

Instructions to Authors

(Issued June 1, 2011)

Manuscripts submitted to the *Journal of the Geological Society of Japan* must comply with the following Instructions to Authors and the separate Bylaws.

A. Manuscript Submission, Acceptance, and Storage

1. First authorship of submitted manuscripts is limited to members of the Geological Society of Japan, except in cases where the articles are commissioned by the Editorial Board.
2. Authors are responsible for the content of manuscripts submitted to the *Journal of the Geological Society of Japan*.
3. Manuscripts must be written in either Japanese or English and submitted to the Editorial Board either online via the electronic submission/review system.

(a) Electronic submission/review system

Access the link below, fill in the required information, and after confirming that you certify the content of the manuscript for submission, upload it as electronic file(s) (text and figures) in the designated file formats.

<<http://mc.manuscriptcentral.com/geosoc>>

You are also required to sign and submit the separate Certification Form.

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4. The Editorial Board shall receive manuscripts submitted together with a signed Certification Form, record the date of receipt, and store them. Articles that obviously do not comply with the Instructions to Authors, however, may be returned to the authors without being received, together with a note giving the reason for their return.
5. If the Editorial Board receives a manuscript that mainly discusses a published manuscript, it will show the received manuscript to the other author(s) of the published manuscript and request a response, as far as possible.
6. The Editorial Board may request manuscripts from both members and non-members of the Geological Society of Japan

B. Content of the *Journal of the Geological Society of Japan*

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1. Manuscripts shall be concerned with geology in the broad sense of the term.
 - (a) Articles: Original research manuscripts comprising mainly reports of academic research that have not been published in printed form elsewhere.
 - (b) Review articles: Articles that provide a comprehensive overview, exposition, or description of research and theories in a particular field or that describe matters such as notable geological phenomena (such as volcanic eruptions or earthquakes), important regions or objects of study, or research techniques and

- methods.
- (c) Notes: Reports or descriptions of matters such as techniques, procedures, or academic terms, or educational expositions on specific themes or fields commissioned by the Editorial Board.
 - (d) Reports: Reports of original data from undergraduate or Masters' theses, or data obtained during business activities and other activities that are significant in geological terms.
 - (e) Discussions: Academic discussions of manuscripts published in the *Journal of the Geological Society of Japan*.
 - (f) Pictorials: Previously unpublished color photographs and expositions of notable geological phenomena, outcrops, landforms, rocks, minerals, fossils, or geological environments, to be published on the front pages of the journal.
2. Should the authors so request and the Editorial Board judge that it is appropriate based on the separate *Journal of the Geological Society of Japan* Open Files Publication Bylaw, the content of manuscripts listed in Section 1 above may be published simultaneously as open files on the Geological Society of Japan website.
 3. Other: In addition to the types of manuscript listed above, supplements to the *Journal of the Geological Society of Japan*, the Excursion Guidebook and other items are accepted at the discretion of the Editorial Board.

C. Review Process and Acceptance/Rejection of Manuscripts

1. The Editorial Board shall screen the manuscripts it receives and determine whether to accept them for publication.
2. The Editorial Board may request members or non-members of the Geological Society of Japan to review manuscripts, as necessary. In this case, however, it is the responsibility of the Editorial Board to carry out the final screening.
3. The Editorial Board may request the authors to make corrections to submitted manuscripts. Should manuscripts to which corrections have been requested not be returned to the Editorial Board within three months, the manuscript shall be treated as a new submission.
4. The Editorial Board shall record the date of acceptance for manuscripts accepted for publication (hereafter, "acceptance"), and shall notify the authors.
5. The Editorial Board shall return manuscripts rejected for publication to the authors, together with a written statement of the reason.
6. Should the authors disagree with the reason for the rejection given by the Editorial Board, the authors may petition the rejection to the president of the Geological Society of Japan.
7. In principle, manuscripts shall not be returned after printing.
8. When authors receive notification of acceptance of a submitted manuscript from the Editorial Board, they must sign the separate Copyright Transfer Form and send it to the Editorial Board together with a sample of the printed version of the final manuscript along with figures, photographs and tables in print size. At this point, authors should also send an electronic version of the text portion of the manuscript, if at all possible. Upon receipt, publication will be authorized.

D. Publication of Manuscripts

1. In principle, manuscripts shall be published in the order of acceptance. The order may be changed, however, in consideration of the following conditions.
 - (a) Discussions and their responses should be published concurrently.
 - (b) Two or more manuscripts by the same author should not be published in the same issue.
 - (c) The order of publication of special issues or special manuscripts should be decided in accordance with

their purpose.

E. Corrections

2. Initial corrections to a manuscript shall in principle be made by the authors (the Editorial Board shall make subsequent corrections).
3. The Editorial Board shall make initial corrections, bypassing the authors, when there is a severe time limitation for publication.
4. The authors may not rewrite the manuscript significantly during the correction process, unless authorized as necessary by the Editorial Board. Should printing costs increase as a result of authorized rewriting, the increased cost shall be borne by the authors.

F. Reprints

1. Authors who are full members of the Geological Society of Japan and eligible for the members' discount shall receive a certain number of reprints free of charge, as set out in the Bylaws.

G. Japanese Manuscript Preparation

1. The following structure must be followed for Japanese manuscripts.
 - (a) All manuscripts must include an English title and the authors' names in Roman letters.
 - (b) Articles and Review articles must include an abstract in both Japanese and English. Notes and Reports must include an English abstract. The Japanese abstract must be 400 characters or less, and the English abstract must, in principle, be 300 words or less for Articles and Review articles and 200 words or less for Notes and Reports and must be prepared in accordance with the style set out in Section H ("English Manuscript Preparation"). Both the Japanese and English abstracts must be submitted separately from the main text.
 - (c) The authors' affiliations and address for correspondence must be written in Japanese and English on the first sheet of the manuscript.
 - (d) Manuscripts other than Pictorials must include a running head in Japanese of 30 characters (includes spaces) or less to appear at the top of the printed page. The running head should include the full list of author names (lists of 5 or more authors may be abbreviated using *hoka*) and a running title of the manuscript.
 - (e) Manuscripts other than Discussions and Pictorials must include English keywords or key phrases on a separate sheet.
[Example] Keywords: Neogene, Sambagawa, active fault, sedimentary environment, paleontology, K-Ar dating
2. The following text and writing styles must be used.
 - (a) The writing style used must follow regular academic Japanese (the *de aru* style) written in hiragana and kanji characters and using the modern forms of kana characters.
 - (b) Kanji characters must be those in common use. Exceptions may be made, however, in the cases of proper names or technical terms in common use within the academic community.
 - (c) Punctuation is limited to commas (,) and periods (.).
 - (d) Honorifics must be omitted when referring to people's names in the main text (except in acknowledgements).
 - (e) Arabic numerals must be used to denote numbers.

- (f) In principle, SI units must be used, with their abbreviations given in Roman letters.
 - (g) The use of English in the text must be avoided as far as possible. Exceptions may be made, however, in cases such as the scientific names of organisms, technical terms for which there is no appropriate Japanese translation, proper names, and when required to indicate figures and tables.
 - (h) English in the text must, in principle, be written in lower case.
3. The following format must be used when submitting manuscripts.
- (a) In principle, manuscripts must be prepared on A4 paper, with each sheet containing 30 lines of 40 Japanese characters and with ample margins of 3 cm on each side. Sheets must be numbered.
 - (b) Punctuation, quotation marks, and other symbols must occupy a single space as a single character.
 - (c) Placement of figures and tables must be indicated in the right-hand margin of the manuscript.
4. The following format must be used for references.
- (a) References in the text must follow the examples below. Should there be ambiguity concerning authors' names, however, full names should be given.
[Examples]
Ogawa (1899) called this the Central Japan Transverse Rift Zone.
Some scholars have also called this the Central Japan Transverse Rift Zone (Ogawa, 1899).
According to these studies (Harada, 1888; Ogawa, 1899; Ozawa, 1923a, b) ...
Smith (1986, 1988) studied this subject ...
This subject has been studied by numerous scholars (Ogawa, 1899; Ozawa, 1923, 1924).
 - (b) References must be placed at the end of the text as a separate list in alphabetical order by author, with works by the same author ordered first by the date of single-author manuscripts and then by alphabetical order of the second author's name, and manuscripts by the same combination of authors listed in chronological order. Author names in Japanese must be given in full. Format of the references must be followed by the bylaw.
 - (c) When referencing online editions of academic journals and other sources, the same reference format must be used as that used for the regular print editions, unless a particular referencing method is specifically indicated in online editions. If an article was published simultaneously in the printed edition and online, in principle, the printed edition takes priority and must be referenced. In principle, references to other information on the Internet are not permitted, but may be allowed as exceptions with the permission of the Editorial Board if they comprise references or descriptions that supplement what is stated in the text and without which the main thesis of the manuscript would not be supported. When providing such references, the subject of the reference must have been expected to remain available for an ample period following the publication of the manuscript, and its published content must be fixed. When referencing such materials, in principle, the author must obtain permission from the Webmaster for the link to be published in the *Journal of the Geological Society of Japan*. If a single page is referenced it must be indicated by URL including the page file name, while references to multiple pages or an entire Web site should be indicated by the home address of the site concerned, and the copyright holder for the site must be referenced in the text or footnotes.
5. The following formats must be used for figures, tables, and plates.
- (a) For manuscripts other than Pictorials, display items must be classified into the following three types and numbered separately.
 - i. Figures: Diagrams or photographs that are placed within the text or as a folded insert.
 - ii. Tables: Display items that consist only of symbols, characters, and lines and are placed within the text or as a folded inserts.
 - iii. Plates: Photographs are printed as stand-alone pages separate from continuously paginated pages.
 - (b) Figures, tables, and plates must be submitted as separate sheets, one item to a sheet and separate from the

main text, as far as possible. The author's name and the figure, table, or plate number must be indicated on each sheet.

- (c) When indicating the sizes of items shown in figures, do not use numerical representations of scale but rather include a scale bar in the figure.
 - (d) Figures, tables and plates must be submitted as PDF files of sufficiently high quality or printouts to ensure clarity in the printed journal. Should submitted copies not be suitable for printing, the Editorial Board will request replacements.
 - (e) When submitting hand-drawn figures, these must be drawn clearly and neatly on white paper or pale blue graph paper in Indian ink or black ink. Consider the size and balance of lettering, symbols, and lines to allow resizing of figures.
 - (f) Original figures submitted as camera-ready copy must be sized to the page (printed area 16.5 cm x 24.0 cm) so they can be photographed without further changes, and photographs must be affixed to a white mounting board.
 - (g) All text in pictorials, figures, tables, plates, and any accompanying captions must be in English, and any text to be printed in type must be provided on a separate sheet. Proper names such as place names in figures should also be indicated in English. Japanese captions may also be added.
6. Styles and format of numerical formulas are provided in a separate bylaw.

H. English Manuscript Preparation

1. Manuscripts may be submitted in English. Discussions and responses to Discussions, however, must be written in the same language as the corresponding manuscript.
2. English manuscripts must be checked to ensure that there are no linguistic problems, and completed manuscripts are accepted on the authors' responsibility.
3. When the English manuscript includes romanized forms of Japanese names or other proper names normally written in kanji, an alphabetical list of the names of people, places, and formations with the kanji of the Japanese name used in the English manuscripts must be prepared in the form of a table following the references. Exceptions may be made for well-known names, however.
4. A running title of 40 characters or less, including spaces.
5. With the exception of Discussions and Pictorials, manuscripts in English must include an English abstract, and Articles and Review articles must additionally include a Japanese abstract. Both the English and Japanese abstracts must, in principle, be 300 words and 300 characters, respectively, or less for Articles and Review articles, and 200 words and 200 characters, respectively, or less for Notes and Reports.
6. With the exception of Discussions and Pictorials, manuscripts must include English key words or key phrases. Manuscripts must be prepared according to the regulations for Japanese manuscripts in all other respects. Manuscripts in English must be formatted with double spacing on A4 paper, with a margin of 3 cm on each side.
7. When referencing publications in languages other than English, add an asterisk to the end of the reference and an explanation of the meaning of the asterisk at the end of the reference section.
[Example] *In Japanese with English abstract
8. For matters not covered above, follow the instructions given in Section G ("Japanese Manuscript Preparation").

I. Printed Manuscripts

1. In principle, the maximum length of manuscripts is as follows.
 - (a) Articles: 16 printed pages
 - (b) Review articles: 16 printed pages

- (c) Notes: 6 printed pages
 - (d) Reports: 6 printed pages
 - (e) Discussions: 4 printed pages
 - (f) Pictorials: 2 printed pages
2. Note, however, that
 - (a) Articles and Review articles may exceed this length if the Board deems it appropriate. However, authors must bear a portion of the cost of printing the pages exceeding the limit of 16 pages.
 - (b) In principle, authors are limited to one Discussion per article.
 - (c) Pictorial captions may provided with each photograph or collected on a single page.
 - (d) Figures and tables printed as folded inserts will be treated as two pages.
 - (e) In principle, Pictorials may consist of up to five figures and photographs in total, with up to three references. Each caption must 100 words or less, with a total combined length of 400 characters or less in Japanese or 300 words or less in English.
 3. Printed originals of figures, with the exception of figures for folded inserts, must be no larger than a single sheet of newspaper (40 cm x 50 cm). Tables must be submitted in electronic form or as camera-ready copy, and will not be typeset.
 4. Charges to be paid by the author for pages in excess of the maximum length, the number of free reprints distributed, and charges for printing reprints may be revised each financial year.
 5. Charges to be paid by the author for pages in excess of the maximum length shall be paid immediately after the number of pages is finalized during the initial correction.
 6. Limits on the number of printed pages for Excursion Guidebook issues shall be set individually.

J. Copyright

1. Copyright to manuscripts (Articles, Review articles, and others) published in the *Journal of the Geological Society of Japan* and related publications, as well as to other copyrighted materials, shall revert to the Geological Society of Japan as a result of the author's signature on the separate Copyright Transfer Form.
2. When using copyrighted materials for which the copyright is held by the Geological Society of Japan, the author must adhere to the separate Rules for Use of Copyrighted Materials by obtaining permission in writing from or notifying the Geological Society of Japan.

Journal of the Geological Society of Japan Open Files Publication Bylaw

1. The *Journal of the Geological Society of Japan* Open Files (hereafter “Open Files”) consist of printable electronic files comprising a portion of the copyrighted materials to which the Geological Society of Japan holds copyright, which are distributed free of charge to all readers from the web site of the Geological Society of Japan. Accordingly, only the same author names, titles, publication dates, and volume numbers as the works published in the main *Journal of the Geological Society of Japan* will be available along with a separately assigned Open File Number and figure, table, and plate numbers.
2. Manuscripts determined by the Editorial Board to fulfill all of the conditions below may be published as Open Files at a designated location within the Web site of the *Journal of the Geological Society of Japan*.
 - (a) The manuscript’s availability online, including Internet access by members of the Geological Society of Japan, must have a certain level of value or significance.
 - (b) The manuscript must be more than a certain size.
 - (c) It must record primary data such as surveys, experiments, analysis, or calculations and descriptions of facts, without including judgments or discussions by the authors or others.
 - (d) It must provide supplementary information that is indispensable or extremely important for the completion of a manuscript scheduled for publication.
 - (e) Its content would be difficult to publish and reference elsewhere in advance or simultaneously.
3. Data submitted by authors as an Open File must be provided during the editorial process for the submitted manuscript of which it forms a part, in the same file format as the figures, tables, and plates in the regular submitted manuscript, and the Editorial Board will decide on its acceptance or rejection for publication as an Open File after receiving the submitted manuscript.
4. Received Open Files must be submitted in the electronic file format designated by the Editorial Board. The Editorial Board shall convert the submitted electronic files into PDF files, and publish them at a designated location on the Web site after confirming with the authors that the display is correct.
5. The Editorial Board shall make no alterations whatsoever to Open Files displayed as PDF files published on the Web site, except at the request of the authors. It may, however, decide to change the display format as long as this does not involve altering the content, or to terminate publication at any point.
6. Reprints of Open Files for which publication on the Web site has been decided may be printed at the time of publication only, at the authors’ expense.

Bylaw Concerning the Process of Publication of Special Issues of the *Journal of the Geological Society of Japan*

1. In the planning of special issues of the *Journal of the Geological Society of Japan*, after confirming the manuscripts (and Pictorials) of all the papers (including Articles and Review articles) that comprise the special issue concerned, a Representative Special Issue Coordinator shall submit a completed Application for Special Issue, to the Editorial Board by post or E-mail, and this shall be provisionally received. Immediately following its receipt, the Representative Coordinator and the authors of manuscripts shall submit the manuscripts via the online submission system or by post in accordance with the Instructions to Authors.
2. Special Issue Coordinators shall act as members of the Editorial Board and take responsibility for the editorial process. Their terms of office shall end when the special issue concerned is published.
3. Once submission of all the manuscripts has been confirmed, the Editorial Board shall decide on the Editorial Manager and reviewers responsible for each manuscript. Review of individual manuscripts shall, in principle, be carried out according to the same process as for regular manuscripts, regardless of whether authors are members of the Geological Society of Japan. Reviewers must be sent copies of the Application for Special Issue

together with manuscripts, so that they can evaluate the manuscripts as part of a special issue in view of its overall composition.

4. The Representative Coordinator shall be informed of manuscripts rejected for publication, which are excluded from the special issue. If several manuscripts are rejected, the Representative Coordinator shall consider whether to put together a different special issue in an abbreviated form or whether to cancel the special issue and publish accepted manuscripts as individual manuscripts in regular issues.
5. The Editorial Board shall decide on the date of publication for the special issue, which in principle shall be based on the acceptance date of the final manuscript to be accepted.
6. To prevent breaching the limits on the total number of pages published per year and disrupting publication of general manuscripts, the upper limit for the length of special issues shall be 80 pages, with an absolute maximum of 100 pages.
7. On request, special issues may include related Pictorials. In principle, these shall be two pages long, and shall never exceed four pages.
8. The Editorial Board may plan or propose special issues on its own accord.
9. The procedures above shall be amended if required.

Note: The Application for Special Issue shall, at a minimum, state the following information.

- (a) Title of special issue
- (b) Name of the Representative Special Issue Coordinator
- (c) Address for correspondence of Representative Special Issue Coordinator (address of affiliation, telephone, fax, E-mail)
- (d) Purpose of special issue (significance/objective) and its background
- (e) Composition of special issue (authors and titles of individual manuscripts, anticipated length, and authors' qualifications [members/non-members])
- (f) Total number of printed pages (anticipated; in principle, 80 pages or less, with an absolute maximum of 100 pages)
- (g) Use/non-use of pictorial (if used, its title, author, and number of pages; in principle, two pages, with a maximum of four pages)
- (h) Other information (comments from coordinator to Editorial Board)

Bylaw Concerning Printing Charges, Etc.

1. Printing charges for the *Journal of the Geological Society of Japan* shall be set as follows, effective for Volume 115, Number 9.
2. The charge to authors for pages in excess of the given limits shall be 16,000 yen per page.
3. The charge to authors for color printing shall be 90,000 yen/page for the first page and 30,000 yen per subsequent page (regardless of whether or not these are facing pages).
4. Authors shall be charged for reprints. Full members of the Geological Society of Japan who are eligible for the members' discount, however, shall receive 50 copies free of charge. Further copies of reprints are printed in batches of 50, either with or without covers. If a cover is requested, it will also be added to the free reprints.
5. Charges for reprints are listed separately.

Table of Charges for Reprints from the *Journal of the Geological Society of Japan*
(Appendix)

1. The top row of the table shows charges with no free reprints, and the bottom row shows charges including 50 free copies.
2. Free reprints (50 copies) are available to full members of the Geological Society of Japan who are eligible for the members' discount.
3. If reprints include color printing, an extra charge is payable by the author of 30 yen/copy in addition to the charges listed in the top row.
4. In principle, the maximum number of reprints that can be ordered is 300.
5. Authors are responsible for covering the delivery cost.

*Current page and color printing charges are as follows.

- (a) If a manuscript is longer than 16 printed pages, the charge to authors is 16,000 yen per extra page.
- (b) If a manuscript includes color printing, the charge to authors is 90,000 yen/page for the first page and 30,000 yen per subsequent page.

Pages	1 sheet	2 sheets	3 sheets	4 sheets	5 sheets	6 sheets	7 sheets	8 sheets	9 sheets	10 sheets	Cover Page
	2 pages	4 pages	6 pages	8 pages	10 pages	12 pages	14 pages	16 pages	18 pages	20 pages	
50 copies	3,750	4,800	5,850	6,900	7,950	9,000	10,050	11,100	12,150	13,200	2,750
100 copies	5,100 2,050	5,700 2,850	7,200 3,600	8,600 4,300	10,100 5,050	11,500 5,750	12,900 6,450	14,200 7,100	15,600 7,800	16,700 8,350	3,550
150 copies	5,550 3,700	7,500 5,000	9,600 6,400	11,475 7,650	13,500 9,000	15,300 10,200	17,100 11,400	18,825 12,250	20,475 13,650	21,900 14,600	4,400
200 copies	6,600 4,950	9,000 6,750	11,400 8,550	13,600 10,200	15,800 11,850	18,000 13,500	19,800 14,850	22,000 16,500	23,600 17,700	25,200 18,900	5,500
250 copies	7,500 6,000	10,000 8,000	12,500 10,000	15,000 12,000	17,000 13,900	19,625 15,700	22,000 17,600	24,250 19,400	26,375 21,100	28,500 22,800	6,050
300 copies	8,400 7,000	11,040 9,200	13,680 11,400	16,320 13,600	18,960 15,800	21,600 18,000	24,300 20,250	26,760 22,300	29,280 24,400	32,160 26,800	6,600

Unit: Japanese yen

Journal of the Geological Society of Japan Reference Format Bylaw

The reference format of *Journal of the Geological Society of Japan* is provided below.

1. Journal Paper

The reference must be written in the order of author name(s), year of publication, title of the paper, journal name, volume, page.

Goode, J. K. and Burbank, D. W., 2011, Kinematic implications of consequent channels on growing folds. *Jour. Geophys. Res.*, **116**, B04407, doi:10.1029/2010JB007617.

加藤武夫 (Kato, T.), 1920, 黒鉱鉱床に就て. *地質雑 (Jour. Geol. Soc. Japan)*, **27**, 301-309.

加藤武夫・杉 健一 (Kato, T. and Sugi, K.), 1927, 日本西南部外帯の押し被せ構造 (Deckenstruktur) (予報). *地質雑 (Jour. Geol. Soc. Japan)*, **34**, 249-252.

小池 清 (Koike, K.), 1957, 南関東の構造発達史. *地球科学 (Earth Sci. (Chikyū Kagaku))*, **34**, 1-16.

大塚彌之助 (Otuka, Y.), 1938a, 新生界対比に於ける軟体動物化石の価値. *地質雑 (Jour. Geol. Soc. Japan)*, **45**, 302-315.

大塚彌之助 (Otuka, Y.), 1938b, 南部フォッサ・マグナ地質構造上の一特性. *地質雑 (Jour. Geol. Soc. Japan)*, **45**, 528-529.

Schuchert, C. and Longwell, C. B., 1932, Paleozoic deformations of the Hudson Valley region, New York. *Amer. Jour. Sci.*, **23**, 305-326.

竹内 誠・河合政岐・野田 篤・杉本憲彦・横田秀晴・小嶋 智・大野研也・丹羽正和・大場穂高 (Takeuchi, M., Kawai, M., Noda, A., Sugimoto, N., Yokota, H., Kojima, S., Ohno, K., Niwa, M. and Ohba,

H.), 2004, 飛騨外縁帯白馬岳地域のペルム系白馬岳層の層序および蛇紋岩との関係. 地質雑 (Jour. Geol. Soc. Japan), **110**, 715-730.

Walter, L. M., Bischof, S. A., Patterson, W. P. and Lyons, T. L., 1993, Dissolution and recrystallization in modern shelf carbonates: Evidence from pore water and solid phase chemistry. *Phil. Trans. Roy. Soc. London, A*, **344**, 27-36.

2. Book

The reference must be written in the order of author or editor name(s), year of publication, title of the book, publishing company (place of the company if located outside Japan), number of pages.

ヴェーゲナー, 都城秋穂・紫藤文子訳 (Wegener, A., translated by Miyashiro, A. and Shidou, F.), 1981, 大陸と海洋の起源 (上) 大陸移動説 (*Die Entstehung der Kontinente und Ozeane*). 岩波書店 (Iwanami Shoten), 244p.

活断層研究会編 (The Research Group for Active Faults, ed.), 1991, 新編日本の活断層: 分布図と資料 (*Active Faults in Japan, New Edition: Distribution Map and the Related Materials*)*. 東京大学出版会 (Univ. Tokyo Press), 363p.

日本地質学会編 (Geol. Soc. Japan, ed.), 2001, 国際層序ガイド: 層序区分・用語法・手順へのガイド (*International Stratigraphic Guide: A Guide to Stratigraphic Classification, Terminology, and Procedure*). 共立出版 (Kyoritsu Shuppan), 238p.

日本の地質「北海道地方」編集委員会編 (Editorial Committee of Hokkaido, Regional Geology of Japan, ed.), 1990, 日本の地質1「北海道地方」(*Regional Geology of Japan, Part 1: Hokkaido*), 共立出版 (Kyoritsu Shuppan), 337p.

小川琢治 (Ogawa, T.), 1944, 日本群島 (*The Japanese Archipelago*)*. 弘文堂 (Koubundo Press), 372p.
Reading, H. G., ed., 1986, *Sedimentary Environments and Facies, 2nd ed.* Blackwell Sci. Publ., Oxford, 615p.

Weaver, C. E., 1989, *Clays, Muds and Shales*. Developments in Sedimentology, **44**, Elsevier, Amsterdam, 819p.

3. Collected papers of part of book

The reference must be written in the order of author name(s), year of publication, title of the paper, editor name(s), publishing company (place of the company if located outside Japan), page.

藤原 治 (Fujiwara, O.), 2001, 第四紀構造盆地の沈降量図. 小池一之・町田 洋編, 日本の海成段丘アトラス (*Atlas of Quaternary Marine Terraces in the Japanese Islands*), 東京大学出版会 (Univ. Tokyo Press), 85-96.

Keller, G., 1992, Paleoecologic response of Tethyan benthic foraminifera to the Cretaceous-Tertiary transition. In Takayanagi, Y. and Saito, T., eds., *Studies in Benthic Foraminifera*, Tokai Univ. Press, 77-91.

前島 渉 (Maejima, W.), 2009, 外帯の浅海成白亜系, 紀伊半島地域. 日本地質学会編, 日本地方地質誌5: 近畿地方 (*Regional Geology of Japan, Part 5: Kinki*)*, 朝倉書店 (Asakura Publ.), 164-169.

Mitchum, Jr., R. M., 1977, Seismic stratigraphy and global changes of sea level, part II: Glossary of terms used in seismic stratigraphy. In Payton, C. E., ed., *Seismic Stratigraphy: Applications to Hydrocarbon Exploitation*, Mem. Amer. Assoc. Petrol. Geol., no. 26, 205-212.

棚部一成・平野弘道 (Tanabe, K. and Hirano, H.), 1987, 第2章 中・古生界, 2.6. 陸棚相の中生界, (2) ジュラ系. 日本の地質「中国地方」編集委員会編, 日本の地質 7 中国地方 (*Regional Geology of Japan, Part 7: Chugoku*), 共立出版 (Kyoritsu Shuppan), 43-45.

4. Abstract

The reference must be written in the order of author name(s), year of publication, title of the paper, title of the abstract, page.

久田健一郎・忽滑谷優里・折橋裕二・小室光世 (Hisada, K., Nukariya, Y., Orihashi, Y. and Komuro, K.), 2010, 牟婁層群quartzite礫の碎屑性ジルコンU-Pb年代測定と供給源. 日本地球惑星科学連合2010年大会予稿集 (*Japan Geosci. Union Meet. 2010, Abstr.*), CD-ROM, SGL046-03.

星 博幸 (Hoshi, H.), 2009, 西南日本の時計回り回転: 到達点と課題. 日本地質学会第116年学術大会講演要旨 (*116th Ann. Meet. Geol. Soc. Japan, Abstr.*), 11.

5. Field Trip Guide

The reference must be written in the order of author name(s), year of publication, title of the trip guide, title of the guide book, page.

Barton, C. C. and Hsieh, P. A., 1989, Physical and hydrologic-flow properties of fractures. *28th International Geological Congress, Field Trip Guidebook T385*, Amer. Geophys. Union, Washington, D. C., 36p.

辻森 樹・宮島 宏・竹之内 耕 (Tsuji-mori, T., Miyajima, H. and Takenouchi, K.), 2001, 糸魚川-青海地域の古生代高压変成岩. 日本地質学会第108年学術大会見学旅行案内書 (*108th Ann. Meet. Geol. Soc. Japan, Excursion Guidebook*), 157-177.

6. Map

The reference must be written in the order of author name(s), year of publication, title of the map, publishing company.

Bayley, R. W. and Muehlberger, W. R., 1968, *Basement Rock Map of the United States, Exclusive of Alaska and Hawaii*. U.S. Geological Survey, scale 1:2,500,000, 2 sheets.

斎藤 眞・沢田順弘 (Saito, M. and Sawada, Y.), 2000, 横山地域の地質. 地域地質研究報告 (5万分の1地質図幅) (*Geology of the Yokoyama District. With Geological Sheet Map at 1:50,000*), 地質調査所 (Geol. Surv. Japan), 126p.

東京都土木技術研究所 (Civil Engineering Center of Tokyo Metropolitan Government), 1977, 東京都総合地盤図 I (*Underground Geological Map of Tokyo Metropolitan I*)*. 技報堂 (Gihodo).

脇田浩二・宮崎一博・利光誠一・横山俊治・中川昌治 (Wakita, K., Miyazaki, K., Toshimitsu, S., Yokoyama, S. and Nakagawa, M.), 2007, 伊野地域の地質. 地域地質研究報告 (5万分の1地質図幅)

(*Geology of the Ino District. Quadrangle Series, 1:50,000*). 産総研地質調査総合センター (Geol. Surv. Japan, AIST), 140p.

山口県 (Yamaguchi Prefecture), 1968, 5万分の1山口県地質図および同説明書 (*Geological Map of Yamaguchi Prefecture, Scale 1: 50,000 and its Explanatory Text*)*. 山口県 (Yamaguchi Prefecture), 33p.

7. PhD Thesis

The reference must be written in the order of author name, year of publication, title of the thesis, name of the university, number of pages.

Ueno, T., 2004, *Eruption Mechanisms of Large-scale Pyroclastic Flow: A Case Study of Aira Pyroclastic Eruption*. Ph.D. Thesis, Kobe Univ., 163p.

* English translation from the original written in Japanese

Formula Writing Regulations

1. It is important when writing formulas in papers that, just as with items other than formulas, they be written in such a way that they do not invite misinterpretation. Formulas written with consistent, systematically chosen symbols and typesets are easy to read, and to understand. Formulas included in a paper must follow the guidelines set forth here, both within the body text of the paper, and in any diagrams or tables.
2. Formulas shall consist of single-byte English letters, Greek letters, numerals, and other symbols (such as \times). The choice of whether to use slanted type or roman type shall be made in accordance with the regulations below. “Slanted type” here is being used to refer to both italic type (ex.: *i*) and oblique type (ex.: *ı*). When writing a paper, either italic or oblique type may be used. When printing slanted type, English letters shall be set in italics, and Greek letters shall be set in oblique type.

Example	Font Used	Applies to
Ar, km, +, =	Times fonts, roman	Chemical symbols, units, operators, quantities, values
<i>A, a, ε, σ</i>	Times fonts or Symbol fonts, slanted	Scalar quantities, variables
<i>A, a, ε, σ</i>	Times fonts or symbol fonts, slanted	Vector quantities, tensor quantities, matrices

Supplementary Explanation

- (a) The slanted form of the lower case l is *l*. Inform the editing committee when you wish to use *l* instead.
- (b) The SI prefix k (kilo) is set in roman type. The μ (micro) unit prefix is also set in roman type, as in μm . When used as a variable or physical constant, it is set in slanted type, as in μ .
- (c) There are many similar looking horizontal line characters: the hyphen “-”, the en dash “—”, the em dash “—”, and the minus symbol “−”. When using a minus symbol, use the minus symbol character.
- (d) Do not use the English X or x as a multiplication sign. When writing the paper, use a Times or Symbol font family single-byte \times symbol.
- (e) For differential operators, use roman type, as in d/dx . This also holds for integration: $\int f(x) dx$. When using square brackets as operators, do not use the greater than or less than

symbols, as in $\langle a, b \rangle$, but instead use the \langle and \rangle symbols, as in $\langle a, b \rangle$.

- (f) When using ellipsis, indicating that something is being omitted, adjust their height based on what is being omitted, as in $a_1 + a_2 + \cdots + a_n$ and a_1, a_2, \dots, a_n .
 - (g) When writing approximate numbers in English, use a swung dash, as in ~ 2 km. In approximate equations, do not write $A \sim 2$ km. Instead, write $A \approx 2$ km. In approximate equations, use the \approx or \cong , as in $A \cong 2$ km.
 - (h) Use roman type for functions, as in \log , \sin , \exp , grad , mod .
 - (i) Use slanted type for the indices of vector and tensor components. For example, in the cases of σ_{ij} , x_i , x_{i+1} , the indices are i and j . The plus sign in the last example is an operator, and 1 is a numeral, so they are both written in roman type.
 - (j) Use slanted type for coordinates, as in x -axis.
 - (k) For dimensionless quantities such as Reynolds and Froude numbers, with established symbols, use roman type. Do not set the second letter as a superscript or subscript. Write them, instead, as in Re or Fr .
 - (l) Set the base of natural logarithm and the imaginary unit in roman type, as in e^x , $a + bi$.
 - (m) Use slanted type for physical quantities in subscripts and superscripts, as in P_x .
 - (n) When the superscript represents a word, use roman type. For example, the density of mudstone and maximum horizontal stress should be written as ρ_{ms} , σ_{Hmax} . In the same way, in the case of matrix transposition, the T superscript in \mathbf{A}^T is set in roman type.
 - (o) When differentiating between an amount and a similar amount, as in a and a' , use a prime symbol ' for the latter value, not an apostrophe '.
3. Choose symbols for physical quantities, variables, and constants in accordance with accepted practice. For example, density is ρ , acceleration due to gravity is g or g , etc. When an amount in a given category changes depending on conditions, avoid using a different symbol for each condition. For example, when there are several densities, depending on compaction, rock qualities, etc., instead of using different symbols, such as ρ , R , r , etc., use the ρ symbol for all densities, adding subscripts, accent symbols, and the like to differentiate between them, as in ρ' , $\bar{\rho}$, ρ_w , ρ_z .
4. Even for display style formulas, which take up a single line by themselves, place a period at the end to indicate that the formula is the end of a sentence. The following is an example of this:

$$S = \pi r^2.$$

5. Summation symbols are written differently for display style and inline formatted formulas. In display style formulas, they are written as

$$\sum_{i=1}^N.$$

While in inline form they are written as $\sum_{i=1}^N$, with the summation range written as superscripts and subscripts. Symbols with equivalent differences also include lim and max. This formatting is used to avoid the skewing of line spacing by inline formulas. Therefore, items which exceed line spacing, such as square matrices, should be written using display style. Note, however, that column vectors are to be transposed, as in $(1, 0, 0, 0)^T$. Unless there is a specific reason to do so, do not write fractions in a format such as $\frac{1}{2}$. Instead, use a diagonal line, as in $1/2$.

- Place spaces between numbers and units in English (ex.: 100 km). When slanted type and roman type are used side-by-side, include a small space as appropriate to prevent them from overlapping. For example, do not use $f \log y$. Instead, use $f \log y$. Decide whether to include a small space before and after plus or minus symbols based on context. When being used as a binary operator on two items, as in $a + b$ or $a - b$, insert a small space before and after the symbol. When used to indicate positive or negative values, that is, as a unary operator on a single item, do not include a space between the symbol and the number, as in $+b$, $-b$, -0.1 . The same applies to the compound symbols \pm and \mp . Include spaces before and after equal signs and inequality signs. For example,

$$H(x) = \begin{cases} 0 & (x < 0) \\ 1/2 & (x = 0) \\ 1 & (x > 0) \end{cases} .$$

$A + B = C$, for example, should not be written as $A+B=C$.

- Multiple superscripts and subscripts (ex.: a^{b^c}) should only be used when there is no chance of confusion. If there is a chance of confusion, parentheses should be used to clarify the order of the exponents. For example, a^{b^p} can be mistaken for a^{bp} , so it should instead be written as $(a^b)^p$. Primes and asterisks should be handled in the same manner. a' , a^* squared should not be written as a'^2 or a^{*2} , but as $(a')^2$ and $(a^*)^2$. In the same way, the squares of transposed matrices should be written as $(A^T)^2$, not A^{T^2} or A^{T2} . Complex exponential functions, such as $e^{\cos(\theta+\theta_0^2)}$, should be written using exp, as in $\exp[\cos(\theta + \theta_0^2)]$.
- Parentheses should be used appropriately to eliminate vagueness. One common example of vagueness is writing the denominator of a fraction on a single line. Generally, when writing a fraction such as $1/abcde$, everything beyond the slash is the denominator, so the fraction, as written, would not be interpreted as $(1/a) \times bcde$. Therefore, $\frac{1}{2} \cos \theta$ cannot be written in the form $1/2 \cos \theta$. This vagueness would remain even if a multiplication sign were used, as in $1/2 \cdot \cos \theta$ or $1/2 \times \cos \theta$. This is because, unlike addition, multiplication and division have the same priority in execution sequencing. In display style, as well, when expressing fraction denominators or numerators on a single line, the same consideration must be given. For example, see the following:

$$\frac{E}{(\cos \theta)/2} .$$

Another example of unclear calculation order is:

$$\cos P \frac{\partial y}{\partial x}.$$

Written this way, it is unclear if the formula is $\cos(P\partial y/\partial x)$ or $(\partial y/\partial x) \cos P$. Also, parentheses must be used for $(n + 1)$ -dimensional.

9. Articles in the Journal of the Geological Society of Japan are printed in two column format. For long formulas which will not fit within a single printed column, divide the formula across multiple lines as shown below. It is important to consider the final printed format when initially writing the paper. For example, the formula below would not fit on one line, so it has been split over two

$$\begin{aligned} & \frac{\partial \xi}{\partial r} \tan\left(\theta + \phi + \frac{\pi}{4}\right) \\ &= \frac{\rho g}{2c_Y} + \frac{\cos \theta}{\sqrt{2} \cos\left(\theta + \phi + \frac{\pi}{4}\right)} + C. \end{aligned} \quad (1)$$

As shown in this example, indent the second and any subsequent lines. A formula split over 3 or more lines would look like this:

$$\begin{aligned} x &= a + b + c + d + e + f + g + h + i + j \\ &+ k + l + m + n + o + p + q + r + s \\ &+ t + u + v + w + x + y + z. \end{aligned}$$

In this example, the + immediately in front of the k and the t are binary operators, but addition operators, so there is a space after the +. As shown in Eq. (1), as a rule formulas should be divided at equal signs, addition signs, and subtraction signs. When dividing at a multiplication point, the multiplication symbol \times should be inserted. For example,

$$\begin{aligned} \eta_0 &= \left[2(B^*)^{\frac{1}{n}} D^{(1-\frac{1}{n})}\right]^{-1} \\ &\times \exp\left(\frac{Q}{nRT_0}\right). \end{aligned}$$

You should avoid dividing matrices mid-way, but when it cannot be avoided, the following formatting should be used:

$$\begin{pmatrix} k & \ell & -fk \\ -k & 1 - \ell & gk \\ -k - Rk & 1 - \ell - R\ell & Efk \\ k & \ell & -Egk \end{pmatrix} \begin{pmatrix} -g\ell \\ -g + f\ell \\ -Ef + Egl \\ -Ef\ell \end{pmatrix} \begin{pmatrix} a^{(1)} \\ b^{(1)} \\ a^{(2)} \\ b^{(2)} \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}.$$

Another possible approach is to change the formula itself to obviate the need for a line split. For example, by defining the ψ symbol as $\psi = \theta + \phi + \pi/4$, Eq. (1) can be shortened to:

$$\frac{\partial \xi}{\partial r} \tan \psi = \frac{\rho g}{2c_Y} + \frac{\cos \theta}{\sqrt{2} \cos \psi} + C.$$

Formulas with long numerators should be divided as shown below:

$$f(x) = \frac{1}{3x^2 + 3x + 1} \left[(Ax^3 + Bx^2 + Cx + D) \cos ax \right. \\ \left. + (Ex^3 + Fx^2 + Gx + H) \sin ax \right. \\ \left. + (Ix^3 + Jx^2 + Kx + L)e^{-x} \right].$$

Formulas with long denominators should represent the denominator within parentheses, to the -1 power, as in:

$$f(x) = \left[(Ax^3 + Bx^2 + Cx + D) \cos ax \right. \\ \left. + (Ex^3 + Fx^2 + Gx + H) \sin ax \right]^{-1},$$

or as in $f(x) = 1/A$ with defining the denominator as a separate formula,

$$A = (Ax^3 + Bx^2 + Cx + D) \cos ax \\ + (Ex^3 + Fx^2 + Gx + H) \sin ax.$$

Supplementary Prevision - These regulations shall be enacted as of June 1, 2011.