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## R packages used

| Package | Version | Citation |
| --- | --- | --- |
| base | 4.3.2 | R Core Team (2023) |
| future | 1.33.1 | @ |
| lidR | 4.1.1 | Roussel et al. (2020); Roussel and Auty (2024) |
| mapview | 2.11.2 | Appelhans et al. (2023) |
| mlr3 | 0.17.2 | Lang et al. (2019) |
| mlr3spatial | 0.5.0 | Becker and Schratz (2024) |
| mlr3spatiotempcv | 2.3.0 | Schratz and Becker (2024) |
| mlr3verse | 0.2.8 | Lang and Schratz (2023) |
| rmarkdown | 2.25 | Xie, Allaire, and Grolemund (2018); Xie, Dervieux, and Riederer (2020); Allaire et al. (2023) |
| Rsagacmd | 0.4.2 | Pawley (2023) |
| sf | 1.0.15 | Pebesma (2018); Pebesma and Bivand (2023) |
| terra | 1.7.65 | Hijmans (2023) |
| tidyverse | 2.0.0 | Wickham et al. (2019) |

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We used R version 4.3.2 (R Core Team 2023) and the following R packages: future v. 1.33.1 [@], lidR v. 4.1.1 (Roussel et al. 2020; Roussel and Auty 2024), mapview v. 2.11.2 (Appelhans et al. 2023), mlr3 v. 0.17.2 (Lang et al. 2019), mlr3spatial v. 0.5.0 (Becker and Schratz 2024), mlr3spatiotempcv v. 2.3.0 (Schratz and Becker 2024), mlr3verse v. 0.2.8 (Lang and Schratz 2023), rmarkdown v. 2.25 (Xie, Allaire, and Grolemund 2018; Xie, Dervieux, and Riederer 2020; Allaire et al. 2023), Rsagacmd v. 0.4.2 (Pawley 2023), sf v. 1.0.15 (Pebesma 2018; Pebesma and Bivand 2023), terra v. 1.7.65 (Hijmans 2023), tidyverse v. 2.0.0 (Wickham et al. 2019), running in RStudio v. 2023.12.1.402 (Posit team 2024).

## Package citations

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Appelhans, Tim, Florian Detsch, Christoph Reudenbach, and Stefan Woellauer. 2023. *mapview: Interactive Viewing of Spatial Data in r*. <https://CRAN.R-project.org/package=mapview>.

Becker, Marc, and Patrick Schratz. 2024. *Mlr3spatial: Support for Spatial Objects Within the “mlr3” Ecosystem*. <https://CRAN.R-project.org/package=mlr3spatial>.

Hijmans, Robert J. 2023. *terra: Spatial Data Analysis*. <https://CRAN.R-project.org/package=terra>.

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Roussel, Jean-Romain, David Auty, Nicholas C. Coops, Piotr Tompalski, Tristan R. H. Goodbody, Andrew Sánchez Meador, Jean-François Bourdon, Florian de Boissieu, and Alexis Achim. 2020. “lidR: An r Package for Analysis of Airborne Laser Scanning (ALS) Data.” *Remote Sensing of Environment* 251: 112061. <https://doi.org/10.1016/j.rse.2020.112061>.

Schratz, Patrick, and Marc Becker. 2024. *Mlr3spatiotempcv: Spatiotemporal Resampling Methods for “mlr3”*. <https://CRAN.R-project.org/package=mlr3spatiotempcv>.

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D’Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. “Welcome to the tidyverse.” *Journal of Open Source Software* 4 (43): 1686. <https://doi.org/10.21105/joss.01686>.

Xie, Yihui, J. J. Allaire, and Garrett Grolemund. 2018. *R Markdown: The Definitive Guide*. Boca Raton, Florida: Chapman; Hall/CRC. <https://bookdown.org/yihui/rmarkdown>.

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