



GEOCHIMICA ET COSMOCHIMICA ACTA

Journal of The Geochemical Society and The Meteoritical Society

AUTHOR INFORMATION PACK

TABLE OF CONTENTS

●	Description	p.1
●	Audience	p.1
●	Impact Factor	p.1
●	Abstracting and Indexing	p.2
●	Editorial Board	p.2
●	Guide for Authors	p.5



ISSN: 0016-7037

DESCRIPTION

Geochimica et Cosmochimica Acta publishes research papers in a wide range of subjects in **terrestrial geochemistry, meteoritics, and planetary geochemistry**. The scope of the journal includes:

- 1). Physical chemistry of gases, aqueous solutions, glasses, and crystalline solids
- 2). Igneous and metamorphic petrology
- 3). Chemical processes in the atmosphere, hydrosphere, biosphere, and lithosphere of the Earth
- 4). Organic geochemistry
- 5). Isotope geochemistry
- 6). Meteoritics and meteorite impacts
- 7). Lunar science; and
- 8). Planetary geochemistry.

If you would like more information about the Geochemical Society and Meteoritical Society, visit their Home Pages at <http://www.geochemsoc.org> and <http://www.meteoriticalsociety.org>

Benefits to authors

We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more. Please click here for more information on our [author services](#).

Please see our [Guide for Authors](#) for information on article submission. If you require any further information or help, please visit our [Support Center](#)

AUDIENCE

Geochemists, including Terrestrial, Planetary and Meteoritical Geochemists and Oceanographers.

IMPACT FACTOR

2016: 4.609 © Thomson Reuters Journal Citation Reports 2017

ABSTRACTING AND INDEXING

Aqualine Abstracts
BIOSIS
Chemical Abstracts
Compendex
Current Contents
Current Contents/Physics, Chemical, & Earth Sciences
Current Contents/SciSearch Database
Current Contents/Social & Behavioral Sciences
International Aerospace Abstracts
Mineralogical Abstracts
Engineering Index Monthly
Energy Data Base
Energy Research Abstracts
Engineering Village - GEOBASE
Geo Bib & Index
INSPEC
OCLC Contents Alert
PASCAL/CNRS
Petroleum Abstracts
Referativnyi Zhurnal VINTI-RAN (Russian Academy of Sciences)
Research Alert
Web of Science
Arts & Humanities Search
British & Irish Archaeological Bibliography
Personal Alert
Scopus
Science Citation Index Expanded
Zoological Record
Environment Complete
Academic Search (EBSCO)
Current Abstracts (EBSCO)
TOC Premier
ProQuest
Science and Technology Collection

EDITORIAL BOARD

Editor-in-Chief

Marc Norman, The Australian National University, Canberra, ACT, Australia

For more information please visit the homepage of the Research School of Earth Sciences:

Associate Editors:

Hagit Affek, The Hebrew University of Jerusalem, Jerusalem, Israel

Jeffrey Alt, University of Michigan, Ann Arbor, USA

Yuri Amelin, Australian National University, Canberra, Australia

Lawrence Anovitz, Oakridge National Laboratory, Knoxville, USA

Wolfgang Bach, Universität Bremen, Bremen, Germany

Miryam Bar-Matthews, Geological Survey of Israel, Jerusalem, Israel

Pierre Beck, Université Joseph Fourier (Grenoble I), Grenoble, France

Ruth Blake, Yale University, New Haven, USA

Janne Blichert-Toft, École Normale Supérieure de Lyon (ENS), Lyon, France

Jean-Francois Boily, University of Umeå, Umeå, Sweden

Inorganic chemical processes relevant to low temperature Geochemistry and Atmospheric Chemistry; Mineral/gas and mineral/water interfaces; Vibration spectroscopy, X-ray photoelectron spectroscopy, electrochemistry, thermodynamic and molecular modeling."

Maud Boyet, Centre National de la Recherche Scientifique (CNRS), Clermont-Ferrand, France

Jochen Brocks, Australian National University, Canberra, Australia

Robert Byrne, University of South Florida, St. Petersburg, USA

Andrew Campbell, University of Chicago, Chicago, USA

Elizabeth Canuel, Virginia Institute of Marine Science, Gloucester Point, USA
Jeffrey Catalano, Washington University, St. Louis, MO, USA
Jon Chorover, University of Arizona, Tucson, USA
 Soil chemistry
Rajdeep Dasgupta, Rice University, Houston, USA
 Experimental petrology, igneous processes, planetary differentiation, mantle melting, deep volatile cycles, intraplate magmatism, fluxes of volatiles in subduction zones, magmatism on Mars
Nicolas Dauphas, University of Chicago, Chicago, USA
James Day, University of California at San Diego (UCSD), La Jolla, USA
 Mantle Geochemistry, Igneous Processes, Intraplate Magmatism, Lithospheric Mantle, Layered Intrusions, Cosmochemistry, Planetary Accretion and Differentiation, Siderophile Elements, Volatile Elements, Radiogenic and Stable Isotopes
Hailiang Dong, Miami University, Oxford, USA
 Mineral-microbe interactions, Bioremediation, Life in extreme environments, Biogeochemical cycling of elements, Geomicrobiology, Aqueous geochemistry
Anthony Dosseto, University of Wollongong, Wollongong, Australia
Owen Duckworth, North Carolina State University, Raleigh, USA
James Farquhar, University of Maryland, College Park, USA
Sarah J. Feakins, University of Southern California, Los Angeles, USA
Jérôme Gaillardet, Institut de Physique du Globe de Paris, Paris, France
 Isotope geochemistry, Critical Zone, Weathering and Erosion, River Geochemistry, Paleo pH Proxies, Global Cycles
Chris Hall, University of Michigan, Ann Arbor, USA
Chris Herd, University of Alberta, Edmonton, Canada
 Shergottites, Mars, meteorites, oxygen fugacity, trace element and radiogenic isotope geochemistry, igneous and experimental petrology, curation and handling of planetary materials, organic geochemistry, carbonaceous chondrites
Gregory Herzog, Rutgers University, Piscataway, New Jersey, USA
Rosemary Hickey-Vargas, Florida International University, Miami, USA
Ed Hornibrook, University of British Columbia, Kelowna, Canada
Shichun Huang, University of Nevada at Las Vegas, Las Vegas, USA
Munir Humayun, Florida State University, Tallahassee, USA
Dmitri Ionov, Université Montpellier, Montpellier Cedex 05, France
Jun-ichiro Ishibashi, Kyushu University, Fukuoka, Japan
Andrew Jacobson, Northwestern University, Evanston, USA
Rachael James, University of Southampton, Southampton, UK
Karen Johannesson, Tulane University, New Orleans, USA
Rhian Jones, University of Manchester, Manchester, UK
Sabine Kasten, Alfred Wegener Institute, Bremerhaven, Germany
Annie Kersting, Lawrence Livermore National Laboratory, Livermore, USA
Christian Koeberl, University of Vienna, Vienna, Austria
Alexander Krot, University of Hawaii at Mānoa, Honolulu, HI, USA
Timothy Lyons, University of California at Riverside, Riverside, USA
 Sedimentary Geochemistry, Biogeochemical Cycles, Astrobiology
Thomas M. Marchitto, Jr., University of Colorado Boulder, Boulder, USA
Horst Marschall, Goethe Universität Frankfurt, Germany
Frank McDermott, University College Dublin, Dublin, Ireland
Anders Meibom, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
Jack Middelburg, Utrecht University, Utrecht, Netherlands
John Moreau, Melbourne University, Parkville, Australia
 geomicrobiology, biogeochemistry, aqueous geochemistry, environmental geochemistry, environmental microbiology, biomineralization, biosignatures, mineralogy, astrobiology, planetary geology
Frédéric Moynier, Institut de Physique du Globe de Paris, France
Alfonso Mucci, McGill University, Montreal, Canada
Alexander Nemchin, Curtin University, Perth, Australia
Martin Novak, Czech Geological Survey, Prague, Czech Republic
Dimitri Papanastassiou, NASA Jet Propulsion Laboratory, Pasadena, USA
Caroline Peacock, University of Leeds, Leeds, UK
 low temperature aqueous geochemistry, mineral-water interface geochemistry, application of synchrotron techniques to understand environmental systems particularly x-ray fluorescence and x-ray absorption spectroscopy, thermodynamic surface complexation modelling, heavy metal stable isotope fractionation.
Ann Pearson, Harvard University, Cambridge, USA
Gleb Pokrovski, Université Paul Sabatier (Toulouse III), Toulouse, France

Experimental geochemistry both at low and high temperatures, geochemistry of magmatic-hydrothermal metal deposits, thermodynamic modeling of geological fluids and water-mineral interactions, speciation and partitioning of chemical elements and their isotopes in mineral-fluid-vapor-melt systems, and in-situ spectroscopic approaches (in particular X-ray absorption and fluorescence, and Raman spectroscopy).

Eric Quirico, Université Joseph Fourier (Grenoble I), Grenoble Cedex 9, France

cosmochemistry - meteorites - interplanetary dusts - comets - asteroids - organic matter - ices - Raman spectroscopy - Infrared spectroscopy

Mark Rehkemper, Imperial College London, London, UK

Edward Ripley, Indiana University, Bloomington, USA

Claire Rollion-Bard, Institut de Physique du Globe de Paris, Paris, France

Sara Russell, Natural History Museum, London, UK

Edwin Schauble, University of California at Los Angeles (UCLA), Los Angeles, USA

Silke Severmann, Rutgers University, New Brunswick, USA

Timothy Shaw, University of South Carolina, Columbia, USA

David Shuster, University of California at Berkeley, Berkeley, USA

Daniel Sinclair, Victoria University of Wellington, Wellington, New Zealand

Paleoceanographic reconstruction using tropical corals and deep sea corals, Paleoclimate reconstruction using speleothems, Pacific oceanography and climate over the last 100,000 years, Biomineralization, especially of corals, Carbonate geochemistry: trace element and isotope systematics, geochemical modelling, Mass spectrometry method development: ICP-MS, especially laser-ablation

Orit Sivan, Ben-Gurion University of the Negev, Be'er Sheva, Israel

Methane, AOM, stable isotope, redox, porewater, groundwater, interface, early diagenesis

Carl Steefel, Lawrence Berkeley National Laboratory, Berkeley, USA

Brian Stewart, University of Pittsburgh, Pittsburgh, USA

Claudine Stirling, University of Otago, Dunedin, New Zealand

Andreas Stracke, Westfälische Wilhelms-Universität Münster, Münster, Germany

Weidong Sun, Chinese Academy of Sciences (CAS), Guangzhou, China

Fang-Zhen Teng, University of Washington, Seattle, USA

Isotope geochemistry of metals (e.g., Li, Mg, Fe, Cu, Zn etc.); composition and evolution of the continental crust and mantle; global elemental cycling; origin of the early solar system; MC-ICPMS

Mike Toplis, Observatoire Midi-Pyrenees, Toulouse, France

Christophe Tournassat, BRGM, Orléans, France

Tina Van de Fliedt, Imperial College London, UK

Wim van Westrenen, VU University, Amsterdam, Netherlands

Mario Villalobos, Universidad Nacional Autónoma de México (UNAM), Coyoacan, Mexico

Environmental geochemistry; surface chemistry of environmental colloids and nanoparticles; surface complexation modeling; mineral-water interface geochemistry; environmental molecular geochemistry; soil chemistry; water chemistry

Thomas Wagner, Newcastle University, Newcastle Upon Tyne, UK

Global biogeochemical cycles; Greenhouse oceans; Late Quaternary climate; Tropical rainforests; Atmosphere-Land-ocean coupling; Paleoceanography/Paleoclimatology; Black shale; Unconventional petroleum resources; Terrestrial organic carbon; Organic geochemistry;

Richard Walker, University of Maryland, College Park, USA

Dominik Weiss, Imperial College London, London, UK

Josef Werne, University of Pittsburgh, Pittsburgh, USA

Stefan Weyer, Gottfried Wilhelm Leibniz Universität Hannover, Hannover, Germany

Jan Wiederhold, University of Vienna, Vienna, Austria

Qingzhu Yin, University of California, Davis, Davis, USA

Cosmochemistry, Meteoritics, Early Solar System, Planet Formation, Core Formation, Isotope Geochemistry, Nucleosynthesis, Isotope Anomalies, Mass Independent Isotope Fractionation, Extinct Radioactivity.

Chen Zhu, Indiana University, Bloomington, USA

Editorial Assistant

M.A. O'Donnell

Journal Manager

Journal Manager

GUIDE FOR AUTHORS

Geochimica et Cosmochimica Acta (GCA) publishes research papers in a wide range of subjects in **terrestrial geochemistry**, **meteoritics**, and **planetary geochemistry**. GCA aims to present studies of fundamental significance and broad relevance for understanding geochemical systems, mechanisms, and processes, and of interest to a broad and diverse audience of geochemists. The scope of the journal includes:

1. Physical chemistry of gases, aqueous solutions, glasses, and crystalline solids
2. Igneous and metamorphic petrology
3. Chemical processes in the atmosphere, hydrosphere, biosphere, and lithosphere of the Earth
4. Organic geochemistry
5. Isotope geochemistry
6. Meteoritics and meteorite impacts
7. Lunar science; and
8. Planetary geochemistry.

If you would like more information about the Geochemical Society and Meteoritical Society, visit their Home Pages at <http://www.geochemsoc.org> and <http://www.meteoriticalsociety.org>

Types of papers

Geochimica et Cosmochimica Acta publishes original research articles, comments and responses on papers previously published in the journal, review articles (by invitation), book reviews (by invitation), and speeches or lectures (by invitation).

Comment and Reply

Comment and Reply submissions to GCA should be short (not exceeding 2000 words), concise discussions of major, substantive aspects of the original article. Comments will only be entertained for publication if they significantly impact the interpretation of the original article by exposing serious flaws in reasoning, deficiencies in experimental design, or other factors that significantly impact the original article's wider usage by the GCA readership. Discussion of minor errors or omissions, or presentation of alternative points of view, are not suitable for Comments. New or unpublished data or results are not to be presented as either Comments or Replies but should be submitted as research articles. The paper to which the Comment is directed should have been published in GCA within the previous 12 months. Comments and Replies should contain no more than 1 figure and 10 references; excessive use of multi-part figures is not permitted and the Executive Editor will make a decision on the suitability of such figures. Authors who are considering the submission of a Comment to GCA are encouraged to contact the editorial office (gca@elsevier.com) for additional information.

Contact details for submission

All papers should be submitted online by the corresponding author at <http://ees.elsevier.com/gca>. For any further information please visit our [Support Center](#). The *Geochimica et Cosmochimica Acta* editorial office may be reached at gca@elsevier.com.

BEFORE YOU BEGIN

Ethics in publishing

Please see our information pages on [Ethics in publishing](#) and [Ethical guidelines for journal publication](#).

Declaration of interest

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. [More information](#).

Submission declaration and verification

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis or as an electronic preprint, see '[Multiple, redundant or concurrent publication](#)' section of our ethics policy for more

information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service [CrossCheck](#).

Changes to authorship

Authors are expected to consider carefully the list and order of authors **before** submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only **before** the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the **corresponding author**: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.

Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors **after** the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

Article transfer service

This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. [More information](#).

Copyright

Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see [more information](#) on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. [Permission](#) of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has [preprinted forms](#) for use by authors in these cases.

For open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' ([more information](#)). Permitted third party reuse of open access articles is determined by the author's choice of [user license](#).

Author rights

As an author you (or your employer or institution) have certain rights to reuse your work. [More information](#).

Elsevier supports responsible sharing

Find out how you can [share your research](#) published in Elsevier journals.

Role of the funding source

You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

Funding body agreements and policies

Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the Open Access Publication Fee. Details of [existing agreements](#) are available online.

Open access

This journal offers authors a choice in publishing their research:

Subscription

- Articles are made available to subscribers as well as developing countries and patient groups through our [universal access programs](#).
- No open access publication fee payable by authors.

Open access

- Articles are freely available to both subscribers and the wider public with permitted reuse.
- An open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For open access articles, permitted third party (re)use is defined by the following [Creative Commons user licenses](#):

Creative Commons Attribution (CC BY)

Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)

For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The open access publication fee for this journal is **USD 2800**, excluding taxes. Learn more about Elsevier's pricing policy: <https://www.elsevier.com/openaccesspricing>.

Green open access

Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our [green open access page](#) for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. [Find out more](#).

This journal has an embargo period of 24 months.

Elsevier Publishing Campus

The Elsevier Publishing Campus (www.publishingcampus.com) is an online platform offering free lectures, interactive training and professional advice to support you in publishing your research. The College of Skills training offers modules on how to prepare, write and structure your article and explains how editors will look at your paper when it is submitted for publication. Use these resources, and more, to ensure that your submission will be the best that you can make it.

Language (usage and editing services)

Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the [English Language Editing service](#) available from Elsevier's WebShop.

Submission

Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

Submit your article

Please submit your article via <http://ees.elsevier.com/gca>.

PREPARATION

Peer review

This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. [More information on types of peer review](#).

Use of word processing software

It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the [Guide to Publishing with Elsevier](#)). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Line Numbers

Line numbers should be added to your file, numbered continuously throughout the main text.

Subdivision - numbered sections

Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

Appendices

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Essential title page information

- **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
- **Author names and affiliations.** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
- **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**

• **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract

A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself. NOTE: The abstract should be limited to 500 words; 200-300 words is preferred.

Results and Discussion

Results should be clearly distinguished from Discussion, and should be written as separately numbered sections in the manuscript. The Results should provide a concise description of the data or outcomes of the measurements and experiments presented in the manuscript, with adequate reference to tables and figures. Information provided as Results should form the observational basis for the Discussion and Conclusions. The Discussion should critically analyse and evaluate the Results in relation to the problem, hypotheses, and approach that provide the justification and demonstrate the significance of the study as presented in the manuscript.

Abbreviations

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources

List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Meteorite nomenclature

New meteorite names must be approved by the Meteorite Nomenclature Committee of the Meteoritical Society (http://meteoriticalsociety.org/simple_template.cfm?code=pub_bulletin; Chair Dr. Christopher D.K. Herd, Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, Alberta, T6G 2E3, Canada, herd@ualberta.ca). Existing meteorite names should conform to those in the Meteoritical Bulletin Database (<http://www.lpi.usra.edu/meteor/metbull.php>). The full (unabbreviated) names of meteorites should be used in titles, headings and at first mention in the text. Abbreviations, including those published in the Antarctic Meteorite Newsletter and the Meteoritical Bulletin Database, may be used in tables and elsewhere. Note that the abbreviated form of numbered meteorites, including Antarctic and many Saharan specimens, should have a blank space between the abbreviated place name and the number (e.g., MacAlpine Hills 88105 is abbreviated MAC 88105), except that some Antarctic meteorites recovered prior to 1981 may have an "A" instead of the blank space (e.g., Elephant Moraine A79001 is abbreviated EETA79001). A list of standard abbreviations and examples of their proper usage can be found at the Meteoritical

Society website page maintained for this purpose (<http://www.lpi.usra.edu/meteor/DenseAreas.php>). Geochimica et Cosmochimica Acta will normally not consider publication of manuscripts purporting to describe the discovery of new meteorites. All meteorite discoveries should in the first instance be submitted for consideration by the Meteorite Nomenclature Committee (at the Committee's website, http://meteoriticsociety.org/simple_template.cfm?code=pub_bulletin). Discovery papers may subsequently be submitted to Meteoritics and Planetary Science.

Equations

Please note that equations should be supplied in one of the following ways:

1. As a .pdf file
2. As a 2003 Word .doc file. If the source file was a Microsoft Word 2007 document (.docx), re-save the original document as a Word 2003 file (.doc) by opening the document and selecting 'Save As', then 'Word 97-2003 Document'.

Footnotes

Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

Artwork

Electronic artwork

General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the used fonts if the application provides that option.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the published version.
- Submit each illustration as a separate file.

A detailed [guide on electronic artwork](#) is available.

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format.

Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

EPS (or PDF): Vector drawings, embed all used fonts.

TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.

TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.

TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

Please do not:

- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

Color artwork

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. **For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article.** Please indicate your preference for color: in print or online only. [Further information on the preparation of electronic artwork.](#)

Figure captions

Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (**not** on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Tables

Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

Data references

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

Reference management software

Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support [Citation Style Language styles](#), such as [Mendeley](#) and [Zotero](#), as well as [EndNote](#). Using the word processor plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:

<http://open.mendeley.com/use-citation-style/geochimica-et-cosmochimica-acta>

When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference style

Citations presented as "in preparation," "unpublished data," "personal communication," "in/under review," etc. goes against journal style. Authors must either publish cited data within the submitted manuscript including a full accounting of the Methods (Electronic Supplements are fine) or cite a published paper. Alternatively, the reference and any material supported by the citation must be removed. Each citation in text, tables or figure captions must be entered in the References section, showing all authors, year, title and source (journal, book, thesis, etc., with inclusive page numbers). Each reference must be a hanging-indent paragraph. Author names should be given surname first, followed by initials (without intervening commas). Names of journals and of books should be in italics; names of journals should be abbreviated following standard conventions. Journal and serial volume numbers, if applicable, should be in bold font. The following examples show formats for various types of sources.

Petrophilas D. C. (1997) Rocks I have known and loved. *Geochim. Cosmochim. Acta* **61**, 123-321.

Bells J. D. and Whistles H. P. (1995) Asperity-limited tectonic lithofacies juxtaposition in the northeastern South-Central Mountains, West Virginia. *J. Geophys. Res.* **447**, 7767-7776.

Nixon R. M. (1975) *I Am Not a Crook*. Vantage Press, New York.

Butcher N. D., Baker R. B., Waxwright C. M., Tinker, Jr., D. R. C. and Taylor G. J. (1998) Sm-Nd, Rb-Sr, U-Th-Pb, Re-Os and K-Ar isotope systematics in 762 subangular pebbles from the bed of Oompa-Loompa Creek, Glacier National Park. In *Mesozoic Volcanic Activity in North America* (eds. P. M. Thieux and F. T. Frough). Cambridge Univ. Press, Cambridge. pp. 417-496.

Gibbs J. W. and Helmholtz H. L. (1997) Thermodynamic properties of triskadeka-biphenyl complexes of Fe⁺⁺ and Zn⁺⁺ in the range 80o-85oC at pH 4.5 in aqueous solution from the ice in which ALH 84001 was recovered. *Lunar Planet. Sci. XXVIII*. Lunar Planet. Inst., Houston. #7654(abstr.).

Harvard J. (1787) Investigations on why the ground in New England is so rocky. Ph. D. thesis, Yale Univ.

For multiple references by the same (first) author, first list chronologically all single-author works (e.g., Black (1988), Black (1989a), Black (1989b)), then two-author papers alphabetically (Black and Brown (1991), Black and Brown (1992), Black and Greene (1987)), then three or more authors chronologically (Black, Brown and Blue (1989), Black, Blue and Brown (1991)). Authors should take care that all literature citations, in figure captions and tables as well as main text, have accompanying entries in the References, and also that there are no superfluous entries.

Supplementary data

Elsevier accepts electronic supplementary material to support and enhance your scientific research. Supplementary files offer the author additional possibilities to publish supporting applications, high-resolution images, background datasets, sound clips and more. Supplementary files supplied will be published online alongside the electronic version of your article in Elsevier Web products, including ScienceDirect: <http://www.sciencedirect.com>. In order to ensure that your submitted material is directly usable, please provide the data in one of our recommended file formats. Authors should submit the material in electronic format together with the article and supply a concise and descriptive caption for each file. For more detailed instructions please visit our artwork instruction pages at <http://www.elsevier.com/artworkinstructions>.

NOTE: Supplementary files published online only in GCA are referred to as Electronic Annexes. Use of an Electronic Annex is required for extensive supplementary materials such as large data tables, sample descriptions, multiple figures, etc that would otherwise occupy a large amount of printed space. GCA strongly encourages authors to include their manuscript title within their Electronic Annex files.

RESEARCH DATA

This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the [research data](#) page.

Data linking

If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the [database linking page](#).

For [supported data repositories](#) a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

Mendeley Data

This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. Before submitting your article, you can deposit

the relevant datasets to *Mendeley Data*. Please include the DOI of the deposited dataset(s) in your main manuscript file. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the [Mendeley Data for journals page](#).

Data in Brief

You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for *Data in Brief* as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to *Data in Brief* where it will be editorially reviewed and published in the open access data journal, *Data in Brief*. Please note an open access fee of 500 USD is payable for publication in *Data in Brief*. Full details can be found on the [Data in Brief website](#). Please use [this template](#) to write your Data in Brief.

MethodsX

You have the option of converting relevant protocols and methods into one or multiple MethodsX articles, a new kind of article that describes the details of customized research methods. Many researchers spend a significant amount of time on developing methods to fit their specific needs or setting, but often without getting credit for this part of their work. MethodsX, an open access journal, now publishes this information in order to make it searchable, peer reviewed, citable and reproducible. Authors are encouraged to submit their MethodsX article as an additional item directly alongside the revised version of their manuscript. If your research article is accepted, your methods article will automatically be transferred over to MethodsX where it will be editorially reviewed. Please note an open access fee is payable for publication in MethodsX. Full details can be found on the MethodsX website. Please use [this template](#) to prepare your MethodsX article.

Data statement

To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the [Data Statement page](#).

ARTICLE ENRICHMENTS

AudioSlides

The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. [More information and examples are available](#). Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

Google Maps and KML files

KML (Keyhole Markup Language) files (optional): You can enrich your online articles by providing KML or KMZ files which will be visualized using Google maps. The KML or KMZ files can be uploaded in our online submission system. KML is an XML schema for expressing geographic annotation and visualization within Internet-based Earth browsers. Elsevier will generate Google Maps from the submitted KML files and include these in the article when published online. Submitted KML files will also be available for downloading from your online article on ScienceDirect. [More information](#).

Interactive plots

This journal enables you to show an Interactive Plot with your article by simply submitting a data file. [Full instructions](#).

AFTER ACCEPTANCE

Availability of accepted article

This journal makes articles available online as soon as possible after acceptance. This concerns the accepted article (both in HTML and PDF format), which has not yet been copyedited, typeset or proofread. A Digital Object Identifier (DOI) is allocated, thereby making it fully citable and searchable by title, author name(s) and the full text. The article's PDF also carries a disclaimer stating that it is an unedited article. Subsequent production stages will simply replace this version.

Online proof correction

Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.

If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.

We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

Offprints

The corresponding author will, at no cost, receive a customized [Share Link](#) providing 50 days free access to the final published version of the article on [ScienceDirect](#). The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's [Webshop](#). Corresponding authors who have published their article open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

AUTHOR INQUIRIES

Visit the [Elsevier Support Center](#) to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch.

You can also [check the status of your submitted article](#) or find out [when your accepted article will be published](#).

© Copyright 2014 Elsevier | <http://www.elsevier.com>