

Author guidelines for compendium of scientific articles

FOREST ECOSYSTEMS UNDER CLIMATE CHANGE: BIOLOGICAL PRODUCTIVITY AND REMOTE MONITORING

Manuscripts submitted to the compendium should neither be published previously nor be under consideration for publication in another conference proceeding/journal. The submitting author must ensure that all co-authors have been included in the author list and that they have all read and approved the submitted version of the manuscript.

Manuscripts should be up to 20 pages with all the applications (text, figures, list of references, etc.). The text of the article should be submitted in Microsoft Word. Use the following page setup: Paper size - A4. Orientation - portrait. Margins: top – 25 mm, bottom – 20 mm, left and right – 20 mm.

The **section** name should be printed in Times New Roman 12, bold, single spacing, aligned to the left and separated from the previous section by a blank line. The *subsection* name should be printed in Times New Roman 12, italics, single spacing, aligned to the left and separated from the previous section by a blank line. The numbering of sections and subsections is at the request of author.

General info:

The manuscript should contain the required sections:

Front page: Title, Author list, Affiliations, Abstract, Keywords.

Research part: Introduction, Main objective and tasks, Object/Location of research (if applicable), Materials and methods; Results and discussion, Conclusions.

Back matter: Acknowledgements, References.

Abbreviations should be defined in parentheses the first time they appear in the abstract, main text, and in figure or table captions and used consistently thereafter.

Equations: Please use either the Microsoft Equation Editor or the MathType add-on. Equations should be editable by the editorial office and not appear in a picture format.

Front page

Title. The title of the article should be concise and printed in small letters, font Times New Roman 12, bold, single spacing; centered. It is advisable not to use abbreviations (except common ones, such as the names of satellites or indices: MODIS, NDVI, etc.).

Authors and affiliations. First initials and family names must be provided. Font Times New Roman 12, single spacing, centered. If all authors of the article work or study in the same institution, it is not necessary to specify separately the place of work of each author. If authors have different affiliations, after the last names it is necessary to put 1, 2, 3 in superscript. Skip an empty line before authors names.

Abstract. The abstract of the article should be in Times New Roman 11, italics, single spacing, aligned. Before the abstract it should be missed an empty line. The abstract should be informative (not contain general words), should reflect the main content of article and results of research, follow the logic of results description in article. It should be compact but not short, in the range of 200 to 250 words.

Keywords. Six to ten pertinent keywords need to be added and printed in Times New Roman 11, italics, single spacing, aligned. The word "**Keywords:**" is written before the list of words in bold italics. Before the keywords an empty line should be missed.

Research part

The text is in Times New Roman 12 normal, line spacing 1.15, aligned. Each paragraph begins with a red line. Indentation - 0,53 cm.

Introduction. The introduction should briefly place the study in a broad context and highlight why it is important. The current state of the research field should be reviewed carefully and key publications cited. It should define the purpose and tasks of the work and its significance.

Study area/Location. Description of the research area should be provided with maps and geographical information of the territory.

Materials and Methods. This part of the manuscript should be described in detail, especially new methods and programs, and appropriately cited.

Results and discussion. Provide precise description and discussion of the research results, their interpretation as well as the experimental conclusions that can be drawn.

Conclusions. Should include precise, concise and quantitative statements about the significance of the study, highlight any new findings, and explain how the work could be extended in the future.

Table design. Number of table is printed in Times New Roman 10 normal, single spacing, aligned to the right and separated from the previous text by a blank line. Title of table is printed in Times New Roman 10, bold, single spacing, centered. The text inside the tables is printed in Times New Roman 10, single spacing, centered. Reference to the table is made in the text as follows: (table 1).

Table 1. **Table design rules**

Type of text	Font	Size	Line spacing	Alignment
Table name	Times New Roman	10 (or less depending on content)	Single	In the center

Figures should be with good resolution (at least 300 dpi) and clarity in jpg format. Figures can be both color and black-and-white. The figure caption is in Times New Roman 10, bold, single spacing, centered. The point in the end of the figure caption is not assigned. Reference to the figure is made in the text as follows: (fig. 1).

Figure 1. Landsat 8 satellite images used in the study

Figures are included in file of article text, as well as made out in separate graphic files (a separate file for each figure). The image files should be named in such a way that it is clear to which manuscript they belong to and in what order (eg., Ivanov_fig1.jpg).

Mathematical formulas. The known and borrowed formulas should be brought into a final form, and, if necessary, with reference to the literature. You should number only those formulas, which in the future are referenced in the text. The brief and simple formulas are written in a string in the text. Numbers of formulas should be right-aligned string in parentheses. Mathematical formulas, made out by a separate line, must be typed in the frame "Word Formula" or math Type editor entirely.

Back matter

Acknowledgements. Any support given which is not covered by the author contribution or funding sections might be acknowledged. The text of acknowledgement is located at the end of the

article before the bibliography, printed in Times New Roman font 11 bold, italic, line spacing 1.15, it is aligned to the width without indentation and separated from the previous text by blank line.

References. A comprehensive list of references must be included and listed individually at the end of the manuscript. The citations in the text are given in parentheses, indicating the author's surname and year of publication. If it is more than three authors, then you should indicate the first author and write "et al."; for example, (Sidorov et al., 2010) or (Ivanov, Sidorov, 2009).

The list of cited literature is placed in the section "References" in alphabetical order, which is located after the text of the article and acknowledgement. Bibliographic list is printed in Times New Roman 10, single spacing, aligned across the width of the page. Bibliographic list is numbered and given in alphabetical order. The description of article lists up to 6 of its authors, followed by the expression "et al.". References should be numbered. Examples of literature design:

Journal Articles:

1. Author1 A.B., Author2 C.D. Title of the article. *Abbreviated Journal Name*, **Year**, *Volume*, page range. DOI

Books and Book Chapters:

2. Author1 A., Author2 B. *Book Title*, 3rd ed.; Publisher: Publisher Location, Country, Year; pp. 154–196. DOI

3. Author1 A., Author2 B. Title of the chapter. In *Book Title*, 2nd ed.; Editor 1 A., Editor 2 B., Eds.; Publisher: Publisher Location, Country, Year; Volume 3, pp. 154–196. DOI

Conference Proceedings:

7. Author1 A.B., Author2 C.D., Author3 E.F. Title of Presentation. In *Title of the Collected Work* (if available), Proceedings of the Name of the Conference, Location of Conference, Country, Date of Conference; Editor 1, Editor 2, Eds. (if available); Publisher: City, Country, Year (if available); Abstract Number (optional), Pagination (optional). DOI (optional)

Thesis:

8. Author1 A.B. Title of Thesis. Level of Thesis, Degree-Granting University, Location of University, Date of Completion.

Websites:

9. Title of Site. Available online: URL (accessed on Day Month Year).

Example

MONITORING OF REFORESTATION ON ABANDONED AGRICULTURAL LANDS IN REPUBLIC MARI EL USING LANDSAT-8 IMAGES

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The article presents the investigation results of abandoned agricultural lands, overgrown by tree species, using satellite Landsat 8 images. The satellite data usage in similar researches is a priority, as the modern technology development allows evaluating large areas at the minimum financial and labor efforts. The multi-temporal images of medium and high resolution, various vegetation indexes and other approaches are used to investigate the former agricultural lands. It has been established that the use of spring images in combination of spectral channels 6, 5 and 2 of Landsat-8 is optimal for estimation of overgrowing of abandoned

agricultural lands of the Mari El Republic. In this particular combination the young stands of tree species have good spectral separation from the agricultural areas without the use of additional transformations. The Kappa coefficient, having a value from 0.66 to 0.67 for spring images, indicates a good consistency of thematic maps and field data. Analysis of thematic maps, obtained in the research, showed that by its spectral characteristics the coniferous young stands are well allocated on former agricultural lands (mixing of classes is only 3.9%), and deciduous saplings, conversely, are more susceptible to mixing both with of coniferous young stands and agricultural crops, which is reflected in the mixing of classes on 29,25%. The reason is that the herbaceous vegetation on spring Landsat images is covered with snow cover or it has spectral characteristics that are significantly different from woody vegetation. In addition, during the spring period in Mari El there are many plots where herbaceous vegetation is absent because of the autumn plowing.

Keywords: *abandoned agricultural lands, satellite images, remote sensing, GIS, accuracy assessment, Landsat.*

Introduction

Climate Change (IPCC, 2003) is one of the main drivers of changes in mountain ecosystems and in their related services provision, being more vulnerable than others to the changes in temperature and precipitation (Ivanov, Sidorov, 2019; Petrov et al., 2018). The upper shift of species and consequently their adaptation to changes is limited by the long-time span of trees that cannot react quickly to the changes and the limitation of their altitudinal range (Ivanov et al., 2020).

This paper **aims** to present summarized information on research capacities in the area of sustainable forest management in Russia and EaP countries based on mapping the capacities of organizations, carrying out forest research and analyzing the results of this mapping as well as to characterize identified common research priorities between EU and mentioned countries in this field.

The study area identified for this modelling work covers the main towns Klerksdorp, Orkney, Stilfontein and Hartebeestfontein of North West Province of South Africa. The KOSH region is located approximately 160 km southwest of Johannesburg (fig. 1). The Vaal River flows through the south-eastern part of the KOSH region. The majority of the KOSH area has a sandy loam soil texture with an undulating relief, whereas the relief of the region south of Orkney is flat (table 1).

Materials and Method

The pre-processing of the IKONOS and Landsat satellite images included radiometric calibration and atmospheric correction. The radiometric calibration was performed through the conversion of the pixel values from digital numbers (DN) to radiance values and, subsequently, to top of atmosphere (TOA) reflectance values. Next, the histogram subtraction method (Sidorov, 2016; Loboda et., 2017) was employed in order to atmospherically correct the satellite data.

Demand curve approaches. These approaches are used whenever the assessment in market values is not applicable and when relevant non-market prices are influencing the TEV of forest ES. The main idea of this set of approaches is to estimate the value of forest ES through...

Results and discussion

The results obtained from this hydrologic modelling for four different scenarios are shown in figure 5 and summarized volumes in tables 1. The spatial distribution of the infiltration values appears very similar to the spatial distribution of the CN values identified on the land cover and HSGs (Kurbanov et al., 2017).

Conclusions

In this paper, five spectral indices, namely NDVI, SAVI, mSAVI2, CSI and NBR, were evaluated for their efficiency in burned area mapping using OBIA of Landsat and IKONOS satellite images. The application of all selected indices and satellite images resulted in highly accurate burned area maps using a relatively simple methodology.

Acknowledgments. *The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.*

References

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2. Stocker T.F., Qin D., Plattner G.K., Tignor M., Allen S.K., Boschung J., et al. (Eds.). Summary for Policymakers. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2013; Available online: <https://www.ipcc.ch/report/ar5/wg1/> (accessed on 21 August 2020).
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