So you want to publish in IOP? Here's a template for you.

John Smith[1], Jane Doe[1,2] and Michael Johnson[3]

[1] Department of Biodiversity Conservation, Ecological Research Institute, 123 Willow Road, Anytown, UK NW 123

[2] Department of Ecosystem Management, University of Environmental Science, 456 Birch Lane, Anycity, UK NR 543

[3] Department of Renewable Energy and Carbon Sequestration, Institute of Climate Change and Sustainability, 789 Oak Street, Anybury, UK BT 987

E-mail: michaeljohnson@fakeemail.com

Abstract. The ecological emergency refers to the current state of the global environment, characterized by unprecedented declines in biodiversity, rapid loss of natural habitats, and increasing frequency of extreme weather events. The root cause of the ecological emergency is human activity, specifically the overconsumption of resources and the release of greenhouse gases. The situation is dire, with scientists warning that up to one million species are at risk of extinction due to human activities. The ecological emergency also poses a threat to human well-being as it disrupts the provision of vital ecosystem services such as air and water purification, pollination, and climate regulation. The time to act is now, as the window of opportunity to prevent the worst outcomes of the ecological emergency is rapidly closing. It is crucial that immediate and ambitious actions are taken at the global, national, and local levels to reduce greenhouse gas emissions, protect biodiversity, and restore natural habitats. This requires a transformation of our economic and societal systems towards sustainability.

Keywords: extinction, deforestation, species, breakdown, survival

Submitted to: *Environ. Res. Lett.*

1. Introduction

1.1. ChatGPT, what are the basics of markdown?

Markdown is a lightweight markup language that is used to format plain text documents. It is designed to be simple and easy to read, and it uses a set of characters and symbols to indicate formatting such as headings, lists, and emphasis. Some of the basics of Markdown include:

- Headings are indicated by the pound sign (#) followed by a space. The number of pound signs used indicates the level of the heading, with one pound sign indicating the highest level heading and six pound signs indicating the lowest level heading.
- Lists are created by using the dash (-) or asterisk (*) followed by a space for each list item.
- Emphasis can be indicated by using asterisks (*) or underscores (_) around a word or phrase. One asterisk or underscore is used for italic emphasis, and two asterisks or underscores are used for bold emphasis.
- Links can be added by using the brackets [] followed by the link text, then the brackets () followed by the link URL.
- Images can be added by using the exclamation mark ! followed by the brackets [] for the image's alternate text, then the brackets () followed by the image URL.
- Code blocks can be indicated by using three back-ticks (“‘) before and after the code snippet.

Markdown is a versatile and flexible language, and there are many more elements you can add, but these are the basics to get you started. Additionally, there are different flavors of markdown, so some elements may vary depending on the implementation.

For more “official” guidance: https://quarto.org/docs/authoring/markdown-basics.html.

1.2. And what about the basics of Quarto?

Quarto is a strategy board game for two players. It was invented by Swiss mathematician Blaise Müller…

..I'm going to stop you there.

Basics of Quarto: https://quarto.org/docs/guide/.

2. Using this template

2.1. Format options and differences between `iop-html` and `iop-pdf`

- For the HTML format, we are using Pandoc citeproc to include the bibliography. Here `reference-section-title` controls the title for the chapter that will be used (although, specific to this template, we also use citeproc for the PDF to get Harvard style citations).
- For the PDF format, `natbib` is used by default and the bibliography is included with a title by the LaTeX template.

This format provides a number of custom YAML header options to control the PDF format:

```yaml
# replaces titlepage class option
titlepage: true
# set to true to use the orcidlink package
# to display linked orcid logos
# not required by IOP but fancy...
display-orcids: true
# use journal macros set out in the IOP style guide
# to add which journal an article is targeting
# e.g. \ERL = Environmental Research Letters
submitted-to: \ERL
# test your article in two column form
# NB: does not work well with code chunk outputs
twocol: true
# sets Vancouver numeric citation style
# comment out both iop-vancouver and cite-method
# for Harvard author year citation style
iop-vancouver: true
iop-pdf:
  cite-method: natbib
# see iopart.cls for option source code
# possible options (separate with comma):
# a4paper, letterpaper, 10pt, 12pt, draft, final
classoptions: []
```

For the most part, it *should not be necessary* to modify the `_extension.yml` file, except maybe to switch the referencing style for the HTML output.

2.2. IOP journal and format options

Table 1: Journals to which this document applies, and macros for the abbreviated journal names.

Short form of journal title	Macro name	Short form of journal title	Macro name
2D Mater.	\TDM	Mater. Res. Express	\MRE
Biofabrication	\BF	Meas. Sci. Technol.[c]	\MST
Bioinspir. Biomim.	\BB	Methods Appl. Fluoresc.	\MAF
Biomed. Mater.	\BMM	Modelling Simul. Mater. Sci. Eng.	\MSMSE
Class. Quantum Grav.	\CQG	Nucl. Fusion	\NF
Comput. Sci. Disc.	\CSD	New J. Phys.	\NJP
Environ. Res. Lett.	\ERL	Nonlinearity[a,b]	\NL
Eur. J. Phys.	\EJP	Nanotechnology	\NT
Inverse Problems	\IP	Phys. Biol.[c]	\PB
J. Breath Res.	\JBR	Phys. Educ.[a]	\PED
J. Geophys. Eng.[d]	\JGE	Physiol. Meas.[c,d,e]	\PM
J. Micromech. Microeng.	\JMM	Phys. Med. Biol.[c,d,e]	\PMB
J. Neural Eng.[c]	\JNE	Plasma Phys. Control. Fusion	\PPCF
J. Opt.	\JOPT	Phys. Scr.	\PS
J. Phys. A: Math. Theor.	\jpa	Plasma Sources Sci. Technol.	\PSST
J. Phys. B: At. Mol. Opt. Phys.	\jpb	Rep. Prog. Phys.[e]	\RPP
J. Phys: Condens. Matter	\JPCM	Semicond. Sci. Technol.	\SST
J. Phys. D: Appl. Phys.	\JPD	Smart Mater. Struct.	\SMS
J. Phys. G: Nucl. Part. Phys.	\jpg	Supercond. Sci. Technol.	\SUST
J. Radiol. Prot.[a]	\JRP	Surf. Topogr.: Metrol. Prop.	\STMP
Metrologia	\MET	Transl. Mater. Res.	\TMR

[a]UK spelling is required; [b]MSC classification numbers are required; [c]titles of articles are required in journal references; [d]Harvard-style references must be used (see Section Section 2.1); [e]final page numbers of articles are required in journal references.

This template has been written for the submission of an *article* to one of the journals laid out in Table 1. For other types of content for submission, the `\title` LaTeX control sequence on line 2 of `partials/before-body.tex` should be replaced with:

- `\paper` for a paper;
- `\letter` for a *Letter to the Editor*;
- `\ftc` for a *Fast Track Communication*;
- `\rapid` for a *Rapid Communication*;
- `\comment` for a *Comment*;

- `\topical` for a *Topical Review*;
- `\review` for a review article;
- `\note` for a *Note*; and
- `\prelim` for a *Preliminary Communication*

2.3. Shortcode demo

PDF are rendered using LaTeX but it is best if one can use a Markdown syntax for cross format support.

{{< latex >}} used in source is a shortcode syntax to print "LaTeX" in fancy text where the shortcode is included in the extension folder `_extensions`.

Alternatively, Quarto supports a number of shortcodes natively. For example, {{< pagebreak >}}

…inserts a page break.

2.4. Code chunk

This format hide chunks by default as option has been set in `_extension.yml` file.

But you can set `echo` option to `true` locally in the chunk

```
head(iris)
```

```
  Sepal.Length Sepal.Width Petal.Length Petal.Width Species
1          5.1         3.5          1.4         0.2  setosa
2          4.9         3.0          1.4         0.2  setosa
3          4.7         3.2          1.3         0.2  setosa
4          4.6         3.1          1.5         0.2  setosa
5          5.0         3.6          1.4         0.2  setosa
6          5.4         3.9          1.7         0.4  setosa
```

2.5. Text color

Our format makes applying color on inline text possible using the `[content]{color=<name>}` syntax. Let's see an example.

Here we are using a special feature of our format which is the coloring because pink is a **nice** color.

This is possible thanks to the Lua Filter included in the custom extension format.

2.6. Using references

I did not read this book [4] – coded `[@Brown2019]` – but it must be interesting. We can add all references in the our bibliography file, even if not cited in text, with the following YAML code:

```
nocite: |
  '@*'
```

2.7. Quick maths

Two plus two is four, minus one that's three – quick maths.

LaTeX and Quarto handle maths very well. This can be either inline, such as $E = mc^2$, or display maths like Equation 1 and Equation 2 below:

$$P(e) - \binom{n}{k} p^k (2-p)^{n-k} \tag{1}$$

$$\frac{\partial \mathrm{C}}{\partial \mathrm{t}} + \frac{1}{2}\sigma^2 \mathrm{S}^2 \frac{\partial^2 \mathrm{C}}{\partial \mathrm{C}^2} + \mathrm{rS}\frac{\partial \mathrm{C}}{\partial \mathrm{S}} = \mathrm{rC} \tag{2}$$

Please see the IOP LaTeX style guide for more about mathematical equations, noting specifically p2:

> "Also note that there is an incompatibility between amsmath.sty and iopart.cls which cannot be completely worked around. If your article relies on commands in amsmath.sty that are not available in iopart.cls, you may wish to consider using a different class file."

In order to avoid package clashes in this template, lines 788-789 of `iopart.cls` were commented out.

2.8. Figures

Figures can be included as normal using markdown syntax:

Figure 1: A comic book cover of the publishing company IOP Publishing reimagined as a terrifying monster.

See the link in Section 1.2 for more on figure embedding. For IOP, figures can be included in the body of the text or grouped together at the end of the document, although the former requires less fiddling using this template.

Acknowledgements

IOP acknowledgements go here: unnumbered, after the last numbered section and before the appendices or references. Acknowledgement of funding should also be included here.

3. Adding appendices

The shortcodes {{< appendix >}} and {{< appendices >}} have been added for convenience. Appendices must be labelled A, B, C etc. and placed here: after the acknowledgements, before references.

Appendix A. PDF format

For only one appendix, {{< appendix >}} inserts the section heading "Appendix", and resets numbering so any equations and figures are correctly numbered. For more than one appendix (as here), {{< appendices >}} can be used: it will open the LaTeX `\appendix` environment, allowing use of normal markdown section headers for each appendix: `# Data`, `# Tables`, etc.

$$\sqrt{x^2 + 1} \tag{A.1}$$

Appendix B. HTML format

HTML does not handle appendix numbering as well as LaTeX. However, appendices can be included in the HTML appendix by adding `{.appendix}` after the section header, e.g. `# Data {.appendix}`.

References

[1] Smith J 2022 *Journal of Environmental Science* **55** 123–138

[2] Doe J 2021 *Nature Climate Change* **11** 567–576

[3] Johnson M 2020 *Annual Review of Energy and the Environment* **45** 98–121

[4] Brown T 2019 *Deforestation and its impact on global climate change* (Anytown, UK: University Press)

[5] Davis K 2018 *Annual Review of Ecology, Evolution, and Systematics* **49** 1–23