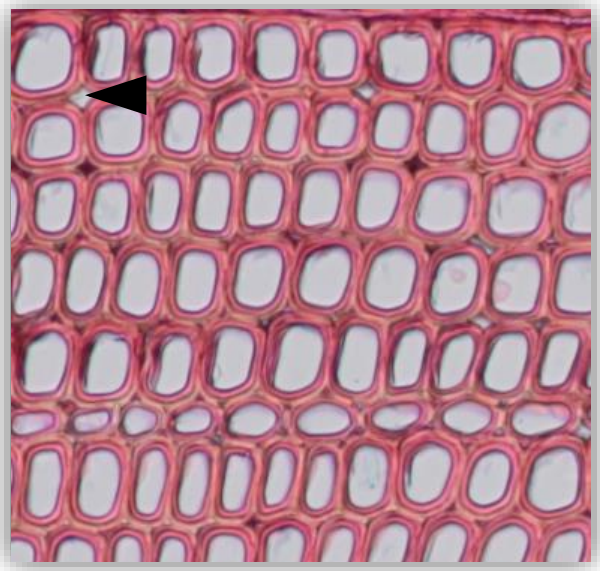
Report on training period at Swiss Federal Research Institute WSL, Birmensdorf, Switzerland

From April 20th to 30th 2015 I served an internship at Swiss Federal Research Institute WSL in Birmensdorf, Switzerland as a part of my master thesis research on *Influence of compression wood on the climate signal in tree-ring width, blue reflectance and stable isotopes of Norway spruce*. Compression wood is a special tissue present in the trunk of mechanically stressed coniferous trees, which more frequently occur in branches and roots. The main role of the compression wood is to increase the mechanical strength and regain the vertical orientation of a leaning stem. The anatomical structure of compression wood is characterized by (i) rounded tracheids causing intercellular spaces,(ii) a thickened secondary wall ($S_2$) showing helical cavities, and (iii) lack of tertiary wall ($S_3$) (Fig. 1).

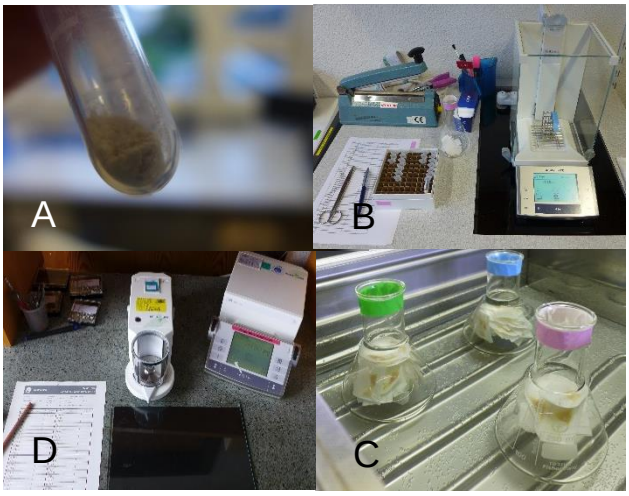
Fig. 1. A typical structure of compression wood in conifers (Norway spruce). Black arrow indicates the intercellular space (Photo by K. Janecka).



For dendroclimatological applications, the occurrence of compression wood has to be handled with caution since it can bias the climatic signal. Therefore, the aim of my study is to test if and how the presence of compression wood of different intensity influences the climatic signal in i) TRW, ii) blue reflectance (BR), and iii) the composition of stable carbon and oxygen isotopes ($\delta^{18}O$ and $\delta^{13}C$).

To realize a part of my thesis connected with isotopic measurements it was necessary to visit WSL, the institution specialized in that type of analyses. The traineeship was coordinated by Dr Kerstin Treydte being a member of Dendroclimatology group at WSL. The training period was aimed to train me in preparing wood samples for isotopic ($\delta^{18}O$ and $\delta^{13}C$) measurements. The process was composed of the following steps:

- Separation of tree rings;
- Milling of wood samples to wood powder (A);
- Packing wood to Teflon bags and Eppendorf (B);
- Cellulose extraction (C);
- Packing cellulose to tin capsules for mass spectrometry (D).




The results are presenting during TRACE conference organized in Seville from May 20th to 23th 2015 as an oral presentation.

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