Welcome to the LaTeX Journal Style for the American Meteorological Society

Click on the tabs above for more information on each topic.
This document was last updated on 1 September 2021.

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

`ametsocv6.1.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{ametsocv6.1}` at the top of your .tex document to generate a paper that follows all AMS guidelines for submission and peer review.

– Type `\documentclass[twocol]{ametsocv6.1}` 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{ametsocv6.1}` when generating a PDF for submission to the AMS.

Sample Files

amspaperv6.1.tex, .pdf	Shows a sample paper in the form you will submit your paper to the AMS: 1.5 line spacing, numbered lines. The file amspaperv6.1.pdf is a typeset version of amspaperv6.1.tex.
amssamp1v6.1.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.
amssamp2v6.1.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

ametsocV6.bst	Bibliographic style file.
references.bib	Sample bibliographic database, should be altered with your own bibliography information.
AMS_RefsV6.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

templatev6.1.tex	Template file, for authors to copy and rename when making their own article.

Documentation

amsdocsv6.1.pdf	This file

The packages listed below are already included in ametsocv6.1.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 ametsocv6.1.cls:

```
\usepackage{graphicx}
\usepackage{amsmath,amsfonts,amssymb,bm}
\usepackage{mathptmx}
\usepackage{newtxtext}
\usepackage{newtxmath}
\usepackage{epstopdf}
\usepackage[scaled=.97]{helvet}
\usepackage{fancyhdr}
\usepackage{natbib}
\usepackage{url}
\usepackage{xcolor}
\usepackage{indentfirst}
\usepackage{multicol}
\usepackage{ifthen}
\usepackage{rotating}
\usepackage{appendix}
\usepackage{setspace}
\usepackage{lineno}
```

If you receive an error about too many math alphabets, add `\newcommand{\hmmax}{0}` and `\newcommand{\bmmax}{0}` to the preamble of your article .tex file to limit unnecessary alphabets.

The best way to start your article is to copy and rename **templatev6.1.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{ametsocv6.1}
```

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

```
\documentclass[twocol]{ametsocv6.1}
```

Author Entries

Title

You may use \\ to break lines in title:

```
\title{}
```

Author(s) and affiliation letters

Enter author(s) and affiliation footnote letters, following this form:

```
\authors{ \aff{} }
```

Example:

```
\authors{Author One,\aff{a} Author Two,\aff{a,b} Author Three,\aff{c}
 and Author Four\aff{d}}
```

Corresponding author

This command inserts the corresponding author info at the bottom of the title page:

```
\correspondingauthor{}
```

Example:

```
\authors{Author One,\aff{a}\correspondingauthor{Author One, authorone@email.com}
Author Two,\aff{a,b} Author Three,\aff{c} and Author Four\aff{d}}
```

Affiliation(s)

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

```
\affiliation{\aff{a}{First Affiliation}\\ \aff{b}{Second Affiliation}\\
\aff{c}{Third Affiliation}\\ \aff{d}{Fourth Affiliation}}\\
```

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\aff{a}\correspondingauthor{XXX} and
 Author Two\aff{a}\thanks{Author Two's current affiliation: NCAR, Boulder, Colorado.}}
```

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).

Formatting text and sections

The main body of the paper should be divided into sections using \section{}, each with a separate heading and consecutive numbering. Note 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.

Graphics Files

Insert graphics file with the command
`\includegraphics[width=<dimen>]{illustration}`
Generally, you should supply EITHER height or width (the other dimension will accomodate), 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.

Figure Placement

Version 6.0 of the AMS template has removed endfloat, so figures should now be placed in the .tex file approximately where they should appear in the complied PDF. Please place figures before/after paragraphs, not within a paragraph.

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.

For a two-column figure, use star form: `\begin{figure*}...\end{figure*}`.

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 ametsocv6.1.cls file.

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

Figure Captions and \includegraphics

The figure caption should be placed below the illustration.

\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}
```

Table Placement

Version 6.0 of the AMS template has removed endfloat, so tables should now be placed in the .tex file approximately where they should appear in the complied PDF. Please place tables before/after paragraphs, not within a paragraph.

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.

For a two-column table, use star form: `\begin{table*}...\end{table*}`.

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

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

The general form for tables must be:

```
\begin{table}[t]
\begin{center}
\begin{tabular}{ccccrrcrc}
\topline
$N$ & $X$ & $Y$ & $Z$\\
\midline
 0000 & 0000 & 0010 & 0000 \\
<body of table>
\botline
\end{tabular}
\end{center}
\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}
\end{table}
```

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 a 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 ametsocv6.1.cls file.

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

Table footnotes

To avoid any complications caused by floats, we recommend hardcoding table footnotes rather than using a footnote command. To do this, simply insert footnote-sized text below the table and insert the corresponding superscript letters as needed throughout the table. For example:

```
\begin{table}[h]
\begin{center}
\begin{tabular}{lccc}
\topline
$N$ & $X$ & $Y$ & $Z$\\
\midline
0000 & 0000 & 0010$^{\rm a}$ & 0000 \\
0005 & 0004 & 0012 & 0000 \\
0010 & 0009 & 0020 & 0000 \\
\botline
\end{tabular}
\end{center}
\footnotesize{$^{\rm a}$ First footnote text.}
\caption{Table caption here.}\label{t1}
\end{table}
```

Citations

Citations are used to reference entries in the bibliography.

The natbib package, included in ametsocv6.1.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 `\citet{}` 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)
```

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 within their respective appendixes.

Appendix figures and tables should be referenced in text the same format as main text figures and tables. Figure, table, and equation numbers within an appendix will automatically have the letter of the appendix added before the figure/table/equation number.

To reference an appendix or appendix subsection in text, you will need to manually type in the appendix callout (e.g., "see appendix A for more information").

To reference a numbered/lettered section within an appendix, you will need to manually enter the appendix callout, then you can use the **\ref** command (e.g., "see appendix A, section **\ref{appAb}**", which will appear as "see appendix A, section b").

To reference a single unnumbered section within an appendix, you will need to manually enter the callout in text, using the subsection title since there is no section letter or number associated with it (e.g., see appendix A, section "Data and methods").

Acknowledgments

The AMS requires that all topically relevant funding sources, including recipients and grant numbers, as well as conflicts of interest, are fully disclosed in the Acknowledgments of all submissions. Financial support (e.g., grant numbers) for the work done, for an author, or for the laboratory where the work was performed must be acknowledged here rather than as footnotes to the title or to an author's name.

Acknowledgments will start with `\acknowledgments` or `\acknowledgment`.

Here is an example:

```
\acknowledgments
B. Smith is supported by NSF Award 98765432. A. Chen is supported by the National
Natural Science Foundation of China (12345678). We thank two anonymous reviewers
for their helpful and constructive comments on the earlier version of this 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
OFES data are available through http://apdrc.soest.hawaii.edu/dods/public_ofes/OfES,
Argo data are available through ftp://ftp.ifremer.fr/ifremer/argo, and Argo derived
climatology is available through http://sio-argo.ucsd.edu/RG_Climatology.html
```

For the reference section, please use these commands:

```
\bibliographystyle{ametsocV6}
\bibliography{references}
```

`\bibliographystyle{ametsocV6}` will use the bibliography style defined with ametsocV6.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 BibTeX in the next section, Using BibTeX.

For more information on AMS reference style, including detailed examples, see the **AMS_RefsV6.pdf** file included in this package.

Using BibTeX

To use BibTeX, 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 **`ametsocV6.bst`** to be used, so you should type: **`\bibliographystyle{ametsocV6}`**.
- 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{<label>} or \citep{<label>} 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 pdfLaTeX 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 "??").