

# Copernicus Publications Latex Manual

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# 1 Introduction

Copernicus Publications provides the Editorial Support Office and/or Publication Production Office for a number of journals. These are:

*Atmospheric Chemistry and Physics* (ACP)  
*Advances in Geosciences* (ADGEO)  
*Annales Geophysicae* (ANGEO)  
*Atmospheric Measurement Techniques* (AMT)  
*Advances in Radio Science* (ARS)  
*Advances in Science and Research* (ASR)  
*Biogeosciences* (BG)  
*Climate of the Past* (CP)  
*Drinking Water Engineering and Science* (DWES)  
*Earth System Dynamics* (ESD)  
*Earth System Science Data* (ESSD)  
*Geographica Helvetica* (GH)  
*Geoscientific Instrumentation, Methods and Data Systems* (GI)  
*Geoscientific Model Development* (GMD)  
*Geothermal Energy Science* (GtES)  
*Hydrology and Earth System Sciences* (HESS)  
*History of Geo- and Space Sciences* (HGSS)  
*Journal of Sensors and Sensor Systems* (JSSS)  
*Mechanical Sciences* (MS)  
*Natural Hazards and Earth System Sciences* (NHESS)  
*Nonlinear Processes in Geophysics* (NPG)  
*Ocean Science* (OS)  
*Pattern Recognition in Physics* (PRP)  
*Solid Earth* (SE)  
*Stephan Mueller Special Publication Series* (SMSPS)  
*The Cryosphere* (TC)  
*Web Ecology* (WE)

Manuscripts should be written in British English and the authors are responsible for correct spelling and grammar.

In order to maintain a high quality, all manuscripts accepted for publication are typeset in the Copernicus journal style by the Publication Production Office in L<sup>A</sup>T<sub>E</sub>X.

Manuscripts must be submitted as electronic files via the Copernicus Office Editor web application. Further information on how to prepare figure files, supplementary material, service charges, etc. can be found on the individual journal webpages.

No further support for the obsolete L<sup>A</sup>T<sub>E</sub>X version 2.09 is provided. The old syntax will still function, but only with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> in its “compatibility” mode. Since this mode is only meant for processing old documents, that syntax is deprecated today. Here L<sup>A</sup>T<sub>E</sub>X means L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>.

General information on how to write papers in L<sup>A</sup>T<sub>E</sub>X is provided in the basic manuals by Lamport (3) and Kopka and Daly (2).

## 2 Setting up the L<sup>A</sup>T<sub>E</sub>X manuscript

Authors who are familiar with L<sup>A</sup>T<sub>E</sub>X should have no problems using the Copernicus L<sup>A</sup>T<sub>E</sub>X package. Even if the manuscript has already been written using standard L<sup>A</sup>T<sub>E</sub>X without the Copernicus class files, it will be easy to adapt it. The most important changes are inserting extra information to the title page and to the header of each page.

The Copernicus L<sup>A</sup>T<sub>E</sub>X package contains the following files:

- `copernicus.cls`, `copernicus2.cls`,  
and `copernicus_discussions.cls`
- `copernicus.bst`
- `template.tex`
- `Copernicus_Latex_Manual.pdf`

The `template.tex` file consists of all important commands which are supported by the `copernicus.cls`, `copernicus2.cls` and the `copernicus_discussions.cls`.

The meaning of the individual elements is explained in the following sections.

### 2.1 L<sup>A</sup>T<sub>E</sub>X Preamble

The Copernicus L<sup>A</sup>T<sub>E</sub>X package uses currently three different class files which have to be identified in the `\documentclass` command.

#### 2.1.1 Journal class file `copernicus.cls`

`\documentclass[journal abbreviation]{copernicus}`

The following journal abbreviations can be used:

Atmospheric Chemistry and Physics	<code>acp</code>
Advances in Geosciences	<code>adgeo</code>
Annales Geophysicae	<code>angeo</code>
Atmospheric Measurement Techniques	<code>amt</code>
Advances in Radio Science	<code>ars</code>
Biogeosciences	<code>bg</code>
Climate of the Past	<code>cp</code>
Earth System Dynamics	<code>esd</code>
Geoscientific Instrumentation, Methods and Data Systems	<code>gi</code>
Geoscientific Model Development	<code>gmd</code>
Hydrology and Earth System Sciences	<code>hess</code>
Natural Hazards and Earth System Sciences	<code>nhess</code>
Nonlinear Processes in Geophysics	<code>npg</code>
Ocean Science	<code>os</code>
Solid Earth	<code>se</code>
Stephan Mueller Special Publication Series	<code>smsps</code>
The Cryosphere	<code>tc</code>

To prepare a L<sup>A</sup>T<sub>E</sub>X file in manuscript one-column style the following should be inserted:

`\documentclass[journal abbreviation, ms]{copernicus}`

Tables and figures together with the captions should be placed in the back.

### 2.1.2 Journal class file `copernicus2.cls`

`\documentclass[journal abbreviation]{copernicus2}`

The following journal abbreviations can be used:

Advances in Science and Research	<code>asr</code>
Drinking Water Engineering and Science	<code>dwes</code>
Earth System Science Data	<code>essd</code>
Geographica Helvetica	<code>gh</code>
Geothermal Energy Science	<code>gtes</code>
History of Geo- and Space Sciences	<code>hgss</code>
Journal of Sensors and Sensor Systems	<code>jsss</code>
Mechanical Sciences	<code>ms</code>
Pattern Recognition in Physics	<code>prp</code>
Web Ecology	<code>we</code>

### 2.1.3 Discussion forum class file `copernicus_discussions.cls`

To prepare a discussion paper for the discussion forum of a two-stage journal, the following forum abbreviations and commands should be inserted in the square brackets:

`\documentclass[abbreviation, hvmath]{copernicus_discussions}`

Forum abbreviations:

Atmospheric Chemistry and Physics Discussions	<code>acpd</code>
Atmospheric Measurement Techniques Discussions	<code>amtd</code>
Biogeosciences Discussions	<code>bgd</code>
Climate of the Past Discussions	<code>cpd</code>
Drinking Water Engineering and Science Discussions	<code>dwesd</code>
Earth System Dynamics Discussions	<code>esdd</code>
Earth System Science Data Discussions	<code>essdd</code>
Geoscientific Instrumentation, Methods and Data Systems Discussions	<code>gid</code>
Geoscientific Model Development Discussions	<code>gmdd</code>
Hydrology and Earth System Sciences Discussions	<code>hessd</code>
Natural Hazards and Earth System Sciences Discussions	<code>nhessd</code>
Ocean Science Discussions	<code>osd</code>
Solid Earth Discussions	<code>sed</code>
The Cryosphere Discussions	<code>tcd</code>

In the discussion forum style, the following differences apply:

- The sections created with `\introduction` and `\conclusions` are mandatory because in the online version of the paper there are buttons linking to these sections.
- Authors are strongly encouraged to use the commands `\label` and `\ref` when referring to figures, tables, and sections. For citations, the commands `\bibitem` and `\citep` (or `\citet`) should always be used. If done correctly, they will automatically be converted into hypertext links when the online pdf file is produced.
- An appendix should be avoided. If really necessary, the appendix section is placed before the acknowledgements with `\appendix \section{TEXT}` and the corresponding appendix tables and figures (labelled with Table A1 and Fig. A1) are shown after the regular tables and figures.

- It is possible to produce the correct URL of the electronic supplement of your paper with the `\supplement{suffix}` command. The *suffix* can be any of the file name extensions that are allowed for an electronic supplement, i.e.: `pdf` and `zip`.

### 2.1.4 Included style files

The style files `amssymb.sty`, `array.sty`, `color.sty`, `fix2col.sty`, `german.sty`, `graphicx.sty`, `ifthen.sty`, `lineno.sty`, `multicol.sty`, `textcomp.sty`, `times.sty`, and `url.sty` are automatically included, if they are available. The functionality of `natbib.sty` and `authblk.sty` is also available in the Copernicus L<sup>A</sup>T<sub>E</sub>X package. Any additional macros or packages of the authors may be employed with the `\usepackage` command as usual, provided that they do not change the page layout. However, the style files must be submitted to the Publication Production Office along with the L<sup>A</sup>T<sub>E</sub>X file.

**The `usepackage` `amsmath.sty` should not be used, as it does not correspond with other packages used by Copernicus style files!**

## 2.2 Title and authors

As in standard L<sup>A</sup>T<sub>E</sub>X, information for the title block is entered by means of the commands:

```
\title{...}
\author{...}
```

to which the Copernicus L<sup>A</sup>T<sub>E</sub>X package adds:

```
\affil{...}
```

The text of the title should be entered with usual English sentence style: capitalize only the first word and any word that is normally written capitalized.

There are two ways to enter the list of authors depending on the number of affiliations and other notes.

If there is only one affiliation, enter each author's name singly with the `\author` command. Add the affiliation with the `\affil` command after all authors:

```
\author{I.~M.~First}
\author{U.~R.~Second}
\affil{Copernicus Publications, G\"ottingen, Germany}
```

This results in:

**I. M. First and U. R. Second**

Copernicus Publications, Göttingen, Germany

If there are two or more affiliations, or if some additional note is required, then superscripts can be given in square brackets, as for example:

```
\author[1]{I.~M.~First}
\author[2]{U.~R.~Third}
\author[1,*]{U.~R.~Second}
\affil[1]{Copernicus Publications, G\"ottingen, Germany}
\affil[2]{University of G\"ottingen, Department of Physics, G\"ottingen, Germany}
\affil[*]{now at: Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany}
```

This produces:

**I. M. First<sup>1</sup>, U. R. Third<sup>2</sup>, and U. R. Second<sup>1,\*</sup>**

<sup>1</sup>Copernicus Publications, Göttingen, Germany

<sup>2</sup>University of Göttingen, Department of Physics, Göttingen, Germany

\*now at: Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany

If the list of authors and affiliations is larger than the allocated space, you can increase the height of the title block with the `\titleheight{...}` command. The default is `\titleheight{7.5cm}`.

Some additional pieces of information are necessary:

`\runningauthor{...}` and `\runningtitle{...}` are the abbreviated list of authors and a short title for the running heads, respectively. For the `\runningauthor{...}` the following options are possible:

- The author list consists of two authors:  
I. M. First and U. R. Second
- The author list consists of more than two authors:  
I. M. First et al.

`\correspondence{...}` contains the name and email address of the author to be addressed for correspondence and proofs. Please include the email address in round parentheses, e.g.:

I. M. First (imfirst@xyz.org)

As usual, the actual title is produced with the command `\maketitle` which must be issued after all the above has been given.

## 2.3 Abstract

For journal articles, an abstract must be inserted into the `abstract` environment.

For the `copernicus.cls` and the `copernicus_discussions.cls`:

```
\begin{abstract}
  TEXT
\end{abstract}
```

For the `copernicus2.cls`:

```
\abstract{
  TEXT
\keywords{TEXT}}
```

Keywords are only used for *Annales Geophysicae* and are not necessary for all other journals.

## 2.4 Introduction

The introduction must be part of every manuscript. To ensure this, the command `\introduction` is used. If you want to use a slightly different title, you can add it in square brackets, e.g.:

```
\introduction[Motivation]
```

## 2.5 Sectioning

The sectioning commands of the `LATEX` `article` class may be used as normal, although their effects are somewhat different.

`\section` produces a bold heading, flush left, in the normal font size.

`\subsection` produces a flush left heading in plain type.

`\subsubsection` is the same as `\subsection` except for the numbering.

## 2.6 Conclusions

The conclusions must be part of every manuscript. To ensure this, the command `\conclusions` is used. If you want to use a slightly different title, you can add it in square brackets, e.g.:

```
\conclusions[Summary and conclusions]
```

## 2.7 Appendix

Appendix sections are inserted before the acknowledgements using the command

```
\appendix
\section{TEXT}
```

to create Appendix A. Every further use of `\section{TEXT}` will produce Appendix B etc.

Appendix figures and tables must be inserted after the `\appendix` command to use the automatic labelling of Fig. A1, Table A1, etc.

## 2.8 Acknowledgements

Acknowledgements are to be included with the `acknowledgements` environment, as

```
\begin{acknowledgements}
  TEXT
\end{acknowledgements}
```

There is also a corresponding `acknowledgement` environment for a singular acknowledgement.

## 2.9 References

The references must be put into the `thebibliography` environment, e.g.:

```
\begin{thebibliography}{}

\bibitem[Jones et al.(1990)]{jones90}
  Jones, J. K., Thomas, P. R., and
  Peters, R. F.: The best results
```



of fitting curves, J. Math. Dev.,  
12, 1245--1261, 1990.

```
\bibitem[Jones and Thomas(1991)]{jones91}
  Jones, J. K. and Thomas, P. R.:
  More results of fitting curves,
  J. Math. Dev., 13, 335--339, 1991.
```

```
\bibitem[Helliwell(1965)]{helliwell65}
  Helliwell, R. A.: Whistlers and
  related ionospheric phenomena,
  Stanford Univ. Press, California, 1965.
```

```
\end{thebibliography}
```

The argument in square brackets (e.g. “[Jones et al.(1990)]”) is the citation that will appear in the text when you cite this article, as explained in Sect. 3.7.

Alternatively, if you are using Bib<sub>TEX</sub>, you can use the Bib<sub>TEX</sub> style file `copernicus.bst` that is provided as part of the Copernicus L<sub>A</sub>T<sub>E</sub>X package, as explained in Sect. 3.8.

Works accepted for publication or published already should be listed alphabetically in the reference list under the first author’s name. Works “submitted to”, “in preparation”, “in review”, or only available as preprint, should also be included in the reference list.

Reference categories, their required elements and examples:

### 1. Article in Journal

Author(s) (Initials always after last name!)

Article title

Journal title abbreviation

(please use Caltech Library Services:

[www.library.caltech.edu/reference/abbreviations](http://www.library.caltech.edu/reference/abbreviations))

Volume

Page numbers

Year

Punge, H. J. and Giorgetta, M. A.: Differences between the QBO in the first and in the second half of the ERA-40 reanalysis, Atmos. Chem. Phys., 7, 599–608, 2007.

**2. Article in Journal with doi number**

Author(s) (Initials always after last name!)

Article title

Journal title abbreviation

Volume

Page numbers or article number

doi number

Year

Felder, M., Poli, P., and Joiner, J.: Errors induced by ozone field horizontal inhomogeneities into simulated nadir-viewing orbital backscatter UV measurements, *J. Geophys. Res.*, 112, D01303, doi:10.1029/2005JD006769, 2007.

**3. Book**

Author(s), Editor(s) (Initials always after last name!)

Book title

Edition

Series title and volume (if any)

Editors (if not authors)

Publisher

Location

Total pages (optional) pp.

Year

Singh, O. N. and Fabian, P. (Eds.): *Atmospheric Ozone: a Millennium Issue*, Copernicus Publications, Katlenburg-Lindau, Germany, 2003.

**4. Article in Book**

Author(s) (Initials always after last name!)

Article title

Book title

Edition (if any)

Editors (if any)

Publisher

Location

Page numbers of article in book

Year

Eagleson, P. S.: Physical composition of the oceans and lakes, in: *Dynamic Hydrology*, EGU Reprint Series, 2, Copernicus Publications, Katlenburg-Lindau, Germany, 2003.

**5. Presented Paper**

Author(s) (Initials always after last name!)

Paper title

Name of Meeting/Conference

Location of Meeting/Conference

Date of Meeting/Conference

Abstract number

Year

Keppler, F., Hamilton, J., Braß, M., and Röckmann, T.: An overlooked major source of atmospheric methane: in situ formation in plants, EGU General Assembly, Vienna, Austria, 2–7 April 2006, EGU06-A-08188, 2006.

## 6. Presented Paper published in Conference Proceedings

Author(s) (Initials always after last name!)

Paper title

Proceedings title

Name of Meeting/Conference

Location of Meeting/Conference

Date of Meeting/Conference

Abstract number or page numbers

Year

Iwata, M., Matsumoto, H., and Kojima, H.: Computer experiments on the plasma wave generation in the vicinity of Earths bow shock, in: Proceedings of the 6th International School/Symposium on Space Plasma Simulation Overview, Garching, Germany, 3–8 September 2001, 4–6, 2001.

## 7. Report, Map, Thesis, Dissertation

Author(s) (Initials always after last name!)

Title

Report designator (M.S., Ph.D., etc.)

Issuing Organisation/University

Location

Total pages (optional) pp.

Year

Monger, J. W. H. and Journeay, J. M.: Guide to the geology and tectonic evolution of the southern Coast Mountains, Geol. Surv. of Can., Ottawa, Ont., Open File Rep. 2490, 77 pp., 1994.

Brown, R. J. E.: Permafrost in Canada, Geol. Surv. of Can., Ottawa, Ont., Map 1246A, 1967.

Kronberg, E. A.: Dynamics of the Jovian Magnetotail, Ph.D. thesis, International Max Planck Research School, Universities of Braunschweig and Göttingen, Germany, 133 pp., 2006.

## 8. Webpages

Title

URL

Access date

Year (if not analog with access date)

Copernicus Publications: <http://www.copernicus.org/COPERNICUS/publications>, access: 2 July 2007.

If an article is available via the internet, an url address can be inserted before the year, e.g. “available at: <http://www.copernicus.org/>, 2007.”.

## 3 Additional components

### 3.1 Figures

Authors must provide electronic versions of all their figures. Vector graphics in the file formats **eps** and **pdf** are preferred. For pictures, **png** and **jpg** are possible. Colour illustrations are accepted at **no additional charge**. Authors are encouraged to make use of this feature. Figures are included into the document with the figure environment. As an example, if a figure exists as an encapsulated PostScript file named **sample-figure.eps**, then it could be included directly with the commands

```
\begin{figure}[t]
  \vspace*{2mm}
  \begin{center}
    \includegraphics[width=8.3cm]{sample-figure}
  \end{center}
  \caption{TEXT}
  \label{fig:sample-figure}
\end{figure}
```

For this to work, you must have the **graphicx** package, which is included in recent **L<sup>A</sup>T<sub>E</sub>X** versions. If you use **pdfL<sup>A</sup>T<sub>E</sub>X** instead of **L<sup>A</sup>T<sub>E</sub>X**, you must provide the orbit plot as either **sample-figure.pdf** or **sample-figure.jpg**. You should give the graphics file name in the **\includegraphics** command without an extension.

Figures stretching over both columns can be produced with the starred version, i.e. the **figure\*** environment:

```
\begin{figure*}[t]
  \vspace*{2mm}
  \begin{center}
    \includegraphics[width=12cm]{sample-figure}
  \end{center}
  \caption{TEXT}
  \label{fig:sample-figure}
\end{figure*}
```

It is possible to scale figures to the full text width or to the width of one column with the **\includegraphics** command:

```
\includegraphics[width=\textwidth]{orbit}
\includegraphics[width=\columnwidth]{orbit}
```

If a figure is very large and split over two pages, the command **\addtocounter{figure}{-1}** can be used between the figure environments to ensure that both parts get the same figure number, e.g.:

```
\begin{figure*}[t]
  \vspace*{2mm}
  \begin{center}
    \includegraphics[width=12cm]{sub-figure1}
  \end{center}
```

```

\caption{TEXT}
\label{fig:sub-figure1}
\end{figure*}

\addtocounter{figure}{-1}
\begin{figure*}[t]
\vspace*{2mm}
\begin{center}
\includegraphics[width=12cm]{sub-figure2}
\end{center}
\caption{Continued.}
\label{fig:sub-figure2}
\end{figure*}

```

If the figures should be labeled with a, b etc., the following should be inserted:

```

\addtocounter{figure}{-1}
\renewcommand{\thefigure}{\arabic{figure}a}

```

## 3.2 Tables

Tables are created with the `tabular` environment and included in the text within a `table` or `table*` environment. The former is used for a table of single-column width, while the latter is for tables of two-column width. The tables should be horizontally centered. The `\caption` command comes at the top. For horizontal rules at the top, in the middle and at the bottom of the table, the commands `\tophline`, `\middlehline`, and `\bottomhline` should be used, e.g.:

```

\begin{table}[t]
\caption{TEXT}
\vskip4mm
\centering
\begin{tabular}{ll}
\tophline
COLUMN & COLUMN\\
\middlehline
COLUMN & COLUMN\\
COLUMN & COLUMN\\
\bottomhline
\end{tabular}
\end{table}

```

If a table is very large and must be split over two pages, the command `\addtocounter{table}{-1}` can be used between the `table*` environments to ensure that both parts get the same table number, e.g.:

```

\addtocounter{table}{-1}
\begin{table}[t]
\caption{Continued.}
\vskip4mm
\centering

```

```

\begin{tabular}{ll}
\tophline
COLUMN      & COLUMN\\
\middleline
COLUMN      & COLUMN\\
COLUMN      & COLUMN\\
\bottomline
\end{tabular}
\end{table}

```

### 3.3 Math typesetting rules

All papers typeset by Copernicus Publications follow the math typesetting regulations given by the IUPAC “Green Book” (1993).

The summary is as follows:

- Physical quantities/variables in italic font (e.g.  $t$  – time,  $T$  – Temperature),
- Indices which are not defined in italic font (e.g.  $l, m, n, i, j, k, x, y, z, a, b, c$ ),
- Items/objects which are defined in roman font (e.g. Car A, Car B, Car C),
- Descriptions/specifications (mostly in index to find!) which are defined by itself in roman font (e.g. abs, rel, ref, tot, net, ice),
- Abbreviations (from 2 letters) in roman font (e.g. RH, LAI).

In addition:

- Vectors are identified in bold italic font (vector  $\boldsymbol{x}$ ).
- Matrices are identified in bold roman font (matrix  $\mathbf{A}$ ).

As a multiplication sign the L<sup>A</sup>T<sub>E</sub>X command `\times` (always used for vector products, grids, and  $3.7 \times 10^{-3}$ ) or `\cdot` should be used. The character `*` should not be applied.

### 3.4 Chemical formulas and physical units

Chemical formulas and physical units often contain superscripts and subscripts. It is thus desirable to use the L<sup>A</sup>T<sub>E</sub>X math mode for them. However, according to the IUPAC recommendations by Mills et al. (4), they must be typeset using the normal upright font whereas the L<sup>A</sup>T<sub>E</sub>X math mode produces italics. Therefore the Copernicus L<sup>A</sup>T<sub>E</sub>X package provides the new commands `\chem` and `\unit` that should be used for chemical formulas and physical units:

```

\chem{HSO_4^-}      prints  HSO4-
\unit{mol\,dm^{-3}} prints  mol dm-3

```

The metric system is mandatory and, wherever possible, SI units should be used. Also units should be displayed using exponential rather than potential formatting.

Several arrows are provided by L<sup>A</sup>T<sub>E</sub>X for chemical reactions:

```
\rightarrow      prints  →
\rightleftharpoons prints ⇌
\leftrightharpoons prints ↔
```

`\rightarrow` should be used for normal (one-way) chemical reactions and `\rightleftharpoons` for equilibria. Note that `\leftrightharpoons` is reserved for resonance structures.

Using the `equation` and `eqnarray` environments, L<sup>A</sup>T<sub>E</sub>X automatically numbers the equations as (1), (2), (3), and so on. Articles in the geosciences often contain chemical reactions as well as physical equations. For this purpose, the Copernicus class files provide the new environments `reaction` and `rxnarray` which create labels including the letter R, i.e. (R1), (R2), (R3), and so on. The numbering of equations and reactions is independent of each other. These new environments can be used in the same way as `equation` and `eqnarray`, e.g.:

```
\begin{reaction}
  \chem{O_3} + h\nu \rightarrow \chem{O_2} + \chem{O}
\end{reaction}
```

```
\begin{rxnarray}
  \chem{O_3} + h\nu
  & \rightarrow
  & \chem{O_2} + \chem{O} \\
  \chem{O} + \chem{O_2}
  & \rightarrow
  & \chem{O_3}
\end{rxnarray}
```

### 3.5 Alternative texts for one or two columns

Sometimes it becomes difficult to fit mathematical formulas into the narrow confines of a column in two-column format, whereas they will fit with no problem into the wide columns of the one-column layout. This often results in the author having to modify his formulas when changing between these layouts. The new command `\iftwocol` allows both versions of the text to be included in one document, for automatic selection depending on whether two-column mode is active or not. Its syntax is:

```
\iftwocol{yes}{no}
```

where *yes* is the text that is inserted if two-columns are in effect, and *no* the text that is otherwise taken. For example, a line break may be necessary for the two-column layout where a space is sufficient for the longer lines of the one-column layout:

```
\iftwocol{\\}{ }
```

This command may be used in other situations, but the main application is this mathematical one.

### 3.6 Itemization and numbering

To itemize or enumerate text parts the following commands should be used. Each textpart should start with `\item\verb` to insert a – or a number.

```
\begin{itemize}
  \item TEXT
  \item TEXT
  \item TEXT
\end{itemize}

\begin{enumerate}
  \item TEXT
  \item TEXT
  \item TEXT
\end{enumerate}
```

### 3.7 Literature citations

L <sup>A</sup> T <sub>E</sub> X command	example result
<code>\citet{jones90}</code>	Jones et al. (1990)
<code>\citep{jones90}</code>	(Jones et al., 1990)
<code>\citep{jones90,jones93}</code>	(Jones et al., 1990, 1993)
<code>\citep[p.~32]{jones90}</code>	(Jones et al., 1990, p. 32)
<code>\citep[e.g.,][]{jones90}</code>	(e.g., Jones et al., 1990)
<code>\citep[e.g.,][p.~32]{jones90}</code>	(e.g., Jones et al., 1990, p. 32)
<code>\citeauthor{jones90}</code>	Jones et al.
<code>\citeyear{jones90}</code>	1990

The Copernicus journals use the author-year system of literature citation, which is not supported by standard L<sup>A</sup>T<sub>E</sub>X. The Copernicus L<sup>A</sup>T<sub>E</sub>X package does support it, with and without the BibT<sub>E</sub>X program. All commands explained here are also listed in the table above.

Since there are two ways of making a citation in the author-year system, either as “Jones et al. (1990)” or as “(Jones et al., 1990)”, there are two variants of the original `\cite` command. Suppose the key for the above reference is `jones90`, then use

`\citet{jones90}` for Jones et al. (1990)

and

`\citep{jones90}` for (Jones et al., 1990).

Optional arguments can be used to add notes inside the citation: a single argument behaves as in standard L<sup>A</sup>T<sub>E</sub>X, i.e. it produces a note *after* the citation. However, with two optional arguments (non-standard), the first goes *before*, the second *after* it. Two other citation commands are available. `\citeauthor{jones90}` prints the author and `\citeyear{jones90}` prints the year of a citation.

For the above examples to function properly, either the bibliography style `copernicus.bst` must be used with BibT<sub>E</sub>X, or the `thebibliography` environment must be formatted accordingly.

If you want to cite a web page (URL), you should use the `\url` command. This has two advantages. First, no hyphen will be added if a line break appears within a long URL. Second, characters that



appear often in an URL but have a special meaning in L<sup>A</sup>T<sub>E</sub>X like `~` and `_` can be used directly within the `\url` command. For example, `\url{http://www.xyz.org/~jones/idx_g.htm}` will produce `http://www.xyz.org/~jones/idx_g.htm` and the direct link from the pdf file to the webpage.

### 3.8 BibT<sub>E</sub>X

The Copernicus L<sup>A</sup>T<sub>E</sub>X package provides the BibT<sub>E</sub>X style file `copernicus.bst`. If you use BibT<sub>E</sub>X, you can enter the following two lines instead of writing the `\thebibliography` environment manually:

```
\bibliographystyle{copernicus}
\bibliography{bib_file}
```

Here, *bib\_file* refers to your bibliography file with the suffix `bib`.

A reference often contains a link to a web page (URL) or a digital object identifier (doi). If you use BibT<sub>E</sub>X with the `copernicus.bst` style file, you can enter an URL or DOI in your `bib` file as e.g.:

```
URL = {http://www.xyz.org/~jones/idx_g.htm}
DOI = {10.1029/2001JD000942}
```

### 3.9 Times Roman fonts

If the `times` package with the Times Roman fonts exists in your L<sup>A</sup>T<sub>E</sub>X installation, it will be used automatically. This package also replaces the sans serif font with Helvetica. If you do not have access to PostScript fonts through L<sup>A</sup>T<sub>E</sub>X, then you must use the Computer Modern fonts that are standard. Other PostScript fonts should not be selected.

### 3.10 Italic fonts

Accentuations should be avoided, but if really necessary, the text should be identified with italics, using the command `\textit{highlight}`.

Latin names of plants, creatures, etc. should be identified in italics, but latin phrases like “in situ”, “versus”, “a priori”, “et al.”, “i.e.” should stay in an upright font.

### 3.11 Miscellaneous

The Copernicus macros `\permil` and `\degree` produce the permil and the degree sign, respectively, which are not part of standard L<sup>A</sup>T<sub>E</sub>X. The command `\vec` has been changed to produce a bold-face italics symbol that is used for **vectors** (instead of the arrow over the symbol). To obtain the bold-face upright font for **matrices**, use the standard L<sup>A</sup>T<sub>E</sub>X command `\mathbf`.

<code>\permil</code>	prints	‰
<code>42\degree\,N</code>	prints	42° N
<code>100\,\unit{\degree C}</code>	prints	100 °C
<code>\vec{x}</code>	prints	<b><i>x</i></b>
<code>\mathbf{A}</code>	prints	<b>A</b>

In general, all units are separated from the number using `\,` to create a small space.

Please remember that it is necessary to add “`\`”, i.e. a backslash and a space, if one of these commands is directly followed by a space, e.g. “`5 \permil\ or less`” prints “5 ‰ or less”.

## 4 Journal-specific considerations

### Considerations for journals with German text

For journals with German text, two abstracts are required: one in German and one in English. The first abstract is in the main language, the second in the other one. Simply put the two texts into two separate `abstract` environments. The heading switching (and word division rules) will change automatically.

The package `german.sty` should exist on your system, and will be loaded automatically if it can be found. This simplifies the typing of German texts, and selects German word divisions, if installed. To activate the German text the following must be inserted in the command

```
\documentclass[journal abbreviation, german]{copernicus}
```

All environment names are the same as for English text. Thus the environments `acknowledgement` and `acknowledgements` produce the headings *Danksagung* and *Danksagungen*, respectively. Similarly for `figure` and `table`.

## References

- [1] IUPAC: Quantities, Units and Symbols in Physical Chemistry, 2nd Edn., Blackwell Science, available at: [http://old.iupac.org/publications/books/gbook/green\\_book\\_2ed.pdf](http://old.iupac.org/publications/books/gbook/green_book_2ed.pdf), 1993.
- [2] Kopka, H. and Daly, P. W.: A Guide to L<sup>A</sup>T<sub>E</sub>X—Document Preparation for Beginners and Advanced Users, Addison Wesley Longman, Reading, MA, 3rd edn., 1999.
- [3] Lamport, L.: L<sup>A</sup>T<sub>E</sub>X—A Document Preparation System, Addison-Wesley, Reading, MA, 2nd edn., 1994.
- [4] Mills, I., Cvitaš, T., Homann, K., Kallay, N., and Kuchitsu, K.: International Union of Pure and Applied Chemistry: Quantities, Units and Symbols in Physical Chemistry, Blackwell Science, Boca Raton, 1993.

## 5 Reference sheet

`\accepted{date}` enters the date that the paper was accepted for publication (to be inserted by the Publication Production Office).

`\affil{address}` enters the affiliation that applies to all the previous authors since the last `\affil` entry.

`\affil[num]{address}` enters an affiliation with the explicit superscript *num*.

`\author{name}` enters the name of one author.

`\author[num]{name}` enters the name of one author with the explicit affiliation superscript *num*.

`\begin{acknowledgement}...`

`\end{acknowledgement}` is a new environment for entering the text of one acknowledgement.

`\begin{acknowledgements}...`

`\end{acknowledgements}` is a new environment for entering the text of several acknowledgements.

`\begin{reaction}...\end{reaction}` is a new environment similar to `equation` for entering a chemical reaction.

`\begin{rxnarray}...\end{rxnarray}` is a new environment similar to `eqnarray` for entering several chemical reactions.

`\bottomhline` prints a horizontal line in a table with some space above it. It should be used at the bottom of a table.

`\chem{formula}` prints a chemical formula using the correct upright font.

`\citeauthor{key}` prints the author of a citation as “Jones et al.”.

`\citep{key}` prints a citation in parenthetical form as “(Jones et al., 1990)”.

`\citep[after]{key}` prints a citation including a note after the main citation.

`\citep[before][after]{key}` prints a citation including two notes before and after the main citation.

`\citett{key}` prints a citation as “Jones et al. (1990)”.

`\citeyear{key}` prints the year of a citation as “1990”.

`\conclusions[title]` starts the conclusions section (optionally using the title *title*).

`\correspondence{name (email)}` enters the name and email address of the author to be addressed for correspondence and proofs. Include the email address in round parentheses.

`\degree` prints the degree sign.

`\firstpage{page.number}` enters the page number of the first page (to be inserted by the Publication Production Office).

`\iftwocol{yes}{no}` prints alternative text depending on whether or not the two-column mode is active. This is useful for alternative formatting of math formulas.

`\introduction[title]` starts the introduction section (optionally using the title *title*).

`\middlehline` prints a horizontal line in a table with some space above and below it. It can be used in the middle of a table.

`\permil` prints the permil sign.

`\pubdiscuss{date}` enters the date that the manuscript was published in the discussion stage (to be inserted by the Publication Production Office).

`\published{date}` enters the date that the manuscript was published in its final form (to be inserted by the Publication Production Office).

`\received{date}` enters the date that the manuscript was submitted (to be inserted by the Publication Production Office).

`\revised{date}` enters the date that the revised manuscript was received (to be inserted by the Publication Production Office and omitted if there were no revisions).

`\runningauthor{text}` enters the abbreviated list of authors that appears at the top of all pages (except for the first page).

`\runninghead{name}` is an obsolete command. Please use both `\runningauthor{text}` and `\runningtitle{short_title}` instead.

`\runningtitle{short_title}` enters the short title that appears at the top of all pages (except for the first page).

`\title{title}` enters the title of the manuscript.

`\titleheight{height}` increases the height of the title block (default = 7.5 cm).

`\tophline` prints a horizontal line in a table with some space below it. It should be used at the top of a table.

`\unit{phys_unit}` prints a physical unit using the correct upright font.

`\vec{...}` prints a bold-face italics symbol used for vectors.