

Wall-to-wall mapping of peat depth from Lidar terrain and airborne radiometrics in Norwegian landscapes

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Abstract. The abstract goes here. It can also be on *multiple lines*.

1 Introduction

Introduction text goes here. Read Gatis et al. (2019) and related work (Minasny et al., 2019).

2 Materials and methods

5 2.1 Sites

We assessed how well we could predict peat depth at two sites with conspicuously different physical geography: Skrimfjella in eastern Norway and Ørskogfjellet in western Norway (Fig. 1c). These sites were chosen because they were covered by radiometric data from airborne surveys, relatively little built-up area, and road access.

At Skrimfjella we delineated a study area of 34 km² based on radiometric coverage and accessibility (Fig. 1b).

10 The landscape within our delineation is classified as *inland hills and mountains* (Simensen et al., 2021). It is almost without human infrastructure, dominated by forest, and borders on a large nature reserve. The study area has a mean elevation of 438 m above sea level (range 223–711, IQR 351–509), and its mean slope at 10 m resolution is 10.8° (IQR 4.6–15.1°). In Norway's AR5 national land dataset, 1.5 km² (4.5 %) of the study area is classified as peatland.

At Ørskogfjellet we defined a study area of 124 km² which basically followed the footprint of the radiometric survey (Fig. 15 1a). This study area comprises a wide range of major landscape types: *coastal plains*, *coastal fjord*, *inland valleys*, as well as *inland hills and mountains* (Simensen et al., 2021). It is mostly forested, but also contains considerable farmland and open upland, and has several large lakes. Its mean elevation is 211 m above sea level (range 0–807, IQR 73–310), and its mean slope at 10 m resolution is 13.0° (IQR 4.7–18.3°). The AR5 data set counts 15.3 km² (12.4 %) of the study area as peatland.

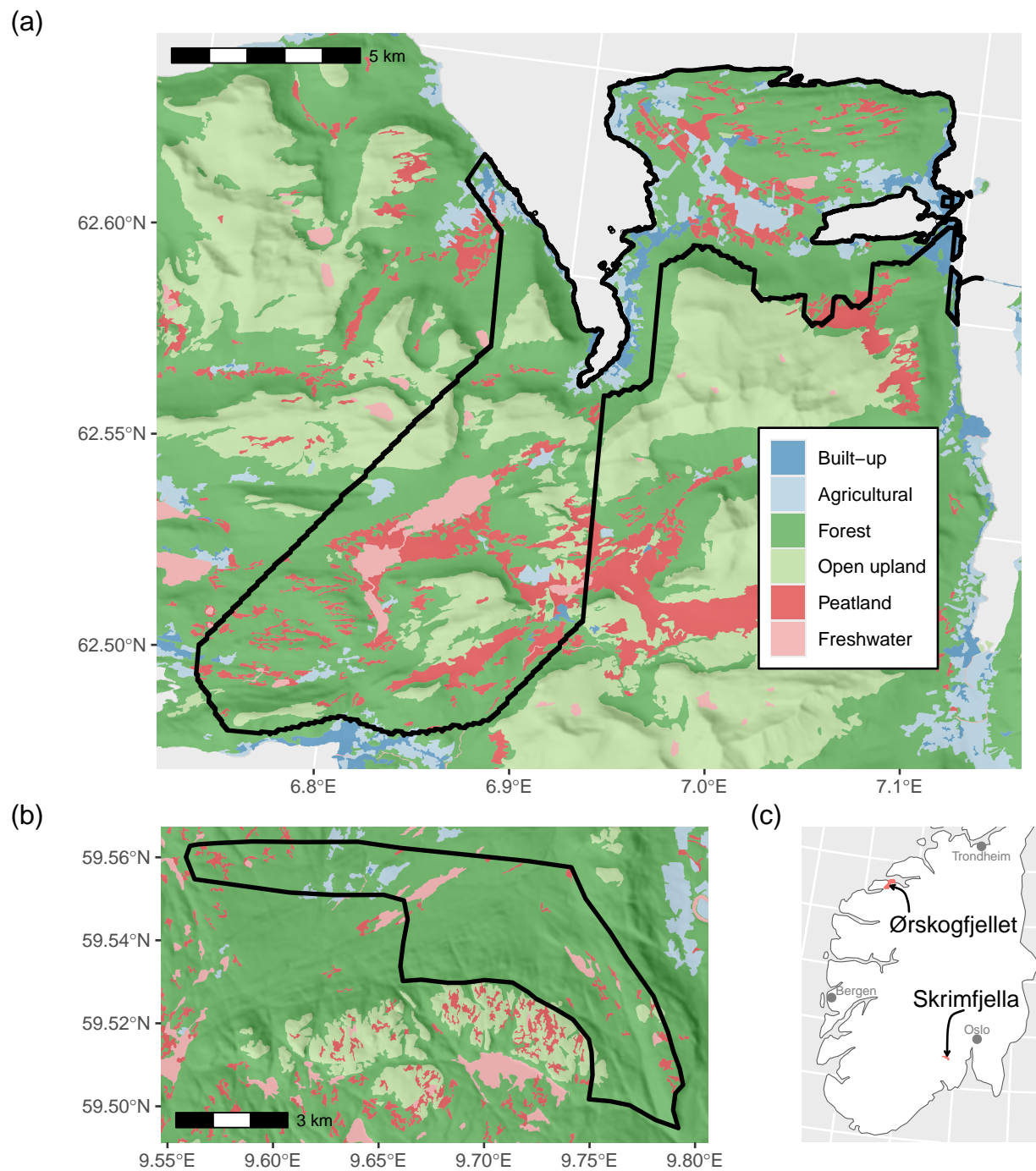


Figure 1. Study areas at Ørskogfjellet (a) and Skrimfjella (b) within southern Norway (c). Land cover shown here is from the AR50 national land resource database and has simplified geometry with respect to the AR5 database used in the study.

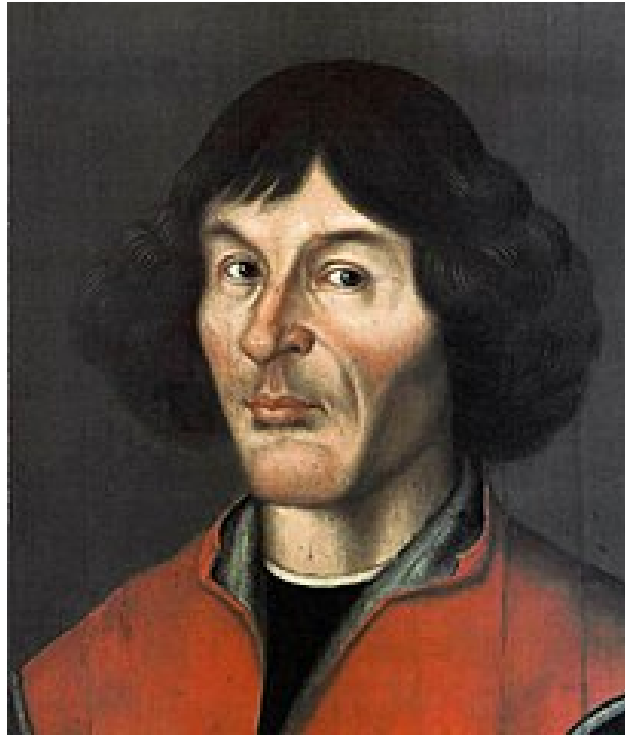


Figure 2. one column figure

2.2 Measuring peat depth

20 2.2.1 Skrimfjella

2.2.2 Ørskogfjellet

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3 Results

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25 3.1 Tables

You can add \LaTeX table in an R Markdown document to meet the template requirements (Table 1).

Or you can use markdown to create the table with booktabs = FALSE (<https://github.com/rstudio/rarticles/issues/558#issuecomment-19079>)

See Table 2.

Table 1. TEXT

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Table Footnotes

Table 2. My caption

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4 Discussion

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5 Conclusions

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. *Code and data availability.* Use this to add a statement when having data sets and software code available

40 Appendix A: For submission

“Appendices: all material required to understand the essential aspects of the paper such as experimental methods, data, and interpretation should preferably be included in the main text. Additional figures, tables, as well as technical and theoretical developments which are not critical to support the conclusion of the paper, but which provide extra detail and/or support useful for experts in the field and whose inclusion in the main text would disrupt the flow of descriptions or demonstrations may be

45 presented as appendices. These should be labelled with capital letters: Appendix A, Appendix B etc. Equations, figures and tables should be numbered as (A1), Fig. B5 or Table C6, respectively. Please keep in mind that appendices are part of the manuscript whereas supplements (see below) are published along with the manuscript.”

Appendix B: Figures and tables in appendices

Please also sort the appendix figures and appendix tables into the respective appendix sections. They will be correctly named
50 automatically.

Appendix C: Copernicus from Rmarkdown

Please note: Per their guidelines, Copernicus does not support additional \LaTeX packages or new \LaTeX commands than those defined in their `.cls` file. This means that you cannot add any extra dependencies and a warning will be thrown if so. **Important:** Always double-check with the official manuscript preparation guidelines at https://publications.copernicus.org/for_authors/manuscript_preparation.html, especially the sections “Technical instructions for LaTeX” and “Manuscript composition”. Please contact Daniel Nüst, `daniel.nuest@uni-muenster.de`, with any problems.
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. *Author contributions.* JV: Conceptualization, Investigation, Data curation, Formal analysis, Writing – original draft. NG: Conceptualization, Methodology, Writing - review & editing. MKG: Investigation, Writing - review & editing. KKM: Investigation, Data curation, Writing - review & editing. SDN: Investigation, Writing - review & editing. KR: Conceptualization, Investigation, Writing - review & editing. MS:
60 Investigation, Data curation, Writing - review & editing.

. *Competing interests.* The authors declare that they have no conflict of interest.

. *Disclaimer.* The authors declare that the results, discussions, and interpretations presented in this study are solely their own. The views expressed herein do not necessarily reflect those of their respective institutions or funding agencies.

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