Research Paper/

Title Must Be Less Than 100 Characters and Spaces
Note: Including the most pertinent keywords in the title is a good idea – 75% of search engines focus on title and abstract.

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Add institution, town, state or province, country and email address.

Author 3
Add institution, town, state or province, country and email address.

Conflict of interest: None.

Key words: These should be selected with Internet searches in mind. For case studies make sure to include the area of the study here.

Article Impact Statement: The Article Impact Statement (<140 characters + spaces)
means to promote the article rather than offer an abstract with factual information.
(The sentence in italics above is exactly 140 characters and spaces! It should convey why the article should be read or how the results affect groundwater knowledge.)

Abstract <example section heading type: bold 14 point>

The abstract is a single paragraph of no more than 250 words. It should include the scientific contribution or research hypothesis in your paper, the primary methods or approach, and a brief summary of the conclusions. Only a Research Paper, Methods Note, Issue Paper, Review Paper, Case Study Paper, and Rapid
Communication in *Groundwater* have an abstract. Note: 75% of search engines focus on the Title and Abstract, hence make sure to include your keywords here!

**Introduction**  

Your manuscript should be developed using the word processor MS Word or typeset program LaTeX. If you elect to use another word processor make sure it can successfully write .doc or .docx files (MS Word files). The font size of the entire manuscript should be **12 point**, but section titles are to be given a larger font or be bold faced or both. Note: *Groundwater* has **no section numbering**! Instead, distinguish between sections and subsections by using different font sizes, for instance, as done in this example manuscript. Starting with the abstract the manuscript should be **double spaced**, thus the line spacing must be set to **2!**

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**Content of introduction** <example subsection heading type: bold 12 point>

Use this Introduction to:

1. Provide background information on the topic of your paper.
2. Clearly define the scientific contribution or hypothesis to be tested in this paper.
3. Optionally end with a brief overview of how your paper is organized, hence what the reader may expect in the various sections (2 or 3 sentences).

It is critically important that you define the contribution of your paper early on in the Abstract, in the Introduction, and in the Conclusions. After you submit your manuscript for the first time the Editor-in-Chief will be scanning it for this information to help decide whether or not to decline your manuscript without further review (~30% of the manuscripts are declined outright) or whether to assign your manuscript to an Executive Editor for peer review. The essence of your paper is its *scientific contribution* (or however you want to define its value to the readers of *Groundwater*) and it must appear front and center in the Abstract, Introduction, and Conclusions of your manuscript!

Your review of the literature should be comprehensive, but *relevant*. Excessive self-citations appear self-serving and should be avoided. Also, keep in mind that you are publishing in the journal *Groundwater* and that omitting to cite truly relevant
publications in *Groundwater* is, of course, an affront to the readers and editors of the journal. Citations in the text are by author(s) name and year (e.g., Jones 1999) or (McBride 2001a and 2001b) or (Sauter and Kovacs 2003; Smith et al. 2014) where in case of more than two authors the form “et al.” is used. Note that there is no comma after the name! Also note that a semi-colon separates multiple citations between parentheses.

**Research method**

In this section you present how you went about testing your research hypothesis or how you went about collecting the data that you analyzed. It may also be a section in which you present the mathematical model or equations used to arrive at your results and conclusions. (Equations should be numbered, using parentheses around the numbers, and placed to the right of the equation.) Do not elaborate on standard procedures (reference the literature instead), but focus on what is uniquely different in your methodology.

**On the length of your manuscript**

In writing this and all other sections of your manuscript, keep in mind that you are writing a *journal article* in a high-ranking international journal, thus not a detailed elaborate report to a select audience. *Groundwater* is page-limited and the “footprint” of your paper should also be limited. As a frame of reference, a Research Paper or Case Study Paper over 15 published pages is considered long and may be resisted by reviewers and the editor! For each published page in excess of 6 pages
(8 for Review Papers) you will be charged $250. A published page contains about 850 words, not counting tables and figures. For instance, if the word count of your finished manuscript is 10,000 or more and you have also some figures and tables, the published paper will likely exceed 15 published pages. Keep in mind that a shorter paper, closer to 10 pages or less, will be better read!

**Analysis or Results**

In this section you present the analysis or analyses you conducted on the data you collected in the field, in the laboratory, or from the literature. Alternatively, this may be the section in which you provide the results of your mathematical modeling or calculations.

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Tables are to be embedded in the text, also at the time of submitting the final manuscript for typesetting. Tables in *Groundwater* do not use vertical lines. Limit use of horizontal lines to above and below the entire table and below column headings. Do not enclose tables within outside borders or boxes. Try to design your tables so they fit inside a single column in the typeset manuscript. A column is 8.2 cm wide (about 3.25 inches). If a table cannot be fit inside a column, the typesetter has no choice but to print it across a full page, adding to the number of published pages of your manuscript.
Figures

Figures may be embedded in the text for purposes of peer review, but must be removed and uploaded as separate files at the time the manuscript is prepared for typesetting. At that time the figure captions are to be added after the References. Figures are best uploaded as .tif or .eps files, although .png, .gif, .jpg, .pdf, and postscript files are acceptable. All figures must have at least a 300 dpi resolution, but preferably higher. Make sure to label axes on graphs and include a scale bar and north arrow on maps. Vertical labels and writing should always face the right. Try to design your figures so they fit inside a single column in the typeset manuscript. A column is 8.2 cm wide (about 3.25 inches). If a figure cannot be fit inside a column, for instance because the legend or other text in the figure would become too small to read, the typesetter has no choice but to print it across a full page, adding to the number of published pages of your manuscript. Do not enclose figures within outside borders or boxes.

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Units may be metric, SI, or U.S. customary (English). If English units are used in the text, the metric or SI conversions are to be given between parentheses. For instance, the hydraulic conductivity $K=30 \text{ ft/d} \ (9.1 \text{ m/d})$ has been obtained using a pumping test. These conversions are not needed in tables or figures.

Discussion
This section may or may not be relevant to your work, but it is often good to provide
a synthesis of your research results clearly outlining the strengths and weaknesses
of your work prior to drawing your final conclusions. This is also the place to
compare your results with previous findings, hence substantiating your contribution
to the field of groundwater science and engineering.

**Summary or Conclusions**

Clearly restate your research hypothesis or research objective and then succinctly
present your findings. Depending on the nature of your work and the content of the
previous section you may be summarizing your findings here or presenting your
conclusions for the first time. Either way, the reader should get the gist of your
paper by reading only the abstract and this final section - many do just that! Make
sure it does your work full justice! Note: This is not the place to discuss new
information not already presented elsewhere in the paper.

**Acknowledgments**

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Appendix

Sometimes it is a good idea to divert some material, most often a mathematical analysis, to an appendix in order to maintain better readability of the story in the main text. If this material is essential to the paper, for instance a mathematical analysis that is not published elsewhere and is needed to judge the validity of an equation in the main text, then this appendix must be part of the manuscript and placed after the Supporting Information section. In that case identify the appendix as “Appendix” or in case of two appendices as “Appendix A” and “Appendix B”. If the appendices are not essential to the paper, they are to be considered Supporting Information and to be supplied as such in a separate document that will be placed online, see the section above. In that case identify the appendices as “Appendix S1” and “Appendix S2.”

In summary: An appendix that is part of the article will be reviewed and must be included in the article file (manuscript). An appendix (Appendix S1) that is part of “Supporting Information“ will generally not be reviewed and must be uploaded as a separate file.
The journal *Groundwater* changed the spelling of its name from *Ground Water* to *Groundwater* in January of 2013. References to papers in *Groundwater* that precede this date may use either spelling.

Papers that have been published online in Early View, but not yet in a particular volume and issue, may be referenced by their DOI number, see the fictitious 2014 paper below. Including a DOI number and/or a link is desirable, but optional. Note, all references below are, of course, entirely fictitious papers.


