What’s Your Problem; What’s Your Point?

An Early-Career Workshop on Writing Scholarly Papers

GSA 2019 Annual Meeting, Phoenix, AZ

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Agenda

• Defining your problem and preparing the manuscript (Nancy Riggs)
• Submitting a manuscript and the review process (Ronadh Cox)
• PLEASE stop us at any time with a question
  – try to keep questions general (would someone else likely have your question?)
  – we would like to hear your personal questions at the end of the session

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Part I: Before you begin and as you are writing

Nancy Riggs, former GSA Bulletin co-editor; Associate Editor for (gulp) 20+ years...

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From the beginning

• You’re finishing up your research and thrilled about your results
• You have a novel idea that apparently hasn’t been discussed before
• You have an enormous pile of maps / seismic / analyses / video footage / remote imagery and synthesis of them

IT'S TIME TO PUBLISH!

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From the beginning

• Choose the most appropriate journal
  – who is your audience?
• Think about the primary idea you want to convey
• Think about who your co-authors should be (if any)
Quick descriptions of each journal

- **GSA BULLETIN**
  - Published bimonthly: subscriptions on a calendar year basis.
  - Available in hardcopy and/or online and annually on DVD (GSA Journals on DVD), or in blocks of 7 or 15 downloads (Bloc of Docs).
  - Printer: Back issues for the calendar year will be mailed.
  - Electronic: Available by subscription at gsa@gsa.org.
  - DVD: Mailed after calendar year-end.
  - View current issue

- **GEOLGY**
  - Description: Geology, published since 1973, features rapid publication of about 23 refereed short (four-page) papers each month. Articles cover all earth science disciplines and include new investigations and provocative topics. Professional geologists and university-level students in the earth sciences use this widely read journal to keep up with scientific research trends. The online forum section facilitates author-reader dialog. Includes color and occasional large-format illustrations on oversized loose inserts.
  - Archives are also available online from 1973 to present.
  - Frequency & Formats: Published monthly; subscriptions on a calendar year basis.
Which journal? (GSA example)

GSA Bulletin

AUTHOR INFORMATION
Submit a manuscript

For more than a century, GSA Bulletin has been committed to publishing high-quality research from all areas on Earth. As one of the premier journals in the geosciences, the Bulletin continues to focus on publishing the most definitive, timely and classical-style research papers in all earth-science disciplines. The Bulletin welcomes contributions that are data-rich, mature studies that are of broad interest (i.e., of interest to more than one sub-discipline of earth science) and of lasting, archival quality. These include (but are not limited to) studies related to tectonics, structural geology, geochemistry, geophysics, hydrogeology, marine geology, paleoclimatology, planetary geology, quaternary geology/geomorphology, sedimentary geology, stratigraphy, and volcanology.

The journal is committed to further developing both the scope of its content and its international profile so that it publishes the most current earth science research that will be of wide interest to geoscientists.

TYPES OF ARTICLES
Research articles are presentations of data sets, experimental results, theoretical analyses, or numerical simulations. These thoroughly documented papers should use the scientific method in reaching conclusions and have immediate, far-reaching implications or advance the understanding of a problem or question related to a sub-discipline of the earth sciences. Although no rigid page limit is in place, authors are expected to provide concise text and illustrations that use page space efficiently.

Note: Papers over ten pages incur a mandatory charge of $125/page and there is a mandatory $800 charge for each color page. There is one version of each paper published; figures that are designated black and white will not be printed in color online. Read carefully the subsequent section about costs before submitting a manuscript. The science editors encourage authors to be concise.

Comments and Replies provide a forum in which published papers can be discussed.

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Each journal has a unique niche: which is best for your work?
Which journal?

Bulletin of Volcanology

Official Journal of the International Association of Volcanology and Chemistry of the Earth’s Interior (IAVCEI)

ISSN: 0258-8900 (Print) 1432-0819 (Online)

This journal was previously published under other titles (view Journal History)

Description

The Bulletin of Volcanology publishes papers on volcanoes, their products, their eruptive behavior, and their hazards. Papers aimed at understanding the deeper structure of volcanoes, and the evolution of magmatic systems using geochemical, petrological, and geophysical techniques are also published. The journal is organized in three main sections: Research articles, including occasional reviews; Short scientific communica... show all

Each journal has a unique niche: which is best for your work?
From the beginning

• Write!
Use the journal

**Geosphere**

**AUTHOR INFORMATION**

Submit a manuscript  
View the current issue

Geosphere is GSA's ambitious entry into electronic publication. The primary goal of this effort is to address the clear and growing need for timely publication of research results, data, software, and educational developments in ways that cannot be addressed by traditional formats. A secondary goal is building an interface with other efforts within the scientific community that seek improvement of access to and preservation of data along with easy access to resources such as GIS databases and modeling results. Compared to traditional formats, which it does NOT seek to replace, Geosphere will be innovative and evolutionary.

In order to maintain a broad scope and to encourage contributions in a variety of forms, several types of submissions are sought. All contributions will be peer-reviewed, and the initial list of categories of publications is:

- Research Papers — fundamental and complete research contributions on scientific and educational topics  
- Research Notes — short research contributions that can take many forms  
- Data Contributions — a forum for publishing data sets in an archive where longevity can be assured  
- Educational Contributions — an opportunity to publish short articles on new approaches to enhance learning, tutorials, best practices, and other topics  
- Software Contributions — a forum for publishing new software, Web services, ontologies, and such that will be made freely available to the scientific and educational communities  
- Comments and Replies — a forum in which published papers can be discussed

**How is Geosphere like other broad-based, international journals?**

- Geosphere seeks high-quality papers from a broad spectrum of geoscience disciplines.  
- Review is rigorous.  
- Papers are copy edited and formatted by GSA's professional staff.  
- Geosphere's goal is a high impact factor.

**How is it different?**

- It is entirely electronic, and the format is extremely flexible.  
- We encourage innovative approaches to scientific publication.  
- Review and publication is rapid and devoid of considerations such as arbitrary page limits.  
- Extensive use of color, animations, and interactivity is encouraged.  
- Oversize figures (maps, cross sections, seismic sections, etc.) are welcome.  
- Links to data archives allow for the presentation and preservation of basic data, images, etc.  
- The journal will evolve with technological advances, and synergy with other GSA publications and those of its affiliated societies will be maintained.
Use the journal

• Model how you construct the manuscript on a published paper (structure, formatting, diagrams, tables, etc.)
Getting the editor interested in your manuscript

- Ronadh will discuss this – suffice to say that the editor is the gatekeeper

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What is important?

• Most ideas have value
• Frame your idea in a way that your officemate / partner / colleague can see its value: why would someone read about this?
• One (well-developed) idea per paper may be enough

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What is important?

• One (well-developed) idea per paper may be enough
  – your work was on detrital zircon in a Triassic unit
  – your MS student worked on the petrology of volcanic cobbles in that unit
  – is this one paper about provenance or one about provenance and one about petrology of the arc that was the source?

• How can a geoscientist on the other side of the world use your idea?

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Who are your co-authors?

• Everyone who had a substantial contribution in framing the problem and its resolution.
  – all authors must contribute to writing the paper, whether literally or through ideas
  – many journals require confirmation

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“get ready” to write

• **Who is your audience**
  – keep in mind that if you are writing for a “general” journal, you must assume relatively little inferred knowledge (your reader knows much less about your topic than you do...)

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Write!

- Hourglass structure
- IMRAD (introduction, methods, results, and discussion)
Hourglass structure

- **Introduction**
- **The ‘meat’**
- **Wrap up**

BIG concepts & context

findings (background, methods, data, results, comparisons...)

discussion, relevance, synthesis, implications, predictions — more broad context

% impact

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Write!

• Think very seriously about writing an outline first...
• Make a list of likely figures and insert them in the outline
Write the Introduction

- Follow the scientific method
  - what is known
  - what is not known / poorly understood / contradictory to the previous ideas: What is the problem?!
  - why you used the method / field site / images you did – how it/they are THE way to solve the prob
  - a bit about your conclusions

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Write the Introduction

• The Intro needs to show that you are aware of the pertinent literature

• Be BRIEF
  – the Introduction is critical but should not be more than ~2 double-spaced pages (far less for Geology)
  – be sure all the main points are covered without excessive detail

• The Introduction sets the stage…
The other parts

• Methods
  – sufficiently descriptive that they can be replicated

• Figures and tables that stand alone and support the paper

• Data (results):
  – all your results whether they support your ideas or not
  – no bias, no interpretation at this point
The other parts

• **Discussion**
  – do NOT introduce new data in this section
  – discuss your ideas and interpretations
  – how do your data and ideas mesh with other previous work

• **Conclusion**

• **The title (!!) (write this last)**
  – why would someone choose to read your paper?
  – be descriptive and specific

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Other tips for preparing the manuscript: the do’s

• Write to your figures
  – “a picture paints a thousand words…”
    (what words are you replacing)?
  – how does a figure support the text?
  – a figure caption should highlight the take-away points and not be pages long…

• Write, put the manuscript down for three days, and rewrite

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Other tips for preparing the manuscript: the do’s

- Put your co-authors to work! Make them read a draft.
- When using contributions from co-authors, don’t hesitate to rewrite in your own voice.

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Other tips for preparing the manuscript: the don’ts

- Abstract or intro too long
- No idea of the purpose
- Weird formatting (e.g., margins)
- Single line spacing
- No line numbers

- Obtuse writing
- “Preachy”
- References not GSA format
- No summary or conclusions
The editor will...

• look for that hook – will your paper appeal to more than the 25 geoscientists in your subdiscipline?
• look at the match with the journal – innovative? data-rich?

SO
• be sure to look at a journal’s mission statement
• establish connections between your work and broader problems
• PLEASE remember that the editor is gatekeeper first and is not obliged to send your manuscript out for review...

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Last but not least

- Never start your paper (Abstract or Introduction) with “We”. The paper is about rocks or techniques or many other things, but not about you.
- Don’t write to be understood, write so that you cannot be misunderstood.
Submission and Review

Rónadh Cox
Williams College
Former Editor of GEOLOGY

What’s your problem, What’s your point?
GSA National Meeting, Indianapolis 2018

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As a member of the research community you interact with the review process in two ways

(1) As a writer

(2) As a reviewer
Submission and Review Process

- **Data, results, ideas**
- **Authors frame paper**
- **Choose target journal**

Authors write and submit paper

**Reject**

**Revise**

**Authors revise and submit detailed list of changes**

Editor declines paper

Editor chooses reviewers

Reviewers review

Editor analyses and summarises reviews, makes decision

Editor evaluates revisions

Final decision

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Your manuscript as submitted

... and after peer review and revision

- minor revisions
- introduction and discussion should be significantly expanded
- more replicates needed
- the latest top-mounted laser cannon. Because.
- please add necessary circular and triangular windows
- front windshield needs to be removed or tinted red
- horse hitch "cause that's how we always did it"
- reviewer 3 sells odd-shaped windows

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Do your job right: be professional
Make the presentation PERFECT!!

• the paper is as good as you can make it
• follow journal guidelines for organisation
• pay attention to file formats
• complete and correct reference list
• thoughtful reviewer suggestions

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1. Make editors’ and reviewers’ jobs as easy as you can:
Make your manuscript the best it can be.

• Editors and reviewers have to work harder to follow and understand a paper that is poorly written, poorly prepared, or poorly thought through.

• If the reviewer’s job is harder:
(a) they will be trying to figure out where you are coming from and therefore may not be able to efficiently provide the constructive criticism that is so valuable.
(b) they may become irritated with you and your paper, which may make them more critical.

As a writer:
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The Science of Scientific Writing

If the reader is to grasp what the writer means, the writer must understand what the reader needs

George Gopen, Judith Swan

This article was originally published in the November-December 1990 issue of American Scientist.

Science is often hard to read. Most people assume that its difficulties are born out of necessity, out of the extreme complexity of scientific concepts, data and analysis. We argue here that complexity of thought need not lead to impenetrability of expression; we demonstrate a number of rhetorical principles that can produce clarity in communication without oversimplifying scientific issues. The results are substantive, not merely cosmetic: Improving the quality of writing actually improves the quality of thought.

The fundamental purpose of scientific discourse is not the mere presentation of information and thought, but rather its actual communication. It does not matter how pleased an author might be to have converted all the right data into sentences and paragraphs; it matters only whether a large majority of the reading audience accurately perceives what the author had in mind.
The cover letter matters: What’s your problem? What’s your point?

Dear Dr Gerlai,

Please find enclosed our manuscript entitled “Amyloid-like inclusions in the brains of Huntington’s disease patients”, by McGowan et al., which we would like to submit for publication as a Research Paper in BMC Neuroscience.

Recent immunohistochemical studies have revealed the presence of neuronal inclusions containing an N-terminal portion of the mutant huntingtin protein and ubiquitin in the brain tissues of Huntington’s disease (HD) patients; however, the role of these inclusions in the disease process has remained unclear. One suspected disease-causing mechanism in Huntington’s disease and other polyglutamine disorders is the potential for the mutant protein to undergo a conformational change to a more stable anti-parallel β-sheet structure...

To confirm if the immunohistochemically observed huntingtin- and ubiquitin-containing inclusions display amyloid features, we performed Congo red staining and both polarizing and confocal microscopy on post-mortem human brain tissues obtained from five HD patients, two AD patients, and two normal controls. Congo red staining revealed a small number of amyloid-like inclusions showing green birefringence by polarized microscopy, in a variety of cortical regions....
detected inclusions observed in parallel sections, suggesting that only a relatively small proportion of inclusions in HD adopt an amyloid-like structure.

We believe our findings would appeal to a broad audience, such as the readership of Neuroscience. As a wide-reaching journal publishing original research on all aspects of neuroscience...

We confirm that this manuscript has not been published elsewhere and is not under consideration by another journal. All authors have approved the manuscript and agree with submission to Neuroscience. We have read and have abided by the statement of ethical standards for manuscripts submitted to Neuroscience. The authors have no conflicts of interest to declare.

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Context, context, context!
Suggesting reviewers:

pick people with the appropriate expertise, whom you think can give a fair evaluation of the work.

Be mindful of ethics

https://www.geosociety.org/GSA/Publications/Info_Services/Ethical_Guidelines/GSA/Pubs/Ethical_Guidelines.aspx

4. Reviewers

4.1. A reviewer should disclose real or perceived conflict of interests to the Editor before agreeing to write a review. Examples include, but are not restricted to, past (within the last 5 years) or current collaboration, close friend, employer or employee, family relationship, institutional relationship, past or present graduate advisor or advisee, someone with whom the reviewer has had past or ongoing acrimonious relations, or situations where the reviewer could stand to gain economically by publication or rejection of the manuscript. The Editor will decide if the conflict is severe enough to prevent the reviewer from writing a fair, objective review.
Suggesting reviewers:
You can also, if appropriate, list “opposed reviewers”

Which are ethical reasons to oppose a reviewer?

• antagonistic personality ✓
• scientific disagreements ✗
• “competitor” ✗
Submission and Review Process

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Reject

Revise

Authors revise and submit detailed list of changes

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Reviewers review

Editor analyses and summarises reviews, makes decision

Editor evaluates revisions

Final decision

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Appreciate the work of the reviewer. Don’t be snarky, or dismissive of criticism.

- The reviewers’ comments are a window to how the community at large will respond to your paper. Take them to heart in good spirit.

- If the reviewer misunderstood a point that you thought was clear, consider the possibility that you did not explain yourself as well as you thought.

- If you disagree with a reviewer’s point, refute it (in your response to the editor) in a collegial way, providing solid grounds.

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Submission and Review Process

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When working on your revisions

1. **Documenting the changes you make is important**

   • Don’t go at the revisions like a bull at a gate. Be organised.

   • ALWAYS use “track changes” in your file!

   • Make a list of the reviewers’ points, and as you address each one, annotate your list with the changes you made.

   • If you do **not** make a suggested change, specify why you believe that change is not necessary.

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image from semrush.com
When working on your revisions

2. **The tone you take is important**

- Don’t be snarky. It never goes over well. Even if the reviewer is demonstrably an ass, be gracious.

“Be kind whenever possible. It’s always possible”
Reviewing papers is an integral part of the culture and practice of research

Lots of resources out there:
  e.g. “How to review a paper” in Science (2016) By Elisabeth Pain
  sciencemag.org/careers/2016/09/how-review-paper

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As a reviewer:

1. **Be a good citizen.**

   - Every paper you submit for publication will be reviewed by ≈three people. It's your duty to the community to step up and take your turn.

   - Seek out opportunities to review! It’s great experience.
As a reviewer:

2. **Appreciate the work of the writer.**

- Don’t be snarky, or dismissive of their interpretations.
- If you disagree with the writer’s points, refute them in a collegial way, providing solid grounds.
- If you see or suspect ethical or other serious issues, address them in confidential comments to the editor.
- Your main task is to evaluate the science, but if you see a way to help the writer express their thoughts more clearly, provide that feedback.

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3. Take the opportunity to learn and improve your own writing.

- If the writer makes some point well, or you notice a good structural or narrative technique, take that on board and add it to your arsenal.

- If the paper is dreadful, try and understand why it fails, and avoid those pitfalls yourself.
The Importance of Reviewing: A (True!!) Cautionary Tale

Dear Dr. X,

(This Journal) is receiving nearly twice as many papers as we can publish which has caused us to tightly interpret our charge of publishing novel contributions on subjects of broad interest within the earth and planetary science community....Stuff about the paper...

I then examined the reviewer records of the first two authors and discovered that, of the 23 requests for reviews sent to you and Dr. Y over many years, not a single completed review has resulted (due to rejection, termination, or failure to provide an agreed review). Although you are not the prime culprit in this record, I find it frankly remarkable that collectively you would submit to a journal in whose well-being you have shown so little interest.

Your paper has been rejected without review.

Yours sincerely.....
In sum

Be organised and thorough: professionalism is key! Be grateful for reviews and be grateful to reviewers. Seek out opportunities to review!
Thinking as a reviewer, what would you expect to see in a manuscript? This exercise can help you mentally step away from your writing and think about it from an outsider’s perspective.

How can you frame your problem effectively and efficiently? How do you fit your point in limited space?

How do you balance a creative-writing approach with presentation of data and results? How can you be both functional and readable?

What are good strategies or for writing and rewriting (either before submission or after review)?

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