Tree rings- do they talk about people?

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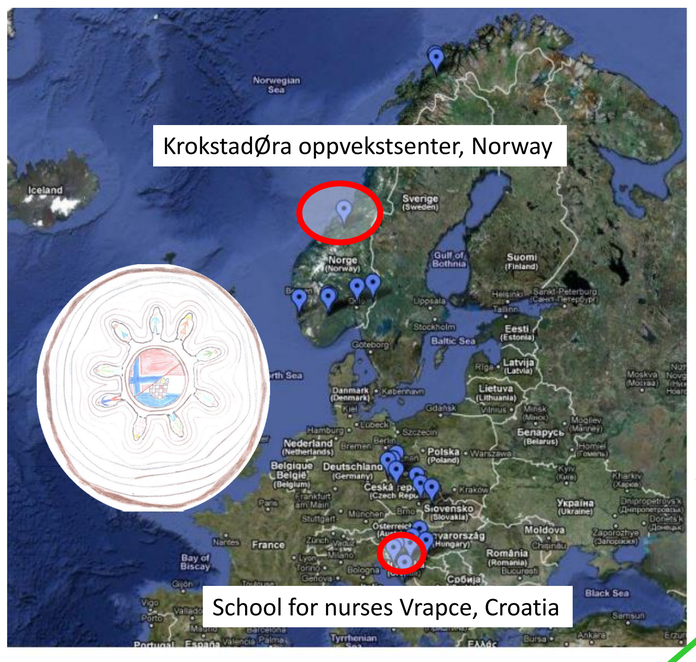
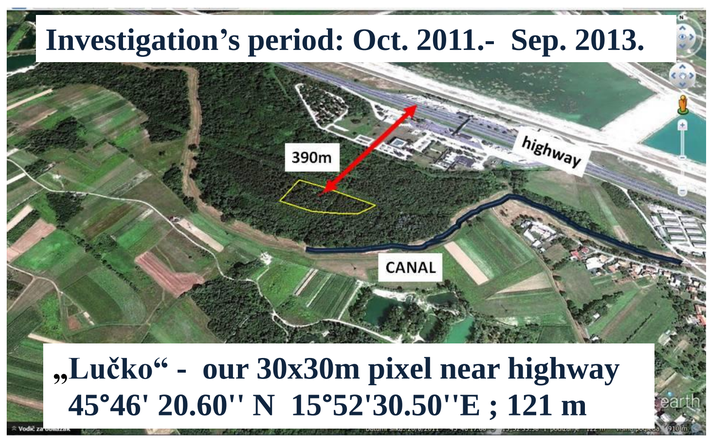
LOCATION

Croatia - east coast of the Adriatic sea, combines mediteranian with continental climate chracteristics.
Capital Zagreb - norhtwestern central part, divided in two parts by river Sava. 16th meridian goes through it as well.



INVESTIGATION'S AREA

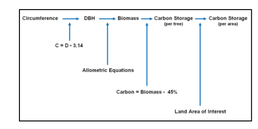
GLOBE's "Tree Ring Project" as part of SCRC includes 24 schools from Norway, Czech Republic and Croatia divided in pairs, so called Twin schools. Our twin school is from Kroekstadoera, Norway. Our task is to analyse **rings of Pinus nigra**, meet each other, get to know each other and to discuse our observations.This project came out from this cooperation.



pH	8	Slightly alkaline, in limits of tolerance dopuštenog (lime-stone base)
O_2	10mg/l	Air temp. was 10°C, oxygen amount is standard, doesn't show pollution
CO_3	142,8 mg/l	Raised (low percipitation)
N O_3	10mg/l	**To much, probably from fertilizer**
NO_2	0,02 mg/l	Slightly raised
NH_4^+	0,05 mg/l	Slightly raised
PO_4^{3-}	0,5 mg/l	Slightly raised

GLOBE ACTIVITES

MUC clasification



Total biomass of the trees and carbon storage ammount- Allometric equations

Biometry activities, especially measuring DBH and dammage degree of a 20 pinus nigra trees

Soil and water analysis

Soil species	**clay (65,7 %)**
texture	sticky,less then 0, 002 mL
pH	6 (slightly acidic)
consistens	friagle
Horizont structure	blocky
carbonats in soil	slight

SAMPLES AND SKELETON PLOTTING

Step by step…

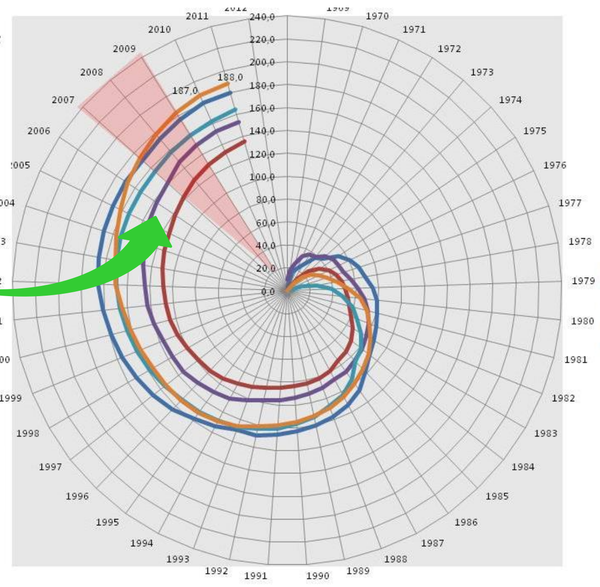
We transported our samples and prepared them carefully.

RESEARCH QUESTIONS

1.Was the growth of our trees interrupted in his expected rhythm?

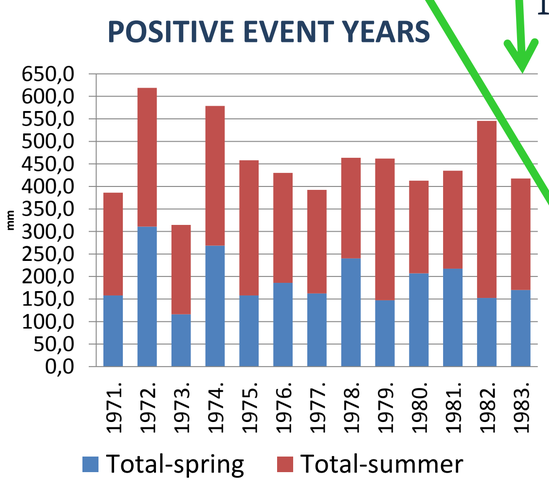
GROWTH OF A TREE – stagnation in pointer years – III cathegory

YES!!

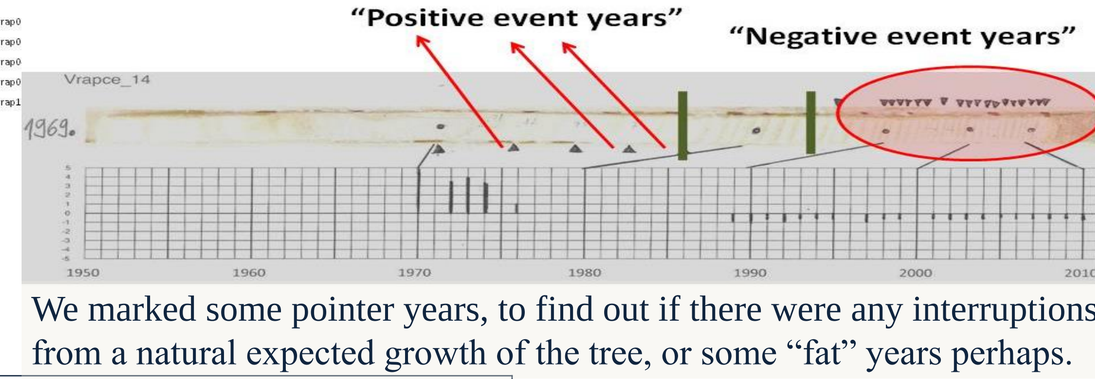


2. In that period of irregularities were there any significant climate changes indicators or some other kind of influence evidences?

NO!!



YES!!



We marked some pointer years, to find out if there were any interruptions from a natural expected growth of the tree, or some "fat" years perhaps.

Year:	Pollution's cathegory at station Susedgrad:	Pollutants:
2002.	No data	
2003.	No data	
2004.	II.cathegory	flying particles
2005.	II. cathegory	flying particles
2006.	II. cahtegory	PM_{10}flying particles
2007.	**III. cathegory**	PM_{10} oversteped LV (LV50µg/m^3=35,measured 97!) (RV70µg/m^3=35,imeasured 39!) mostly in March and April ,again in October and novemberl
2008.	**III. cathegory**	PM_{10} overstepd LV (LV50µg/m^3=35,measured 116!) (RV65µg/m^3=35,measured 49!) mostly in January and February rased level of Tl - 126P of Talium
2009.	II. cathegory	PM_{10} oversteped LV (GV50µg/m^3=35 measured 50!) (LV65µg/m^3=35,measured 24!) rased level of Tl - 126P of Talium
2010.	II. cathegory	PM_{10} flying particles
2011.	II. cathegory	PM_{10} flying particles;Measuring limit for air pollutants regardes to human health:highest limit (30µg/m^3) oversteped 145 times! Lowest limit (20µg/m^3)oversteped je 222 times

CONCLUSION

The growth of our trees was interrupted in his expected rhythm. Irregularities are not caused by climate changes factors, the most negative influence made at trees comes from people and, according to Pinus nigra's resistance, humans worked very hard to achieve that result.

WHAT COULD WE DO NEXT?

Trees are growing well when May temperatures are low. Also the influence of precipitation (rain) is strongest in May. Much rain is slightly correlated with good growth. Is May really the most important month in the pointer years?

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