Heather Reese
CV

PERSONAL INFORMATION

Family name, First name: Reese, Heather
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EDUCATION

2011 **Ph.D. in forest managment,** emphasis Remote sensing, Swedish University of Agricultural Sciences (SLU), Umeå, Sweden. Supervisor: Prof. Håkan Olsson

1995 **Masters in environmental monitoring**, Institute for Environmental Studies, University of Wisconsin-Madison, USA. Supervisor: Prof. Thomas Lillesand

MERITS

2016 **Docent** (Assoc. Prof.) in remote sensing, Dept. of Forest Management, SLU, Umeå, Sweden.

CURRENT POSITION(S)

2018–*present* **Senior Lecturer in GIS & Remote sensing,** Dept. of Earth Sciences, University of Gothenburg, Sweden

PREVIOUS POSITIONS

2012 – 2018 **Senior Lecturer,** Depart. of Forest Resource Management, Section of Forest Remote Sensing, Swedish Univ. Ag. Sciences, Umeå, Sweden

1998 – 2012 **Research assistant**, Depart. of Forest Resource Management, Section of Forest Remote Sensing, Swedish Univ. Ag. Sciences, Umeå, Sweden

INDIVIDUAL FELLOWSHIPS AND AWARDS

2021 **Faculty of Science Pedagogic Prize,** Faculty of Science, Univ. of Gothenburg, Sweden

GRANTS

As PI (17 MSEK)

2024 **PI**, 5.5 million SEK *Hyperspectral data detect tundra under pressure,* Swedish National Space Agency Research Grant. Co-PI Robert Björk.

2023 **PI,** 3 million SEK *Threatened sub-arctic palsa mires: a new integrated method for mapping and understanding permafrost degradation mechanisms*, Formas. Co-PIs Sofia Thorsson, Mark Peternell, and Mats Björkman.

2021 **Project manager**, 5.4 million SEK, *Understanding Arctic Browning from Macro to Nano*, Vetenskapsrådet. PI: Louise Andressen (Brandenburg Univ of Technology).

2015 **PI,** 3.1 million SEK, *Iterative land cover classification using assimilation of multiple Sentinel-2 images with Hidden Markov Models,* Swedish National Space Board Research Grant.

As Co-PI (42.4 MSEK):

2024 **Co-PI**, 2.9 million SEK, *Investigating the role of forest biodiversity and fire in promoting carbon storage and climate change resilience,* BECC, PI: Karl Ljung, Lund University. Co-PIs Natascha Klujn and Anne Bjorkman.

2024 **Co-PI**, 5.5 million SEK, *Exploring greenhouse gas emissions in wetlands: rewetted organic soils vs constructed agricultural ponds,* SGU, PI: Amelie Lindgren, U of Gothenburg. Co-PIs Mike Peacock, Henric Djerf, and Natalia Corcoll Cornet.

2024 **Co-PI**, 3.8 million SEK, *Reindeer-mediated climate feedbacks in a changing tundra landscape.* VR, PI: Robert Björk, U of Gothenburg

2024 **Co-PI**, 6.5 million SEK, *Comparing Earth Observation and AI methods for Measuring Poverty*

towards Sustainable Development, PI: Adel Daoud, Chalmers University of Technology
2023 **Co-PI**, 2 million SEK. *The role of microclimates for bees, pollination and crop production during heatwaves,* BECC, PI: Björn Klatt, Lund University. Co-PI William Sidemo Holm
2020 **Co-PI**, 3.9 million SEK. *Would the Northern European Enclosure Dam really protect Sweden from sea level rise?,*Formas, PI: C. Heuzé, U of Gothenburg.
2020 **Co-PI,** 3 million SEK, *Heat stress in tropical trees and its implications for tree plantation success, forest carbon storage and biodiversity*, Formas, PI:, J. Uddling Frodin, U of Gothenburg.
2019 **Co-PI**, 0.6 million SEK, *Towards improved understanding of albedo-climate interaction of common land uses across Sweden,* Strategic research area MERGE, PI: A. Reurslag-Gärdenäs, U of Gothenburg
2018 **Co-PI,** 10 million SEK, *New ways to enable reliable validation of greenhouse gas models and assessments*, Formas, PI, D. Bastviken, Linköping Univ.
2016 **Co-PI,** 4.2 million SEK, *An integrated approach to explore the unknown role of trees in dryland crop production.* Swedish National Space Agency PI, M. Ostwald, Chalmers Univ./Linköping Univ.

SUPERVISION OF PHD STUDENTS AND POSTDOCTORAL FELLOWS

Postdocs ongoing (start date)

2024 Co-supervisor, Arrian Karbassioon, joint postdoc Lund U & U Gothenburg

PhDs

Ongoing (start date) Earth Science
2025 **Primary supervisor,** Emil Larsson, Dept Earth Sci., U. of Gothenburg
2022 **Primary supervisor,** Cas Renette, Dept Earth Sci., U. of Gothenburg
2021 **Secondary supervisor,** Aurora Patchett, Dept Earth Sci., U. of Gothenburg

Completed (finish date)
2023 **Secondary supervisor** Julia Kukulies, regional climate modelling, Univ. of Gothenburg
2023 **Secondary supervisor** Arvid Axelsson, forest management with emphasis on remote sensing, Swedish Univ. of Agricultural Sciences, Umeå
2022 **Secondary supervisor,** Magnus Persson, forestry with emphasis on remote sensing, Linneaus Univ.
2022 **Secondary supervisor,** Sandra Wolters, precision agriculture, Swedish Univ. of Agricultural Sciences, Skara
2018 **Secondary supervisor,** Mona Forsman**, f**orest management with emphasis on remote sensing, Swedish Univ. of Agricultural Sciences, Umeå
2016 **Secondary supervisor**, Eva Husson, remote sensing of wetlands, Swedish Univ. of Agricultural Sciences, Ultuna
2016 **Secondary supervisor**, Martin Karlson, environmental management, Linköping Univ.

PhD Supervision training

2024 Doctoral supervision course, University of Gothenburg
2021 Doctoral supervision course, University of Gothenburg
2012 Doctoral supervision course, Swedish Univ. of Agricultural Sciences

PhD Primary Opponent

2024 Mariana Verdonen, University of Eastern Finland
2024 Henri Riihimäki, University of Helskinki, Finland
2022 Phillip Horvath, University of Oslo, Norway

PhD Examination committees and pre-examiner role

2025 Nuwanthi Arampola, Lund University
2025 Oona Leppiniemi (pre-examiner), Oulu University, Finland
2025 Xeuying Li, Lund University
2024 Yu Zhao, Royal Technical University (KTH), Stockholm
2024 Julia Wagner, Stockholm University
2023 Sofia Junttila, Lund University
2023 Mariana Verdonen (pre-examiner), University of Eastern Finland
2021 Julia Kelly, Lund University
2018 Phillip Schleusner, (reserve), University of Gothenburg

2018 Yumai Hu, (reserve), University of Gothenburg
2018 Wilhelm Dubber, Lund University

Teaching experience (undergraduate)

2018-present – Course leader GV2300 and GE3000 "Remote sensing and GIS" in the Earth Science and Geography Bachelor's programs at GU, 7.5 hp
2018-present – Course leader NGN235 "Introduction to Remote Sensing" a distance course from the Earth Sciences department at GU, 7.5 hp
2018-present – Teacher and excursion leader in NG0210 "Subarctic Field Course" at GU, 15 hp
1998-2017 – Teacher and course leader (2012-2017) for "Forestry remote sensing" at SLU, Umeå, 7.5 hp
2014-2017 – Course leader for "LiDAR for forest remote sensing" at SLU, Umeå, 7.5 hp

Teaching experience (PhD courses)

2022-present Course leader and lecturer for "AI for Earth and Environmental Sciences", 5hp
2018-present Lecturer in "Arctic in a Changing Climate", 5hp

COMMISSIONS OF TRUST (date since)

2025 **National delegate**, International Arctic Science Committee, Terrestrial WG
2022 **Deputy Head of Department**, Dept. of Earth Sciences, University of Gothenburg
2021 **Board member,** Skogaryd SITES Research Infrastructure Board
2021 **Board member**, ICOS-Sweden Board
2012 **National delegate for research**, European Spatial Data Research (EuroSDR)
2021-2024 **Board member,** Swedish Climate Symposium Steering Committee
2019-2022 **Chair**, Strategic committee, Dept of Earth Sciences, Univ. of Gothenburg
2012-2017 **Head of Section**, Section of forest remote sensing, SLU, Umeå, Sweden

OTHER (date since)

2024 **Editor**, The Cryosphere
2018 **Reference group member**, Swedish National Landcover Map (NMD)
2018 **PI**, Biodiversity and Ecosystem Services in a Changing Climate (BECC) strategic research area

OUTREACH

2024,2026 Jury member, Unga Forskare (high school student national science competition)
2019 Fönster mot natur (high school student outreach)

OVERALL PUBLICATION INFORMATION

H-index according to Google Scholar: 24 (as of Dec 30, 2025)

Publications

1. 2025. Heuzé, C., Carlstedt, L., Poropat, L., & **Reese, H**. Drivers of high-frequency extreme sea levels around northern Europe – Synergies between recurrent neural networks and random forest. *Ocean Science, 21*(4), 1813–1832. https://doi.org/10.5194/os-21-1813-2025
2. 2025. Manzi, O. J. L., Mujawamariya, M., Tarvainen, L., Ziegler, C., Andersson, M. X., Dusenge, M. E., Fridell, A., **Reese, H**., Spetea, C., Uwizeye, F. K., Wittemann, M., Nsabimana, D., Wallin, G., & Uddling, J. Photosynthetic heat tolerance partially acclimates to growth temperature in tropical montane tree species. *Plant, Cell & Environment, 48*(7), 7848–7861. https://doi.org/10.1111/pce.70079
3. 2024. Renette, C., Olvmo, M., Thorsson, S., Holmer, B., and **Reese, H.** Multitemporal UAV LiDAR detects seasonal heave and subsidence on palsas. *The Cryosphere* 18 (11), 5465-5480. https://doi.org/10.5194/tc-18-5465-2024
4. 2022. Minola, L. **H Reese**, HW Lai, C Azorin-Molina, JA Guijarro, SW Son and D. Chen. Wind stilling-reversal across Sweden: The impact of land-use and large-scale atmospheric circulation changes. *International Journal of Climatology* 42 (2), 1049-1071. 10.1002/joc.7289
5. 2022. Strannegård, C., Engsner, N., Eisfeldt, J., Endler, J., Hansson, A., Lindgren, R., Mostad, P., Olsson, S., Perini, I., **Reese, H**., Taylan, F., Ulfsbäcker, S:, Nordgren, A., 2022. Ecosystem Models Based on Artificial Intelligence. *Proceedings of the Swedish AI Society*, SAIS-22.

6. 2021. Scharn, R., CG Brachmann, A Patchett, **H Reese**, A Bjorkman, J Alatalo, Robert G Björk, Annika K Jägerbrand, Ulf Molau, Mats P Björkman. 2021. Vegetation responses to 26 years of warming at Latnjajaure Field Station, northern Sweden. *Arctic Science*. doi.org/10.1139/AS-2020-0042
7. 2021. Karlson, M, D Bastviken, **H Reese**. 2021. Error Characteristics of Pan-Arctic Digital Elevation Models and Elevation Derivatives in Northern Sweden. *Remote Sensing* 13 (22), 4653. **https://doi.org/10.3390/rs13224653**
8. 2021. Axelsson, A, Lindberg, E., **Reese, H**., Olsson, H., Tree species classification using Sentinel-2 imagery and Bayesian inference. *Int. J. of Applied EO and Geoinformation, 100, 102318.* ***https://doi.org/10.1016/j.jag.2021.102318***
9. 2021. Wolters, S. M Söderström, K Piikki, **H Reese**, M Stenberg. 2021. Upscaling proximal sensor N-uptake predictions in winter wheat (Triticum aestivum L.) with Sentinel-2 satellite data for use in a decision support system. *Precision Agriculture* 22 (4), 1263-1283.
10. 2021. Soja, M., M Karlson, J Bayala, H R Bazié, J Sanou, B Tankoano, LEB Eriksson, **H Reese**, M Ostwald, LMH Ulander. 2021. Mapping Tree Height in Burkina Faso Parklands with TanDEM-X. *Remote Sensing* 13 (14), 2747. https://doi.org/10.3390/rs13142747
11. 2020. Olvmo M, Holmer B, Thorsson S, **Reese H** and Lindberg F. Sub-arctic palsa mire degradation and the role of climatic drivers in the largest coherent palsa complex in Sweden, 1955-2016. *Scientific Reports,* 10(1). https://doi.org/10.1038/s41598-020-65719-1
12. 2020. Karlson, M. Ostwald, M. Bayala, J. Bazié, HR, Ouedraogo, AS, Soro, B, Sanou,J., **Reese, H**. The Potential of Sentinel-2 for Crop Production Estimation in a Smallholder Agroforestry Landscape, Burkina Faso. *Frontiers in Environmental Science* 8, 85.
13. 2019. Miura, Y., Eriksson, L. E. B., Ostwald, M., Karlson, M., Bazié, H. R., Soja, M. J., Sanou, J., Bayala, J. and **Reese, H**., "Soil Moisture Monitoring of Agricultural Fields in Burkina Faso Using Dual Polarized Sentinel-1a Data,", *IGARSS 2019 - 2019 IEEE International Geoscience and Remote Sensing Symposium*, 7045-7048
14. 2018. Persson, M., Lindberg, E., and **Reese, H.** Tree species classification with multi-temporal Sentinel-2 data. Remote Sensing, 10(11), 1794. **https://doi.org/10.3390/rs10111794**
15. 2018. Forsman, M, N Börlin, K Olofsson, **H Reese**, J Holmgren,. Bias of cylinder diameter estimation from ground-based laser scanners with different beam widths: A simulation study. ISPRS journal of photogrammetry and remote sensing 135, 84-92. **https://doi.org/10.1016/j.isprsjprs.2017.11.013**
16. 2017. Husson, E., **Reese, H**., and Ecke, F. Combining spectral data and a DSM from UAS-images for improved classification of non-submerged aquatic vegetation. Remote Sensing, Vol. 9 (3): Article Nr. 247. **https://doi.org/10.3390/rs9030247**
17. 2016. Karlson, M., Ostwald, M., **Reese, H**., Bazie, H. R., and Tankoano, B., Assessing the potential of multi-seasonal WorldView-2 imagery for mapping West African agroforestry tree species. *International Journal of Applied Earth Observation and Geoinformation, 50*, 80–88.
18. 2016. Husson, E., Ecke, F., & **Reese, H**. Comparison of manual mapping and automated object-based image analysis of non-submerged aquatic vegetation from very-high-resolution UAS images. *Remote Sensing, 8*(9), 724. **https://doi.org/10.3390/rs8090724**
19. 2016. Roberge, C., Wulff, S., **Reese, H**. and Ståhl, G., 2016. Improving the precision of sample-based forest damage inventories through two-phase sampling and post-stratification using remotely sensed auxiliary information. *Environmental Monitoring and Assessment, 188*, Article 213.
20. 2015. Karlson, M., Ostwald, M., **Reese, H.,** Sanou, J., Tankoano, B., Mattsson, E. Mapping tree canopy cover and aboveground biomass in Sudano-Sahelian woodlands using Landsat 8 and Random Forest. Remote Sensing 7(8):10017-10041. https://doi.org/10.3390/rs70810017
21. 2015. Lindgren, N., Christensen, P., Nilsson, B., Åkerholm, M., Allard, A., **Reese, H**., and Olsson, H. Using optical satellite data and airborne lidar data for a nationwide sampling survey. Remote Sensing 7(4): 4253-4267.

22. 2015**. Reese, H**., Nordkvist, K., Nyström, M., Bohlin, J., and Olsson, H. Combining point clouds from image matching with SPOT 5 multispectral data for mountain vegetation classification. International Journal of Remote Sensing, Vol. 36 (2): 403-416. https://doi.org/10.1080/2150704X.2014.999382
23. 2014. Karlson, M., **Reese, H.,** and Ostwald, M. Tree Crown Mapping in Managed Woodlands (Parklands) of Semi-Arid West Africa Using WorldView-2 Imagery and Geographic Object Based Image Analysis. Sensors, Vol. 14, 22643-22669.
24. 2014. Bargués-Tobella, A., **Reese, H**., Almaw, A., Malmer, A., Laudon, H., Nyberg, G., Bayala, J., and Ilstedt, U. The effect of trees on preferential flow and soil infiltrability in an agroforestry parkland in semiarid Burkina Faso. Water Resources Research, Vol. 50(4): 3342–3354.
25. 2014. **Reese, H**., Nyström, M., Nordkvist, K., and Olsson, H. Combining airborne laser scanning data and optical satellite data for classification of alpine vegetation. International Journal of Applied Earth Observation and Geoinformation, Vol. 27:81-90. https://doi.org/10.1016/j.jag.2013.05.003
26. 2011. **Reese, H**., and Olsson, H. C-correction of optical satellite data over alpine vegetation areas: A comparison of sampling strategies for determining the empirical c-parameter. Remote Sensing of Environment, Vol. 115(6):1387-1400.
27. 2011. Gilichinsky, M., Sandström, P., **Reese, H**., Kivinen, S., Moen, J., and Nilsson, M.. Mapping ground lichens using forest inventory and optical satellite data. International Journal of Remote Sensing, Vol. 32(2):455-472.
28. 2009. **Reese, H**., Nilsson, M., and Olsson, H., Comparison of Resourcesat-1 AWiFS and SPOT-5 data over managed boreal forest stands. International Journal of Remote Sensing, Vol. 30(19): 4957-4978.
29. 2009. Nilsson, M., Holm, S., Wallerman, J., **Reese, H**., and Olsson, H. Estimating annual cuttings using multi-temporal satellite data and field data from the Swedish NFI. International Journal of Remote Sensing, Vol. 30(19): 5109-5116.
30. 2007. Hagner, O., and **Reese, H**., A method for calibrated Maximum Likelihood classification of forest types. Remote Sensing of Environment, Vol. 110(4):438-444.
31. 2003. **Reese, H**., Nilsson, M., Granqvist Pahlén, T., Hagner, O., Joyce, S., Tingelöf, U., Egberth, M., and Olsson, H. Countrywide estimates of forest variables using satellite data and field data from the National Forest Inventory. Ambio, Vol. 32(8):542-548.
32. 2002. **Reese, H**., Nilsson, M., Sandström, P., and Olsson, H. Applications using estimates of forest parameters derived from satellite and forest inventory data. Computers and Electronics in Agriculture, Vol. 37(1):37-55.
33. 2002. **Reese, H**., Lillesand, T., Nagel, D., Stewart, J., Goldmann, R., Simmons, T., Chipman, J., and Tessar, P. Statewide landcover derived from multi-seasonal Landsat TM data: a retrospective of the WISCLAND project. Remote Sensing of Environment, Vol. 82(2-3):224-237.