

AMERICAN GEOPHYSICAL UNION

*Author's Guide to Typesetting
AGU Journal Articles
in L^AT_EX Using*

AGUTeX

**Amy Hendrickson
T_EXnology Inc.**

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Author's Guide to the AGUTeX Journal Style

Welcome to the use of AGUTeX, the AGU L^AT_EX style file for typesetting articles to appear these journals:

JOURNAL OF GEOPHYSICAL RESEARCH

GLOBAL BIOCHEMICAL CYCLES

GEOPHYSICAL RESEARCH LETTERS

PALEOCEANOGRAPHY

RADIO SCIENCE

REVIEWS OF GEOPHYSICS

TECTONICS

WATER RESOURCES RESEARCH

GEOCHEMISTRY, GEOPHYSICS, GEOSYSTEMS

AGUTeX

This macro set is designed to be as simple as possible to use and distribute while having advanced capabilities. It is composed of one main macro file that will format all nine journal styles.

The default mode is to typeset in two columns, allowing the insertion of figures and tables in the columns or spanning both columns at the top and bottom of the page. Options given at the top of the author's file will reformat the article in galley or draft mode. Galley mode produces a single column allowing "callouts" and sends illustrations and tables to the end of the file. Draft mode is double spaced, has the time and date of production at the bottom of the article, and sends illustrations to the end of the file.

There is one additional style file, used for PostScript font calls, which may easily be modified to make the PostScript font names match those on the author's computer.

You will find that the standard L^AT_EX commands will work exactly as you expect them to when you use this style. In addition, there are a few new commands written specifically for this journal style, which will be explained here.

Current Version

Please make sure that you have the current version of the macro files and the documentation. If you are wondering if your version is current, please download new copies of the files from the AGU Web site when you want to use them. This will ensure that you have the most current version of the style and documentation.

If you find that you are having a problem **after you have read this documentation carefully**, help may be had by sending email to author.help@agu.org. If possible, please send a small file demonstrating the problem.

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Files in This Package

Here is a list of the files found in this package. There will be more explanation of each in the following sections.

Basic macro files

agutex.cls Basic LaTeX macro file, used `\documentclass[<journame>]{agutex}`

agu-ps.sty PostScript font file. You will probably need to edit this file to enter the PS font names found on your system

Template File

agutmpl.tex Template file, for authors to use in making their own article, showing the options for commands and the order in which they should be entered. Authors are encouraged to copy this file, give it a new name, and enter their articles into it.

Inserting .eps files

graphics.zip Graphics files, includeing graphicx.sty, used for including .eps files.

Documentation

agudocs.tex Documentation in LaTeX form. You may run LaTeX on this file and print it on your printer, or see it with your LaTeX preview program.

agudocs.pdf Documentation in PDF form. Use Acrobat Reader to view it.

Bibliography

agu.bst AGU bibliography style file

agufull.bst Alternative AGU bibliography style file

Author macros

AGU would prefer if you did not use your own macros. However, if you think that it is important to do so, please remember to include your macro definitions at the top of your article file. (Do not have macros in a separate file because it is easy for your article and the macro file to become separated.)

Using Extra LaTeX files

You are discouraged from using any of the L^AT_EX style files when formatting your article for AGU, since there may be incompatibilities with the agutex.cls file, and also because AGU would like all the articles in a particular journal to adhere to the same style.

Template File

A template file, agutmpl.tex is provided to make it easier to enter the initial article commands in the correct order. It should be self-explanatory.

You are strongly urged to use this file as the basis of your formatted article. To do this you should

- copy agutmpl.tex to <yourfile>.tex.
- enter the text of your article.

Starting Your Article

Set the documentclass or documentstyle and choose the journal style

```
\documentclass[<journame>]{agutex}
% (ie., \documentclass[jgrga]{agutex})
```

<journame> should be one of the following:

- jgrga JOURNAL OF GEOPHYSICAL RESEARCH
- gbc GLOBAL BIOCHEMICAL CYCLES
- grl GEOPHYSICAL RESEARCH LETTERS
- pal PALEOCEANOGRAPHY
- ras RADIO SCIENCE
- rog REVIEWS OF GEOPHYSICS
- tec TECTONICS
- wrr WATER RESOURCES RESEARCH
- gc GEOCHEMISTRY, GEOPHYSICS, GEOSYSTEMS

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AGUTeX options

There are also two AGU class options which you can use in addition to the journal style:

[draft] and [galley]

Draft

Draft will produce double-spaced, single-column output, with a “draft” line printing at the bottom of the page with the date and time of printing.

```
\documentclass[draft,jgrga]{agutex}
```

Galley

The galley form for optional final production will send figures and tables to the end of the file, will print callouts, and will print only one of the normal two columns on each page.

```
\documentclass[galley,jgrga]{agutex}
```

```
\documentclass[jgrga]{agutex}
```

.....

Platonic orthonormal wavelets

Muran Özaydin and Tomasz Przebinda

Department of Mathematics, University of Oklahoma, Norman, Oklahoma

Abstract. We classify all orthonormal wavelets which occur in the L^2 space of the faces of a platonic solid.

1. Introduction

In the case of erosion a pixel with a value 1 has to be set to 0 if and only if at least one of its neighbors (for a given structuring element) is 0. Increasing density will eventually make traditional mechanical accessibility unachievable, requiring new test strategies. We have the following property:

$$f(x) \sum_{s \in S_f} \left(\prod_{1 \leq i \leq n} (s_i \cdot x_i + \overline{s_i} \cdot \overline{x_i}) \right). \tag{1}$$

Many functions used in mathematical morphology have a direct expression in terms of boolean operations over pixel values.

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Paper number 2001JD000218.
0148-0227/08/2001JD000218\$9.00

Many classical image processing techniques proceed by analyzing at each element of the image (pixel, voxel) the values of its neighbors. Considering the particular case of binary images, a number of techniques for image processing have been developed. In this section we will show how we can automatically produce an efficient implementation of a given discrete function, either specified by a formal description or in terms of boolean operations. Let us consider a boolean function f depending on the n boolean variables...

Many classical image processing techniques proceed by analyzing at each element of the image (pixel, voxel) the values of its neighbors. Considering the particular case of binary images, a number of techniques for image processing have been developed.

Using Draft Option

The [draft] option will double space your article and provide a draft line at the bottom of each page. Please use the draft option when submitting your article!

```
\documentclass[draft,jgrga]{agutex}
```

.....

Platonic orthonormal wavelets

Muran Özaydin and Tomasz Przebinda

Department of Mathematics, University of Oklahoma, Norman, Oklahoma

Abstract. We classify all orthonormal wavelets which occur in the L^2 space of the faces of a platonic solid.

1. Introduction

In the case of erosion a pixel with a value 1 has to be set to 0 if and only if at least one of its neighbors (for a given structuring element) is 0. Increasing density will eventually make traditional mechanical accessibility unachievable, requiring new test strategies. We have the following property:

$$f(x) \sum_{s \in S_f} \left(\prod_{1 \leq i \leq n} (s_i \cdot x_i + \overline{s_1} \cdot \overline{x_i}) \right). \quad (1)$$

Many functions used in mathematical morphology have a direct expression in terms of boolean operations over pixel values.

Using Galley Option

The [galley] option will print your article in single column form, with \callout{} printing. This is mostly for use in final production, although authors may also use it if they are having trouble getting figures and/or tables to position correctly. By using the galley option, all the illustrations will float to the end of the article, so placement will no longer be a problem.

```
\documentclass[galley,jgrga]{agutex}
```

.....

Platonic orthonormal wavelets

Muran Özaydin and Tomasz Przebinda

Department of Mathematics, University of Oklahoma, Norman, Oklahoma

Abstract. We classify all orthonormal wavelets which occur in the L^2 space of the faces of a platonic solid.

1. Introduction

In the case of erosion a pixel with a value 1 has to be set to 0 if and only if at least one of its neighbors (for a given structuring element) is 0. Increasing density will eventually make traditional mechanical accessibility unachievable, requiring new test strategies. We have the following property:

$$f(x) \sum_{s \in S_f} \left(\prod_{1 \leq i \leq n} (s_i \cdot x_i + \overline{s_1} \cdot \overline{x_i}) \right). \quad (1)$$

Many functions used in mathematical morphology have a direct expression in terms of boolean operations over pixel values.

Here we refer you to the first figure (Figure 1) so that you can see our points in clear graphic form.

Figure 1

Packages You Can Use With AGUTeX: AGU-PS and Graphicx

PostScript Fonts (OPTIONAL)

In final production your article will be printed using PostScript fonts. You are under no obligation to use PostScript text fonts, although you may do so by using the `agu-ps.sty` file in this package.

(The journal style, `jgrga`, is only an example)

```
\documentclass[jgrga]{agutex}
\usepackage{agu-ps}
```

Modifying the agu-ps.sty file

Most authors have at least some PostScript fonts on their system. The problem is that there are differing conventions for naming these fonts depending on their implementation of T_EX. The file `agu-ps.sty` may be edited to match the font names listed with those on your system.

Please look at the top of the file, where you will see the lines you need to modify to have the PS font calls use the PS names found on your system. As soon as you have discovered what PS names are on your system, you can make the appropriate substitutions. You can find font names in the TeXtures menu or, on other systems, by looking into the directory where the `.fm` fonts are found and making your best guess as to what Times Roman, for example, is called.

```
% Change these definitions, if necessary ====>
%% Times-Roman
%-----
% (Berry font names)
\def\timesroman{ptmr}
\def\timesbold{ptmb}
\def\timesitalic{ptmri}
\def\timesbolditalic{ptmbi}

% (Y & Y font names)
%\def\timesroman{tir}
%\def\timesbold{tib}
%\def\timesitalic{tii}
etc...
%% <=== End of changes needed. Please do not make changes below this point.
%% !!!!!!!!!!!
```

Using `graphicx.sty`, for Illustrations

Graphics files

All graphics should be supplied as EPS files. Make sure that the .eps files actually work and that they are not missing header files. Printing a copy of your paper including all the illustrations should be a good check of this.

For best results, make sure that your .eps files do not call for fonts other than the standard Times/Helvetica/Courier etc. Illustrations with nonstandard fonts may have to be redone, and you will be better served if you can check the final font positioning yourself.

Graphicx.sty

The standard way to include .eps files these days, is by using the `graphicx.sty` file.

`Graphicx` is part of the standard LaTeX distribution, and the MikTeX package, so you probably have it on your system. If not, you can find it online at,

<http://www.ctan.org/tex-archive/macros/latex/required/graphics>

Tuning graphicx for your system

You should tune the `graphicx` package by selecting the driver program that is on your system and using that name as the optional argument:

```
\usepackage[<your driver program>]{graphicx} %i.e.,
                                     % \usepackage[dvipsone]{graphicx}
```

Please choose the name that matches your program. If you don't see the name listed here, try `dvips`.

```
[dvips], [xdvi], [dvi pdf], [dvipsone], [dviwindo], [emtex], [dviwin],
[pctexps], [pctexwin], [pctexhp], [pctex32], [truetex], [tcidvi],
[oztex], [textures]
```

For information on options when using the `graphicx.sty` command, `\includegraphics`, please see `grfguide.dvi`, which is included in the `graphics.zip` package.

If you have a problem getting this package to work, don't despair. You can still send in your article with the .eps files embedded but commented out, and the illustrations will still be inserted by the AGU production department.

Information before beginning the document

You must supply the author addresses using the `\authoraddr{}` command for each author. Please list the authors in alphabetical order. Also, please list email addresses at the end of each `authoraddr` argument. Here is an example:

```
\authoraddr{R. C. Bales,  
Department of Hydrology and Water Resources, University of Arizona,  
Harshbarger Bldg. 11, Tucson, AZ 85721. (roger@hwr.arizona.edu)}  
  
\authoraddr{E. Mosley-Thompson, Department of Geography and  
Byrd Polar Research Center, The Ohio State University, 108 Scott Hall,  
1090 Carmack Road, Columbus, OH 43210. (thompson.4@osu.edu)}  
  
\begin{document}
```

Entering the Title Information

Now you must make the title. You can use `\\` to break lines in the title. The first line of the title should be the widest. (Neither the \LaTeX `\thanks{}` command nor footnotes are allowed in the title).

```
\title{The ozone layer terrestrial ring current:\\  
origin, formation, and decay}
```

**The ozone layer terrestrial ring current:
origin, formation, and decay**

Alternatives in Author and Affil

Author and affiliation are entered in the same way for each of the AGU journals.

(Note: The command `\reviewauthors` formerly used for Review of Geophysics is now obsolete)

Here are the two methods of entering authors and affiliations in AGU journals:

Method 1: For three or fewer author/affiliation groupings, use `\author{}` followed by `\affil{}`

Method 2: For more than three author/affiliation groupings, use `\authors{}` to list all authors, using `\altaffilmark{}` to indicate affiliation. Affiliations will then be listed below using `\altaffiltext{}`

You will see these methods demonstrated on the next two pages.

Hint on entering affiliation

The state name is needed even if it is part of school name. For example, University of Arizona, Tucson, Arizona is correct. Please write the state name out; do not abbreviate.

Additional affiliation information

You may enter additional affiliation information with the `\thanks{}` command used either in the `\author{}` or `\affil{}` argument.

You may use only “Also at,” “Now at,” and “Formerly at,” with the appropriate institution, city and state, to give more information about an author or affiliation. For instance,

```
\author{Thomas Jefferson\thanks{Also at Jefferson
National Laboratories, Newport News, Virginia}}
```

```
\affil{Department of Mathematics, University of Oklahoma,
Norman, Oklahoma\thanks{Formerly at University of Wisconsin,
Madison, Wisconsin}}
```

which will position the additional information at the bottom of the first page of your article.

Method 1, Author/Affil: Three or fewer author/affiliation groupings

```
\begin{document}
\title{}
\author{}
\affil{}

% repeat for each author:
\author{}
\affil{}

```

For example:

```
\author{R. C. Bales}

\affil{Department of Hydrology and Water Resources, University of Arizona,
\\ Tucson, Arizona}

\author{E. Mosley-Thompson}

\affil{Department of Geography and
Byrd Polar Research Center, \\ The Ohio State University,
Columbus, Ohio}
.....

```

R. C. Bales

Department of Hydrology and Water Resources, University of Arizona,
Tucson, Arizona

E. Mosley-Thompson

Department of Geography and Byrd Polar Research Center,
The Ohio State University, Columbus, Ohio

Another possibility is several authors having the same affiliation, which would be entered:

```
\authors{First Author Name and Second Author Name}
\affil{Affiliation}

```

Method 2, Author/Affil: More than three author/affiliation groupings

When there are more than three author/affiliation groupings, the `\authors{}` command should be used to list all the authors. Within the argument to `\authors{}`, the command `\altaffilmark{}` should be used to indicate which affiliation, or affiliations, should be listed for a particular author. Then a matching `\altaffilmark{ }{ }` should be used to send the affiliation information to go to the bottom of the page.

```

\authors{R. C. Bales, \altaffilmark{1}
E. Mosley-Thompson, \altaffilmark{2}\
Quincy M. Jones\altaffilmark{1},
and J. R. McConnell\altaffilmark{2,3}}

\altaffiltext{1}
{Department of Hydrology and Water Resources, University of Arizona,
Tucson, Arizona}

\altaffiltext{2}{Department of Geography and
Byrd Polar Research Center, The Ohio State University,
Columbus, Ohio}

\altaffiltext{3}{Desert Research Institute, Division of Hydrologic Sciences,
University of Nevada, Reno, Nevada}
.....

```

R. C. Bales,¹ E. Mosley-Thompson,²
 Quincy M. Jones¹, and J. R. McConnell^{2,3}
 ...

(altaffiltext entries appear at the bottom of page)

¹Department of Hydrology and Water Resources, University of Arizona, Tucson, Arizona
²Department of Geography and Byrd Polar Research Center, The Ohio State University, Columbus, Ohio
³Desert Research Institute, Division of Hydrologic Sciences, University of Nevada, Reno, Nevada

Abstract

After the title, author, and affiliation have been entered, you may enter the abstract in the `\begin{abstract}... \end{abstract}` environment. Remember not to include any `\begin... \end` commands within the abstract text.

Sample Title Block

Here is a simple sample title block, with the typeset results below:

```
\title{Fast binary image processing using binary decision diagrams}
```

```
\authors{L. Robert and G. Malandain}
```

```
\affil{Institut National de Recherche en Informatique et en
Automatique-Sophi Antipolis, Sophia Antipolis, France}
```

```
\begin{abstract}
```

```
Many classical image processing tasks can be realized as evaluations of a
boolean function over subsets of an image...
```

```
\end{abstract}
```

```
\begin{article}
```

```
\section{Introduction}
```

```
...
```

```
\end{article}
```

Fast binary image processing using binary decision diagrams

L. Robert and G. Malandain

Institut National de Recherche en Informatique et en Automatique-Sophi Antipolis, Sophia Antipolis, France

Abstract. Many classical image processing tasks can be realized as evaluations of a boolean function over subsets of an image. For instance, the simplicity test used in 3-D thinning requires examining the 26 neighbors of each voxel and computing a single boolean function of these inputs...

1. Introduction

Many classical image processing techniques proceed by analyzing the values of its neighbor at each element of the image (pixel, voxel). Considering the particular case of binary images, a number of techniques for image processing have been developed. In this section we will show how we can automatically produce an efficient implementation of a given discrete function, either specified by a formal description or in terms of boolean operations. Let us consider a boolean function f depending on the n boolean variables.

Many classical image processing techniques proceed by analyzing the values of its neighbor at each element of the image (pixel, voxel).

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Paper number 2008JD000218.

0148-0227/08/2008JD000218\$9.00

Making Sections

For all styles except *Reviews of Geophysics*, section and subsection heads should have the initial letter of each word capitalized, except for prepositions of 3 or fewer letters.

```
\section{Here is a Sample Section Head}
\subsection{This is a\ \ Subsection Head}
\subsubsection{This is a subsubsection head}
\subsubsubsection{This is a subsubsubsection head}
.....
```

2. Here is a Sample Section Head

2.1. This is a Subsection Head

2.1.1. This is a subsubsection head

2.1.1.1. This is a subsubsubsection head

Lowercase—An Useful Command for Reviews of Geophysics

The default in *Reviews of Geophysics* is that every word is automatically capitalized. This means that if there is a term in the section head that is not to be capitalized, you need an additional command. The command is, logically enough, `\lowercase{}`. You can see it in use in the example below, where `\lowercase` is used to make a small ‘q’ appear in a section head that is otherwise all capital letters.

```
(Reviews of Geophysics Style)
\section{The Automorphism Group of a\ \ Complete (\lowercase{q})$-$1)-Arc
and Its Orbit}
.....
```

3. THE AUTOMORPHISM GROUP OF A COMPLETE (q−1)-ARC AND ITS ORBIT

Callout Command

When entering text for an AGU article, there is a command that is not found in standard LaTeX, which is nevertheless important to use. This is the callout command, used to let the journal production department know when the first mention of a figure, table, or plate occurs in an article. This is helpful to check if the position of that figure, table, or plate is sufficiently near to the first mention in the text.

The command will print the argument in the text of the article and will print a marker in the margin of the page when the article is printed using the `[galley]` or `[draft]` option, as you may have noticed on page 9 of this documentation, where the results of the galley option are shown.

It is very important to use the `\label{}` and `\ref{}` commands with `\callout` because in the double-column format the figures may float into a different order than the order in which they were typed in, since the figure numbers are assigned at the time the complete page is made up, rather than immediately. Please use this method. You may type the figure in right after the callout, within the paragraph, if you like.

Notice that the callout will print in the body of your article in two-column, galley, and draft forms; it will also print in the margin when the galley and draft options are used.

```
In summer 1996, 120-m and 21-m ice cores were drilled at the Greenland Ice
Sheet Training Facility (GITS, 77.1392 $^{\circ}$ N, 61.0422 $^{\circ}$ W, 1900 m
elevation) using a 100-mm (4-in) electromechanical drill as we see in
\callout{Figure \ref{figone}}. %% <<===
```

```
\begin{figure}
\caption{Location map, showing ice coring sites.
Camp Century is the same location as GITS.}
\label{figone} %% <<===
\end{figure}
```

.....

In summer 1996, 120-m and 21-m ice cores were drilled at the Greenland Ice Sheet Training Facility (GITS, 77.1392°N, 61.0422°W, 1900 m elevation) using a 100-mm (4-in) electromechanical drill as we see in Figure 1.

Figure 1

Making Equations

Equations are made as they normally are in \LaTeX , but there are also a number of other options when using this style; lettered equation numbers, special equation numbers, and, finally, bold in math for symbols that don't usually turn bold. You'll see these demonstrated in the following sections.

In addition, AGU has some specific requirements for math style.

- If an equation is too wide to fit in one column there is a new environment:
`\begin{aguleftmath}... \end{aguleftmath}`.
 This environment is made so that the second line of the equation indents the width of a paragraph indent.
- The `\begin{eqnarray}... \end{eqnarray}` environments are used as they normally would be but you will find that the first line will be on the left margin.
- AGU asks authors to use punctuation within math.

AGU Left Math

For those cases where an equation is too wide for one column, but is not the sort of equation that would normally be placed in an `eqnarray` environment, (if the left side of the equation is longer than one-third of the line) you can use the `aguleftmath` commands. The `\` ends the first line. If you need more than two lines `\` can be used as many times as necessary.

```
\begin{aguleftmath}
First line of equation\\
second line of equation
\end{aguleftmath}
```

Here is an `aguleftmath` example:

```
\begin{aguleftmath}
Y_t \mu_t + s_t + \sum_{i=1}^k
(x - x_{0}) \cos \Theta +
(y - y_{0}) \\
\lambda_{iw_{i,t}} + \epsilon_t .
\end{aguleftmath}
.....
```

$$Y_t \mu_t + s_t + \sum_{i=1}^k (x - x_0) \cos \Theta + (y - y_0) \lambda_{iw_{i,t}} + \epsilon_t . \tag{1}$$

AGU left math without an equation number

If you'd rather not have an equation number you can use the `\nonumber` command right before the end of the equation:

```
\begin{aguleftmath}
Y_t \mu_t + s_t + \sum_{i=1}^k
(x - x_{0}) \cos \Theta +
(y - y_{0}) \\
\lambda_{iw_{i,t}} + \epsilon_t \ . \nonumber
\end{aguleftmath}
```

$$Y_t \mu_t + s_t + \sum_{i=1}^k (x - x_0) \cos \Theta + (y - y_0) \lambda_i w_{i,t} + \epsilon_t .$$

Eqnarray

Eqnarray, you'll notice starts on the left margin with this style. You will use all the normal eqnarray commands, but the results are slightly different from the usual in that the eqnarray is positioned to the left instead of centering.

```
\begin{eqnarray}
\sum_{d_{+2}=0}^{d_{+2}^*} \Pr(d_{+2} | \overline{\Psi}(d_{+2}^*)) & = & \alpha \\
\frac{\alpha}{D_{+2}} \mbox{ if } d_{+2} \leq d_{+2}^* & & \\
& & \mbox{ if } d_{+2} = D_{+2} .
\end{eqnarray}
```

$$\sum_{d_{+2}=0}^{d_{+2}^*} \Pr(d_{+2} | \overline{\Psi}(d_{+2}^*)) = \frac{\alpha}{2} \text{ if } 0 \leq d_{+2}^* < D_{+2} , \tag{3}$$

$$\overline{\Psi}(d_{+2}^*) = \infty \text{ if } d_{+2}^* = D_{+2} . \tag{4}$$

A Tip on Using Eqnarray

You can add space between lines in an array, which may improve visibility, by supplying a dimension in square brackets after the end of the table line, `\\ [6pt]` as you see below.

```

\begin{eqnarray}
x_{1} & = & \left[\frac{(x - x_{0})}{\cos \Theta}\right] + (y - y_{0}) \sin \Theta + \\
(y - y_{0}) \sin \Theta & & \\
\Delta\Gamma y_{1} & = & -\frac{\left(\frac{x}{-x_{0}}\right)}{\sin \Theta} + (y - y_{0}) \cos \Theta.
\end{eqnarray}

```

$$x_1 = \left[\frac{(x - x_0)}{\cos \Theta} \right] + (y - y_0) \sin \Theta \tag{5}$$

$$\Delta\Gamma y_1 = -\frac{\left(\frac{x}{-x_0}\right)}{\sin \Theta} + (y - y_0) \cos \Theta. \tag{6}$$

Math Punctuation

AGU asks authors to use punctuation within math. For example, notice the period added to the end of this equation:

```

The $\Delta t_i$ is expressed by
\begin{equation}
\Delta t = \frac{1}{2} (t_i^+ - t_i^-) = - \oint_{\Gamma_{0i}} \frac{\mathbf{u}(x,y) \cdot \mathbf{n}}{C_0^2} ds .
\end{equation}

```

The Δt_i is expressed by

$$\Delta t = \frac{1}{2}(t_i^+ - t_i^-) = - \oint_{\Gamma_{0i}} \frac{\mathbf{u}(x,y) \cdot \mathbf{n}}{C_0^2} ds. \tag{7}$$

Lettered Equations

The command `\mathletter{<letter>}` will allow you to add a letter to the equation number. The equation counter will not advance until L^AT_EX sees an unlettered equation.

```

Lettered equation,
\begin{equation}
g_i(y|f)=\sum_x P(x|F_n)f_i(y|x)\ , \mathletter{a}
\end{equation}

```

```

Second lettered equation
\begin{equation}
g_i(y|g)=\sum_x Q(x|F_n)f_i(y|x)\ . \mathletter{b}
\end{equation}

```

Lettered equation,

$$g_i(y|f) = \sum_x P(x|F_n)f_i(y|x) , \tag{8a}$$

Second lettered equation

$$g_i(y|g) = \sum_x Q(x|F_n)f_i(y|x) . \tag{8b}$$

The command `\mathletter` can also be used with `eqnarray`:

```

\begin{eqnarray}
g_i(y|f) &=& \sum_x P(x|F_n)f_i(y|x)\ , \mathletter{a} \\
g_j(y|f) &=& \sum_x Q(x|F_n)f_i(y|x)\ , \mathletter{b} \\
g_x(y|f) &=& \sum_x R(x|F_n)f_i\ .
\end{eqnarray}

```

$$g_i(y|f) = \sum_x P(x|F_n)f_i(y|x) , \tag{9a}$$

$$g_j(y|f) = \sum_x Q(x|F_n)f_i(y|x) , \tag{9b}$$

$$g_x(y|f) = \sum_x R(x|F_n)f_i . \tag{10}$$

Special Equation Numbers

To make a special equation number, use the command `\seteqnum{<special number>}`. This command will work in `eqnarray` or `split math` as well as with an ordinary equation. The equation counter will not advance when `\seteqnum` is used.

```
\begin{equation} xxx\ . \end{equation}
```

```
This leads to the Courant number stability constraint
\begin{equation}
{\max\left[|\{\bf U\}(E)|\right]\Delta t\over \Delta x}\geq 1\ .
\seteqnum{34}'$}
\end{equation}
```

```
\begin{equation} xxx \end{equation}
```

$$xxx . \tag{11}$$

This leads to the Courant number stability constraint

$$\frac{\max [|\mathbf{U}(E)|] \Delta t}{\Delta x} \geq 1 \tag{34'}$$

Boldface in Math

We have a special command available, `\bbf{}` which will set math symbols in bold that ordinarily don't turn bold. (For those that are \LaTeX experienced, this command produces the equivalent of `\mbox{\boldmath$symbol$\unboldmath}`); `\boldmath` accesses another set of fonts that `\mathbf` doesn't have available.) Here is an example. `\mathbf` is used for the entire equation, but notice that the `\tau`, `\nabla`, `\Sigma` and `\sigma` don't turn bold, as you see on the left. To get those symbols to turn bold also, use the command `\bbf{}` as you see on the right:

```
[\mathbf{\oint\limits_C V\, d \tau=\oint\limits_{\Sigma}\nabla
\times V\, d\sigma}\hskip2in
\mathbf{\oint\limits_C V\, d \bbf{\tau}=\oint\limits_{\Sigma}\bbf{\nabla}
\times V\, d\bbf{\sigma}}]
```

$$\oint_C \mathbf{V} d\tau = \oint_{\Sigma} \nabla \times \mathbf{V} d\sigma \qquad \oint_C \mathbf{V} d\boldsymbol{\tau} = \oint_{\Sigma} \boldsymbol{\nabla} \times \mathbf{V} d\boldsymbol{\sigma}$$

Changing Font Size in Math

Font sizes in math can be changed in the same way that it would be any L^AT_EX document. You can see several examples below of calling for a particular math font size, where the use of `\textstyle` keeps parts of the equation easily visible.

The math font size choices from large to small are:

`\displaystyle`, `\textstyle`, `\scriptstyle`, `\scriptscriptstyle`

Displaystyle is that normally found in display math,

`\displaystyle\sum ABC123` $\sum ABC123$

Textstyle is the size of math in a paragraph,

`\sum ABC123` $\sum ABC123$

Scriptstyle is the size found in a super or sub script, or in the top or bottom of a fraction,

`xyz^{\scriptstyle ABC123}\frac{\scriptstyle ABC}{\scriptstyle 123}` $xyz^{ABC123}\frac{ABC}{123}$

Scriptscriptstyle is the size of math in a super or subscript in math that is already super or subscripted, or a fraction found within a fraction.

`xyz^{\scriptscriptstyle ABC123^{\scriptscriptstyle ABC123}}\frac{\scriptscriptstyle \frac{\scriptscriptstyle ABC}{\scriptscriptstyle 123}}{\scriptscriptstyle \frac{\scriptscriptstyle ABC}{\scriptscriptstyle 123}}` $xyz^{ABC123^{ABC123}}\frac{\frac{ABC}{123}}{\frac{ABC}{123}}$

This example shows the change in a fraction found underneath the summation sign, from the default to the somewhat larger version after using the `\textstyle` command, and a similar change in a fraction inside another fraction.

```
Change from
\[\sum_{a+\frac{b}{c}}^{N\to\infty}\frac{\left(\frac{x}{-x_0}\right)}{\sin \Theta} \]
to
\[\sum_{\textstyle a+\frac{b}{c}}^{\textstyle N\to\infty}\frac{\textstyle \left(\frac{\textstyle x}{\textstyle -x_0}\right)}{\textstyle \sin \Theta} \]
```

Change from

$$\sum_{a+\frac{b}{c}}^{N\to\infty} \frac{\left(\frac{x}{-x_0}\right)}{\sin \Theta}$$

to

$$\sum_{\textstyle a+\frac{b}{c}}^{\textstyle N\to\infty} \frac{\textstyle \left(\frac{\textstyle x}{\textstyle -x_0}\right)}{\textstyle \sin \Theta}$$

Indented Text and Lists

The AGU journal style uses standard L^AT_EX methods to produce indented text and lists.

What Not to Use

Do not use bulleted lists, lettered lists, or lists using roman numerals for articles submitted to AGU. Use only arabic numbers for listing.

```

\begin{itemize}
\item[1.]
Here is an item in an itemized list.
Here is an item in an itemized list.
Here is an item in an itemized list.

\item[2.]
Here is an item in an itemized list.
Here is an item in an itemized list.
Here is an item in an itemized list.
\end{itemize}

```

-
1. Here is an item in an itemized list. Here is an item in an itemized list. Here is an item in an itemized list.
 2. Here is an item in an itemized list. Here is an item in an itemized list. Here is an item in an itemized list.
-

Description List

Instead of using the L^AT_EX description list, please use numbered subsections:

```

\subsection{Measurement Errors}
We neglected several effects in computation of the
ion number flux from the Faraday cup currents: current
of alpha particles, contribution of high-energy electrons, and
changes of ion flux direction.

\subsection{Magnetosheath Cross Section}
We have adjusted the "dimensions" of the magnetopause in accordance
with the S97 model.

```

1.1. Measurement Errors

We neglected several effects in computation of the ion number flux from the Faraday cup currents: current of alpha particles, contribution of high-energy electrons, and changes of ion flux direction.

1.2. Magnetosheath Cross Section

We have adjusted the "dimensions" of the magnetopause in accordance with the S97 model.

Two-Column Format

The LaTeX two-column macros that are widely available will either 1) Balance the two columns but not allow floating figures and tables, or 2) allow figures and tables but not balance the two columns.

The AGUTeX two-column format allows figures embedded within columns and also figures spanning both columns at the top and bottom of the page as well as balanced columns. Be forewarned, however, you may have problems with getting figures to appear exactly you want, and it is possible to try to put too many figures on one page which will cause the page makeup algorithm to malfunction.

If you don't have many illustrations making your article appear in two columns should not present many difficulties. However, if you do have numerous illustrations, and you want to take the trouble to make up your article in two columns, you will find tools and advice in the following section entitled 'Two Column Page Makeup Tips.'

Two Columns Too Much Trouble? Use Galley Option

Remember that if you can't get the two-column version of the article to format to your liking, you can always output the article using the galley option and the article will be put into two column format by the production department at AGU.

If you follow the galley method, please enter your figures near their callout, the first place in the text where the figure or table is mentioned. This will keep the numbering of the figures and tables correct because unlike the two-column mode, in galley mode, figures and tables are numbered in the order that they are typed into the article.

Remember to enter the callout commands, as you see below.

```
In summer 1996, 120-m and 21-m ice cores were drilled at the Greenland Ice
Sheet Training Facility (GITS, 77.1392$^\circ$N, 61.0422$^\circ$W, 1900 m
elevation) using a 100-mm (4-in) electromechanical drill as we see in
(\callout{Figure \ref{figone}}). %% <<===
```

```
\begin{figure}
\caption{Location map, showing ice coring sites.
Camp Century is the same location as GITS.}
\label{figone} %% <<===
\end{figure}
```

.....

In summer 1996, 120-m and 21-m ice cores were drilled at the Greenland Ice Sheet Training Facility (GITS, 77.1392°N, 61.0422°W, 1900 m elevation) using a 100-mm (4-in) electromechanical drill as we see in Figure 1.

Figure 1

Two Column Page Makeup Tips

In order to position figures so that they appear near their first mention in the text, you can use the [h] option, and position the figures at the top or the bottom of columns. The [h] option means that the figure or table will not 'float' so that it will appear at the point in the text where it is typed in. The [h] option may be used either for illustrations found within the columns or illustrations at the top or bottom of the page spanning both columns.

If you use the [h] option, check the final article to make sure that the figure numbers are sequential from the top of the page to the bottom. If there is a number that is out of order, you can use this method to set figure or table or plate numbers explicitly:

```
\setfigurenum{<number or number and letter>}
\settablenum{<number or number and letter>}
\setplatenum{<number or number and letter>}
```

Using vfill above or below figures

If you are positioning a figure at the top of a column, you might want to follow it with the `\vfill` command; if you position it at the bottom of a column, you might want to use a `\vfill` above it. This command will make any extra space in the column be below or above the figure:

```
\begin{figure}[h]
...
\end{figure}
\vfill
text here...
\vfill
\begin{figure}[h]
...
\end{figure}
\eject
```

Starting and Ending the Two Column Format

The two-column journal style is normally started with the command `\begin{article}` and ends with `\end{article}`. However, there may be some circumstances where you might want to end the two-column environment temporarily and then restart it.

This is easily accomplished with the `\endtwocolumns ... \twocolumns` commands. Be careful when you do this that there are not too many unplaced figures or tables or the page will not be made up elegantly. You can move figures or tables earlier or later in the article if this is a problem.

One situation where you might want to end the two-column environment is to end a page early. You might do this with the commands:

```
text...
\endtwocolumns
\newpage
\twocolumns
text...
```

Starting a new page mid-paragraph

You can end a page with `\newpage` which will fill the final column with extra white space at the bottom, or `\eject` which will not cause any extra white space at the bottom of the column. If you want to end a page mid-paragraph, you might type in `\break` to make the sentence extend to the right margin, and `\eject` to start a new page. `\vskip-\baselineskip` will bring the last line in the right column down to match the depth of the left hand column. `\noindent` will keep the paragraph indentation from being used for the middle of the sentence that starts on the next page.

You could use either `\begin{figure}[h]... \end{figure}` for a figure to be at the top of the left hand column on the new page or, `\begin{figure*}[h]... \end{figure*}` for a figure that will span the width of both columns at the top of the new page.

```
operate since mid 1980s. But, the cease of\break
\vskip-\baselineskip
\eject
```

```
\begin{figure}[h]
\includegraphics
\caption{Caption here...\vrule width 0pt depth 20pt}
\end{figure}
```

```
\noindent
finishing the sentence from the previous page
```

Change the size of the illustration?

Another trick is to change the width of the illustration which, if made less than the width of the column, will make the illustration shorter, allowing more lines of text on the page where the illustration appears. Since the illustration is now narrower than the column, you can use `\centerline{}` to center it.

```
\begin{figure}[b]
%% Use \vspace*{<dimen>} to move illustration up or down as
%% needed, since there may be white space in the .eps file:
\vspace*{-3pt}
\centerline{\includegraphics[width=.9\hsize]{figsamp.eps}}
\caption{Sample figure showing how to include an .eps file.}
\end{figure}
```

Adding space below an illustration

In order to position the illustration at the bottom of the page, or add more white space below it if it is at the top of a column, you can use the command `\vrule` set to 0pt width so that it doesn't print, and then any depth that you want: `\vrule width 0pt depth 6pt` for example.

If you need to use this construction, remember to put the `\vrule` *inside* the caption.

```
\begin{figure}[b]
\centerline{\includegraphics[width=.9\hsize]{figsamp.eps}}
\caption{Sample figure showing how to include an .eps file.\vrule
width 0pt depth 12pt}
\end{figure}
```

Side by Side Figures and Tables

You can make two figure captions or tables fit side by side with the `\sidebyside{ }{ }` command. Start the figure or table as you normally would, then use the `\sidebyside` command as you see below.

```

\begin{figure}
\sidebyside
{
\caption{A figure caption that is so long it is formatted
in the shape of a paragraph.}
}
{
\caption{Second figure caption.}
}
\end{figure}

```

Figure 1. A figure caption that is so long it is formatted in the shape of a paragraph.

Figure 2. Second figure caption.

Side by side tables

You can see that the `\sidebyside{ }` command works the same way when used in a table environment,

```

\begin{table*}
\sidebyside{
\caption{First Table} (table here)...
}
{
\caption{Second Table} (table here)...
}
\end{table*}

```

Figure 3. First Table Caption

Column	Heads	Here
A	B	C
D	E	F

Figure 4. Second Table Caption

Second Table	Heads	Here
A	B	C
D	E	F

Multiple Captions Used in Full Page Figure or Table

If you find you have many small figures or tables and can't easily have them fit into your text, you may use many captions in the same figure environment, as shown below.

```

\begin{figure*}[b]
\sidebyside{\vskip.5in\caption{Caption 1}}{\vskip.5in\caption{Caption 2}}
\sidebyside{\vskip.5in\caption{Caption 3}}{\vskip.5in\caption{Caption 4}}
\sidebyside{\vskip.5in\caption{Caption 5}}{\vskip.5in\caption{Caption 6}}
\vskip.5in
\caption{Caption 7, full page wide}
\end{figure*}
.....

```

Figure 1. Caption 1

Figure 2. Caption 2

Figure 3. Caption 3

Figure 4. Caption 4

Figure 5. Caption 5

Figure 6. Caption 6

Figure 7. Caption 7, full page wide

Or, use a full page figure to fit even more captions in:

```

\begin{figure*}[p]
\sidebyside{\vskip1in\caption{Caption 1}}{\vskip1in\caption{Caption 2}}
\sidebyside{\vskip1in\caption{Caption 3}}{\vskip1in\caption{Caption 4}}
\sidebyside{\vskip1in\caption{Caption 5}}{\vskip1in\caption{Caption 6}}
\sidebyside{\vskip1in\caption{Caption 7}}{\vskip1in\caption{Caption 8}}
\vskip.5in
\caption{Caption 9, full page wide}
\end{figure*}

```

Figures and Tables in Two Columns

- AGU asks you not to have either figures or tables on the first page of your article.
- AGU also prefers that you not use the [h] option, unless you use it to position a table or figure at the top or bottom of the column.
- AGU asks that you have figures and tables above the **Acknowledgments** section, not below. (Figures and tables are okay in the **Conclusions** section).

In this two-column style, figures and tables can be used both within columns and spanning columns. We will see examples of how to use these commands in the following section, but first a word about how these macros work.

Figure and Table Numbering

With this style, the figures and tables are numbered dynamically in the process of page make-up, with the exception of figures and tables that are marked [h]. This means that the number assigned to a figure or table will be determined only after the decision as to which page and what place on the page the figure will be placed. At that time the figures and tables will be numbered starting from the top of the page and working down.

The author should be aware that the figures and tables are not necessarily numbered in the same sequence as they were written in the text. For example, if you type a figure entry and ask for it to go to the bottom of the column with `\begin{figure}[b]` and then ask for another figure to go to the top, `\begin{figure}[t]`, the first figure that you typed will have a higher number than the second figure, since it will be positioned at the bottom of the page.

Similarly, if you ask for a two-column figure to be positioned at the bottom of the page and then later ask either a single or double column figure to go to the top of the page, the first figure you asked for will have a higher number than the later figures.

Delay in Figure Positioning

There is some delay in where figures appear, as opposed to where you call for them in the text. Two column figures will print on the page following the page where they were written; figures that appear within the column will be delayed to print in the following column. Normally, you needn't be concerned with this, but if you want a two-column figure to appear on a particular page, you may want to write it into the text on the preceding page.

Setting figure, table, and plate numbers explicitly

There may be some instances in which the figure, table, or plate numbers are not correct or not the numbers we'd like.

We can set these numbers explicitly by using the following commands:

```
\setfigurenum{<number or number and letter>}
\settablenum{<number or number and letter>}
\setplatenum{<number or number and letter>}
```

For example:

```
\begin{figure*}
\setfigurenum{210}
\caption{Here is a sample caption}
\end{figure*}
.....
```

Figure 210. Here is a sample caption

Using Labels and References

Since you will have no idea what number the figure or table has been assigned until after you see the final page, it is definitely a good idea to refer to a figure or table in the text by using a `\label{xxx}` and `\ref{xxx}`. This system frees you from the obligation of trying to keep track of figure numbers while you are working on your text and also allows you the flexibility of changing the position of figures without having to worry about rewriting the reference to the figure or table in your text.

Figure and Table Captions

Figure and table captions are done as they ordinarily are in \LaTeX . With these style we have several more options, as we will show in the following sections. These options include lettered captions, continued captions, continued lettered captions, and landscape figures.

Making Ordinary Captions

```

\begin{figure}
\vspace*{.05in}
\caption{This is a figure caption.
This is a figure caption.
This is a figure caption.}
\end{figure}

\begin{figure*}
\vspace*{.05in}
\caption{This is a figure caption for a figure that spans both columns.
This is a figure caption for a figure that spans both columns.
This is a figure caption for a figure that spans both columns.}
\end{figure*}

```

Figure 1. This is a figure caption. This is a figure caption. This is a figure caption.

Figure 2. This is a figure caption for a figure that spans both columns. This is a figure caption for a figure that spans both columns. This is a figure caption for a figure that spans both columns.

Table captions must have each major word capitalized. Please capitalize all words except a, an, the, and prepositions that have three or fewer letters.

```

\begin{table}
\caption{Summary of Correlations Between Ice Cores and NAO Indices}
(table here)
\end{table}

\begin{table*}
\caption{This is a Table Caption for a Table That Spans Both Columns}
(table here)
\end{table*}

```

Table 1. Summary of Correlations Between Ice Cores and NAO Indices

Table 2. Table Caption for a Table That Spans Both Columns Table Caption for a Table That Spans Both Columns Table Caption for a Table That Spans Both Columns

Lettered figure and table captions

The AGU macros give you the opportunity to use a letter with your caption number. The resulting number/letter combination can be cross-referenced. The new command to use is

```
\letteredcaption{<letter>}{<caption>}
```

This command works the same for figure and table captions:

```
\begin{figure}
\letteredcaption{a}{Lettered figure caption.}
\label{figure2a}
\end{figure}
```

```
\begin{figure}
\letteredcaption{b}{Lettered figure caption.}
\label{figure2b}
\end{figure}
```

```
\noindent Showing references: first lettered figure is \ref{figure2a}, second
lettered figure is \ref{figure2b}.
```

Figure 3a. Lettered figure caption.

Figure 3b. Lettered figure caption.

Showing references: first lettered figure is 3a, second lettered figure is 3b.

Continued Figure or Table Captions

If you have a figure or table that needs to be continued, the `\continuedcaption` command is the one to use. Notice that `\continuedcaption` is not followed by a set of curly brackets in which to provide another caption, since this caption is a continuation of the previous one. Also, the figure counter does not advance, as is reasonable for a continued caption.

```
\begin{figure}
\caption{This is the first part of a caption to be continued.}
\end{figure}
```

```
\begin{figure}
\continuedcaption
\end{figure}
```

Figure 4. This is the first part of a caption to be continued.

Figure 4. (continued)

Illustrations, Including .eps files

For useful examples of including .eps illustrations in your file and using landscape tables and figures, please look at `figsamp.tex`, included in the AGUTeX package.

For information on options when using the `graphicx.sty` command, `\includegraphics`, please see `grfguide.dvi`, which is included in the `graphics.zip` package.

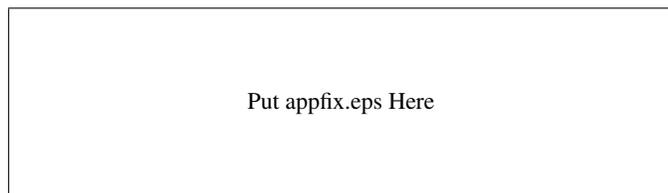
```
\begin{figure}[t]
%% Use \vspace*{<dimen>} to move illustration up or down as
%% needed, since there may be white space in the .eps file:
\vspace*{-3pt}
\noindent\includegraphics[width=\hsize]{figsamp.eps}
\caption{Sample figure showing how to include
an .eps file.}
\label{figone}
\end{figure}
```

If you want to have your illustration file name listed but not actually print you can use `\includegraphics[draft...]`; with the rest of the command being exactly the same as the previous example.

Figbox

If you want to indicate the size and placement of a particular figure, but not to insert the actual .eps file, you can use the convenient command `\figbox{}{}{}` command written by Patrick Daly. Its first argument is for the width, the second is for the height, and the third is for text. The star form does not draw a box around the space.

```
\hbox to \textwidth{
\figbox{\hsize}{1in}{Put appfix.eps Here} \figbox*{\hsize}{1in}{Put fragbit.eps Here}}
.....
```

*Sidecaption*

The journal *Reviews of Geophysics* (but not any other AGU journal) allows positioning a figure caption for a two-column illustration to the right of the illustration instead of below the illustration. To get this effect, we use the `\sidecaption{}{}` command, for example,

```
\begin{figure*}\sidecaption{\figbox{\hsize}{2in}{Illustration Here}}
```

```
{Dependence of the bulk similarity function. The latter values are shown as
numbers at the corresponding curves. The curves are obtained with equation
(26)
(very rough terrain); it is assumed that  $x=y$ }.
\end{figure*}
.....
```

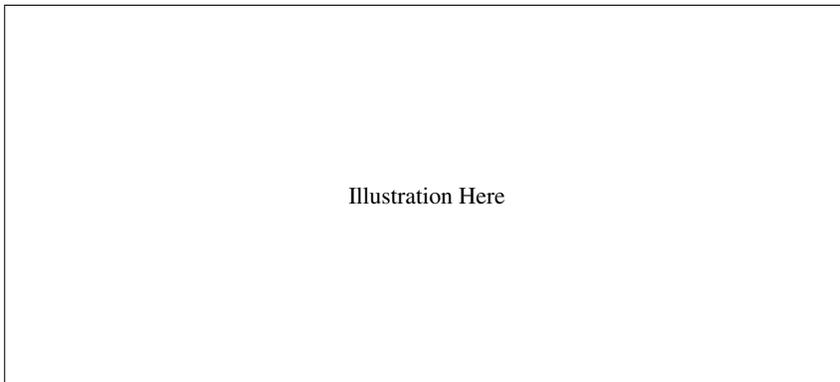


Figure 5. Dependence of the bulk similarity function. The latter values are shown as numbers at the corresponding curves. The curves are obtained with equation 26 (very rough terrain); it is assumed that $x = y$.

Landscape Figures and Tables

If you have a figure or table that is too wide to fit on the page in portrait position, you can use the landscape commands to turn them sideways.

These commands depend on commands found in `graphicx.sty`, so you must be using LaTeX and the `\usepackage[<your driver>]{graphicx}` for the landscape commands to work.

Single-column landscape figures and tables are made with these commands:

```
\begin{landscapefigure}... \end{landscapefigure}
\begin{landscapetable}... \end{landscapetable}
```

Full page landscape figures and tables are made with these commands:

```
\begin{landscapefigure*}... \end{landscapefigure*}
\begin{landscapetable*}... \end{landscapetable*}
```

The details...

- One-column landscape figures and tables print where typed
- Full page landscape figures and tables will float to next page

These commands may require a bit of experimenting to get them to appear in the right place, particularly the single-column landscape figures and tables.

The `\begin{landscapefigure}` and `\begin{landscapetable}` commands start a new page or column, so it is a good idea to run the final version of the article without the landscape figure or table to see where there is a good place to enter the landscape command.

Making Tables

There are several aspects of making tables with this macro package that need to be mentioned.

AGU Style Tables

In order to make your table conform to the AGU Journal specification you must follow several steps.

- Type in `\caption{}` at the top of the table.
- Table captions must have each major word capitalized. Please capitalize all words except a, an, the, and prepositions that have three or fewer letters.
- Table captions should not be complete sentences, as you see in the example below.
- The use of vertical lines within tables is not allowed.
- Use the command `\tableline` underneath the column headers, and at the top and bottom of the table.
- Make your table span the full column width. If a single column table, span the width of the single column, or span the width of the page if the table is two column width, if it is possible to do so without having an unreasonably amount of space between columns.

This is the command that makes the table fill the full column or page width:

```
\begin{tabular*}{\hsize}{@{\extracolsep{\fill}}(rest of table preamble}
```

The following example shows these steps being followed and the form of the table preamble that will cause the table to spread out to the width of one column:

```
\begin{table}
\caption{Example Table Caption}
\begin{tabular*}{\hsize}{@{\extracolsep{\fill}}lcr}
\tableline
$\alpha\beta\Gamma\Delta$ One&Two&Three\cr
\tableline
one&two&three\cr
one&two&three\cr
\tableline
\end{tabular*}
\end{table}
```

Table 3. Example Table Caption

$\alpha\beta\Gamma\Delta$ One	Two	Three
one	two	three
one	two	three

You may use the same set of commands to make a full page wide table. Here is the code that would be used for a table that spans both columns and spreads out to the full width:

```

\begin{table*}
\caption{Example Table Caption}
\begin{tabular*}{\hspace}{@{\extracolsep{\fill}}lcr}
\tableline
$\alpha\beta\Gamma\Delta$ One&Two&Three\cr
\tableline
one&two&three\cr
one&two&three\cr
\tableline
\end{tabular*}
\end{table*}

```

Table 4. Example Table Caption

$\alpha\beta\Gamma\Delta$ One	Two	Three
one	two	three
one	two	three

Making Table Notes

To make table notes, we have a number of new commands:

```
\tablenotemark{} Entered in the body of the table, within tabular
\tablenotetext{}{} Entered after tabular ends, must have a matching
                    tablenotemark in the caption or in the table.
\tablecomments{} Entered after tabular ends, for table references
                    or longer explanatory material. \\ in argument
                    will start a new line.
```

```
\caption{Example Table Caption\tablenotemark{a}}
\begin{tabular*}{\hsize}{@{\extracolsep\fill}lcccc}
\tableline
Site&Time&12-Month&Pearson's&Spearman\\
&Span&Period&R&Rank Order \\
\tableline
GITS\tablenotemark{b,c}& 1865--1995&Feb.--Jan.&-0.316&-0.298 \\
Camp Century & 1865--1974&July--June&-0.320&-0.298 \\
Nasa-U & 1865--1994&Sep.--Aug.&-0.353&-0.342 \\
Milcent & 1865--1966&June--May&-0.410&-0.494 \\
\tableline
\end{tabular*}
\tablenotetext{a}{Table References: Information from GITS and Camp Century.}
\tablenotetext{b}{Data supplied by NASA Moffat.}
\tablenotetext{c}{Algorithms from numerical recipes.}
.....
```

Table 5. Example Table Caption^a

Site	Time Span	12-Month Period	Pearson's <i>R</i>	Spearman Rank Order
GITS ^{b,c}	1865–1995	Feb.–Jan.	-0.316	-0.298
Camp Century	1865–1974	July–June	-0.320	-0.298
Nasa-U	1865–1994	Sep.–Aug.	-0.353	-0.342
Milcent	1865–1966	June–May	-0.410	-0.494

^a Table References: Information from GITS and Camp Century.

^b Data supplied by NASA Moffat.

^c Algorithms from numerical recipes.

End of Article

Getting the end of article commands in the correct order will not be difficult if you use the agutmpl.tex file. The commands should be used in this order: Appendix (optional), Acknowledgments (optional), References, and finally `\end{article}`.

This is the end of the article as written in the template file:

```
% End of article:

% \appendix resets counters and redefines section heads
% but doesn't print anything.
% After typing \appendix
%
% \section{Here Is Appendix Title}
% will print
% Appendix A: Here Is Appendix Title
%
% \section*{Appendix}
% will print
% Appendix
%
% \section*{Appendix: Here Is Appendix Title}
% will print
% Appendix: Here Is Appendix Title
%
% For only 1 appendix \appendix \section{Appendix} is preferred.
% which will print
% Appendix A

% Optional Glossary or Notation section

\begin{acknowledgments}...\end{acknowledgments}

\begin{thebibliography}{}

%\bibitem[{\it Anklin et~al.}(1998)]{AnkBalTho97}
%
% With this bibitem, \citep{AnkBalTho97} will produce
% [{\it Anklin et~al.}, 1998] which is the bibl. citation form
% that AGU prefers
%...

\end{thebibliography}

\end{article}
\end{document}
```

Appendices

The `\appendix` command resets counters and redefines section heads but doesn't print anything. After `\appendix` is typed, section numbers, equation numbers, and captions will all use the appendix letter as well as their number.

For all journals except *Geophysical Research Letters* every appendix should have a letter or a number.

```

\appendix

\section{Voight Average}
An example appendix with a title
\begin{equation}
\alpha\beta\Gamma\Delta.
\end{equation}

\section{}
An example of an appendix with a letter and but no title
\begin{equation}
\alpha\beta\Gamma\Delta.
\end{equation}

```

.....

Appendix A: Voight Average

An example appendix with a title

$$\alpha\beta\Gamma\Delta. \quad (\text{A1})$$

Appendix B

An example of an appendix with a letter and but no title

$$\alpha\beta\Gamma\Delta. \quad (\text{B1})$$

Geophysical Research Letters allows an appendix without a letter. You can typeset an appendix without a letter by using `\appendix\section*{Appendix}`, or `\appendix\section*{Appendix: Title}`.

```
\appendix

\section*{Appendix: Voight Average}
An example appendix with a title
\begin{equation}
\alpha\beta\Gamma\Delta.
\end{equation}

\section*{Appendix}
An example of an appendix with a letter and but no title
\begin{equation}
\alpha\beta\Gamma\Delta.
\end{equation}
```

Appendix: Voight Average

An example appendix with a title

$$\alpha\beta\Gamma\Delta. \tag{A1}$$

Appendix

An example of an appendix with a letter and but no title

$$\alpha\beta\Gamma\Delta. \tag{B1}$$

Figures and Tables in Appendix

Appendix figures or tables or plates will need to be numbered explicitly, so that they get the appropriate letter, and still float to the top of the page. An example is `\setfigurenum{A1}`, seen below.

```
\begin{figure}[t]
\noindent\includegraphics[width=\hsize]{figsamp.eps}
\setfigurenum{A1}
\caption{Sample figure caption.}
\end{figure}
```

Making a Glossary

Glossaries only used for *Reviews of Geophysics*.

A glossary is not allowed for for JGR, GBC, *Paleoceanography*, *Tectonics*, WRR, *Radio Science*, or *Geophysical Research Letters*.

Glossary should appear after any appendices, but before the acknowledgment section and bibliography. You can make one easily following this example.

```
\section*{Glossary}\inxx{Glossary}
\paragraph{Adibatic invariants}
Geomagnetically trapped charged particles execute three basic motions
according to
three adiabatic invariants.

\paragraph{Auroral electrojets}
High-latitude current flow concentrated inside the auroral oval and
carrying a total current of  $\sim 10^6$  A.
```

.....

Glossary

Adibatic invariants: Geomagnetically trapped charged particles execute three basic motions according to three adiabatic invariants.

Auroral electrojets: High-latitude current flow concentrated inside the auroral oval and carrying a total current of $\sim 10^6$ A.

Notation Environment

Notations should appear after the appendices and before the acknowledgment section. The notation environment is basically a table that will automatically provide enough width for the widest entry in the first column and take the rest of the width of the column for the definition.

The normal column marker “&” is used to go from column one to column two, and the “\\” is used to start a new line.

AGU asks that you end each entry with a period.

An example:

```
\begin{notation}
$A$&Surface area, m$^2$.\\
$T_{i,\mathrm{bulk}}$&
freezing temperature of water to ice under bulk conditions, K.\\
$\Delta T_{i,\mathrm{pore}}$&depression in freezing temperature of ice inside
a pore, below bulk freezing temperature, K.\\
$\mu^0$&chemical potential of a substance in the standard state, J
mol$^{-1}$. \\
$\Delta H_{f,i}$&specific enthalpy of fusion of ice, J kg$^{-1}$.
\end{notation}
```

Notation

- A Surface area, m².
 - $T_{i,\text{bulk}}$ freezing temperature of water to ice under bulk conditions, K.
 - $\Delta T_{i,\text{pore}}$ depression in freezing temperature of ice inside a pore, below bulk freezing temperature, K.
 - μ^0 chemical potential of a substance in the standard state, J mol⁻¹.
 - $\Delta H_{f,i}$ specific enthalpy of fusion of ice, J kg⁻¹.
-

Setting the width of first column in Notation

The width of the first column in the notation environment is set automatically to be a bit wider than the widest term. Just in case you would like to override this dimension, you can use the following command:

```
\notationwidth=<dimen>
```

which will let you determine the exact width of the first column of notations, i.e., `\notationwidth=1in`

Acknowledgments

Making an acknowledgment section is simple:

```
\begin{acknowledgments}
We thank...
\end{acknowledgments}
```

.....

Acknowledgments. We thank...

Footnotes turned into endnotes

In the two-column environment, the `\footnote{}` command works as an endnote. You are encouraged not to use the footnote command at all, but if you do, the notes will appear in their own section immediately before the references instead of at the bottom of the page where you might have expected to see footnotes.

Text at end of references

You may notice that the author addresses and received information appear at the end of the reference section. This is automated, and you need do nothing in the reference section to make this happen.

References

Here is the way to make your reference section. Either set of commands will produce the same results.

```
\begin{references}      or   \begin{thebibliography}{}
....
\end{references}        \end{thebibliography}
```

Each `\bibitem[]{}` supplies the term as it will appear in text in square brackets, and the symbolic reference to be used with `\cite{}` in curly brackets. Here is an example showing how this works:

(These commands appear at the top of the paper)

```
\received{March 1, 2008}
\revised{June 1, 2008}
\accepted{July 1, 2008}
\published{September 1, 2008}
```

```
\authoraddr{R. C. Bales
Department of Hydrology and Water Resources, University of Arizona,
Harshbarger Bldg. 11, Tucson, AZ 85721. (roger@hwr.arizona.edu)}
```

```
\authoraddr{J. R. McConnell, Desert Research Institute, Division of
Hydrologic Sciences, University of Nevada,
2215 Raggio Parkway, Reno, NV 89512. (jmconn@dri.edu)}
```

...
(This appears near the end of the body of the paper)

Here is an example cite, using the citep command: `\citep{AnkBalTho97}`.

```
\begin{references}
\bibitem[{\it Anklin et al.}(1998)]{AnkBalTho97}
Anklin, M., R.~C. Bales, E.~Mosley-Thompson, and K.~Steffen, {Annual...}
\end{references}
```

Here is an example cite, using the citep command: `[Anklin et al., 1998]`.

References

- Anklin, M., R. C. Bales, E. Mosley-Thompson, and K. Steffen, Annual accumulation at two sites in northwest Greenland during recent centuries, *J. Geophys. Res.*, 103(D22), 28,775–28,783, 1998.
- Appenzeller, C., T. F. Stocker, and M. Anklin, North Atlantic Oscillation dynamics recorded in Greenland ice cores, *Science*, 282, 446–449, 1998.
- Clausen, H. B., N. S. Gundestrup, S. J. Johnsen, R. Bindshadler, and J. Zwally, Glaciological investigations in the Crete area, central Greenland: A search for a new deep-drilling site, *Ann. of Glaciol.*, 10, 00–00, 1988.

R. C. Bales Department of Hydrology and Water Resources, University of Arizona, Harshbarger Bldg. 11, Tucson, AZ 85721. (roger@hwr.arizona.edu)

J. R. McConnell, Desert Research Institute, Division of Hydrologic Sciences, University of Nevada, 2215 Raggio Parkway, Reno, NV 89512. (jmconn@dri.edu)

Patrick Daly's Natbib Bibliography Commands

Patrick Daly

Max-Planck-Institut für Aeronomie
 Max-Planck-Str. 2
 D-37191 Katlenburg-Lindau
 Germany
 E-mail: daly@linmpi.mpg.de

has kindly allowed AGU to use his commands written to extend the citation possibilities. Here is his text describing the use of these commands:

Each `\bibitem` entry contains in square brackets the text that should appear in the citation, *but with the year in round parentheses*. Following that is the *key* to refer to the citation, here `smi92`. This is also the key that is used to identify a reference in a `BIBTEX` database. Of course, it is much easier to make up such a database and let `BIBTEX` generate the `thebibliography` environment. This is done with commands

```
\bibliographystyle{agu}
\bibliography{database}
```

where *database* is the name of the bibliographic database file(s) that are to be searched by `BIBTEX`. (The `BIBTEX` program must also be run after at least one `LATEX` processing, and then `LATEX` must be run at least two times more.)

In the main text the commands `\citet` and `\citep` are used almost as in standard `LATEX` to print the citation, but with the following variations:

```
\citet{smi92}           ⇒ Smith et al. [1992]
\citep{smi92}           ⇒ [Smith et al., 1992]
\citep[p.~3]{smi92}     ⇒ [Smith et al., 1992, p. 3]
\citep[see][ ]{smi92}  ⇒ [see Smith et al., 1992]
```

Note that the use of optional arguments is somewhat different from that of normal `LATEX` where only a single argument in square brackets is allowed to place a note *after* the citation. Here one optional argument behaves that way, but if there are two, then the first goes before, the second after the citation. This is because in author-year citations one often wants to say [see *Smith et al.*, 1992, and references therein].

Multiple citations may be made with one `\citep` command:

```
\citep{smi92, jam89} ⇒ [Smith et al., 1992;
                        James, 1989]
\citep{smi89, smi92} ⇒ [Smith et al., 1989, 1992]
```

It is also possible to cite the authors and years of a reference separately, as

```
\citeauthor{smi92} ⇒ Smith et al.
\citeyear{smi92}   ⇒ 1992
```

Another possibility is using `\bibliographystyle{agufull}`, an alternative to `agu.bst` which lists ALL authors; `agu.bst` limits the number of authors to 9. You can find additional information in the `agu.bst` and `agufull.bst` files. Both bibliography styles were developed by Patrick Daly.

The bibliography citation commands are included in AGUTeX. Our gratitude to Patrick for these useful tools!

Using BibTeX for your References

Using BibTeX is a bit more effort, but the major advantage is that you can build a database of your references that you can reuse for other books or articles. To use BibTeX in a journal article follow these steps:

Make a .bib file

If you do not already have one or more .bib files, make a <filename>.bib file, with <filename> being any appropriate name. The .bib file or files are a database of references. Please see Leslie Lamport's *LaTeX A Document Preparation System* or other LaTeX reference sources for information on the form of entries in the .bib file.

Supply a Bibliography style

```
\bibliographystyle{agu}
```

Make sure that agu.bst is in the same directory where you are working or in a directory where BibTeX can find it when it is running.

Write either `\cite{<label>}` or `\nocite{<label>}` for each reference that you want to appear in the bibliography. Each citation will make a matching entry appear in the bibliography.

Write in citations

The command `\cite{xyz}` will produce a printed citation for bibliography item xyz. `\nocite{xyz}` will not print, but in either case the citation will appear in the finished bibliography.

Enter the bibliography command

You must write `\bibliography{<bibfilename>}`, with <bibfilename> being the name of one or more .bib databases. For instance, if you are going to use smj.bib and hightemp.bib, you would write `\bibliography{smj,hightemp}`. Your file will now contain lines that look something like this:

```
Here are some more citations
\cite{dms80}, \cite{gm91}, \cite{hzmz77}, \cite{hb85}.

\bibliographystyle{agu}
\bibliography{jbib}
```

Run LaTeX on your file to produce an .aux file

The <filename>.aux file will form automatically when you run LaTeX on your file.

Run BibTeX on your file to produce a .bbl file

Run BibTeX on your file. If your file is named myarticle.tex, you will produce a file named myarticle.bbl.

Run LaTeX on your file to print your bibliography

The next time you run LaTeX on your file, your bibliography section will appear; run it again, and the `\cite{}` commands will produce citation entries.

! Be sure to send the .bbl file to AGU at the same time you send your .tex file. !

Suggestions for Article Submission

Avoiding LaTeX Errors, Improving the Article Appearance

One of the most common errors a beginning LaTeX user makes is to use " for quote marks. This may print the first set of quote marks facing backwards. To avoid this use single quotes, ' ' and ' ' on the left and right side of the term.

Change "word" to 'word'

.....

Change "word" to “word”

Using the Tilde

The tilde, which looks like this on the screen: ~, can be used to prevent line breaks as well as providing the correct intraword space. This may be used between a word and number, when it is inappropriate for the two to be separated, as in Figure~3. Another good use for the tilde is to give the correct space when you have a term that ends with a period but is midsentence, such as Ms.~Serandon.

As we see in Figure~\ref{thirdfig}, and Mr.~Smith

.....

As we see in Figure 3, and Mr. Smith

Hyphenation

Add discretionary hyphenation if necessary. This is used if LaTeX doesn't know how to hyphenate a word and because of this sticks it out into the margin. The discretionary hyphen will not be used unless the word is on the right margin and needs to break over lines. This is convenient because it lets you add hyphens when they are needed but doesn't print them if they are not.

```
su\ -per\ -frag\ -i\ -cal\ -is\ -tic
```

You may also build a hyphenation dictionary with words that are commonly found in your papers:

```
\hyphenation{su-per-frag-i-cal-is-tic, FORTRAN}
```

Including a word in the hyphenation dictionary and not putting in any hyphens will prevent that word from hyphenating when used in your paper. For example `\hyphenation{FORTRAN}` will prevent FORTRAN from breaking over lines.

You can make a hyphenation dictionary and use it for many papers by copying it into the top of the file you are working on, before `\begin{document}`.

Information for the Journal Production Department

This is information for the production department doing final typesetting on these journals.

agu-ps.sty

Since you want to typeset the final version of the journal articles using the PostScript fonts, you will want to use the `agu-ps.sty` file, which is activated when you write

```
\usepackage{agu-ps}
```

This file is distributed with the Berry font names, as they are probably in the most widespread use at this time. If your system uses another set of PostScript font names, you should edit the `agu-ps.sty` file so that it will call the PS names that are found on your system. Look at the top of the `agu-ps.sty` file for information on doing this, and you will find that making the changes is trivial, as long as you know the names of the PS fonts on your system.

Most of the journals use Times fonts, but the *Reviews of Geophysics* uses Optima, so you will need to install Optima fonts on your system, which means that you will need a set of Optima .tfm and .afm files.

Use graphicx.sty

Since you will want to use the `graphicx.sty` file for inserting .eps illustrations, you need to add the appropriate commands to the top of the author's article if they are not already there.

You should tune the `graphicx` package by selecting the driver program that is on your system and using that name as the optional argument:

```
\usepackage[<your driver program>]{graphicx} %i.e.,
           % \usepackage[dvipsone]{graphicx}
```

Please choose the name that matches your program. If you don't see the name listed here, try `dvips`, or try using `graphicx` without an option.

```
[dvips], [xdvi], [dvipdf], [dvipsone], [dviwindo], [emtex], [dviwin],
[pctexps], [pctexwin], [pctexhp], [pctex32], [truetex], [tcidvi],
[oztex], [textures]
```

For information on options when using the `graphicx.sty` command, `\includegraphics`, please see `grfguide.dvi`, which is included in the `graphics.zip` package.


```
\received{}
\revised{}
\accepted{}
\published{}

%ie,
%\received{March 1, 1998}
%\revised{June 1, 1998}
%\accepted{July 1, 1998}
%\published{September 1, 1998}

%%%%%%%%%%%%
% optional:
%\setcounter{page}{2230}

% \setlastpagenum{}
% so that when in galley mode the
% right number can be given for the page range in
% the running head on the first page of article.

%% <=<= End content to be entered by AGU %%

%% Authors enter text below ==>>
```

Two-Column Format

We also direct your attention to the previous section on the two-column format, on page 28, which describes manipulating the two-column format, going from two to one column and back, and other useful information on page makeup.

The bottom line is that the two-column format and the figure and table numbering system usually work but may occasionally need some tweaking for optimally elegant pages and for numbering the captions correctly.

Caption floating

A reasonably aggravating possibility is that the figures will not position themselves near enough to their first mention in the text.

(In order to see where the callouts are, you might print the paper once in galley mode, which will print the callouts in the margin. Remember that you must run LaTeX on the file twice to get the cross references to print.)

You may move the figures earlier or later in the text to try to get them to appear in the correct place. If you have a lot of trouble with a particular figure you might try using the [h] option as described on the next page.

Caption numbering

If the numbering system has not produced the desired results, you may use

```
\setfigurenum{<number or number and letter>}
\settablenum{<number or number and letter>}
\setplatenum{<number or number and letter>}
```

to set the figure, plate, or table number to any number you want. The captions following the changed number will also be changed, so if you use one of the \set commands, you may need to explicitly number all of the other captions in that paper.

This is necessary for captions that fall in an appendix, so that you can assign the appendix letter as well as the number, i.e., \setfigurenum{A1}.

Repositioning .eps Figures

Notice that you can reposition the illustration at the top of the page using `\vspace{<dimen>}` so that if the .eps file has too much white space at the top, you can arrange its position so that it still prints the actual illustration at the top of the page.

```
\begin{figure}[t]
%% Use \vspace*{<dimen>} to move illustration up or down as
%% needed, since there may be white space in the .eps file:
\vspace*{-3pt}
\noindent\includegraphics[width=\hsize]{figsamp.eps}
\caption{Sample figure showing how to include
an .eps file.}
\label{figone}
\end{figure}
```

Using the [h] Option to Position Figures in Columns

You may use the [h] option to ask figure to print at the top or bottom of a particular column after running LaTeX on the file to see where you might enter the figure. This will allow you to have complete control over the positioning single-column figures.

Two things to consider however: (1) You may need to set the figure number with `\setfigurenum{}` since when you use the [h] option, the figure number is set immediately, not taking into consideration the figures that may appear at the top of the page; and (2) figures with the [h] option are meant to appear midcolumn, so there is some extra space above and below the figure built into their definition. To get rid of this space, `\intextfloatskip`, at the top of the column you can type

```
\vspace*{-\intextfloatskip}
\begin{figure}[h]
...
\end{figure}
```

For the [h] figure at the bottom of the column you can type

```
\begin{figure}[h]
...
\end{figure}
\vspace*{-\intextfloatskip}
```

Page Makeup Tools

Here are tools if you want to tweak the page makeup:

Ending a page early

`\newpage` will fill the bottom of the page with blank space and start a new page.

`\eject` will not add blank space at the bottom of the page, will start new page, thus filling the full page height.

You may also want to end the two-column environment, do `\newpage` and restart the two-column environment:

```
\endtwocolumns
\newpage
\twocolumns
```

Adding extra lines to bottom of page

`\enlargethispage{12pt}` will add this much extra depth to the page, allowing an extra line at the bottom of this particular page. The following pages will return to normal size.

`\enlargethispage*{12pt}` will also shrink any interline spacing that it can on the current page, then add an extra 12pts to the bottom of the page.

Ending a page or column midparagraph

`\vadjust{\newpage}` will start a new page after the end of the current paragraph. The page will not balance the columns, but this might be useful anyway.

`\break` will end a line and fill out the width. You can use this in combination with `\newpage` or `\eject` to end a page where you want to, midparagraph. Remember to use `\noindent` for the text that will now appear on the next page, i.e.,

```
\break
\newpage
\noindent
xxx
```

Another option is to bring the bottom of the final column up or down slightly:

```
\break
\vskip3pt (or \vskip-10pt, etc.)
\eject
\noindent
```

Line breaks

You can end a line where you want by using either `\break` or `\\`

The `\break` command will fill out the line by adding more space between each word. You may want to use this command in a case where you want to send a word that is hyphenating incorrectly to the next line, and you want to fill out the current line:

Here's an example of what happens with `break\break`
and here is more text so you can see
how the break affects the shape of
the lines.

.....

Here's an example of what happens with `break`
and here is more text so you can see how the break affects the shape of
the lines.

Here's what happens with double backslash`\\`
and here is more text so you can see
how the break affects the shape of
the lines.

.....

Here's what happens with double backslash
and here is more text so you can see how the break affects the shape of
the lines.

You can also add a dimension after the `\\`:

This break adds space `\\[6pt]` between lines.

.....

This break adds space
between lines.

There is the additional option of `*` which will cause a line break, but not a page break.

Landscape Tables and Figures

It is difficult to position the single-column landscape tables and figures

```
\begin{landscapefigure}... \end{landscapefigure}
\begin{landscapetable}... \end{landscapetable}
```

since they print just where they appear in the text, independent of whether the previous page or column has finished. One way to deal with this is to run the article once without the landscape illustration, see where the page and column breaks occur, and then insert the landscape illustration in an appropriate place.

The two-column landscape figures and tables

```
\begin{landscapefigure*}... \end{landscapefigure*}
\begin{landscapetable*}... \end{landscapetable*}
```

will not have this problem since they will float to their own page.

Galley Option

Remember that if you can't get the two-column version of the article to format to your liking, you can always output the article using the galley option.

When galley option is used the illustrations will float to the end of the article. The figures and tables will be numbered in the order that they are typed into the article, so each figure or table should appear as soon after its callout, or first mention in the text.

If you want to resize any of the captions on the illustrations you can:

Change a `\begin{figure}... \end{figure}` (single column figure) to
`\begin{figure*}... \end{figure*}` (two column figure) and
vice versa.

You can also call for the exact width of the caption by entering the command `\hsize=<dimen>` **within** the caption: `\caption{\hsize=43pc Caption text...}`.

Other Things You May See in the Article

The filecontents command*

Authors may include extra files at the top of their .tex file. This sounds confusing, but when the

```
\begin{filecontents*}... \end{filecontents*}
```

commands are used, the author can copy the contents of a file, an .eps file for an illustration, for example, into the .tex file.

```
\begin{filecontents*}{<filename>}+
copy in file here...
\end{filecontents*}
```

When \LaTeX is run on the file containing the filecontents* command, LaTeX will check to see if there is an existing file with the same name in the directory where the <filename>.tex file resides. If so, it will issue a message saying that the file already exists; if not, it will copy whatever is between

`\begin{filecontents*}{<filename>.xxx}` and `\end{filecontents*}` to the computer that the .tex file is being run on.

What to do if you see filecontents in the author's file*

Fortunately, all you have to do is run \LaTeX on the file as you would normally, and the extra files will automatically appear in the directory where the .tex file is found.

Final Words of Advice to the Production Staff

If you play with the commands above you will find that very soon they become comfortable to use and predictable in their results. If you find that you consistently have problems with some aspect of using this macro package, please let me, or Carter Glass, know, and I can see if there is some way that I can make things easier.

Hope you enjoy using this package and find that the production process runs much more smoothly because of it.

Final Words of Advice to Authors

One last thing to remind authors, please be sure to include any macros that you write in your article file, not in a separate file. See information at beginning of this documentation about using the filecontents command to include .eps and/or macro files.

If you have serious problems in using this macro set, help may be had by contacting AGU at `author.help@agu.org`.

Please be sure that

- You have read the documentation carefully,
- If you are having a font problem when using `agu-ps.sty`, please look at the top of the file and change it to use the fonts that are available on your system. If this turns out to be a major problem, just submit your article without using `agu-ps.sty`.
- Please e-mail a small sample of your problem (1 page maximum).
- Please e-mail your .log file

Enjoy!

– Amy Hendrickson

February 2008

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