DESCRIPTION

Asian Pacific Journal of Tropical Medicine (ISSN 1995-7645 CODEN: APJTB6) is an international English scientific monthly publication which was launched in March 2008. It is administered by Hainan Medical University, sponsored by the Institute of Tropical Disease, Hainan Medical University (China) and Hainan Medical University Journal Publisher, aims to provide an academic communicating platform for international physicians, medical scientists, allied health scientists and public health workers, especially those of the Asia-Pacific region and worldwide on tropical medicine, infectious diseases and public health, and to meet the growing challenges of understanding, preventing and controlling the dramatic global emergence and re-emergence of infectious diseases in the Asia-Pacific.

APJTM publishes new findings in basic and clinical research on tropical medicine and public health worldwide. It particularly pays attention to tropical disease, such as dengue/dengue hemorrhagic fever, kala azar, anthracia pestis, malaria, cholera, plague, leishmaniasis, tsutsugamushi, schistosomiasis, filariasis, trypanosomatosis, leprosy, Ebola hemorrhagic fever, yellow fever, babesiosis, Lyme disease, avian influenza, enzootic hepatitis, African meningitis, red tide, influenza, tuberculosis, epidemic polyarthritis, Japanese encephalitis, hepatitis and other parasitological diseases and zoonoses, which have repeatedly caused major epidemics regionally. Pharmacological studies, molecular biological studies, biological studies, physiological studies, pathological studies, gene studies on treatment and management for these alarming global emergence and re-emergences of infectious diseases are our focuses, too. Original research articles, review articles, case reports, and clinical studies in all areas of tropical medicine are welcome.

APJTM is currently included in SCI, PubMed/Medline, Biological Abstracts, Chemical Abstracts, Cambridge Scientific Abstracts, Excerpta Medica, Scopus, Western Pacific Region Index Medicus, Centre for Agriculture and Bioscience Abstracts, Global Health, Zoological Record, Open Academic Journals Index, Ulrich International Periodical Director, and Index Copernicus.

To meet the needs of national information development and widen authors academic exchange channel, we declare that the journal, Asian Pacific Journal of Tropical Medicine, has joined the Net. The author's copyright using fee will be paid off in a lump sum. If an author doesn't agree to involve his article in the databases, please make a declaration on the time of his contribution for our appropriate processing.

Benefits to authors
We also offer various author benefits, such as free PDFs and a liberal copyright policy. Please click here for more information on our author services.

Please see our Guide for Authors for information on article submission. If you seek any further information or help, please visit our support pages: http://service.elsevier.com

**IMPACT FACTOR**

2016: 0.925 © Thomson Reuters Journal Citation Reports 2017

**EDITORIAL BOARD**

*Editor-in-Chief*

Jeffrey M. Bethony, Dept. of Microbiology, Immunology, and Tropical Medicine, George Washington University, Washington, District of Columbia, USA

Daouda Sissoko, Dept. of Infectious Diseases and Tropical Medicine, Bordeaux University Hospital, Bordeaux, France

Iván Dario B. Vélez, Columbia Society of Parasitology and Tropical Medicine, University of Antioquia, Medellin, Colombia

Nazni Wasi Ahmad, Medical Entomology Unit, Inst. for Medical Research, Kuala Lumpur, Malaysia

*Deputy Editors-in-Chief*

Jerapan Krungkrai, Dept. of Biochemistry, Fac. of Medicine, Bangkok, Thailand

Alcides Troncoso, Dept. of Microbiology and Infectious Diseases, Buenos Aires, Argentina

*Editorial Director*

Viroj Wiwanitkit, Dept. of Laboratory Medicine, Fac. of Medicine, Chulalongkorn University, Bangkok, Thailand

*Members of Editorial Board*

Kamel Adwan, Dept. of Biology and Biotechnology, An-Najah National University, Nablus, Palestinian Territory, Occupied

Mahboob Alam, Dept. of Internal Medicine, Division of Cardiology, Baylor College of Medicine, Houston, USA

Silvia Angeletti, Clinical Pathology and Microbiology Laboratory, University Campus Bio-Medico, Rome, Italy

Herbert Auer, Dept. of Medical Parasitology, Institute of Specific Prophylaxis and Tropical Medicine, Medizinische Universität Wien, Vienna, Austria

Majid Avijgan, Dept. of Infectious Diseases, Traditional Persian-Iranian Medicine, University of Isfahan, Isfahan, Iran

Ciomar Aparecida Bersani Amado, Dept. of Pharmacology and Therapeutic, State University of Maringa, Maringa, Brazil

Ioan Stelian Bocsan, Dept. of Epidemiology and Primary Health Care, Iuliu Hațieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

Norbert W Brattig, Tropical Medicine Section, Bernhard Nocht Inst., Hamburg, Germany

Jong-Yil Chai, Dept. of Parasitology and Tropical Medicine, Seoul National University College of Medicine, Seoul, The Republic of Korea

Supat Chamnanchanunt, Dept. of Clinical Tropical Medicine, Fac. of Tropical Medicine, Mahidol University, Bangkok, Thailand

Jae Sue Choi, Dept. of Food Science and Nutrition, Pukyong National University, Busan, The Republic of Korea

Massimo Ciccozzi, Dept. of Infectious Parasitic and Immunomeditated Diseases, Instituto Superiore di Sanità, Roma, Italy

Luisa Custodio, Centre of Marine Sciences, Universidade do Algarve, Faro, Portugal

Kusal K. Das, Dept. of Internal Medicine, Division of Cardiology, BLDE University, Bijapur, Karnataka, India

Nicholas Day, Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK

Fraser De Wolfe Miller, Dept. of Tropical Medicine and Medical Microbiology, John A Burns School of Medicine, University of Hawaii, Honolulu, USA

Valentina Virginia Ebani, Dipartimento di Patologia Animale, Facolta di Medicina Veterinaria, Università di Pisa, Pisa, Italy

Jimmy Thomas Efird, Dept. of Physiology, The Brody School of Medicine, East Carolina University, Greenville, USA

Farouk M. F. El-Sabban, College of Life Sciences, Kuwait University, Safat, Kuwait

Mma Ma A. Faridi, Dept. of Pediatrics, University College of Medical Sciences, New Delhi, India

Guido Favia, School of Bioscience and Veterinary Medicine, University of Camerino, Camerino, Italy

Bernhard Fleischer, Institute for Immunology, Universitätskrankenhaus Hamburg-Eppendorf, Hamburg, Germany
Mun Yik Fong, Fac. of Medicine, Dept. of Parasitology, University of Malaya, Kuala Lumpur, Malaysia
Owunari Abraham Georgewill, Dept. of Pharmacology and Toxicology, University of Port Harcourt, Port Harcourt, Nigeria
Antonio Gomez-Munoz, Dept. of Biochemistry and Molecular Biology, Fac. of Science and Technology, University of the Basque Country, Guipúzcoa, Spain
Exnevia Gomo, Dept. of Medical Laboratory Sciences, University of Zimbabwe, Harare, Zimbabwe
Stephen Brian Gordon, Liverpool School of Tropical Medicine, Institute of Infection and Global Health, University of Liverpool, Liverpool, UK
Robert A. Harrison, Alistair Reid Venom Research Unit, Dept. of Parasitology, Liverpool School of Tropical Medicine, Liverpool, UK
Yasushi Hasegawa, Dept. of Surgery, Iwate Medical University, Morioka, Japan
Andrey Karlyshev, Sch. of Life Sciences, Dept. of Microbiology, Kingston University, Surrey, UK
Asad Ullah Khan, Interdisciplinary Biotechnology UNIT, Medical Microbiology and Molecular Biology Laboratory, Aligarh Muslim University, Aligarh, Uttar Pradesh, India
Hamzullah Khan, Dept. of Pathology, Gomal Medical College, Dera Ismail Khan, Pakistan
Rosemary Susan Lees, Liverpool School of Tropical Medicine, Liverpool, UK
Usa Lek-Uthai, Fac. of Public Health, Dept. of Parasitology and Entomology, Mahidol University, Bangkok, Thailand
Sutherland Kester Maciver, Centre for Integrative Physiology, University of Edinburgh, Edinburgh, UK
Richard James Maude, Centre for Tropical Medicine and Global Health, University of Oxford, Oxford, UK
Nada Milic, Dept. of Epidemiology, Serbian Medical Association, Belgrade, Serbia
Fawaz Mzayek, School of Public Health, Div. of Epidemiology, University of Memphis, Memphis, USA
Remington Lee Nevin, Bloomberg School of Public Health, Department of Mental Health, Johns Hopkins University, Baltimore, USA
Veeranoot Nissapatorn, Department of Parasitology, , Faculty of Medicine, , University of Malaya, Kuala Lumpur, Malaysia
Francois Henry Nosten, Mahidol-Oxford University Research Unit, Shoklo Malaria Research Unit, University of Oxford, Oxford, UK
Uchenna Nwagha, College of Medicine, Dept. of Obstetrics and Gynaecology, University of Nigeria, Nsukka, Nigeria
Wen-Huang Peng, Coll. of Pharmacy, Dept. of Chinese Pharmaceutical Sciences and Chinese Medicine Resources, China Medical University, Taichung, Taiwan
Rasa Petraityte-Burneikiene, Inst. of Biotechnology, Lab. of Eukaryote Gene Engineering, Vilnius University, Vilnius, Lithuania
Michael Ramharter, DTMH Dept of Medicine I, Div of Infectious Diseases and Tropical Medicine, University of Vienna, Vienna, Austria
Rajul Rastogi, Medical College and Research Center, Dept. of Radiodiagnosis, Teerthanker Mahaveer University, Moradabad, Pakistan
Barbara Rath, Dept. of Pediatrics, Charité - Universitätsmedizin Berlin, Berlin, Germany
Eduardo Rocha, Interdisciplinary Center for Marine and Environmental Research (CIIMAR), Universidade do Porto, Porto, Portugal
Alfonso J Rodriguez-Morales, Fac. of Health Sciences, Infectious Diseases - Tropical Diseases - Parasitic Diseases - Public Health - Epidemiology, Universidad Tecnológica de Risaralda, Pereira, Colombia
Abhay R. Satoskar, Wexner Medical Center, Dept. of Pathology and Microbiology, The Ohio State University, Columbus, USA
Jitendra Kumar Saxena, Division of Biochemistry, Central Drug Research Institute, Lucknow, Uttar Pradesh, India
Jonas Schmidt-Chanasit, Faculty of Mathematics, Informatics and Natural Sciences, Dept. of Biology, Universität Hamburg, Hamburg, Germany
Mohamed Hussain Rezvi Sheriff, Faculty of Medicine, Dept. of Clinical Medicine, University of Colombo, Colombo, Sri Lanka
Ajit Singh, College of Veterinary Science, Dept. of Immunology, Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, India
Duncan Smith, Institute of Molecular Biosciences, Molecular Pathology Lab, Mahidol University, Nakhorn Pathom, Thailand
Kabkaew L. Sukontason, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
Mohsen Tafaghodi, Sch. of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
Leon Tshilolo, Dept. of Pediatrics-Hematology, Centre Hospitalier Monkole, Mont-Ngafula, Congo
Vijaya Lakshmi Valluri, Blue Peter Public Health & Research Centre, LEPRA Society, Secunderabad, India
Luca Vannucci, Inst. of Animal Physiology and Genetics, Academy of Sciences of the Czech Republic, Prague, Czech Republic
Lee Yeong Yeh, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia
Rongxin Zhang, Laboratory of Immunology and Inflammatory diseases, Research Center of Basic Medical Sciences, Tianjin University, Tianjin, China
GUIDE FOR AUTHORS

Submission checklist
You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:
• E-mail address
• Full postal address

All necessary files have been uploaded:
Manuscript:
• Include keywords
• All figures (include relevant captions)
• All tables (including titles, description, footnotes)
• Ensure all figure and table citations in the text match the files provided
• Indicate clearly if color should be used for any figures in print
Graphical Abstracts / Highlights files (where applicable)
Supplemental files (where applicable)

Further considerations
• Manuscript has been 'spell checked' and 'grammar checked'
• All references mentioned in the Reference List are cited in the text, and vice versa
• Permission has been obtained for use of copyrighted material from other sources (including the Internet)
• A competing interests statement is provided, even if the authors have no competing interests to declare
• Journal policies detailed in this guide have been reviewed
• Referee suggestions and contact details provided, based on journal requirements

For further information, visit our Support Center.

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. If there are no conflicts of interest then please state this: 'Conflicts of interest: none'. 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.

**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.

**Open Access**

APJTM is an open access journal: all articles will be immediately and permanently free for everyone to read and download. To provide open access, Hainan Medical College charges an open access fee of USD 1980 excluding taxes (also known as an article processing charge APC) which needs to be paid by the authors or on their behalf, e.g. by their research funder or institution. Permitted third party (re)use is defined by the following Creative Commons user licenses (see http://www.elsevier.com/openaccesslicenses):

**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.

*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/apjtm/default.asp. If you have any questions, please contact editorial office at apjtm2008@aliyun.com.

PREPARATION

Peer review
This journal operates a double 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.

Article structure

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.

Introduction
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Material and methods
Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

Theory/calculation
A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.
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. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lowercase 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. **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.

**Graphical abstract**
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view [Example Graphical Abstracts](#) on our information site.

Authors can make use of Elsevier's [Illustration Services](#) to ensure the best presentation of their images and in accordance with all technical requirements.

**Highlights**
Highlights are a short collection of bullet points that convey the core findings of the article. Highlights are optional and should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point). You can view [example Highlights](#) on our information site.

**Keywords**
Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

**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.).
Math formulae
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

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.

Illustration services
Elsevier's WebShop offers Illustration Services to authors preparing to submit a manuscript but concerned about the quality of the images accompanying their article. Elsevier's expert illustrators can produce scientific, technical and medical-style images, as well as a full range of charts, tables and graphs. Image 'polishing' is also available, where our illustrators take your image(s) and improve them to a professional standard. Please visit the website to find out more.
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.

References
Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Reference links
Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is encouraged.

A DOI can be used to cite and link to electronic articles where an article is in-press and full citation details are not yet known, but the article is available online. A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. Please note the format of such citations should be in the same style as all other references in the paper.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

References in a special issue
Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

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:

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

The Journal advocates the citation of new papers; old references are better replaced with updated ones. The authors are responsible for the correctness of references. References are numbered consecutively in the order in which they appear in the text. Citations should be labeled with square bracket and should appear in front of the period or comma at the end of the sentence/clause. All references should be cited. Examples: "as demonstrated [1]. Kramer et al. have recently shown ... [2]"

Unpublished data, personal communications, abstracts at meetings and manuscripts submitted for publication are not acceptable as references. Information from such sources may be cited in the text with the sources given in parentheses. References should be listed in a numerical order in the Reference section. Journal titles should be abbreviated according to the list of Journals Indexed in Index Medicus or MEDLINE (www.nlm.nih.gov). Please note that there are no periods used after the authors' initials or journal abbreviations. A period is used at the end of each reference. The type and punctuation of references should be consistent with the Uniform Requirements for Manuscripts Submitted to Biomedical Journals of the International Committee of Medical Journal Editors (http://www.ICMJE.org/). Some examples follow.

Journal article up to six authors (list all authors):

Journal article more than six authors (list first six and add et al.):

Reference to a book:

Reference to a chapter in an edited book:

Journal abbreviations source
Journal names should be abbreviated according to the List of Title Word Abbreviations.

Video
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the files in one of our recommended file formats with a preferred maximum size of 150 MB in total. Any single file should not exceed 50 MB. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Supplementary material
Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.
**Interactive plots**
This journal enables you to show an Interactive Plot with your article by simply submitting a data file. [Full instructions.]

**AFTER ACCEPTANCE**

**Proofs**
One set of page proofs (as PDF files) will be sent by e-mail to the corresponding author (if we do not have an e-mail address then paper proofs will be sent by post) or, a link will be provided in the e-mail so that authors can download the files themselves. Elsevier now provides authors with PDF proofs which can be annotated; for this you will need to [download the free Adobe Reader](http://www.adobe.com), version 9 (or higher). Instructions on how to annotate PDF files will accompany the proofs (also given online). The exact system requirements are given at the [Adobe site](http://www.adobe.com).

If you do not wish to use the PDF annotations function, you may list the corrections (including replies to the Query Form) and return them to Elsevier in an e-mail. Please list your corrections quoting line number. If, for any reason, this is not possible, then mark the corrections and any other comments (including replies to the Query Form) on a printout of your proof and scan the pages and return via e-mail. 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. We will do everything possible to get your article published quickly and accurately. 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 be notified and receive a link to the published version of the open access article on [ScienceDirect](http://www.sciencedirect.com). This link is in the form of an article DOI link which can be shared via email and social networks. 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](http://www.elsevier.com). Authors requiring printed copies of multiple articles may use Elsevier Webshop's 'Create Your Own Book' service to collate multiple articles within a single cover.

**AUTHOR INQUIRIES**
Visit the [Elsevier Support Center](http://www.elsevier.com/support) 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](http://www.elsevier.com) or find out [when your accepted article will be published](http://www.elsevier.com).