# Guidelines for Scientific Writing

The following guidelines will help you write a professional, clear, and coherent scientific article. Before you submit your full-draft assignments to me, ask yourself if your manuscript satisfies all of the following criteria. Note that sometimes specific journals will request a different format than the general one discussed here; if you think this might apply to you, please consult with your advisor about the best format for your particular circumstances.

## Manuscript Structure

- **Abstract**:
  - *(1-2 Sentences)* Introduce the subject of the paper with a very brief background and why the subject is important;
  - *(1-2 Sentences)* What you did and what tools you used;
  - *(2-5 Sentences)* Detail key findings including specific numeric facts if possible;
  - *(1 Sentence)* Importance and implications of your findings.
- **Introduction**: Usually 3-5 paragraphs:
  - *(1 Paragraph)* Explain why your topic is important;
  - *(1-3 Paragraphs)* Discuss and cite prior work and what is missing;
  - *(1 Paragraph)* Discuss the problem you will solve and how it addresses what is missing.
- **Methods**: Does this section include details and citations to the sources of your data and models? Is each primary method that you used explained clearly enough that someone else could reproduce your results?
- **Results**: Is each figure and table clearly described? Did you describe your tables, figures, and key findings in a way that tells a clear story? Is each figure mentioned in the text in the correct order that it is listed in the manuscript?
- **Conclusions**: Usually 3-4 paragraphs:
  - *(1-2 Paragraphs)* Summary of your results;
  - *(1 Paragraph)* List and discuss the limitations of your work;
  - *(1 Paragraph)* Discuss the implications of your results.
- **Citations/References**: Is every scientific claim discussed in the manuscript supported by citations to the right data, models, figures, and/or legitimate scientific papers? And are these references cited throughout the text in a consistent manner and included as a list at the end of the document?

- **Formatting**: Does the manuscript use a journal or thesis template? Does the manuscript template also include individual line numbers (like those shown on the left-hand side of this bullet point)?

- **Figures**: Are all major aspects of your figures clearly explained in the figure caption? In the caption did you explain what each acronym or abbreviation means? Are your figures together with the captions mostly (or completely) understandable without needing to read your manuscript? Make sure that all your figures follow the general guidelines indicated by gray text and arrows shown on top of the example Fig. 1.

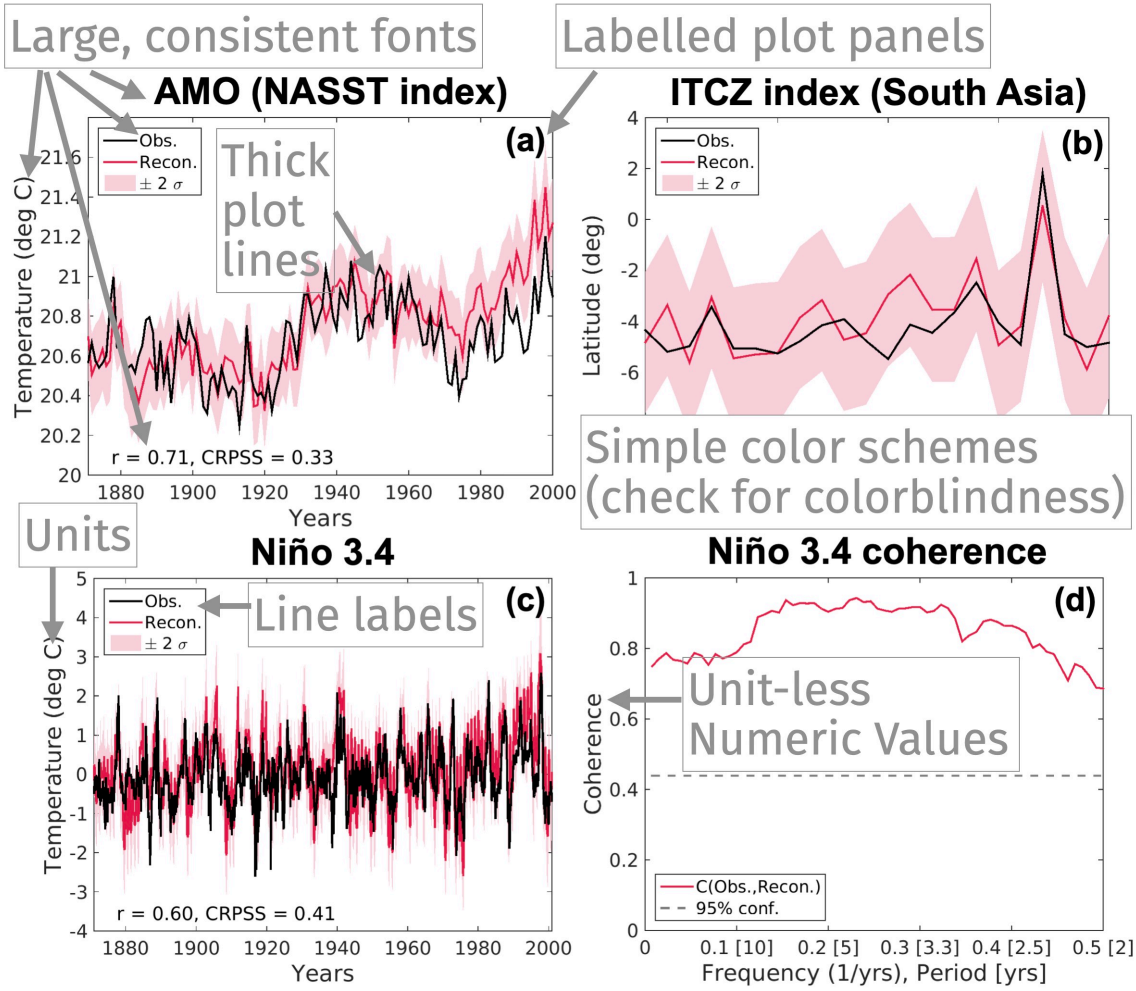


Figure 1: Reconstruction verification for three representative climate-dynamical indices. **(a)** Verification of the annual mean North Atlantic sea surface temperature index (NASST), which is the non-detrended, non-smoothed version of the Atlantic multidecadal oscilation (AMO). This panel includes the AMO observations (Obs.) (Kaplan et al., 1998) and the mean reconstruction (Recon.) with a corresponding $\pm 2\sigma$ range of the posterior ensemble. Skill values are indicated for correlation (r) and the mean continuous ranked probability skill score (CRPSS) in the bottom left corner. These skill values are computed over the entire time interval shown. **(b)** Reconstruction verification of the location of the annual mean intertropical convergence zone (ITCZ) over the South Asian monsoon region spanning the tropics from 65°E to 95°E. The observational ITCZ is computed using the Global Precipitation Climatology Project version 2.3 (Adler et al., 2003) available back to the year 1979. Skill values of r and CRPSS are computed over the time interval shown here. **(c)** Reconstruction verfication for the monthly Niño 3.4 index, similar to (a) and (b). The observational Niño 3.4 index is computed from the Berekley Earth surface temperature dataset (Rohde et al., 2013), which over the ocean is based on HadSST (Rayner et al., 2003). **(d)** Coherence as a function of frequency and period between the mean Niño 3.4 reconstruction and the observations shown in panel (c).

## Writing Style

- **Length**: Is the manuscript within the expected word range for your journal (typical article lengths are 2500-5000 words, not including references) while also not containing unimportant content?
- **Classic Style**: Does the manuscript employ the principles of Classic Style? Does the manuscript avoid the Curse of Knowledge, Chunking, and Functional Fixity? Are the sentences and paragraphs clearly written?
- **Grammar**: Is the manuscript written without grammar and spelling mistakes?
- **Accuracy**: Are scientific concepts and the findings of other scientific papers accurately explained?
- **Logic**: Do the arguments of the manuscript make sense and are they all logically connected to each other?
- **Steel-manning**: Are different 'sides' of scientific debates fleshed out fully and treated fairly, with each side given the strongest possible arguments in their favor?
- **Creativity**: Is the manuscript as a whole insightful, creative, and independent, and not just a collection of arguments from websites or other papers?