

Abstract template for the conference “A century of national forest inventories – informing past, present and future decisions”

Dear author. This is a two-page template that in the first page will ask for information on presenter name, topic, and preferred presentation form.

On page two, you are asked to fill in your abstract in the format and font size indicated. Please remember to include authors affiliation information in the footer section of page two. The length of the abstract may not be more than one page including references.

Abstract title:		Use of sample cores collected in Romanian National Forest Inventory on forest trees growth study
Take-home message:		<i>The growth of forest tree species has changed in the last decades under the influence of climate change. The sample cores collected in the first NFI cycle (2008-2012) from sample plots located in a systematic grid covering all Romanias' territory is an excellent dataset to detect the growth trend of forest tree species.</i>
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Presenter contact info:		Responsible for National Forest Inventory in Romania
General topic, see website: <small>(please double click on the check box and activate the relevant one)</small>	<input type="checkbox"/>	Improving future NFIs by learning from the past
	<input checked="" type="checkbox"/>	NFIs today and in the future
	<input type="checkbox"/>	Cutting edge and futuristic inventory techniques and technologies
Preferred presentation form:	<input checked="" type="checkbox"/>	Oral presentation
	<input type="checkbox"/>	Poster
<i>Abstracts will be reviewed by members of our scientific committee and you will be given information on decisions in due time after the submission deadline has passed.</i>		

Use of sample cores collected in Romanian National Forest Inventory on forest trees growth study

Gheorghe Marin

Introduction: The Romanian National Forest Inventory was established in 2006. It is designed as a continuous forest inventory with 5 years period cycle, is based on systematic sampling, is a two phase NFI and combines measurements in permanent sample plots with measurements in temporary sample plots. The sample cores collected in the first NFI cycle (2008-2012) is a robust dataset for detecting the growth trend of forest tree species. The aim of the study is to analyse the growth trend of the main tree species and to detect the tree growth differences of these species in 21 ecological homogenous areas covering all territory of Romania.

Materials and methods: The materials used consist on more than 30.000 sample cores collected in the period 2008-2012. The collected sample cores have been stratified to cover a larger spectrum of ages. The sampling has been made in order to create a database from trees that rich the same ages at different years. Dendrochronological series were made from a sequence of annual rings width, which correspond to a specific growing year of the tree. Aplying a series of tests, we have checked if each annual ring is correctly associated with the corresponding growth year. In this manner, the series are synchronized.

Results: The mean width of annual rings curves have been calculated separately for each ecological region as a simple mean. The differences among regions are tested, using a non-linear decreasing model with the aim of modelling the decreasing width of core rings. The model we applied is Hugerhoff model. To test if the growth of each species differs among regions, model residuals have been analysed. An analysis of variance was applied on residuals, with the region as a fix factor. The analysis of variance shows that the influence of the region is significant for some tree species. A post-hoc Turkey HSD test on residuals of Hugerhoff model was applied. The equality variance hypothesis among region couples is respected, since ANOVA analysis has been applied on Hugerhoff model residuals.

Conclusion: The study shows that the annual ring widths for a specific tree species are larger from an ecological region to another at the same age, in some situations. The results show that a regional approach in forest management can be predicted, based on the growth characteristics of the trees from each region. At this time, the forest management is made similar in all regions of Romania, regardless the growth differences of tree species in different regions.