

# Ewa Agata Czyż

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## EDUCATION

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- 10.2018 – 04.2023      **University of Zurich, Switzerland. PhD in Remote Sensing**  
Remote Sensing Laboratories, The Department of Geography  
PhD thesis: *Remotely sensing ecological genomics*.  
Supervisors: Michael E. Schaepman, Meredith C. Schuman. Influential Instructor: Bernhard Schmid
- 09.2016 – 10.2018      **University of Zurich, Switzerland. Specialized MSc in Remote Sensing**  
Remote Sensing Laboratories, The Department of Geography  
MSc thesis: *Detecting intraspecific genetic variation in the Laegern temperate forest using airborne imaging spectroscopy time series*.  
Supervisors: Hendrik Wulf, Carla Guillén Escribà. Co-supervisor: Michael E. Schaepman
- 09.2011 – 06.2015      **University of Warsaw, Poland. BSc in Environmental Protection**  
The Department of Biology  
BSc thesis: *Impact of the open pit mine on area of Irian Jaya glaciers, New Guinea in 1980-2015*.  
Supervisor: Aleksandra Skłodowska
- 09.2011 – 06.2014      **University of Warsaw, Poland. BSc in Geography**  
The Department of Geography  
BSc thesis: *Geoeological impact on the range of *Metrosideros umbellata**.  
Supervisor: Wojciech Lewandowski

## EXPERIENCE

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- 09.2024 – present      **NASA Jet Propulsion Laboratory, California Institute of Technology. Postdoctoral researcher within a Postdoc.Mobility program of Swiss National Foundation (SNF)**  
Earth Science, Biosphere group.
- 01.2021 – present      Member of NSF Biology Integration Institute (BII) on Advancing Spectral biology in Changing ENvironments to understand Diversity (ASCEND)
- 01.2024 – 10.2025      **University of Wisconsin-Madison, USA. Postdoctoral researcher**  
Forest & Wildlife Ecology, College of Agriculture & Life Sciences
- 02.2025 – 03.2025      Team effort in NASA-JPL airborne campaign AVUELO (Airborne Validation Unified Experiment Land to Ocean) in collaboration with NASA-Goddard, STRI (Smithsonian Tropical Research Institute) and University of Wisconsin-Madison
- 05.2023 – 09.2023      **University of Zurich, Switzerland. Research Assistant**  
Remote Sensing Laboratories, The Department of Geography
- 10.2018 – 01.2024      Member of University Research Priority Program on Global Change and Biodiversity, (URPP GCB), University of Zurich, Switzerland
- 06.2021 – 07.2021      Team effort in NASA-ESA CHIME-SBG airborne imaging spectroscopy campaign in Europe

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|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 05.2019 – 07.2020 | Team effort in field campaigns with focus on spectral measurements: <i>N. attenuata</i> sampling (USA, 05-06.2019), Massane forest <i>F. sylvatica</i> sampling (France, 07.2019), <i>F. sylvatica</i> sampling (Switzerland, 07.2019), <i>F. sylvatica</i> sampling (Europe, 07-10.2020)                              |
| 11.2018 – 03.2019 | <b>NASA Jet Propulsion Laboratory, Pasadena, USA. Student visit within Visiting Student Researcher Program (JVSRP)</b><br>The Instruments & Sensors Division, close collaboration with the Science Division<br>Topic: <i>Dimensionality of a hyperspectral signal across sensors, biomes, and phylogenetic groups.</i> |
| 07.2017 – 10.2018 | <b>University of Zurich, Switzerland. Research Assistant</b><br>Remote Sensing Laboratories, The Department of Geography                                                                                                                                                                                               |
| 03.2015 – 04.2015 | <b>The University Centre in Svalbard, Norway, MSc course</b><br>Course: <i>Remote Sensing of the Cryosphere</i>                                                                                                                                                                                                        |
| 07.2014 – 12.2014 | <b>The University Centre in Svalbard, Norway, BSc course</b><br>Course: <i>Arctic Terrestrial and Marine Biology</i>                                                                                                                                                                                                   |
| 05.2015 – 01.2019 | Working on a project <i>Poa annua</i> in the Antarctic, University of Warsaw, Poland                                                                                                                                                                                                                                   |
| 07.2014 – 08.2014 | Volunteering work at ZOO, Warsaw, Poland                                                                                                                                                                                                                                                                               |
| 01.2012 – 11.2015 | Member in scientific clubs at University of Warsaw, Poland<br><i>Students of Geography</i><br><i>Students of Environmental Protection</i>                                                                                                                                                                              |

## TEACHING AND OUTREACH

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| 2024              | Supervision of BSc projects of Abigail R. Gessler and PhD sub-project of Chenge Simcelile, University of Wisconsin-Madison |
| 2018 – 2022       | Small group teaching, University of Zurich                                                                                 |
| 07.2018 – 06.2022 | Co-supervision of BSc thesis of Nemish Murawat, University of Zurich                                                       |
| 2018 – 2022       | Co-examiner of MSc exams, University of Zurich                                                                             |
| 22-30.05.2021     | Contribution to the Science and Nature Festival, Zurich, Switzerland                                                       |
| 09.2019           | Teaching at Mount Valley School, Bhaktapur, Nepal                                                                          |
| 09.2020           | Contribution to Scientifica, Zurich, Switzerland                                                                           |

## GRADUATE COURSES AND TRAINING

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- Introduction to ScienceCloud and ScienceCluster. UZH, Zurich, Switzerland
- Optics and Photonics. 227-0125-00L, ETH Zurich, Zurich, Switzerland
- Genetic Variation Analysis. BIO 694, UZH, Zurich, Switzerland
- Concepts in Evolutionary Biology. BIO 395, UZH, Zurich, Switzerland
- Genomics of Environmental Adaptation. 701-1676-01L, ETH Zurich, Switzerland
- DART training. CESBIO, Toulouse, France
- Biomedical Imaging and Scientific Visualization. BIO 219, UZH, Zurich, Switzerland
- Art and science collaborations: Gaining a transdisciplinary toolkit. UZH, Zurich, Switzerland
- Introduction to Science Busking – A Gateway to Effective, Enjoyable Communication with the Public. ECO 380, UZH, Zurich, Switzerland

- Black Forest Summer School: Plant Ecological Epigenetics. Virtual
- EO4Alps summer school. Salzburg, Austria

## PROFFESIONAL SERVICE

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- Peer reviewer
  - New Phytologists
  - Canadian Journal of Forest Research
  - Remote Sensing in Ecology and Conservation
- Revision panel
  - NASA Research Initiation Awards (RIA) Physical Sciences Panel, secretary
  - NASA Biological Diversity and Ecological Conservation FINESST Panel, panelist

## PUBLICATIONS AND CONFERENCE CONTRIBUTIONS

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### *Publications*

- Li, C., **Czyż, E. A.**, Schmid, B., Ray, R., Halitschke, R., Baldwin, I. T., ... & Schuman, M. C. (2026). Genome-wide associations of leaf spectral variation in MAGIC lines of *Nicotiana attenuata*. *Ecology*, 107(4), e70366.
- Kurath, D., van Moorsel, S. J., Klaver, J., Voortman, T., Siegfried, B., Brügger, Y. A., Moradi, A., **Czyż, E. A.**, de La Harpe, M., Wiesenberg, G. L. B., Schaepman, M. E., & Schuman, M. C. (2025). Leaf spectroscopy reveals drought response variation in *Fagus sylvatica* saplings from across the species' range. *Journal of Geophysical Research: Biogeosciences*, 130(2).
- Li, C., **Czyż, E. A.**, Halitschke, R., Baldwin, I. T., Schaepman, M. E., & Schuman, M. C. (2023). Evaluating potential of leaf reflectance spectra to monitor plant genetic variation. *Plant Methods*, 19(1), 108.
- Czyż, E. A.**, Schmid, B., Hueni, A., Eppinga, M. B., Schuman, M. C., Schneider, F. D., Guillén Escribà, C. & Schaepman, M. E. (2023). Genetic constraints on temporal variation of airborne reflectance spectra and their uncertainties over a temperate forest. *Remote Sensing of Environment*, 284, 113338.
- Petibon, F., **Czyż, E. A.**, Ghielmetti, G., Hueni, A., Kneubühler, M., Schaepman, M. E., & Schuman, M. C. (2021). Uncertainties in measurements of leaf optical properties are small compared to the biological variation within and between individuals of European beech. *Remote Sensing of Environment*, 264, 112601.
- Czyż, E. A.**, Guillén Escribà, C., Wulf, H., Tedder, A., Schuman, M. C., Schneider, F. D., & Schaepman, M. E. (2020). Intraspecific genetic variation of a *Fagus sylvatica* population in a temperate forest derived from airborne imaging spectroscopy time series. *Ecology and evolution*, 10(14), 7419-7430.
- Galera, H., Rudak, A., **Czyż, E. A.**, Chwedorzewska, K. J., Znój, A., & Wódkiewicz, M. (2019). The role of the soil seed store in the survival of an invasive population of *Poa annua* at Point Thomas Oasis, King George Island, maritime Antarctica. *Global Ecology and Conservation*, 19, e00679.
- Galera, H., Wódkiewicz, M., **Czyż, E. A.**, Łapiński, S., Kowalska, M. E., Pasik, M., ... & Chwedorzewska, K. J. (2017). First step to eradication of *Poa annua* L. from Point Thomas Oasis (King George Island, South Shetlands, Antarctica). *Polar Biology*, 40(4), 939-945.

### *To be published*

- Czyż, E. A.**, Schmid, B., Eppinga, M. B., de La Harpe, M., Moradi, A., Li, C., Schaepman, M. E., Schuman, M. C. (submitted) Associations of genetic and spectral diversity in European beech.
- Czyż, E. A.**, Dao, P. D., Riehl, J. F. L., Oliveira, C., Trowbridge, A. M., Lindroth, R. L., & Townsend, P. A. (in preparation) Remotely sensed legacy effects supported by genomic variants
- Czyż, E. A.**, Cawse-Nicholson, K., Eckert, R. F., Schuman, M. C., Schaepman, M. E., & Schimel, D. (in preparation) Sensitivity of imaging spectroscopy to environmental and genomic variations

### *Conference Talks*

- Czyż, E. A., Cawse-Nicholson, K., Eckert, R., Schuman, M. C., Schaepman, M. E., Schimel, D. Sensitivity of Imaging Spectroscopy to Genomic Variation Between *Fagus sylvatica* Natural Populations. *EARSeL Imaging Spectroscopy Workshop. 2-4 June 2026. Helsinki, Finland.*

Czyż, E.A., Cawse-Nicholson, K., Eckert, R., Schuman, M. C., Schaepman, M. E., Schimel, D. Sensitivity of Imaging Spectroscopy to Monitor Genetic Variation. *American Geophysical Union Fall Meeting. 15 – 19 December 2025. New Orleans, USA.*

Czyż, E. A., Angel, Lopez Y. B., Baresch Aristizabal, A., Quinteros Casaverde, N. L., Luis, K., Pavlick, R. P., Serbin, S. P., Muller-Landau, H., Townsend, P. A., Podest, E., Schimel D. AVUELO Airborne Imaging Spectroscopy campaign in tropical ecosystems. *104th Annual Meeting of the Ecological Society of America. 10 – 15 August 2025. Baltimore, USA.*

Czyż, E. A., Dao P.D., Riehl J. F. L., Oliveira C., Heberlein B., Vanden Heuvel C. R., Reim P., Cryer J., Marsh E., Trowbridge A. M., Lindroth R. L., Townsend P. A. Intraspecific spectral and genetic variation and its evidence in vegetation trait trajectories derived from imaging spectroscopy. *103rd Annual Meeting of the Ecological Society of America. 04 – 09 August 2024. Long beach, USA.*

Czyż, E. A., Schuman, M.C., Schmid, B., Li C., de La Harpe, M., Moradi, A., Schaepman, M.E. Potential for remote observation of *Fagus sylvatica* genetic structure across its natural range. *British Ecological Society. 18 – 21 December 2022. Edinburgh, UK.*

Czyż, E. A., Schmid, B., Hueni, A., Eppinga, M. B., Schuman, M. C., Schneider, F. D., Guillén Escribà, C. & Schaepman, M. E. Multitemporal airborne reflectance spectra constrained by intraspecific genetic diversity of a temperate forest. *Swiss Geoscience Day. 19 November 2022. Lausanne, Switzerland.*

Czyż, E. A., Schuman, M.C., Schmid, B., Li C., de La Harpe, M., Schaepman, M.E. Intraspecific variation in leaf reflectance explained by abiotic environment and genetic structure. *ForestSat. 29 August – 03 September 2022. Berlin, Germany.*

Czyż, E. A., Schmid, B., Hueni, A. Schuman, M. C., Li C., de La Harpe, M., Moradi, A., & Schaepman, M. E. Deriving genetic diversity from hand-held, airborne and spaceborne imaging spectroscopy systems. *EARSeL Imaging Spectroscopy Workshop. 22-24 June 2022. Potsdam, Germany.*

Czyż, E. A., Schmid, B., Hueni, A. Schuman, M. C., Li C., de La Harpe, M., Moradi, A., & Schaepman, M. E. Deriving genetic diversity from hand-held, airborne and spaceborne imaging spectroscopy systems. *World Biodiversity Forum. 26 June – 01 July 2022. Davos, Switzerland.*

Czyż, E. A., Schmid, B., Hueni, A., Schuman, M. C., C. & Schaepman, M. E. Deriving genetic diversity from hand-held, airborne and spaceborne imaging spectroscopy systems. *DESI Workshop. 03 – 07 September 2021. Virtual. (invited abstract)*

Czyż, E. A., Schmid, B., Hueni, A., Eppinga, M. B., Schuman, M. C., Schneider, F. D., Guillén Escribà, C. & Schaepman, M. E. Genetically constrained temporal trajectories of temperate forest airborne reflectance spectra. *IGARS, AAAS. 10 – 15 July 2020. Virtual.*

Czyż, E. A. Impact of the open pit mine on area of Irian Jaya glaciers, New Guinea. *GIS in Environmental Engineering. 18 Mai 2016. Krakow, Poland.*

#### Conference Posters

Czyż, E. A., Angel, Lopez Y. B., Baresch Aristizabal, A., Quinteros Casaverde, N. L., Luis, K., Pavlick, R. P., Serbin, S. P., Muller-Landau, H., Townsend, P. A., Podest, E., Schimel D. AVUELO Imaging Spectroscopy Flight Campaign to Advance Tropical Ecology. *World Biodiversity Forum. 14 – 19 June 2026. Davos, Switzerland.*

Czyż, E. A., Schmid, B., Hueni, A., Schuman, M. C., Guillén Escribà, C. & Schaepman, M. E. Genetic structure of a temperate forest inferred from temporal trade-offs derived from airborne imaging spectroscopy. *105th Annual Meeting of the Ecological Society of America. 03 – 09 August 2020. Virtual.*

Czyż, E. A., Schmid, B., Schaepman, M. E. Genetic structure of *Fagus sylvatica* derived from multi-annual and multi-seasonal airborne spectroscopy. *World Biodiversity Forum. 20 – 26 February 2020. Davos, Switzerland.*

Czyż, E. A., Guillén Escribà, C., Wulf, H., Tedder, A., Schuman, M. C., Schneider, F. D., & Schaepman, M. E. Intraspecific genetic variation of *Fagus sylvatica* derived from airborne imaging spectroscopy time series data. *103rd Annual Meeting of the Ecological Society of America. 05 – 09 August 2018. New Orleans. USA.*