

Reading and Reviewing

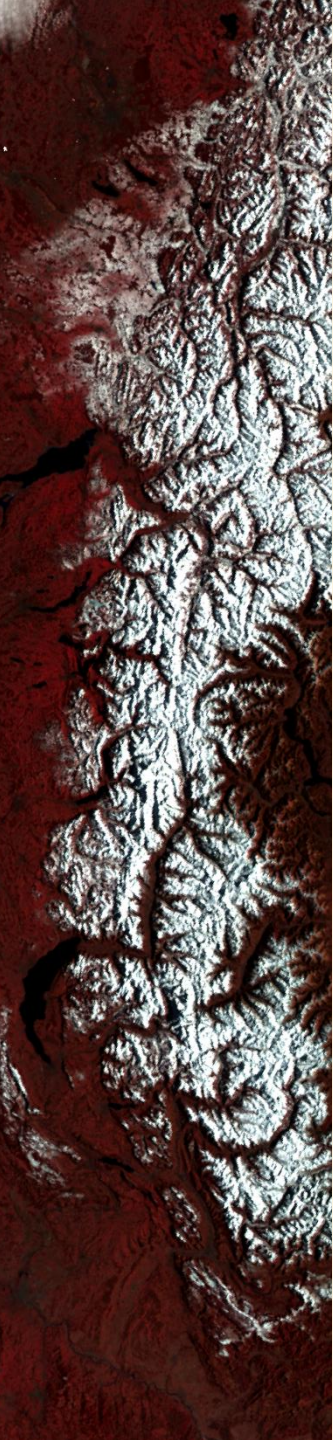
Practice: Scientific Methods and Writing

[A1+A2]: Feedback

- _ Feedback on A1: next week, 6 December
- _ Feedback on A2: on 20 December (same day as peer-review)
- _ Questions?



reading strategies



What reading strategies do you use in the context of academic texts?

Discuss

survey: reading strategies

- _ 5 No, 4 unsure; 4 yes; 4 comments
- _ PQ4R: Preview, Question, Read, Reflect, Recite, and Review
- _ Highlight important points
 - _ different colours (technical terms, definitions, arguments, evidence for a hypothesis)
- _ Write down important concepts for further research
- _ AI tools to clarify structure
- _ Read only specific things
 - _ Read abstract and conclusion first (maybe also the discussion)
 - _ Maybe read the introduction and discussion
 - _ Only then decide whether to read the rest of the paper...
 - _ Read summary/abstract and headings first
 - _ Understand main topics and structure

general note-taking

- _ **surprise:** reading “sticks” when you **write**
- **processing information** and **reframing** it in your own words is key to learning
 - _ only highlighting or copying verbatim (i.e. word for word) leads to low retention
 - _ learning is more than recognising and memorising
- the process of handwriting notes tends to require processing
 - _ Slower than digital typing
 - _ Tied to more **robust recall** and **retention**
 - _ Digital note-taking tends towards more shallow processing
- generative note-taking “better” than non-generative (i.e. verbatim)
 - _ **summarizing, paraphrasing, concept mapping**
 - _ Do a strategic quick read before taking any notes to get an overview...
- ...it follows: more is not necessarily better!
 - _ Usually, the more **specific and selective**, the better

a reading log

- _ keep track of everything you read...
 - _ for a course
 - _ in the scope of a project or paper you are writing
 - _ on a specific topic
 - _
- _ Helps **trigger memories** of what you have already read
 - _ Supports the writing process for generating ideas
 - _ Supplies a quick overview
- _ Many **citation managers** are especially great for this!
 - _ Some also allow integrating notes in various ways...
 - _ Bonus: ready to be exported in most bibliographic formats

interacting with a text

_ highlighting and underlining

- _ different colours or symbols – up to you
- _ useful if skimming a text later, but still relatively shallow

_ Reading is a process -- take notes (in the margins)

- _ generative notes!
- _ make explicit the connections you make while reading
- _ write any questions that arise
- _ focus on how concepts fit together
- _ summarise evidence and reasoning together

_ Draw your own figures, or modify and/or annotate existing figures

note-taking strategies

- _ These are very individual, but here are a few ideas...
- _ Write a **single-paragraph summary** of the text relevant to the reason you read it (or may reference it in the future)
 - _ If working with paper, put this directly somewhere on the document
 - _ ...or use whatever digital tool(s) you have
- _ Generate your own **key words** for a text for reference
- _ Create paper or digital “note cards” of **relevant evidence**
 - _ Keep your own paraphrasing, direct quotes and your comments/ideas separate
 - _ Helps avoid unintentional plagiarism!
 - _ Assign a keyword or category to the piece of evidence
 - _ Be sure you properly cite the source so that you can find it again 😊
 - _ Including page numbers helps
 - _ Collect these for when it comes to building an argument for a paper
- _ You can structure evidence using a **mind-map**
 - _ research topic in the middle

Extended bibliographies

- _ Essentially a literature review
 - _ i.e. a reading log on a specific topic + a summarizing paragraph
- _ tool for collaboration
 - _ what you have read and why it might be worth reading for others
- _ also great if you work on something, leave it awhile, and come back

the reverse outline [A3!]

- _ a.k.a. a topic-sentence outline
- _ Turn a paper back into an outline
- _ can help **distill main ideas**
- _ **1:** write the **topic sentence** of each paragraph
 - _ In the case of conclusion/intro ¶s, use the thesis or closing statement
 - _ If a paragraph doesn't have one (yet?), write one!
- _ **2:** write down **how** the paragraph topic advances the overall argument
- _ As a reading strategy:
 - _ paraphrase key topic sentences and how they advance the argument

Use your notes!

- _ While writing notes helps with memory, the best notes are those you read again and again
 - _ Try and figure out what kind of notes are **most useful for you**
- _ Review, revise, expand and/or integrate your notes over time
 - _ This might also be considered **part of the writing process...**

One digital example: zotero

The screenshot displays the Zotero application window. The title bar reads "Digital earth: yesterday, today, and tomorrow - Annoni et al. - 2023 - Zotero". The menu bar includes "File", "Edit", "View", "Go", "Tools", and "Help". The toolbar shows "My Library" and "Digital earth: yesterday, tod...". The left sidebar contains a "Search Annotations" field and a button that says "Create an annotation to see it in the sidebar". The main pane shows the cover of the "International Journal of Digital Earth" and the article title "Digital earth: yesterday, today, and tomorrow" by Alessandro Annoni, Stefano Nativi, Arzu Çöltekin, Cheryl Desha, Eugene Eremchenko, Caroline M. Gevaert, Gregory Giuliani, Min Chen, Luis Perez-Mora, Joseph Strobl & Stephanie Tumamos. The article text includes a citation and a link to the article. The bottom right corner shows "Related: [click here]" and "Tags: [click here]".

Annotations

Create an annotation to see it in the sidebar

International Journal of Digital Earth

Digital earth: yesterday, today, and tomorrow

Alessandro Annoni, Stefano Nativi, Arzu Çöltekin, Cheryl Desha, Eugene Eremchenko, Caroline M. Gevaert, Gregory Giuliani, Min Chen, Luis Perez-Mora, Joseph Strobl & Stephanie Tumamos

To cite this article: Alessandro Annoni, Stefano Nativi, Arzu Çöltekin, Cheryl Desha, Eugene Eremchenko, Caroline M. Gevaert, Gregory Giuliani, Min Chen, Luis Perez-Mora, Joseph Strobl & Stephanie Tumamos (2023) Digital earth: yesterday, today, and tomorrow, International Journal of Digital Earth, 16:1, 1022-1072, DOI: 10.1080/17538947.2023.2187467

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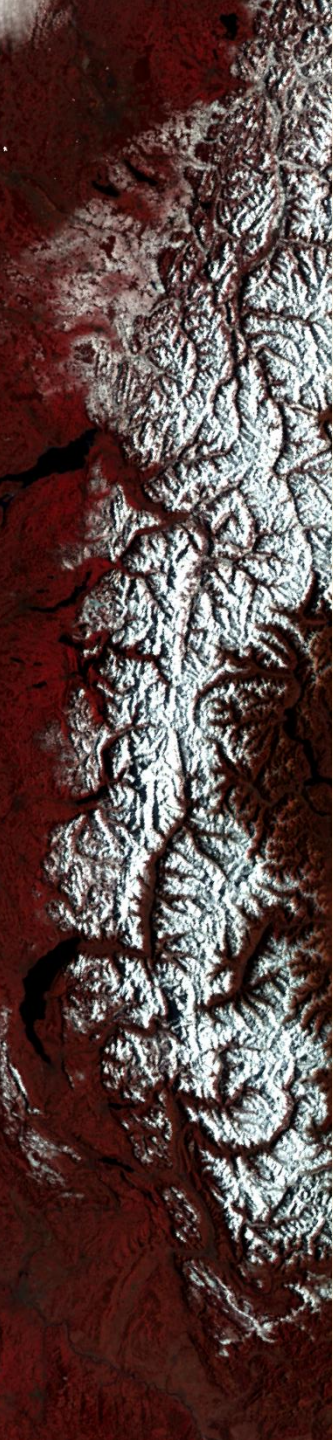
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reviewing

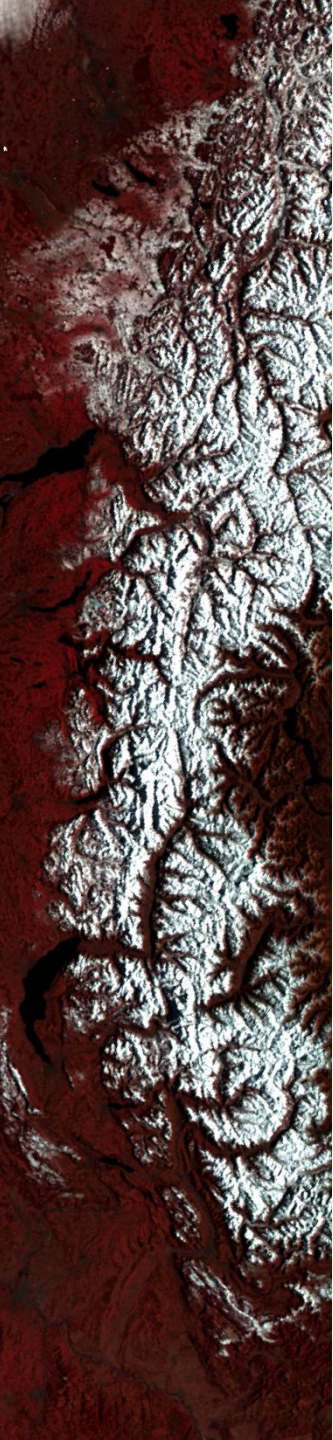


How do you edit or revise your work?

Discuss.

self-editing/proofreading tips

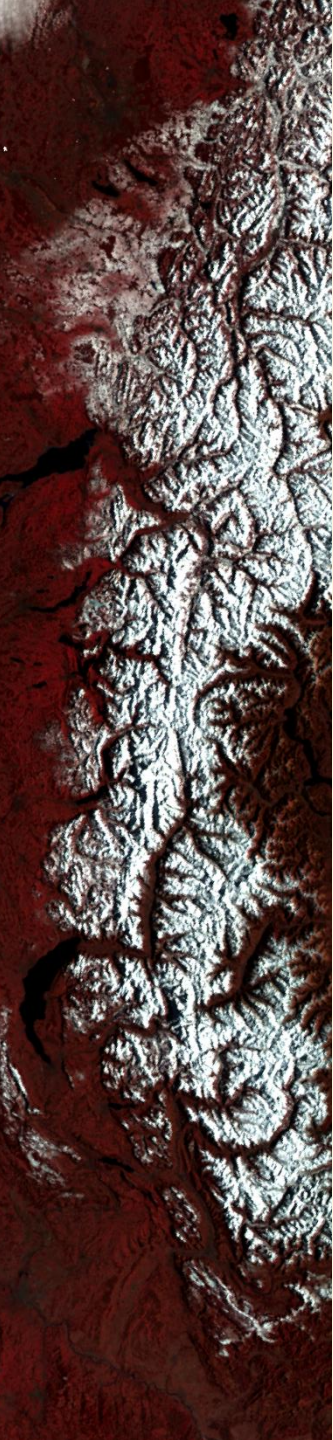
- _ read each sentence **aloud**
- _ **take a break** and read the paper or section later
- _ change the document **formatting**
 - _ E.g. font type/size, margins, columns, spacing, colour
- _ **print** the text
 - _ can be different than reading on a screen
- _ read the paper **backwards**, evaluating each sentence and/or paragraph
- _ **discuss** the content with others and then re-read
- _ use integrated automated grammar and spell-checks



What do you expect if someone reviews something you have written?

...i.e. reads to edit/improve your work

Discuss.



General Suggestions

“review for others as you would
have others review for you”.

McPeck, M. A., DeAngelis, D. L., Shaw, R. G., Moore, A. J., Rausher, M. D., Strong, D. R., Ellison, A. M., Barrett, L., Rieseberg, L., Breed, M. D., Sullivan, J., Osenberg, C. W., Holyoak, M., & Elgar, M. A. (2009). The Golden Rule of Reviewing. *The American Naturalist*, 173(5), E155–E158.

<https://doi.org/10.1086/598847>

Peer Review Checklists [A3!]

- _ Stiller-Reeve, M. (2018). How to write a thorough peer review. *Nature*. <https://doi.org/10.1038/d41586-018-06991-0>
 - _ <https://www.scisnack.com/wp-content/uploads/2018/10/A-Peer-Review-Process-Guide.pdf>
- _ PLOS Peer Review Checklist
 - _ <https://plos.org/resource/peer-review-checklist/>
- _ PLOS How to Read a Manuscript as a Peer Reviewer
 - _ <https://plos.org/resource/how-to-read-a-manuscript-as-a-peer-reviewer/>
- _ ...

General Suggestions

Do

- _ Focus on what is essential
- _ Number your comments
- _ Keep everything confidential
- _ Be direct but professional
- _ Be critical but constructive
- _ Be open to new ideas
- _ Call out plagiarism
- _ Check cited references
- _ **Say what you liked!**
- _ Read your review aloud
- _ Would you sign your name (if you could)?

Avoid

- _ Suggesting the “next steps”
- _ Focusing on typos or grammar issues
- _ Changing the writing style more than necessary for clarity
- _ Writing more than ~5 pages
- _ Being rude or include attacks on authors or manuscript
- _ Providing a quick review with only general comments
- _ Being harsh (this could be the authors’ first manuscript!)

Main Reviewer Tasks (in academia)

- _ Facilitate communication between **authors** and (future) **readers**
 - _ Needs to reflect the journal's audience
- _ Assist journal **editor** in determining the publication-worthiness of the submission

When you read the manuscript...

- _ First, get access to online system and check **guidelines**. 😊
- _ Read the whole manuscript.
 - _ Identify the **objective** and **contribution**(s) to the field. What is this paper trying to achieve?
 - _ Any fatal flaws? If so, stop. Consider rejection.
- _ Then, read it **more than once**.
 - _ Focus on your areas of expertise, section by section.
- _ **Take notes** each time, extend and modify
 - _ use line numbers, sections and pages as references

Closer read pt. 1

- _ Introduction
 - _ Question(s), key claims, need, relevance and context
 - _ related research and how this contribution fits
- _ Figures, tables, results
 - _ Do they make sense? Understandable without text? Clearly labeled?
- _ Methods
 - _ Do they target the main question(s) appropriately? Suitable for task?
 - _ Are they detailed enough?
 - _ reporting guidelines and ethical standards
 - _ could you replicate them based on the description?
- _ Conclusions
 - _ Are they supported by the data/results?
 - _ Do they answer the question(s) in the introduction?
- _ References
 - _ Are any missing? Are some just fillers? Are cited papers necessary?
- _ Are the **title and abstract** appropriate and informative?

Closer read pt. 2

- _ Take a **break** before reading again
 - _ e.g. a few days
- _ Focus on **writing and presentation**
 - _ look for **clarity**, flow and readability
 - _ refer to language more generally
 - _ e.g. too many acronyms, logical flow
 - _ Was the paper **easy to read** and understand?
 - _ leave grammar and spelling to the copyeditor
 - _ unless you know that there isn't one...
- _ Check that your previous notes hold true

When you write the review...

- _ Check journal **guidelines**
 - _ invitation, reviewer guidelines or online system
 - _ review format and how to submit
 - _ criteria for publication
 - _ open review?
- _ Check for **special instructions**
 - _ e.g. special form
- _ Check **decision options**
 - _ e.g. minor or major revisions
- _ Example: [MDPI](#)

Suggested Review Structure [A3!]

1. Key message

- _ summarise your understanding and overall impression
- _ state your expertise for context
- _ advocate for or challenge inclusion in the journal

2. Evidence and examples

- _ What the authors need to do to **improve...**
 - _ **major issues:** essential changes in order for the manuscript to proceed
 - _ **minor issues:** important but may not impact conclusions
 - _ e.g. more references or context; clarifying language
- _ Helpful to number your comments
- _ Backup any suggestions with citations, if possible

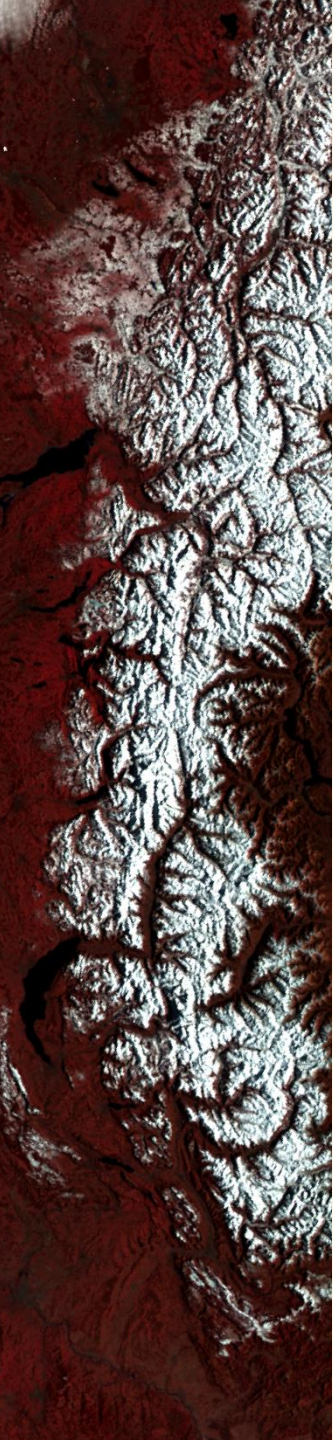
Suggested Review Structure [A3!]

3. Additional details (i.e. cover letter for editors)

- _ confidential comments to the editors
- _ any assistance you obtained (e.g. colleagues)
- _ declare any additional COIs
- _ raise concerns about ethics or misconduct
- _ Are you willing to review the revised manuscript?



10 minute break



(external) peer- review

towards publication

(external) peer-review

- _ Get an **invitation**
 - _ Accept or deny
- _ **Read** the manuscript
- _ Write a **review**
 - _ and maybe review again

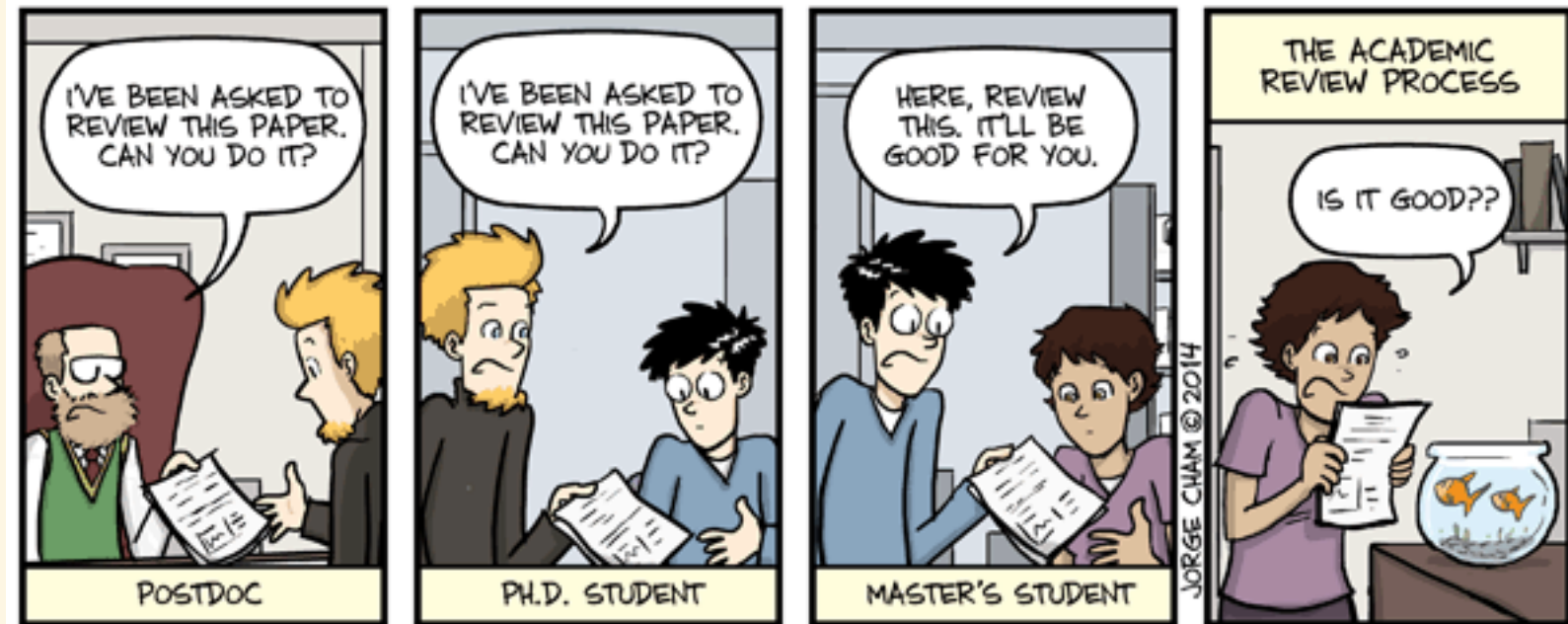


Source: <https://xkcd.com/2025/>

Why participate in the peer review process?

- _ Better inform/shape your own scientific opinion
- _ **Develop** better critical reading and thinking skills
- _ You often get to see the other reviews
- _ **Improves your own writing** and future submissions
- _ **Service** to the scientific community
- _ Thoughtful, thorough peer-review **improves published research** as well as the journal!
- _ Filtering and improvement
- _ You get to read and “**participate**” in the most up-to-date research and new advances

invitations



Source: https://phdcomics.com/comics/archive_print.php?comid=1760

WWW.PHDCOMICS.COM

When you are **invited** to review...

- _ Is it a **quality** journal?
 - _ Scientific integrity? Will your review matter?
- _ Do you have the **right expertise**?
- _ Do you have enough **time**?
 - _ varying review deadlines
- _ Can you be **objective**?
 - _ conflicts of interest
- _ Is the topic **interesting** to you?
- _ Are you **committed** to writing a thorough review?

invitations

- _ Where do they come from?
 - _ Editor handling the manuscript
 - _ Authors on submission to a journal
 - _ Another reviewer who is unable to peer review the manuscript
- _ **Accept** or **deny**, and maybe **suggest** someone else
 - _ Decline: describe why and suggest alternative reviewers
 - _ Unsure?
 - _ write to the editors about your situation
 - _ ask why you were invited if outside your scope
 - _ Accept
 - _ contact editor ASAP if answers to any of the previous questions change (e.g. outside of your expertise, more time, conflicts of interest...)

many varieties...

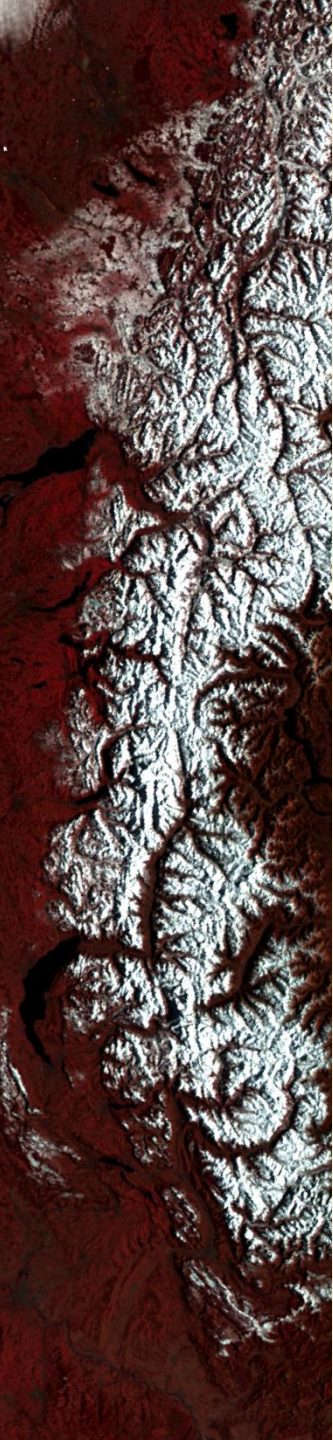
TIMING	PrePrints	Pre-publication	Post-Publication
IDENTIFIABILITY	Double blind	Single blind	Open
MEDIATION	Editors mediate all interactions between reviewers and authors	Reviewers interact with one another openly	Reviewers and authors all interact with one another openly
PUBLICATION	Peer reviews are not published	Peer reviews are published but not signed	Peer reviews are published and signed
FACILITATION	Review facilitated by a journal	Review facilitated by a third-party	Review facilitated by authors
OWNERSHIP	Review owned by a journal or third party	Review owned by the authors of the reviews	Shared or mixed ownership of reviews

general peer-review process



Open Peer Review

- _ **Umbrella term** for many varieties towards increased transparency
 - _ During and/or after the review process
 - _ related to **identities**, **reports** and **participation**
- _ Some modes:
 - _ reviewer and author are **known** to each other during review
 - _ publication of reviewers' **names** on the article page.
 - _ publication of peer **review reports** alongside the article, whether signed or anonymous.
 - _ publication of peer **review reports** (signed or anonymous) together with **authors' and editors' responses** alongside the article.
 - _ publication of the paper after a quick check and **opening a discussion forum** to the community who can comment (named or anonymous).



What is a “conflict of interest” or “competing interest”?

Discuss

Conflict of interest (COI)

*"... occurs when someone in a position of trust has **competing professional or personal interests** that **may** possibly interfere with the person's **ability to remain impartial** as they fulfill their duties. It involves not just the issue in question, but also people's **perceptions** and **who is involved** in making a decision and exists even if no unethical or inappropriate decisions are made."*

- _ may arise in **relationship** to an organisation or individual
- _ financial or non-financial, professional or personal
 - _ intellectual, religious, political...

Even the **appearance of bias** (positive or negative) can impact a study down the line!

COI Checklist for Reviewers

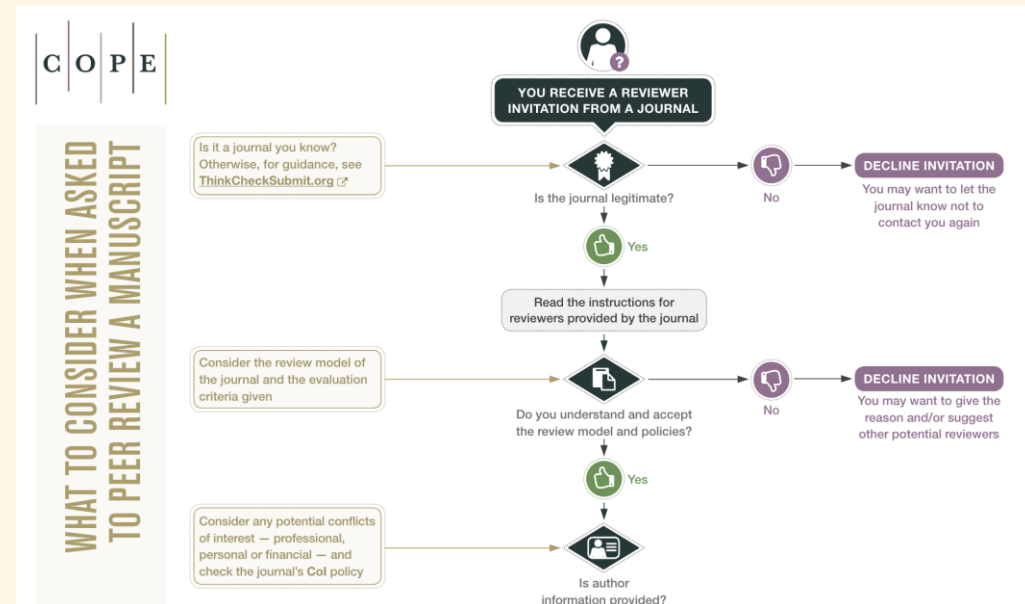
- _ Could you **profit** or be negatively impacted financially by the submitted research?
- _ Do you have a **personal relationship** with the authors?
- _ Are you and the authors rivals or **competitors**?
- _ Have you submitted similar research of your own?
- _ Have you recently worked at the **same institution or organization** as the authors?
- _ Have you or are you currently **collaborating** with the authors?
- _ Have you **published with** the authors during the last 5 years?
- _ Do you or have you held **grants** with the authors?
- _ Have you already reviewed the article for another journal?

Conflict of interest?

- _ Check **author** list, **funding** and **acknowledgements**
 - _ past, current and future collaborations
 - _ If blind review: can you guess who submitted?
- _ Check these things again if you accept and have access to the online system and all files!
- _ Declaring conflicts of interest improves transparency
- _ The journal may still want your review!

Overview from the Committee on Publication Ethics (COPE)

- “What to consider when asked to peer review a manuscript”
 - <https://publicationethics.org/files/considerations-for-peer-review-cope-flowchart.pdf>



COPE'S Ethical Guidelines for Peer Reviewers

Official resource on ethical guidelines for peer reviewers used by most scientific journals

https://publicationethics.org/files/Ethical_Guidelines_For_Peer_Reviewers_2.pdf

Don't keep copies of manuscripts you have reviewed.

If it is good, it will be published.



One short bit on
publishing...

Fast-growing open-access journals stripped of coveted impact factors

Web of Science delists some 50 journals, including one of the world's largest

28 MAR 2023 • 5:55 PM • BY JEFFREY BRAINARD

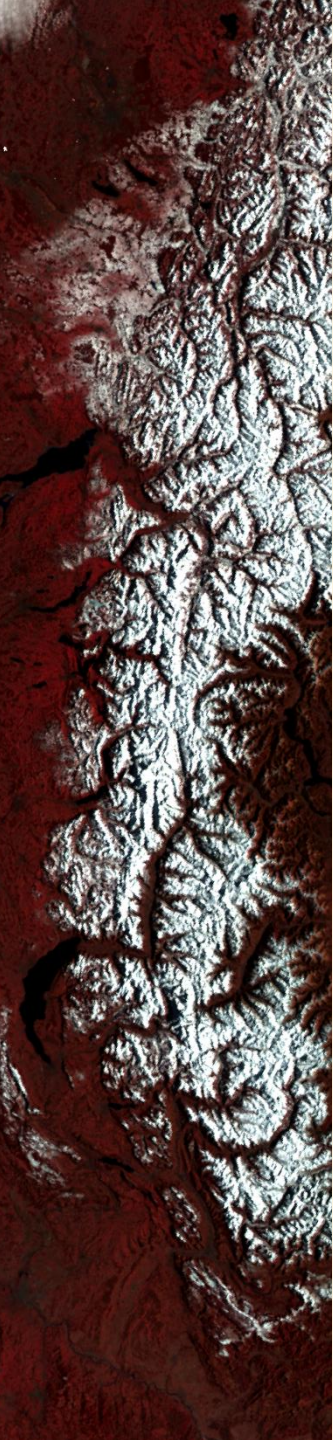


- “absolutely insane number of [MDPI] special issues”
- “impossible to guarantee minimum peer-review standards”
- “In 2022, MDPI’s median time from submission to acceptance was 37 days”
- “one in three papers, MDPI’s turnaround was 1 month or less”
- “megajournals may drain an already strained pool of reviewers from traditional journals.”

Open-Access

_ Open Access Explained!

_ <https://www.youtube.com/watch?v=L5rVH1KGBCY>



A few thoughts on reproducibility

- _ poster that summarises the term:
 - _ Augustin, H., & Sudmanns, M. (2018). Scientific Reproducibility in Earth Observation Data Analytics.
<https://agitposters2018.blogspot.com/2018/07/02-scientific-reproducibility-in-earth.html>
- _ Peer Reviewer's Openness Initiative
 - _ <https://www.opennessinitiative.org/>

resources for reviewing

- [Public Library of Science \(PLOS\) Reviewer Center](#)
- [Committee on Publication Ethics \(COPE\)](#)
- [Wiley's Guide for Journal Reviewers](#)
- [Peer Review and Manuscript Management in Scientific Journals: Guidelines for Good Practice](#) by Irene Hames
- [Peer Review Process Guide](#) by Matthew Stiller-Reeve
- [How to Write a Thorough Peer Review](#) in Nature
- [How to Review a Paper](#) in ScienceMag
- [Tips and advice when you review a scientific paper](#) by Bestoun S. Ahmed
- [How to review a scientific paper](#) (2014) by Rajiv Tandon

[A3]: reverse outline and peer review

_ See Blackboard –

_ 5 total assignments

- _ A1: Free essay
- _ A2: Scientific essay (first draft)
- _ A3: Reverse outline and written peer-review (plus in-class review)
- _ A4: Final, revised scientific essay
- _ A5: Presentation (mini-conference)

A3 pt. 1: reverse outline

- _ a.k.a. a topic-sentence outline
- _ from draft back to outline!
- _ can help **distill main ideas**
- _ **1:** write the **topic sentence** of each paragraph
 - _ In the case of conclusion/intro ¶s, use the thesis or closing statement
 - _ If a paragraph doesn't have one (yet?), write one!
- _ **2:** write down **how** the paragraph topic advances the overall argument
- _ around 1 page
- _ Be sure to focus on **HOW** the paragraph contributes, not just a summary of its content!

A3 pt. 2: peer-review

- _ Around 2 pages (but more in this case is better)
- _ Stick to standard structure:
 - _ Key message (summary) – usually one longer paragraph
 - _ Evidence and examples – major and minor suggestions
 - _ Additional suggestions
- _ Use **reviewer checklists** referenced in this course to help!
- _ Also say what you like, but be critical about anything that you think that could be improved.