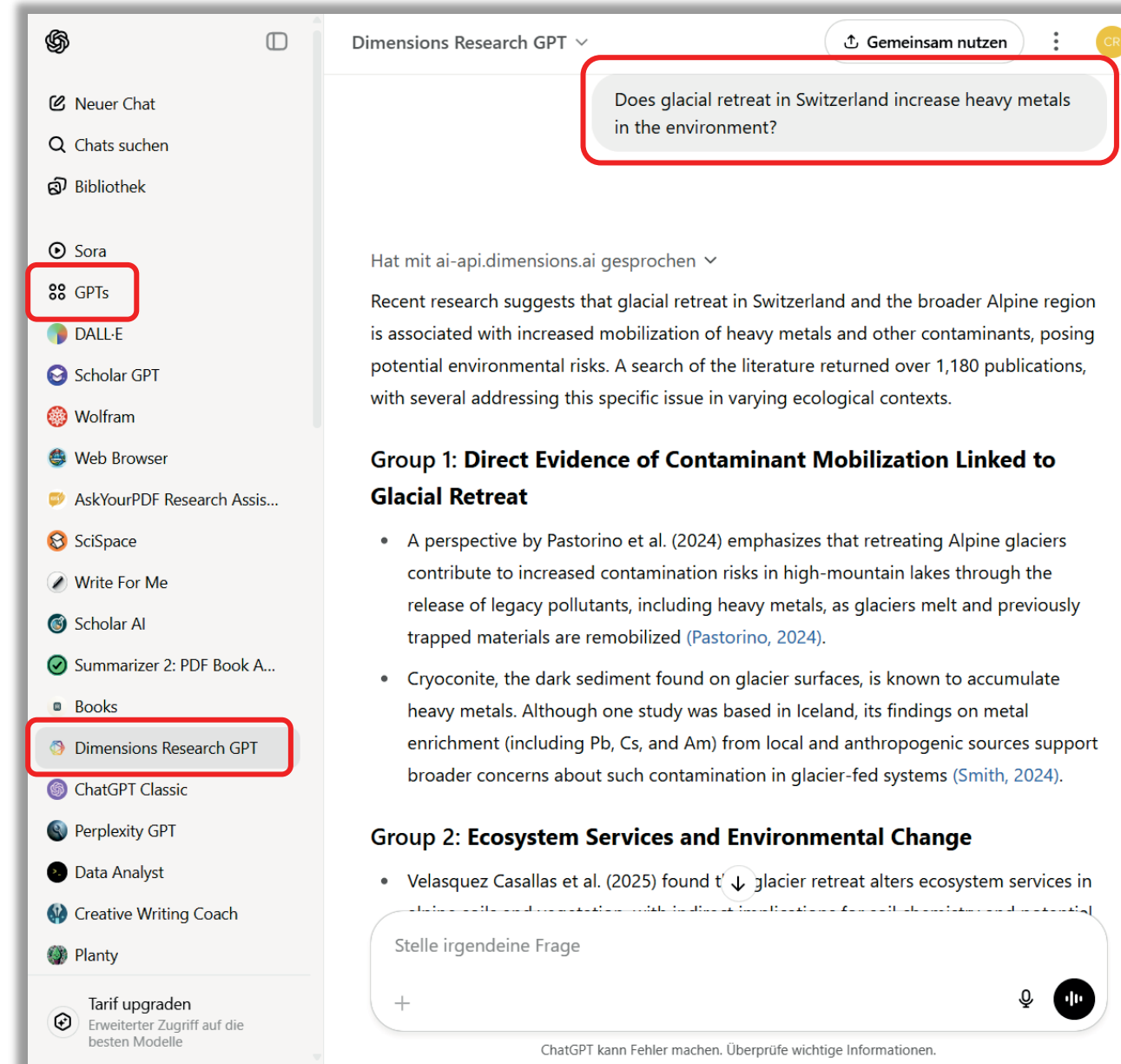
Publications Consulted
Here are the top 40 publications that Assistant used to draft the initial response. The final reference list might be lower than this as some can be excluded during fact-checking.

- (2022). Base cations release in soils along the 127-year hailuoguo glacial retreat chronosequence. *soil science society of america journal*, 86(6), 1692-1706. <https://doi.org/10.1002/saj2.20473>
- (2018). Thermomechanical stresses drive damage of alpine valley rock walls during repeat glacial cycles. *Journal of geophysical research earth surface*, 123(10), 2620-2646. <https://doi.org/10.1029/2018j004626>
- (2024). Evolution, sedimentation and thermal state of the emerging pro-glacial lakes at witenwasseregletscher, switzerland. *earth surface processes and landforms*, 49(12), 4055-4073. <https://doi.org/10.1002/esp.5941>
- (2020). Comparisons of nutrients exported from greenlandic glacial and deglaciated watersheds. *global biogeochemical cycles*, 34(12). <https://doi.org/10.1029/2020gb006661>
- (2023). Ecological risk evaluation and sensitivity analysis of heavy metals on soil organisms under human activities in the tibet plateau, china. *plos one*, 18(8), e0285116. <https://doi.org/10.1371/journal.pone.0285116>
- (2019). Cadmium background levels in groundwater in an area dominated by agriculture. *integrated environmental assessment and management*, 16(1), 103-113. <https://doi.org/10.1002/ieam.4198>
- (2021). Inventory and evolution of glacial lakes since the little ice age: lessons from the case of switzerland. *earth surface processes and landforms*, 46(13), 2551-2564. <https://doi.org/10.1002/esp.5193>
- (2011). Concurrent evolution of organic and mineral components during initial soil development after retreat of the damma glacier, switzerland. *geoderma*, 163(1-2), 83-94. <https://doi.org/10.1016/j.geoderma.2011.04.006>

Ask a question... (type '/' for menu)

Other Research Assistants

- Scopus & Web of Science, AI research assistants not included (yet)
- Elicit, Consensus, ... no licence (yet)
- Finetuned GPTs (e.g. via ChatGPT)
 - Dimensions Research GPT
 - Consensus
 - Scholar AI
 - SciSpace
 - ...
- At least free account with ChatGPT required



Dimensions Research GPT

Gemeinsam nutzen

Does glacial retreat in Switzerland increase heavy metals in the environment?

Hat mit ai-api.dimensions.ai gesprochen

Recent research suggests that glacial retreat in Switzerland and the broader Alpine region is associated with increased mobilization of heavy metals and other contaminants, posing potential environmental risks. A search of the literature returned over 1,180 publications, with several addressing this specific issue in varying ecological contexts.

Group 1: Direct Evidence of Contaminant Mobilization Linked to Glacial Retreat

- A perspective by Pastorino et al. (2024) emphasizes that retreating Alpine glaciers contribute to increased contamination risks in high-mountain lakes through the release of legacy pollutants, including heavy metals, as glaciers melt and previously trapped materials are remobilized (Pastorino, 2024).
- Cryoconite, the dark sediment found on glacier surfaces, is known to accumulate heavy metals. Although one study was based in Iceland, its findings on metal enrichment (including Pb, Cs, and Am) from local and anthropogenic sources support broader concerns about such contamination in glacier-fed systems (Smith, 2024).

Group 2: Ecosystem Services and Environmental Change

- Velasquez Casallas et al. (2025) found that glacier retreat alters ecosystem services in the Alps, with implications for water resources and biodiversity.

Stelle irgendeine Frage

ChatGPT kann Fehler machen. Überprüfe wichtige Informationen.

Classify your research topic into concepts

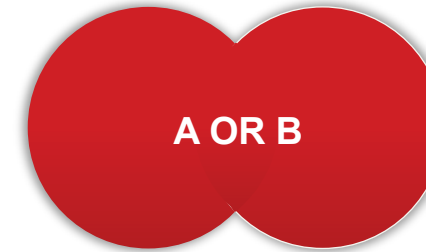
Retreat of **Glaciers** in **Switzerland**

Concept 1	Concept 2	Concept 3
retreat	glaciers	Switzerland

Boolean operators (logical operators from set theory)

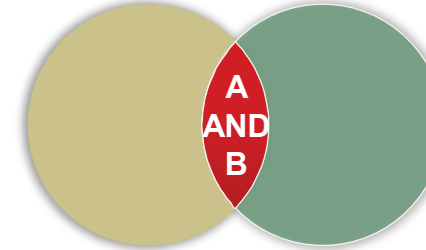
OR any one of the search terms must occur to be retrieved. Hits contain at least one of the terms.

→ Number of results increases



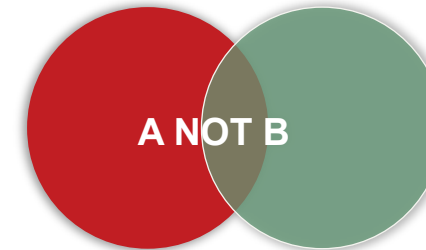
AND all search terms must occur to be retrieved. Hits contain both search terms.

→ Number of results decreases



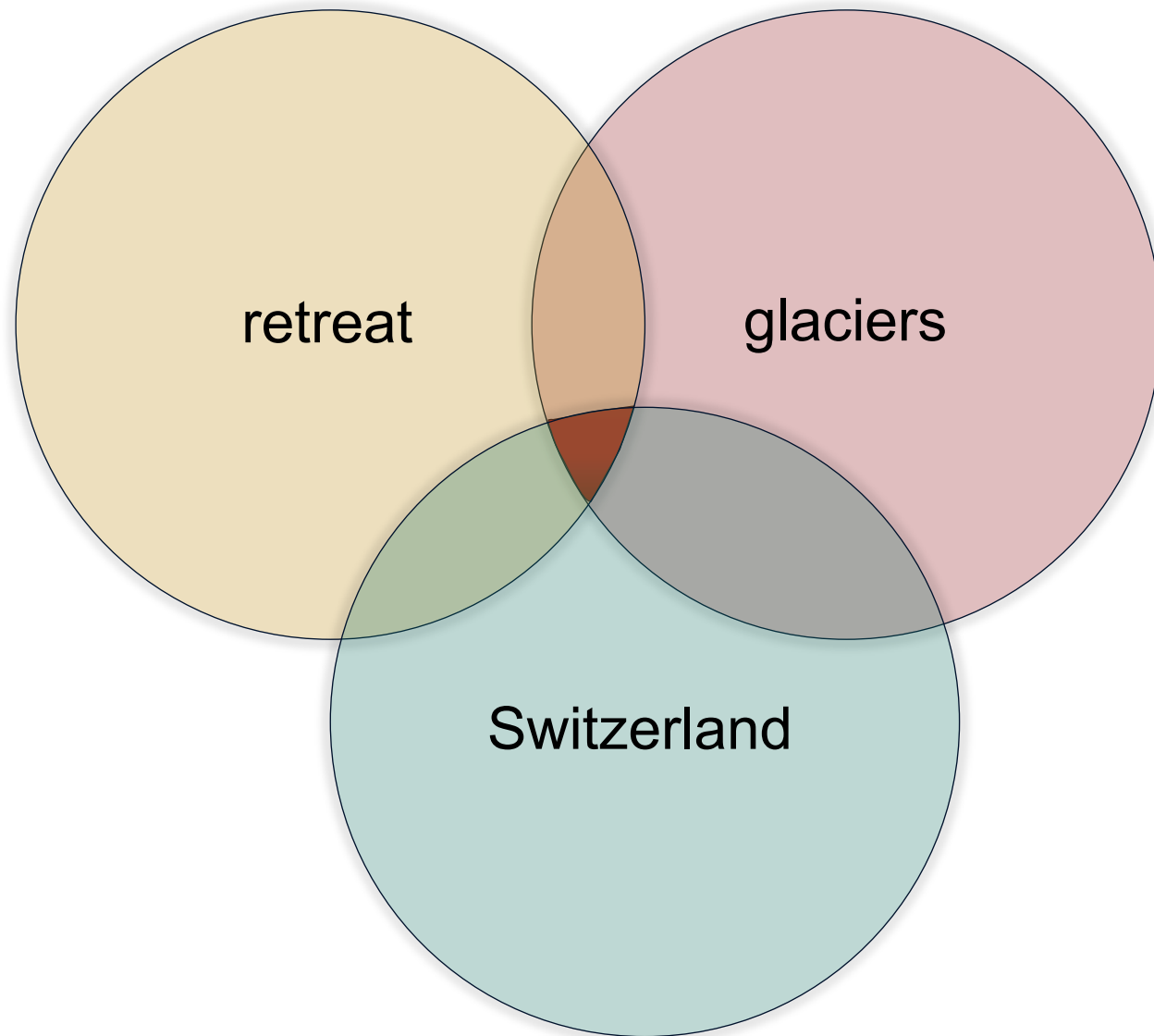
NOT excludes records that contain a given search term after the NOT-operator.

→ Number of results decreases



Combine concepts

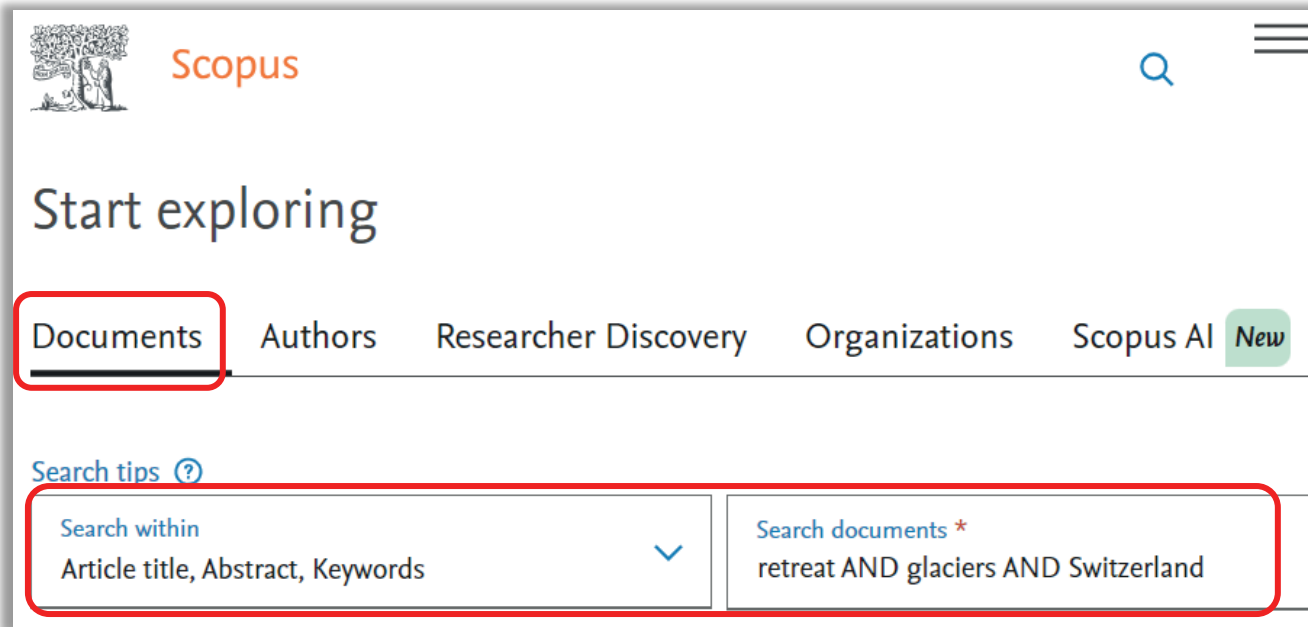
retreat
AND
glaciers
AND
Switzerland



Search in Scopus

www.scopus.com

A rather quick and dirty first topic search



Scopus

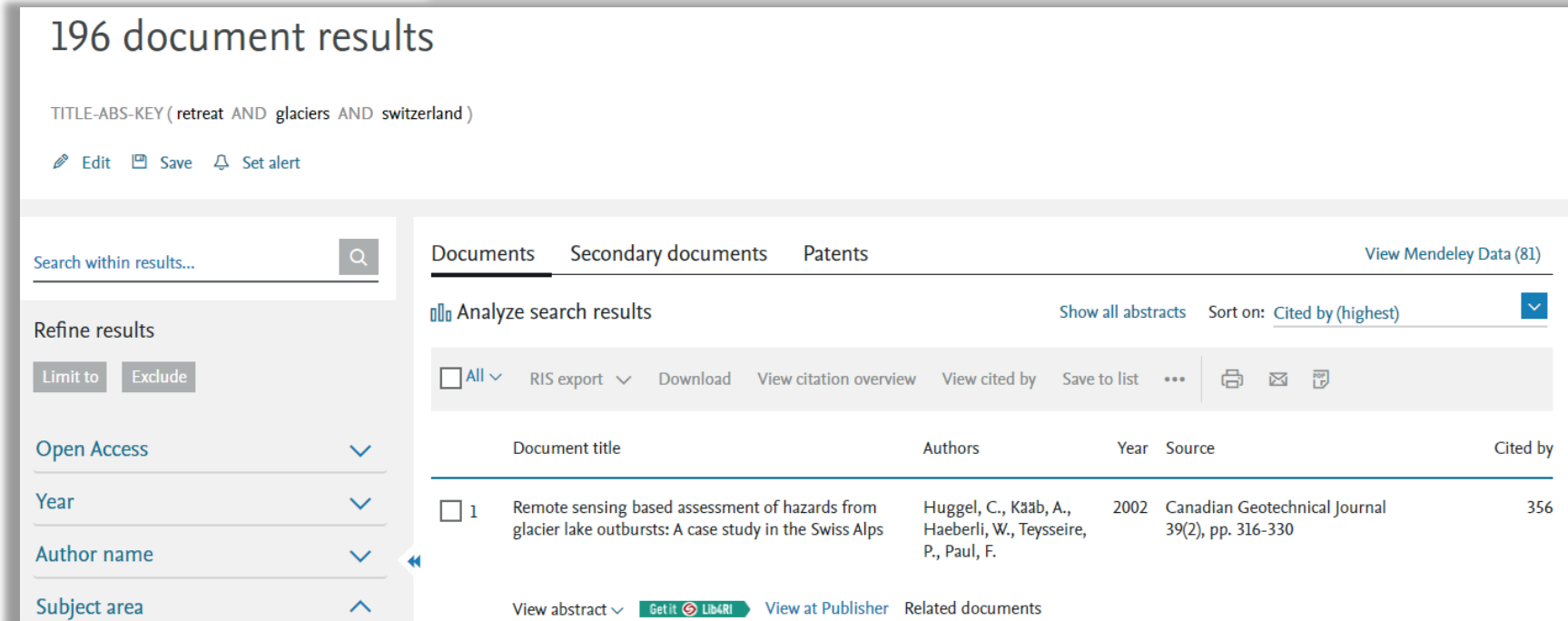
Start exploring

Documents Authors Researcher Discovery Organizations Scopus AI **New**

Search tips ?

Search within
Article title, Abstract, Keywords

Search documents *
retreat AND glaciers AND Switzerland



196 document results

TITLE-ABS-KEY (retreat AND glaciers AND switzerland)

Edit Save Set alert

Search within results...

Refine results

Limit to Exclude

Open Access

Year

Author name

Subject area

Documents Secondary documents Patents View Mendeley Data (81)

Analyze search results Show all abstracts Sort on: Cited by (highest)

All RIS export Download View citation overview View cited by Save to list

	Document title	Authors	Year	Source	Cited by
1	Remote sensing based assessment of hazards from glacier lake outbursts: A case study in the Swiss Alps	Huggel, C., Kääb, A., Haeblerli, W., Teyssie, P., Paul, F.	2002	Canadian Geotechnical Journal 39(2), pp. 316-330	356

View abstract Get it Lib4RI View at Publisher Related documents

Find synonyms and related concepts

Retreat of Glaciers in Switzerland

Concept 1	Concept 2	Concept 3
retreat	glaciers	Switzerland
withdrawal	ice field	Swiss
shrinkage	icefield	
loss	ice cap	(European alps)
disappearance	icecap	(Europe)
ablation	ice mass	
deglaciation		
calving	(permafrost)	
melting		
sublimation		
precipitation		

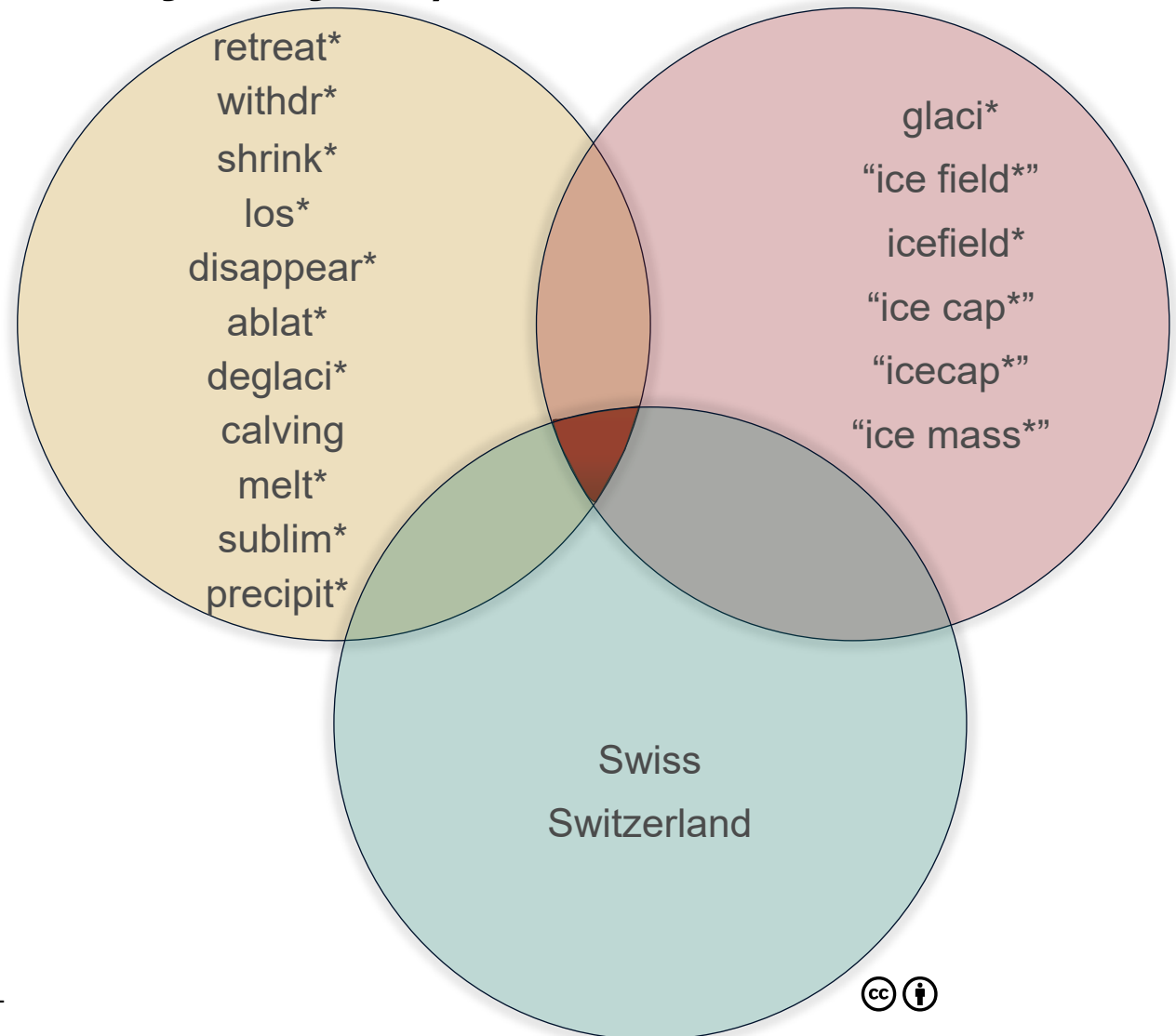
Truncated and phrased concept list

Retreat of Glaciers in Switzerland

Concept 1	Concept 2	Concept 3
retreat*	glaci*	Switzerland
withdr*	"ice field"	Swiss
shrink*	icefield*	
los*	"ice cap"	
disappear*	"icecap"	
ablat*	"ice mass"	
deglaci*		
calving		
melt*		
sublim*		
precipit*		

Combine concepts (and their synonyms)

(retreat* OR withdr* OR ...)
AND
 (glaci* OR "ice field*" OR ...)
AND
 (Switzerland OR ...)



Search in Scopus: www.scopus.com

5,896,803 document results

TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)

Edit Save Set alert

Search within results...

Refine results

Limit to Exclude

Open Access

Year

Author name

Subject area

Publication stage

Document type

Source title

Keyword

Affiliation

Funding sponsor

Documents Secondary documents Patents

Analyze search results Show all abstracts Sort on: Cited by (highest)

All RIS export Download View citation overview View cited by Save to list

	Document title	Authors	Year	Source	Cited by
1	Nonparametric Estimation from Incomplete Observations	Kaplan, E.L., Meier, P.	1958	Journal of the American Statistical Association 53(282), pp. 457-481	47504
	View abstract	Get it Lib4RI	View at Publisher		
2	Electrophoretic transfer of proteins from polyacrylamide gels to nitrocellulose sheets: Procedure and some applications	Towbin, H., Staehelin, T., Gordon, J.	1979	Proceedings of the National Academy of Sciences of the United States of America 76(9), pp. 4350-4354	44653
	View abstract	Get it Lib4RI	View at Publisher		
3	Moderated estimation of fold change and dispersion for RNA-seq data with DESeq2	Love, M.I., Huber, W., Anders, S.	2014	Genome Biology 15(12),550	27785
	Open Access				

retreat*
withdr*
shrink*
los*
disappear*
ablat*
deglaci*
calving
melt*
sublim*
precipit*

Let's do the search queries individually to get an idea on the bottleneck concept

Search in Scopus: www.scopus.com

128,671 document results

TITLE-ABS-KEY (glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*")

Edit Save Set alert

Search within results...

Refine results

Limit to Exclude

Open Access

Year

Author name

Subject area

Publication stage

Document type

Source title

Keyword

Affiliation

Funding sponsor

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Show all abstracts Sort on: Cited by (highest)

All

RIS export

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Save to list

Print

Email

Save

Document title

Authors

Year

Source

Cited by

1

Global analyses of sea surface temperature, sea ice, and night marine air temperature since the late nineteenth century
Open Access

Rayner, N.A., Parker, D.E., Horton, E.B., (...), Kent, E.C., Kaplan, A.

2003

Journal of Geophysical Research: Atmospheres 108(14), pp. ACL 2-1 - ACL 2-29

7204

View abstract

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Related documents

2

Climate and atmospheric history of the past 420,000 years from the Vostok ice core, Antarctica
Open Access

Petit, J.R., Jouzel, J., Raynaud, D., (...), Saltzman, E., Stievenard, M.

1999

Nature 399(6735), pp. 429-436

4330

View abstract

Get it Lib4RI

View at Publisher

Related documents

3

Early proterozoic climates and plate motions inferred from major element chemistry of lutites

Nesbitt, H.W., Young, G.M.

1982

Nature 299(5885), pp. 715-717

4092

glaci*
"ice field*"
icefield*
"ice cap*"
"icecap*"
"ice mass*"

Search in Scopus: www.scopus.com

365,067 document results

TITLE-ABS-KEY (switzerland OR swiss)

Edit Save Set alert

Search within results...

Refine results

Limit to Exclude

Open Access

Year

Author name

Subject area

Publication stage

Document type

Source title

Keyword

Affiliation

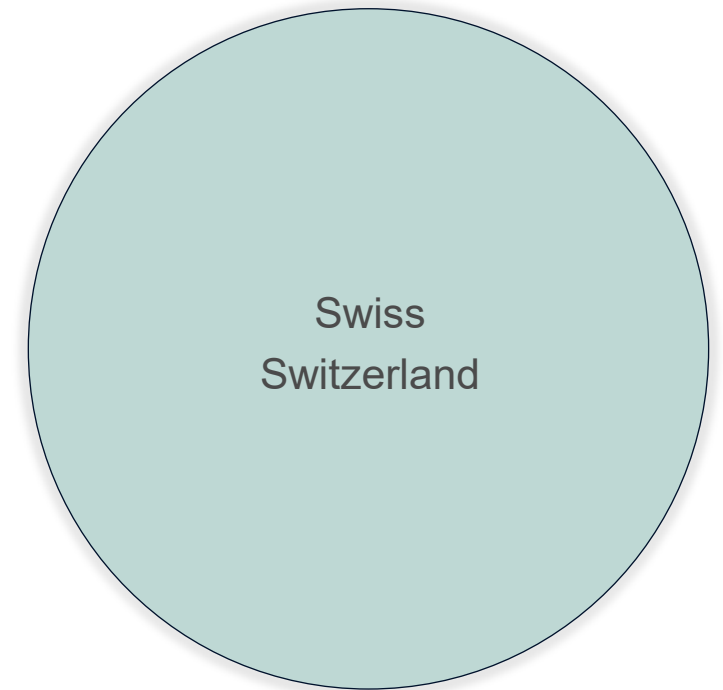
Funding sponsor

Documents Secondary documents Patents View Mendeley Data (295925)

Analyze search results Show all abstracts Sort on: Cited by (highest)

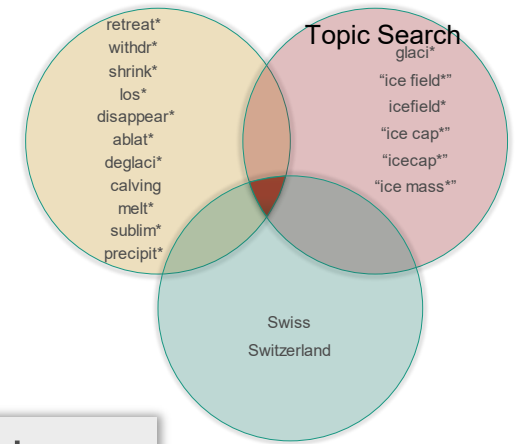
All RIS export Download View citation overview View cited by Save to list

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 1	SWISS-MODEL and the Swiss-PdbViewer: An environment for comparative protein modeling	Guex, N., Peitsch, M.C.	1997	Electrophoresis 18(15), pp. 2714-2723	9405
	View abstract	Get it Lib4RI	View at Publisher	Related documents	
<input type="checkbox"/> 2	Ecological responses to recent climate change	Walther, G.-R., Post, E., Convey, P., (...), Hoegh-Guldberg, O., Bairlein, F.	2002	Nature 416(6879), pp. 389-395	7018
	View abstract	Get it Lib4RI	View at Publisher	Related documents	
<input type="checkbox"/> 3	The SWISS-MODEL workspace: A web-based environment for protein structure homology modelling	Arnold, K., Bordoli, L., Kopp, J., Schwede, T.	2006	Bioinformatics 22(2), pp. 195-201	5953
	Open Access				



This seems to be a lot just on Switzerland. We'll see about this later.

Search in Scopus: www.scopus.com



Let's combine them via the search history

Quite a few hits

Maybe relate them to **climate change**?

Are they all relevant?

Search Sources SciVal ? ? ? ? ?

[Back to Homepage](#)

Combine queries

[Search tips ?](#)

1 X
AND
2 X
AND
3 X

Change all operators
Clear
Show results

Search History
Saved Searches

Combine queries

3	TITLE-ABS-KEY (switzerland OR swiss)	365,067 results	Set Alert	More
2	TITLE-ABS-KEY (glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*")	128,671 results	Set Alert	More
1	TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)	5,896,803 results	Set Alert	More

1,044 document results

(TITLE-ABS-KEY(retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)) AND (TITLE-ABS-KEY(glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*)) AND ((TITLE-ABS-KEY(switzerland OR swiss)))

Edit Save Set alert

Search in Scopus: www.scopus.com

558,436 document results

TITLE-ABS-KEY ("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*")

Edit Save Set alert

Search within results...

Refine results

Limit to Exclude

Open Access

Year

Author name

Subject area

Publication stage

Document type

Source title

Keyword

Affiliation

Funding sponsor

Documents Secondary documents Patents

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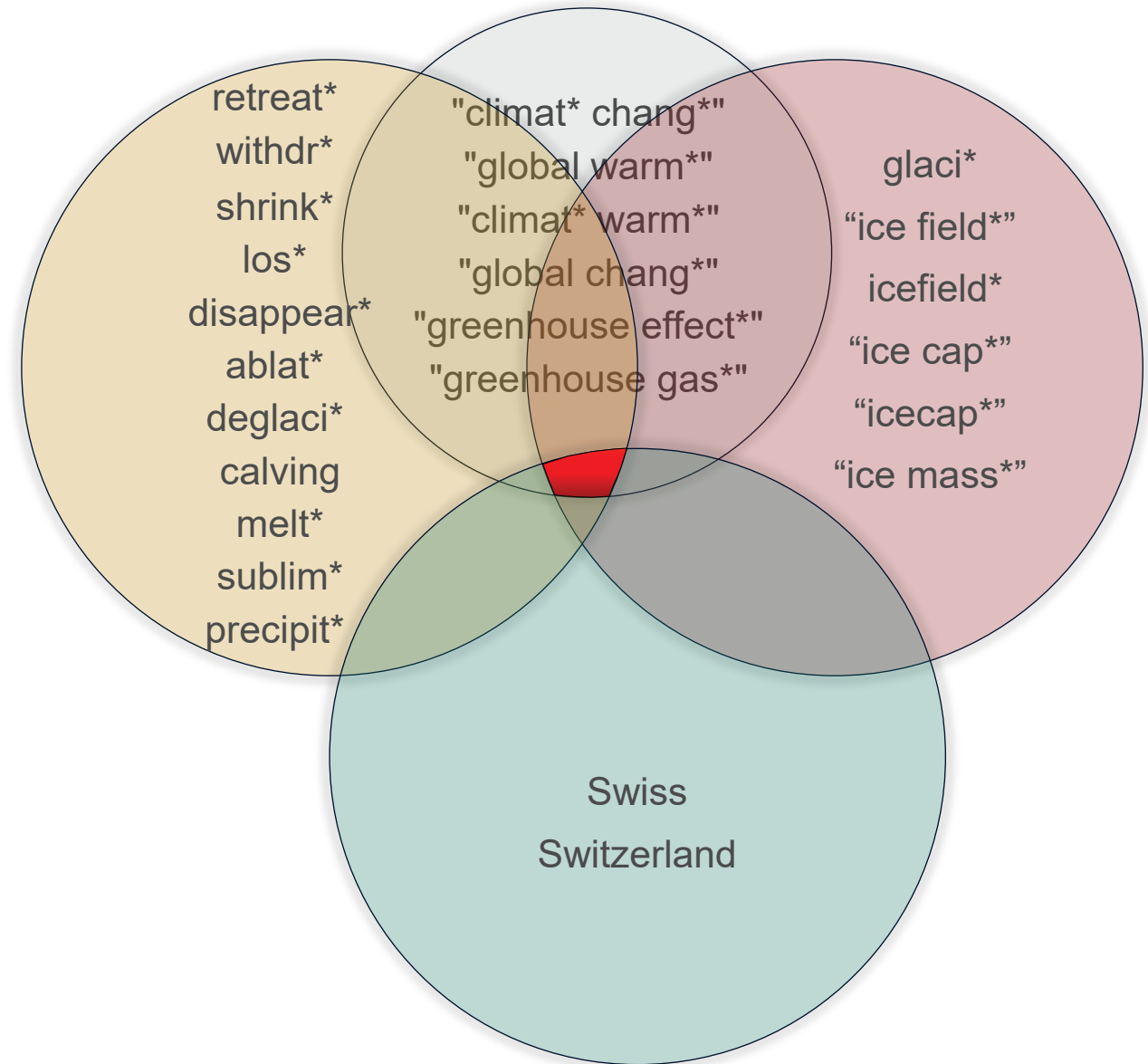
	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 1	An overview of CMIP5 and the experiment design Open Access	Taylor, K.E., Stouffer, R.J., Meehl, G.A.	2012	Bulletin of the American Meteorological Society 93(4), pp. 485-498	9848
View abstract View at Publisher Related documents					
<input type="checkbox"/> 2	Climate change 2013 the physical science basis: Working Group I contribution to the fifth assessment report of the intergovernmental panel on climate change (Book) Open Access	Stocker, T.F., Qin, D., Plattner, G.-K., (...), Bex, V., Midgley, P.M.	2013	Climate Change 2013 the Physical Science Basis: Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change 9781107057999, pp. 1-1535	7714
View abstract View at Publisher					

"climat* chang*"
 "global warm*"
 "climat* warm*"
 "global chang*"
 "greenhouse effect*"
 "greenhouse gas*"

Ok.

Search in Scopus: www.scopus.com

(retreat* OR withdr* OR ...)
AND
 (glaci* OR "ice field*" OR ...)
AND
 (Switzerland OR ...)
AND
 ("climat* chang*" OR ...)



Search in Scopus: www.scopus.com

Search History Saved Searches

Combine queries ➔

- 5 TITLE-ABS-KEY ("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse ... 558,436 results [Set Alert](#) [More](#)
[Show more](#) ▾
- 4 (TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* ... 1,044 results [Set Alert](#) [More](#)
[Show more](#) ▾
- 3 TITLE-ABS-KEY (switzerland OR swiss) 365,067 results [Set Alert](#) [More](#)
- 2 TITLE-ABS-KEY (glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*") 128,671 results [Set Alert](#) [More](#)
- 1 TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*) 5,896,803 results [Set Alert](#) [More](#)
[Show less](#) ▲

262 document results

(TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)) AND (TITLE-ABS-KEY (glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*")) AND (TITLE-ABS-KEY (switzerland OR swiss)) AND (TITLE-ABS-KEY ("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*"))

[Edit](#) [Save](#) [Set alert](#)

Search within results...

Refine results

[Limit to](#) [Exclude](#)

[Open Access](#) ▾

[Year](#) ▾

[Author name](#) ▾

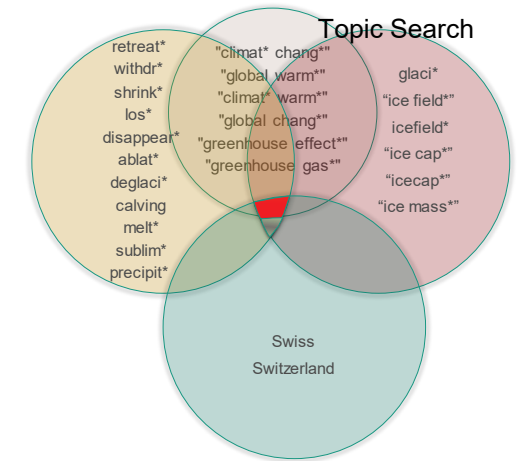
[Subject area](#) ▾

Documents Secondary documents Patents

Analyze search results

[Show all abstracts](#) Sort on: [Cited by \(highest\)](#) ▾

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 1	The Alps with little ice: Evidence for eight holocene phases of reduced glacier extent in the Central Swiss Alps	Hormes, A., Müller, B.U., Schlüchter, C.	2001	Holocene 11(3), pp. 255-265	189
	View abstract ▾	Get it Lib4RI	View at Publisher	Related documents	



Let's combine them all via the search history

Ok. This is something to work on.

Search in Scopus: www.scopus.com

Document type
Article • Gold Open Access • Green Open Access

Source type
Journal

ISSN
20734433

DOI
10.3390/atmos8080138

View more ▾

Atmosphere • Open Access • Volume 8, Issue 8 • 29 July 2017 • Article number 138

Perspectives on the future of ice nucleation research: Research needs and Unanswered questions identified from two international workshops

Coluzza, Ivan^a ✉ ; Creamean, Jessie^{b, c} ✉ ; Rossi, Michel J.^d ✉ ;
Wex, Heike^e ✉ ; Alpert, Peter Aaron^{f, g} ✉ ; Bianco, Valentino^a ✉ ;
Boose, Yvonne^h ✉ ; Dellago, Christoph^a ✉ ; Felgitsch, Lauraⁱ ✉ ;
Fröhlich-Nowoisky, Janine^j ✉ ; Herrmann, Hartmut^e ✉ ;
Jungblut, Swetlana^a ✉

Abstract

There has been increasing interest in ice nucleation research in the last decade. To identify important gaps in our knowledge of ice nucleation processes and their impacts, two international workshops on ice nucleation were held in Vienna, Austria in 2015 and 2016. Experts from these workshops identified the following research needs: (1) uncovering the molecular identity of active sites for ice nucleation; (2) the importance of modeling for the understanding of heterogeneous ice nucleation; (3) identifying and quantifying contributions of biological ice nuclei from natural and managed environments; (4) examining the role of aging in ice nuclei; (5) conducting targeted sampling campaigns in clouds; and (6) designing lab and field experiments to increase our understanding of the role of ice-nucleating particles in the atmosphere. Interdisciplinary teams of scientists should work together to establish and maintain a common, unified language for ice nucleation research. A number of commercial applications benefit from ice nucleation research, including the production of artificial snow, the freezing and preservation of water-containing food products, and the potential modulation of weather. Additional work is needed to increase our understanding of ice nucleation processes and potential impacts on precipitation, water availability, climate change, crop health, and feedback cycles. 2017 by the authors. Licensee MDPI, Basel, Switzerland.

Author keywords

Aging; Cloud glaciation; Crystal; Ice nucleation; IN; INM; INP; Nucleation sites; Precipitation; Water

Abstract

Author keywords

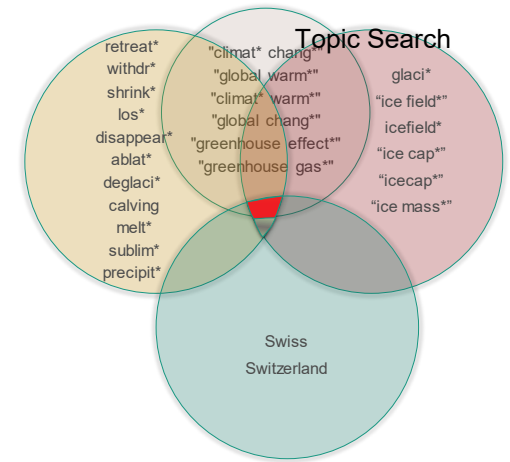
Indexed keywords

Sustainable Development Goals 2021

SciVal Topics

Metrics

Funding details



Let's see about relevance

Oops. This one is not about Swiss glaciers.

The publisher's copyright info in the abstract includes Switzerland

Search in Scopus: www.scopus.com

174 document results

(TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)) AND (TITLE-ABS-KEY (glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*")) AND (TITLE-ABS-KEY (switzerland OR swiss)) AND (TITLE-ABS-KEY ("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*")) AND (LIMIT-TO (EXACTKEYWORD, "Switzerland"))

Edit Save Set alert

Search within results...

Refine results

Limit to Exclude

Open Access

Year

Author name

Subject area

Publication stage

Document type

Source title

Keyword

Switzerland (174)

Climate Change (124)

Alps (72)

Documents Secondary documents Patents

Analyze search results

Show all abstracts Sort on: Cited by (highest)

All RIS export Download View citation overview View cited by Save to list

Document title Authors Year Source Cited by

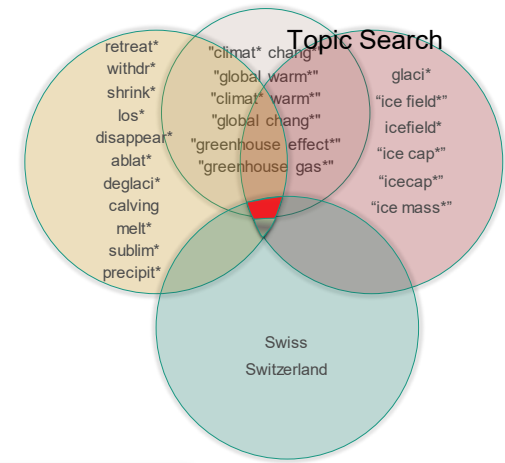
1 The Alps with little ice: Evidence for eight holocene phases of reduced glacier extent in the Central Swiss Alps Hormes, A., Müller, B.U., Schlüchter, C. 2001 Holocene 11(3), pp. 255-265 189

View abstract Get it Lib4RI View at Publisher Related documents

2 Quantification of biotic responses to rapid climatic changes around the Younger Dryas - A synthesis Ammann, B., Birks, H.J.B., Brooks, S.J., (...), Tobolski, K., Wick, L. 2000 Palaeogeography, Palaeoclimatology, Palaeoecology 159(3-4), pp. 313-347 187

View abstract Get it Lib4RI View at Publisher Related documents

3 Oxygen isotopes of lake marl at Gerzensee and Leysin (Switzerland), covering the Younger Dryas and two minor oscillations, and their correlation to the GRIP ice core Schwander, J., Eicher, U., Ammann, B. 2000 Palaeogeography, Palaeoclimatology, Palaeoecology 159(3-4), pp. 203-214 142



So, we could limit the search to the keyword Switzerland

... but this would likely miss quite a few

Search in Scopus: www.scopus.com

< Basic Search Advanced

Search tips ?

Enter query string

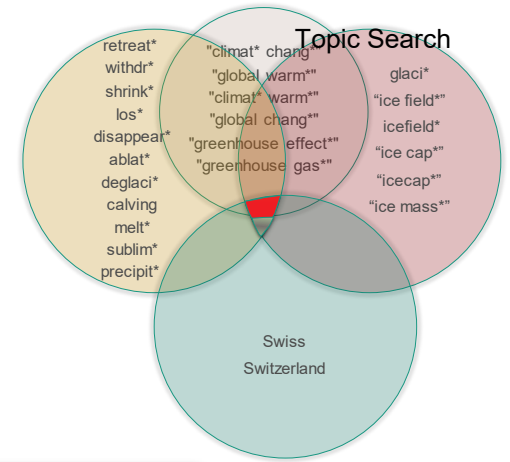
(TITLE-ABS-KEY(retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)) AND (TITLE-ABS-KEY(glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*")) AND (TITLE-ABS-KEY(switzerland OR swiss)) AND (TITLE-ABS-KEY("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*"))

< Basic Search Advanced

Search tips ?

Enter query string

(TITLE-ABS-KEY(retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)) AND (TITLE-ABS-KEY(glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*")) AND (TITLE(switzerland OR swiss) OR KEY(switzerland OR swiss) OR ABS(swiss)) AND (TITLE-ABS-KEY("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*"))



Or, we could defer from searching for Switzerland just in the abstract

... and search individually the TITLE, KEY and ABS fields but leave out Switzerland for the ABS search

Search in Scopus: www.scopus.com

236 document results

TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*) AND TITLE-ABS-KEY (glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*" OR "ice mass*" AND (TITLE (switzerland OR swiss) OR KEY (switzerland OR swiss) OR ABS (swiss)) AND TITLE-ABS-KEY ("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*")

Edit Save Set alert

Search within results...

Refine results

Limit to Exclude

Open Access

Year

Author name

Subject area

Publication stage

Document type

Source title

Keyword



Switzerland (174)

Climate Change (160)

Documents Secondary documents Patents

Analyze search results

Show all abstracts Sort on: Cited by (highest)

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 1	The Alps with little ice: Evidence for eight holocene phases of reduced glacier extent in the Central Swiss Alps	Hormes, A., Mülller, B.U., Schlüchter, C.	2001	Holocene 11(3), pp. 255-265	189
	View abstract  View at Publisher Related documents				
<input type="checkbox"/> 2	Quantification of biotic responses to rapid climatic changes around the Younger Dryas - A synthesis	Ammann, B., Birks, H.J.B., Brooks, S.J., (...), Tobolski, K., Wick, L.	2000	Palaeogeography, Palaeoclimatology, Palaeoecology 159(3-4), pp. 313-347	187
	View abstract  View at Publisher Related documents				
<input type="checkbox"/> 3	Assessment of climate-change impacts on alpine discharge regimes with climate model uncertainty	Horton, P., Schaeffli, B., Mezghani, A., Hingray, B., Musy, A.	2006	Hydrological Processes 20(10), pp. 2091-2109	175



... there are of course some missing that genuinely have Switzerland in the abstract

... not so much difference..., so you might consider screening the total 262 hits manually for relevance

Search in Scopus: www.scopus.com



Search within results...

Refine results

Limit to

Exclude

Open Access

Year

Author name

Subject area

Publication stage

Document type

☐ Article (216) >
 ☐ Conference Paper (17) >
 ☐ Review (13) >
 ☐ Book Chapter (11) >
 ☐ Short Survey (2) >
 ☐ Data Paper (1) >
 ☐ Editorial (1) >
 ☐ Letter (1) >

Documents Secondary documents Patents

Analyze search results

Show all abstracts Sort by: Cited by (highest)

☐ All ☐ RIS export Download View citation overview View cited by Save to

	Document title	Authors	Year	Source	
<input type="checkbox"/> 1	The Alps with little ice: Evidence for eight holocene phases of reduced glacier extent in the Central Swiss Alps	Hormes, A., Müller, B.U., Schlüchter, C.	2001	Holocene 11(3), pp. 1-10	187
View abstract View at Publisher Related documents					
<input type="checkbox"/> 2	Quantification of biotic responses to rapid climatic changes around the Younger Dryas - A synthesis	Ammann, B., Birks, H.J.B., Brooks, S.J., (...), Tobolski, K., Wick, L.	2000	Palaeogeography, Palaeoclimatology, Palaeoecology 159(3-4), pp. 313-347	187
View abstract View at Publisher Related documents					
<input type="checkbox"/> 3	Assessment of climate-change impacts on alpine discharge regimes with climate model uncertainty	Horton, P., Schaeffli, B., Mezghani, A., Hingray, B., Musy, A.	2006	Hydrological Processes 20(10), pp. 2091-2109	175
View abstract View at Publisher Related documents					
<input type="checkbox"/> 4	Modeling glacier thickness distribution and bed topography over entire mountain ranges with glaciology	Linsbauer, A., Paul, F., Haeblerli, W.	2012	Journal of Geophysical Research: Earth Surface 117(3), 502007	171

Date (newest)

Date (oldest)

Cited by (highest)

Cited by (lowest)

Relevance

First Author (A-Z)

First Author (Z-A)

Source Title (A-Z)

... sort

... refine / filter

... Export to reference management software

Search in Scopus

www.scopus.com

... provided you have a (free) account with Scopus you can save your search or create an alert

Set search alert

(TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR ...
[Show more](#)

Name of alert *

glacial retreat

Email address *

info@lib4ri.ch

Separate email addresses with a semicolon, comma, or space

Frequency

Every week

on

Thursday

Every day

Every week


Every month

Cancel



Set search alert


Search History Saved Searches

Combine queries ↗



☐ 6  (TITLE-ABS-KEY (retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)) AND (TITLE-ABS-KEY (glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*")) AND (TITLE-ABS-KEY (switzerland OR swiss)) AND (TITLE-ABS-KEY ("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*"))
[Show less](#) ^


262 results

 Set Alert  More

☐ 5  TITLE-ABS-KEY ("climat* chang*" OR "global warm*" OR "climat* warm*" OR "global chang*" OR "greenhouse effect*" OR "greenhouse gas*")

558,436 results

 Set Alert  More

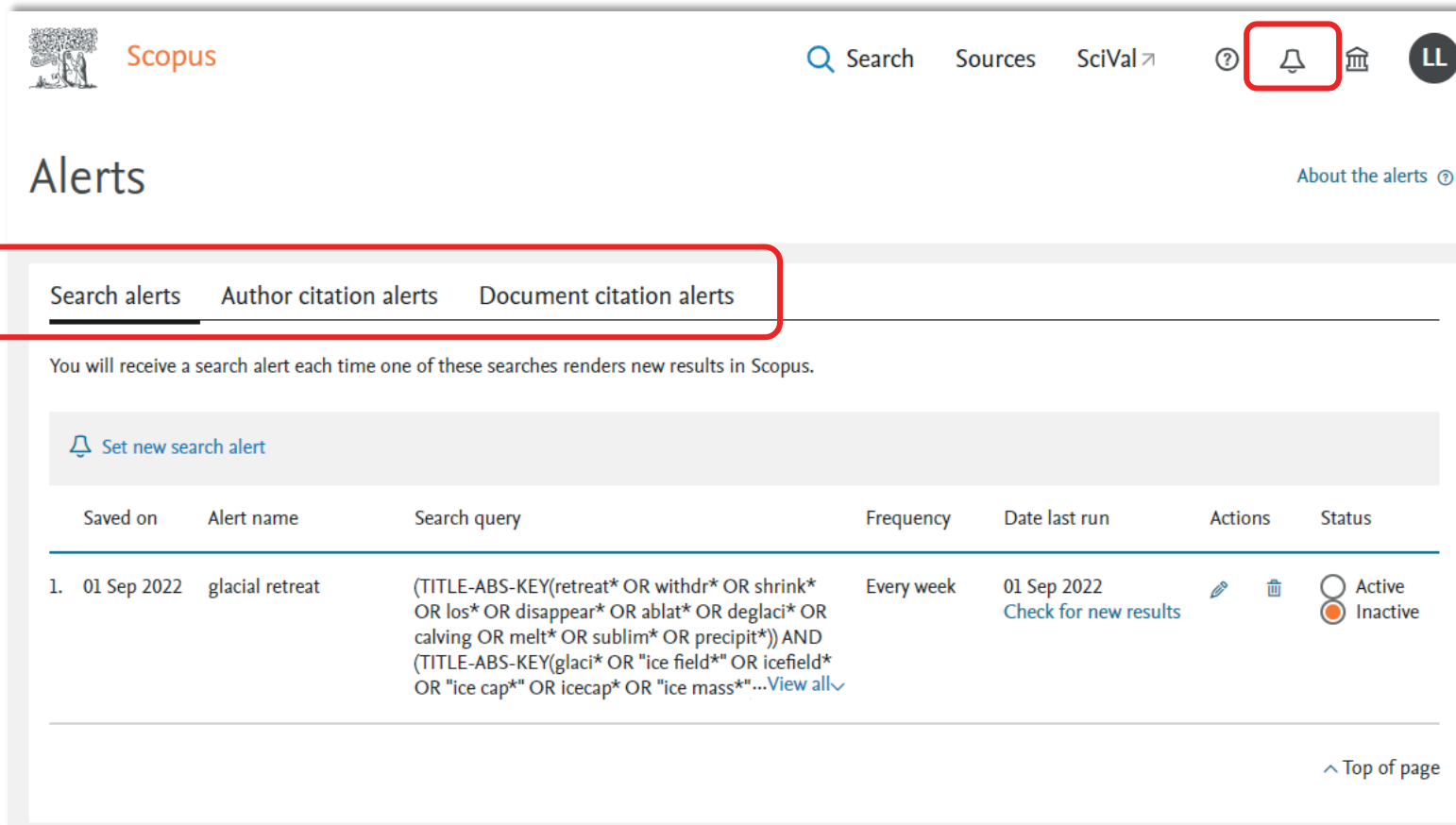
 Save this search

 Delete

Search in Scopus

www.scopus.com

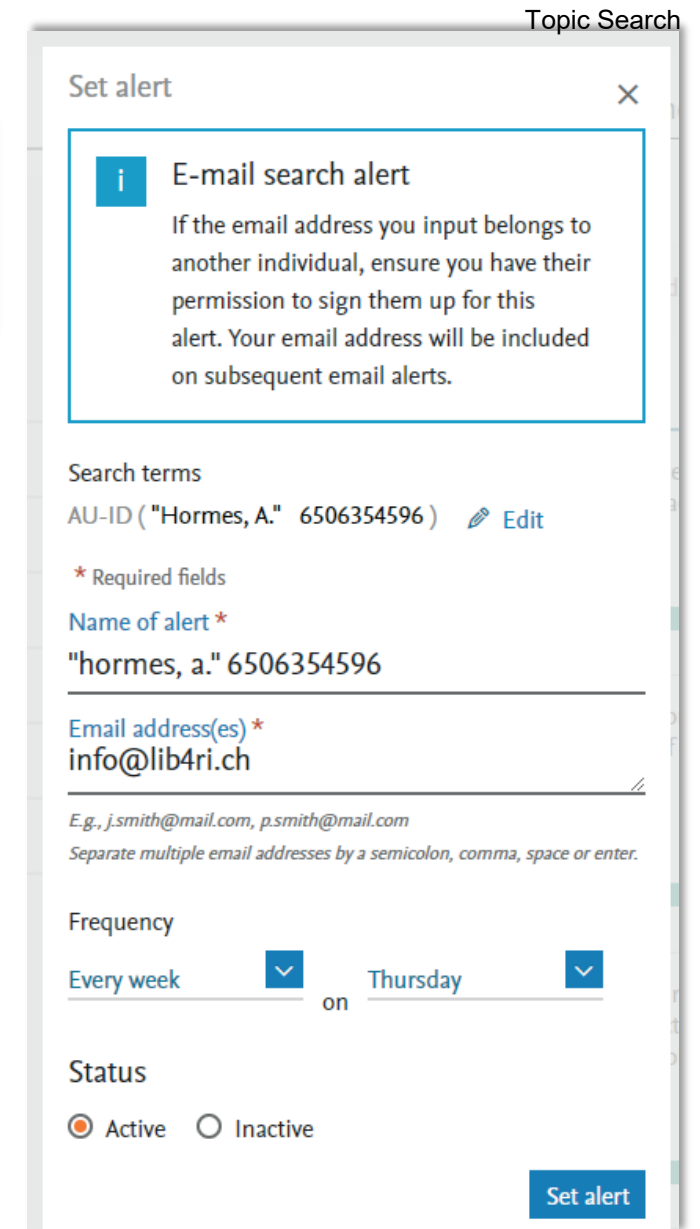
...this could also be a citation alert for an author or a paper



The screenshot shows the Scopus Alerts page. At the top, there's a navigation bar with 'Search', 'Sources', 'SciVal', and a bell icon (alerts) which is highlighted with a red box. Below the navigation bar, the 'Alerts' section has three tabs: 'Search alerts', 'Author citation alerts', and 'Document citation alerts'. The 'Search alerts' tab is selected and highlighted with a red box. Below the tabs, there's a message: 'You will receive a search alert each time one of these searches renders new results in Scopus.' Below this message, there's a button 'Set new search alert'. Below the button, there's a table with columns: 'Saved on', 'Alert name', 'Search query', 'Frequency', 'Date last run', 'Actions', and 'Status'.

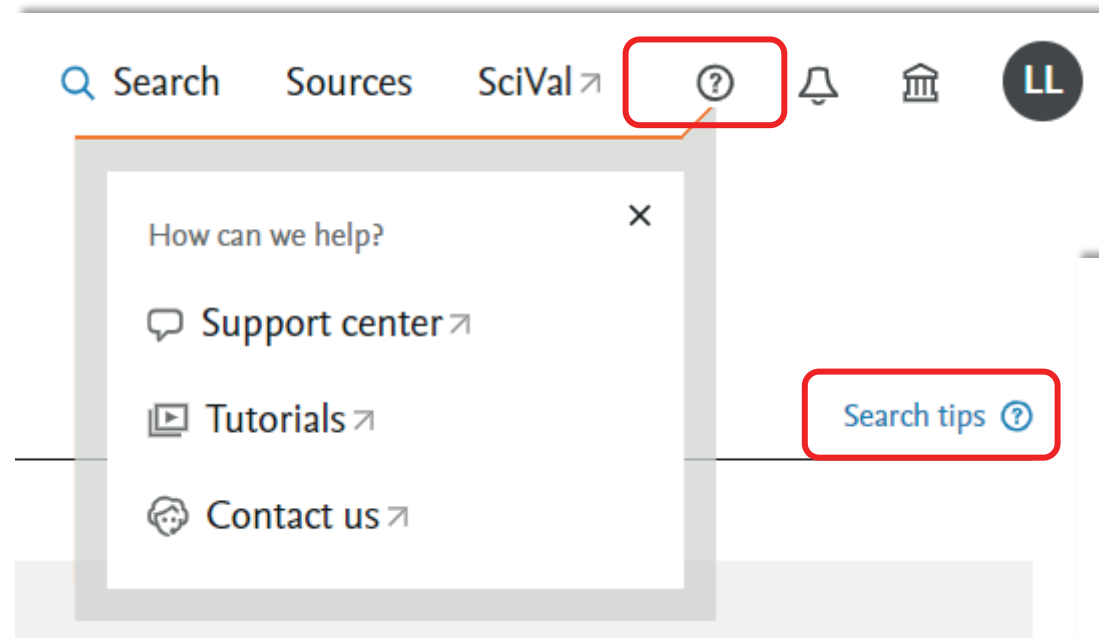
Saved on	Alert name	Search query	Frequency	Date last run	Actions	Status
1. 01 Sep 2022	glacial retreat	(TITLE-ABS-KEY(retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit*)) AND (TITLE-ABS-KEY(glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*"... View all)	Every week	01 Sep 2022 Check for new results	Edit Delete	<input checked="" type="radio"/> Active <input type="radio"/> Inactive

At the bottom right of the table, there's a link '[Top of page](#)'.



The screenshot shows the 'Set alert' dialog box. At the top, there's a close button (X). Below the close button, there's a section 'E-mail search alert' with an information icon (i) and a text box containing: 'If the email address you input belongs to another individual, ensure you have their permission to sign them up for this alert. Your email address will be included on subsequent email alerts.' Below this section, there's a 'Search terms' section with a text box containing: 'AU-ID ("Hormes, A." 6506354596)' and an 'Edit' button. Below the 'Search terms' section, there's a 'Name of alert' section with a text box containing: '"hormes, a." 6506354596'. Below the 'Name of alert' section, there's an 'Email address(es)' section with a text box containing: 'info@lib4ri.ch'. Below the 'Email address(es)' section, there's a 'Frequency' section with a dropdown menu set to 'Every week' and a dropdown menu set to 'Thursday'. Below the 'Frequency' section, there's a 'Status' section with two radio buttons: 'Active' (selected) and 'Inactive'. At the bottom right, there's a 'Set alert' button.

Search in Scopus: www.scopus.com



...online help via the menu ? or the search tips ?

How do I search in Scopus?

Last updated on June 23, 2022

You can search in Scopus by document, author, or by affiliation:

- Searching for a document ▼
- Searching for an author ▼
- Searching for an affiliation ▼
- Combining searches ▼

Also see “Scopus Blog”: <https://blog.scopus.com>
and Scopus LibGuide: <https://elsevier.libguides.com/Scopus/home>

Search in Web of Science (Core Collection)

www.webofscience.com

The screenshot shows the Web of Science search interface. At the top, there's a header with 'Web of Science™' and a 'Search' button. On the right, there are 'Sign In' and 'Register' buttons. Below the header, there's a navigation bar with 'DOCUMENTS' and 'RESEARCHERS' tabs. The 'DOCUMENTS' tab is active. In the center, there's a search bar with the text 'Search in: Web of Science Core Collection ^ Editions: All v'. A dropdown menu is open below the search bar, listing various databases. The 'Web of Science Core Collection' is highlighted in purple. To the right of the dropdown, there's a section titled 'Web of Science Core Collection (1900-present)' with a description and a list of features. At the bottom right, it says 'Data updated 2022-08-29'.

Web of Science™ Search Sign In Register

DOCUMENTS RESEARCHERS

Search in: **Web of Science Core Collection** ^ Editions: All v

All Databases

Web of Science Core Collection

BIOSIS Citation Index

BIOSIS Previews

Current Contents Connect

CABI: CAB Abstracts®

Data Citation Index

Derwent Innovations Index

Inspec®

KCI-Korean Journal Database

Web of Science Core Collection (1900-present)

Search the world's leading scholarly journals, books, and proceedings in the sciences, social sciences, and arts and humanities and navigate the full citation network.

- All cited references for all publications are fully indexed and searchable.
- Search across all authors and all author affiliations.
- Track citation activity with Citation Alerts.
- See citation activity and trends graphically with Citation Report.
- Use Analyze Results to identify trends and publication patterns.

Data updated 2022-08-29

... WoS comprises a few databases; the equivalent to Scopus is the “WoS Core Collection”

Search in Web of Science (Core Collection):

www.webofscience.com

DOCUMENTS
RESEARCHERS

Search in: Web of Science Core Collection ▾ Editions: All ▾

DOCUMENTS
CITED REFERENCES
STRUCTURE

Topic ▾

Example: oil spill* mediterranean
retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OI ✕

⊖ And ▾ Topic ▾

Example: oil spill* mediterranean
glaci* OR "ice field*" OR icefield* OR "ice cap*" OR "icecap*" OR "i ✕

⊖ And ▾ Topic ▾

Example: oil spill* mediterranean
Swiss OR Switzerland ✕

⊖ And ▾ Topic ▾

Example: oil spill* mediterranean
"climat* chang*" OR "global warm*" OR "climat* warm*" OR "glob ✕

+ Add row + Add date range

Advanced Search

✕ Clear Search

... Topic searches can be performed in a analogous way. "Topic" includes the same fields "Title", "Abstract" and "Keywords"

Search in Web of Science (Core Collection)

www.webofscience.com

369 results from Web of Science Core Collection for:

retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR ...

Analyze Results Citation Report **Create Alert**

Copy query link

Publications You may also like...

Refine results

Search within results...

Filter by Marked List

Quick Filters

- ☐ Highly Cited Papers 3
- ☐ Review Article 12
- ☐ Early Access 3
- ☐ Open Access 208
- ☐ Associated Data 13
- ☐ Enriched Cited References 19

Authors

Publication Years

0/369 Add To Marked List **Export**

1 of 8

Sort by: Citations: highest first

- Relevance
- Recently added
- New** Citation class
- Date: newest first
- Date: oldest first
- Citations: highest first**
- Citations: lowest first
- Usage (all time): most first
- Usage (last 180 days): most first
- Conference title: A to Z
- Conference title: Z to A
- First author name: A to Z
- First author name: Z to A
- Publication title: A to Z
- Publication title: Z to A

1 21st century climate change in the European Alps
Gobiet, A; Kotlarski, S; (...); Stoffel, M
Sep 15 2014 | SCIENCE OF THE TOTAL ENVIRONMENT 493, pp. 1-10
Reliable estimates of future climate change in the Alps are essential for assessing the risks to the European society. At the same time, the complex Alpine environment poses considerable challenges to climate models, which trans ... S
Get it Lib4RI Free Full Text From Publisher

2 Glacier and lake-level variations in west-central Europe over the last 3500 years
Holzhauser, H; Magny, M and Zumbuhl, HJ
Nov 2005 | HOLOCENE 15 (6), pp.789-801
On the basis of glacier and lake-level records, this paper attempts to reconstruct the last 3500 years, a comparison between high-resolution palaeohydrological and palaeoglaciological data in west-central Europe over the ... Show more

... Most refine/filter and sort options are also available

... Export to reference management software as well

... Saves and alerts can be set, too

< BACK TO BASIC SEARCHES

Advanced Search Query Builder

DOCUMENTS
RESEARCHERS

Search in: **Web of Science Core Collection** Editions: **All**

Add terms to the query preview

All Fields
Example: liver disease india singh
And
Add to query

More options ▲

Query Preview

```
( TS=( retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit* ) ) AND ( TS=( glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*" ) ) AND ( TS=( switzerland OR swiss ) ) AND ( TS=( "climat* chang*" OR "global warm*" OR "climat* warm*" OR "greenhouse effect*" OR "greenhouse gas*" ) ) )
```

+ Add date range Clear Search

Booleans : AND, OR, NOT Examples

Field Tags :

- TS=Topic
- TI=Title
- AB=Abstract
- AU=[Author]
- AI=Author Identifiers
- AK=Author Keywords
- GP=[Group Author]
- ED=Editor
- KP=Keyword Plus®
- SO=[Publication Titles]
- DO=DOI
- PY=Year Published
- CF=Conference
- AD=Address
- OG=[Affiliation]
- OO=Organization
- SG=Suborganization
- SA=Street Address
- CI=City
- PS=Province/State
- CU=Country/Region
- ZIP=Zip/Postal Code
- FO=Funding Agency
- FG=Grant Number
- FD=Funding Details
- FT=Funding Text
- SU=Research Area
- WC=Web of Science Categories
- IS= ISSN/ISBN
- UT=Accession Number
- PMID=PubMed ID
- DOP=Publication Date
- PUBL=Publisher
- ALL=All Fields
- FPY=Final publication year

Session Queries

Build a new query based on your searches in this session.

0/4 Combine Sets Export Clear History

4

```
( TS=( retreat* OR withdr* OR shrink* OR los* OR disappear* OR ablat* OR deglaci* OR calving OR melt* OR sublim* OR precipit* ) ) AND ( TS=( glaci* OR "ice field*" OR icefield* OR "ice cap*" OR icecap* OR "ice mass*" ) ) AND ( TS=( switzerland OR swiss ) ) AND ( TS=( "climat* chang*" OR "global warm*" OR "climat* warm*" OR "greenhouse effect*" OR "greenhouse gas*" ) ) )
```

369 Add to query

... WoS also has an advanced search builder

... and a search history

Halving of Swiss glacier volume since 1931 observed from terrestrial image photogrammetry

By: Mannerfelt, ES (Mannerfelt, Erik Schytt) ^{[1], [2]}; Dehecq, A (Dehecq, Amaury) ^{[1], [2], [3]}; Hugonnet, R (Hugonnet, Romain) ^{[1], [2], [4]}; Hodel, E (Hodel, Elias) ^{[1], [2]}; Huss, M (Huss, Matthias) ^{[1], [2], [5]}; Bauder, A (Bauder, Andreas) ^{[1], [2]}; Farinotti, D (Farinotti, Daniel) ^{[1], [2]}

[View Web of Science ResearcherID and ORCID](#) (provided by Clarivate)

CRYOSPHERE

Volume: 16 Issue: 8 Page: 3249-3268

DOI: 10.5194/tc-16-3249-2022

Published: AUG 22 2022

Indexed: 2022-08-29

Document Type: Article

Abstract

The monitoring of glaciers in Switzerland has a long tradition, yet glacier changes during the 20th century are only known through sparse observations. Here, we estimate a halving of Swiss glacier volumes between 1931 and 2016 by mapping historical glacier elevation changes at high resolution. Our analysis relies on a terrestrial image archive known as TerrA, which covers about 86 % of the Swiss glacierised area with 21 703 images acquired during the period 1916-1947 (with a median date of 1931). We developed a semi-automated workflow to generate digital elevation models (DEMs) from these images, resulting in a 45 % total glacier coverage. Using the geodetic method, we estimate a Swisswide glacier mass balance of -0.52 ± 0.09 m w.e. a⁻¹ between 1931 and 2016. This equates to a 51.5 ± 8.0 % loss in glacier volume. We find that low-elevation, high-debriscover, and gently sloping glacier termini are conducive to particularly high mass losses. In addition to these glacier-specific, quasi-centennial elevation changes, we present a new inventory of glacier outlines with known timestamps and complete attributes from around 1931. The fragmented spatial coverage and temporal heterogeneity of the TerrA archive are the largest sources of uncertainty in our glacier-specific estimates, reaching up to 0.50 m w.e. a⁻¹. We suggest that the high-resolution mapping of historical surface elevations could also unlock great potential for research fields other than glaciology.

Keywords

Keywords Plus: SEA-LEVEL RISE; MULTITEMPORAL AERIAL IMAGES; MASS-BALANCE; SWEDEN 1959-99; ALPS; STORGLACIAREN; SENSITIVITY; REANALYSIS; ELEVATION; AREA

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... unfortunately, due to the introduction of the 4th concept (“climate change”) a very recent relevant publication “got lost” as none of the synonyms has been mentioned in the topic fields (just in the full text).

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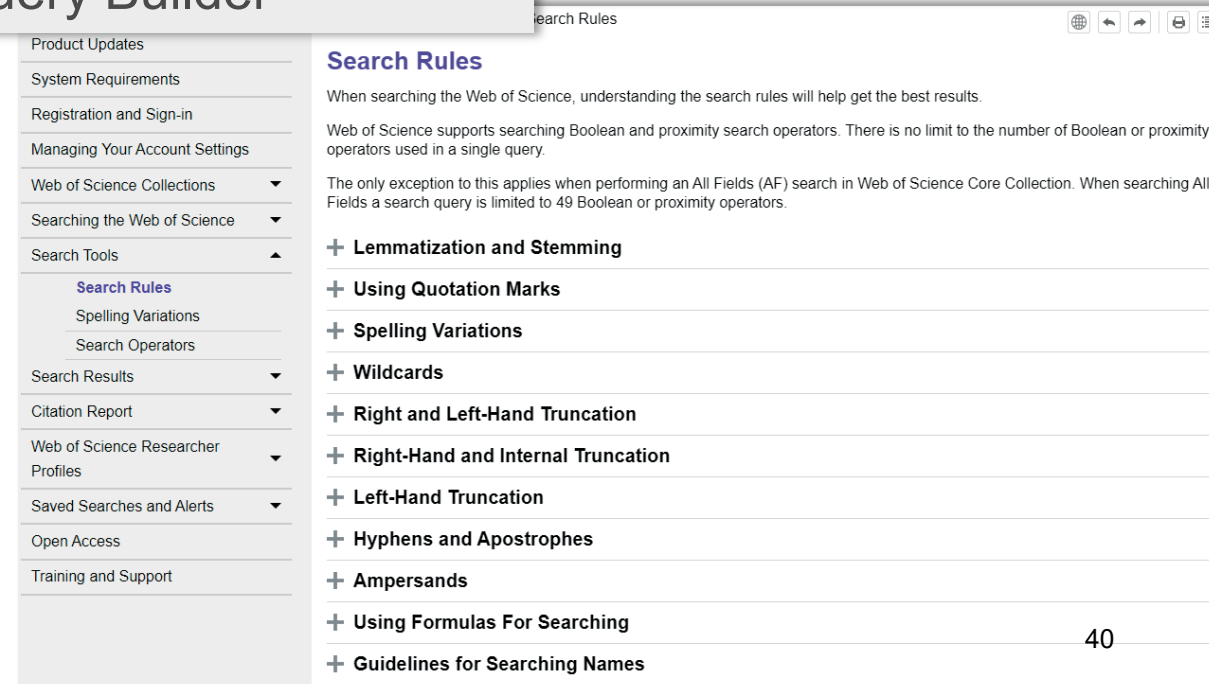
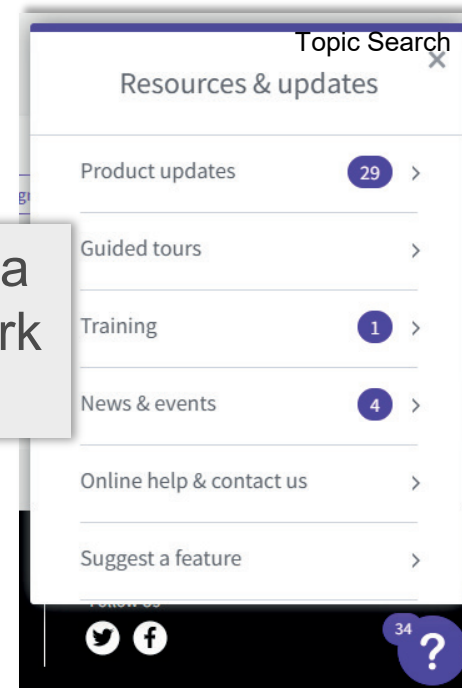
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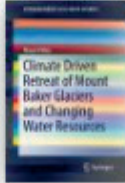
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Climate Driven Retreat of Mount Baker Glaciers and Changing Water Resources

Pelto, Mauri

Cham: Springer International Publishing AG


2015

“ ... This natural tempering of drought conditions will be reduced as they retreat. Mount Baker, a volcano in the Cascades of Washington, is currently host to 12 principal glaciers with an area of 36.8 km2... ”

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2




MULTIPLE VERSIONS

World heritage in Switzerland

Iten, Ernst 1945- (author); Viviani, Madeleine (editor); Schweiz Nationale Schweizerische UNESCO-Kommission (issuing body)

13 versions found. [See all versions >](#)

3



BOOK

Arctic Ice Shelves and Ice Islands

Copland, Luke ; Mueller, Derek

Dordrecht: Springer Netherlands

2017

☐
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☐
☐

... Filters

... export (rather limited)

... swisscovery account recomm.

43

Evaluation of the results

Too few results

- Search for possible sources of error (Typing errors, wildcards, quotes...)
- View the relevant hits → restart the search with other synonyms
- Widen the subject, lessen the number of concepts
- Verify the search instruments

Too many results

- Narrow the search by: number of citations, publication year, reviews
- Narrow the subject, increase the number of concepts (cautiously)
- Exclude non relevant hits (NOT, Filter)
- Verify the search instruments

Other bibliometric Databases

- Web of Science (some special, some multidisciplinary)
- OpenAlex (multidisciplinary)
- Dimensions (multidisciplinary)
- Central Discovery Index (multidisciplinary)
- Cabi (Biology, Medicine, Food Science)
- Pubmed (Biology, Medicine)
- Scifinder-n (Chemistry)
- Google Scholar

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Topic Search

Scholar

About 40'400 results (0.19 sec)

A few words to Google Scholar

×

Advanced search

Find articles

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with **at least one** of the words

without the words

where my words occur

Return articles **authored** by

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☒ anywhere in the article
☐ in the title of the article

e.g., "PJ Hayes" or McCarthy

e.g., J Biol Chem or Nature

—

e.g., 1996

Operators (list not comprehensive)

- +, AND** : AND operator (space works as well)
- " "** : phrase search ("climate change")
- |, OR** : OR operator
- : NOT operator
- Intext** : text search (intext:glaciers)
- intitle** : title search (intitle:glaciers)
- allintitle** : title search (allintitle:glaciers retreat swiss)
- author** : author search (glaciers author:Hormes)
- source** : Quelle ("glacial retreat" source:education)
- *** : replaces a whole word ("swiss * retreat")
- AROUND(#)** : proximity (swiss AROUND(5) glaciers)
- ()** : brackets don't exist; i.e. Boolean combinations are rather limited

A few words to Google Scholar

Pros

- Easy, quick and free
- Automatic word-stemming, lemmatisation, synonyms
- Finds articles, theses, books, abstracts from academic publishers, professional societies, online repositories, universities and other web sites
- Source for “grey” literature, e.g. governmental and institutional reports

Cons

- Typically many hits (even from within full texts)
- Few filters, poor export facilities (even when logged into Google)
- Reproducible systematic topic searches are virtually impossible due to
 - Synonyms, word-stemming, lemmatisation are a black box
 - restricted use of Booleans (no brackets)
 - bubble Effect (search results may depend on user/IP address)

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Thank you!

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