Using LaTeX to write an LPSC Abstract.

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There used to be a LaTeX template and a style file for writing Lunar and Planetary Science Conference (LPSC) abstracts available on the LPSC Web site. However, no such template has been available for some time, and we found ourselves dragging the old one out. It was full of scary TeX commands and had a date from 1996 in it, so we decided to start from scratch and write a template based on LaTeX's own article class and a short LaTeX 2_ε package file. Most of the LaTeX work is based on Kopka and Daly [1].

Fortunately, the requirements for LPI-sponsored meeting abstracts (like LPSC) are reasonably relaxed [2].

Title area: The title mechanism for this template is a simple command, \titlearea, which takes two arguments, the title text and the author info text.

The title text is made a font size bigger and made boldface in the lpscabs package. If you would like it styled differently, it should be easy to go in to the lpscabs.sty file and change it.

The old style file had a fancy automatic mechanism for entering authors and putting superscripted numbers on their names to match up with their affiliations later on in the title. We contemplated doing that and then realized that maybe authors would like some other mechanism besides numbers, maybe little letters, or any of the special characters like † or ‡ to mark their affiliations, or maybe all of the authors are from the same place, so no little super-scripted characters are needed. Possibly some authors could have more than one affiliation. So rather than try to program something that can be all things to all people, we'll just let you (the authors) do whatever you like to the text in that line, you're smart people. It is a little less convenient, but we think it is more flexible. We have commented out a few multiple author styles up near that section of this source file.

Section styles: In general, people try to put lots of information into their LPSC abstracts, and want to minimize the space being taken up by section headers. You could redefine the sectioning commands to change their styling if you like, or you could just use the \paragraph command (as we have done in this example). You can also use the titlesec package with the small and compact options to further compress the font size and space around titles.

Figures: Good figures are hard to make, there's no question about it. That goes double for deciding which figures to include in your space-limited abstract.
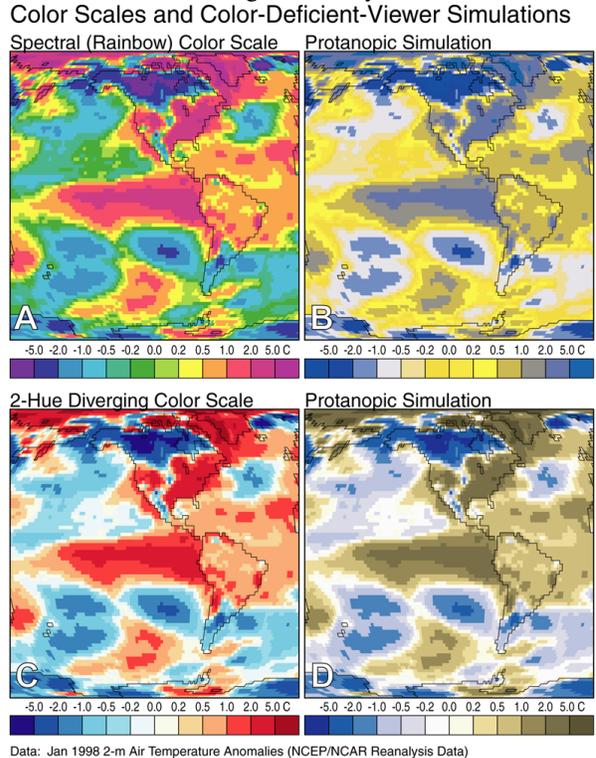
Figure 1: This is Figure 1 from Light and Bartlein [3].

When you make the decision to create a color figure, take some time to think about the colors that you use. We think that a strong case has been made [3, 4] for not using the typical rainbow-spectrum color scheme (e.g. Fig. 1). Just because you decide to use color doesn't mean that you need to use *all* of the colors. Don't confuse "pretty" with "meaningful."

A strong suggestion by [5] is that color schemes should be perceived as monotonically increasing (or decreasing) when used to display intensity maps of various sorts (such as topography, etc.). This generally is not the case for most rainbow color schemes. A monotonically increasing color scheme also looks correct whether printed in color or grayscale.

If you need figures or tables to be the full width of the page, just use their starred versions, like

`\begin{figure*}` instead of `\begin{figure}`. If you have problems with double-column-wide floats, you may need to monkey with the `\dbltopfraction` setting or other style parameters for floats (either in the `lpscabs.sty` file or simply via `\renewcommand{\dbltopfraction}{}` in your abstract `.tex` file).

URLs and hyperlinks: Let's face it, the odds are good that more people will read this abstract on their computer screens via a PDF reader than will do so on paper. Fortunately, PDFs can contain active hyperlinks that can fire off a Web browser, or your e-mail client, and the `hyperref` package helps you do this. It is used in this example file, and there are blue links that you can click on in this document, try them out.

The `hyperref` package has some options that we should probably detail. Here's a copy of the command in this document (carriage returns included for clarity):

```
\usepackage[pdftex,colorlinks=true,
  urlcolor=blue,citecolor=black,
  linkcolor=black]{hyperref}
```

The options in the square brackets are important, and http://www.tug.org/applications/hyperref/manual.html details all of them. The first item `pdftex` is because we mostly use `pdflatex` to create PDF files from our `.tex` files. If you use `ps2pdf`, or something else, you'll want to specify something else here. The `colorlinks` and `urlcolor` options should be reasonably self-explanatory, but you may wonder why we set `citecolor` and `linkcolor` to black. The `hyperref` package is good, it actually creates links for all kinds of things in the document, and gives them unique link colors. However, in this short document, that's kind of overkill, and a little visually distracting. So the links are still there, its just that the text is black. So go ahead and click on the references numbers, like this one: [1] (which won't do much since the references are on this page), or figure numbers like this: 1, and you'll get hopped to the right page.

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Works that you reference: Using `natbib` with the `numbers` option and the `unsrtnat` bibliographystyle approximates the reference-style that has emerged for LPSC abstracts over the years, but there is no hard and fast rule. Others have used *Science*'s `science.bst` style. You may think that the references take up too much vertical space (with each reference starting a new line). You can use the `paralist` package and enclose the bibliography stuff in a `inparaenum` environment (which is itself enclosed in a `flushleft` environment). Examples of how to do this are commented out in this source file. Of course, you don't have to use `natbib`, if you don't want to. However, if you really have that many references maybe you should be submitting this to a peer-reviewed journal and not just a conference.

References

[1] Helmut Kopka and Patrick W. Daly. *A Guide to LaTeX*. Addison-Wesley, third edition, 1999.

[2] Lunar and Planetary Institute. Abstract submission instructions. http://www.hou.usra.edu/meetings/lpsc2016/programAbstracts/instructions/, 2016.

[3] A. Light and P. J. Bartlein. The End of the Rainbow? Color Schemes for Improved Data Graphics. *EOS Transactions*, 85:385–391, October 2004. URL http://geography.uoregon.edu/datagraphics/.

[4] D. Borland and R.M. Taylor. Rainbow color map (still) considered harmful. *Computer Graphics and Applications, IEEE*, 27(2):14–17, March 2007. ISSN 0272-1716. doi: 10.1109/MCG.2007.323435.

[5] DA Green. A colour scheme for the display of astronomical intensity images. *arXiv preprint arXiv:1108.5083*, 2011.