



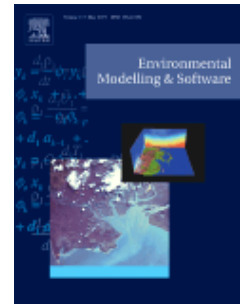
ENVIRONMENTAL MODELLING & SOFTWARE

Official Journal of the International Environmental Modelling & Software Society

AUTHOR INFORMATION PACK

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DESCRIPTION

Environmental Modelling & Software publishes contributions, in the form of research articles, reviews and short communications, on recent advances in **environmental modelling** and/or **software**. The aim is to improve our capacity to represent, understand, predict or manage the behaviour of **environmental systems** at all practical scales, and to communicate those improvements to a wide scientific and professional audience.

It seeks presentation of:

- Generic frameworks, techniques and issues which either integrate a range of disciplines and sectors or apply across a range
- **Model development**, model evaluation, process identification and applications in diverse sectors of the environment (as outlined below) provided they reveal insights and contribute to the store of knowledge. Insights can relate to the generality and limitations of the modelling, methods, the model application and/or the systems modelled. Insights should be ones that are generalizable in some way and are likely to be of interest to those studying other systems and, preferably, other system types.
- Development and application of **environmental software**, information and decision support systems
- Real-world applications of software technologies - particularly state-of-the-art environmental software able to deal with complex requirements, conflicting user perspectives, and/or evolving data structures. Aspects related to software usability, reliability, verification and validation should be backed up with quantitative results as much as possible. Development and maintenance costs, and adoption and penetration of the software in the target user groups should be addressed. Licensing issues and open source access should be clearly specified.
- Issues and methods related to the integrated modeling, assessment and management of environmental systems - including relevant policy and institutional analysis, public participation principles and methods, decision making methods, model integration, quality assurance and evaluation of models, data and procedures.

Authors must specify clearly the objectives of their models and/or software, and report on the essential steps that were used in their development, normally including the rationale for the type of approach selected and substantial testing and evaluation of it - comparisons with alternative approaches and methods are encouraged. The purpose of this specification, evaluation and reporting is to convey the rigour and credibility of the work and therefore its potential to contribute to knowledge acquisition. To this latter end, authors are expected to briefly review and cite the historical progress made for their problem and clearly show how their work adds value to the literature.

The journal encourages [submission](#) of Short Communications of less than 3,000 words. For these and the regular papers, supplementary material such as software demonstrations, model simulations and additional performance tests, can be posted in electronic form and commented upon by users.

Authors are invited to submit relevant contributions in the following areas:

- Generic and pervasive frameworks, techniques and issues - including system identification theory and practice, model conception, model integration, model and/or software evaluation, sensitivity and uncertainty assessment, visualization, scale and regionalization issues.
- Integrated assessment and management of systems (river basins, regions etc.) for enhancing sustainability outcomes - including linked socioeconomic and biophysical models that may be developed with stakeholders for understanding systems, communication and learning, and improving system outcomes.
- Artificial Intelligence (AI) techniques and systems, such as knowledge-based systems / expert systems, case-based reasoning systems, data mining, multi-agent systems, Bayesian networks, artificial neural networks, fuzzy logic, or knowledge elicitation and knowledge acquisition methods.
- Decision support systems and environmental information systems- implementation and use of environmental data and models to support all phases and aspects of decision making, in particular supporting group and participatory decision making processes. Intelligent Environmental Decision Support Systems can include qualitative, quantitative, mathematical, statistical, AI models and meta-models.
- Process-identification of environmental dynamics for instance of surface and subsurface hydrology, limnology, meteorology, geophysics with special respect to the interaction of anthroposphere and biosphere.
- GIS, remote sensing and image processing

These methodological developments should be illustrated with applications in the environmental fields, e.g.

- Resource management including water, land, biological, transport systems
- Pollution of different media such as air, water, soil, noise, radiation, as well as multimedia problems
- Global pollution and global climate change
- Regional studies of resource consumption and/or nature conservation in open landscapes as well as in urban regions
- Environmental accidents, prevention and emergency response - resilience, vulnerability, self-repair, damage limitation, and security in infrastructures
- Environmental engineering and technology

Environmental Modelling and Software welcomes review articles on the topics above, especially ones that relate to generic modelling and/or software issues, or are cross-disciplinary in their problem treatment.

Potential authors of review articles should contact either Dr Jakeman or Dr Rizzoli to discuss the topic and coverage of their review. The journal has also published several Position Papers on key topics within its aims and scope at <http://www.iemss.org/society/index.php/position-papers>

Introductory Overviews are designed to provide a concise topic overview that caters to the eclectic readership of EMS. These articles aim to break down barriers to shared understanding and dialogue within multidisciplinary teams, and to make environmental modelling dimensions more accessible to a wider audience. Introductory Overviews include an introduction to the fundamentals of the topic and reference to key literature. Relevant concepts are presented in relatively simple terms, but with the audience assumed to have some basic knowledge of environmental modelling and mathematics. These articles are not intended to be comprehensive reviews but non-technical primers on essential modelling concepts. Introductory Overviews are peer reviewed and are by invitation only; ideas for Introductory Overviews can however be canvassed with any of the Editors.

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INTRODUCTION EMS

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1. Scope - the Topic and treatment should be within the scope of the journal. See the Journal Description to learn more about the journal scope-including out-of-scope topics.
2. Presentation, Structure, and Grammar - manuscripts may need to be edited by a professional or native English speaker before submission.
3. Citations and References - Citations in the text should be included in the Reference list and each reference in the list should be complete in detail and style.
4. Literature Review - Adequate coverage of the literature through the references, especially more recent articles, including those in Environmental Modelling and Software.
5. Equations - The mathematics should be clear and all variables explained/defined.
6. Figures and Tables - Figures and tables should be of good quality and must be embedded in-line in the text to facilitate readability. Text on figures must be legible.
7. Software and Data Availability - A key feature of EMS articles is the Software and Data Availability Section. Please include all required elements as described in the Author Guide. "Contact the authors" is not acceptable for software or data availability.

After initial review, submissions are generally passed to a board member who will handle the review process including inviting reviewers, collecting reviews, and making a decision recommendation. Please be patient during the review process as it can take a few months. Potential review outcomes include accept, reject, and various levels of revision.

Once a paper is accepted, the manuscript is passed to the publisher who finalizes the process directly with the author. All decisions of the editorial board should be considered final. Recognizing that there are many alternative journals where related work can be published, and out of respect for the contributed time of the editors and reviewers, please don't argue with editors about their decisions.

Types of paper

Types of Contributions: Research articles, review papers, position papers, introductory overviews, commentaries, and book reviews.

Research articles are archival, high quality research contributions that improve the state of the art on topics treated by the journal. The work reported needs to be technically sound and sufficiently unique. The mathematical or algorithmic foundations of models or software must be properly documented. It is important to report on model or software performance against data and other considerations, and the relevance to user needs. This is the most common article type in EMS.

Review papers provide an extensive overview of recent developments in specific areas that fall within the scope of the journal. They are expected to have an extensive literature review followed by an in- depth analysis of the state of the art, and identify challenges for future research. Clear description of the literature review methods and data sources must be properly documented. Use of quantitative data analysis methods, to strengthen the review and distill novel insights, is encouraged.

Position papers aim to synthesize some key aspect of one area of environmental modelling and/or software research while establishing potential future directions, grand challenges, and research opportunities.

Introductory Overviews are designed to provide a concise topic overview with the aim to break down barriers to shared understanding and dialogue within multidisciplinary teams, and to make environmental modelling dimensions more accessible to a wider audience. Introductory Overviews

include an introduction to the fundamentals of the topic and reference to key literature. These articles are not intended to be comprehensive reviews but non-technical primers on essential modelling concepts.

Commentaries are short articles commenting on previously published work in Environmental Modelling and Software on topics of interest to the wide readership.

Book reviews are short articles that introduce new books in the areas relevant for the journal audience. In particular, we are interested in covering books that can be used for teaching environmental modelling and software topics.

Note: *Please discuss your submission with the Editor-in-Chief to assess potential fit for the journal before submitting any article aside from a standard research article. This also allows the board to prepare for unique peer review needs.*

BEFORE YOU BEGIN

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Title, Authors, Affiliations and Contact details Abstract Keywords Software and/or data availability Introduction Methods Results Discussion Conclusions Acknowledgements References Appendices

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Most EMS papers should include a software/data availability section containing as much of the following information as possible: name of software or dataset, developer and contact information, year first available, hardware required, software required, availability and cost. Also for software: program language, program size; for data: form of repository (database, files, spreadsheet), size

of archive, access form. Note that "Contact the author" is not acceptable for software or data access. Please use online data and software storage and retrieval systems such as GitHub, BitBucket, FigShare, HydroShare or others to make your data and software readily available. Links to commercial software and data access web sites are also acceptable.

When a software component is an essential part of the paper, authors should be prepared to make it available to reviewers during the review process. To preserve the anonymity of reviewers, the authors should make the software available for a download, protecting it if needed by a password that is communicated to the editors.

Introduction

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

Methods (not "methodology")

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. In the case of software papers, the Methods section should include the software design as well as the experimental design for testing the software.

Results

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