

Article

Implication of vegetation response to climate change for mountain grasslands

Matevž LVremec ^{1,†,‡}, Veronika Forstner ^{1,†‡} and Steffen Birk ^{2,†,*}

- Affiliation 1; matevz.vremec@uni-graz.at
- ² Affiliation 2; e-mail@e-mail.com
- * Correspondence: matevz.vremec@uni-graz.at
- † Current address: Heinrich Strasse 26, Instutue for Earth Sciences, University of Graz
- ‡ These authors contributed equally to this work.

Version December 4, 2019 submitted to Hydrology

Abstract:

- 2 1. Evaluate default PET models
- 2. Evaluate calibrated PET models
- 3. Sensitivity analysis and model uncertainty of calibrated PET models
- 4. Implication of elevated CO_2 in PET models
- 5. Implication of warming in PET models
- ₇ 6. Combined effect of warming and elevated CO_2 in PET models
- 8 7. Evaluation, Sensitivity analysis and model uncertainty of calibrated PET models
- 8. Conclusion
- Keywords: keyword 1; keyword 2; keyword 3 (list three to ten pertinent keywords specific to the article, yet reasonably common within the subject discipline.)

0. How to Use this Template

The template details the sections that can be used in a manuscript. Note that the order and names of article sections may differ from the requirements of the journal (e.g., the positioning of the Materials and Methods section). Please check the instructions for authors page of the journal to verify the correct order and names. For any questions, please contact the editorial office of the journal or support@mdpi.com. For LaTeX related questions please contact latex@mdpi.com.

18 1. Introduction

The introduction should briefly place the study in a broad context and highlight why it is important. It should define the purpose of the work and its significance. The current state of the research field should be reviewed carefully and key publications cited. Please highlight controversial and diverging hypotheses when necessary. Finally, briefly mention the main aim of the work and highlight the principal conclusions. As far as possible, please keep the introduction comprehensible to scientists outside your particular field of research. Citing a journal paper. And now citing a book reference. Please use the command for the following MDPI journals, which use author-date citation: Administrative Sciences, Arts, Econometrics, Economies, Genealogy, Humanities, IJFS, JRFM, Languages, Laws, Religions, Risks, Social Sciences.

28 2. Evaluation of PET models

2.1. Evaluation of PET models with default coefficients

Penman [1]

$$E = \frac{1}{\lambda \rho_w} \frac{\Delta (R_n - G) + K_u \gamma (a_w + b_w u_2) (e_s - e_a)}{\Delta + \gamma}$$
(1)

where a_w and b_w are wind function coefficients

Penman-Monteith [1]

$$E = \frac{1}{\lambda} \frac{\Delta (R_n - G) + \rho_a c_p (e_s - e_a) / r_{ah}}{\left[\Delta + \gamma (1 + \frac{r_s}{r_{ah}}) \right]}$$
(2)

- 30 Priestley-Taylor [1]
- 31 Kimberley-Penman [1]
- 32 Hamon
- зз Turc-
- 34 Makink [1]
- 35 Hargreaves
- 36 Blaney-Criddle [1]
- Jensen-Haise [1]
- 2.1.1. Evaluation of calibrated/validated PET models
- 39 TEXT
- 2.1.2. Evaluation of calibrated PET models
- 41 TEXT

3. Results

- This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation as well as the experimental conclusions that can be drawn.
- This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation as well as the experimental conclusions that can be drawn.
- 49 3.1. Subsection
- 50 3.1.1. Subsubsection
- Bulleted lists look like this:
- 52 First bullet
- Second bullet
- Third bullet
- Numbered lists can be added as follows:
- 56 1. First item
- 57 2. Second item
- 58 3. Third item
- The text continues here.

- 60 3.2. Figures, Tables and Schemes
- All figures and tables should be cited in the main text as Figure 1, Table 1, etc.



Figure 1. This is a figure, Schemes follow the same formatting. If there are multiple panels, they should be listed as: (a) Description of what is contained in the first panel. (b) Description of what is contained in the second panel. Figures should be placed in the main text near to the first time they are cited. A caption on a single line should be centered.

- 62 Text
- 63 Text

Table 1. This is a table caption. Tables should be placed in the main text near to the first time they are cited.

Title 1	Title 2	Title 3
entry 1	data	data
entry 2	data	data

- 64 Text
- 65 Text
- 66 3.3. Formatting of Mathematical Components
- This is an example of an equation:

$$a + b = c \tag{3}$$

- Please punctuate equations as regular text. Theorem-type environments (including propositions, lemmas, corollaries etc.) can be formatted as follows:
- **Theorem 1.** *Example text of a theorem.*
- The text continues here. Proofs must be formatted as follows:
- Proof of Theorem 1. Text of the proof. Note that the phrase 'of Theorem 1' is optional if it is clear which theorem is being referred to. \Box
- The text continues here.

4. Discussion

Authors should discuss the results and how they can be interpreted in perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible. Future research directions may also be highlighted.

5. Materials and Methods

Materials and Methods should be described with sufficient details to allow others to replicate and build on published results. Please note that publication of your manuscript implicates that you must make all materials, data, computer code, and protocols associated with the publication available to readers. Please disclose at the submission stage any restrictions on the availability of materials or information. New methods and protocols should be described in detail while well-established methods can be briefly described and appropriately cited.

Research manuscripts reporting large datasets that are deposited in a publicly available database should specify where the data have been deposited and provide the relevant accession numbers. If the accession numbers have not yet been obtained at the time of submission, please state that they will be provided during review. They must be provided prior to publication.

Interventionary studies involving animals or humans, and other studies require ethical approval must list the authority that provided approval and the corresponding ethical approval code.

92 6. Conclusions

This section is not mandatory, but can be added to the manuscript if the discussion is unusually long or complex.

95 7. Patents

87

89

This section is not mandatory, but may be added if there are patents resulting from the work reported in this manuscript.

Author Contributions: For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "conceptualization, X.X. and Y.Y.; methodology, X.X.; software, X.X.; validation, X.X., Y.Y. and Z.Z.; formal analysis, X.X.; investigation, X.X.; resources, X.X.; data curation, X.X.; writing—original draft preparation, X.X.; writing—review and editing, X.X.; visualization, X.X.; supervision, X.X.; project administration, X.X.; funding acquisition, Y.Y.", please turn to the CRediT taxonomy for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

Funding: Please add: "This research received no external funding" or "This research was funded by NAME OF
 FUNDER grant number XXX." and and "The APC was funded by XXX". Check carefully that the details given
 are accurate and use the standard spelling of funding agency names at https://search.crossref.org/funding, any
 errors may affect your future funding.

Acknowledgments: In this section you can acknowledge any support given which is not covered by the author contribution or funding sections. This may include administrative and technical support, or donations in kind (e.g., materials used for experiments).

Conflicts of Interest: Declare conflicts of interest or state "The authors declare no conflict of interest." Authors must identify and declare any personal circumstances or interest that may be perceived as inappropriately influencing the representation or interpretation of reported research results. Any role of the funders in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript, or in the decision to publish the results must be declared in this section. If there is no role, please state "The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results".

119 Abbreviations

1 21

125

126

The following abbreviations are used in this manuscript:

MDPI Multidisciplinary Digital Publishing Institute

DOAJ Directory of open access journals

TLA Three letter acronym LD linear dichroism

Appendix A

124 Appendix A.1

The appendix is an optional section that can contain details and data supplemental to the main text. For example, explanations of experimental details that would disrupt the flow of the main text, but nonetheless remain crucial to understanding and reproducing the research shown; figures of replicates for experiments of which representative data is shown in the main text can be added here if

brief, or as Supplementary data. Mathematical proofs of results not central to the paper can be added as an appendix.

131 Appendix B

All appendix sections must be cited in the main text. In the appendixes, Figures, Tables, etc. should be labeled starting with 'A', e.g., Figure A1, Figure A2, etc.

1 34

- 135 1. ASCE-EWRI. The ASCE standardized reference evapotranspiration equation. *Technical Committee Rep. to*136 the Environmental and Water Resources Institute of ASCE from the Task Committee on Standardization of Reference
 137 Evapotranspiration 2005.
- Sample Availability: Samples of the compounds are available from the authors.
- © 2019 by the authors. Submitted to *Hydrology* for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).