Call for Joint Field Trial – Moisture Performance of Wood

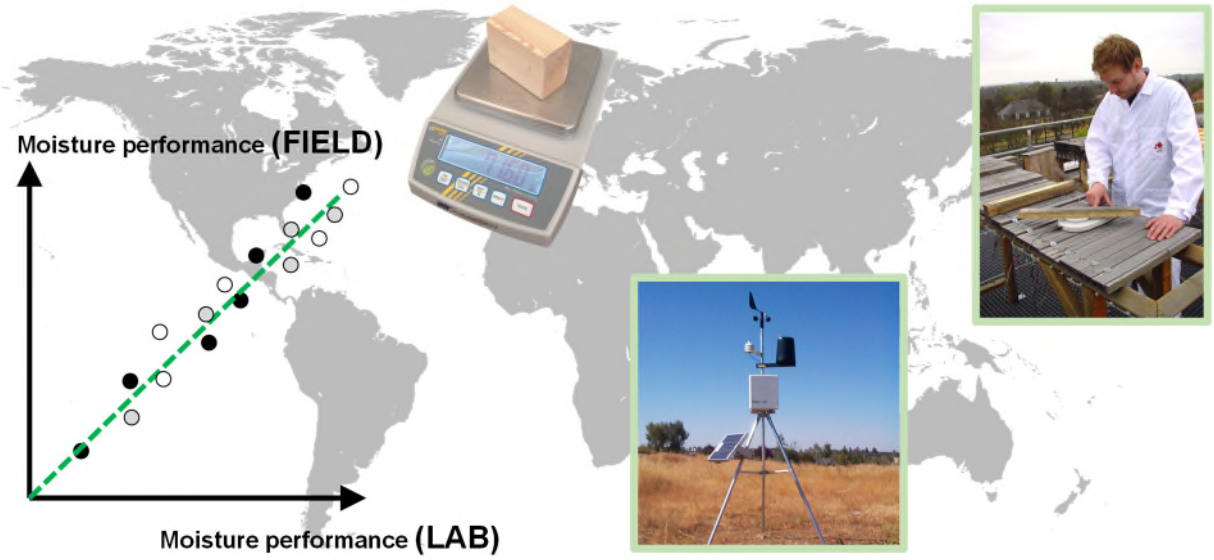
Background

Wood durability is essentially the consequence of mutual effects of wood extractives affecting its degradability by wood decay organisms and the moisture performance of wood. Hydrophobic substances which may occur naturally in wood have the potential to reduce the uptake of water in liquid or vaporous form. Similarly, impregnation or water repellent treatments of wood and different cell wall modifications have the potential to improve the moisture performance of wood and shorten the time of wetness and with that its susceptibility to decay during service.

Numerous mechanisms of moisture uptake and release can be considered separately through respective laboratory tests, which are generally more rapid, more reproducible, and more accurate compared to field tests under varying climatic conditions. However, the interrelationship between lab-based moisture indicators and field moisture performance is complex and models to describe this complexity are still lacking.

Objectives

This initiative aims at the establishment of mathematical relationships between (1) measures from simple laboratory experiments representing different types of wood moisture uptake and release and (2) the time of wetness that those timbers experience during outdoor weathering at climatically different locations.



Experimental set-up

Before the samples are distributed to the different partners different laboratory moisture performance tests will be performed with a selection of timbers with varying moisture performance. Axially matched specimens will be distributed among the participants for outdoor exposure at their respective sites. The set-up will be simple and moisture content shall be recorded based on weighing. Specimens shall

be exposed on horizontal racks 1 m above ground and weighed regularly. The total number of specimens per partner will be 75.

What you need to deliver

Every participating partner shall expose 75 specimens on horizontal test racks 1 m above ground. The samples need to get weighed 2-3 times per week during a period of at least 12 weeks. Spreadsheets for recording of data will be provided.

Furthermore, weather data shall be recorded as close to the test site as possible and delivered for each day of exposure. The following data are required: daily rain sum, daily average temperature, and daily relative humidity.

What your benefit will be

You'll be part an international joint IRGWP collaborative research activity. You'll get access to the full data set provided by the participants including those from laboratory tests performed at selected laboratories. The results of the trial shall be presented at IRG 54 in Cairns, Australia, and will get published as a joint IRG-paper with you as a co-author.

Costs involved

The costs for raw material and manufacturing of the specimens will be covered by the University of Goettingen. Costs for shipment of the wood specimens will be strongly dependent of the destination and need to be covered by the respective participant.

Call for participation

We strongly encourage your participation. The set-up of this global collaborative trial will be very simple, labour and material costs will be rather low, while the scientific impact of teaming up for this initiative will be significant.

If you are interested to join and if you can provide the requested data, please contact:

Christian Brischke at University of Goettingen via: christian.brischke@uni-goettingen.de

In case of open questions please do not hesitate to contact me!