

Summer School 2023



PROMOWOOD

Promotion of wood as key element
for achieving net zero

19–26 August 2023

Davos, Switzerland



Background

The Paris climate agreement 2015, signed by many countries of the world, requires a drastic reduction of carbon emission to reach the "net-zero carbon goal" by 2050. Forests and wood are stated to contribute to reach the target in three ways: 1) Forests are the biggest terrestrial carbon pool globally, storing around 660 gigatons of carbon in their living and dead biomass, above and below ground; 2) Building with biomaterials stores carbon in long-lasting buildings, substitutes carbon-intense materials such as concrete or steel, and reduces energy-related emissions in the built environment; 3) Wood, if burned, can additionally be used to substitute fossil fuels – the energetic use of wood ideally does not take place as an initial use but at the end of the cascade use.

However, the promotion of wood requires not only an increased mobilisation of timber harvesting within the framework of sustainable forest management, but also new technological approaches along the entire wood value chain and new areas of application for wood in construction. How can this goal be achieved? What kind of wood is available from the forests? Does it meet the requirements for construction purposes? How will wood supply and demand change in future under climate change? And what effect does an increased demand for wood have on forests and their ecosystem services like biodiversity, protection against natural hazards, recreation, and freshwater protection? Is it possible to speed up the required systematic and societal transitions (social acceptance)? Are the right political instruments in place (regulatory frameworks)? Is the current structure of economical pathways efficient (business cases)?

The Summer School "PROMOWOOD" is following up these questions in a holistic way, considering not only the promotion of wood in construction, but also respecting the demand for other ecosystem services of our forests. It addresses forest dynamics and production, material use and flow scenarios, innovative building products, life cycle analysis and cost modelling. It aims to identify the key leverage points in the value chain to scale up wood for construction and to develop ecologically optimal wood use scenarios. The Summer School will address the topic by focusing on different angles (see Figure 1):

- a) Environmental issues: The condition, development, functioning and dynamics of forests, including the numerous processes and interactions within forest systems and their (changing) environment are ecological fundamentals.
- b) Socio-economic and political frameworks: determine the implementation of societal requirements to improve the resilience of forests in order to safeguard the multitude of ecosystem services they provide.
- c) Technical and engineering: The possibilities of new wood products focussing on the technical and engineering aspects.
- d) Transdisciplinary challenges: The promotion of wood not only involves the interlinkage of a multitude of scientific disciplines, it is additionally reliant on a working stakeholder dialog, which is why a transdisciplinary view on all issues is a key requirement.

Goal of the Summer School 2023

The goal of the Summer School "PROMOWOOD", jointly organized by the ETH-Domain initiatives MainWood & SCENE, the SwissForestLab and the NFZ.forestnet, is to provide a holistic view on the promotion of wood along the wood value chain. Experts provide in-depth understanding of the concepts, approaches, and available data. Novel modelling and assessment approaches will be discussed considering the expectations of future forests from a scientific, forest management, and socio-

economic perspective. Opportunities and challenges regarding the application of hardwood products in load-bearing structures will be presented.



Figure 1. The Summer School “PROMOWOOD” addresses multiple scientific disciplines as well as their challenges across the wood value chain (figure adapted from <http://thegoldguys.blogspot.com/>).

The participants will reflect on their own work with respect to other disciplines and discuss possible benefits of interdisciplinary approaches in their field.

Ultimately, the participants will get to know the interfaces of their own research with other methods and approaches. This will increase the impact and the relevance of their work.

Organization

The Summer School is organized around four major topics that address different aspects and challenges across the wood value chain:

1. Environmental baselines of the forest system and management scenarios.
2. Socio-economic and political frameworks.
3. Technical and engineering possibilities.
4. Transdisciplinary methods and approaches.

In each topic, experienced and internationally recognized researchers and speakers are responsible for the scientific content and the discussions (see Table 1).

In addition to the active participation in the Summer School, PhD students are expected to contribute with a poster addressing disciplinary and interdisciplinary interfaces of their own work to the major topics of the Summer School. Poster sessions will be held on Sunday and Monday (see Table 2). In addition, participants are expected to read the most important articles relevant to the major topics of the Summer School. These articles will be appointed in advance by the lecturers.

Major topics	Methods	Keynotes
Environmental baselines, management scenarios	Forest modelling, long-term monitoring, biodiversity assessments	Dr. Andrew Heald (New Generation Plantations) Prof. Andreas Rigling (ETHZ, SFL, NFZ) Dr. Esther Thürig (WSL)
Socio-economic and political frameworks	Economic analysis, Climate Smart Forestry, Market analysis or even Agent-Based Modelling	Prof. Marc Hanewinkel (Uni Freiburg, NFZ) Prof. Stefanie Hellweg (ETHZ) Dr. Antonello Lobianco (AgroParisTech) Achim Schafer (FOEN)
Technical / Engineering possibilities	Experimental investigations accompanied by numerical simulations	Prof. Ingo Burgert (Empa, ETHZ) Dr. René Steiger (Empa)
Transdisciplinary methods and approaches	Stakeholder interaction, participatory process, interdisciplinary publishing	Dr. Calum Brown (Highlands Rewilding) Prof. Erwin Dreyer (INRAE, NFZ) Prof. Claude Garcia (HAFL, ETHZ)

Table 1. Main topics, methods and lecturers

The organizing committee consists of Prof. Jaboury Ghazoul (ETHZ), Dr. Esther Thürig (WSL), Prof. Andreas Rigling (ETHZ, NFZ), Prof. Marc Hanewinkel (Uni Freiburg, NFZ), Dr. Björn Niesen (Empa), Dr. René Steiger (Empa), Prof. Arthur Gessler (WSL, SwissForestLab, NFZ), Dr. Stefan Hunziker (WSL, SwissForestLab), Dr. Julia Born (SwissForestLab) and Susanne Senn (WSL).

Preliminary program

The Summer School will start with an introductory lecture on Saturday evening. The following six days will comprise input lectures and discussions with various experts, assigned group work and two excursions to:

- Dr. Frank Krumm (WSL), Dr. Alessandra Bottero (SLF) and Dr. Peter Bebi (SLF) guide the excursion to the Dischma Valley (Marteloscope in a subalpine environment: a tacit discussion on timber use, nature conservation and other ecosystem services, Stillberg alpine tree line afforestation experiment; changes in forest cover and forest structure caused by natural disturbances; <https://www.slf.ch/en/about-the-slf/instrumented-field-sites-and-laboratories/mountain-ecosystem-research-sites/stillberg-afforestation-research.html>)
- We will visit a timber construction company and see how wood is innovatively used for different purposes.

As enrichment of the scientific scope of the Summer School and to foster transdisciplinary thinking, a workshop on stakeholder dialogue will be facilitated by Dr. Claude Garcia (HAFL, ETHZ). On the last day, the final product of the group work will be discussed, followed by a synthesis and feedback round.

Application

The 2023 Summer School can welcome around 20 highly motivated students. It is open to PhD students, MSc students in their last year and Postdocs from any country. Applications will be evaluated according to their fitting and interest in the research topic, their evidence of academic quality, and their expected benefits from this Summer School. The language of the Summer School will be English.

	Saturday 19.8.	Sunday 20.8.	Monday 21.8.	Tuesday 22.8.	Wednesday 23.8.	Thursday 24.8.	Friday 25.8.	Saturday 26.8.
MORNING		Poster Session	Poster Session	Keynote 6	Stakeholder Dialogue	Excursion innovative applications of wood	Keynote 10	DEPARTURE Hotel Shima
		Keynote 1	Keynote 4	Keynote 7	Keynote 8		Keynote 11	
		Poster Session	Poster Session		Poster Award			
		Keynote 2	Keynote 5					
AFTERNOON		Keynote 3	Excursion Stillberg	Networking afternoon	Stakeholder Dialogue		Keynote 12	
		Group Work			Keynote 9		Pres. Group work	
	ARRIVAL Hotel Shima		Group work		Synthesis Feedback			
EVENING	Introduction		Networking Dinner					
	Ice-breaker							

Table 2. Preliminary program of the Summer School PROMOWOOD

Costs

Fees: 1'000 Swiss Francs (exclusive of VAT). This includes accommodation (shared rooms) at the Hotel Shima (<https://www.shima-davos.ch/>) and meals (vegetarian – for the sake of our climate) from dinner on 19 August to breakfast on 26 August, course materials and excursions. Accepted participants are expected to bear travel costs to Davos.

Application for the 2023 Summer School PROMOWOOD

Please register here:

Summer School web page:

<https://swissforestlab.wsl.ch/en/events-and-outreach/summer-school/2023.html>

Online registration:

https://conf.wsl.ch/swiss_forest_lab_2023_2.8/

For registration, please provide your CV, a motivation letter (one A4 page) and an abstract of your PhD/MSc thesis or your current project.

Registration deadline is May 15, 2023. If you have any questions, please contact the organizing committee: swissforestlab_summerschool@wsl.ch