USING LATEX TO WRITE AN LPSC ABSTRACT. Ross A. Beyer[1,2] and Moses P. Milazzo[3], [1]Carl Sagan Center at the SETI Institute, [2]NASA Ames Research Center, MS 245–3, Moffett Field, CA, USA (Ross.A.Beyer@nasa.gov), and [3]Astrogeology Science Center, United States Geological Survey (moses@usgs.gov)

Introduction: 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 [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. We have commented out a few multiple author styles above, near the \titlearea section of this source file. Choose the one that works for you. The title text is made using SMALLCAPS similarly to the LPI Word template. If you would like a different style, it should be easy to go in to the lpscabs.sty file and change it.

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 this package's customized \section 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.

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."

In addition, [5] suggests that color schemes should be perceived as monotonically increasing (or decreasing) when used to display intensity maps (such as topography, temperature, etc.). This is not usually possible with most rainbow color schemes. A monotonically increasing color scheme is also correct whether printed in color or grayscale (e.g., Fig 2).

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: The odds are good that most people will read this abstract on computer screens via a PDF reader rather than on paper. PDFs can contain active hyperlinks that can start a Web browser or an email client. 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.

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

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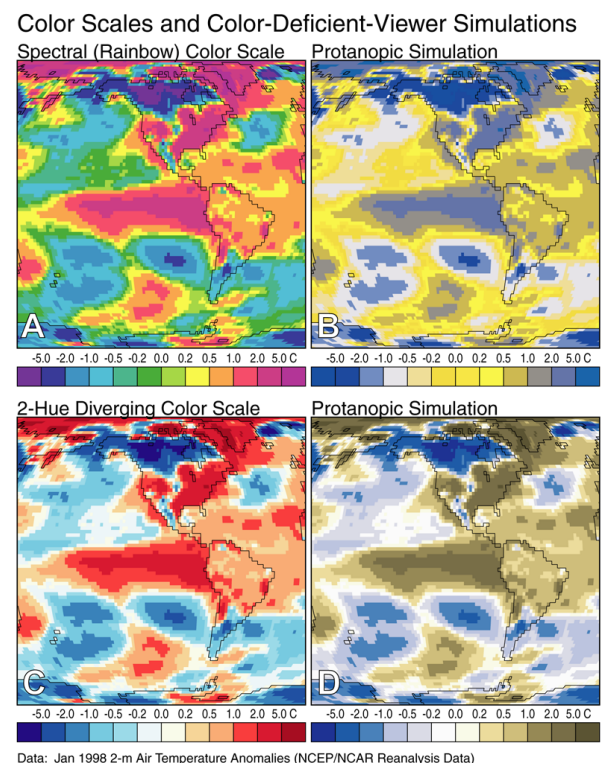```

The options in the square brackets are important, and http://www.tug.org/applications/hyperref/manual.html



Figure 1: This is Figure 1 from [3].

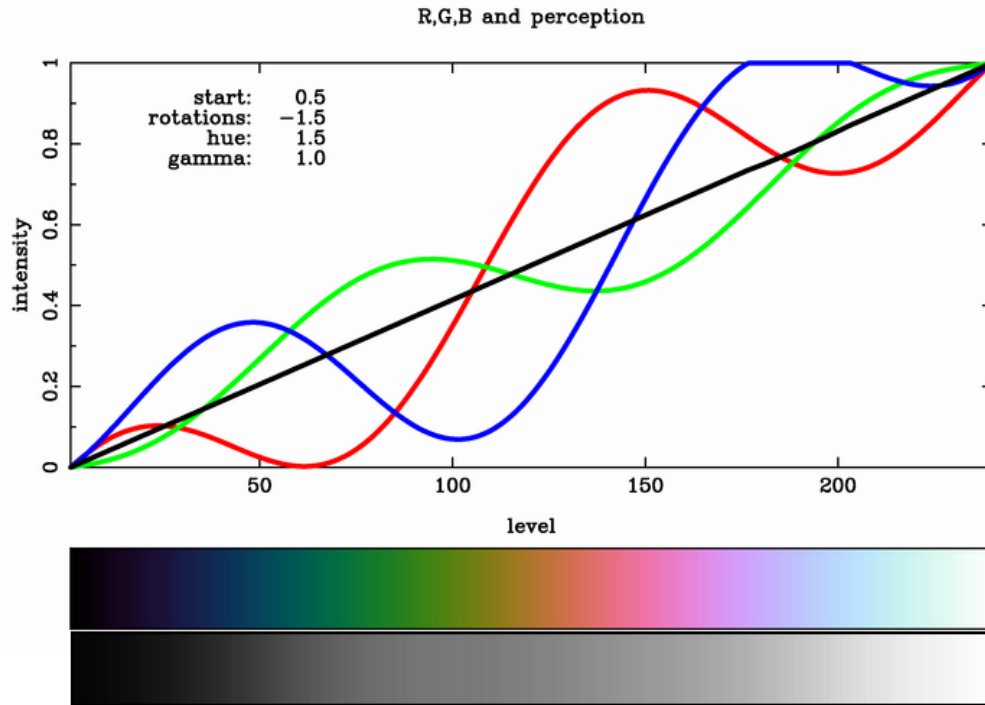Figure 2: Modified from https://www.mrao.cam.ac.uk/ dag/CUBEHELIX. The color and greyscale bars are both increasining in brightness monotonically.

details all of them. The first item `pdftex` is because we mostly use `pdflatex` to create PDF files from our `.tex` files; you may need a different option here. You may wonder why we set `citecolor` and `linkcolor` to black. The `hyperref` package is good, it creates links for many things in the document, and gives them unique colors. However, in this short document, that's visually distracting. The links are there, they're just black. You can 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.

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**Works that you reference:** Using `natbib` with the `numbers` option and the included `lpsc` bibliographystyle approximates the reference-style that has emerged for LPSC abstracts over the years [2]. We have included two helper commands to achieve a close approximation to the LPI template bibliography style. `\parabib` is designed to use as little space as possible; it fits all of the references into a single paragraph. `\listbib` is designed to provide a cleaner-looking, but less space-efficient bibliography.

**References:** [1] Kopka, H and Daly, PW. *Guide to LATEX*. Pearson Education (2003). [2] Lunar and Planetary Institute. LPSC Abstract Instructions (2016). [3] Light, A and Bartlein, PJ. *Eos, Transactions AGU*, 85:385–391 (2004). [4] Borland, D and Taylor II, RM. *IEEE Comp. Graph. and Appl.*, 27:14–17 (2007). [5] Green, D. *Preprint arXiv:1108.5083* (2011).