Peer Reviewing for EEPS1820: Geophysical Fluid Dynamics

Baylor Fox-Kemper

January 25, 2026

Course Information

- **Instructor:** Baylor Fox-Kemper
- **Email:** baylor@brown.edu
- **Office:** Lincoln Field 214
- **Class Hours:** MWF 13:00 — 13:50
- **Office Hours:** MWRF 08:00 — 09:00, MT 17:00-18:00 (make appointment at)
- **Website:** `https://fox-kemper.com/1820`

1 The Basics

In addition solving and simulating problems, you will each be performing reviews of each others' homework problems and simulation writeups. This will give you an opportunity to revisit the questions asked, and hopefully you will be able to learn common mistakes and scientific presentation and 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.

1.1 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 contact me immediately. I can help mediate.

2 How do the Grades Work?

I will have the final say on the grades for each assignment, but will take into account the two reviewers' scores and comments. Roughly, they will be a weighted average of 50% (3 points) from each of the two reviewers for a total of 6 points for each problem set, but I will check that the total makes sense. Thus, each reviewer should provide an AGU guideline-based score (see section below) from 0-3.

You will be provided with an answer key before you begin your peer review. Once the answer key is distributed, assignments will no longer be accepted. If you will be late in turning in an assignment, let Baylor know *immediately and in advance* so that an accommodation can be made.

3 File Formats

3.1 You will submit your homework in pdf format

I don't want your peer reviewers to actually change the content of your homework. I want you to consider each of the review comments and think about it. Thus, submitting a homework 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.

The Canvas peer reviewing facility makes it easy to add markups to the homework. You are also *required* to add a text overall summary writeup into the comments box on the right. This text writeup should contain your AGU score. The following table gives the translations. If you prefer to calculate a score on each problem and then add them up, this is fine as well.

Science Quality	**Presentation Quality (A–C)**		
(1 is Best)	**A**	**B**	**C**
1	3 Points	2.5 Points	2 Points
2	2.5 Points	2 Points	1.5 Points
3	2 Points	1.5 Points	1 Point
4	1.5 Points	1 Point	0.5 Points

Table 1: Conversion Matrix: AGU Score to 3-Point Scale. A zero will be given if the problem set is not turned in when the answer key is distributed. You may choose to score each problem according to this table and then average, or score the problem set overall. A zero should be given to any skipped problem.

3.2 You will submit your review summary in plain text if possible.

You will submit the main part of your review in plain text (e.g. a .txt file or just cut and pasted into the text box in Canvas, which then appears on the side as in the example below). That way the author can quickly see it. If you need to use pdf markup comments (via crocodoc in canvas) or add images with equations or whatever, that's OK. PLEASE DO NOT JUST UPLOAD A DOCX FILE, when cutting and pasting the text into the box is just as easy for you, since the pasted text is much easier for me and the reviewee to see (Fig. 1) unlike attached files.

4 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 adaptations:

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

- Interpret descriptions of **presentation quality** in the proceedings volume context: e.g., 'if a submitted manuscript meets GRL standards' equates to 'if a submitted problem is explained clearly following the standards of excellence based on the classroom presentation and answer key'.

4.1 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

5 Example Reviews

Here is are good examples of reviews from a similar classes of mine. 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 "Conan the Grammarian" 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.

```
=================================
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 authorÕs 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.
```

5.1 Canvas Tips

We will be using Canvas to aid in the peer reviewing process. After assignments are turned in, you will be able to access those to which you are assigned to review. You can click to see the uploaded pdf. You can add text, upload files, etc., on the right hand side of the window. PLEASE DO NOT ATTACH .doc or .pdf FILES FILLED WITH PLAIN TEXT. Cut and paste plain text into the boxes instead. You can also add comments to markup particular locations in the text you are reviewing. With a little experimentation, you will see how this works. When you are done with your review, you can submit it. Once you submit, I don't think you can go back and see it again. See the example figure below for the layout of some typical reviews. See how the plain text is displayed on the right and the markups are displayed within the document.

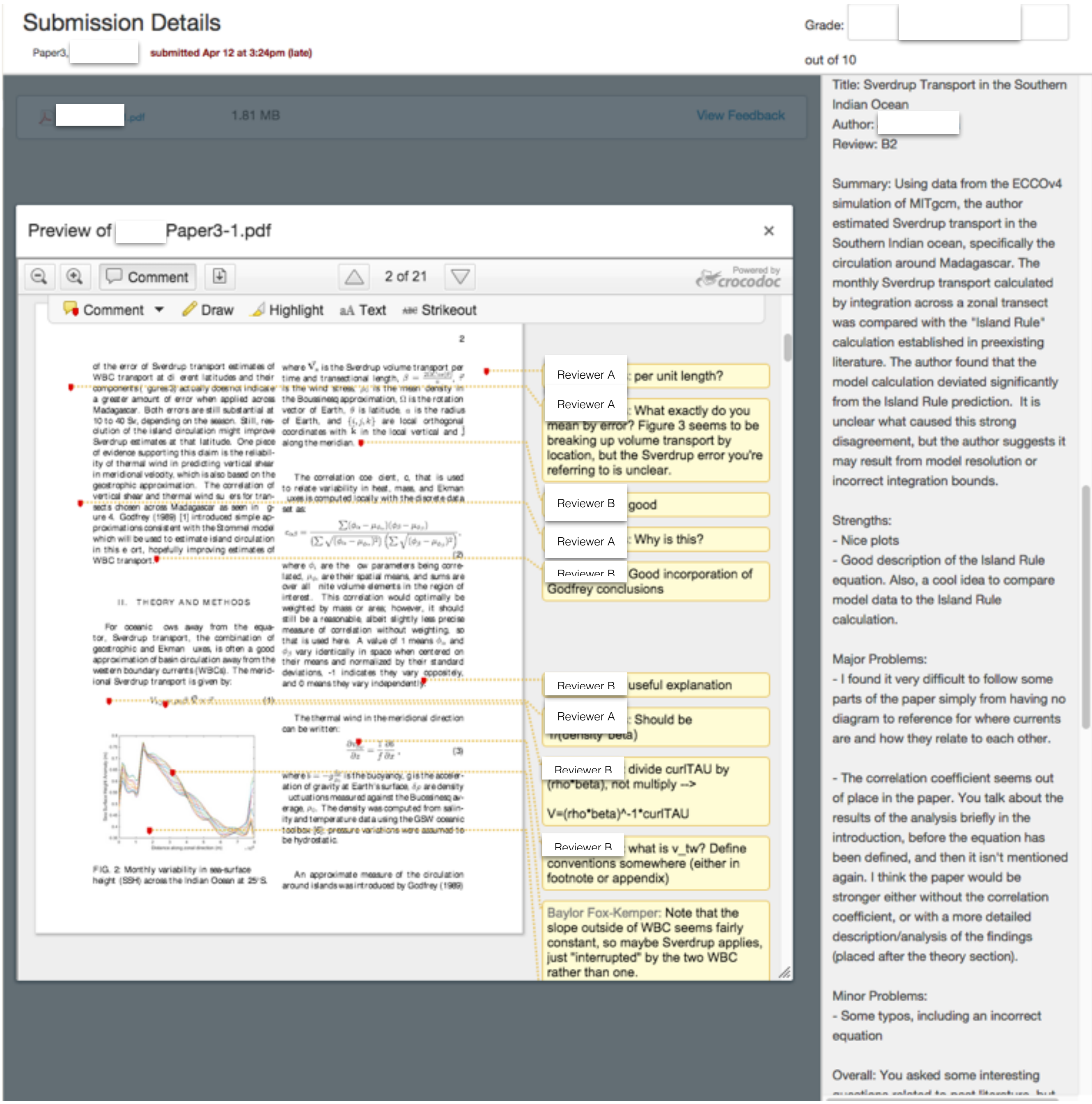

Figure 1: **Example Peer Reviews in Canvas**