



ISPRS JOURNAL OF PHOTOGRAMMETRY AND REMOTE SENSING

Official Publication of the [International Society for Photogrammetry and Remote Sensing](#) (ISPRS)

AUTHOR INFORMATION PACK

TABLE OF CONTENTS

●	Description	p.1
●	Audience	p.3
●	Impact Factor	p.3
●	Abstracting and Indexing	p.3
●	Editorial Board	p.3
●	Guide for Authors	p.6



ISSN: 0924-2716

DESCRIPTION

The *ISPRS Journal of Photogrammetry and Remote Sensing* (P&RS) is the official journal of the [International Society for Photogrammetry and Remote Sensing](#) (ISPRS). The Journal provides a channel of communication for scientists and professionals in all countries working in the many disciplines that employ **photogrammetry, remote sensing, spatial information systems, computer vision**, and related fields. The Journal is designed to serve as a source reference and archive of advancements in these disciplines.

The *P&RS* objective is to publish high quality, peer-reviewed, preferably previously unpublished papers of a scientific/research, technological development or application/practical nature. *P&RS* will publish papers, including those based on ISPRS meeting presentations*, which are regarded as significant contributions in the above-mentioned fields. We especially encourage papers: of broad scientific interest; on innovative applications, particularly in new fields; of an interdisciplinary nature; on topics that have not been dealt with (or to a small degree) by *P&RS* or related journals; and on topics related to new possible scientific/professional directions. Preferably, theoretical papers should include applications, and papers dealing with systems and applications should include theoretical background.

The scope of the journal is extensive and covers sensors, theory and algorithms, systems, experiments, developments and applications. Topics of interest include but are not limited to:

Sensors

- Airborne and spaceborne multispectral and hyperspectral imaging systems
- Airborne and terrestrial cameras
- Airborne, terrestrial and mobile laser scanning
- Range imaging
- Active and passive imaging sensor characterisation
- Sensor calibration and standardisation
- Geosensor networks
- Internet of Things

Methods and procedures

- Spatial data handling technologies
- Integrated sensor calibration and orientation
- Surface and object reconstruction, modelling and interpretation

- GIS data modelling, representation and structures
- Database systems
- Mapping from imagery
- Visualisation, animation and virtual reality
- Physical measurements and spectral signatures
- Point cloud processing
- Extraction of geometric and semantic information from SAR
- SAR Interferometry
- Image classification algorithms
- Image segmentation and GEOBIA
- Image time series analysis
- Hyperspectral data analysis
- Big image data analysis
- Crowd sourcing
- Feature extraction

Applications and products

- 3D urban GIS
- Close-range imaging and metrology
- Architectural & archaeological photogrammetry
- Determination of forest metrics
- Medical image analysis and biometry
- Resource and environmental modelling
- Global monitoring and assessment
- Thematic applications
- DTM and orthoimage generation
- Location based services

Submitted articles may be:

- Papers (detailed discussions involving new research, technological developments or applications);
- Review Papers (extensive state-of-the-art surveys of established or emerging topics or application areas);
- Tutorial Papers (on new topics, sufficiently broad themes, at an introductory to intermediate level and easy to understand, with main aim education and training); or
- Contributions for special Journal columns (letters to the Editor about the journal or to authors commenting on previously published papers; new useful ideas and brief pertinent comments of a technical nature; editorials, mainly after an invitation by the Editorial Advisory Board).

NOTE: All articles, except correspondence, will be peer-reviewed and should be of high scientific level.

* Journal paper submissions based on past conference publications are only allowed if the submitted manuscript is significantly extended or otherwise enhanced. That is, the journal article will only be considered if more extensive experiments and discussion are presented (even if the same methods are used) and/or the methods have been significantly improved and/or advanced (even if the same datasets have been used). The burden of explicitly describing the differences between these publications rests with the author(s). In case of a strong overlap with another publication, the manuscript should be rejected.

P&RS issues may be devoted to specific scientific topics of high or increasing importance (Theme Issues), especially in relation to one or more ISPRS Working Groups, as well as to special events, geographic regions, professional activities etc. The number and topics of Theme Issues will be such that the *P&RS* still remains of interest to the majority of its subscribers.

For more details on the International Society for Photogrammetry and Remote Sensing, visit <http://www.isprs.org>.

AUDIENCE

Scientists, engineers, researchers, developers and practitioners in Photogrammetry, Remote Sensing, Spatial Information Systems, Computer Vision, as well as in related areas of application, such as Geodesy, Surveying, Cartography, Geography, Natural, Earth, Engineering and Information Sciences, Environmental Monitoring and Protection, Industrial Design and Manufacturing, Medicine, Architecture and Monument Preservation, Archaeology and other areas.

IMPACT FACTOR

2016: 6.387 © Clarivate Analytics Journal Citation Reports 2017

ABSTRACTING AND INDEXING

GeoSciTech
ASI/Geo-Sci Tech
AGI's Bibliography and Index of Geology
Current Contents/Engineering, Computing & Technology
Engineering Village - GEOBASE
ITC Journal
PASCAL/CNRS
INSPEC
Research Alert Direct
Photogrammetric Record
Cambridge Scientific Abstracts
Scopus
GEOLINE
Engineering Index

EDITORIAL BOARD

Editor-in-Chief:

D. Lichti, University of Calgary, Alberta, Canada

Laser scanning, photogrammetry, range imaging, sensor modelling and calibration, point cloud processing

Q. Weng, Indiana State University, Terre Haute, Indiana, USA

Associate Editors:

G. Chen, University of North Carolina at Charlotte, Charlotte, North Carolina, USA

Geographic object-based image analysis, LiDAR, Hyperspectral imaging, Forest environmental management, Human-environment interaction

C.M. de Almeida, National Institute for Space Research, Sao Jose dos Campos, Brazil

J. Gao, University of Auckland, Auckland, New Zealand

M. Gerke, Technische Universität Braunschweig, Braunschweig, Germany

Image orientation, Semantic scene analysis, Unmanned aerial vehicles, Oblique airborne Photogrammetry, Damage mapping

S. Kaasalainen, Finnish Geospatial Research Institute - FGI, Masala, Finland

R.C. Lindenbergh, Delft University of Technology, Delft, Netherlands

Laser scanning, Spatial point clouds, Interpolation techniques, ICESat, Geometry extraction

H.-G. Maas, TU Dresden, Dresden, Germany

C. Mallet, Institut National de l'Information Géographique et Forestière (IGN), Saint-Mande, France

Classification; Segmentation; Point cloud processing; Land-cover mapping; Very High Resolution; LiDAR

B. Matsushita, University of Tsukuba, Tsukuba, Ibaraki, Japan

Geosciences, Water environment, Case-2 waters, Impervious surface area, Watershed, Algorithm

X. Miao, Missouri State University, Springfield, Missouri, USA

G. Mountrakis, State University of New York (SUNY), Syracuse, New York, USA

O. Mutanga, University of KwaZulu-Natal (UKZN), Berea, South Africa

V. Sagan, Saint Louis University, Saint Louis, Missouri, USA

M. Scaioni, Politecnico di Milano, Milan, Italy

K. Schindler, Eidgenössische Technische Hochschule (ETH) Zürich, Zurich, Switzerland
U. Sörgel, Universität Stuttgart, Stuttgart, Germany
D. Tuia, Wageningen Universiteit, Wageningen, Netherlands

Editorial Advisory Board:

E.M. Abdel-Rahman, International Center for Insect Physiology and Ecology (ICIPE), Nairobi, Kenya
Agriculture, Machine learning, Multispectral, Hyperspectral, Classification, Prediction
D. Akça, ISIK University, Istanbul, Turkey
Photogrammetry, Laser scanning, Camera calibration, 3D modelling.
P. Aplin, Edge Hill University, Ormskirk, UK
K.-H. Bae, Fugro Spatial Solutions, West Perth, Western Australia, Australia
Laser Scanning, Photogrammetry, 3D point clouds, Registration, 3D uncertainty and deformation analysis
M. Belgiu, University of Twente, Enschede, Netherlands
A. Bhardwaj, Luleå University of Technology, Luleå, Sweden
L. Bian, University at Buffalo, Buffalo, New York, USA
GIScience, Public health, Network analysis, Image retrieval
T. Blaschke, Universität Salzburg, Salzburg, Austria
GIS-remote sensing integration, Object Based Image Analysis, Collective Sensing, Urban Sensing, Environmental Applications, Quality of Life
M. Bouziani, Institut Agronomique et Vétérinaire (IAV) Hassan II, Rabat, Morocco
Image processing, Change detection, Urban environment, Machine learning, Global navigation satellite systems (GNSS)
C. Brenner, Leibniz Universität Hannover, Hannover, Germany
LiDAR, Mobile mapping, Segmentation, Object reconstruction, Scene interpretation
J. Chen, National Geomatics Center of China (NGCC), Beijing, China
M. Crosetto, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Catalunya, Spain
Radar, SAR, Ground-based radar, Remote sensing, Terrestrial laser scanning, Deformation monitoring
C.S. Fraser, University of Melbourne, Victoria, Australia
Close-range photogrammetry, Vision metrology, Automation in orientation and scene reconstruction, Metric aspects of high-resolution satellite imagery, Analytics of photogrammetry
P. Gamba, Università degli Studi di Pavia, Pavia, Italy
Hyperspectral data processing, Data fusion, Urban remote sensing
C. Glennie, University of Houston, Houston, Texas, USA
E. Gülch, Universität Stuttgart, Stuttgart, Germany
J. Han, Northwestern Polytechnical University, Xi'an, China
Remote sensing image analysis; Computer vision; Machine learning; Feature extraction
Y. He, University of Toronto Mississauga, Mississauga, Ontario, Canada
Remote sensing techniques, Spatial analysis, Climate data, Ecosystem modelling
O. Hellwich, Technische Universität Berlin (TUB), Berlin, Germany
S. Hinz, Karlsruhe Institute of Technology (KIT)
M. Hollaus, Technische Universität Wien, Vienna, Austria
J. Im, Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea
K. Jacobsen, Leibniz Universität Hannover, Hannover, Germany
Numerical photogrammetry, Orientation and geometry of aerial and space images, Generation and analysis of digital elevation models, Mapping from space
I. Korpela, University of Helsinki, Helsinki, Finland
N. Koutsias, University of Patras, Agrinio, Greece
Remote sensing of wildland fires, Burned land mapping, Change detection, Multivariate data analysis, Spatial statistics, Land use/land cover
L. Kumar, University of New England, Armidale, New South Wales, Australia
D. Laefer, New York University, New York, New York, USA
Urban sensing; Laser scanning; Full waveform laser scanning; Data fusion; 3D urban modeling; Point cloud processing, Photogrammetry; Indexing; Spatial databases
P. Li, Peking University, Beijing, China
S. Li, Ryerson University, Toronto, Ontario, Canada
GIS, GeoCollaboration, GeoWeb, 3D environment, Moving Objects, Smart Cities
M. McGuire, Towson University, Maryland, USA
R.E. McRoberts, U.S. Forest Service, St. Paul, Minnesota, USA
X. Niu, Troy University, Troy, Alabama, USA
A. Ramoelo, Council for Scientific and Industrial Research (CSIR), Pretoria, South Africa
Vegetation assessment, Rangeland assessment, Leaf nitrogen, Herbaceous biomass, Multiscale remote sensing, Hyperspectral
F. Remondino, Fondazione Bruno Kessler, Trento, Italy

Photogrammetry, 3D imaging, Oblique cameras, Vision metrology
M. Shortis, RMIT University, Melbourne, Australia
Close-range photogrammetry, Camera calibration, Underwater photogrammetry, Photogrammetric network adjustment, Optical metrology
C. Song, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA
Remote sensing of Vegetation, Land-Use/Land Cover Change, Terrestrial Ecosystem Productivity, Terrestrial Ecosystem Evapotranspiration, Forest Ecosystems, Urban Ecosystems, Leaf Area Index, Vegetation Canopy Structure
K. Tan, China University of Mining and Technology, Xuzhou, China
P.S. Thenkabail, U.S. Geological Survey USGS, Flagstaff, Arizona, USA
M.G. Vosselman, University of Twente, Enschede, Netherlands
Photogrammetry, Laser scanning, Point cloud processing, 3D geo-information
W. Wagner, Technische Universität Wien, Vienna, Austria
Scatterometry, SAR, Full-waveform laser scanning, Soil moisture, Biomass
J. Wang, Washington University in St. Louis, St. Louis, Missouri, USA
Y.Q. Wang, University of Rhode Island, Kingston, Rhode Island, USA
J.D. Wegner, ETH Zürich, Zurich, Switzerland
Geospatial computer vision, Photogrammetry, Remote Sensing, Large-Scale Machine Learning, Deep Convolutional Neural Networks
C. Witharana, Stony Brook University, Stony Brook, New York, USA
Object-based image analysis, Image segmentation, Data fusion, Image classification, GIScience, Feature extraction
B. Wu, The Hong Kong Polytechnic University, Kowloon, Hong Kong
Photogrammetry; Planetary mapping; Image matching; Data fusion
G. Xian, U.S. Geological Survey (USGS), Sioux Falls, South Dakota, USA
Z. Xie, Florida Atlantic University, Boca Raton, Florida, USA
B. Xu, Tsinghua University, Beijing, China
B. Yang, Wuhan University, Wuhan Hubei, China
Laser Scanning, Mobile Mapping, Point Clouds Processing, 3D Scene Analysis, Feature Extraction

GUIDE FOR AUTHORS

Your Paper Your Way

We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article.

To find out more, please visit the Preparation section below.

INTRODUCTION

Official Publication of the International Society for Photogrammetry and Remote Sensing (ISPRS)
<http://www.isprs.org>.

Types of paper

Submitted articles may be: Papers (detailed discussions involving new research, technological developments or applications) Review Papers (extensive state-of-the-art surveys of established or emerging topics or application areas) Tutorial Papers (on new topics, sufficiently broad themes, at an introductory to intermediate level and easy to understand, with main aim education and training) Contributions for special Journal columns (letters to the Editor about the journal or to authors commenting on previously published papers; new useful ideas and brief pertinent comments of a technical nature; editorials, mainly after an invitation by the Editorial Advisory Board)

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. 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, a published lecture or academic thesis, see '[Multiple, redundant or concurrent publication](#)' 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 [Crossref Similarity Check](#).

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 2500**, excluding taxes. Learn more about Elsevier's pricing policy: <https://www.elsevier.com/openaccesspricing>. There is a **15%** discount off the open access publication fee for members of the **ISPRS**.

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.

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.

PREPARATION

NEW SUBMISSIONS

Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your files to a single PDF file, which is used in the peer-review process.

As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or layout that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

References

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Zhu, Z., Woodcock, C.E., 2012. Object-based cloud and cloud shadow detection in Landsat imagery. *Remote Sens. Environ.* 118, 83-94.

Zhu, Z., Woodcock, C.E., Rogan, J., Kellndorfer, J., 2012. Assessment of spectral, polarimetric, temporal, and spatial dimensions for urban and peri-urban land cover classification using Landsat and SAR data. *Remote Sens. Environ.* 117, 72-82.

Formatting requirements

There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.

If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.

Divide the article into clearly defined sections.

Figures and tables embedded in text

Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

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.](#)

REVISED SUBMISSIONS

Use of wordprocessing software

It is important that the file be saved in the native format of the wordprocessor 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 wordprocessor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. Do not embed "graphically designed" equations or tables, but prepare these using the wordprocessor's facility. 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: <http://www.elsevier.com/guidepublication>). See also the section on Electronic illustrations.

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

Use of word processing software

Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the [Guide to Publishing with Elsevier](#)). 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.

LaTeX

You are recommended to use the Elsevier article class [elsarticle.cls](#) to prepare your manuscript and [BibTeX](#) to generate your bibliography.

Our [LaTeX site](#) has detailed submission instructions, templates and other information.

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 details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also 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. 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.

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.

Data profile

This journal encourages authors to submit a Data Profile with their article. The Data Profile is a structured summary of the data that have been used for the research described in the article, including brief descriptions and hyperlinks to data sets where applicable. It is displayed with the online (HTML) article on ScienceDirect to allow readers easy access to underlying data sets. With the Data Profile, Elsevier supports authors to make their publications more transparent, reproducible, and of greater utility for their readers. For more information, please visit <http://www.elsevier.com/dataprofile>.

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.).

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.

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 build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of footnotes in the text and present the footnotes themselves separately at the end of the article.

Artwork

Electronic artwork

General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Indicate per figure if it is a single, 1.5 or 2-column fitting image.
- For Word submissions only, you may still provide figures and their captions, and tables within a single file at the revision stage.
- Please note that individual figure files larger than 10 MB must be provided in separate source files. 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

Regardless of the application used, 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 the font or save the text as 'graphics'.

TIFF (or JPG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.

TIFF (or JPG): Bitmapped line drawings: use a minimum of 1000 dpi.

TIFF (or JPG): Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

Please do not:

- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); the resolution is too low.
- 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. 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.

Text graphics

Text graphics may be embedded in the text at the appropriate position. If you are working with LaTeX and have such features embedded in the text, these can be left. See further under Electronic artwork.

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.

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.

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. This identifier will not appear in your published article.

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. Mendeley Data, v1. <http://dx.doi.org/10.17632/xwj98nb39r.1>.

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:

<http://open.mendeley.com/use-citation-style/isprs-journal-of-photogrammetry-and-remote-sensing>

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

Reference formatting

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Zhu, Z., Woodcock, C.E., 2012. Object-based cloud and cloud shadow detection in Landsat imagery. *Remote Sens. Environ.* 118, 8394.

Zhu, Z., Woodcock, C.E., Rogan, J., Kellndorfer, J., 2012. Assessment of spectral, polarimetric, temporal, and spatial dimensions for urban and peri-urban land cover classification using Landsat and SAR data. *Remote Sens. Environ.* 117, 7282.

Reference style

Text: All citations in the text should refer to:

1. *Single author:* the author's name (without initials, unless there is ambiguity) and the year of publication;
 2. *Two authors:* both authors' names and the year of publication;
 3. *Three or more authors:* first author's name followed by "et al." and the year of publication.
- Citations may be made directly (or parenthetically). Groups of references should be listed first alphabetically, then chronologically.

Examples:

Reference to a journal publication:

Lee, C., Bethel, J.S., 2004. Extraction, modelling, and use of linear features for restitution of airborne hyperspectral imagery. *ISPRS Journal of Photogrammetry and Remote Sensing* 58 (5-6), 289-300.

Reference to a book:

Lillesand, T.M., Kiefer, R.W., 2000. *Remote Sensing and Image Interpretation*, fourth ed. John Wiley & Sons Inc., New York.

Reference to a chapter in an edited book:

Förstner, W., Wrobel, B., 2004. Mathematical concepts in photogrammetry. In: McGlone, J.C., Mikhail, E.M., Bethel, J., Mullen, R. (Eds.), *Manual of Photogrammetry*, fifth ed. American Society of Photogrammetry and Remote Sensing, Bethesda, MA, pp. 15-180.

Reference to a publication in the International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences:

Habib, A., Shin, S.W., Morgan, M., 2002. Automatic pose estimation of imagery using free-form control linear features. *International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences* 34 (Part 3A), 150-155.

If the publication is on CD-ROM only, replace page number by the text "(on CD-ROM)".

Reference to a publication in the ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences:

Belton, D., Moncrieff, S., Chapman, J., 2013. Processing tree point clouds using Gaussian mixture models. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 2 (5/W2), 43-48.

If the publication is on CD-ROM only, replace page number by the text "(on CD-ROM)".

References to a conference publication:

Grodecki, J., 2001. Ikonos stereo feature extraction - RPC approach. Proc. ASPRS Annual Conference, St. Louis, 23-27 April. 7 p. (on CDROM).

Shenkelaars, V.F., Egenhofer, M.J., 1997. Exploratory access to digital geographic libraries. In: editors (Eds.), Proc. 13th International Symposium on Computer Assisted Cartography (Autocarto 13), ACSM/ ASPRS, Seattle, WA, 5-10 April, pp. 297-306.

Reference to a website:

Streetmapper, 2006. StreetMapper Mobile Mapping Using Lidar, <http://www.streetmapper.net>. (Accessed 23 November, 2006)

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 file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. 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.

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.

Data visualization

Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions [here](#) to find out about available data visualization options and how to include them with your article.

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.

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 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](#).

AFTER ACCEPTANCE

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 2018 Elsevier | <https://www.elsevier.com>