



STReESS – Studying Tree Responses to extreme Events: a Synthesis

Effect of Stress on Wood Quality: Chemical Point of View

COST Action: FP1106

STSM Reference code: COST-STSM-FP1106-16149

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Host: Prof. Manuela Romagnoli, University of Tuscia - Department of Science and Technology for Agriculture, Forestry, Nature and Energy, Viterbo, Italy

Period: 26 March – 06 May, 2014

Aim of the STSM

The main purpose of my STSM was to analyze the Turkish Red Pine (*Pinus brutia*) samples we have taken earlier with Bilgin Güller and her team in Turkey to examine the relationship between the climatic conditions (extreme events) and wood quality. Parallel to this, we wanted to make relationship between wood quality and chemical compounds during, before and after the extreme climatic conditions. I also wanted to improve my knowledge on wood anatomy and dendrochronology.

Description of the work carried out during the STSM

I can explain our work in step by step:

- Bring 300 increment cores from Turkey.
- Located some extreme events (false or narrow rings) on 20 samples by optical synchronize.

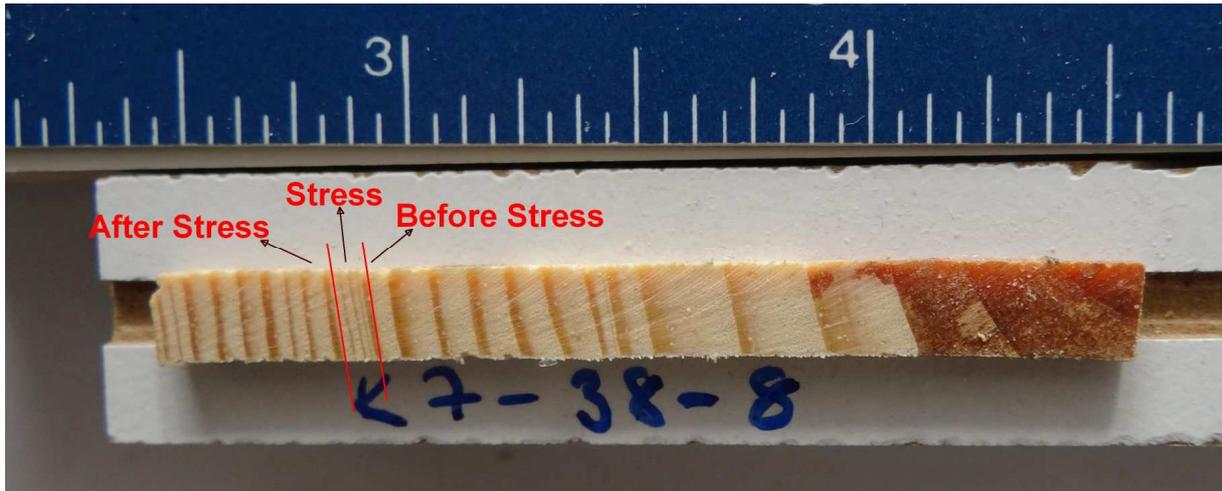


Figure 1. One of the increment cores

- Measure ring width on selected cores (Early wood and late wood separately)
- Synchronize the years with CATRAS software.
- Cut pieces on stress period, 3 years before and after stress period.
- Pieces became ready for GS/MS analyses on the mill.



Figure 2. Milling Machine

- Made GS/MS analyzes via pyrolysis method on 60 samples.



Figure 3. My Samples



Figure 4. GC/MS Instrument

- Analyze results (in progress).

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File      : C:\HECHEM1\DATA\GURCAN\8-1.D
Operator  :
Acquired  : 17 Apr 14  15:25      using AcqMethod FASE1701
Instrument : GC/MS Ins
Sample Name:
Misc Info :
Vial Number: 1
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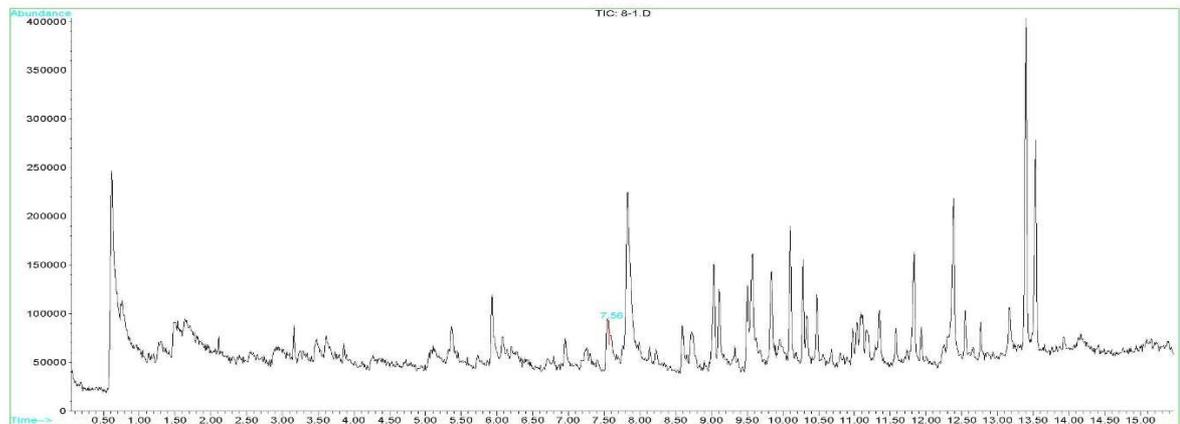


Figure 5. One of the GC/MS results

- Compare stress period, before and after this period with statistical way (in progress).

Description of the main results obtained

At the end of the STSM, I have definitely improved knowledge of dendrochronology, wood anatomy and chemical analyses. Also we believe we will find some differences on chemical compound between stress period and before-after stress period when we complete analyses.

Description about how the results contribute to the Action aims

During this STSM, according to Topic 9's aim - Effect of Stress on Wood quality, we try to link wood quality and extreme events on chemical point of view.

Projected publications to result from the STSM

Once I complete the GC/MS analyses, I will prepare a manuscript based in all the results of my STSM. It will be submitted to an international peer-reviewed journal. Furthermore, all these results will form an output for the COST Action, FP1106, STREeSS and would be presented in the next conferences which is about STREeSS.

Acknowledgements

I would like to thank the STReESS Cost Action (FP 1106) for funding this STSM. I would also like to thank Prof. Manuela Romagnoli and Dott. Vittorio Vinciguerra for their welcome and help during my visit. Also I want to thank Assoc. Prof. Dr. Bilgin Güller to encourage me to be part of this action.

- I authorize to post this report at the Action website.
- The letter of confirmation by the host institution of the successful execution of the STSM is attached in a separate file.