PRESENTATION ON APPLIED PERIOD

By Kwadwo Omari

MSc EF 2008-2010

MAJOR ACTIVITIES

- Conference on growing valuable broad leaved tree species (VALBRO conference)
- Excursions
- Lecuture on Research Networks in Europe
- Measurement of IWW demonstration plots
- Scientific project

Measurments of IWW Demonstration plots

- Tree diamter measurements at Kaiserstuhl and Mooswald.
- Objective

  Diameter development

  Selection of future crop trees

Exucursions

- Gundlingnen, Rhine Valley, Germany; valuable wood production with cherry.
- Breisach, Rhine Valley, Germany; valuable wood production within agroforestry systems.
- Alsace, France; National Forest Service
- Forest District of Johanniskreuz ; valuable oak production site

SCIENTIFIC PROJECT

PROJECT TOPIC

Identification of ring boundary of teak (*Tectona grandis*) ,from the transition zone of Ghana, using the wood density profile.

OBJECTIVES

- To describe the density profile of *Tectona grandis* from the bark to the pith.
- To determine a characteristic density signal at the growth ring boundary.
- To describe the density pattern within a growth ring from early wood to late wood.
- To compare the above parameters with trees from the Evergreen zone of Ghana.

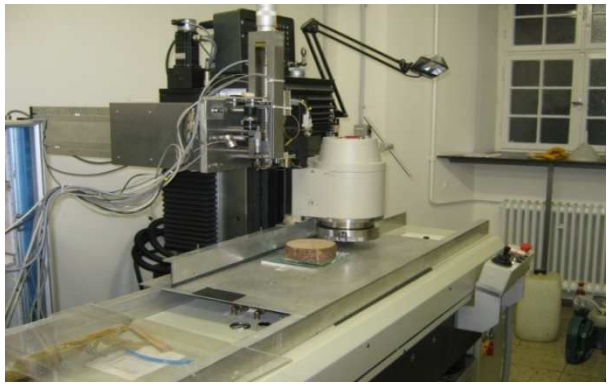
HYPOTHESIS

- There is intrannual density variation pattern that can be used to identify growth ring boundaries of teak (*Tectona grandis)* from the transition zone of Ghana.

METHODOLOGY

- Stem discs of teak

- High Freqency Densitometer



- Tree ring measurement system

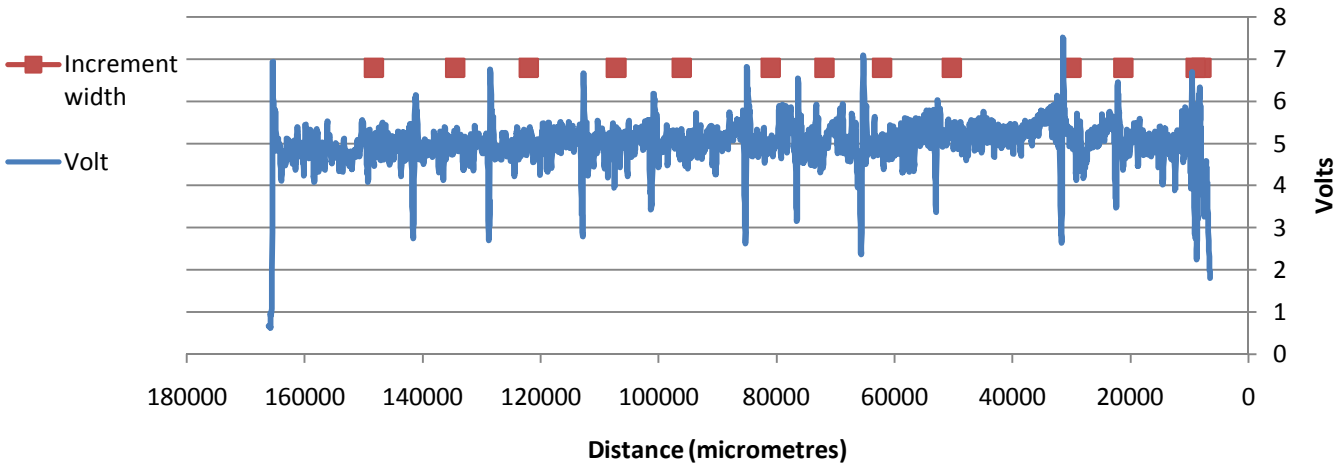
Methodology

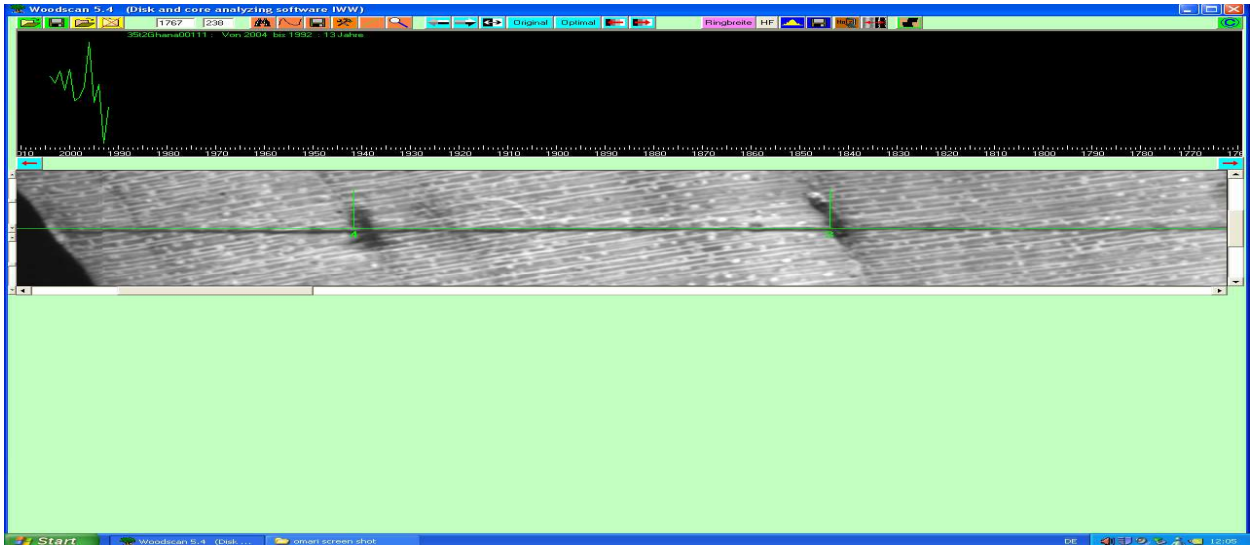
- Eight samples, out of nine which gave the possiblity to measure the increment width along the radius where the density had been measured were considered.

- Match between macroscopic anatomical analysis and microscopic anatomical analysis

RESULTS AND DISCUSSION

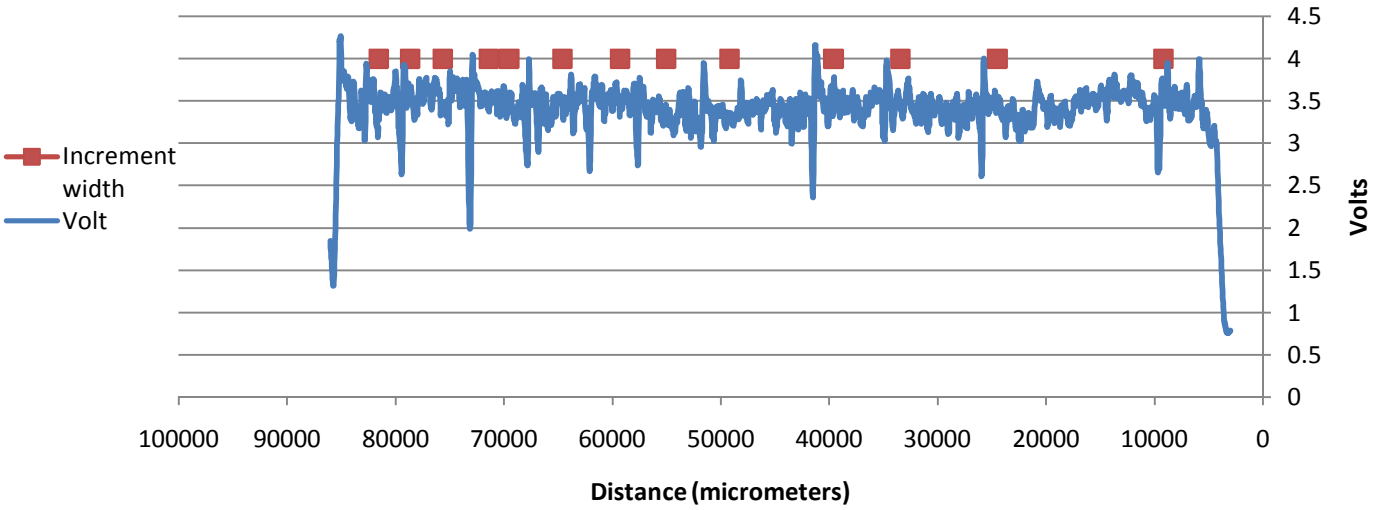
Density profile of sample 35T2

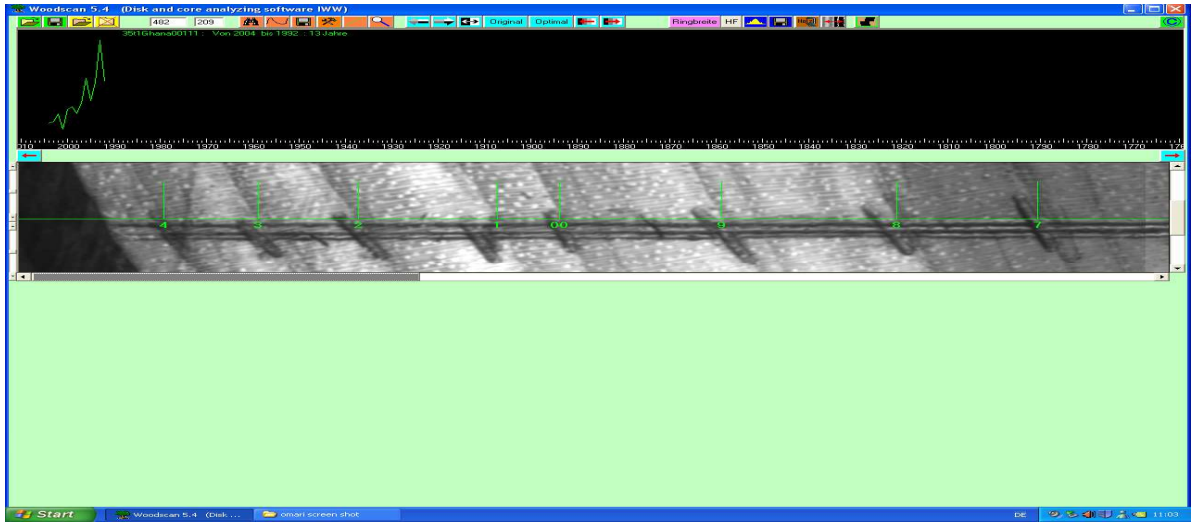




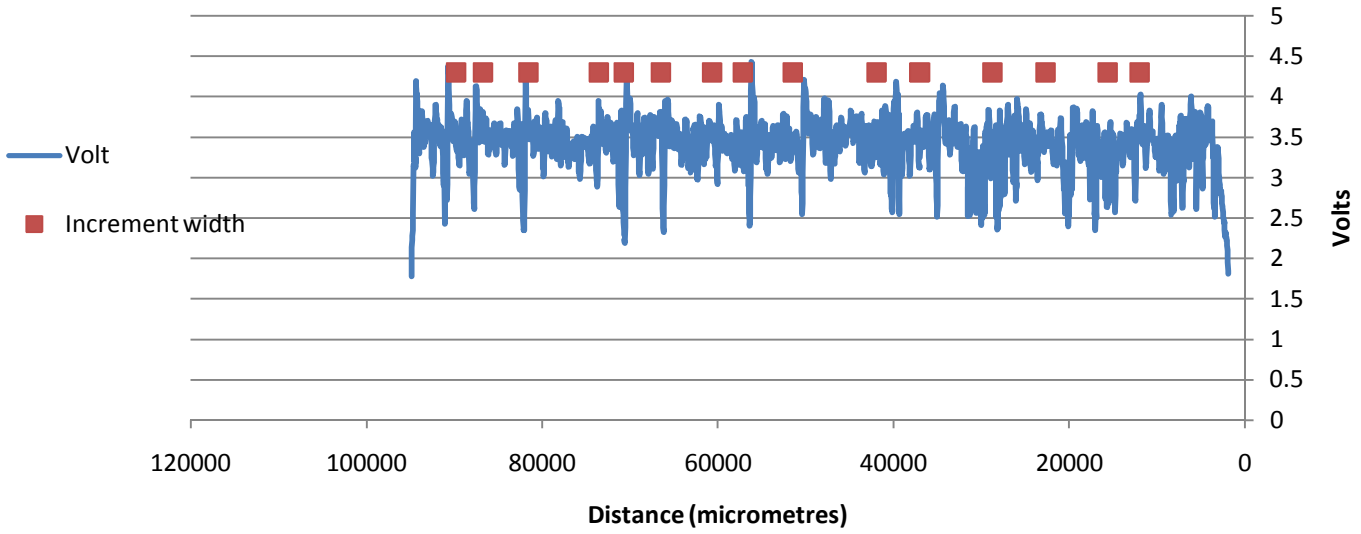
Period of growth: 1991-2004 (13 years)

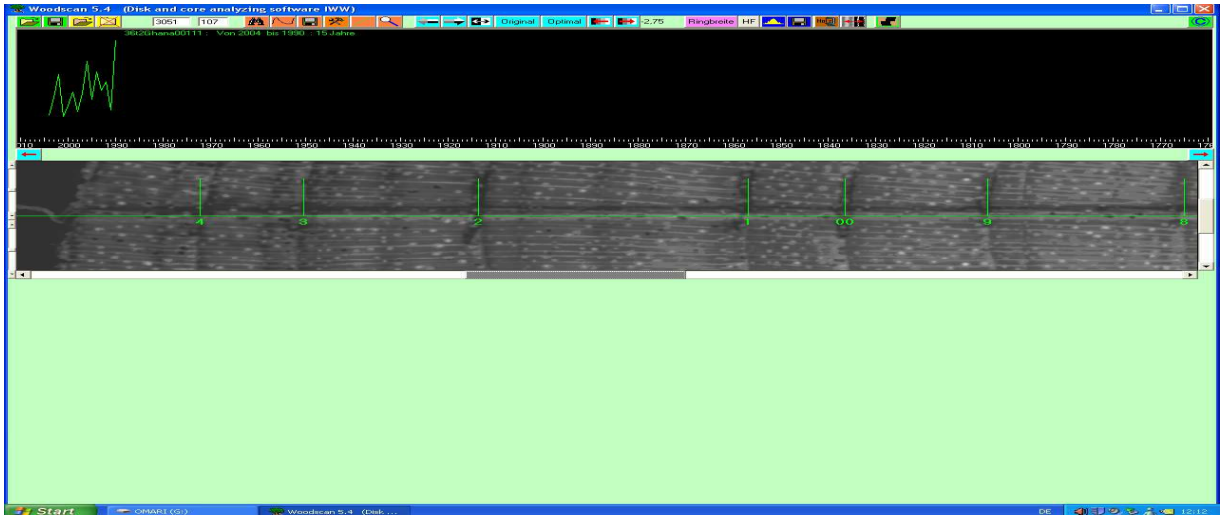
Density Profile of Sample 35T1





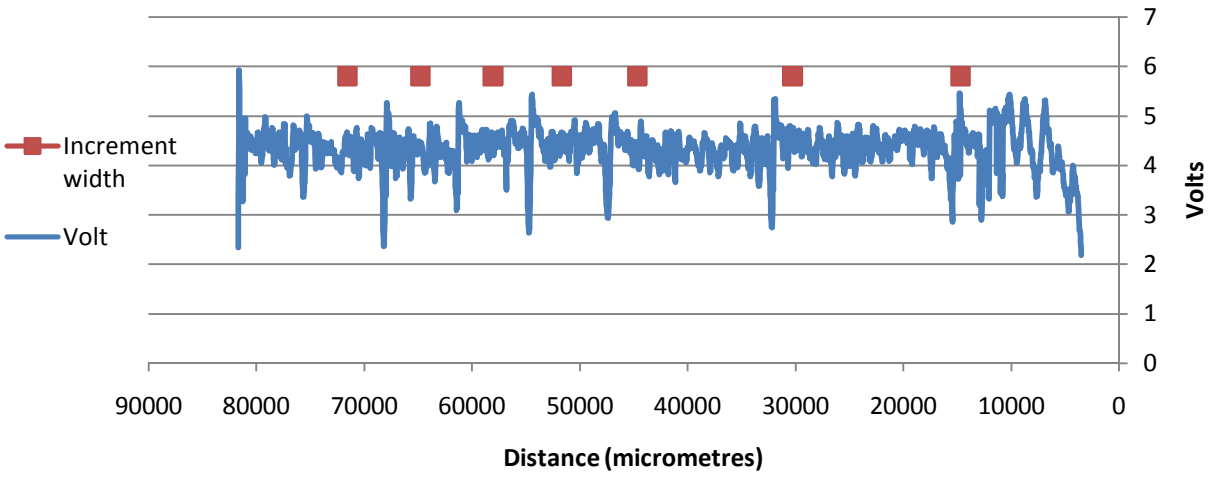
Period of growth: 1991-2004 (13 years)

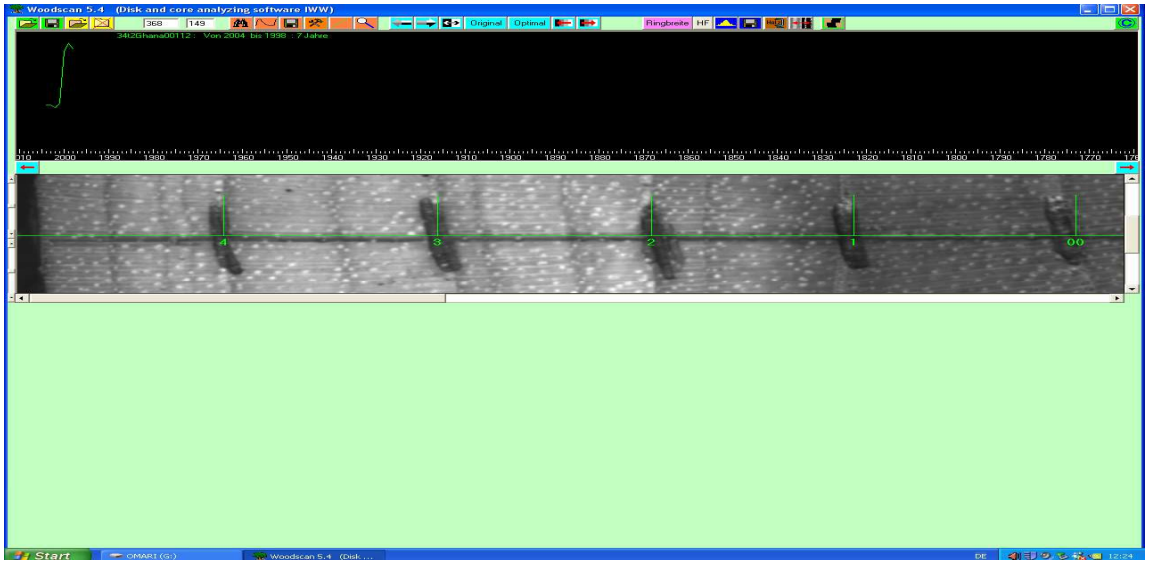




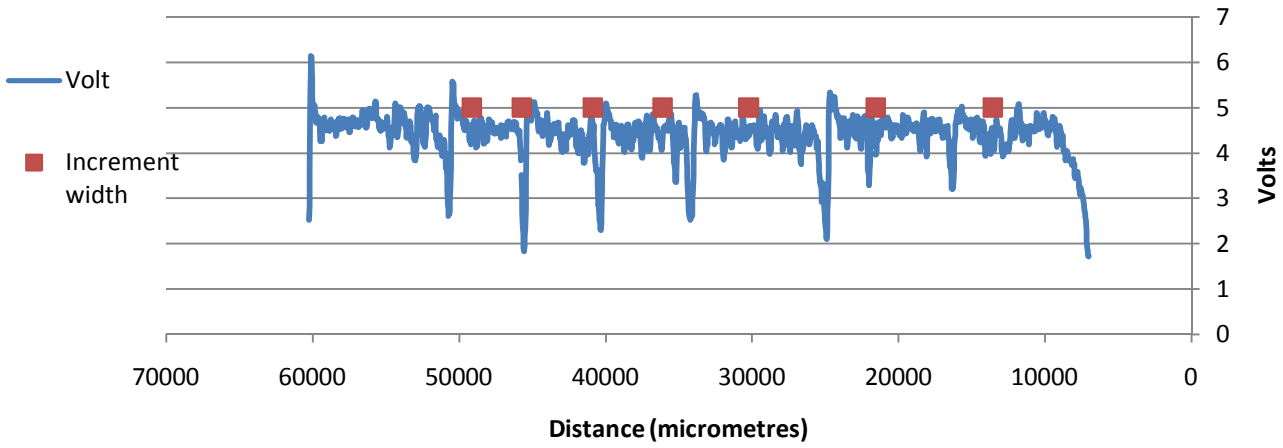
Period of growth: 1989-2004 (15 years)

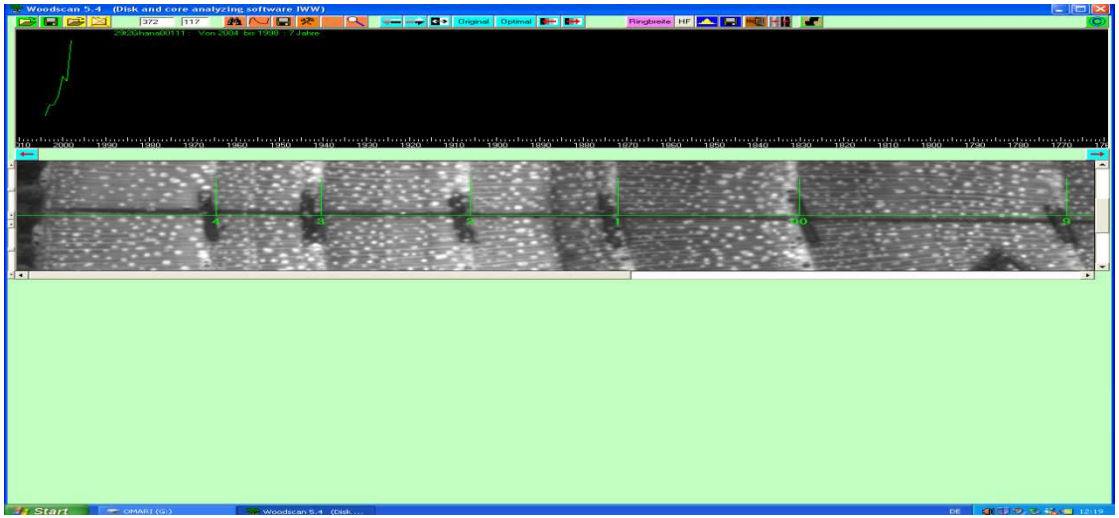
Density Profile of Sample 34T2





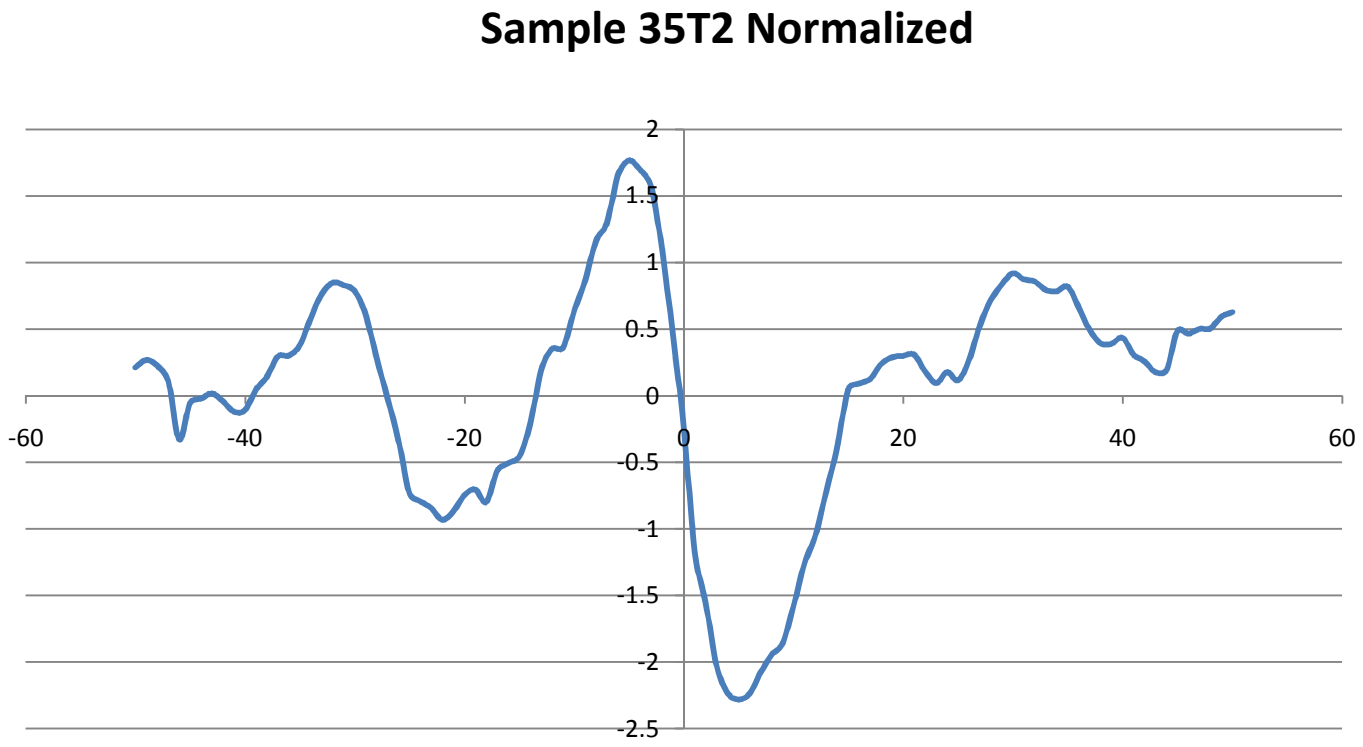
Period of growth: 1987-2004 (7years)



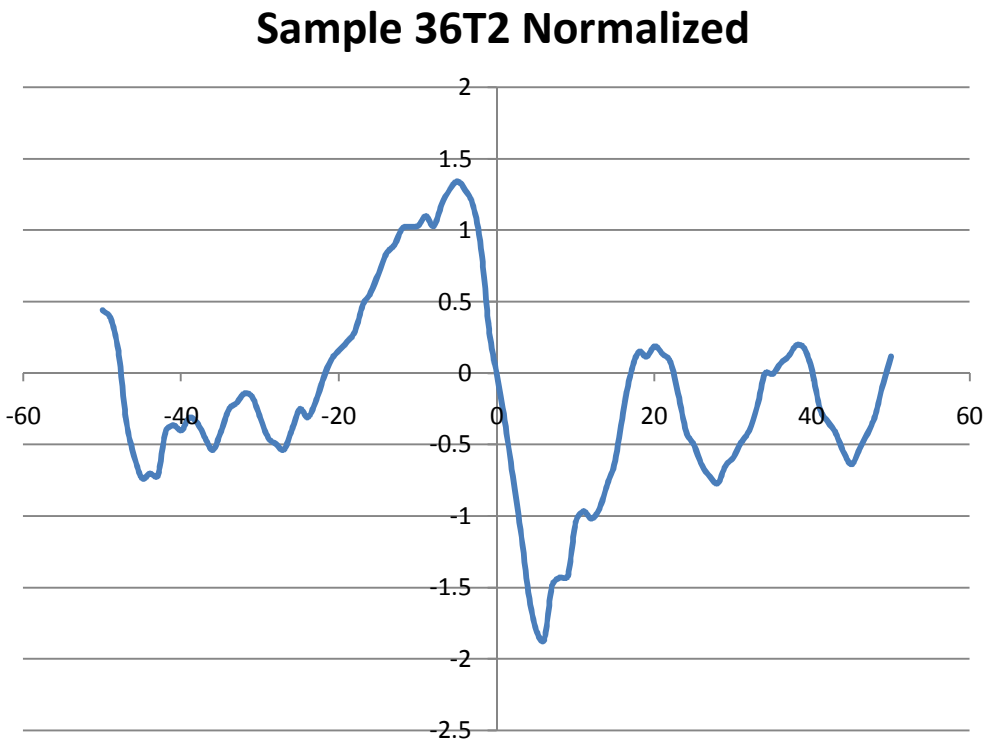


Period of growth: 1987-2004 (7years)

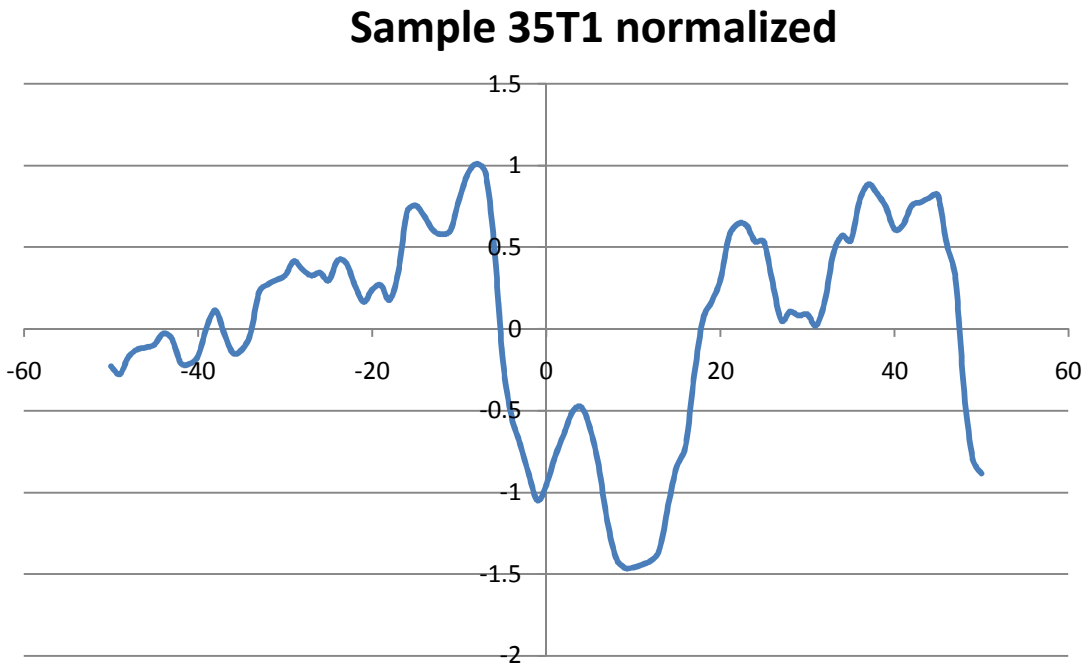
Density Pattern at tree ring boundary



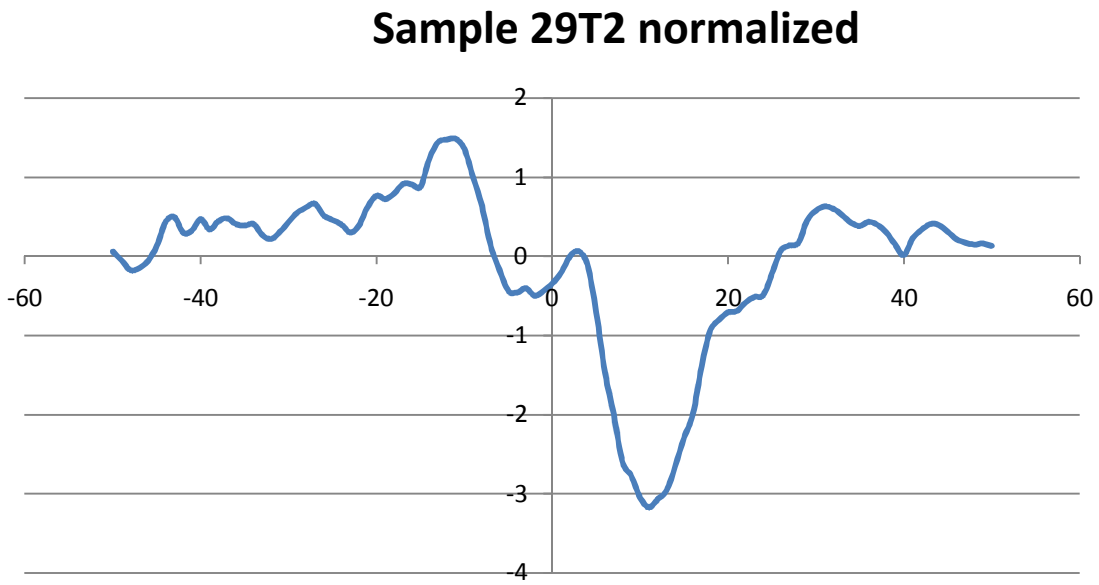
Dnsity Pattern at tree ring boundary



Density Pattern at the tree ring boundary

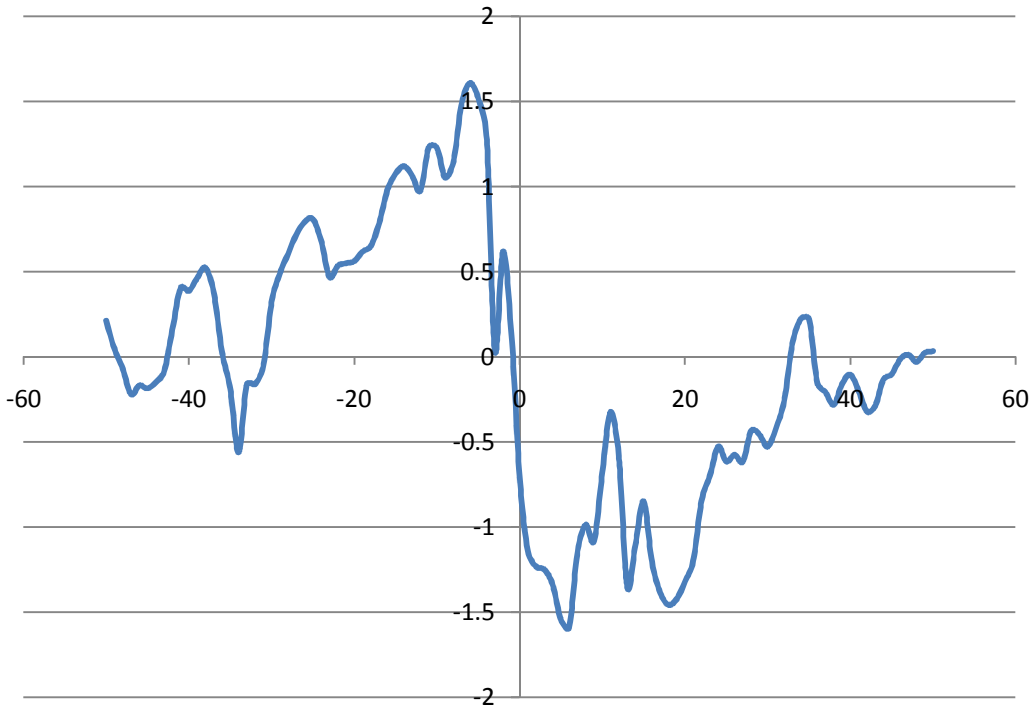


Density Pattern at the tree ring boundary



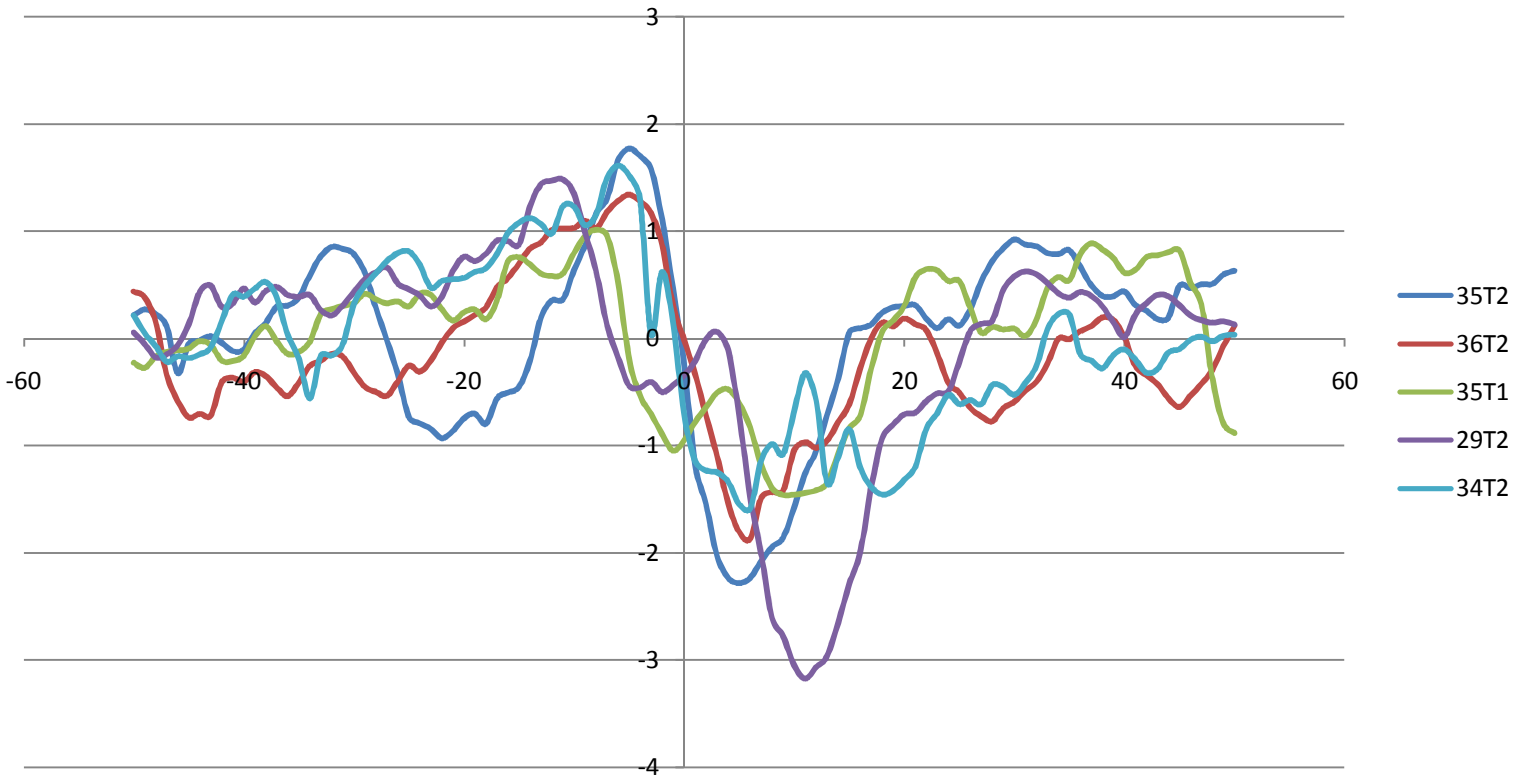
Density Pattern at tree ring boundary

Sample 34T2 normalized

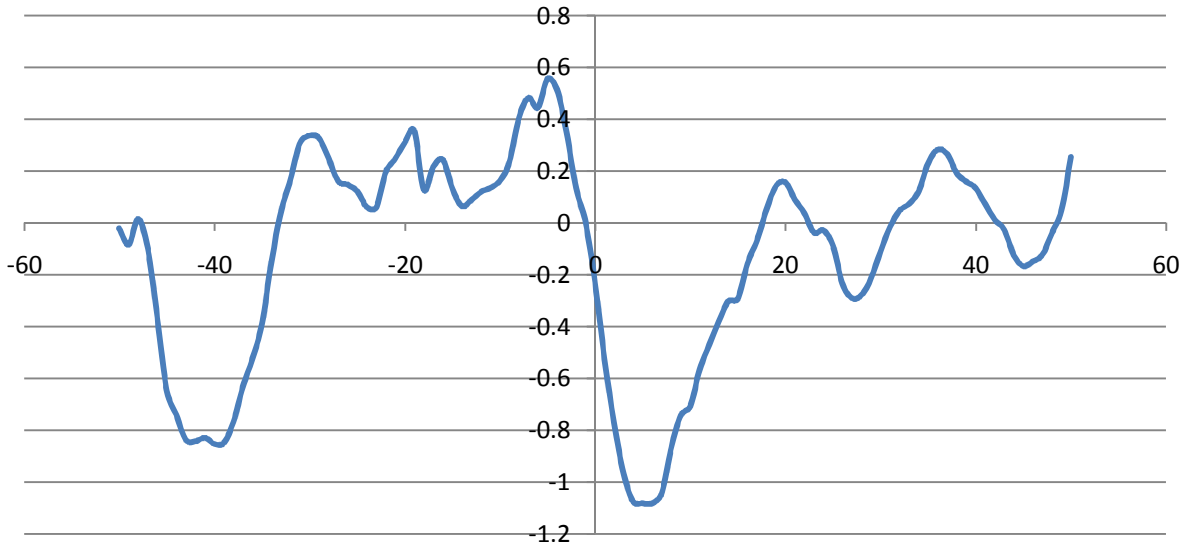


Highest volt value=4,996667 volts
Lowest volt value =3,756333 volts

Comparision of normalized values of all five samples

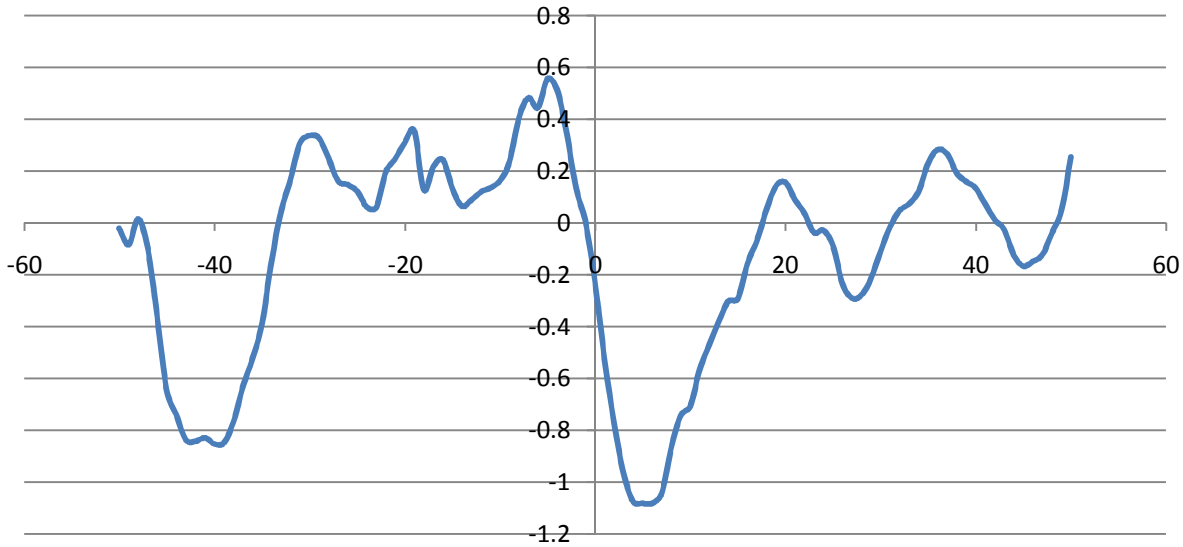


Average of all five samples (normalized)

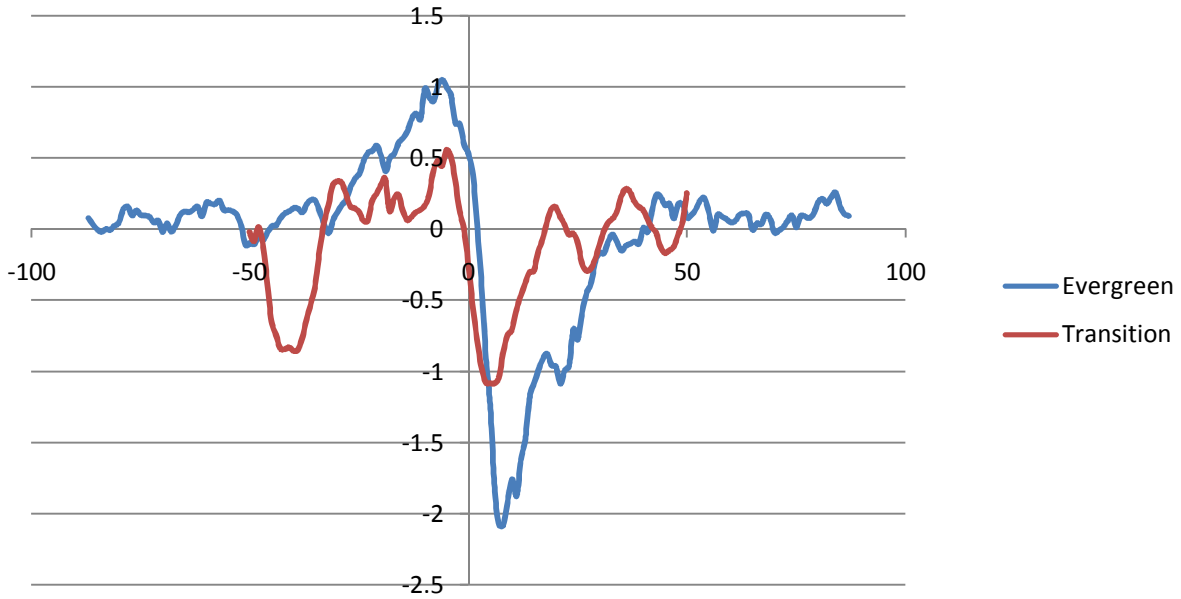


- Characteristic signal at the tree ring boundary
- Highest volt value= 4, 436333 volts
- Lowest volt value =3,6504 volts

Density pattern from early wood to late wood



Comparison between transition and evergreen zones of Ghana



Sumarry of scientific project

- Intra-annual density variation offers little possibility in determining a growth ring boundary of teak from the transition zone of Ghana.

- Inter-annual density variations of the latewood at the end of one growing season and the earlywood at the beginning of the next growing season give the characteristic density signal useful in determining the growth ring boundary. However, visual observation is also needed.

Sumarry of scientific project

- There is a characteristic density signal at the growth ring boundary which could be used for the identification of growth ring boundaries of teak from the transition zone of Ghana.

- At the tree ring boundary, there is a sharp density decrease, from the latewood of one growing season to the early wood of the next growing season.

Sumarry of scientific project

- There is a general pattern within a growth ring from earlywood to late wood. Within the ring, the lowest density is found in the region of the earlywood. From the earlywood the density increases until the latewood is reached where relatively higher density values are recorded.

- Teak trees from the transition zone of Ghana show s a similar density profile to teak trees from the evergreen zone of Ghana.

Overall impression about Applied Period

- The Applied Period is a very useful part of the Master of Science in European Forestry Programme. It gives students the opportunity to have a hands-on experience in forestry. It should thus be continued.

ACKNOWLEDGEMENT

- The Institute for Forest Growth, Univeristy of Freiburg
- Dr. Hans Peter Khale
- Kenneth Anyomi
- Philip Wiener
- Felix Baab
- Sabastian Späth
- Marianne Stadler
- Arun Bose

THANK YOU

This document was created with Win2PDF available at http://www.win2pdf.com.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.
This page will not be added after purchasing Win2PDF.