

GUIDELINES FOR AUTHORS OF MANUSCRIPTS
THE GEOLOGICAL SOCIETY OF AMERICA BULLETIN

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<http://www.geosociety.org/pubs/bulletin/Bulletinauthorguidelines.pdf>

PREPARATION OF PAPERS

Text

Manuscripts must correctly use approved geological and other scientific terminology and have no grammar or spelling errors; GSA ensures that this goal is achieved by copyediting every manuscript. You must also check your manuscript for accuracy and consistency in use of capitalization, abbreviations, and dates. You must also cross check your manuscript's citations with your manuscript's reference list. Use GSA style for the references in the reference list (examples follow later in these Guidelines).

Organization

Define precisely the contribution at the outset and present it clearly in the fewest words possible (but avoid jargon and telegraphic phrasing that make it meaningful to only those few studying the same specialty) so that the reader may get a maximum of facts and ideas from a minimum of text. State the purpose, give a minimum of background, concisely present the data that led to the conclusions, clearly differentiate fact and inference, and

present justifiable conclusions and, perhaps, further implications of the conclusions. Assume that your readers are familiar with the general literature and need not be told basic principles; therefore, give only the background and reference material necessary to support the arguments. Provide only brief descriptions of methods and laboratory techniques (preferably as an Appendix). Do not describe standard methods in detail if references to the methods can be cited.

Resources for Writing

Spelling. *Bulletin* uses American English. Our primary guide for spelling is the 10th edition of *Merriam-Webster's Collegiate Dictionary* (1993), which can be accessed on the web (<http://www.m-w.com>). For technical words not contained in this resource, we use the current edition of the *Glossary of Geology*, published by the American Geological Institute (<http://www.agiweb.org>).

Composition Style. With only a few exceptions (most notably, in the reference lists), *Bulletin* follows the style outlined in the 14th edition of the *Chicago Manual of Style* (1993), published by the University of Chicago Press (<http://www.press.uchicago.edu>).

Capitalization. Our primary guide for capitalization of common words is the 10th edition of *Merriam-Webster's Collegiate Dictionary* (1993), which can be accessed on the web (<http://www.m-w.com>). We also use the 14th edition of the *Chicago Manual of Style* (1993), published by the University of Chicago Press (<http://www.press.uchicago.edu>). For technical words not contained in this resource, we use the guidelines contained in the seventh edition of *Suggestions to Authors of the Reports of the United States Geological Survey* (1991), published by the U.S. Government Printing Office.

Abbreviations. Abbreviations should be used only when necessary and should be legitimate abbreviations in use in the scientific community. Never coin abbreviations to take the place of names (e.g., using BRP in place of Basin and Range province is not acceptable). If you use abbreviations that are likely to be known only to members of a particular discipline (e.g., abbreviations for mineral names), please add a table of abbreviations and their explanations to your manuscript.

Units of Measure. Use the International System of units (SI, or metric) in captions, illustrations, and text. Measurements in non-SI units may be necessary in some circumstances, such as elevation measurements in the text that correlate to topographic maps, or because of the intended readership. In such cases, you should provide SI measurements first, which should be followed by the non-SI equivalents in parentheses.

Mathematical Expressions. Our primary guide for the treatment of mathematical expressions and equations is the current edition (1999) of *Mathematics into Type*, published by the American Mathematical Association. All variables (except vectors) should be italicized; only labels (usually as subscripts) that are themselves variables should be italicized, e.g., X_{\min} or X_a , but \underline{X}_i or \underline{C}_P (underlining here is merely to emphasize where italics are applied). Mathematical functions (such as log or tan) and chemical

symbols should not be italicized. If you are using Word Equation Editor for a displayed equation or complex within-text term, define the labels that are not variables as "text" style to eliminate the default italics. Define all mathematical symbols in the text the first time each appears. Equations should be set off from the rest of the text by line spaces above and below. Equations should be numbered sequentially only if they are cited in the text; the numbers should be enclosed in parentheses and set to the right of the equations.

Citation of Unpublished Material. Citations of unpublished material can be problematic. Following are the six main categories of such items and the manner in which each should be handled. In preparing references such as these, use GSA style as described subsequently in this document. (1) Citations of theses and dissertations, which are usually unpublished, are always permitted. (2) Without exception, citations of unpublished manuscripts that have not been accepted for publication are not permitted. Substitute a dated personal communication or a citation to a published reference. At the last minute, you may add your preferred citation if the item has been accepted for publication during review and editing of your manuscript. (3) Citations of unpublished personal data (field data, mapping, etc.) that belong to one of the authors should be deleted. Incorporate the data in the paper, or make it available in the GSA Data Repository. (4) Citations of unpublished personal data (field data, mapping, etc.) that belong to someone other than one of the authors should also be deleted. Instead, secure permission from the owner of the data to use the data, or refer to the data in general terms by using only a dated personal communication. (5) Citations of open-file reports and other unpublished works from various government agencies (often called gray literature) are permitted. (6) Citations of company reports and the use and interpretation of proprietary industry data are permitted, even if these items are not available to the reader. If they are available (either in libraries or from the company), this should be noted for the benefit of the reader.

Other Resources. Use the current edition of the North American Stratigraphic Code (1983), which is available online (<http://www.agiweb.org/nacsn/code2.html>), for proper usage and capitalization of stratigraphic terminology and concepts. Use GEOLEX, which is available online (<http://ngmdb.usgs.gov/Geolex/>), for checking spelling and capitalization of geologic names in the U.S. Geological Survey database. Use other official resources that define proper approaches to the use of technical terminology.

Abstract. The abstract should present information and results in capsule form and should be brief and objective, containing within a 150-word maximum the content and conclusions of the paper. The topic sentence should give the overall scope and should be followed by emphasis on new information. Omit references, criticisms, drawings, and diagrams.

Body of the Text. Precisely define the contribution at the outset and present it clearly in the fewest words possible (but avoid jargon and telegraphic phrasing that is meaningful

only to those few studying the same specialty), so that the reader may get a maximum of facts and ideas in a minimum of time. State the purpose, give a minimum of background, concisely present the data that led to the conclusions, clearly differentiate fact and inference, and present justifiable conclusions and, perhaps, further implications of the conclusions. Assume that your readers are familiar with the general literature and need not be told basic principles; therefore, give only minimal background and reference material. Provide only brief descriptions of methods and laboratory techniques (preferably as an Appendix). Do not describe standard methods in detail if references to the methods can be cited. Include footnotes and citations of figures and tables in appropriate places.

The body should be divided by using no more than four levels of headings (not including title of paper). These headings have rigid typographical definitions, as follows:

First-level headings:	Bold, all caps, flush left on separate line.
Second-level headings:	Bold, initial caps, flush left on separate line.
Third-level headings:	Bold italics, initial caps, flush left on separate line.
Fourth-level headings:	Bold italics, sentence capitalization, set at the beginning of a paragraph of text with a period.

No other headings or styles are possible. The first citation of each figure and of each table must be sequential and must use simple numerals (e.g., Fig. 1, Table 1). The words "Figure" and "Figures" should be capitalized; they should be abbreviated (to Fig. and Figs.) when enclosed in parentheses.

Footnotes. Avoid most footnotes and parenthetical statements. Textual footnotes that are deemed necessary should be numbered consecutively with superscripts.

Appendix. The Appendix is optional and contains brief descriptions of methods, laboratory techniques, and other supplementary information. Title all appendixes (for example, APPENDIX 1. SAMPLE DESCRIPTIONS); number appendixes only if there are two or more. If more than one level of heading is required, use the same style as that used in the body of the text. Place appendixes at the end of the text before the Acknowledgments. Do not place appendixes in the Data Repository. Number tables and

figures in the Appendix separately from the text (e.g., Fig. A1, Fig. A2, Table A1, etc.). **References Cited.** All references mentioned in the text, figures, captions, tables, and appendixes must be listed in the References Cited section. Only references cited in the paper are to be listed. The reference list for your Data Repository material should be separate and complete (do not omit references also cited in the paper itself) and placed in the Data Repository. Do not cite or list papers that are in preparation, in review, or in revision (see previous description of alternatives to "unpublished manuscript" citations). List references alphabetically by author's surname. For references with two authors, list alphabetically by first author's surname and then alphabetically by second author's surname. For references with more than two authors, list alphabetically by first author's surname and then chronologically, earliest year first. Distinguish by addition of letters those references that would otherwise have identical citations (e.g., Smith, 1979a, 1979b). Do not abbreviate journal titles or book publishers in references. For references that do not match any of the examples given here, include all information that would help a reader locate the reference. See the following table for sample references; note the kinds of information required, its order, and the punctuation. See also a current issue of the *Bulletin*.

<i>Abstract</i>
Sammis, C.G., 1993, Relating fault stability to fault zone structure: Geological Society of America Abstracts with Programs, v. 25, no. 6, p. A115-A116. [Note: the issue number is required for this particular publication after 1988.]
<i>Book</i>
[last name], [initials], [year], [book title]: [city], [publisher],[no. of pages]. or [last name], [initials], [year], [chapter title], in [last name], [initials],ed., [book title]: [city], [publisher], [pages].
Vail, P.R., Audemard, F., Bowman, S.A., Eisner, P.N., and Perez-Cruz, C., 1991, The stratigraphic signatures of tectonics, eustasy and sedimentology-An overview, in Einsele, G., et al., eds., Cycles and events in stratigraphy: Berlin, Springer-Verlag, p. 617-659. [Note: only the first editor's name need be listed.]
<i>Journal</i>
[last name], [initials], [year], [article title]: [journal title], [volume],[pages].
Doglionni, C., 1994, Foredeeps versus subduction zones: <i>Geology</i> , v. 22, p. 271-274.
<i>Comment, Discussion, Reply</i>
Retallack, G.J., 1993, Classification of paleosols: Discussion: <i>Geological</i>

Society of America Bulletin, v. 105, p. 1635-1636.
<i>Guidebook</i>
Blackstone, D.L., Jr., 1990, Rocky Mountain foreland exemplified by the Owl Creek Mountains, Bridger Range and Casper Arch, central Wyoming, <i>in</i> Specht, R., ed., Wyoming sedimentation and tectonics: Casper, Wyoming Geological Association, 41st Annual Field Conference, Guidebook, p. 151-166. [Note: Casper is the city of publication; don't list the meeting site.]
<i>In Press</i>
Hoffman, H.J., and Masson, M., 2002, Archean stromatolites from Abitibi greenstone belt, Quebec, Canada: Geological Society of America Bulletin, v. 114 (in press).
<i>Map</i>
Abrams, G.A., 1993, Complete Bouguer gravity anomaly map of the State of Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-2236, scale 1:500,000, 1 sheet.
<i>Open-File Report</i>
Alpha, T.R., 1993, Landslide effects: U.S. Geological Survey Open-File Report 93-0278-A, 43 p.
<i>Proceedings from a Symposium or Conference</i> [Include year of conference if it differs from publication year.]
Baar, C., 1972, Creep measured in deep potash mines vs. theoretical predictions, <i>in</i> Proceedings, Canadian Rock Mechanics Symposium, 7th, Edmonton: Ottawa, Canada Department of Energy, Mines and Resources, p. 23-77.
<i>Thesis</i>
Wopat, M.A., 1990, Quaternary volcanism and tectonics in the Mexican volcanic belt near Tequila, Jalisco, southwestern Mexico [Ph.D. thesis]: Berkeley, University of California, 277 p.

Figure Captions. Label each caption with the figure number. Make captions precise and explain all symbols and abbreviations used in the associated figure, or refer to a previous figure that explains them. Label figure parts with letters (capital or lower-case; be consistent) and use those letters, in parentheses, to separate parts of the caption. Place captions in consecutive order in the same computer file as the text, at the end. Do not place captions with figures. Do not abbreviate the words "Figure" or "Figures" unless they are in parentheses. If an object is used for scale in a field photograph, state the object's size in centimeters or meters. If no object is visible for scale, and the scale is not

obvious, state the approximate physical dimensions of the view. All micrographs and fossils must have a scale bar; the caption must state the length of the bar.

Tables

Tables should replace text, not duplicate it. They should be numbered consecutively (e.g., Table 1, Table 2, etc.). Tables in the Appendix have a separate numbering scheme (e.g., Table A1, Table A2, etc.), as do tables in the GSA Data Repository (e.g., Table DR1, Table DR2).

Word Processors, Font. If possible, tables should be composed in Helvetica from Microsoft.

Table Structure

Please see our GSA website for table guidelines for all our GSA publications:
<http://www.geosociety.org/pubs/bookguid5.htm>.

Footnote Symbols. The footnote symbols are the only items that differ for Bulletin. Use the following sequence for footnotes: † (dagger), ‡ (double dagger), § (section), # (pound), ††, ‡‡, §§, ##, †††, ‡‡‡, and so on. All symbols should be set as superscripts. Do not use asterisks for footnote because asterisks have other, special uses (e.g., designation of radiogenic isotopes such as Pb*).

Please see our GSA website for table guidelines:
<http://www.geosociety.org/pubs/bulguid.htm>.