Curriculum Vitae

Family name, First name: De Mil Tom

ORCID ID: 0000-0001-6207-9613

Website: https://www.gembloux.uliege.be/cms/c_4039847/fr/gembloux-repertoire?uid=u234763

Date of birth: 12 March 1989

Nationality: Belgian

- **Education and key qualifications**

2017   Ph.D in Applied Biological Sciences: Forest and Nature Management
>> Faculty of Bioscience Engineering, Ghent University, Belgium
>> Supervisor: Prof. Joris Van Acker

2012 MSc in Applied Biological Sciences: Forest and Nature Management (greatest distinction)
>> Faculty of Bioscience Engineering, Ghent University, Belgium

- **Current position(s)**

2021 - present   Associate Professor in Wood Science
>> Gembloux Agro-Bio Tech, University of Liège

- **Previous position(s)**

2020 - 2021 FWO Junior Postdoctoral fellow
>> UGent Centre for X-ray Tomography (UGCT)- Woodlab, Ghent University, Belgium

2018 - 2019 Postdoctoral fellow of the Belgian-American Educational Foundation
>> Laboratory of Tree-Ring Research, University of Arizona, United States

2017-2018   Postdoctoral Research Scientist
>> Division of Wood Biology, Royal Museum for Central Africa (RMCA), Belgium

- **Supervision of MSc and PhD students, hosting Postdoctoral fellows**

Current PhD student promotorship: Lorna Zeoli (FNRS scholarship), Basile Luse Belanganayi (D4D development scholarship), Mbusa Wasukundi (AGRINATURA scholarship), Samirath Nansounon (PRD ARES scholarship), Tom Mortelmasn (INTERREG Grand Region -European Union)

Current supervision of engineers/technicians: Guillaume Charles, Marie-Pierre Tasseroul, Cecile Lesire, Laycen Hadij, Isabelle Rausin, Charline Dubois

Previous promotorship: Bhély Angoboy Ilondea

Previous hosting of postdocs: Richard L. Peters

Informal PhD tutoring: Laurent Nsenga, Emmanuel Kasongo, Benjamin Toirambe, Victor Deklerck, Chadrack Kafuti, Louis Verschuren

MSc promotorship: Guillaume Charles, Florence Martin, Diego Garcia, Tom Mortelmans, Céleste Merckx, Guillaume Bernard, Valentin Derbaix, Murielle Schmitz, Pauline Hicter, Alex Buche, Thibaud Dalimier, Loïc Mercier, Lode Corluy, Louise Rompen, Jaime Bytebier, Louis Verschuren

MSc tutoring : Pablo Vangeenderhuysen, Wout Sartrys, Dries Vangansbeke, Maarten Devriendt, Arthur Chantrain, Siebe Puynen, Selwin Maginet, Mirvia Angela Rocha Vargas

- **Courses given**

University of Liege (current): Wood Science (FORE0010), Wood Industries (FORE0043), Forest Exploitation (FORE0015), Mobilisation of Woody Resources (FORE0012).

University of Arizona (2019): Invited guest lecture on tropical dendrochronology in the course Introduction to Dendrochronology (GEOS/ANTH/WSM/GEOG 439A/539A)

Ghent University (2017): guest course on xylogenesis within the course Wood Anatomy (I002686)).

- **Research network:** Jonathan Barichivic (2023-), Bao Yang (2023 -),Kathy Allen (2021 -), Gretel Boswijk (2023 -), Vladimir Matskovsky (2023-), Marie-Caroline Momo (2020-), Joseph Okello (2023-), Philippe Lejeune (2020-), Xavier Fettweis (2020-), Charlotte L. Pearson (2019 -), Valerie

Trouet (2019 -), David Frank (2019 -), Connie Woodhouse (2019 -), Kevin Anchukaitis (2019 -), Dirk Verschuren (2018 -), Anne-Marie Lezine (2018-), Hans Verbeeck (2017-), Pascal Boeckx (2017-), Georg von Arx (2017 -), Patrick Fonti (2017 -), Achim Bräuning (2017-), Corneille Ewango (2017-), Jesper Björklund (2016 -), Kristof Haneca (2012-), Koen Hufkens (2012 -), Elizabeth Kearsley (2012 -), Marijn Bauters (2012-), Hans Beeckman (2012-), Jan Van den Bulcke (2011-), Wannes Hubau (2011-), Joris Van Acker (2011-), Ute Sass-Klaassen (2011-).

RESEARCH ACHIEVEMENTS AND PEER RECOGNITION

Research achievements
Already fascinated by nature and climate as a child, studying Bioscience Engineering at the University was the logical choice. Courses on climate change, sustainability and a master thesis on physical characterization of wood from the Guyana basin (Surinam) solidified my interest in climate research. Gradually, I became fascinated by the concept of biological time, which was further fueled during my Personal PhD project, when I studied the life history of tropical trees in the Democratic Republic of the Congo (DRC), a challenging region in the world for inferring climate response. A self-organized solo mission in 2013 to sample trees in the Congo Basin quickly established a long-term collaboration between local scientists, and many missions followed. The high species diversity and the different forest strata pushed me to increase sample depth of tree cores and to have a look at the intra-annual information within rings. Old archives from a research station let me start a data rescue campaign, where we rediscovered an old research park with tree tags found back with metal detectors and old maps. This is one of the rare long-term tree growth series that allowed us to detect longevity in the understory. Next to sampling in challenging conditions, there were many challenges in coping with the large datasets. Hence, an X-ray computed tomography toolchain was developed . This technique has since then been broadly applied in temperate regions (Figure 2), both by me and students of mine in Europe and in South-Africa, as well as other researchers. This tool was originally designed for tropical trees in the Congo Basin,
After my PhD, as a post-doc scientist of the Royal Museum for Central Africa I tutored other PhD students and MSc students. As a postdoc of the HerbaXylaRedd project at the AfricaMuseum (see Collaboration section), I was project coordinator, which increased leadership skills and research network. As a nominee of 200 years Ghent University and the British Ecological Society science slam, I further fine-tuned my communication skills, especially to bring science to the broader public. Part of my research was translated into policy, as it was presented on the recent Congo Basin Forest Partnership conference, to promote responsible management of the tropical forests. Then, as a postdoc at the renowned Laboratory of Tree-Ring Research (LTRR) at the University of Arizona (PI: Prof. Valerie Trouet), I transitioned gradually into the field of dendroclimatology, and gave rise to further spreading the technique of CT for deriving Maximum Latewood Density (MXD).
I am a co-PI of the FWO project ACTREAL and currently studying MXD series (with Dr. Matskovsky) from bristlecone pine, to link the collapse of past civilizations to past abrupt climatic changes such as extreme droughts or volcanic eruptions. As anatomical proxies in angiosperm trees are less developed, he focused on performing MXD on beech trees.
Since October 2021 I am setting up a new wood science and dendrochronology laboratory at Gembloux Agro-Bio Tech, Liège University. As a climate scientist and forest ecologist, I understood the impact of the use of locally sustainably sourced wood for both the local economy and for the carbon balance, and launched the public initiative "**VALBOWAL – Valorization of Woody Resources**". As a teacher, I strongly believe in maximizing the potential of students. In my current teaching curriculum, the past few years I taught the basics of dendrochronology to **192** motivated Bioscience Engineering students. A selection of those students pursued their MSc thesis within current research projects.
In addition to me, the team of "Forest Is Life" (ULiège, Gembloux Agro-Bio Tech) will provide me a scientific support, especially in image analysis (Prof. P. Lejeune) and ecological data analysis (Dr. A.

Fayolle) and climate modelling (Pr. Fettweis). I will also benefit from the research network of UGent woodlab which possesses the large equipment (X-ray computed tomography) to perform X-ray Computed Tomography measurements (see scanning costs). An advocate of open data science, but also open communication: several press releases were accompanied with papers I published. My fieldwork in California studying the ancient Bristlecone Pine trees was featured in The New Yorker.

My wide network based on previous experience has led to the inclusion of partners from all over the world. I strongly believe that my background can benefit the AGRINATURA community.

10 SELECTED PUBLICATIONS

1. **De Mil T**, Van den Bulcke J. 2023. Tree core analysis with X-ray Computed Tomography. JoVE
2. Verschuren L, **De Mil T**, De Frenne P, Haneca K, Van Acker J, Vandekerkhove K, Van den Bulcke J. 2023. Heading for a fall: predisposition of beech trees to windthrow is detectable in their growth pattern. Science of The Total Environment
3. Bytebier J, **De Mil T**, Vanhellemont M, Verheyen K, Haneca K, Van den Bulcke J. 2022. Linking wood density records of common beech (*Fagus sylvatica* L.) with temperature and precipitation variability from a temperate lowland site. Dendrochronologia
4. Van den Bulcke, J, Boone M, Dhaene J, Van Loo D, Van Hoorebeke L, Boone MN, Wyffels F, Beeckman H, Van Acker J, **De Mil T**. 2019. Annals of Botany
5. Björklund J, von Arx G, Nievergelt D, Wilson R, Van den Bulcke J, Günther B, Loader N, Rydval M, Fonti P, Scharnweber T, Andreu-Hayles L, Büntgen U, D'Arrigo R, Davi N, **De Mil T**, Esper J et al. 2019. Scientific Merits and Analytical Challenges of Tree-Ring Densitometry. Reviews of Geophysics.
6. **De Mil T**, Vannoppen A, Beeckman H, Van Acker J, & Van den Bulcke J. 2016. A field-to-desktop toolchain for X-ray CT densitometry enables tree ring analysis. Annals of Botany
7. **De Mil T**, Meko M, Belmecheri S, February E, Therrell M, Van den Bulcke J, Trouet V. 2021. A lonely dot on the map: exploring the climate signal in tree-ring density and stable isotopes of Clanwilliam cedar, South Africa. Dendrochronologia
8. Angoboy Ilondea B, Beeckman H, Van Acker J, Van den Bulcke J, Fayolle A, Couralet C, Hubau W, Kafuti C, Rousseau M, Kaka di-Makwala A, Bourland N, Deklerck V, Kasongo Yakusu E, Ewango C, **De Mil T.** 2021. Variation in Onset of Leaf Unfolding and Wood Formation in a Central African Tropical Tree Species Frontiers in Forests and Global Change
9. Hubau W*, **De Mil T***, Van den Bulcke J, Phillips OL et al. 2019. The persistence of carbon in the African forest understory. *Shared First co-authorship Nature Plants
10. **De Mil T**, Hubau W, Angoboy Ilondea B, Rocha Vargas MA et al. 2019. Asynchronous leaf and cambial phenology in a tree species of the Congo Basin requires space–time conversion of wood traits. Annals of Botany

Peer recognition

Other contributions to the research community

During my PhD, I assumed a mentoring role, providing guidance to both local MSc and PhD students from Belgium and the Democratic Republic of the Congo. This endeavor, driven by the independent nature of my research, fostered an environment of openness in sharing data and ideas. Consequently, it has had a substantial ongoing impact on research sites within the Congo Basin, extending beyond the scope of my individual academic profile. A significant portion of my doctoral work was dedicated to programming software for processing 3D core data, which is freely accessible to the wider research community. Additionally, I developed tools for handling flatbed images, enabling global generation and utilization. This accessibility aims to facilitate research and collaboration worldwide. Moreover, over the past 48 months at ULIEGE, I spearheaded the VALBOWAL initiative within the EU Commission's Smart Specialisation Strategy (S3). This initiative successfully united more than 50 enterprises and organizations, focusing on maximizing carbon storage and reducing greenhouse gas emissions by promoting the use of wood products. The collective effort was aimed at driving innovation and sustainability, making a tangible contribution towards a circular economy, underpinned by robust scientific foundations.