Curriculum vitae: Leonardo Montagnani

Name: Leonardo Montagnani

Title: Endowed Professor (Professore Straordinario) with fixed term contract from February 1st, 2023, to January 31st, 2026.

Affiliation: Faculty Agricultural, Environmental and Food Sciences, Free University of Bozen-Bolzano, Piazza Università 1, 39100, Bolzano.

Web page: https://treeecophysiology.unibz.it/leonardo-montagnani/

Research identifiers: ORCID (0000-0003-2957-9071)

Web of Science (https://www.webofscience.com/wos/author/record/229624)

Interest:
My main research area is the interaction between natural or cultivated ecosystems and the atmosphere. As an expert in eddy covariance measurements, I developed a new mass conservation approach to quantify the non-turbulent transport of carbon dioxide from the forest to the atmosphere. I acted as the lead author of the protocol for the quantification of the storage of CO_2 and other gasses in the canopy air layer in the frame of the European Infrastructure ICOS. More recently, I extended my interest to sustainability, with a special focus on the net ecosystem carbon balance of the considered systems.

Education:

2014: Italian National Scientific Qualifications: Qualified as Associate Professor in Ecology (05-C1), Geophysics (04-A4), and Science and Technology of Tree and Forest Systems (07-B2).

2000: Ph.D. in Forest Ecology, University of Padua.

1996: Degree in Forest Sciences, University of Tuscia, Viterbo, 110/100 cum Laude.

Academic Positions:

2023: Endowed Professor (*Professore Straordinario*) with fixed term contract at the Free

University of Bozen-Bolzano.

2021-2022: Representative of the Researchers at the Free University of Bozen-Bolzano.

2016-2022: Assistant Professor at the Free University of Bozen-Bolzano.

2012-2013: Contract Professor for the course of Biochemistry and Physiology of Agricultural Plants, Faculty of Science and Technology, Free University of Bolzano, Bolzano, Italy.

Professional positions

2000-2022: Consultant of the Forest Services, Autonomous Province of Bozen-Bolzano.

Other responsibilities: PI of the ICOS Renon research site (Class 2). https://www.icos-italy.it/italian-network/

Awards received:
Norbert Gerbier-MUMM International Award, 2012, attributed by the World Meteorological Organization, shared with C. Yi and coauthors for the paper 'Climate control of terrestrial carbon exchange across biomes and continents', published in *Environmental Research Letters* in 2010.

Web of Science-Clarivate Analytics Award as 2018 Highly Cited Researcher 'In recognition of exceptional research performance demonstrated by production of multiple highly cited papers, those that top 1% by citations for field and year, in Cross Field'.

Following Scopus, author of 148 publications, with an H index of 58.

Editor – Journals:

PeerJ (2017 to present), Sustainability (2018 to present), Frontiers: Forests and Atmosphere (2018 to present).

List of most relevant publications

Gomarasca U, Migliavacca M, Kattge J, (…), Montagnani L, (…), Reichstein M. Leaf-level coordination principles propagate to the ecosystem scale. 2023. Nature Communications. DOI: 10.1038/s41467-023-39572-5.

Callesen TO, Gonzalez CV, Bastos Campos F, Zanotelli D, Tagliavini M, Montagnani L (2023). Understanding carbon sequestration, allocation, and ecosystem storage in a grassed vineyard. Geoderma Regional, vol. 34, p. 1-13, ISSN: 2352-0094, doi: 10.1016/j.geodrs.2023.e00674.

Singh N., M. Shekhar, B. Ranjan Parida (…) and L. Montagnani, 2022 Tree-ring isotopic records suggest seasonal importance of moisture dynamics over glacial valleys of the Central Himalaya, Front. Earth Sci., 10 – 2022, https://doi.org/10.3389/feart.2022.868357.

Migliavacca M, Musavi T, Mahecha MD, (…) Montagnani L, (…), and Reichstein M, 2021, The three major axes of terrestrial ecosystem function, Nature, https://doi.org/10.1038/s41586-021-03939-9.

Johnston, A, A. Meade, J. Ardö, (…) L. Montagnani, (…) C. Venditti, 2021, Temperature thresholds of ecosystem respiration at a global scale, Nature Ecology and Evolution, 5, 487–494. https://doi.org/10.1038/s41559-021-01398-z.

Speak A., Montagnani L., Wellstein C., Zerbe S. 2020 The influence of tree traits on urban ground surface shade cooling, Landscape and Urban Planning. Volume 197, 13748, https://doi.org/10.1016/j.landurbplan.2020.103748.

Montagnani L., Badraghi A., Speak A.F (…) Zanotelli D., 2019. Evidence for a non-linear carbon accumulation pattern along an Alpine glacier retreat chronosequence in Northern Italy, 2019, PeerJ, 2019(10), e7703. http://dx.doi.org/10.7717/peerj.7703.

Montagnani L., T. Grünwald, A. Kowalski, (…) L. Siebicke (2018). Estimating the storage term in eddy covariance measurements: the ICOS methodology, International Agrophysics., 32, 619 – 631, doi: 10.1515/intag-2017-0037.

Montagnani L., D. Zanotelli, M. Tagliavini and E. Tomelleri (2018) Time scale effects on the environmental control of carbon and water fluxes of an apple orchard. Ecology and Evolution. DOI: 10.1002/ece3.3633.

Parazoo, N.C, Bowman K., Fisher J.B, Frankenberg C., Jones D.B.A, Cescatti A., Pérez-Priego Ó, Wohlfahrt G. and Montagnani L. (2014). Terrestrial gross primary production inferred from satellite fluorescence and vegetation models, Global Change Biology, 20, 3103–3121, DOI: 10.1111/gcb.12652.

Jung M., M. Reichstein, Ph. Ciais, (…) L. Montagnani, (…) K. Zhang (2010). A recent decline in the global land evapotranspiration trend due to limited moisture supply. Nature, 467, 951-954, DOI: 10.1038/nature09396.

Teuling A.J., S.I. Seneviratne, R. Stöckli, M.(…) L. Montagnani, (…) and G. Wohlfahrt (2010). Contrasting response of European forest and grassland energy exchange to heatwaves. Nature Geoscience, 3, 722–727, DOI:10.1038/ngeo950.

Mahecha M.D., Reichstein M., Carvalhais N, (…) Montagnani L., Richardson A.D. (2010). Global convergence in the temperature sensitivity of respiration at ecosystem level. Science, 329 (5993) 838 – 840, DOI: 10.1126/science.1189587.

Montagnani L., G. Manca, E. Canepa, E. Georgieva (2010). Assessing the method-specific differences in quantification of CO2 advection at three forest sites during the ADVEX campaign. Agricultural and Forest Meteorology, DOI: 10.1016/j.agrformet.2010.01.013.

Vargas R., D.D. Baldocchi, J.I. Querejeta, (…) L. Montagnani (2010). Ecosystem CO2 fluxes of arbuscular and ectomycorrhizal dominated vegetation types are differentially influenced by precipitation and temperature. New Phytologist, 185: 226–236, DOI: 10.1111/j.1469-8137.2009.03040.x.

Montagnani L., G. Manca, E. Canepa, E. (…) Ziegler (2009). A new mass conservation approach to the study of CO2 advection in an alpine forest. Journal of Geophysical Research-Atmospheres, 114, D07306, DOI:10.1029/2008JD010650. S.

Luyssaert S., I. Inglima, M. Jung, (…) L. Montagnani, (…) and I.A. Janssens (2007). The CO2-balance of boreal, temperate and tropical forests derived from a global database. Global Change Biology, DOI: 10.1111/j.1365-2486.2007.01439.x.

Valentini R., Matteucci G., Dolman A.J., (…) Montagnani L., (…) Jarvis P. G. (2000). Respiration as the main determinant of carbon balance in European forests. Nature, 404, 861-865. DOI: 10.1038/3500908.

Renon, July 4th, 2025 Leonardo Montagnani