

OPTUŽUJU LI GODOVI LJUDE ?

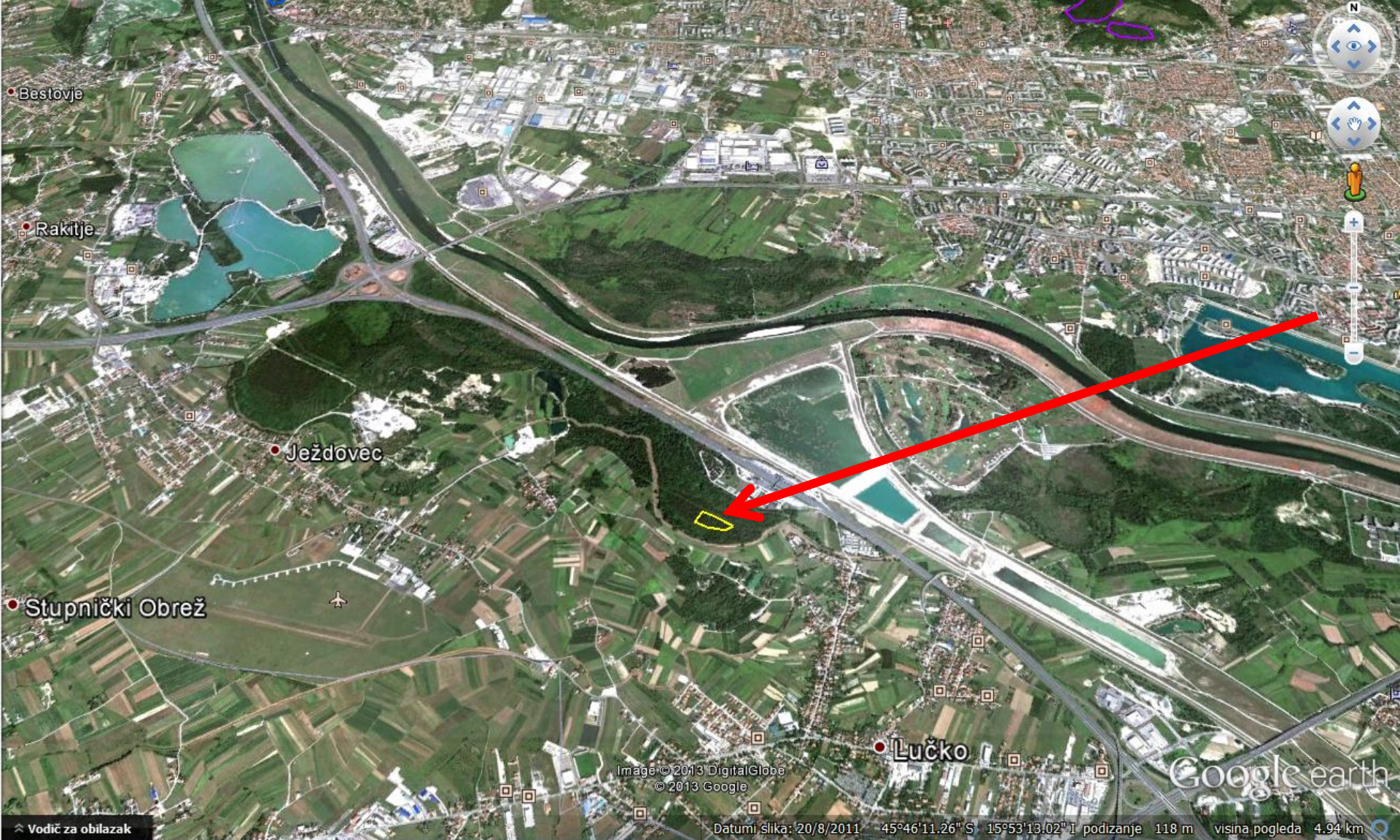
Autori: F.Matijašec, M.Buva, R.Vraneković,K.Dujmović

Mentori: I.Beck,prof., M.Labaš,prof

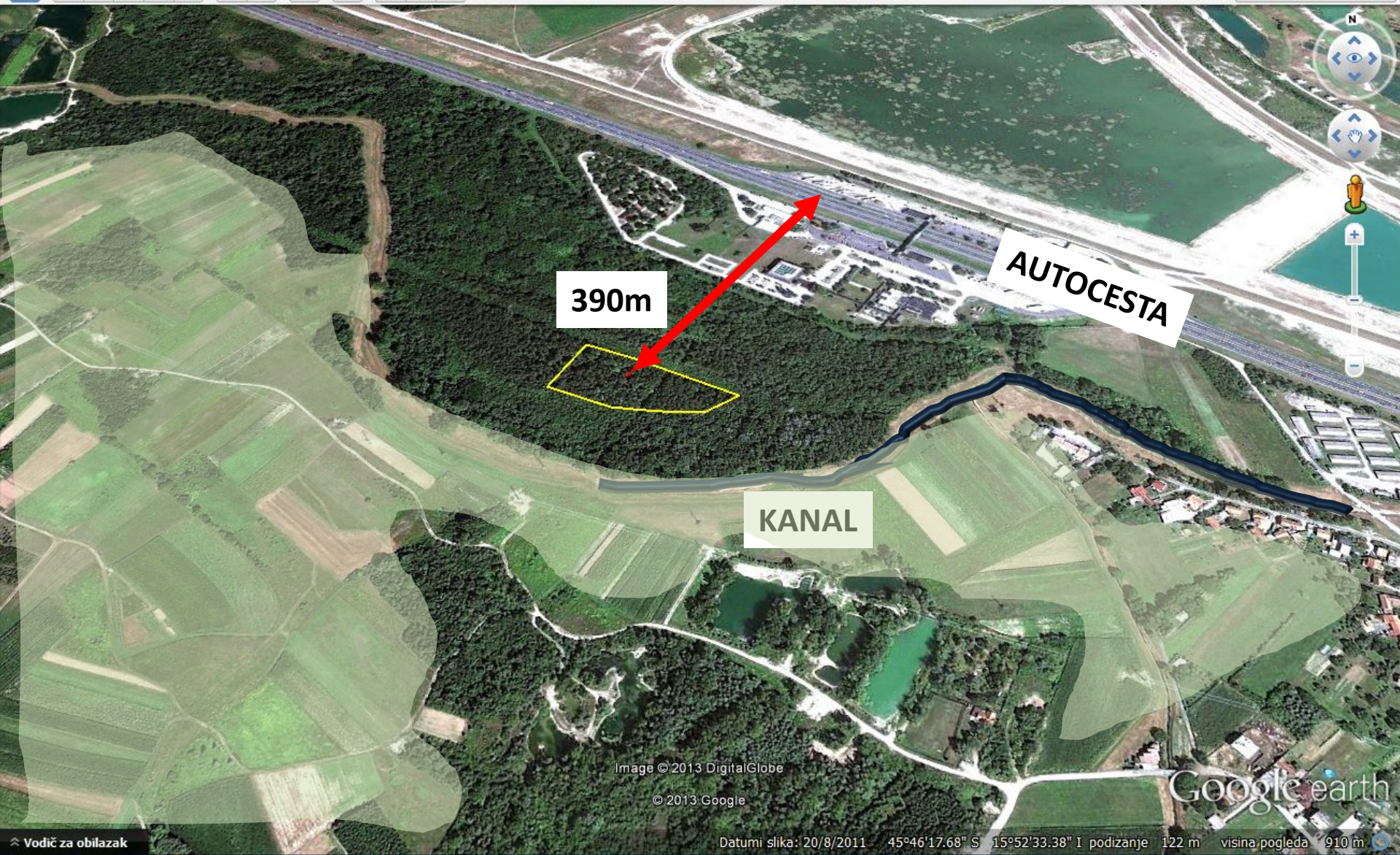


Krokstadrøa oppvekstsenter





Vremensko razdoblje istraživanja: listopad 2011.- rujan 2013.
„Lučko“- naš pixel iznosi 30x30m i nalazi se na 45°46' 20.60" N
15°52'30.50"E ; 121 m



390m

AUTOCESTA

KANAL

Image © 2013 DigitalGlobe
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Google earth

Vodič za obilazak

Datumi slika: 20/8/2011 45°46'17.68" S 15°52'33.38" I podizanje 122 m visina pogleda 910 m



WORKSHEET: PINE FORESTS DAMAGE






RESULTS OF WORK:

1. TEAM (names): **School for nurses Vrapce**
2. LOCATION : „Lučko“(45°46' 20.60" N 15°52'30.50"E)
3. DATE OF INSPECTION: **14.01.2012.**
4. SEARCHES all trees / research plots 30 x 30 m ; PINE SPECIES: **PINUS NIGRA**
5. EXAMINED TREES NUMBER : **20**
6. NUMBER OF PINE TREES INFECTED WITH PINE MOTH: **0**
PERCENTAGE: **0%**
7. NUMBER AND PERCENTAGE OF TREES BY THE DEGREE OF DAMAGE:

DEGREE OF DAMAGE	NUMBER OF TREES	PERCENTAGE %
0		
1		
2	7	35
3	12	60
4	1	5

8. POLLUTANTS WHICH MAY AFFECT THE SITE:
industry, traffic, waste disposal, farm land

DAMAGE ASSESSMENT

DEGREE OF DAMAGE	PERCENTAGE OF DAMAGE	TREE LAYOUT
0	0 – 10 % 	Normally a dense crown, with a small needle loss, predominantly in the lower part of the crown. By inspecting the tree trunk top, we can see that the tree crown is almost opaque.
1	11 – 25 % 	The pine needle loss starts inside out in the lower and middle part of the tree crown. Dry twigs appear in the lower part. Looking at the tree trunk, we can see that the tree crown is partially seen-through.
2	26 – 60 % 	There is a stronger defoliation of needles in the lower and middle part of the crown. At the bottom of the crown there are thicker dry branches. There are dry twigs all over the tree tops. Looking at the side, the tree skeleton can be seen. Looking at the tree trunk, there is a see-through crown on top.
3	61 – 100 % 	Severe defoliation of needles and a lot of dry branches all over the crown. Thick dry branches at the bottom and middle of the crown. The tree skeleton is clearly visible. There are green shoots only on top of the crown.
4	dry tree 	A completely dry tree

Site Information

Site ID: 5934
Name: THREE RING - LUCKO:LCS-06
Coordinates: 45.7724N, 15.8751E
Elevation: 121.0m (orthometric)
Location Source: other



Lucko - North

W



Lucko - West

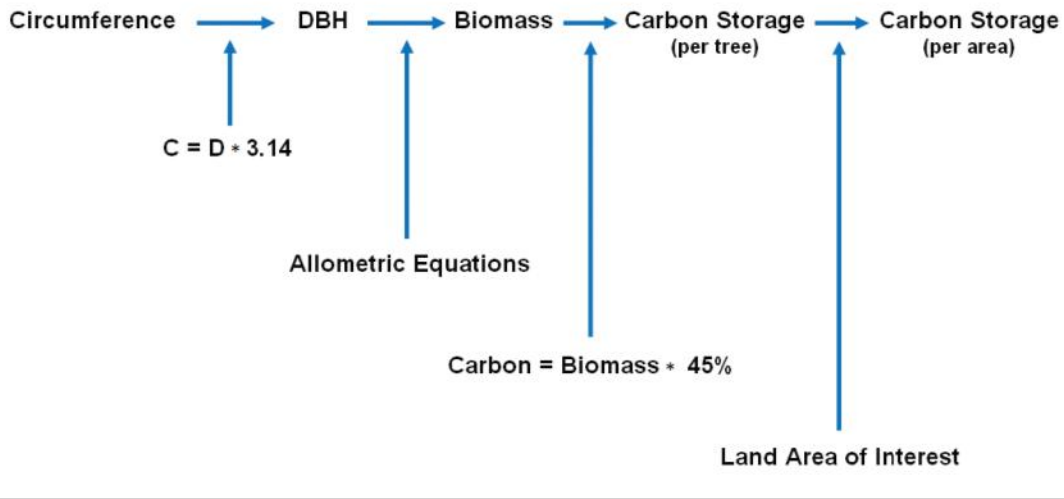
E



Lucko - East

S





topola	-2.2094	2.3867	0.1098	0.0651
četinjače	-2.0336	2.2592	0.1309	0.0753
tisa	-2.2304	2.4435	0.1075	0.0610
duglazija	-2.5384	2.4814	0.0790	0.0584
hrast, bukva	-2.0127	2.4342	0.1336	0.0616
lipa, jasen	-2.4800	2.4835	0.0837	0.0583
bor	-2.5356	2.4349	0.0792	0.0616
breza, javor	-1.9123	2.3651	0.1477	0.0667
picea	-2.0773	2.3323	0.1253	0.0693
akacija	-0.7152	1.7029	0.4891	0.1424

$$m = \text{EXP}(a + b \cdot \ln(PP))$$

$$a1 = \text{EXP}(a) \quad b1 = (1/\pi)^{**}b \quad PP = O/\pi$$

$$m = a1 * b1 * (O^{**}b)$$



opseg (cm)	masa (kg)	masa C (kg)
90	279.69	75.52
87	257.53	69.53
56	88.10	23.79
63.5	119.64	32.30
81	216.40	58.43
94	310.93	83.95
57	91.98	24.83
63	117.36	31.69
86	250.38	67.60
105	407.09	109.91
80	209.96	56.69
90	279.69	75.52
103	388.46	104.89
76	185.30	50.03
82	222.97	60.20
100	361.49	97.60
100	361.49	97.60
76	185.30	50.03
92	295.07	79.67
57.5	93.95	25.37
prosjeak:	81.95	236.14

ukupno C (kg)

1275.15

Tree Field Study Kit









Handwritten notes on a stack of papers:

67	2	2000	68	4	2000
68	2	2000	69	5	2000
69	2	2000	70	5	2000
70	2	2000	71	5	2000
71	2	2000	72	5	2000
72	2	2000	73	5	2000
73	2	2000	74	5	2000
74	2	2000	75	5	2000
75	2	2000	76	5	2000
76	2	2000	77	5	2000
77	2	2000	78	5	2000
78	2	2000	79	5	2000
79	2	2000	80	5	2000
80	2	2000	81	5	2000
81	2	2000	82	5	2000
82	2	2000	83	5	2000
83	2	2000	84	5	2000
84	2	2000	85	5	2000
85	2	2000	86	5	2000
86	2	2000	87	5	2000
87	2	2000	88	5	2000
88	2	2000	89	5	2000
89	2	2000	90	5	2000
90	2	2000	91	5	2000
91	2	2000	92	5	2000
92	2	2000	93	5	2000
93	2	2000	94	5	2000
94	2	2000	95	5	2000
95	2	2000	96	5	2000
96	2	2000	97	5	2000
97	2	2000	98	5	2000
98	2	2000	99	5	2000
99	2	2000	100	5	2000





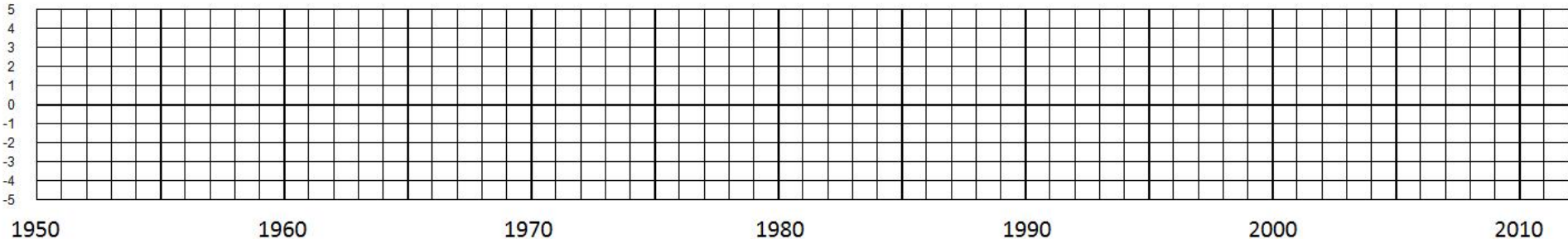
GOD



EARLYWOOD

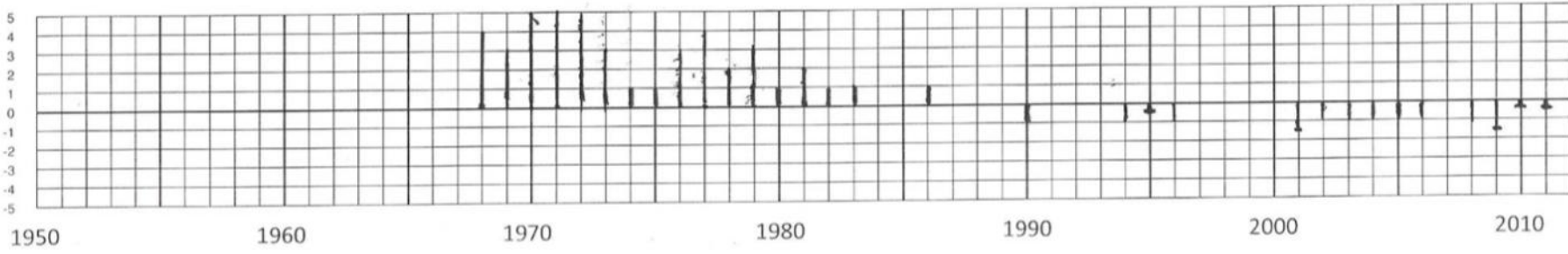
LATEWOOD

Vrapce_19



Vrapce_19

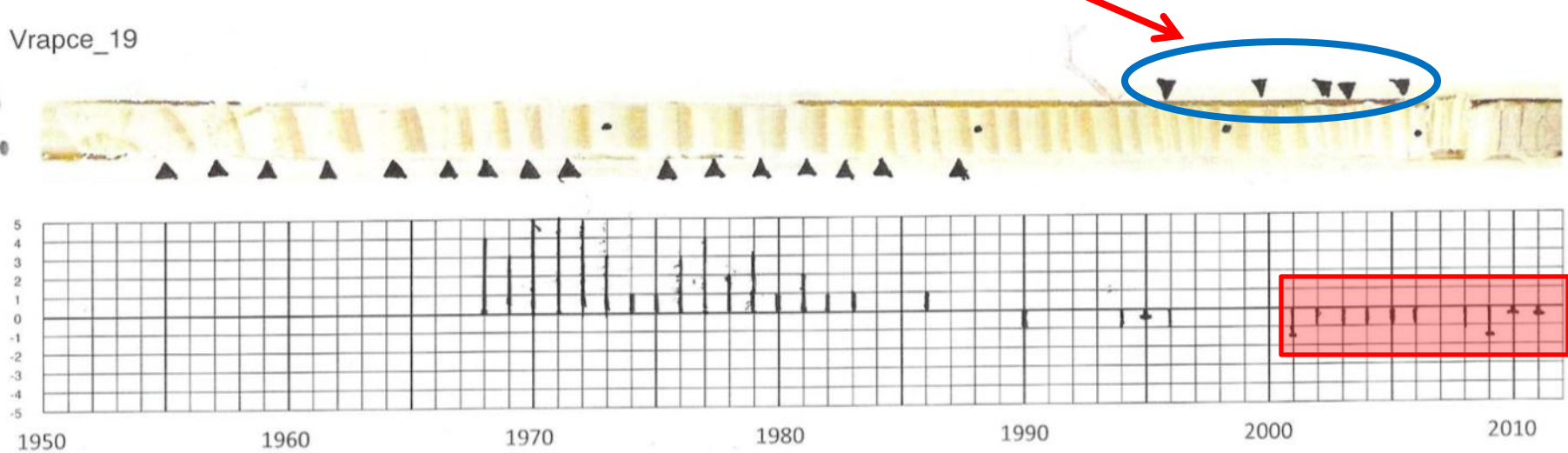
1968.



IME											
UZORKA	19										
mm	1	2	3	4	4,5	5	6	7	8	9	10
broj*	2	3	9	6	1	5	6	2	4	2	3
SP*	-1	-1	0	0	0	0	1	2	2	3	3

Vrapce_19

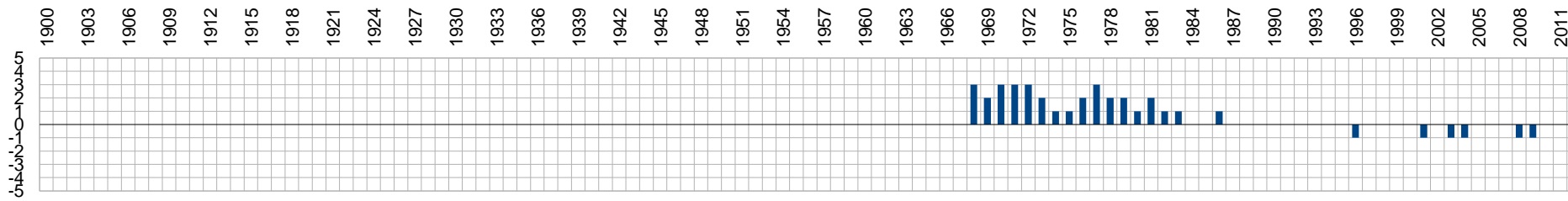
1968.



1968
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2011

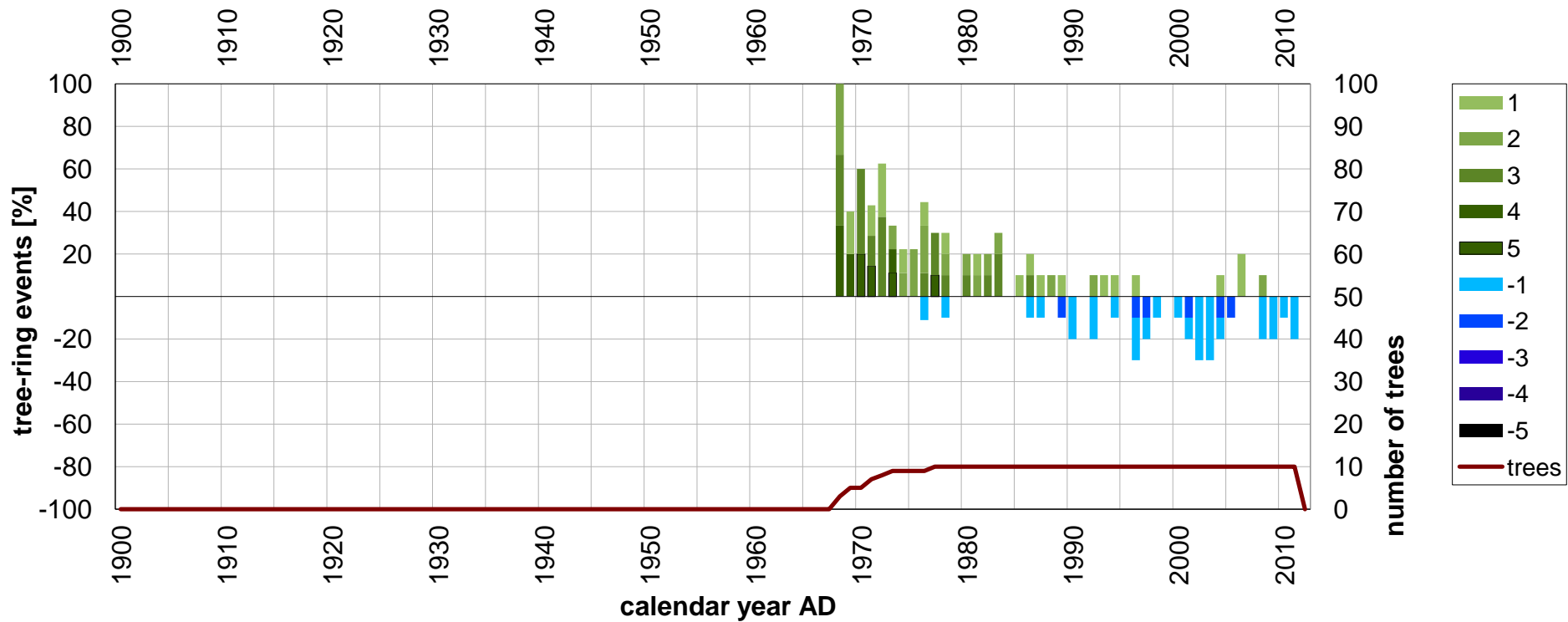
1 3 0 3 2 1 0 1 0 -1 0 0 0 2 3 1 0 0 0 0 0 -1 0 0 0 1 0 1 0 0 0 0 0 0 -1 -2 -2 -2 -1 0 0 0 0
 1 5 5 4 3 0 0 0 0 0 0 0 2 1 0 -1 0 0 -2 -2 -2 0 0 0 0 0 -2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 4 3 2 3 1 0 2 1 -1 0 1 1 2 1 1 0 0 0 0 -1 0 0 0 0 0 1 1 0 0 0 -1 -1 0 0 0 0 1 0 0 0 2 0 0 -1
 5 5 5 3 3 1 3 1 0 3 1 0 1 0 0 -1 0 -1 -1 -2 0 0 0 0 0 0 -1 -1 -1 -2 0 0 0 0 -1 -1 -1 0
 2 2 1 1 1 2 2 3 2 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 -1 0 0 0 1 0 0 0 0 0 0
 4 5 1 3 4 3 1 1 0 -1 -1 -1 -1 -1 -1 -1 -1 -1 0
 1 3 2 1 2 2 3 2 1 0 1 0 0 0 0 0 0 0 0 -1 0 -1 0 0 0 0 -1 0 0 -1 -1 -1 -1 0 0 0 0 -1 -1 0
 2 2 0 0 1 0 1 2 3 2 3 2 1 0 3 1 0 0 0 1 2 2 1 0 2 2 0 0 0 0 0 0 -1 0 0 0 1 0 -1 0 -1 -1
 3 2 3 3 3 2 1 1 2 3 2 2 1 2 1 1 0 0 1 0 0 0 0 0 0 0 0 0 -1 0 0 0 0 -1 -1 0 0 0 -1 -1 0 0
 5 4 1 1 1 2 2 2 1 1 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 -1 -1 0 0 0 -1 0 -1

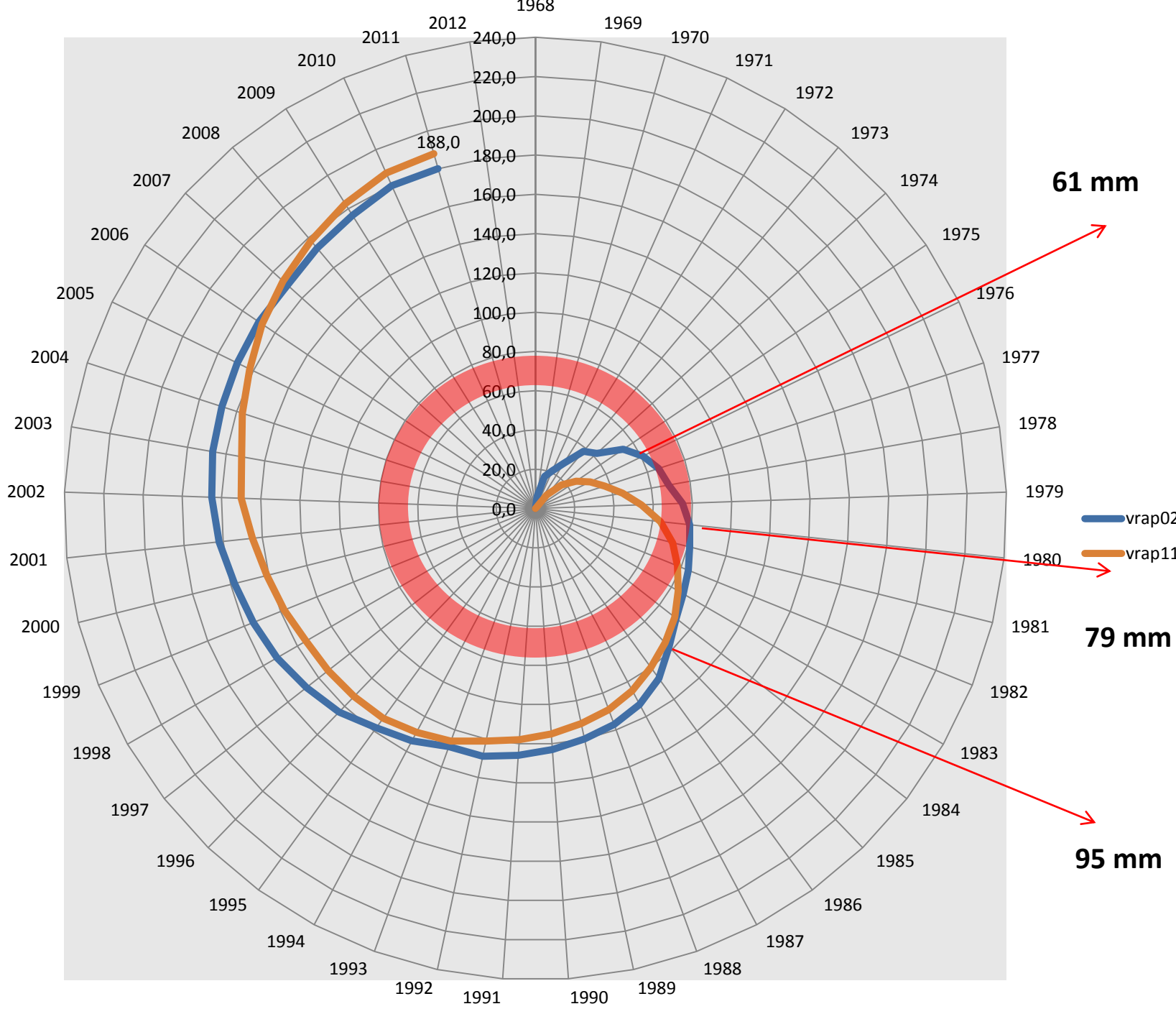
event



Tree species, Region, Country

site (filtered data)







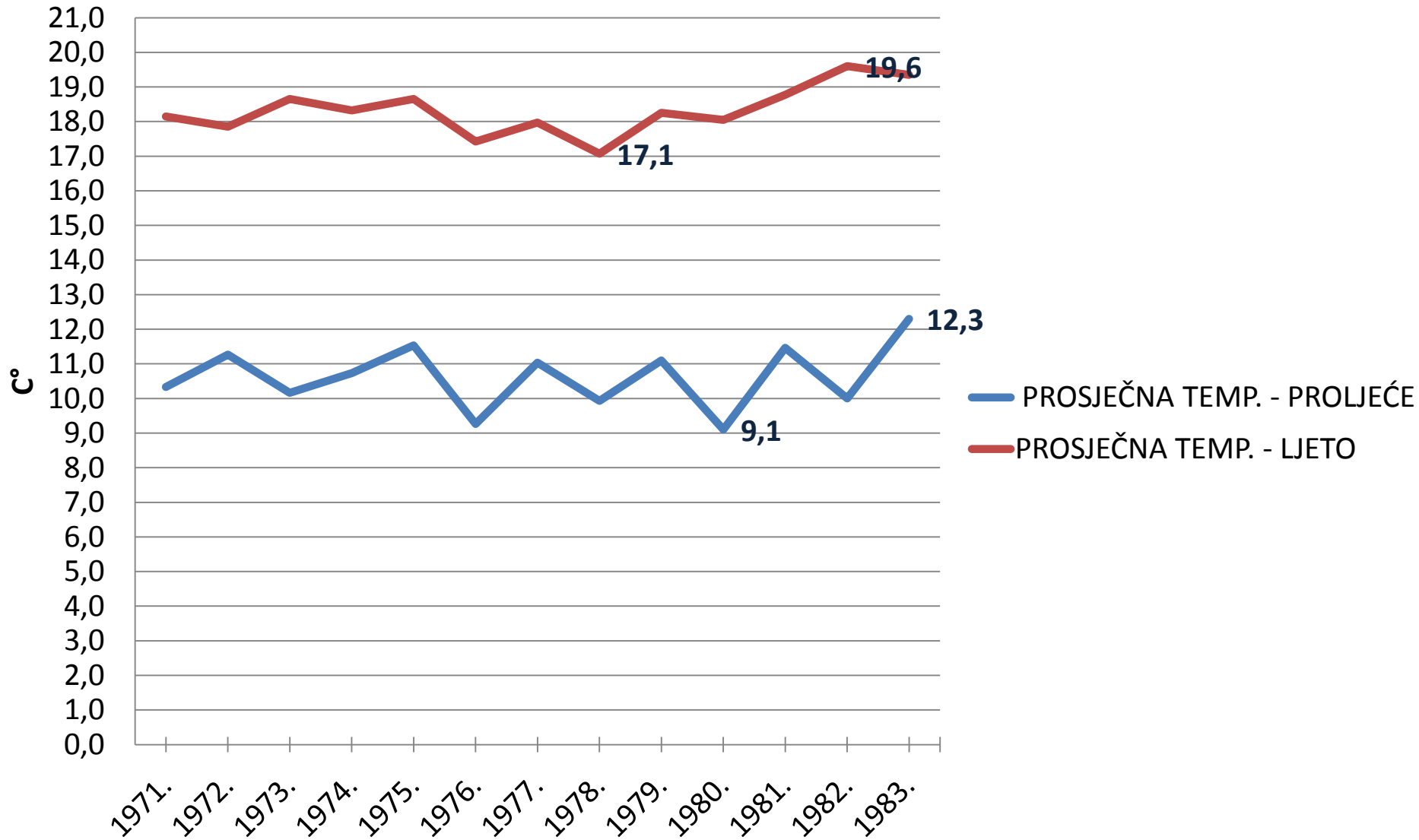
Analiza tla

vrsta tla	glina (65,7 %)
tekstura	ljepljiv (sticky, manje od 0, 002 mL)
pH	6 (lagano kisela)
konzistentnost	zdrobljivo (friagle)
struktura horizonta	veći komadi (blocky)
karbonati u tlu	neznatan (slight)

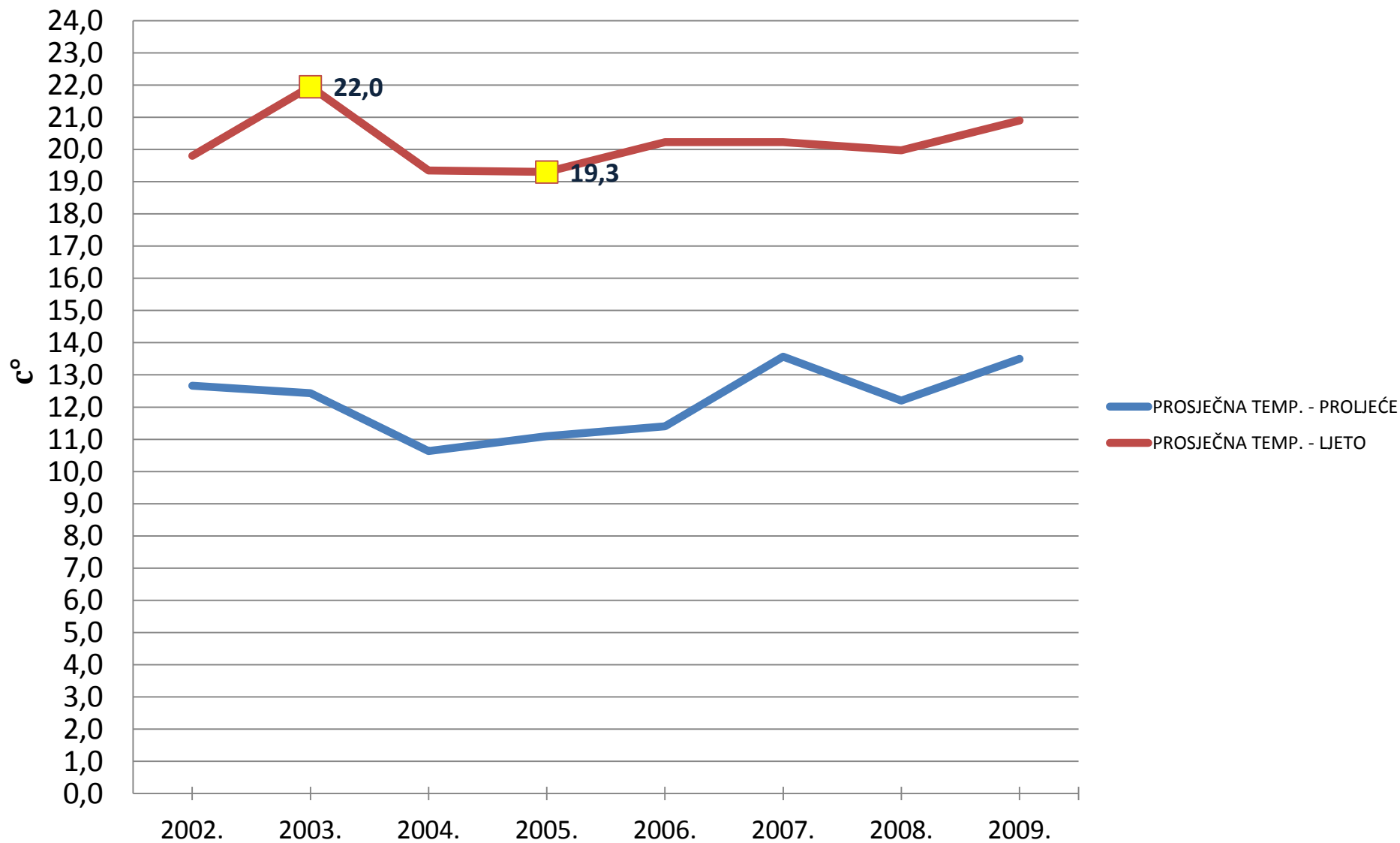
Analiza vode kanala

pH	8	blago lužnato, u granicama dopuštenog (vapnenačka podloga)
O ₂	10mg/l	temp.zraka bila je 10°C, količina kisika je standardna, ne ukazuje na zagađenje
CO ₃	142,8 mg/l	Povišeno (malo oborina)
NO ₃	10mg/l	Previše, najvjerojatnije od umj.gnojiva
NO ₂	0,02 mg/l	Blago povišeno
NH ₄ ⁺	0,05 mg/l	Blago povišen
PO ₄ ³⁻	0,5 mg/l	Blago povišen

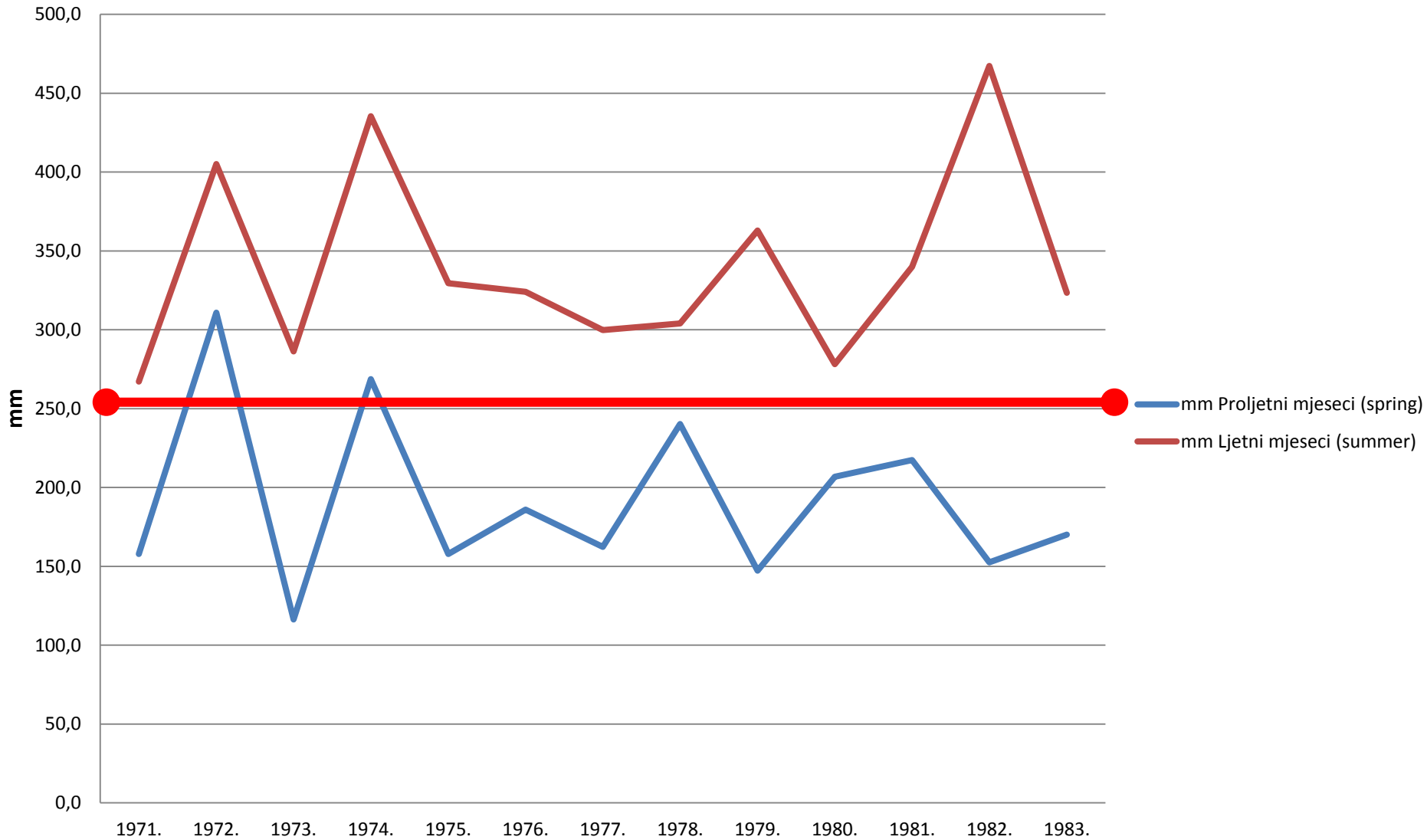
Prosječna temperatura zraka u proljetnim i ljetnim mjesecima u periodu od 1971.do 1983. - "positive event years"



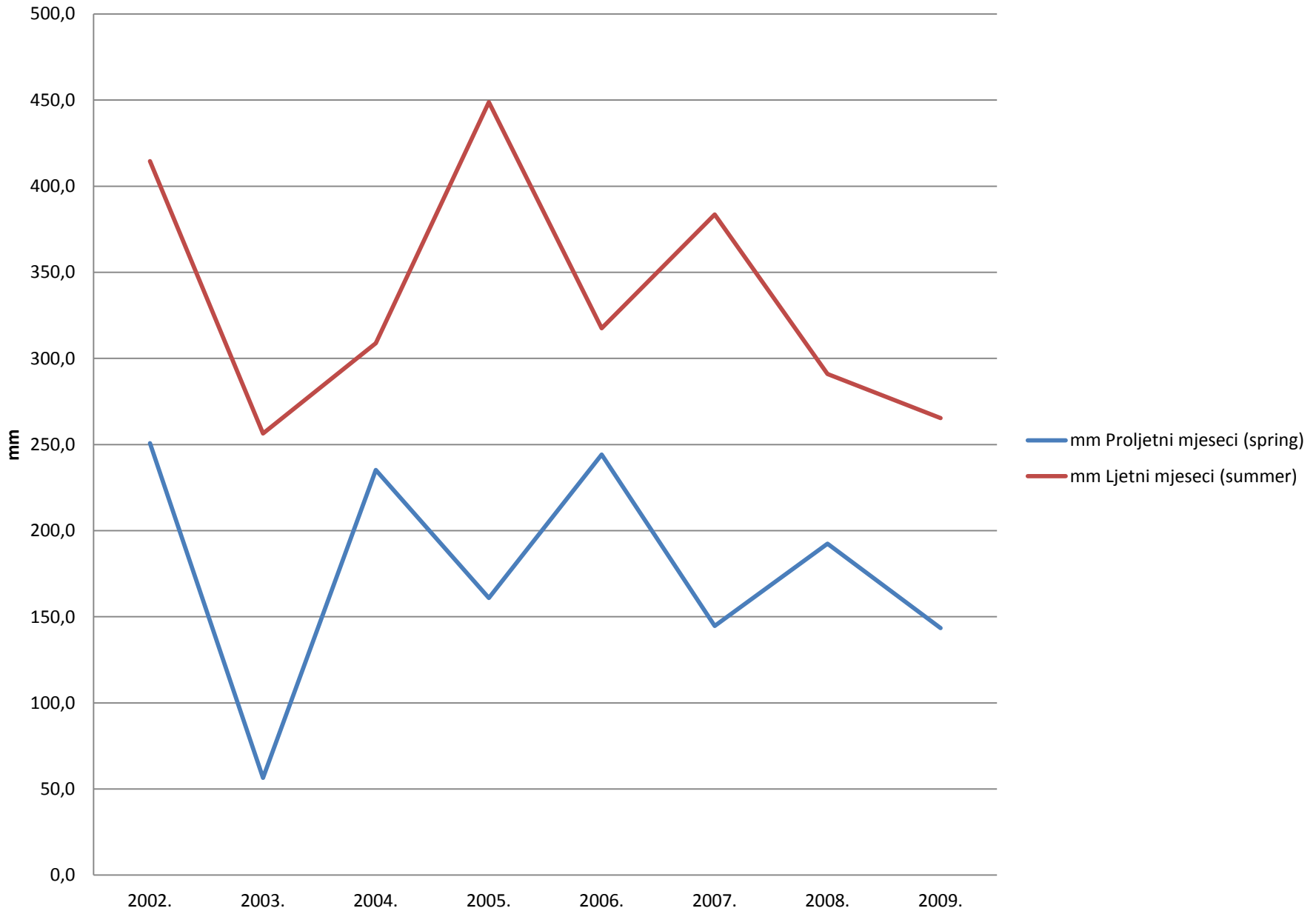
Prosječna temperatura zraka u proljetnim i ljetnim mjesecima u periodu od 2002. do 2009. - "negative event years"

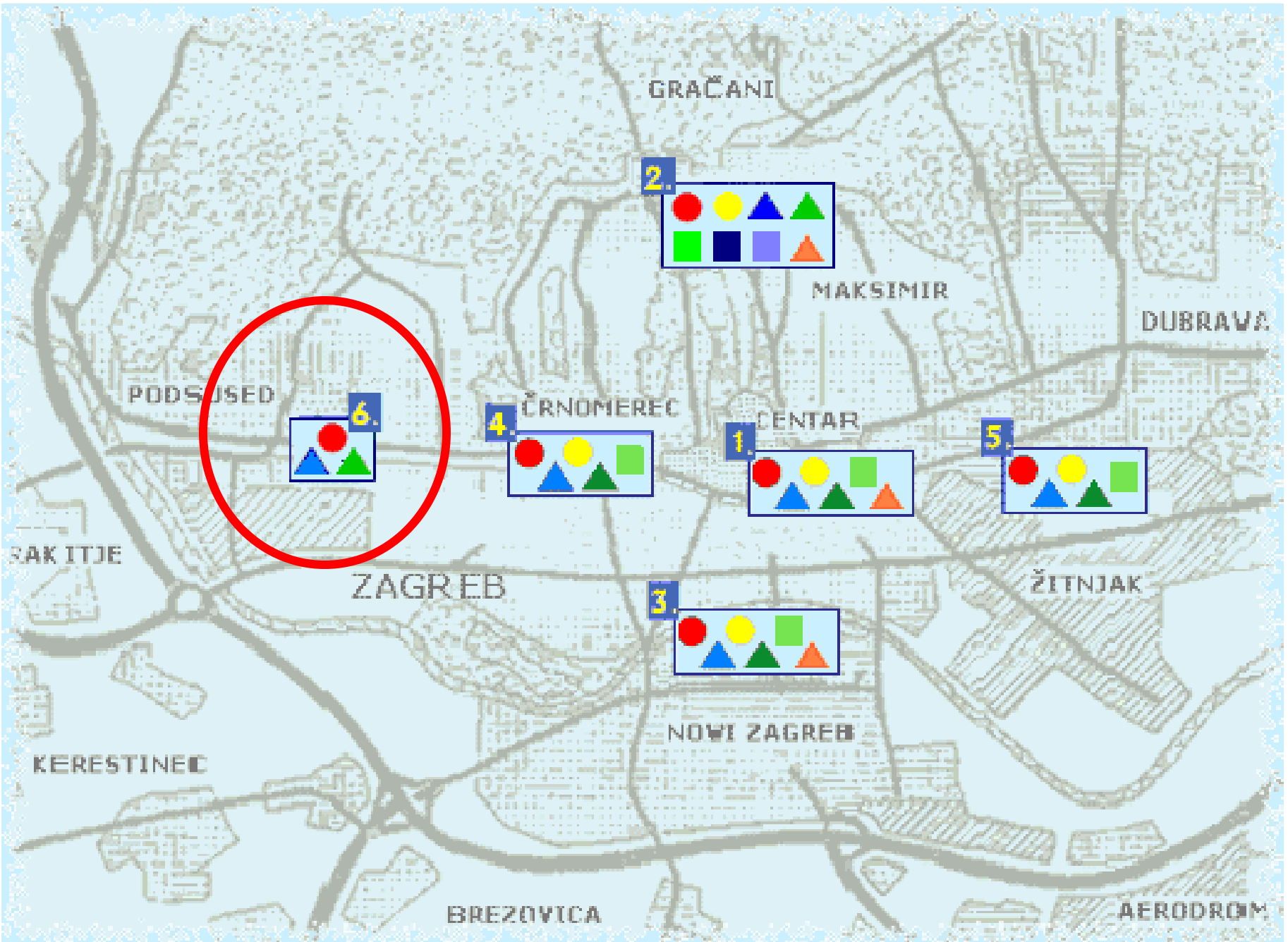


Količina oborina u proljetnim i ljetnim mjesecima u periodu od 1971. do 1983. - "positive event years"

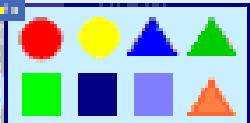


Količina oborina u proljetnim i ljetnim mjesecima u periodu od 2002.-2009. - "negative event years"





2.



6.



4.



1.



5.



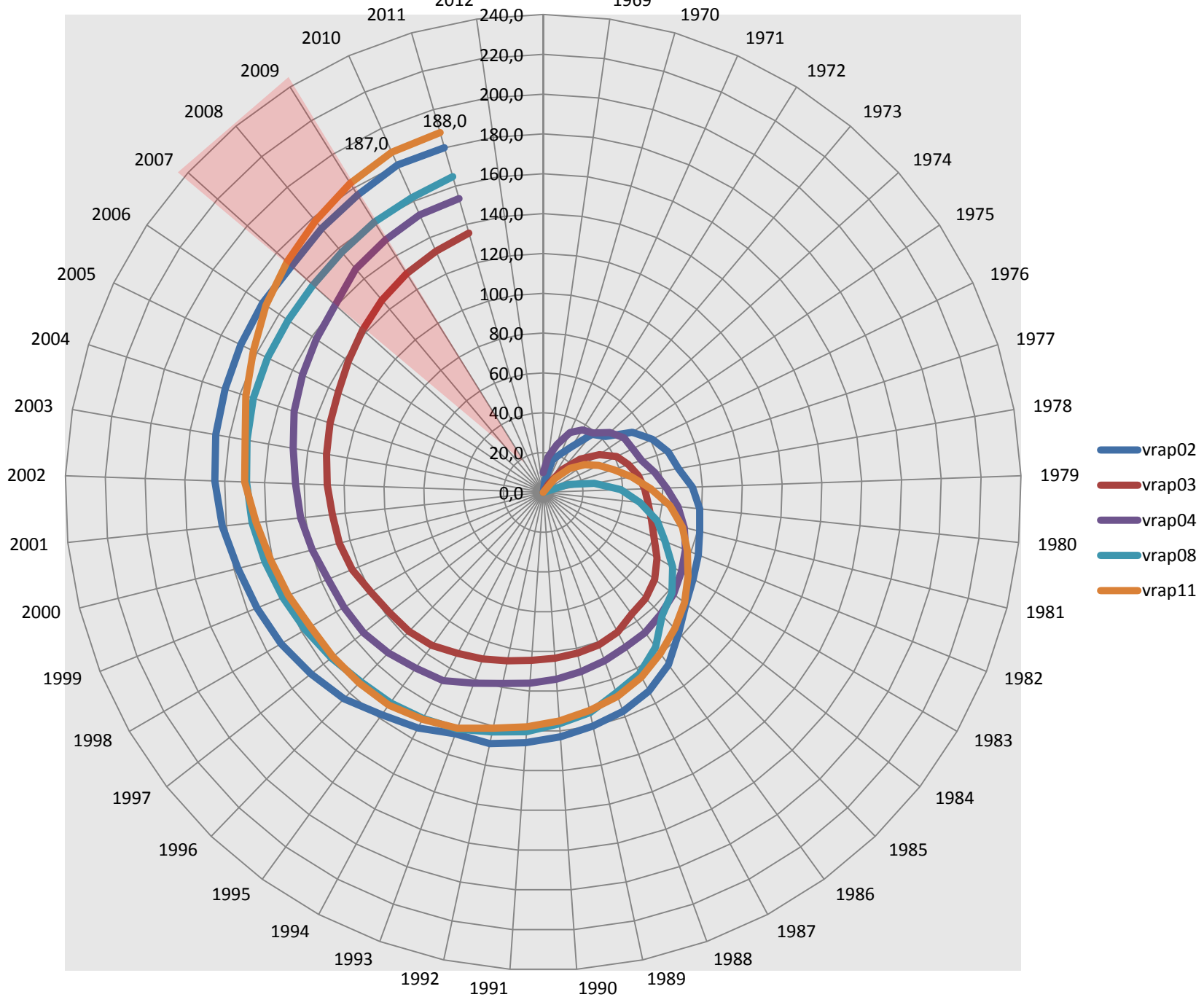
3.

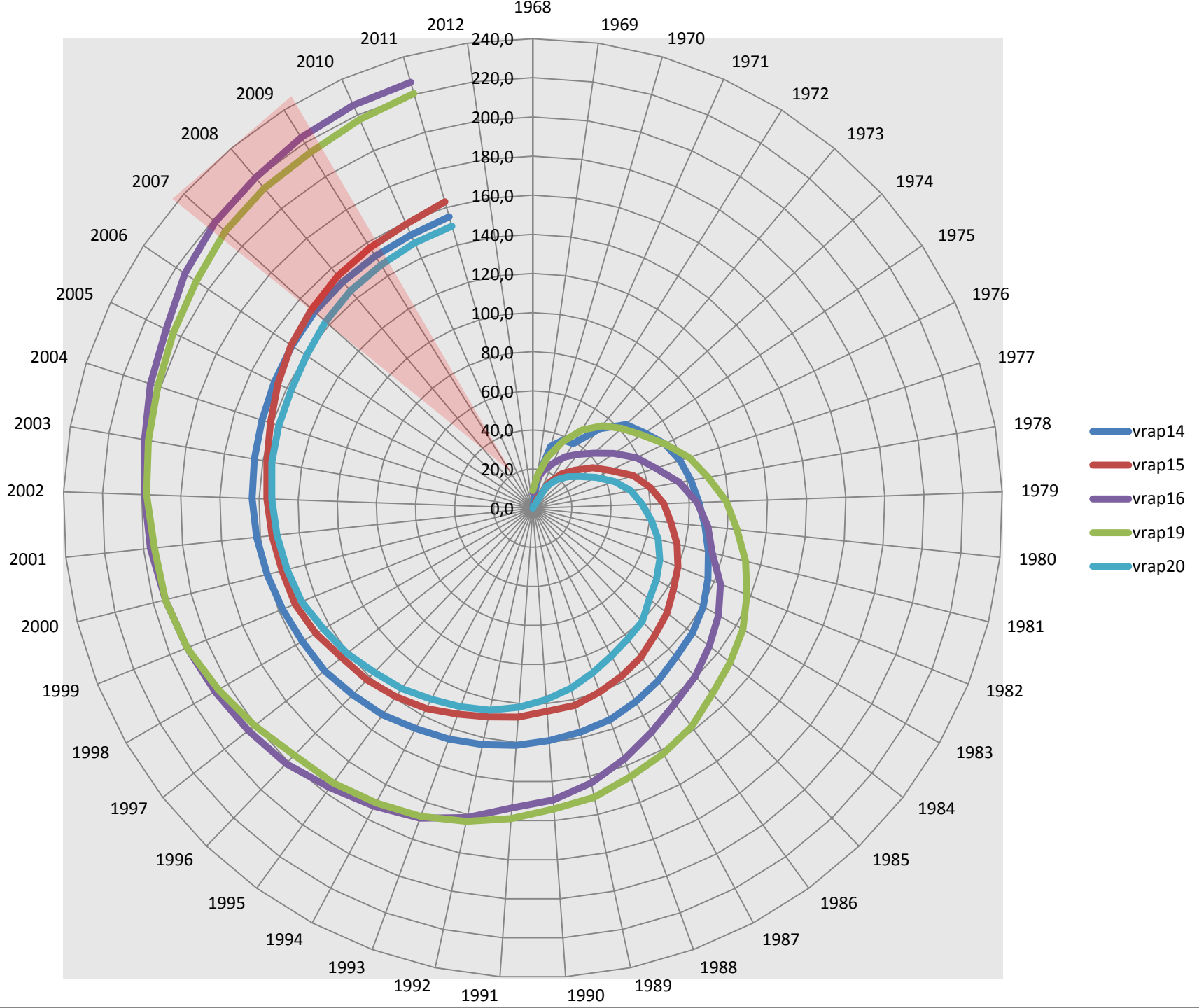


Mjerna postaja Susedgrad Tvornica "Utenzilija": N 45°48'44'', E 15° 52'25''

Godina:	Kategorije onečišćenja na postaji Susedgrad:	Onečišćenje:
2002.	nema podataka	
2003.	nema podataka	
2004.	II.kategorija	lebdeće čestice
2005.	II. kategorija	lebdeće čestice
2006.	II. kategorija	PM ₁₀ lebdeće čestice
2007.	III. kategorija	PM ₁₀ prekoračena GV (GV50µg/m ³ =35,izmjerena 97!) (TV70µg/m ³ =35,izmjerena 39!) najviše u ožujku i travnju, ponovno u listopadu i studenom
2008.	III. kategorija	PM ₁₀ prekoračena GV (GV50µg/m ³ =35,izmjerena 116!) (TV65µg/m ³ =35,izmjerena 49!) najviše u siječnju i veljači povišen TI - 126P talija
2009.	II. kategorija	PM ₁₀ prekoračena GV (GV50µg/m ³ =35,izmjerena 50!) (TV65µg/m ³ =35,izmjerena 24!) povišen TI - 126P talija
2010.	II. kategorija	PM ₁₀ lebdeće čestice
2011.	II. kategorija	PM ₁₀ lebdeće čestice granica procjenjivanja onečišćujućih tvari u zraku obzirom na zdravlje ljudi: gornja granica (30µg/m ³) prekoračena 145 puta! donja (20µg/m ³) prekoračena je 222 puta

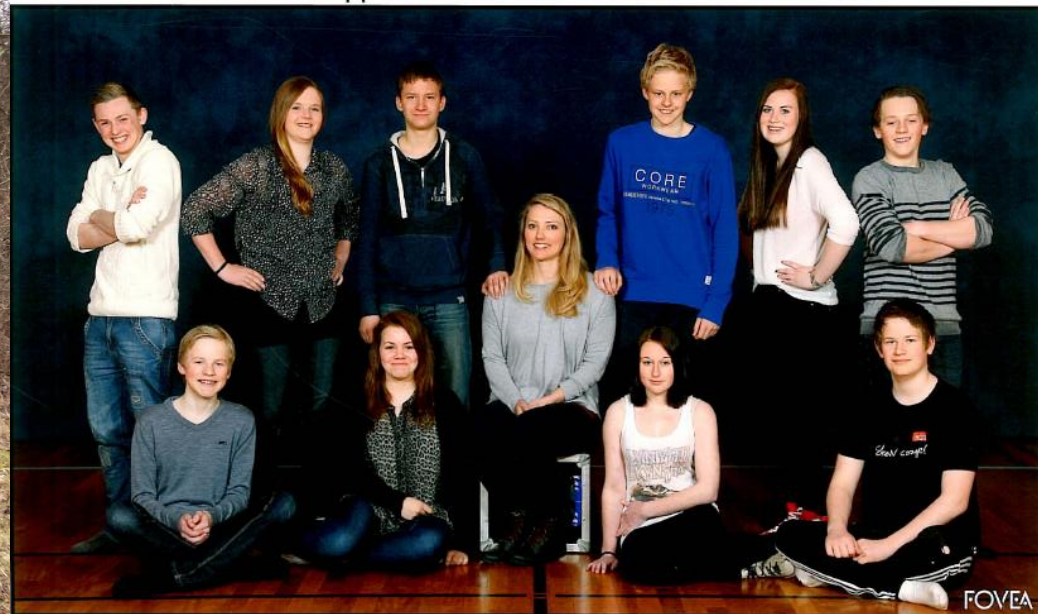
PRIRAST DRVETA





Analiza godova za god.2007. i 2008. – 10 analiziranih uzoraka
(godišnji prirast jednak ili manji od prosjeka)

2007	2008
-1	0
0	0
0	2
-2	-1
0	0
-1	-1
0	0
0	-1
0	-1
0	0



1. Bjørn Robert Holm Johansen, 2. Thea Skjotskift, 3. Benjamin Grabowsky, 4. Solfrid Prins Andøl, 5. Mats Hestnes, 6. Signe Skårild, 7. Lars Andreas Berg
1. Matias S. Forren, 2. Bodil Lovise Fugley, 3. Emilie Skårild, 4. Knut Magne Lemes

