



Preparing Figures and Tables for *THE COMPASS*

Figures and tables are an important part of communicating scientific information clearly and efficiently. Well-designed graphics can reveal patterns, relationships, and observations that may be difficult to communicate through text alone. Use this guide when preparing figures and tables for submission to *The Compass: Earth Science Journal of Sigma Gamma Epsilon*.

Figures and tables should complement the manuscript rather than duplicate the text. Authors should prepare them with the final published page in mind and ensure that all content remains clear and legible when reproduced at publication size.

CHOOSING A FIGURE OR TABLE

Consider what you want the reader to learn from the information.

Use a figure when the important message is a pattern, trend, spatial relationship, comparison, photograph, map, diagram, or other visual observation.

Use a table when readers need to identify or compare specific values, categories, measurements, or other information.

Avoid presenting the same information in both a figure and a table unless each serves a distinct purpose. Likewise, a small amount of information that can be clearly stated in one or two sentences generally does not require a separate figure or table.

A useful test: Can a reader understand why the figure or table matters without having to reconstruct its meaning from the surrounding text?

PREPARING FIGURES

Figures include graphs, charts, maps, photographs, illustrations, diagrams, and other graphical material.

Numbering and Citations

Number figures consecutively in the order in which they are first discussed in the manuscript (Figure 1, Figure 2, etc.).

Every figure must be cited in the text, and figure numbering in the manuscript, captions, and submitted files should agree.

For figures containing multiple panels, identify individual panels consistently using letters (for example, A, B, C) and describe each panel in the figure caption.

Design for the Published Size

Prepare figures with their final publication size in mind. A figure that is readable when filling a computer screen may become difficult to interpret when reduced to fit a journal page.

Use fonts, symbols, line weights, and labels that will remain clearly legible after reduction. Avoid excessive detail, unnecessarily small text, crowded legends, and other elements that compete with the information the figure is intended to communicate.

Use consistent fonts, symbols, terminology, and graphical conventions among related figures.

Color and Contrast

Color can be an effective way to distinguish information, but meaning should not depend on color alone. Whenever practical, combine color with differences in symbols, line styles, patterns, labels, or other graphical cues.

Choose colors with sufficient contrast and consider how the figure will appear to readers with color-vision deficiencies or when viewed or printed in grayscale.

Avoid decorative backgrounds, gradients, three-dimensional effects, or other visual elements that do not communicate scientific information.

Graphs and Charts

Clearly label axes and include units where applicable. Axis scales should accurately represent the data and should not unintentionally exaggerate or minimize differences.

Legends should clearly identify plotted datasets, symbols, colors, and line styles. When practical, direct labeling of plotted information may be clearer than a separate legend.

Use an appropriate and consistent number of significant figures. Avoid displaying greater numerical precision than is supported by the underlying data.

MAPS

Maps are especially common in earth-science manuscripts and should provide enough geographic context for readers unfamiliar with the study area.

Where appropriate, maps should include:

- A scale or scale bar;
- An indication of north or orientation when it is not otherwise apparent;
- Clearly identified locations discussed in the manuscript;
- A legend explaining relevant symbols, colors, and line types;
- Geographic context sufficient to locate the study area; and
- Appropriate attribution for basemaps, imagery, datasets, or other source material.

Include an inset or location map when the geographic setting may not be readily apparent to the intended audience.

Coordinate systems, map projections, datum information, or other spatial-reference information should be provided when they are important to interpreting or reproducing the work.

Labels, lines, symbols, and patterns should remain distinguishable when the map is reduced to publication size. Avoid including unnecessary GIS layers or cartographic detail simply because they are available.

Remember: A publication map is a communication tool, not a screenshot of a GIS project.

PHOTOGRAPHS

Photographs should contribute directly to the scientific content of the manuscript.

Crop photographs to emphasize the relevant subject while retaining sufficient context. When scale is important, include a recognizable scale object, scale bar, or dimensions in the caption.

Identify the viewing direction or relevant geographic location when it assists interpretation. Labels, arrows, outlines, or other annotations may be used to direct attention to important features but should not unnecessarily obscure

the photograph. Avoid embedding labels, scale bars, or other annotations so close to the edge of an image that they may be lost during cropping or layout.

If a photograph was created by someone other than an author, provide appropriate attribution and obtain any permission required for publication.

FIGURE CAPTIONS

Each figure should have a concise but sufficiently descriptive caption. A reader should be able to understand the principal purpose of the figure without searching extensively through the manuscript.

Captions should, as appropriate:

- Identify what the figure shows;
- Identify individual panels;
- Explain symbols, colors, lines, or abbreviations that are not immediately apparent;
- Provide location or viewing direction for photographs;
- Identify important datasets or sources; and
- Provide attribution when required.

Captions should explain the figure, not repeat the Results or Discussion. Detailed interpretation belongs in the manuscript text.

For example

Too little:

| Figure 4. Elevation changes at the study sites.

Better:

| Figure 4. Changes in channel-bed elevation between 2008 and 2022 at three study sites along Tahoma Creek. Positive values indicate aggradation and negative values indicate incision.

FIGURE FILES AND IMAGE QUALITY

Authors should submit the highest-quality original version of each figure available.

Whenever possible, export graphs, maps, and diagrams directly from the software in which they were created rather than capturing screenshots. Screenshots and images copied from presentation slides or documents may not provide sufficient quality for publication.

For photographs and other raster images, a resolution of approximately 300 pixels per inch (ppi) at the intended

publication size is generally appropriate. Line art and graphics containing fine lines or text may require greater resolution to reproduce clearly.

Authors should retain original or editable versions of figures in case modifications are necessary during publication preparation. Do not artificially increase the resolution of a low-resolution image; whenever possible, return to the original source and export a higher-quality version

File Formats

Common image formats such as TIFF, PNG, and high-quality JPEG are acceptable. PDF or other vector formats are preferred for maps, graphs, and illustrations when they can be exported correctly from the original software. The editor may request original or alternate files when necessary for publication preparation.

FIGURE DIMENSIONS

Preferred figure widths

Single-column figure: approximately 3.667 in (93 mm) wide

Full-width figure: approximately 7.5 in (190 mm) wide

Figures do not necessarily need to be submitted at these exact dimensions; however, authors should ensure that all text, symbols, and other details remain legible when reduced to the anticipated publication width.

PREPARING TABLES

Tables should organize information so that readers can quickly locate and compare specific values or observations.

Number tables consecutively in the order in which they are first discussed in the manuscript (Table 1, Table 2, etc.). Every table must be cited in the manuscript.

Give each table a concise, descriptive title. Column and row headings should clearly identify the information presented and should include units where applicable.

Use consistent decimal precision and significant figures appropriate to the data. Avoid unnecessary precision.

Keep Tables Simple

Tables generally reproduce best when their structure is straightforward.

Avoid:

- Excessive use of shading or color;
- Unnecessary horizontal or vertical rules;
- Blank columns used solely for spacing;
- Unnecessarily complex merged cells;
- Repeated units in every data cell when the unit can be stated in the heading; and
- Information that could be communicated more clearly in the manuscript text.

Notes may be placed below a table to define abbreviations, explain exceptions, identify statistical tests, provide sources, or convey other information needed to interpret the data.

SUBMIT TABLES AS EDITABLE CONTENT

Whenever possible, tables should be submitted as editable tables rather than as images.

Tables created in Microsoft Word or similar applications should remain editable. Do not convert a table to a JPEG, PNG, screenshot, or other image unless the visual appearance of the table itself is scientifically important.

Editable tables allow the publication editor to adjust typography, spacing, column widths, and other formatting so that the table is consistent with The Compass layout.

Focus on organization and accuracy rather than trying to reproduce the final journal design. Final typography and table styling will be applied during publication formatting.

ACCESSIBILITY

Figures and tables should be understandable by as broad an audience as practical.

When preparing graphical material:

- Maintain adequate contrast between important elements;
- Do not rely exclusively on color to communicate meaning;
- Use readable text and labels;
- Distinguish datasets using symbols, line styles, labels, or patterns in addition to color when practical;
- Provide descriptive captions; and
- Provide alternative text when requested.

Consider whether the essential information remains understandable if a figure is viewed in grayscale or by a reader who cannot readily distinguish certain colors.

Also consider visiting sites like Color Brewer (<https://colorbrewer2.org/>), which can suggest color schemes for sequential, diverging, and qualitative data, including colorblind-safe, print-friendly, and photocopy-safe options.

PREVIOUSLY PUBLISHED OR THIRD-PARTY MATERIAL

Authors are responsible for identifying figures,

photographs, maps, tables, or other material that they did not create.

Appropriate attribution should be provided for third-party material, and authors are responsible for obtaining permission when permission is required for republication or adaptation.

Simply citing the original source does not necessarily grant permission to reproduce copyrighted material.

BEFORE SUBMISSION Figure and Table Checklist:

Before submitting your manuscript, verify that:

- ☐ Every figure and table is cited in the manuscript
- ☐ Figures and tables are numbered in the order they are first cited
- ☐ Figure captions and table titles are complete
- ☐ Figure and table numbering agrees between the manuscript and submitted files
- ☐ Text, symbols, lines, and labels remain legible at anticipated publication size
- ☐ Axes, units, legends, symbols, and abbreviations are clearly identified
- ☐ Maps contain appropriate geographic context and cartographic information
- ☐ Original/high-quality figure files are included with the submission
- ☐ Tables are editable whenever possible
- ☐ Sources and attribution are provided where appropriate
- ☐ Necessary permissions have been obtained for third-party material

Questions?

Authors are encouraged to contact the National Editor if they have questions about preparing figures or tables for *The Compass*. Figures and tables vary considerably among manuscripts, and the editor can provide guidance when unusual formats or publication requirements are involved.

National Editor: editor@sgeearth.org

The Compass Submission Wizard: <https://compass.morageology.com>