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Abstract   The text for the first abstract goes here. This should be in English, no longer than 200 words, and should not include references.

Non-technical summary   The text goes here. Again, no longer than 200 words, no reference.

1   Introduction

This document explains the use of the LaTeX template for submission of paper to jSEDI. It is by no means intended to be a LaTeX documentation but it should help authors not familiar with LaTeX to use it in this context. Note that typesetting complying with the journal's template is the full responsibility of the authors. The editors may provide a limited help depending on their availability. Once accepted, the authors must prepare the final version, using the relevant template which incorporates the doi provided by the journal. Switching from one template to the other is straightforward.

All articles must include an abstract, authors' ORCID and author contributions (in the preamble of this tex file), a data availability statement, and a list of references.

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2 Article structure

Section names are at the discretion of the authors. A simple structure for an article would include an Introduction, Methods and Data, Results, Discussion, and Conclusions, but authors are encouraged to choose a structure that best presents their work.

Three levels of headings (`\section`, `\subsection`, `\subsubsection`) is the maximum[1] - no subsubsubsections please! Note that footnotes are allowed, as demonstrated in the previous sentence. However, we encourage authors to carefully consider whether a footnote is truly necessary or if the information it contains could be integrated into the main text.

3 Figures and tables

Figures should be labeled, captioned, and referenced in the text, e.g., fig. 1 and figs 1(a), 1(b), 2(c). Figures should appear in the order in which they are first mentioned in the text. While fig. 1 is a one-column figure, fig. 2 is a full-width figure.
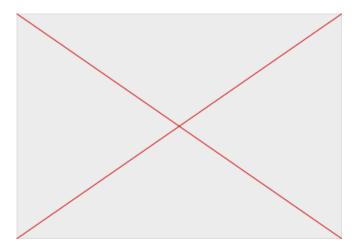

Figure 1: This is an example of a figure caption.

Tables can also be included, with captions before the tabulars themselves. Tables must appear in the order in which they are mentioned in the text.

Table 1: Caption

Event ID	Location	Magnitude	A random number
1	Here	2.5	17
2	There	4.1	1350

Tab. 1 is an example of a relatively simple table. We strongly encourage authors to put large tables in Supplementary Materials, and/or into a csv or similar format, upload them to a data repository such as zenodo, and reference them in the section on data availability instead of including them in the article itself.
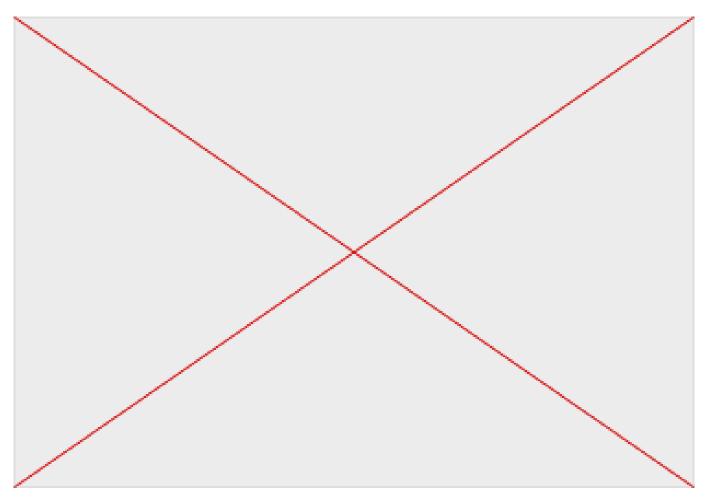
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[1]Seriously, the maximum

Figure 2: This is a caption on wider figure.

4   Mathematics

Equations can be included in the text, and should be labeled so they can be referenced. Punctuation should also be used in equations to properly integrate them with the text. One example is eq. (1):

$$\int_{OC} \rho_a \left(T_a \frac{\partial s_a}{\partial t} + \mu_{Si} \frac{\partial \xi_{Si}}{\partial t} + \mu_O \frac{\partial \xi_O}{\partial t} \right) dV = T_L(r_{IC}) \Delta S 4\pi r_{IC}^2 \frac{dr_{IC}}{dt} + Q_R + Q^{ICB} - Q^{CMB}. \tag{1}$$

Unlike what is done here, all symbols must be defined when first introduced.

Please type vectors and matrices in bold: $\mathbf{X} = [x_1, x_2, \ldots, x_n]^T$. A bold centered dot, provided by the `\bcdot` command, should be used for a scalar product, as in $\mathbf{a} \cdot \mathbf{b}$. Likewise, the `\bnabla` command provides authors with a bold nabla symbol, $\boldsymbol{\nabla}$.

Authors should avoid multiple-letter symbols except in the case of dimensionless numbers such as Re, Pr and Ra (Reynolds, Prandtl, and Rayleigh numbers respectively). An example of a set of equations that combines dimension-

3

less numbers and vector operators is

$$\boldsymbol{\nabla} \cdot \mathbf{u} = 0, \tag{2a}$$

$$\frac{\partial \mathbf{u}}{\partial t} + \mathbf{u} \cdot \boldsymbol{\nabla} \mathbf{u} + 2\mathbf{e}_z \times \mathbf{u} = -\boldsymbol{\nabla} p + \frac{Ra\, E^2}{Pr} gT\mathbf{e}_r + E\boldsymbol{\nabla}^2 \mathbf{u}, \tag{2b}$$

$$\frac{\partial T}{\partial t} + \mathbf{u} \cdot \boldsymbol{\nabla} T = \frac{E}{Pr} \boldsymbol{\nabla}^2 T. \tag{2c}$$

5   Cross-referencing

Figures, tables and equations should all be labeled for cross-referencing in the text. This is done using the `\label` command in the relevant environment, as shown in the present document. Cross-referencing in the text can then be done using a variety of commands. We recommend the use of `cleveref` commands, `\cref` inside a sentence or `\Cref` at the begining of a sentence, which automatically adds the appropriate term (Fig., Tab., Eq. etc.) before the object number. For example, eqs (2a) to (2c) are important equations and this cross-referencing is done using `\cref`. You can still use the standard LaTeX `\ref` and `\eqref` (for equations) commands if you prefer.

6   Citations and references

Our template uses `biblatex` and `biber` to generate the bibliography. The `bib` files storing all the entries are declared in the document preamble using an `\addbibresource{}` instruction per file. We provide two such files, including `jrn.bib` that contains `\string{}` instructions for the many common journals to help abbreviating their names.

In the text of an article, citations may either be in-line, using `\citet` or `\textcite`, as in the case of citing Chandrasekhar (1961), or in parentheses, using `\citep` or `\parencite` (e.g. Rayleigh, 1916; Chandrasekhar, 1961).

All citations in the text must be listed in the references section, and all listed references must be cited at least once in the text.

There are other ways to format citations in LaTeX– for example using `\citeauthor{}` and `\citeyear{}`. We ask that you stick to the instruction discussed in the previous paragraph.

7   Compilation

The pdf document is produced by running `pdflatex jSEDI_template.tex`, then `biber jSEDI_template`, and `pdflatex jSEDI_template.tex` twice so that all cross references are correct. When using a LaTeX editor (e.g. TeXShop), make sure to set `biber` as engine for the bibliography, not `bibtex`. Please pay attention to warnings and errors. The version of TeXLive used must not be earlier than 2018. Alternatively, the template is known to work well on overleaf, which does not require you to install LaTeX on your computer.

Acknowledgements

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Data availability

In order to comply with FAIR principles (Wilkinson et al., 2016), authors should direct readers to an open access repository where the data used in the study are made available. Data is understood here in its broadest sense: source codes, observational datasets, experimental datasets, numerical datasets, etc. Examples of repositories where authors can archive their data include, but are not limited to, zenodo and Dryad. Proper citations for codes and datasets should be included in the references.

Commercial source-code-hosting facilities, such as Github and bitbucket, are not considered persistent repositories, and we encourage authors to archive a snapshot of any code hosted in such a facility in a perennial repository, such as Software Heritage. A tutorial about linking your article to an archived software can be found at episciences.

Competing interests

Declare any competing interests, financial or otherwise, pertaining to any of the authors. If there are none, state that the authors have no competing interests.

8   Frequently asked LaTeX template questions

Can I modify the cls file?   Please do not do this! Modifying the class file may make your article incompatible with our publication template, which will delay publication if your article is accepted. (If you want to adapt our cls file for your own purposes outside of submitting articles to jSEDI, feel free to do so with attribution. Our cls file has been adapted from that of Seismica.)

Can I add packages to the template?   Yes, as long as they are compliant with the template. If a specific package creates errors upon compilation, preferentially avoid using it and you may contact the journal team that can try to study the matter, with no guarantee.

What's the best way to track changes for revisions?   There are numerous LaTeX packages available (e.g., `trackchanges`) for this purpose, and you are welcome to use whichever one you prefer. Alternatively, you can use a tool like `latexdiff` to identify and format tracked changes between an initial `.tex` file and a revised version. This approach allows you to generate a clean, revised .tex file for production without the need for additional packages.

A Methods

A.1 The methods environment

In the one and only case of a letter (`letter` option activated), a *methods* section is available as a LaTeX environment; this optional section should appear just before the bibliography.

A.2 Sectionning

The *methods* section can be divided into several subsections, if needed. New bibliographic references can be included (e.g. Love, 1934).

References

Chandrasekhar, S. (1961). Hydrodynamic and hydromagnetic stability. Oxford university press.

Love, A. E. H. (1934). A Treatise on the Mathematical Theory of Elasticity. 4th ed. London: Cambridge University Press.

Rayleigh, L. (1916). On convection currents in a horizontal layer of fluid, when the higher temperature is on the under side. *Phil. Mag.* 32, 529–546. DOI: 10.1080/14786441608635602.

Wilkinson, M. D. et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data* 3.1. DOI: 10.1038/sdata.2016.18.