Peer Reviewing for GEOL 0160:
Monsters of the Abyss: Oceanography and Sea Tales

Baylor Fox-Kemper

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1 Contacts

The professor for this class is: Baylor Fox-Kemper
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   Some portions of the website are password-protected to ensure that fair use and copyrights are correctly obeyed as I share images from books, etc. You can access these by using:

```
username:  io
password:  ocean
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2 Getting Help!

I am usually available by email. My office hours this semester will be most Mondays and Wednesdays 1:30-2:30PM. You can also request an appointment at other times. Just check my calendar at `http://fox-kemper.com/contact` and suggest a time that works for you.
   Erica Thieleman, our CAP fellow, will also have office hours on most Fridays 2:30-4 in GeoChem 134. She will be helping you with finding journaling topics, preparing your classroom discussion leading, drafting, and peer reviewing, and you can reach her at `mailto:erica_thieleman@brown.edu`.
   Finally, we have two writing fellows for the class (Sienna Zeilinger and Simon Henriques). They will also be offering help with your draft papers.
   If you are having trouble with the peer reviewing, there are lots of places to find help! Ask me, Erica, or the writing center. You might find a writing style book (e.g., *Montgomery*, 2003; *Strunk et al.*, 2005; *Turabian*, 2007) to be useful.

3 The Basics

In addition to writing the papers, you will each be performing reviews of each others work. This will give you an opportunity to read closely about topics other than the one you chose, and hopefully you will be able to learn about science writing more quickly. Also, there are a lot of quandaries that arise in peer-reviewing (e.g., one reviewer loves it and one hates it, or a reviewer makes incorrect statements), so you'll get some experience with those issues by practice in a friendly environment.

3.1 Not Anonymous

We are not reviewing these papers anonymously, which means that you will have to think hard about balancing your desire to be nice with your desire to help. Some things to consider: 1) Point out the positive aspects first, then it's easier for the author to take when the negatives arrive. 2) Be polite and succinct. There is no reason to dwell on a typo or mis-step. The author is under a time crunch as much as you are. 3) Don't hold back a critique because it seems to harsh to you on first glance–*use your writing skills to make the critique have the same content but sound less harsh.*

If problems arise in the reviewing process, please come to me or Erica immediately. We can help mediate.

4 How do the Grades Work?

You *will not* be graded on your rough drafts directly. You *will* be graded on having turned one in in a timely manner. You will also be graded on the existence and to some degree the quality of your peer reviews of the other students. So, you are motivated to do a good job on the first draft, because then the reviews will be more useful to you. You are motivated to do a good job on the peer reviews because you are being graded on them (and because the author will know who you are).

For the reviews, you can provide an alphanumeric code as described below to help the author focus their attention on the presentation or on the content. However, these grades will not be used in any way for "Monsters" grades.

5 File Formats

5.1 You will submit your drafts in pdf format

I don't want your peer reviewers to actually change the content of your paper. I want you to consider each of the review comments and decide what to do with it. Thus, submitting a paper as a pdf is good, because it is easy to mark them up by adding notes or writing separate comments, but it is not easy to alter them.

It is also a great idea to use line numbers (View>Print Layout>Layout>Text Layout>Line Numbers in Word. Similar features are available in other word processors. I haven't figured it out in Google Docs yet.

5.2 You will submit your review in plain text if possible.

You will submit your review in plain text (e.g. a .txt file or just cut and pasted into Canvas). That way the author can quickly cut and paste it. If you need to use pdf comments for equations or whatever, that's OK. .tex .doc and .docx formats are much harder to handle.

6 Narrative Reviewing

Reviewing a piece of narrative writing is complicated, because you may feel like you are critiquing the author's "real life." That is not our goal, by any means. Instead, you are reviewing *the presentation and choice of content by the author.*

Mistakes of presentation involve grammar, spelling, etc., but this is not your main task here. The writing fellow will help a lot with these. The primary mistakes of presentation you are looking for are things like: 1) Does the ordering of material make sense (by chronology, by importance, by complexity,

whatever)? 2) Is the word usage good? Too fancy? Too plain? Too repetitive? Too much jargon? Are words used correctly? (A paradigm is not $0.20). 3) Are the paragraphs and thoughts appropriately bite-sized? Should they be longer, shorter, more variable? 4) Is the paper overall the right size for the content presented?

Mistakes of content cover things like: A) Are the conclusions or the transformation being presented a logical or plausible consequence of the excerpts and logic presented? B) Is there too much "raw data" and not enough analysis? C) Is there too much windbag, windy logic or pomposity to believe that this is how a real person operates? D) Overall, does the piece connect with you emotionally, logically, aesthetically, intellectually?

7 Science Reviewing: The AGU Guidelines

The following pages are taken from the instructions to reviewers for Geophysical Research Letters. They are a useful guideline for reviewing the scientific writing for our class, with the following adapations:

- Interpret descriptions of **scientific merit** in the classroom context: e.g., 'important new science at the forefront of an AGU discipline' corresponds to 'important new science at the forefront of what we are learning in class' or 'would convey or exemplify an important topic to a student in this or a similar class'

- Interpret descriptions of **publication quality** in the proceedings volume context: e.g., 'if a submitted manuscript meets GRL standards' equates to 'if a submitted manuscript meets the standards of our proceedings'.

- Presentation categories can be used directly

You can roughly associate these descriptions as what I am looking for when grading the papers (i.e., this is my rubric).

7.1 AGU Peer Review Instructions

Editorial Instructions to Reviewers (A reminder of current GRL Policy)

Geophysical Research Letters aims to provide rapid publication of forefront research that has an immediate impact on the science community. The journal features articles from a broad range of geophysical disciplines. We ask your help as a reviewer in evaluating both scientific content (Categories 1-4) and presentation quality (A-C) to determine if a submitted manuscript meets GRL standards.

We welcome and will pass on to authors any specific suggestions which would materially improve the quality of a manuscript. [...]

Scientific Quality: Scientific quality of the manuscript is fundamental to publication, and the following Categories 1-4 are meant to aid the reviewer and Editor.

Science Category 1: The manuscript meets one or more of the following criteria:

- Important new science at the forefront of an AGU discipline
- Innovative research with interdisciplinary/broad geophysical application
- Instrument or methods manuscript that introduces new techniques with important geophysical applications

If the manuscript falls in Category 1, please give sufficient detail as to which of these criteria and why.

Science Category 2: The manuscript is potentially Category 1 but significant clarification/revision is needed. For example, the manuscript presents:

- Some unclear or incomplete scientific reasoning
- Inadequate presentation of data
- An instrument/method where the geophysical application is not obvious

If possible, please specify the revisions that might allow this manuscript to meet Category 1 criteria.

Science Category 3: The paper is publishable in the refereed literature but is unlikely to become a Category 1 paper. For example:

- It is a scientifically correct paper but not obviously a significant advance in a geophysical field
- A solid paper with little immediate impact on the research of others (e.g., a routine application of a standard research technique, or a new measurement/laboratory method with limited geophysical application)
- A good but basically incremental improvement to existing data sets, models, or instruments

Science Category 4: This paper is basically unpublishable in an AGU journal:

- There are major scientific errors in the manuscript
- Essentially the same material has been published or is being considered for publication elsewhere
- The technique is not useful
- The research area is not representative of an AGU discipline

Presentation Categories: These categories measure the maturity of the submitted manuscript in terms of language, communication, and GRL criteria.

Presentation A : Manuscripts should meet ALL of the following:

- Abstract is succinct (< 150 words), accurate, and comprehensible to a non-specialist
- Manuscript is generally well-written, logically organized, and adequately illustrated
- Figures and tables are understandable and readable (when sized for GRL)
- English usage and grammar is adequate, with few spelling/typographical errors (please specify any minor fixes)
- Manuscript appears to fit GRL's 4-page limit

Presentation B: Manuscripts are potentially "A" manuscripts with suitable revision. Please give explicit direction as to which sections/features need revision, extension or reduction. For example:

- Abstract needs to be rewritten/shortened
- Manuscript is not well written, is not logically organized, or is inadequately illustrated
- Manuscript needs to be (and can be) shortened
- English usage, grammar, or spelling errors detract from the paper

Presentation C: Manuscripts cannot readily be revised by the authors into Presentation "A" without a major re-write. For example:

- Specific ideas cannot be adequately presented within the 4-page GRL limit
- Organization and illustration of the manuscript make it too difficult to review fairly
- English usage, grammar, and/or spelling errors are endemic and require substantial copy-editing before this manuscript can be reviewed adequately

[...]
Michael J. Prather
Editor-in-Chief
15 March 1999

8   Example Reviews

Here is a good example of three reviews for a paper from a class of mine like this one. Note their length, level of detail, breakdown of scientific vs. presentation issues, and specific suggestions for how to fix things. Also, notice that they are not free from typos, spelling errors, etc.

A good review does not contain many "schoolmarm" suggestions. For many of you, this part will be very unfamiliar. When reviewing a scientific paper, it is not your job to correct grammar, punctuation, spelling, etc. So, it is unlike reading a term paper for a friend! There is a technical editor at the journal who will do that for the author after you are done, and there is a writing fellow for our class who will help with this part. You should only mention these issues if there are so many as to limit the presentation score, or ones that are just hidden typos that you mention just to be nice.

Your job is to think about the science: Do the numbers seem right? Is the method sensible? Do the conclusions follow from the experiment? Are the hypotheses actually tested? Does the abstract reflect the most important results without wandering off into issues beyond the scope of the paper?

Typically, you should begin with a short summary of the paper (otherwise, how does the author know you read and understood it?), then you can describe some of the paper's strengths, then it's major weaknesses, finally you can list all the typos and small mistakes.

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My Review


Summary:  You compare the SST found from ARGO and Reid-Mantyla datasets in the Nino3.4
region and find that the mean state differs more than an official ENSO worth.


Strengths:
--Nice choice of problem, it satisfies the pedantic assignment with an interesting application
--Wow, there's a lot of ARGO data.  The histograms are totally different!



Major Problems:
--I think you've got too much cold data, and I expect it is because 20m is too deep to count
as SST.  Do you have enough Reid-Mantyla data to go shallower?
--In your discussion of normal distribution, it is apparent from your histograms that they
are not normally distributed.  Also, from your longitude vs. temp plots, it's clear that you've
got some  weird cold stuff thrown in with the clustered surface values.
--I think you need to do some more digging in the data. It is apparent that you don't just
have ssts here.  You should do some investigating about the depth of the cold tongue
vs. season and then make a choice of your upper bin.

Minor Problems:
--Probably NOAA's ENSO 3.4 index not product.
--Bibliography formatting could be nicer.  Use a reference name in the place you want to
reference, and then a table of complete references or urls at the end.
--You are giving the st dev of the datapoints, not the st dev of the mean.  If each obs was
uncorrelated with the others, the latter should be sqrt(N) smaller.

Overall, this is a nice beginning and a great topic.  You need to do some more digging to
understand what the data is telling you.  It would be much nicer if there was a clearer
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description of where and why the temperatures are different between the two datasets.

B2

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Reviewer 1: B3

Report of Referee on Defining the Mean Temperature State of the Eastern Tropical
Pacific: Neutral ENSO by **A STUDENT**

In this paper, the author calculated the mean sea surface temperature (SST) in ENSO 3.4
region from two different data sets: Reid-Mantyla and Argo. Interestingly, the calculated
mean SSTs differ by 0.59 C, which is larger than ENSO threshold of 0.5 C. In my opinion,
however, the author does not provide sufficient discussions on his results. For improvement
of the paper, the following issues should be addressed in the revised paper;

1. Which of the data sets represents better the mean SST in ENSO 3.4 region? If any, what
could be the sources of error?
2. Figure 2 shows the anomaly in Argo data. The anomalous temperatures of around 5 C
are too low. This may indicate that the anomaly is due to the instrumental or calculational
error.
3. What is the meaning of bias in the last sentence of the results section?
4. The time periods of study for the each dataset should be stated in the abstract.
5. The standard mean SST that NOAA uses to determine ENSO index should be mentioned
in the text and be compared with the authors results.
6. The spatial map of ENSO 3.4 area may be informative to readers.
7. The longitude values in Figures 1 and 2 are not consistent. The author needs to choose
one of them (-170 or 190). It may be better to use 170W to 120W as x-axis.
8. For convenience in the comparison, the author should use the same temperature range
for Figures 1 and 2 and for Figures 3 and 4.

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Reviewer 2:

A STUDENT - Defining the Mean Temperature State of the Eastern Tropical Pacific:
Neutral ENSO
Grade: A3

Abstract ----
It would be nice to have SST and ENSO3.4 spelled out. I don't know what the
'3.4' on the end of ENSO; hopefully I'll find out in the paper. With respct to the
final scentance, which difference is greater? The ARGO or the R-M data, something else?

Introduction ----
At the end of the first paragraph, how do the greater western Pacific temperatures
reflect the Pacific Warm Pool and Western Boundary Current? I may be

misinterpreting your intended use of 'reflecting'.

In paragraph 3, I would change "In the ENSO3.4 region, its data spans roughly
40 years and all seasons, although not every season every year (see Figure1.)",
to read "The ENSO3.4 data spans roughly 40 years through all seasons; however,
there are som egaps in the dataset (see Figure1)." After this you should have the
actual Figure1 for easy reference.

Would it be helpful to give a maximum depth of the ARGO floats? I think specifying
that they were first deployed in "the year 2000" would help.

I think the last paragraph of the introduction would fit well into the abstract.

Methods ----
It's not exactly clear to me how each dataset was sampled. They seem pretty similar,
but the description is not terribly explicit to distinguish between the two. You have a
nice justification/explination of how the depth vs. pressure selection is validated.

I don't think the PDF curves on Figures 3 & 4 really help, just distraction from the
histogram.

Theory ----
No need to emphasize the "both" so much. You reasoning seem reasonable to me.

Results ----
I think you migh tbe a little over kill on the significant figures.

Visual measurment is a bit iffy. Is there some statistic you could use (skewness
for example)?

Conclusions ----
The second sentance is a run on. Break it up into distinct bits of information.

Wouldn't the range be a better measure of temperature variation in the tropics
instead of standard deviation?

General ----
The citation format should be more susinct in the body of the paper and then in
detail in the reference section.

Make sure not to leave bits and pieces of sections hanging out alone on seperate
pages when possible.

You should have each figure immediately after you reference it and not before.

All in all a well layed out paper. I think most of the deficiencies are easily revised.

9   Canvas Tips

We will be using Canvas to aid in the peer reviewing process. As the details of this implementation and the hiccups arise, I will update this section to aid in navigating the Canvas system.

References

Montgomery, S. L., *The Chicago guide to communicating science*, University of Chicago Press, Chicago, 2003.

Strunk, W., E. B. White, and M. Kalman, *The elements of style*, Penguin Press, New York, 2005.

Turabian, K. L., *A manual for writers of research papers, theses, and dissertations: Chicago style for students and researchers*, 7th ed., University of Chicago Press, Chicago, 2007.