

## Brief guide for submission to *Nature Geoscience*

This guide outlines key points for preparing primary research manuscripts for submission to *Nature Geoscience*.

The corresponding author should be familiar with the *Nature* journals' editorial policies and is solely responsible for communicating with the journal and managing communication between coauthors. Before submission, the corresponding author ensures that all authors are included in the author list and agree with its order, and that they are aware the manuscript is to be submitted. For more information on editorial and [authorship policies](#) please review our [Guide to Authors](#).

### Cover letter

Although optional, the cover letter is an excellent opportunity to briefly discuss the context and importance of the submitted work and why it is appropriate for the journal. Please avoid repeating information that is already present in the abstract and introduction. The cover letter is not shared with the referees, and should be used to provide confidential information, such as conflicts of interest, and to declare any related work that is in press or submitted elsewhere.

### Main manuscript

The *Nature* journals are flexible with regard to the format of initial submissions. Within reason, style and length will not influence consideration of a manuscript. If revisions are requested, the editor will provide detailed formatting instructions at that time. For information on length and formatting consult *Nature Geoscience's* [content types](#).

**Title.** Titles should be 90 characters including spaces or less and avoid technical terms, abbreviations, punctuation and active verbs. We don't allow multi-part titles, i.e., two phrases separated by punctuation of some kind.

**Authors.** Corresponding author(s) should be identified with an asterisk.

**Abstract.** Provide a general introduction to the topic and a brief non-technical summary of your main results and their implication.

**Text length and formatting.** Attention to the following details can help expedite publication if we invite a revision after external review. Articles should have an abstract of approximately 190 words, unreferenced; main text of no more than 3,000 words and 6 display items (figures, tables). As a guideline, Articles allow up to 50 references. Section headings should be used and subheadings may appear in 'Results'. Avoid 'Introduction' as a heading.

**Methods.** The Methods section appears in all online original research articles and should contain all elements necessary for interpretation and replication of the results. Methods should be written as concisely as possible and typically do not exceed 3,000 words. Methods-only references are separate from the main text reference count.

**References.** These may only contain citations and should list only one publication with each number. Include the title of the cited article or dataset.

**Acknowledgements (optional).** Keep acknowledgements brief and do not include thanks to anonymous referees or editors, or effusive comments. Grant or contribution numbers may be acknowledged.

**Author contributions.** You must include a statement that specifies the individual contributions of each co-author. For example: "A.P.M. 'contributed' Y and Z; B.T.R. 'contributed' Y," etc. See our [authorship policies](#) for more details.

**Competing financial interests.** Submission of a competing financial interests statement is [required](#) for all content of the journal.

**Materials & Correspondence.** Indicate the author(s) to whom correspondence and material requests should be addressed.

**Tables.** Each table should be submitted as a word document and accompanied by a short title sentence describing what the table shows. Further details can be included as footnotes to the table.

### Figures

High-resolution image files are not required at initial submission, but please ensure that images are of sufficient resolution for referees to

properly assess the data. If necessary, supply separate image files or deposit image data in a suitable repository (e.g. [figshare](#)) for this purpose.

Should your manuscript be accepted, you will receive more extensive instructions for final submission of display items. However, some guidelines for final figure preparation are included below and [here](#) if you wish to minimize later revisions and possible delays.

- Provide images in RGB color and at 300 dpi or higher resolution.
- Use the same typeface (Arial or Helvetica) for all figures. Use symbol font for Greek letters.
- Use distinct colors with comparable visibility and avoid the use of red and green for contrast. Recoloring primary data, such as fluorescence images, to color-safe combinations such as green and magenta or other accessible color palettes is strongly encouraged. Use of the rainbow color scale should be avoided.
- Figures are best prepared at the size you would expect them to appear in print. At this size, the optimum font size is 7pt.
- We prefer vector files with editable layers. Acceptable formats are: .ai, .eps, .pdf, .ps and .svg for fully editable vector-based art; layered .psd and .tif for editable layered art; .psd, .tif, .png and .jpg for bitmap images; .ppt if fully editable and without styling effects; ChemDraw (.cdx) for chemical structures.

Figure legends of <100 words each should begin with a brief title sentence for the whole figure and continue with a short statement of what is depicted in the figure, not the results (or data) of the experiment or the methods used. Legends should be detailed enough so that each figure and caption can, as far as possible, be understood in isolation from the main text.

### Statistical information

Comprehensive information on the statistical analyses used must be included in the paper. The Methods must include a statistics section where you describe the statistical tests used and whether they were one- or two-tailed. Please ensure that the error bars are defined throughout the figures. For all statistics (including error bars), provide the EXACT n values used to calculate the statistics (reporting individual values rather than a range if n varied among experiments). For representative results, report the number of times that the measurements were repeated. Where relevant, provide exact values for both significant and non-significant P values. For ANOVAs, provide F values and degrees of freedom. For t-tests, provide t-values and degrees of freedom. Please specifically define the replicates.

### Costs

We are committed to providing authors with the highest quality figures. In order to cover part of the additional cost of four-color reproduction, we charge authors a fee of \$620 for the first color figure and \$310 for each additional color figure. There are no additional submission fees or page charges.

### Equations

Equations and mathematical expressions should be provided in the main text of the manuscript. Equations that are referred to in the text are identified by parenthetical numbers, such as (1), and are referred to in the manuscript as "equation (1)".

### Supplementary information

Please submit supplementary figures, small tables and text as a single combined pdf (with the pieces in the order: text, figures, tables). Please limit figures to 10 or less. Tables longer than one page should be provided as an Excel or similar file type. For optimal quality video files please use H.264 encoding, the standard aspect ratio of 16:9 (4:3 is second best) and do not compress the video. We encourage submission of step-by-step synthesis procedures for chemical compounds and data on compound characterization. Supplementary information is not copy-edited, so please ensure that it is clearly and succinctly presented, and that the style and terminology conform to the rest of the manuscript.

## Data availability

Please provide a Data Availability statement in the Methods section under “Data Availability”; detailed guidance can be found in our [data availability and data citations policy](#). Certain data types must be deposited in an appropriate public structured data depository (details are available [here](#)) and the accession number(s) provided in the manuscript. Full access is required at publication. Should full access to data be required for peer review, authors must provide it.

We encourage provision of other source data in unstructured public depositories such as [Dryad](#) or [figshare](#), or as supplementary information. To maximize data reuse, we encourage publication of detailed descriptions of datasets in [Scientific Data](#).

## Computer code

Any previously unreported custom computer code used to generate results reported in the manuscript that are central to the main claims must be made available to editors and referees upon request. Any practical issues preventing code sharing will be evaluated by the editors who reserve the right to decline the manuscript if important code is unavailable. At publication, Nature journals consider it best practice to release custom computer code in a way that allows readers to repeat the published results.

For all studies using custom code that is deemed central to the conclusions, a statement must be included in the Methods section, under the heading “Code availability”, indicating whether and how the code can be accessed, including any restrictions.

## Related manuscripts

It is a requirement of submission that you alert us to any related manuscripts with overlapping authorship that are under consideration (including under appeal) or in press at other journals (see our [editorial policies on duplicate submissions](#) for details). Copies of these manuscripts should be clearly marked and included as separate files with your submission. Abstracts or other unrefereed preprints do not compromise novelty.

## Preprint servers

The *Nature* journals support the posting of submitted manuscripts on non-commercial preprint servers such as [arxiv](#) and [biorxiv](#). We do, however, ask you to respect the following summaries of our policies:

- The original submitted version may be posted at any time.
- The accepted version may be posted 6 months after publication.
- The published version—copyedited and in Nature journal format—may not be posted on a preprint server or other website.

## Double-blind peer review

To participate in double-blind peer review, please prepare your manuscript in a way that conceals the identities of all the authors (see [checklist](#)) and tick the appropriate box during online submission. Please note that editors do not ensure that the paper is properly anonymized; that is the responsibility of the authors.

## Transferring your manuscript

If an editor is unable to offer publication of your manuscript, you have the opportunity to transfer all manuscript materials, the decision letter and any referee comments to a selection of Springer Nature journals without re-entering submission information. Use the link in your decision letter to explore suggested alternative journals. You may then initiate the transfer process to the journal of your choice or submit elsewhere. Please see [this page](#) for more information.

## Appeals

Authors who feel that they have strong grounds for appealing a decision may contact the journal to request the opening of an appeal, after which they may upload a cogently argued rebuttal letter that addresses the referees’ and/or editor’s comments in a point-by-point manner. Decisions are reversed on appeal only if the editors are convinced that the original decision was made in error, or if critical new information or data has been added.

## Comments on published articles

Important scientific comments and clarifications on content published in *Nature Geoscience* may be submitted as Correspondence.

## Questions and manuscript submission

General editorial enquiries should be addressed to the Editor at [geoscience@nature.com](mailto:geoscience@nature.com). Manuscripts should be submitted through our [online submission system](#). Further submission details are available [here](#).