

American Meteorological Society

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Welcome to the LATEX Journal Style for the American Meteorological Society

Click on the tabs above for more information on each topic.

Tech Support

Please read the documentation in this file and the instructions and FAQs (www.ametsoc.org/pubslatex) before contacting the AMS.

If your question is not answered in the documentation or instructions, please contact latex@ametsoc.org.

The AMS LATEX support team is available to help resolve issues related to the AMS LaTeX files or to submissions to the Editorial Manager system. Please note that we are unable to devote resources to answering other general LATEX questions or to troubleshooting issues with non-AMS templates.

Files in this package and what they do

Beginning Information

readme.txt List of files and what they do.

Basic Macro File

ametsocV5.cls

The basic macro file that can be used for a draft version of your paper to submit to the AMS or to make a two-column version of your paper to estimate page length.

- Type \documentclass{ametsocV5} at the top of your .tex document to generate a paper that follows all AMS guidelines for submission and peer review.
- Type \documentclass[twocol] {ametsocV5} for your .tex document to generate a PDF that closely follows the layout of an AMS journal page, including single spacing and two columns. This journal-style PDF is only for the author's personal use, and any papers submitted in this style will not be accepted.

Always use \documentclass{ametsocV5} when generating a PDF for submission to the AMS.



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Files in this package and what they do (continued)

Usepackages included in ametsocV5.cls

Sample Files

amspaperV5.tex, .pdf Shows a sample paper in the form you will submit your paper to the AMS: double spaced, tables and figures at end of file, numbered lines. The file amspaper.pdf is a typeset version of amspaper.tex.

amssamp1V5.tex, .pdf Formal paper done in draft mode, in .tex, and then the resulting .pdf. This is the form of the paper you would use to submit it to the AMS.

amssamp2V5.tex, .pdf Sample of a two-column formal paper done using the [twocol] option, in .tex, and then the resulting .pdf.

Additional sample files

FigOne.pdf, FigTwo.pdf, and figure01.pdf are figures used in the samples.

Bibliography files

ametsoc2014.bst

Bibliographic style file.

references.bib

Sample bibliographic database, should be altered with your own

bibliography information.

AMS RefsV5.pdf

Reference documentation that explains AMS reference style and contains detailed examples. Reference list obtained from

database2020.bib.

database2020.bib

A second sample bibliographic database file, which includes examples of many different references formatted in AMS style.

Template file

templateV5.tex

Template file, for authors to copy and rename when making their own article.

Documentation

amsdocsV5.pdf

This file



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Files in this package and what they do (continued)

Usepackages included in ametsocV5.cls

The packages listed below are already included in ametsocV5.cls, so do not include them again with \usepackage {<filename>}. But, of course, you can use the commands contained in these packages.

For instance, the definition of \includegraphics[] {} is found in the graphicx.sty file. You can use this command to include your graphics files, without needing to enter \usepackage {graphicx} at the top of your .tex file.

Included in ametsocV5.cls:

```
\usepackage{graphicx}
\usepackage{epstopdf}
\usepackage[scaled=.97]{helvet} %% to get bold helvetica
\usepackage{fancyhdr}
\usepackage{natbib}
\usepackage{url}
\usepackage{xcolor}
\usepackage{indentfirst}
\usepackage{indentfirst}
\usepackage{fancyhdr}
\usepac
```

The math packages below are included in the templateV5.tex file. They have been moved here from the previous ametsoc.cls file for greater visibility and to make it easier to control the number of math alphabets. If you receive an error about too many math alphabets, make use of the hmmax and bmmax commands to limit unnecessary alphabets.

Included in templateV5.tex:

```
%\newcommand{\hmmax}{0}
%\newcommand{\bmmax}{0}
\usepackage{amsmath, amsfonts, amssymb, bm}
\usepackage{mathptmx}%{times}
\usepackage{newtxtext}
\usepackage{newtxmath}
```



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Start and Author Entries

Starting Body of Article

The best way to start your article is to copy and rename **templateV5.tex** and use it as the basis of your work. This will make it easier to enter the necessary commands in the right order.

If you are creating a draft for submission to the AMS, use

\documentclass{ametsocV5}

If you are creating a two-column file for personal use, use

\documentclass[twocol] {ametsocV5}

Author Entries

Title

You may use \\ to break lines in title:

\title{}

Author(s) and Correspondence info

Enter author(s) and corresponding author information, following this form:

\authors{ \correspondingauthor{} }

Example:

\authors{Author One\correspondingauthor{Author One, email address} and Author Two}

Affiliation

This command is for the affiliation that accompanies the author(s) in \authors:

\affiliation{Geophysical Institute, University of Bergen, Bergen, Norway, and ARC Centre for Climate Extremes, Monash University, Melbourne, Victoria, Australia}

Additional authors/affiliations

If appropriate, add additional authors, different affiliations:

```
\extraauthor{Extra Author}
\extraaffil{Affiliation, City, State/Province, Country}
```

Affiliation footnotes

For affiliation footnotes, such as for a change in affiliation or a retired or deceased note, use the **\thanks** command following the author's name:

```
\authors{Author One\correspondingauthor{} and
Author Two\thanks{Current affiliation: NOAA, Silver Spring, Maryland.}}
\extraauthor{Extra Author\thanks{Retired.}}
```



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Start and Author Entries Starting Body of Article

Abstract

Abstracts should not exceed 250 words in length.

\abstract{<enter abstract text here>}

After the abstract is the **\begin{document}** command, followed by the (necessary!) **\maketitle** command. **\maketitle** makes use of the commands entered earlier.

Significance statement / Capsule summary

If you are including an optional significance statement for a journal article or a required capsule summary for BAMS (see www.ametsoc.org/ams/index.cfm/publications/authors/journal-and-bams-authors/formatting-and-manuscript-components for details), please apply the necessary command as shown below:

\statement

Significance statement here (120 words maximum).

\capsule

Capsule summary here (20–30 words maximum).

Main body of paper

The main body of the paper is entered next, divided by sections and subsections.

Formatting text and sections

The text should be divided into sections, each with a separate heading and consecutive numbering. Note, however, that single secondary, tertiary, and quaternary sections remain unnumbered.

Secondary headings

Secondary headings labeled with letters are formatted using the \subsection*{} for a single subsection within a section or \subsection{} for multiple subsections within one section.

Tertiary headings

Tertiary headings are formatted using the \subsubsection*{} for a single subsubsection within a subsection or \subsubsection{} for multiple subsubsections within a subsection.

Quaternary headings

Quaternary headings are formatted using the \paragraph* { } for a single paragraph within a subsubsection or \paragraph { } for multiple paragraphs within a subsection.



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Graphics Files

Insert graphics file with the command

\includegraphics[width=<dimen>] {illustration}

Generally, you should supply EITHER height or width (the other dimension will accommodate), and your aspect ratio will be correct. (The aspect ratio describes the proportional relationship between the width of an image and its height.)

The only exception is if you use .tif files, which need BOTH width and height declared.

\includegraphics[height=2.25in, width=3in]{illustration.tif}

Sample figure

```
\begin{figure}[t]
  \noindent\includegraphics[width=19pc]{figure01.pdf}\\
  \caption{Enter the caption for your figure here. Repeat as
  necessary for each of your figures. Figure from \citet{Knutti2008}.}\label{f1}
\end{figure}
```

A sample figure and caption is shown above. Standard figure sizes are 19 (one column), 27, 33, and 39 (two columns) picas.

Use the right file name extension

You must use the correct extension depending on which program you use to turn your .dvi file to .pdf.

- If you are using pdflatex, you must supply .pdf, .jpg, or .png files.
- If you are using dvips, you must use .eps or .tif files.

EPS files can be converted to PDF using the epstopdf utility, included in most LaTeX distributions. On the command line, you can use epstopdf <filename>.eps and a <filename>.pdf will be produced.

Another possibility is converting .eps files to .pdf files with Adobe Acrobat or Photoshop.

Notes on graphics choices

JPG: Widely used on the Internet, digital cameras, etc. They are the best choice if you want to insert photos.

PNG: A very common format (even if not as much as JPG); it is a lossless format and it is the best choice for diagrams (if you were not able to generate a vector version) and screenshots.

PDF: Widely used for documents but can be used to store images as well. It supports both vector and bitmap images, but it is not recommended for the latter, as JPG or PNG will provide the same result using less disk space.



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Figures

Figures (continued)

Figure Placement

In your .tex file, the AMS prefers that you place all figures at the end of the document prior to submission.

Making Figures

Figures with multiple panels should be submitted with all panels included in one figure file.

Please **DO NOT** use the **subcaption** package or the **subfigure** commands.

Remember that a cross-referencing label should be used within or after the caption, but not before it, in order to get the right figure number. Cross-referencing labels **cannot be used for appendix figures** as the numbering will be incorrect. Please use plain text for appendix figure callouts within the text of the paper.

For a two-column figure, use star form: \begin{figure*}...\end{figure*}. Note that figures in a two-column paper will need to be placed within the body text, near to where they are first called out.

For a one-column figure: \begin{figure}...\end{figure}

Landscape Figures

If your figure is very wide, you may want to rotate it in order to fit it on one page. The easiest way to do that is to use the **sidewaysfigure** commands. The **rotating** package necessary for **sidewaysfigure** is already included in the ametsocV5.cls file.

Replace the \begin{figure}...\end{figure} commands with \begin{sidewaysfigure}...\end{sidewaysfigure} to rotate tables.

In order for the endfloat command to recognize the sidewaysfigure command, you must add the endfloat.cfg file to the folder containing your LaTeX paper elements (and include the file when submitting your paper). The endfloat.cfg file can be obtained from www.ametsoc.org/pubslatexfaq.

Figure Captions and \includegraphics

The figure caption should be written underneath the illustration.

Figure captions in the appendix should use the new command:

\appendcaption{<Appendix letter Figure number>}{<Caption>}
For example:

\appendcaption{A1}{Caption for Fig. A1 in appendix A here.}



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Figures Figure

Figures (continued)

\includegraphics

Use the includegraphics command to bring in illustration:

\includegraphics[width=\columnwidth] {figsix}

To make illustration as wide as both columns, use

\includegraphics[width=\textwidth] {<illustration>}

or to make as wide as one column, use

\includegraphics[width=\columnwidth] {<illustration>}

The terms \textwidth and \columnwidth are perhaps easier to remember than the standard figure sizes: 19pc (one column) and 39pc (two columns).

Two other standard sizes for your illustrations are 27pc and 33pc, for those illustrations that are between one and two columns wide.

If you use these intermediate sizes you might like to center the illustration and caption. Here is how to do that:

\begin{figure}
\centerline{\includegraphics[width=33pc]{illustration}}
\caption{Caption text}
\label{figone}
\end{figure}



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Tables

Tables (continued)

Table Placement

In your .tex file, the AMS prefers that you place all tables at the end of the document prior to submission.

Making the table

Remember that a cross-referencing label should be used within or after the caption, but not before it, in order to get the right table number. Cross-referencing labels **cannot be used for appendix tables** as the numbering will be incorrect. Please use plain text for appendix table callouts within the text of the paper.

For a two-column table, use star form: \begin{table*}...\end{table*}. Note that tables in a two-column paper will need to be placed within the body text, near to where they are first called out.

For a one-column table: \begin{table} . . . \end{table}

Caption goes above table.

Tables in the appendix should use the new command:

\appendcaption{<Appendix letter Table number>}{<Caption>}
For example:

\appendcaption{B1}{Caption for Table B1 in appendix B here.}

- Lines: Do not use vertical lines in table. Use horizontal lines only at the top (\topline), underneath the column headers (\midline), and at the bottom of table (\botline).
- For a line under selected columns, \cline{<col>-<col>}, as in standard LATEX.

The general form for tables must be:

```
\begin{table}[t]
\caption{This is a sample table caption and table layout. Enter as many tables as
  necessary at the end of your manuscript. Table from Lorenz (1963).}\label{t1}
\begin{center}
\begin{tabular}{ccccrrcrc}
\topline
$N$ & $X$ & $Y$ & $Z$\\
\midline
  0000 & 0000 & 0010 & 0000 \\
<body of table>
\botline
\end{tabular}
\end{center}
\end{center}
\end{table}
```



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Tables

Tables (continued)

Table spanning width of page

To make a table that spans the width of the page, use \begin{table*}[t]...\end{table*} and \begin{tabular*}{\textwidth}{@{\extracolsep\fill}lccccccc}...\end{tabular*}\end{table*}

To make a wide table fit within the margins of page

Of course, all tables and figures, including rotated tables and figures, must fit within the margins of the page.

There is a space between table columns set with with the dimension \tabcolsep before and after the column divider &. You can change this dimension.

For instance, advance\tabcolsep-4pt will subtract 8 points between table columns, a useful trick to know. The default setting is \tabcolsep=6pt, for 12pt space between columns.

You may also shrink the size of your table using the \small or \footnotesize commands in order to make it fit within the page margins. Note that all LaTeX papers accepted for publication by the AMS are converted to Word documents prior to copy and technical editing, so your table does not need to be perfect; it only needs to be clear and legible for the reviewers.

Landscape tables

If your table is very wide, you may want to rotate it in order to fit it on one page. The easiest way to do that is to use the **sidewaystable** commands. The **rotating** package necessary for **sidewaystable** is already included in the ametsocV5.cls file.

Replace the **\begin{table}**...**\end{table}** commands with **\begin{sidewaystable}**...**\end{sidewaystable}** to rotate tables.

In order for the **endfloat** command to recognize the **sidewaystable** command, you must add the **endfloat.cfg** file to the folder containing your LaTeX paper elements (and include the file when submitting your paper). The **endfloat.cfg** file can be obtained from **www.ametsoc.org/pubslatexfaq**.



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Citations

Citations are used to reference entries in the bibliography.

The natbib package, included in ametsocV5.cls, has two basic citation commands, \citet and \citep for textual and parenthetical citations, respectively.

```
\citet{jon90} --> Jones et al. (1990)
\citet[chap. 2]{jon90} --> Jones et al. (1990, chap. 2)
\citep{jon90} --> (Jones et al. 1990)
\citep[chap. 2]{jon90} --> (Jones et al. 1990, chap. 2)
\citep[see][]{jon90} --> (see Jones et al. 1990)
\citep[see][chap. 2]{jon90} --> (see Jones et al. 1990, chap. 2)
```

Multiple citations may be made by including more than one citation key in the \cite{} or \citep{} command argument.

```
\citet{jon90, jam91} --> Jones et al. (1990); James et al. (1991)
\citep{jon90, jam91} --> (Jones et al. 1990; James et al. 1991)
\citep{jon90, jon91} --> (Jones et al. 1990, 1991)
\citep{jon90a, jon90b} --> (Jones et al. 1990a, b)
```



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Appendixes

Use \appendix if there is only one appendix.

Use \appendix[A], \appendix[B], etc., if you have multiple appendixes.

A descriptive appendix title is necessary!

\appendixtitle{}

Appendix section numbering (note, skip \section and begin with \subsection) \subsection{First primary heading} \subsubsection{First secondary heading} \paragraph{First tertiary heading}

All appendix figures/tables should be placed in order AFTER the main figures/tables, i.e., tables, appendix tables, figures, appendix figures.

Figures

Cross-referencing labels **cannot be used for appendix figures** as the numbering will be incorrect. Please use plain text for appendix figure callouts within the text of the paper.

Figure captions in the appendix should use the new command:

\appendcaption{<Appendix letter Figure number>}{<Caption>}
For example:

```
\begin{figure}
\noindent\includegraphics[width=19pc,angle=0]{figureA1.pdf}\\
\appendcaption{A1}{Caption here.}
\end{figure}
```

Tables

Cross-referencing labels **cannot be used for appendix tables** as the numbering will be incorrect. Please use plain text for appendix table callouts within the text of the paper.

Tables **in the appendix** should use the new command:

\appendcaption{<Appendix letter Table number>}{<Caption>}
For example:

```
\begin{table}[t]
\appendcaption{B1}{Caption for Table B1 here.}\label{tabB1}
```



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Acknowledgments/Data

References

Using BibT_EX

Acknowledgments

Acknowledgments will start with \acknowledgments or \acknowledgment.

Here is an example:

\acknowledgments

We thank two anonymous reviewers for their comments, which helped to improve the manuscript.

Data availability statment

The data availability statement is where authors should describe how the data underlying the findings within the article can be accessed and reused. Authors should attempt to provide unrestricted access to all data and materials underlying reported findings. If data access is restricted, authors must mention this in the statement. See http://www.ametsoc.org/PubsDataPolicy for more details.

The data availability statement will start with \datastatement.

Here is an example:

\datastatement

The data that support the findings of this study are available from https://doi.org/10.5067/8GQ8LZQVL0VL1 and https://doi.org/10.7289/V57P8W90.



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Acknowledgments/Data

References

Using BibT_EX

For the reference section, please use these commands:

\bibliographystyle{ametsoc2014}
\bibliography{references}

\bibliographystyle{ametsoc2014} will use the bibliography style defined with ametsoc2014.bst

\bibliography{references} will use references.bib for the database file.

If you have another .bib file that you would like to use, you can substitute its filename. For instance, if you have mybib.bib, you would write

\bibliography{mybib}

You will see more information about using BibT_EX in the next section, Using BibT_EX.

For more information on AMS reference style, including detailed examples, see the **AMS_RefsV5.pdf** file included in this package.



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Acknowledgments/Data References Using BibT_EX

Using BibT_EX

To use BibT_EX, follow these steps.

- Enter the bibliography fields you want to use in your .bib file.
 - 1) You can edit the references.bib file to add your own database entries, or
 - 2) You can make or use any existing xxx.bib file of your choice, with "xxx" being any file name you choose.
- The AMS expects bibliographystyle ametsoc2014.bst to be used, so you should type: \bibliographystyle{ametsoc2014}.
- Next, you must declare the name of the bibliography database file, or files, that you will use: write \bibliography{zzz}, with "zzz" being the name of the .bib database file. You can also use more than one .bib file, in which case you must separate the filenames with a comma: \bibliography{zzz,yyy}.
- Using the label names of entries in the bibliography database file, you can now write either \citet{<|abel>} or \citep{<|abel>} for each reference that you want cited in the text. All references in the reference list must be cited; therefore, do not use the \nocite command.

See forms of citations listed in Citations.

- Run LaTeX or bdfLaTeX on the .tex document, producing the usual .aux file.
- Run BibTEX on the .tex document, producing a .bbl file.
- Run LATEX or pdfLATEX on the .tex document two more times (must be done twice to ensure that all citations appear correctly; otherwise, citations may show up as "??").