Tips on writing a good Scientific Manuscript

Your goal in writing a paper about scientific work should be clarity. One excellent source for a description of goals and methods to write clearly is Strunk and White -

William Strunk, Jr. and E. B. White. *The elements of style.* 4th Ed.

Scientific writing in particular must be clear and understandable, so that there can be one and only one interpretation for your words. Here are a few ways to develop an unambiguous and clear style.

Organization

An abstract should summarize the important results or conclusions from the paper. Every word should contribute to your message.

- References should be listed in full in your References Cited section. They should be clearly indicated in the text where you cite them. See Joe's notes about References.

Number all figures, and include captions that describe all annotations on the figures, and the important points that a reader should see in the figure.

- If you copy a figure from another source, include a full reference to that source, and clearly acknowledge that source in the Figure caption.

Style

Make a plan outlining the key ideas that you would like your reader to get from reading your paper.

- Organize you paper in a way that these key ideas can be presented in a logical order.
- Use Introduction section to describe the big issues that you address, and a Conclusions section to summarize your message.

Challenge each sentence that you write.

- Is it clear, or does it sound fuzzy and muddled?
- Does it add information to your paper?
- Avoid generalities. Let you words be very specific.

When introducing a new concept or idea, define it before you start using it.

- Keep to a single idea in each paragraph. Paragraph breaks are the places to introduce new material.

Details

- Use complete sentences, with a subject and a predicate in every sentence.
- Avoid long and convoluted sentences. If you are having difficulty writing a complicated sentence, try breaking it into 2 or more shorter sentences. Or try looking for big chunks can be simply deleted.
- Avoid using complicated phrases or clauses as modifiers. For example, "The reason Y happened is because of X" can be replaced by "X caused Y to happen."

- Avoid long strings of adjectives, such as “the paleoclimate ice-core flow-velocity-derived accumulation-rate estimate was too large”. There is always a simpler way to include all the modifiers. For example, “The estimate of the accumulation rate in the past, which was derived using ice-core data and flow calculations, was too large.”
- Avoid jargon or other long, complicated words whenever possible. It is often easier to write down an idea clearly by using short stubby words, than by using long fancy expensive words.
- Avoid acronyms. If you must use them, write them out in full at least once in your text where you first introduce them.
- Use plural verbs with plural subjects, and singular verbs with singular subjects.
- Remember that “data” are plural.
- Be consistent with use of past, present, and future tenses. Don’t switch between tenses within a paragraph.
- Check that phrases really do modify the nouns that you want them to modify. For example, “the man was riding the horse, who wore a read coat”, could be better stated as “the man, who wore a read coat, was riding the horse.”
- Check all sentences in your drafts for wordy phrases and expressions that can be deleted with no ill effect (and possibly some good effect). “As may or may not be widely known, the sky is blue” would be stated better as “The sky is blue”.
- Avoid contractions such as “wont”, “isn’t”, or “can’t” in formal writing. Use the corresponding full expressions, “will not”, “is not”, and “cannot”