A checklist of scientific writing musts

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version 27 Sept, 2012

Use these few rules and the path your science career follows will be less stony!

Be Concise
After composing your text, review and edit in a way to minimize words while keeping or improving the content. Here, you’ll be practice ‘technical writing’.

Style
- Use the passive present tense, for example, “The air temperature profile measurements indicate the development of a temperature inversion at night.”
- Past tense is OK only where relevant
- No colloquialisms, words, phrases, or paralanguage employed in conversational or informal language. For example, something “going on”, “hard to see”, “looking at the data reveals ...”, The weather system “sat” in the area. “deals with”, The sun “beat down”.
- minimize word count while maintaining meaning. For example, “less” has the same meaning as “not as much” and has 1/3 the words.

Write Un-ambiguously
Never begin a sentence with words from the following list, as they introduce ambiguity.
- This, there, since, that is, because

Avoid the use of “it” in sentences.

Words to avoid: we, our, look, looking, which, seeing, above/below when referring to tables, figures, sections, as being above or below. Refer instead, for example, to section 2.1 or figure 1.

always avoid adverbs and adjectives. Avoid adverbs, such as quite, or adjectives such as large, how large? Some adverbs are OK, such as relatively, and sometimes it is OK to use probably, or likely.

Quantify your statements, meaning, if you write “there is a warm bias”, instead write: “there was a 0.1 K warm bias”.

Temperature is high or low not warm or cold. The adjective “cold” is ambiguous.

Significance
A result is significant if the signal is above the natural random ‘noise’ or instrument error specifications. For example, if you measure an average 0.1 K warm bias and the instrument specifications are of a 0.1 accuracy, you cannot conclude a "significant" bias. Your result is suggestive, but not conclusive.

Be consistent throughout your document, in figures, tables, graphics, use the same
fonts, text size, precision.

**Manuscript Format**

1. **Introduction**
   a. First paragraph: why is this important, only a few sentences
   b. Second paragraph: problem statement
   c. Third paragraph: clearly defined objectives
2. **Data**
   a. Describe instruments, list serial numbers. Discuss problems with data.
   Resist writing about methods in the data section.
3. **Methods**
   a. Provide details as to how your methodology addresses your objectives
4. **Results and Discussion**
   a. List and discuss results, save conclusions for next section
5. **Conclusions**
   a. Conclusions, not discussion here.
6. **Acknowledgements**
   a. It is a political mistake to not thank people for supporting your work.
7. **Works Cited**
   a. Alphabetical then chronological list of references

**Structure and Coherence**

What any paper needs is *structure*. Structure provides *coherence*.

The easiest way to impose structure is to carefully develop the table of contents (TOC), as an outline to be filled-in. You should arrange the TOC to provide global and local coherence. Each paragraph too must be thematic and therefore coherent.

**Graphics**

An easy way to get images off your IDL x-window display and into Powerpoint or Word is to do screen capture. Use the screenshot.pro code provided by J. Box. Annotation text need be at least as large as body text.

Captions appear below the figure. Use no title text, only one caption is needed!

**Use of Color in Graphics**

Black and white graphs are preferred, as they are simpler to reproduce and take less time to produce. Use color only when many lines are needed.

*Table Captions are given above the table, Figure captions are given below the figure*