

A Sample American Meteorological Society L^AT_EX Document

BRIAN PAPA *

AMERICAN METEOROLOGICAL SOCIETY, BOSTON, MASSACHUSETTS

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AUTHOR3FIRSTNAME AUTHOR3LASTNAME

AFFILIATION, CITY, STATE/PROVINCE, COUNTRY

* *Corresponding author address:* Brian Papa, American Meteorological Society, 45 Beacon St., Boston, MA 01464.
E-mail: latex@ametsoc.org

ABSTRACT

This is a sample American Meteorological Society (AMS) L^AT_EX template. This document provides authors with both a L^AT_EX template and basic AMS formatting guidelines to be used when writing a paper. Authors should refer to the file `amspaper.tex` to review the actual L^AT_EX code used to create this document. The `amspaper.tex` (or `blank_template.tex`) file can then be modified by authors for their own manuscript.

The abstract should be no longer than 250 words in length. The abstract should not contain any mathematical expressions, should include no footnotes or citations, and should not contain first-person sentence structure.

1. Introduction

This document will provide authors with the basic American Meteorological Society (AMS) formatting guidelines. This is done using L^AT_EX which will also provide authors with an initial L^AT_EX template to use when submitting a manuscript to the AMS. The following sections will outline the guidelines and formatting for text, math, figures, and tables all through the use of L^AT_EX. A more thorough review of all manuscript requirements can be found in the AMS Authors' Guide (available online at www.ametsoc.org/PUBS/Authorsguide/pdf_vs/authguide.pdf).

An attempt to compile `amspaper.tex` should be made before using the template. These files are not guaranteed to work. The files have been tested on a Mandriva 10.2 Limited Edition Linux distribution (available online at <http://www.mandriva.com/en/download>) using T_EX Live 2007 (available online at <http://www.tug.org/texlive/>) and the now obsolete tetex-3.0-8, and on Windows XP using ProT_EXt (available online at <http://www.tug.org/protext/>), which is based on MiK_Tex. Other distributions of Linux/Unix and Windows using other distributions of L^AT_EX may be acceptable. Feedback and questions should be sent to latex@ametsoc.org.

Authors may also use the `blank_template.tex` file as a simple empty template to begin their paper. A valuable source of L^AT_EX information is the *Tex Frequently Asked Questions* available at numerous Web sites (available online at <http://faq.tug.org>).

2. Formatting text and sections

The text should be divided into sections, each with a separate heading and numbered consecutively (unless it is a single secondary or tertiary section). The primary, secondary, tertiary, and quaternary headings should be formatted on a separate line using the appropriate L^AT_EX commands. For more detailed information on different sections and their formatting see the Authors' Guide.

Secondary headings

Secondary headings labeled with letters are formatted using the `\subsection` command. Sections without labels can be formatted by placing an asterisk at the end of the appropriate subsection, subsubsection, or paragraph command (as in this case).

TERTIARY HEADINGS

Tertiary headings are formatted using the `\subsubsection` command.

Quaternary headings

Quaternary headings are formatted using the `\paragraph` command.

3. Citations

Citations to standard references in text should consist of the name of the author and the year of publication, for example, Becker and Schmitz (2003) or (Becker and Schmitz 2003) using the appropriate `\cite` or `\citep` commands, respectively. A variety of citation formats can be made with the `natbib` package. Refer to documentation on the `natbib` package for more information on the basic citation commands. References should be entered in the `references.bib` file located in the bibliography subdirectory. For a thorough discussion of how to enter references into the `references.bib` database file following AMS style please refer to the `AMS_references.pdf` document included in this package.

4. Formatting math

The following sections will outline the basic formatting rules for mathematical symbols and units. In addition, a review of the `amspaper.tex` file will show how this is done with the

use of \LaTeX commands. The AMS template provides the American Mathematical Society math, font, symbol, and boldface packages for use in math mode.

a. Mathematical symbols

Symbols must be of the same font style both in text discussion and in displayed equations or terms (and figures should be prepared to match). Scalar single character symbols are set italic, Greek, or script. Examples are u , L [note that Greek upsilon υ is used for v (italic “vee”) to avoid confusion with Greek nu ν often used for viscosity; this is handled automatically when in \LaTeX math mode], w , x , y , z , f , g , r , indices such as i or j , and constants such as C_D , k , or K . Multiple character scalar variables, abbreviations, nondimensional numbers, and acronyms for variables are set regular nonitalic: LWC, Re, Ro, BT, abs, obs, max, min, Re/Im (real/imaginary), etc. For vectors, use boldface nonitalic Times Roman as in \mathbf{V} , \mathbf{v} , or \mathbf{x} , and \mathbf{i} , \mathbf{j} , and \mathbf{k} unit vectors. Do not use the \LaTeX `\vec` command to denote vectors. For matrix notation use nonitalic boldface Arial (or Sans Serif) font as in \mathbf{A} , \mathbf{B} , or \mathbf{M} . All mathematical operator abbreviations/acronyms are set lowercase regular Roman font, except O (on the order of): sin, cos, tan, tanh, cov, Pr (for probability; note same as Prandtl number), const (for constant), c.c. (complex conjugate).

b. Units

Units are always set on a single line with a space separating the denominator, which is set with a superscript -1 , -2 , and so on, rather than using a slash for “per.” Examples are g kg^{-1} , $\text{m}^2 \text{s}^{-1}$, W m^{-2} , g m^{-3} , and m s^{-1} (note that ms^{-1} is the unit for “per millisecond”).

c. Equations

Brief equations or terms set inline in text must be set as a single line expression because page proofs are not double spaced, for example, $\rho^{-1}p/x$ or $(1/\rho)p/x$ or $(a-b)/(c+d)$; that is, use a superscript -1 for the denominator. In case of a more complicated term or equation, it should be set as an unnumbered display equation, such as

$$x = \frac{2b \pm \sqrt{b^2 - 4ac}}{2c}.$$

Otherwise, numbered equations can be entered using the appropriate `\equation` command, such as

$$x = \frac{2b \pm \sqrt{b^2 - 4ac}}{2c}. \tag{1}$$

This provides a numbered display equation.

5. Figures and tables

a. Figures

Detailed information about figures can be found both in the Authors' Guide and through links on the AMS Author Upload Web page (available online at http://www.ametsoc.org/au_upload/index.cfm). The insertion of a sample figure (Fig. 1) and caption is shown below. Standard figure sizes are 19 (one column), 27, 30, 33, 36, and 39 (two columns) picas. Authors should attempt to size their figures appropriately. At this time our press can accept only eps and TIFF figures. Because pdfTeX does not support the use of either of these figure types authors should not attempt to build their PDF file using this driver. The dvips driver does support the use of eps files, but not TIFF files. Therefore, authors should use eps figure files when using this template.

b. Tables

Each table must be numbered, provided with a caption, and mentioned specifically in the text. Each table should be in double-spaced format on a separate page, with an explanatory caption typed above the table on the same page. All tables should be attached at the end of the manuscript, following the figure legends. See section 11 of the Authors' Guide for more information on the proper preparation of tables. See below for the formatting of a sample table (Table 1).

Acknowledgments.

Keep acknowledgments (note spelling, no “e” between the “g” and “m”) as brief as possible. In general, acknowledge only direct help in writing or research. Financial support (e.g., grant numbers) for the work done, or for an author, or for the laboratory where the work was performed is best acknowledged here rather than as footnotes to the title or to an author's name. Contribution numbers (if the work has been published by the author's institution or organization) should be included on the title page, not in the acknowledgments.

APPENDIX A

Appendix Title Is Entered Here

Appendix section

The AMS template allows authors to format an unlimited number of appendixes. To format a single appendix use the `\appendix` command with no additional argument. Otherwise, add the appropriate one letter argument to the `\appendix` command (e.g. `\appendix[A]`, `\appendix[B]`, `\appendix[C]`, etc.) corresponding to the appropriate appendix. The title of the appendix can be formatted using the `\section*` command as shown above (which also provides code for centering). The `\subsection`, `\subsubsection`, and `\paragraph` commands are used to create sections within the appendix. Equations are automatically numbered appropriately for each appendix. Here is an example of the first equation in appendix A, automatically labeled (A1),

$$x = \frac{2b \pm \sqrt{b^2 - 4ac}}{2c}. \tag{A1}$$

APPENDIX B

File structure of the AMS \LaTeX Package

AMS \LaTeX files

You will be provided with a tarred, zipped \LaTeX package containing nine files: `amspaper.tex`, `blank_template.tex`, `ametsoc.sty`, `amspaper.pdf`, `figure01.eps`, `AMS_references.pdf`, `ametsoc.bst`, `database.bib`, and `references.bib`. Two subdirectories will be created when you untar the package: `figures` and `bibliography`. The `figures` directory will contain the sample figure file `figure01.eps`. This directory should be used to store all your figure files. The `bibliography` directory will contain the sample bibliography files `database.bib` and `references.bib`. You should alter `references.bib` with your own bibliography information. Refer to the `AMS_references.pdf` file included in this package for information on how to properly populate the `references.bib` file. The files `ametsoc.sty` and `ametsoc.bst` are the two style files. The file `amspaper.tex` contains the \LaTeX code for this sample file. The resulting PDF is `amspaper.pdf`. The file `blank_template.tex` provides a basic blank template with some section headings for authors to more easily enter their manuscript into.

Questions and feedback concerning the use of the AMS \LaTeX files should be directed to latex@ametsoc.org.

APPENDIX C

How to Compile the \LaTeX Files and Create a PDF

a. Compilation

There are a variety of different methods and programs that will create a final PDF from your \LaTeX document. Here, the basic commands for one method of creating a final PDF are presented. You can compile your \LaTeX files and build the dvi file with the following commands on a Linux-/Unix-based system.

- `latex filename.tex` (e.g., `latex amspaper.tex`)
- `bibtex filename` (e.g., `bibtex amspaper`). Note that the `.tex` extension is not included in the filename
- `latex filename.tex` (e.g., `latex amspaper.tex`)
- `latex filename.tex` (e.g., `latex amspaper.tex`). This command is repeated twice to clean up any reference dependencies.

This will create a dvi file (e.g., `amspaper.dvi`). You can view the dvi file using a dvi file viewer, such as `xdvi`, `kdvi`, or some similar program. Your PDF will be created from the dvi file, so do not delete this file.

b. Creating the PDF

The final PDF can be created from the dvi file using the following commands on a Linux-/Unix-based system.

- `dvips filename.dvi -o filename.ps` (e.g., `dvips amspaper.dvi -o amspaper.ps`). This converts the dvi file to a postscript file that will be converted to the final PDF.
- `ps2pdf14 filename.ps` (e.g., `ps2pdf14 amspaper.ps`). This creates the final PDF file (`amspaper.pdf`). The “14” at the end of the `ps2pdf14` command will generate a PDF compatible with Acrobat Reader, version 5 and later. It may be replaced with `ps2pdf13` or `ps2pdf`, which will generate PDFs compatible with Acrobat Reader, version 4 or 3 and later, respectively.

REFERENCES

Becker, E. and G. Schmitz, 2003: Climatological effects of orography and land–sea heating contrasts on the gravity wave–driven circulation of the mesosphere. *J. Atmos. Sci.*, **60**, 103–118.

List of Figures

- 1 Enter the caption for your figure here. Repeat as necessary for each of your figures. Create a figures directory and place all figures in that directory. . . . 14

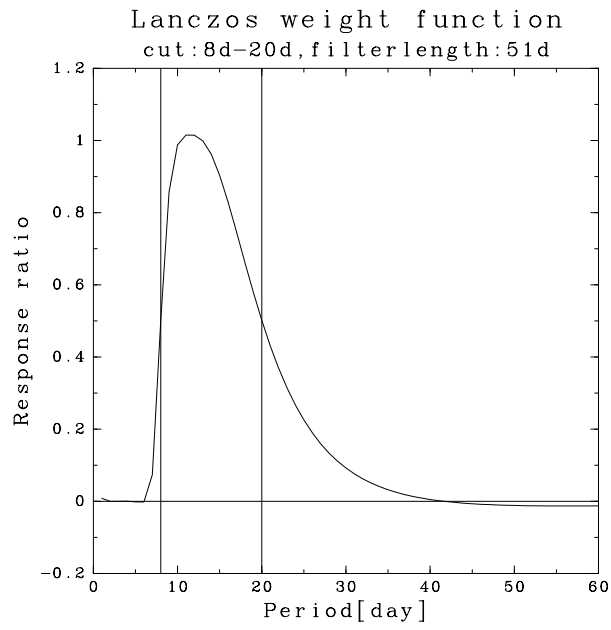


FIG. 1. Enter the caption for your figure here. Repeat as necessary for each of your figures. Create a figures directory and place all figures in that directory.

List of Tables

- 1 This is a sample table caption and table layout. Enter as many tables as necessary at the end of your manuscript. 16

TABLE 1. This is a sample table caption and table layout. Enter as many tables as necessary at the end of your manuscript.

Θ	a	Λ	Perturbation type	τ	α	λ_{\parallel}	n_{\parallel}	n_{ϕ}
89.5	1.20	6	SV	5	0	0.398	144	2304
89.5	1.20	6	SV	5	90	3.981	2304	2304
89.5	1.20	6	NM	–	0	0.501	288	2304
89.5	1.20	6	NM	–	90	7.943	4608	2304
89.5	0.87	6	SV	5	0	0.631	288	2304
89.5	0.87	6	SV	5	90	3.162	1152	2304
89.5	0.87	6	SV	30	0	7.943	4608	2304
89.5	0.87	6	SV	30	90	5.012	2304	2304