



ESPAÑA ESPACIO ATLÁNTICO
FRANCE ESPACE ATLANTIQUE
IRELAND ATLANTIC AREA
PORTUGAL ESPAÇO ATLÂNTICO
U.K. ATLANTIC AREA



Avec la participation de l'Union
Européenne
Projet cofinancé par le FEDER

Project INTERREG IIIb - COREA

**“Les NTIC au service du conseil et des Reseaux Agricoles
de l’ Arc Atlantique - Agriculture de précision et offre de
services en ligne”**

Some vineyard trials data results

COREA

General plot characterization

Plot name	Plot nº	Area (ha)	Installation type
Amendoal (Am)	42	0.397	1 line terraces
Bateiras (Ba)	1	1.130	2 line terraces
Bico dos Casais (BC)	25	0.353	Slope vineyard
Cardanhas (Ca)	23	0.353	Slope vineyard

COOPERA

Plots characterization

In each plot were chosen nine stations, distributed regularly in the all surface, having each one three inside georeferenced sites, near which all the measures will be done.

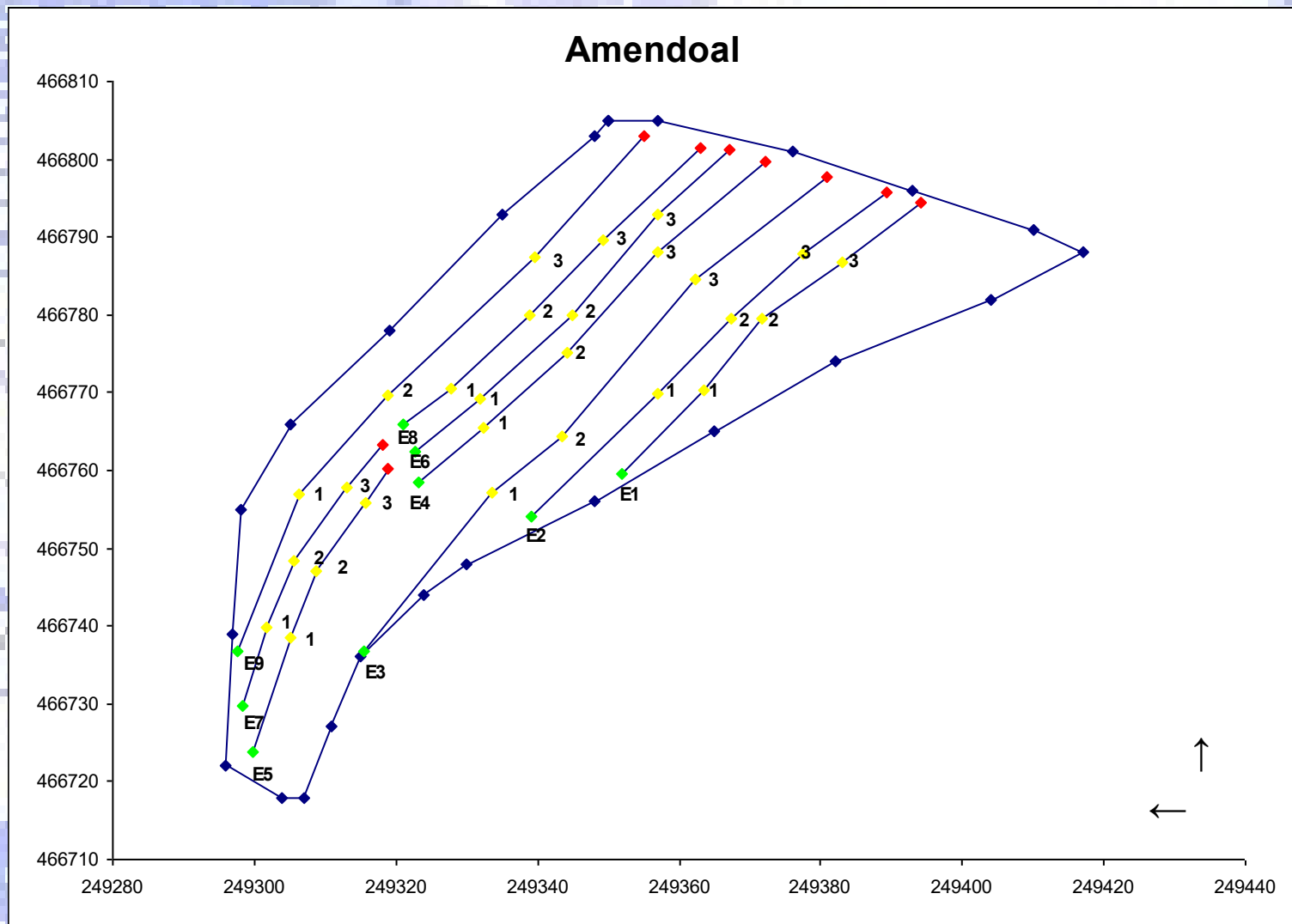
The vineyard supports, that indicate the station beginning, were painted in black and those ones that indicate the end were painted in red; the supports inside the stations were painted in white.

The next slides represent the diagram of each plot with the stations delimitation and the inside georeferenced sites; the stations are represented as E1 (1,...,9), the green colour represent the start and the red the end of each station, and the sites inside it, are coloured in yellow (here, in the slides, the field black sites are represented in green and the white in yellow).

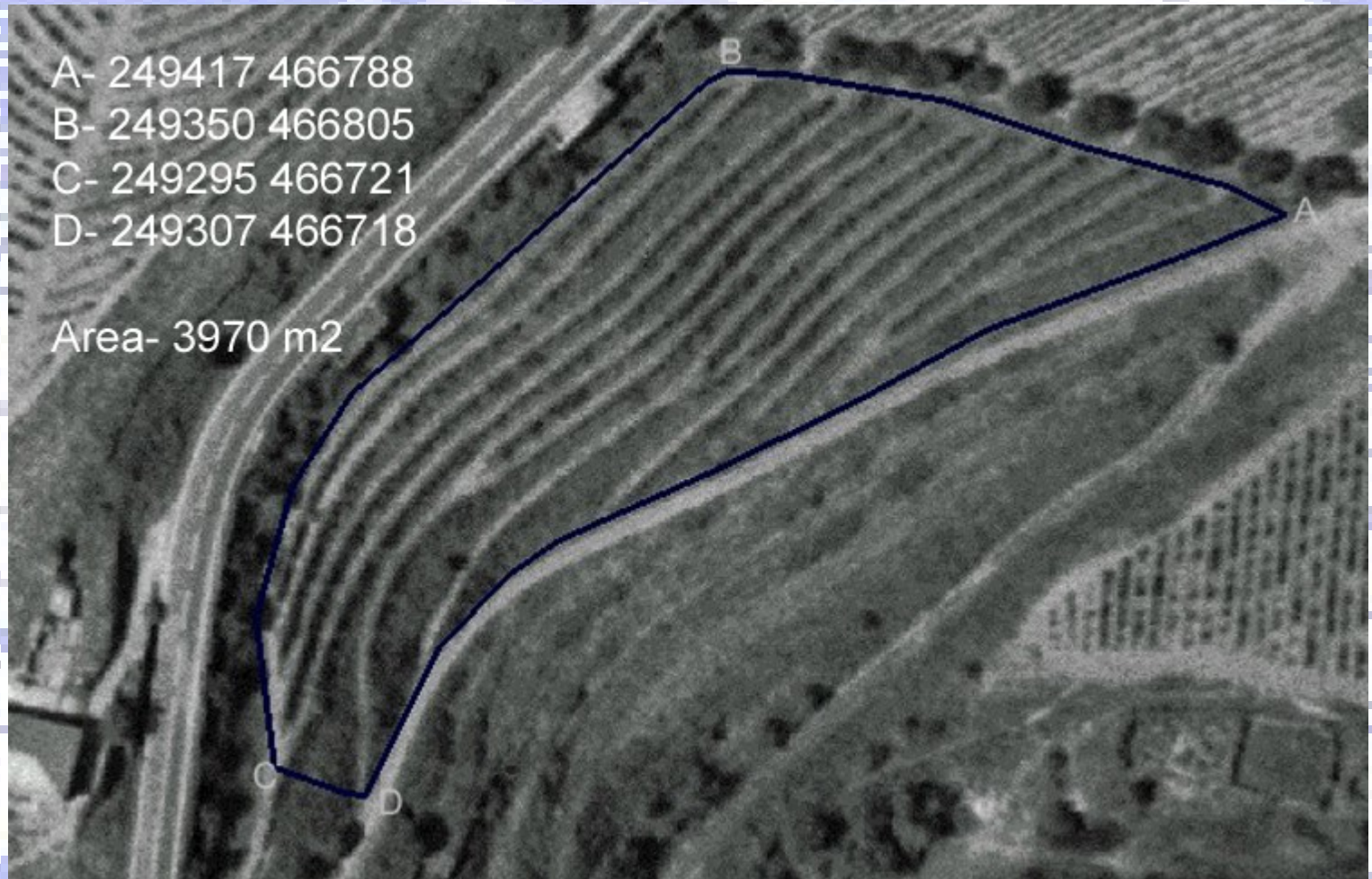
The grapevines close to the inside georeferenced sites were treated, recording to the pruning, in the same way, to have the same number of buds, which allow the same plant developing conditions, in order to permit production parameters to be compared.

The arrows in the slides represent the direction that the measures were done.

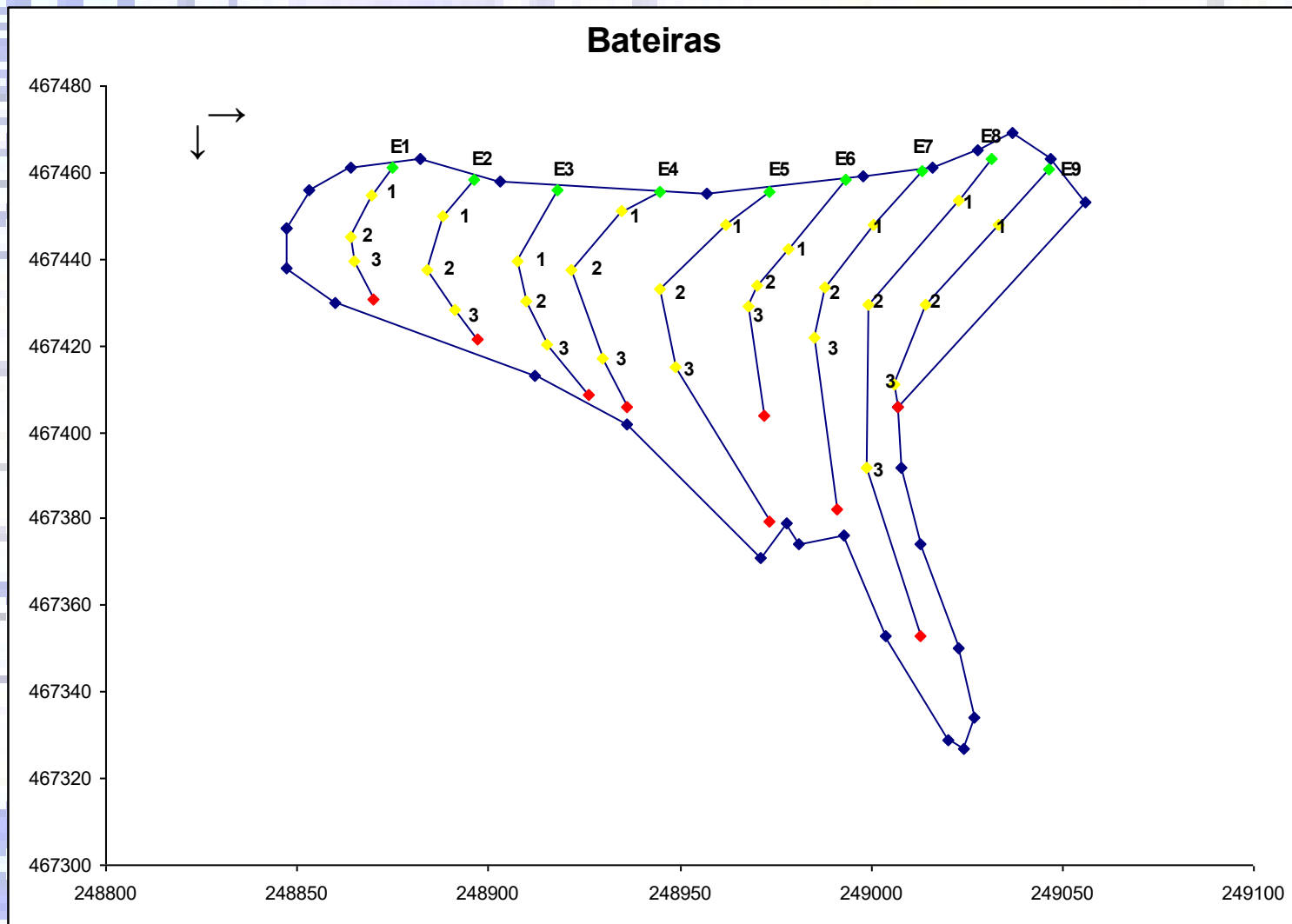
Graphical representation of Amendoal plot



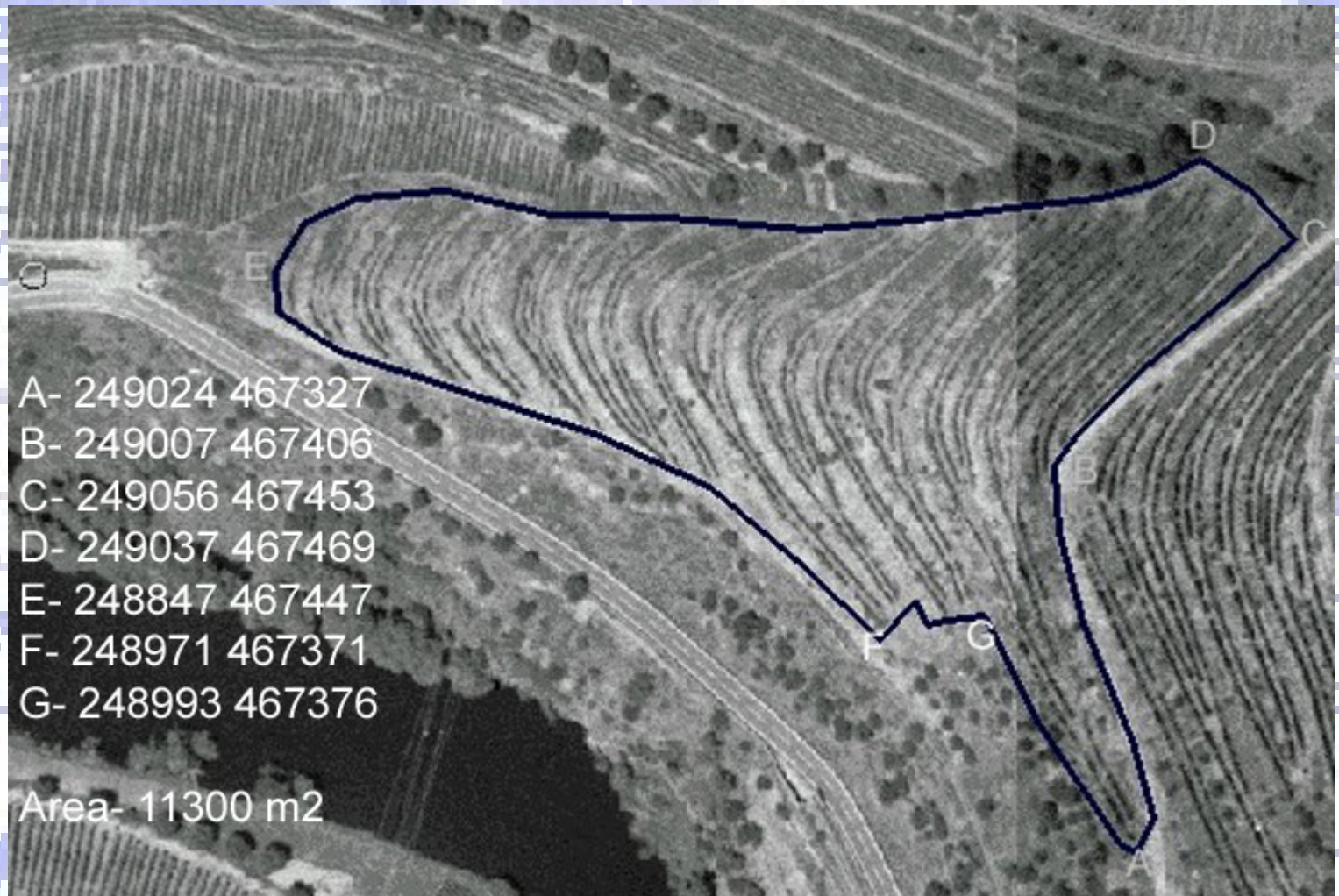
Aerial representation of Amendoal plot



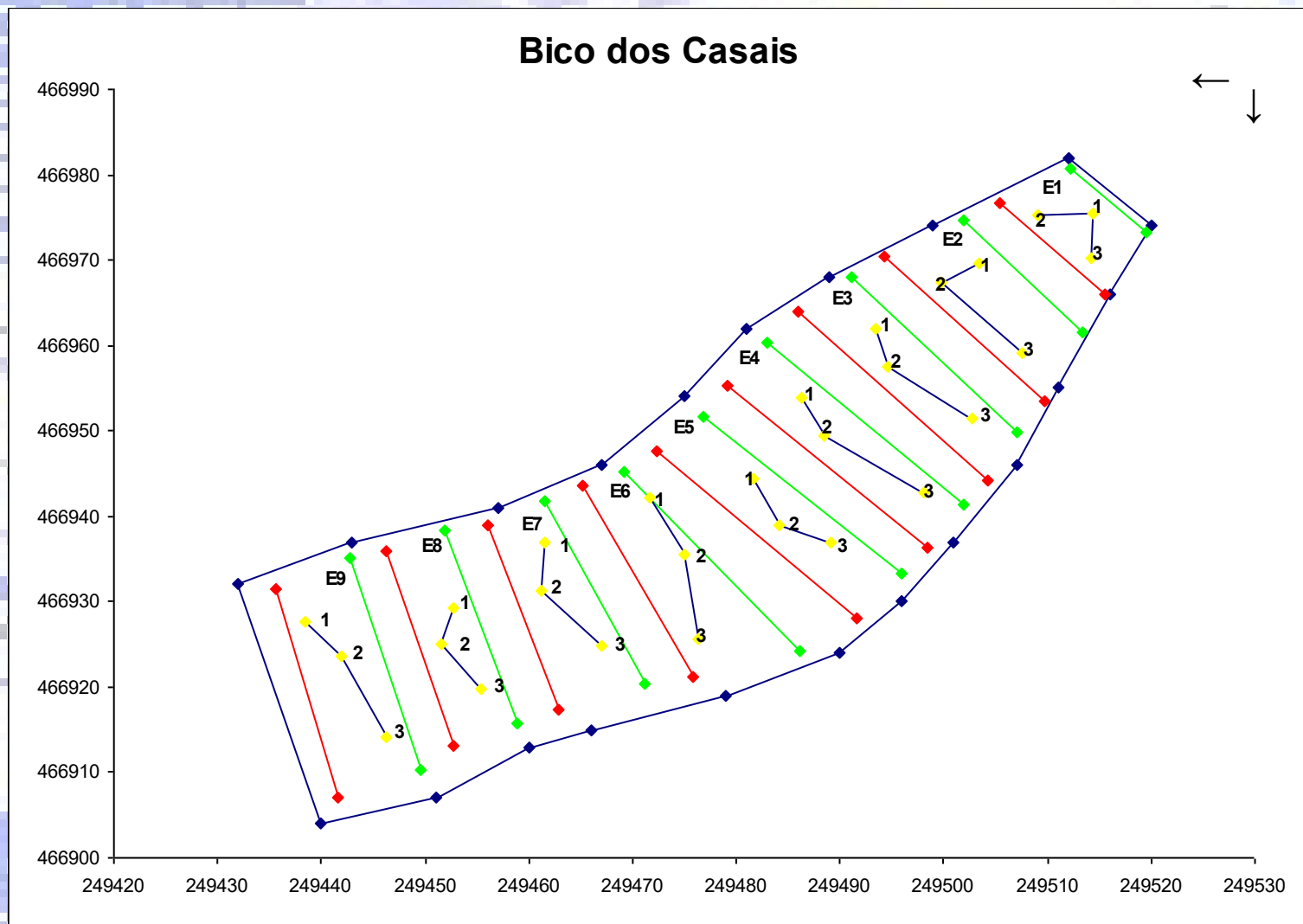
Graphical representation of Bateiras plot



Aerial representation of Bateiras plot



Graphical representation of Bico dos Casais plot



Aerial representation of Bico dos Casais plot

A- 249513 466983

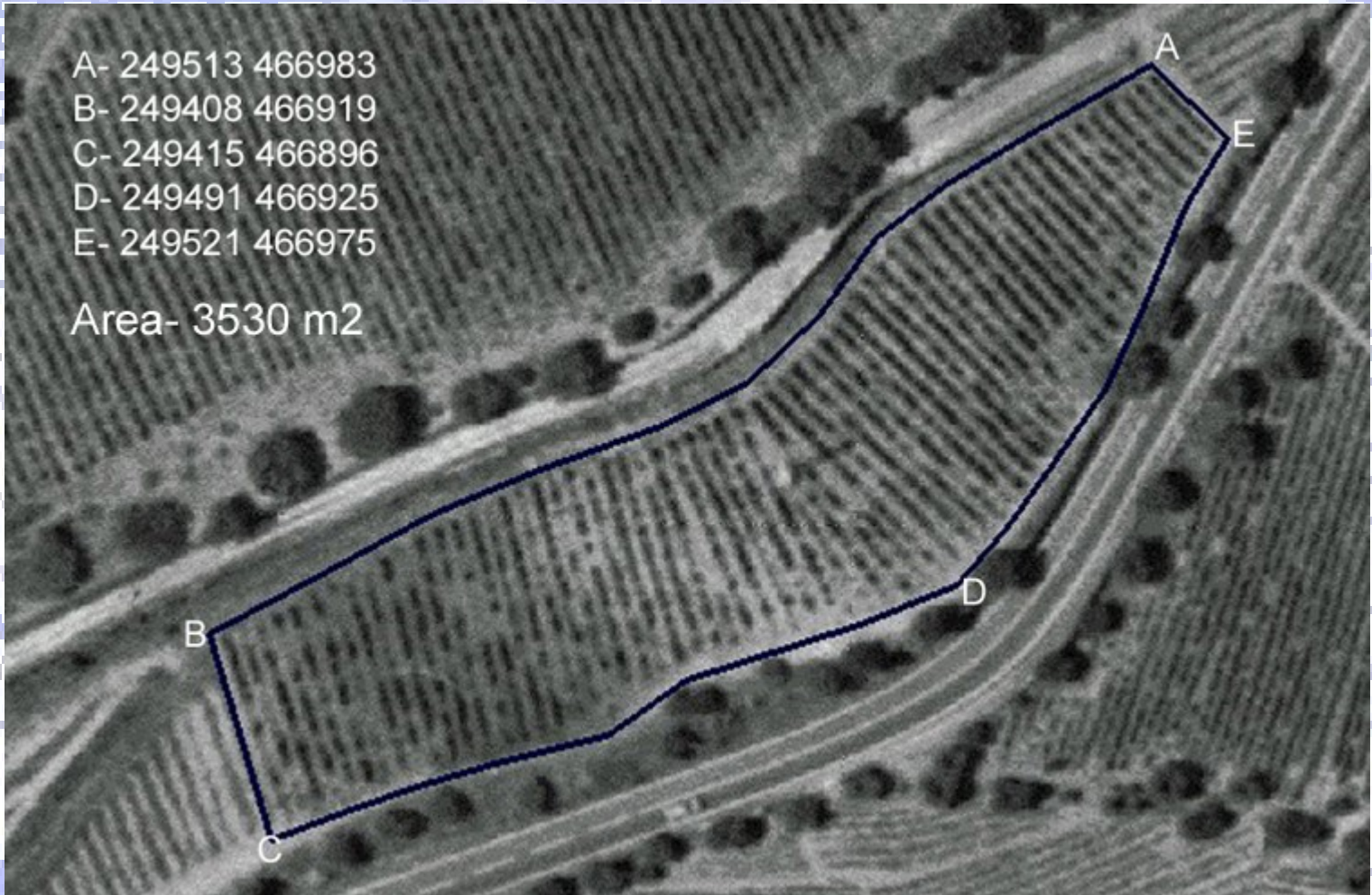
B- 249408 466919

C- 249415 466896

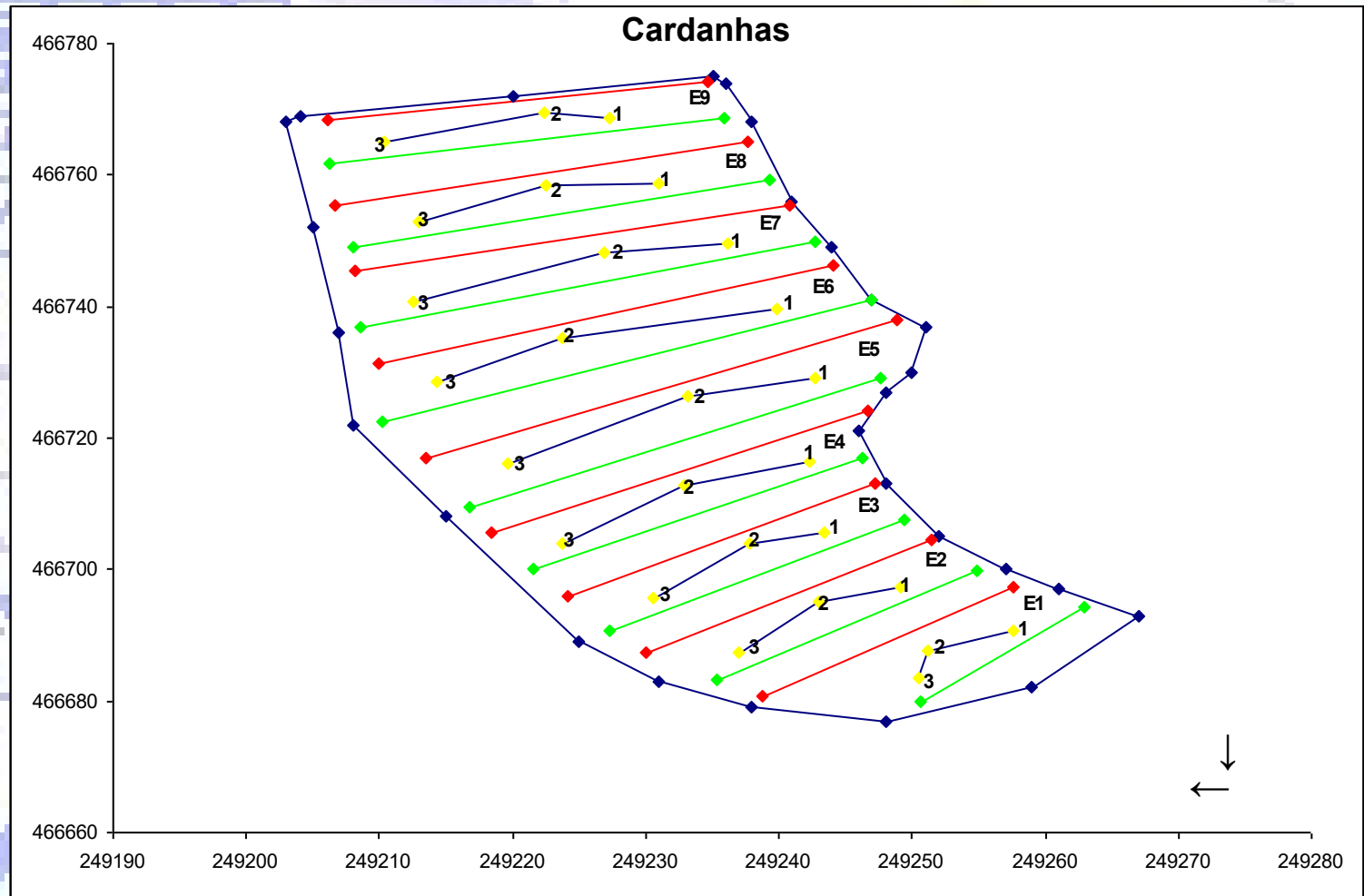
D- 249491 466925

E- 249521 466975

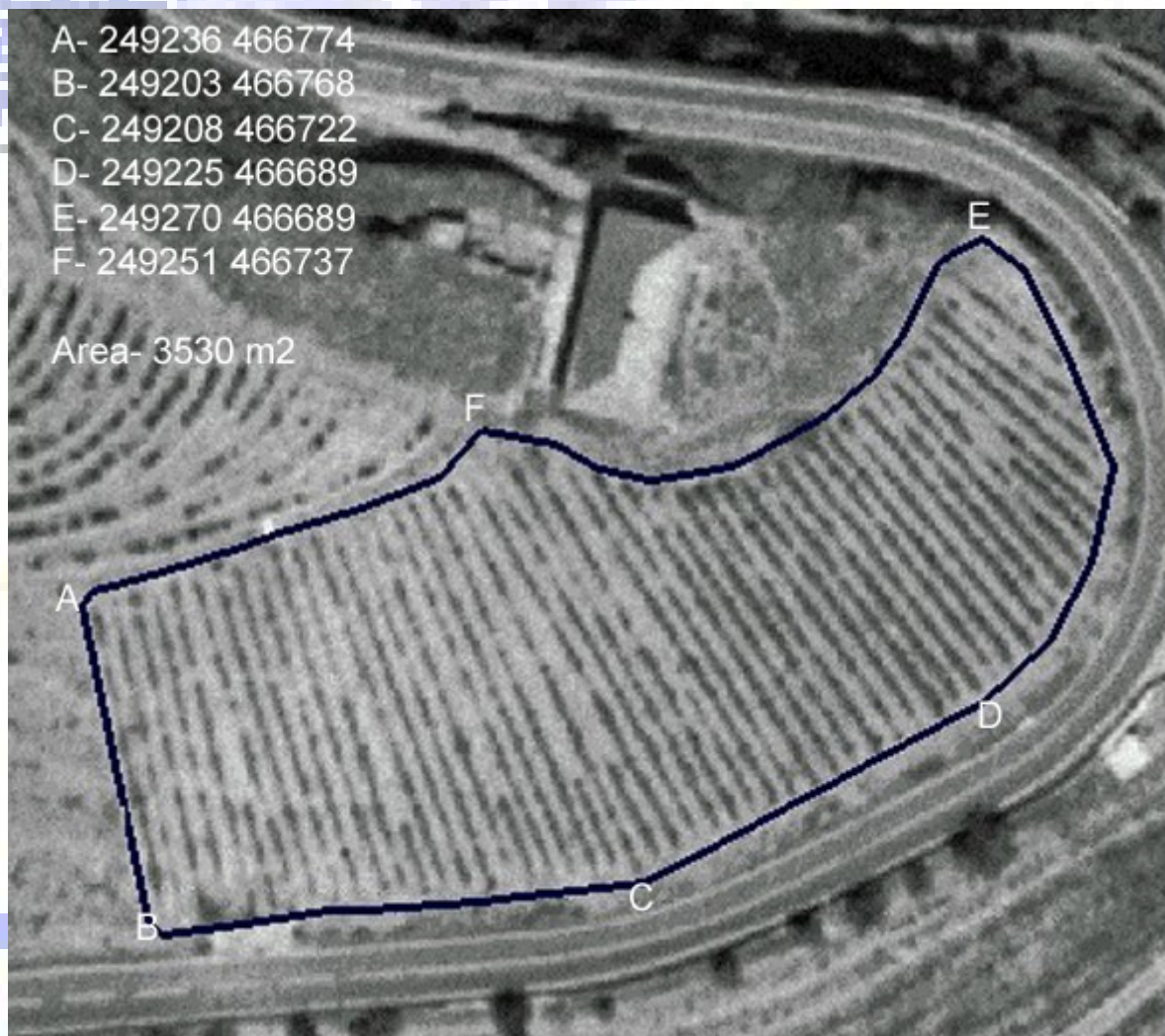
Area- 3530 m²



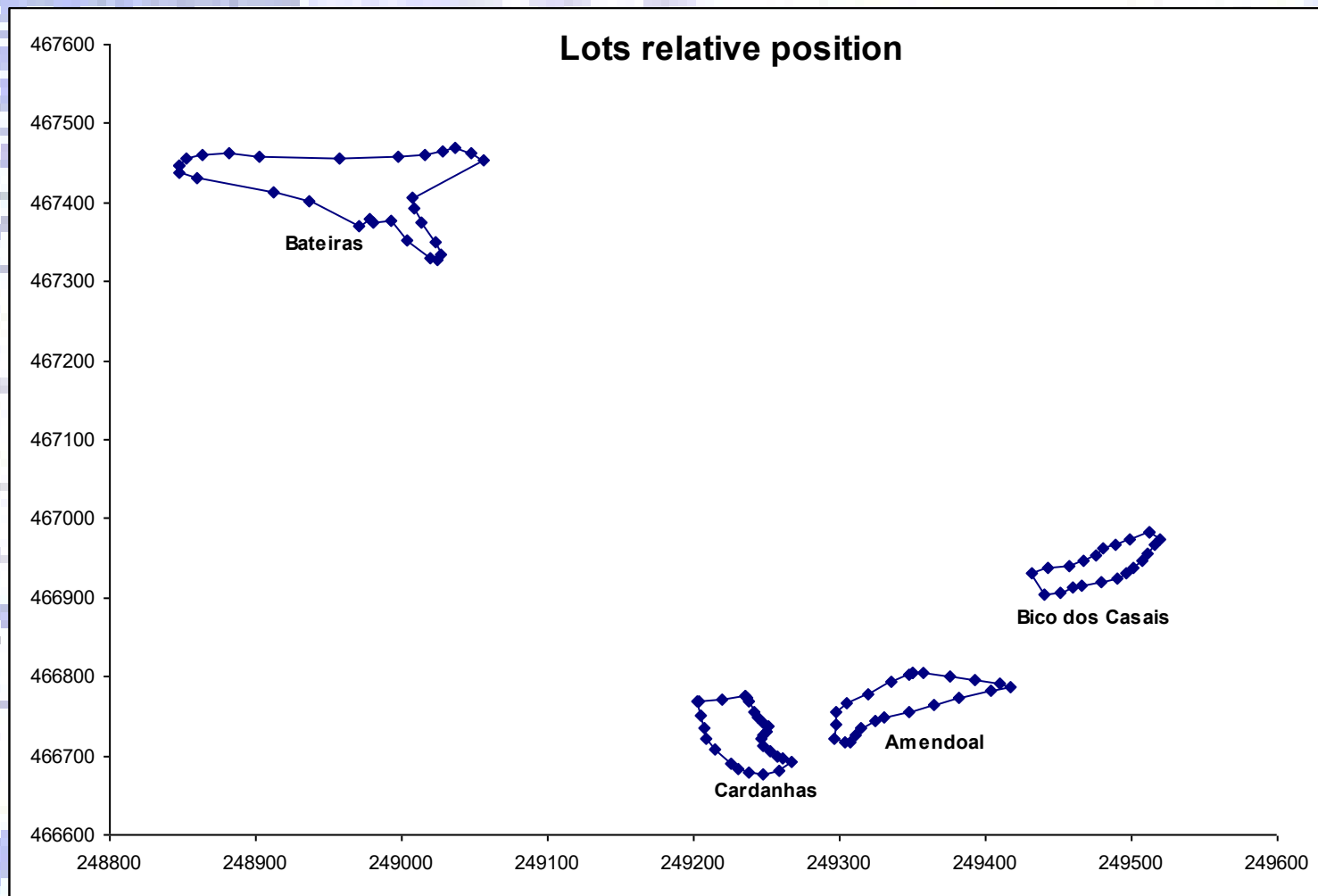
Graphical representation of Cardanhas plot



Aerial representation of Cardanhas plot



Graphical representation of all plots



Environmental data characterization

The data collected for monitoring the atmosphere conditions, in all the georeferenced sites, were the temperature, humidity and wind speed. These data determinations will be done in the same dates than the temperatures of soil and plants.

The data from meteorological station of Qta S. Barbara doesn't allow a differentiation of the environmental conditions of each plot site, but its values were measured in several development phases, namely, the thorns growth, florescence and ripening.

Besides this data it was measured the soil and plant temperature to determine its relation with the temperature atmosphere.

COPIREA

Average air temperature (°C), air humidity (%), soil temperature (°C) and plant temperature (°C), for different plots.

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
CLTPMED	9	26.282	1.0154	24.660	27.730
CLHUMMED	9	27.784	1.3493	26.000	30.220
SLTPMED	9	35.030	1.6206	32.230	37.770
PLTPMED	9	28.111	0.4310	27.470	28.710

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
CLTPMED	9	24.109	0.3565	23.700	24.620
CLHUMMED	9	33.726	2.1276	30.930	38.020
SLTPMED	9	33.989	1.3658	32.360	36.370
PLTPMED	9	28.179	1.1160	25.860	29.240

DESCRIPTIVE STATISTICS FOR PARC = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
CLTPMED	9	22.229	0.6142	21.440	23.090
CLHUMMED	9	42.574	0.7550	41.320	43.800
SLTPMED	9	29.297	1.3981	27.680	31.840
PLTPMED	9	24.122	1.0075	22.060	25.060

DESCRIPTIVE STATISTICS FOR PARC = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
CLTPMED	9	22.370	0.4652	21.570	22.910
CLHUMMED	9	39.164	1.4277	37.080	41.000
SLTPMED	9	28.391	0.7922	27.070	29.400
PLTPMED	9	24.788	0.4226	23.830	25.240

Average air temperature (°C), air humidity (%), soil temperature (°C) and plant temperature (°C), for the two installations forms.

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
CLTPMED	18	25.196	1.3399	23.700	27.730
CLHUMMED	18	30.755	3.5114	26.000	38.020
SLTPMED	18	34.509	1.5494	32.230	37.770
PLTPMED	18	28.145	0.8214	25.860	29.240

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
CLTPMED	18	22.299	0.5335	21.440	23.090
CLHUMMED	18	40.869	2.0750	37.080	43.800
SLTPMED	18	28.844	1.1967	27.070	31.840
PLTPMED	18	24.455	0.8240	22.060	25.240

CONCLUSION

ANOVA temperature average inside Amendoal and Bateiras

ONE-WAY AOV FOR CLTPMED BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	24.8032	3.10040	7.41	0.0002
WITHIN	18	7.53320	0.41851		
TOTAL	26	32.3364			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		18.27	8	0.0193	
COCHRAN'S Q			0.5396		
LARGEST VAR / SMALLEST VAR			480.13		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.89396	
EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV		
1	24.657	3	1.4257		
2	25.623	3	0.3075		
3	26.733	3	0.1739		
4	26.623	3	0.6532		
5	26.323	3	0.7653		
6	27.733	3	0.0651		
7	27.253	3	0.1365		
8	26.623	3	0.4105		
9	24.977	3	0.6369		
TOTAL	26.283	27	0.6469		
CASES INCLUDED 27		MISSING CASES 0			

ONE-WAY AOV FOR CLTPMED BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	3.04114	0.38014	4.02	0.0068
WITHIN	18	1.70347	0.09464		
TOTAL	26	4.74461			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		8.01	8	0.4325	
COCHRAN'S Q			0.3396		
LARGEST VAR / SMALLEST VAR			36.612		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.09517	
EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV		
1	24.243	3	0.2503		
2	23.700	3	0.1997		
3	24.623	3	0.3356		
4	24.363	3	0.1528		
5	23.800	3	0.0889		
6	23.743	3	0.4864		
7	24.467	3	0.2219		
8	23.767	3	0.5378		
9	24.267	3	0.1739		
TOTAL	24.108	27	0.3076		
CASES INCLUDED 27		MISSING CASES 0			

ANOVA temperature average inside Bico dos Casais and Cardanhas

ONE-WAY AOV FOR CLTPMED BY EST						ONE-WAY AOV FOR CLTPMED BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	8.99321	1.12415	3.83	0.0086	BETWEEN	8	5.20561	0.65070	3.50	0.0130
WITHIN	18	5.28593	0.29366			WITHIN	18	3.34573	0.18587		
TOTAL	26	14.2791				TOTAL	26	8.55134			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		6.46	8	0.5960		EQUAL VARIANCES		9.72	8	0.2854	
COCHRAN'S Q			0.2863			COCHRAN'S Q			0.2479		
LARGEST VAR / SMALLEST VAR			14.973			LARGEST VAR / SMALLEST VAR			157.46		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.27683		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.15494	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV			EST	MEAN	SAMPLE SIZE	GROUP STD DEV		
1	21.857	3	0.7744			1	21.570	3	0.3464		
2	21.447	3	0.6145			2	22.013	3	0.6439		
3	21.443	3	0.3009			3	22.547	3	0.1570		
4	23.090	3	0.2987			4	22.457	3	0.0513		
5	22.757	3	0.8698			5	21.810	3	0.2536		
6	22.877	3	0.6860			6	22.533	3	0.4234		
7	22.487	3	0.3371			7	22.913	3	0.4557		
8	22.223	3	0.3075			8	22.700	3	0.5957		
9	21.877	3	0.2248			9	22.800	3	0.5522		
TOTAL	22.229	27	0.5419			TOTAL	22.371	27	0.4311		
CASES INCLUDED	27		MISSING CASES	0		CASES INCLUDED	27		MISSING CASES	0	

ANOVA temperature average according plots and vineyard installations

ONE-WAY AOV FOR CLTPMED BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	96.8319	32.2773	73.70	0.0000
WITHIN	32	14.0141	0.43794		
TOTAL	35	110.846			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	9.39	3	0.0245

COCHRAN'S Q 0.5886

LARGEST VAR / SMALLEST VAR 8.1144

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 3.53771

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	26.282	9	1.0154
Ba	24.109	9	0.3565
BC	22.229	9	0.6142
Cd	22.370	9	0.4652
TOTAL	23.747	36	0.6618
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR CLTPMED BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	75.4871	75.4871	72.59	0.0000
WITHIN	34	35.3589	1.03997		
TOTAL	35	110.846			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	12.38	1	0.0004

COCHRAN'S Q 0.8631

LARGEST VAR / SMALLEST VAR 6.3069

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 4.13595

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	25.196	18	1.3399
VA	22.299	18	0.5335
TOTAL	23.748	36	1.0198
CASES INCLUDED	36	MISSING CASES	0

ANOVA humidity average inside Amendoal and Bateiras

ONE-WAY AOV FOR CLHMED BY EST						ONE-WAY AOV FOR CLHMED BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	43.6471	5.45589	3.14	0.0208	BETWEEN	8	48.1915	6.02393	11.69	0.0000
WITHIN	18	31.2555	1.73642			WITHIN	18	9.27820	0.51546		
TOTAL	26	74.9027				TOTAL	26	57.4697			
BARTLETT'S TEST OF						BARTLETT'S TEST OF					
EQUAL VARIANCES						EQUAL VARIANCES					
CHI-SQ	12.06	DF	8	P	0.1484	CHI-SQ	8.21	DF	8	P	0.4136
COCHRAN'S Q			0.5169			COCHRAN'S Q			0.2196		
LARGEST VAR / SMALLEST VAR			47.549			LARGEST VAR / SMALLEST VAR			87.553		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.23982		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.83616	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP	STD DEV		EST	MEAN	SAMPLE SIZE	GROUP	STD DEV	
1	28.780	3	1.0523			1	21.247	3	0.5862		
2	27.667	3	0.5807			2	25.343	3	0.9938		
3	28.367	3	0.8731			3	22.270	3	0.6557		
4	28.457	3	0.9336			4	22.823	3	0.1079		
5	26.923	3	0.4203			5	22.800	3	0.9412		
6	26.100	3	0.7211			6	22.987	3	0.4332		
7	26.000	3	0.4122			7	21.100	3	0.3208		
8	27.543	3	2.8423			8	23.167	3	0.8193		
9	30.220	3	1.8985			9	20.623	3	1.0092		
TOTAL	27.784	27	1.3177			TOTAL	22.484	27	0.7180		
CASES INCLUDED	27	MISSING CASES	0			CASES INCLUDED	27	MISSING CASES	0		

ANOVA humidity average inside Bico dos Casais and Cardanhas

ONE-WAY AOV FOR CLHMMED BY EST						ONE-WAY AOV FOR CLHMMED BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	13.6666	1.70833	3.23	0.0184	BETWEEN	8	48.8372	6.10465	2.55	0.0470
WITHIN	18	9.51187	0.52844			WITHIN	18	43.0335	2.39075		
TOTAL	26	23.1785				TOTAL	26	91.8706			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		5.31	8	0.7242		EQUAL VARIANCES		12.91	8	0.1150	
COCHRAN'S Q			0.2175			COCHRAN'S Q			0.5443		
LARGEST VAR / SMALLEST VAR			13.560			LARGEST VAR / SMALLEST VAR			247.97		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.39330		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.23797	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV			EST	MEAN	SAMPLE SIZE	GROUP STD DEV		
1	42.520	3	0.2762			1	39.720	3	0.6159		
2	43.800	3	0.8402			2	39.353	3	0.9459		
3	42.377	3	0.8886			3	40.467	3	0.2173		
4	41.323	3	1.0172			4	40.587	3	1.0520		
5	41.800	3	0.3161			5	41.000	3	0.7238		
6	42.490	3	0.5632			6	38.723	3	3.4224		
7	42.523	3	0.7366			7	37.313	3	1.3220		
8	42.923	3	1.0043			8	38.233	3	1.7065		
9	43.420	3	0.4258			9	37.077	3	1.4808		
TOTAL	42.575	27	0.7269			TOTAL	39.164	27	1.5462		
CASES INCLUDED	27	MISSING CASES	0			CASES INCLUDED	27	MISSING CASES	0		

ANOVA humidity average according plots and vineyard installations

ONE-WAY AOV FOR CLHUMMED BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	1131.88	377.293	168.52	0.0000
WITHIN	32	71.6447	2.23890		
TOTAL	35	1203.52			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	7.34	3	0.0619
COCHRAN'S Q		0.5054	
LARGEST VAR / SMALLEST VAR		7.9403	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	41.6727
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	27.784	9	1.3493
Ba	33.726	9	2.1276
BC	42.574	9	0.7550
Cd	39.164	9	1.4277
TOTAL	35.812	36	1.4963
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR CLHUMMED BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	920.718	920.718	110.69	0.0000
WITHIN	34	282.807	8.31785		
TOTAL	35	1203.52			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	4.37	1	0.0365
COCHRAN'S Q		0.7412	
LARGEST VAR / SMALLEST VAR		2.8638	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	50.6889
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	30.755	18	3.5114
VA	40.869	18	2.0750
TOTAL	35.812	36	2.8841
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil temperature average inside Amendoal and Bateiras

ONE-WAY AOV FOR SLTPMED BY EST						ONE-WAY AOV FOR SLTPMED BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	62.9934	7.87417	2.95	0.0271	BETWEEN	8	28.6413	3.58017	2.16	0.0835
WITHIN	18	48.1053	2.67252			WITHIN	18	29.8501	1.65834		
TOTAL	26	111.099				TOTAL	26	58.4915			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF	-----	-----	-----			BARTLETT'S TEST OF	-----	-----	-----		
EQUAL VARIANCES		6.95	8	0.5425		EQUAL VARIANCES		7.40	8	0.4946	
COCHRAN'S Q			0.3083			COCHRAN'S Q			0.2466		
LARGEST VAR / SMALLEST VAR			26.697			LARGEST VAR / SMALLEST VAR			94.869		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.73388		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.64061	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV								
1	36.000	3	0.9569								
2	35.893	3	2.3333								
3	36.240	3	2.0315								
4	37.773	3	2.7230								
5	34.673	3	1.4646								
6	34.313	3	1.4903								
7	34.160	3	0.9128								
8	33.980	3	0.8215								
9	32.233	3	0.5270								
TOTAL	35.030	27	1.6348								
CASES INCLUDED	27	MISSING CASES	0								
EST	MEAN	SAMPLE SIZE	GROUP STD DEV								
1	27.173	3	0.9292								
2	26.527	3	1.0849								
3	26.340	3	0.1970								
4	27.947	3	1.0416								
5	28.060	3	0.9180								
6	27.700	3	1.8600								
7	25.887	3	1.6977								
8	25.987	3	1.9186								
9	29.100	3	0.9464								
TOTAL	27.191	27	1.2878								
CASES INCLUDED	27	MISSING CASES	0								

COPIED

ANOVA soil temperature average inside Bico dos Casais e Cardanhas

ONE-WAY AOV FOR SLTPMED BY EST						ONE-WAY AOV FOR SLTPMED BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	46.9032	5.86290	4.33	0.0047	BETWEEN	8	15.0566	1.88207	1.24	0.3315
WITHIN	18	24.3698	1.35388			WITHIN	18	27.2773	1.51541		
TOTAL	26	71.2730				TOTAL	26	42.3339			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		3.32	8	0.9127		EQUAL VARIANCES		7.58	8	0.4752	
COCHRAN'S Q			0.2044			COCHRAN'S Q			0.3099		
LARGEST VAR / SMALLEST VAR			9.1012			LARGEST VAR / SMALLEST VAR			44.579		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.50301		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.12222	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP					SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV			EST	MEAN	SIZE	STD DEV		
1	27.973	3	1.2987			1	28.907	3	2.0558		
2	28.287	3	0.9961			2	28.533	3	1.6398		
3	28.593	3	1.0631			3	27.640	3	0.5923		
4	29.590	3	1.5780			4	27.067	3	1.1073		
5	27.680	3	0.5231			5	27.593	3	1.4250		
6	28.727	3	0.6354			6	29.180	3	0.3079		
7	30.373	3	1.5303			7	29.400	3	0.6835		
8	30.607	3	0.9411			8	28.760	3	0.7275		
9	31.840	3	1.4076			9	28.433	3	1.4230		
TOTAL	29.297	27	1.1636			TOTAL	28.390	27	1.2310		
CASES INCLUDED	27	MISSING CASES	0			CASES INCLUDED	27	MISSING CASES	0		

ANOVA soil temperature average according plots and vineyard installations

ONE-WAY AOV FOR SLTPMED BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	297.454	99.1515	56.07	0.0000
WITHIN	32	56.5898	1.76843		
TOTAL	35	354.044			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	3.70	3	0.2953

COCHRAN'S Q 0.3713

LARGEST VAR / SMALLEST VAR 4.1848

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 10.8203

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	35.030	9	1.6206
Ba	33.989	9	1.3658
BC	29.297	9	1.3981
Cd	28.391	9	0.7922
TOTAL	31.677	36	1.3298
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SLTPMED BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	288.887	288.887	150.74	0.0000
WITHIN	34	65.1575	1.91640		
TOTAL	35	354.044			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	1.09	1	0.2966

COCHRAN'S Q 0.6263

LARGEST VAR / SMALLEST VAR 1.6762

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 15.9428

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	34.509	18	1.5494
VA	28.844	18	1.1967
TOTAL	31.677	36	1.3843
CASES INCLUDED	36	MISSING CASES	0

ANOVA plant temperature average inside Amendoal and Bateiras

ONE-WAY AOV FOR PLTPMED BY EST						ONE-WAY AOV FOR PLTPMED BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	4.46080	0.55760	1.49	0.2293	BETWEEN	8	16.8608	2.10760	1.52	0.2195
WITHIN	18	6.74247	0.37458			WITHIN	18	25.0025	1.38903		
TOTAL	26	11.2033				TOTAL	26	41.8633			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		7.33	8	0.5013		EQUAL VARIANCES		6.20	8	0.6244	
COCHRAN'S Q			0.2762			COCHRAN'S Q			0.4029		
LARGEST VAR / SMALLEST VAR			19.605			LARGEST VAR / SMALLEST VAR			23.667		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.06101		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.23952	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV			EST	MEAN	SAMPLE SIZE	GROUP STD DEV		
1	28.037	3	0.3109			1	19.393	3	0.9474		
2	28.400	3	0.2291			2	20.350	3	2.2442		
3	27.750	3	0.6083			3	20.673	3	1.0489		
4	27.633	3	0.9650			4	21.567	3	1.4150		
5	27.467	3	0.6806			5	21.437	3	0.9059		
6	28.203	3	0.7484			6	21.763	3	1.2189		
7	28.710	3	0.3460			7	21.317	3	0.8122		
8	28.610	3	0.8546			8	21.783	3	0.5346		
9	28.200	3	0.2179			9	21.930	3	0.4613		
TOTAL	28.112	27	0.6120			TOTAL	21.135	27	1.1786		
CASES INCLUDED	27		MISSING CASES	0		CASES INCLUDED	27		MISSING CASES	0	

ANOVA plant temperature average inside Bico dos Casais and Cardanhas

ONE-WAY AOV FOR PLTPMED BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	24.4087	3.05108	16.76	0.0000
WITHIN	18	3.27760	0.18209		
TOTAL	26	27.6863			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		11.18	8	0.1914	
COCHRAN'S Q			0.2659		
LARGEST VAR / SMALLEST VAR			74.714		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.95633	
EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP	STD DEV	
1	22.060	3		0.2594	
2	23.033	3		0.6602	
3	23.653	3		0.5021	
4	24.830	3		0.4822	
5	24.393	3		0.1250	
6	24.567	3		0.0764	
7	24.753	3		0.5746	
8	24.777	3		0.1419	
9	25.060	3		0.5285	
TOTAL	24.125	27		0.4267	
CASES INCLUDED 27		MISSING CASES 0			

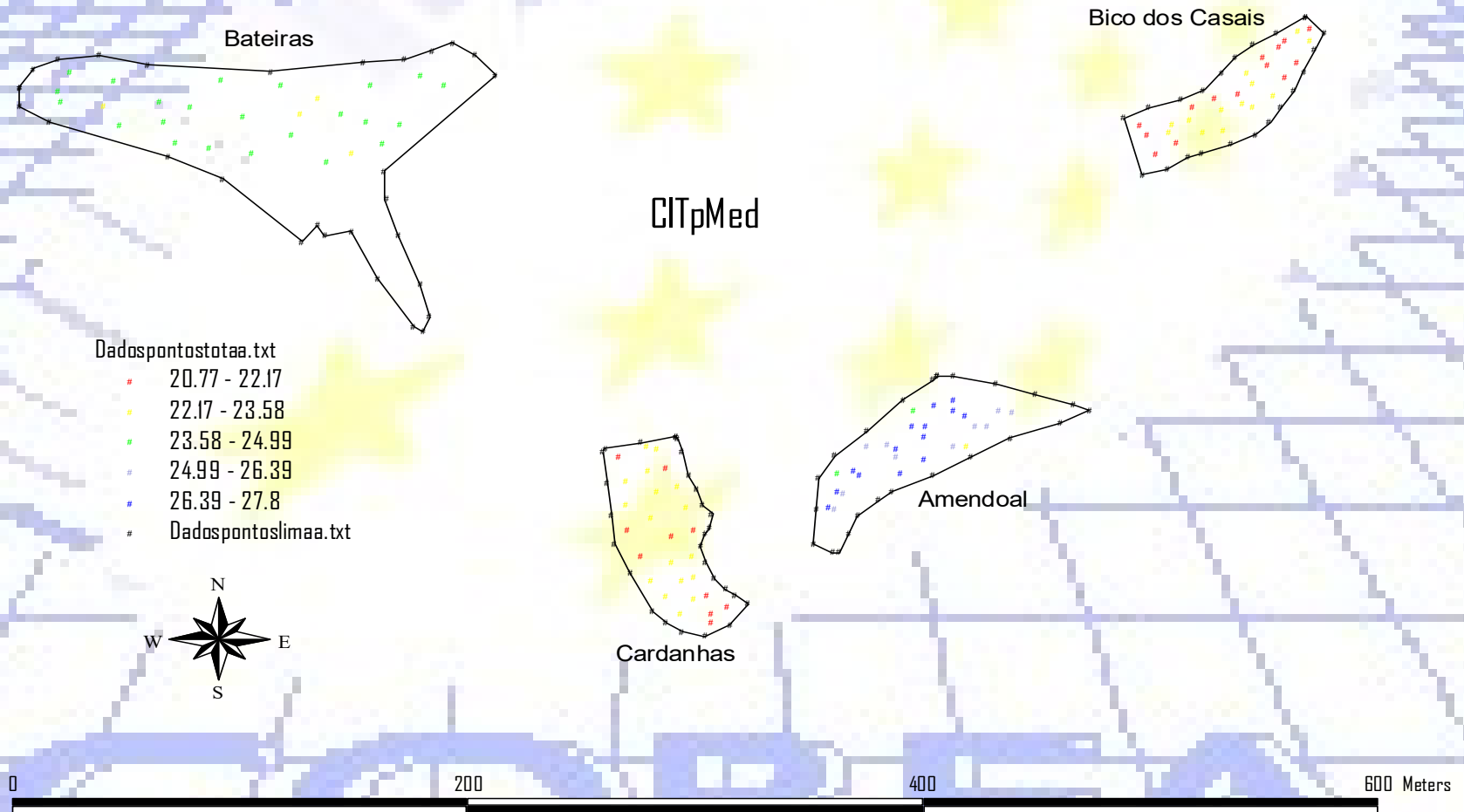
ONE-WAY AOV FOR PLTPMED BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	4.25323	0.53165	2.66	0.0402
WITHIN	18	3.59427	0.19968		
TOTAL	26	7.84750			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		2.95	8	0.9376	
COCHRAN'S Q			0.2127		
LARGEST VAR / SMALLEST VAR			8.0939		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.11066	
EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP	STD DEV	
1	23.837	3		0.3296	
2	24.627	3		0.3656	
3	24.810	3		0.5048	
4	24.527	3		0.5862	
5	24.993	3		0.5478	
6	25.060	3		0.6183	
7	24.993	3		0.3495	
8	25.243	3		0.3235	
9	25.017	3		0.2173	
TOTAL	24.790	27		0.4469	
CASES INCLUDED 27		MISSING CASES 0			

ANOVA plant temperature average according plots and vineyard installations

ONE-WAY AOV FOR PLTPMED BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	124.559	41.5196	63.27	0.0000
WITHIN	32	20.9991	0.65622		
TOTAL	35	145.558			
BARTLETT'S TEST OF					
		CHI-SQ	DF	P	
EQUAL VARIANCES		11.30	3	0.0102	
COCHRAN'S Q			0.4745		
LARGEST VAR / SMALLEST VAR			6.9733		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				4.54038	
EFFECTIVE CELL SIZE				9.0	
PARC	MEAN	SAMPLE SIZE	GROUP STD DEV		
Am	28.111	9	0.4310		
Ba	28.179	9	1.1160		
BC	24.122	9	1.0075		
Cd	24.788	9	0.4226		
TOTAL	26.300	36	0.8101		
CASES INCLUDED		36	MISSING CASES	0	

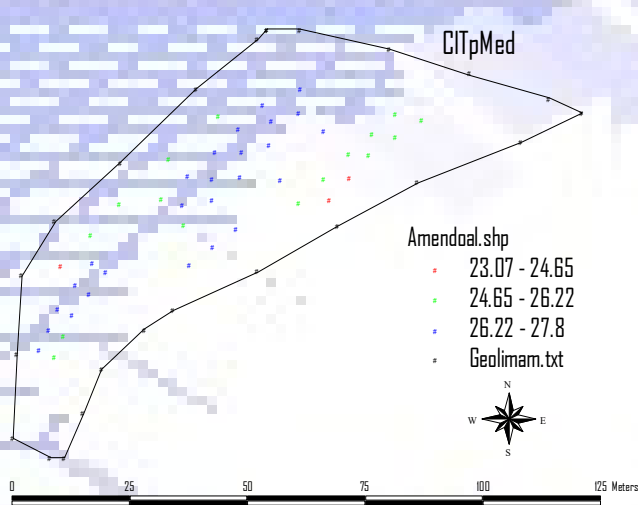
ONE-WAY AOV FOR PLTPMED BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	122.545	122.545	181.05	0.0000
WITHIN	34	23.0131	0.67686		
TOTAL	35	145.558			
BARTLETT'S TEST OF					
		CHI-SQ	DF	P	
EQUAL VARIANCES		0.00	1	0.9897	
COCHRAN'S Q			0.5016		
LARGEST VAR / SMALLEST VAR			1.0064		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				6.77045	
EFFECTIVE CELL SIZE				18.0	
INST	MEAN	SAMPLE SIZE	GROUP STD DEV		
Pt	28.145	18	0.8214		
VA	24.455	18	0.8240		
TOTAL	26.300	36	0.8227		
CASES INCLUDED		36	MISSING CASES	0	

Environmental average temperatures, in °C, for all plots.

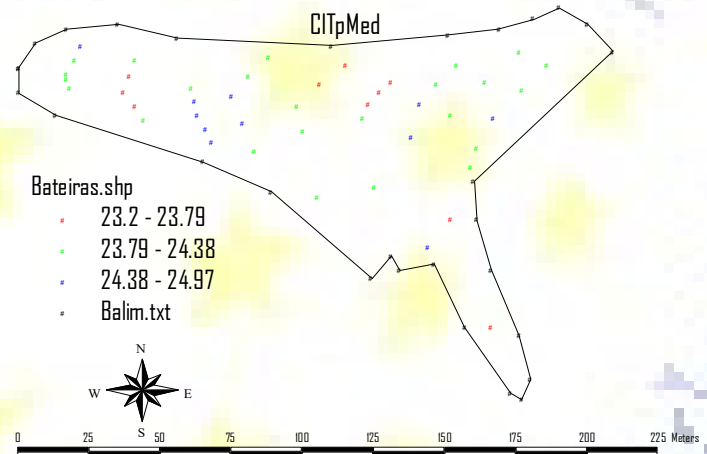


Environmental average temperatures, in °C, for different plots.

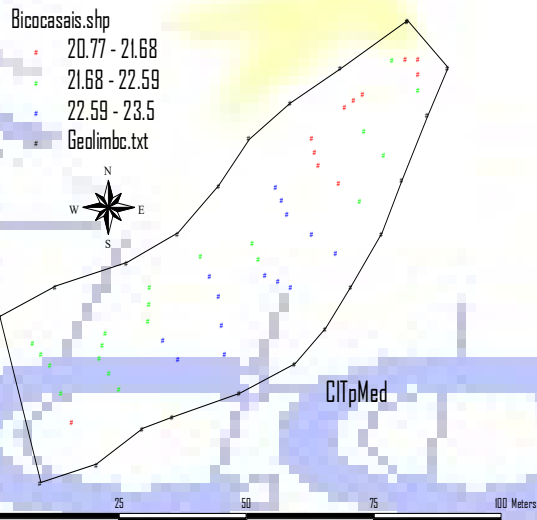
Amendoal



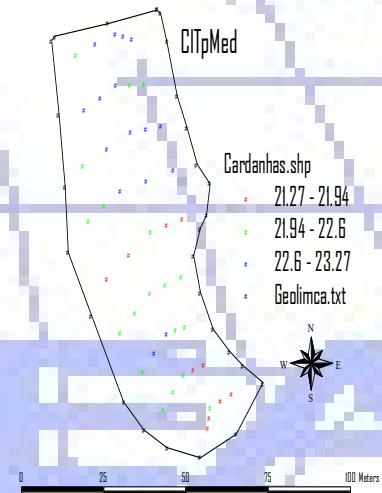
Bateiras



Bico dos Casais

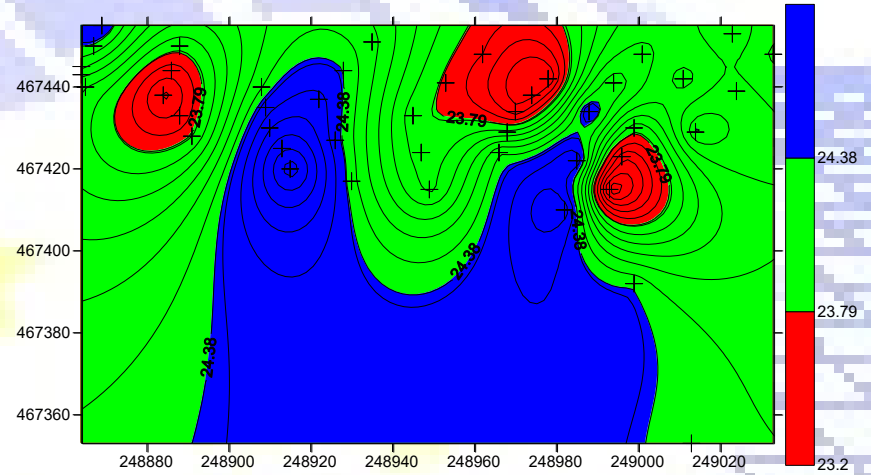
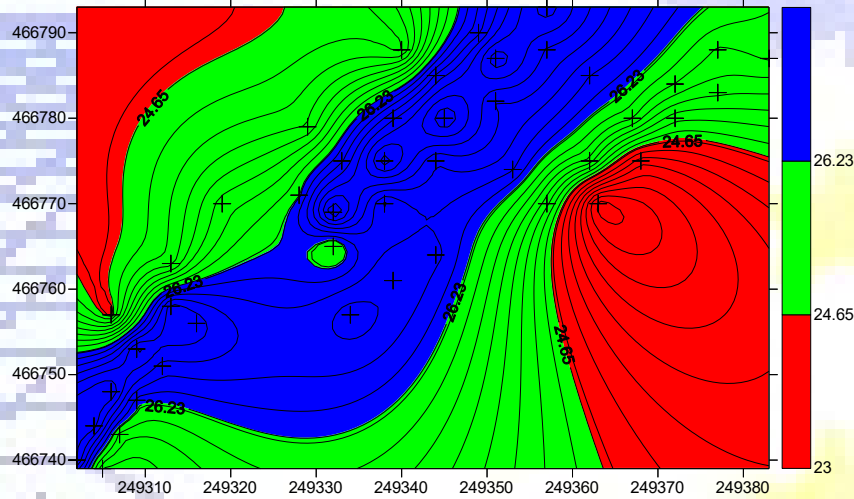


Cardanhas

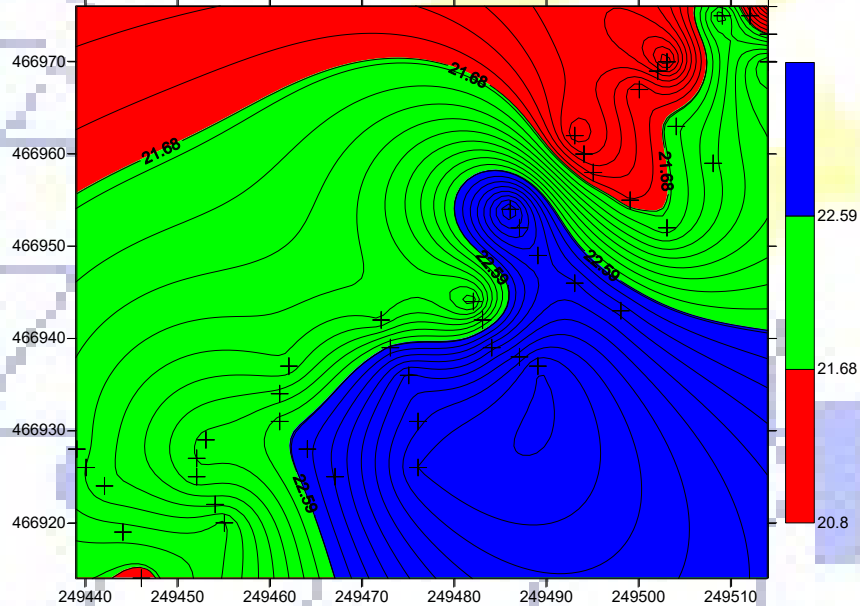


Environmental average temperatures, in °C, for different plots.

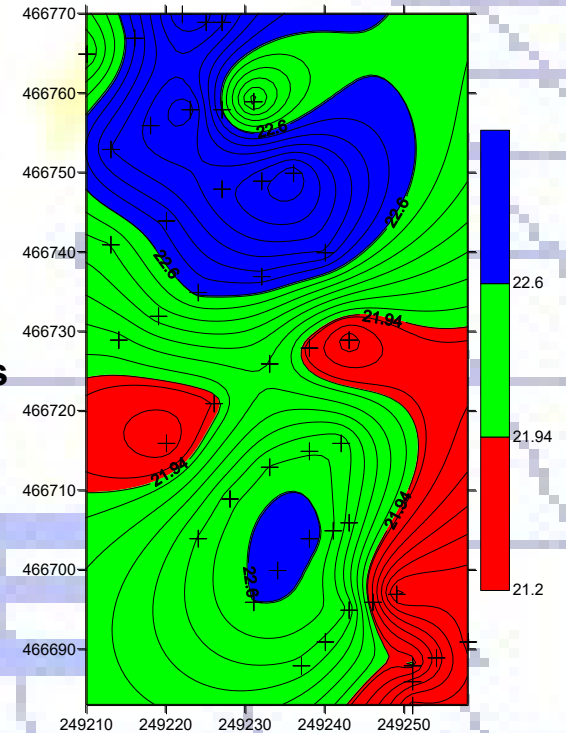
Amendoal



Bico dos Casais

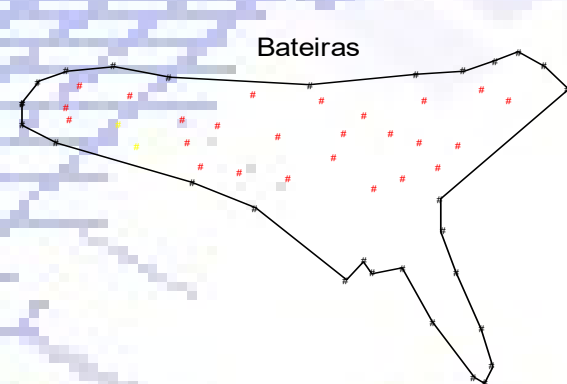


Bateiras



Cardanhas

Environmental average humidity, in %, for all plots



Bico dos Casais



CIHmMed

Dadospontostotaa.txt

■ 19.87 - 24.75

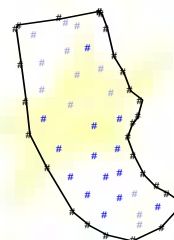
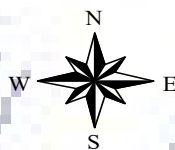
■ 24.75 - 29.64

■ 29.64 - 34.53

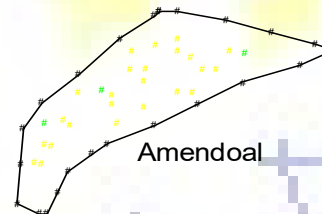
■ 34.53 - 39.41

■ 39.41 - 44.3

■ Dadospontoslimaa.txt



Cardanhas

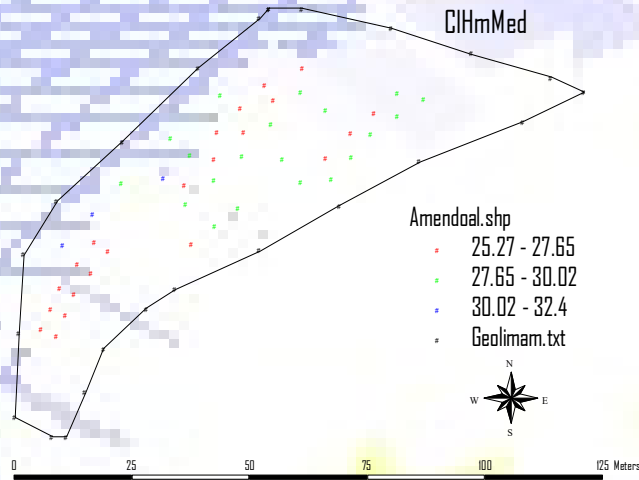


Amendoal

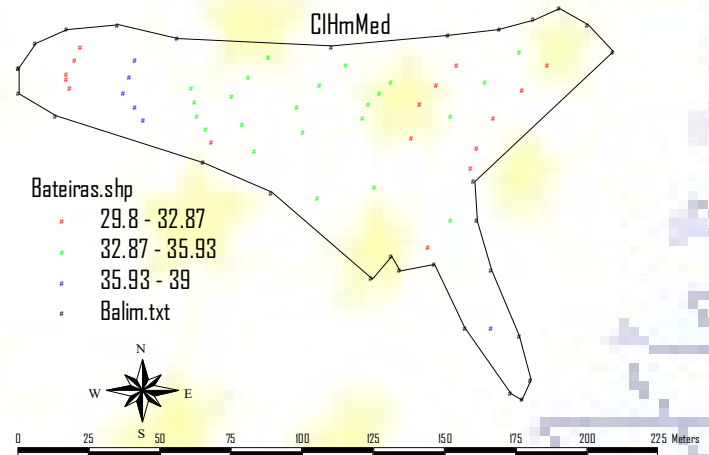


Environmental average humidity, in %, in each plot

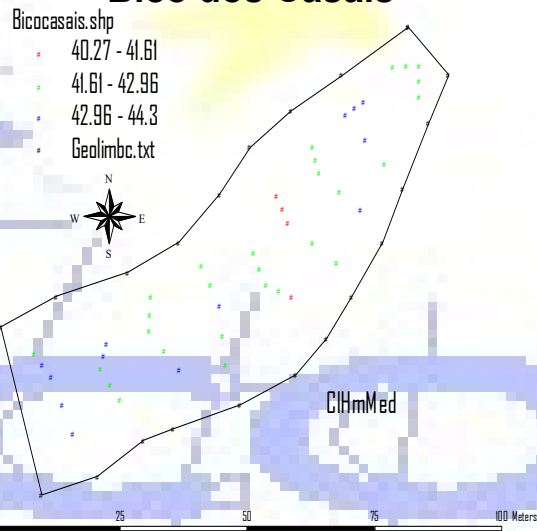
Amendoal



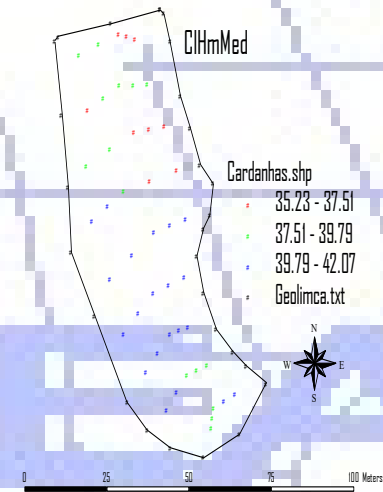
Bateiras



Bico dos Casais

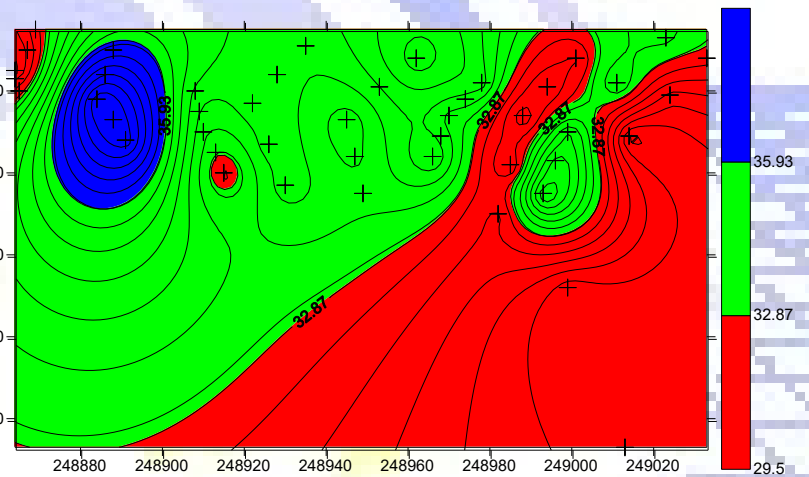
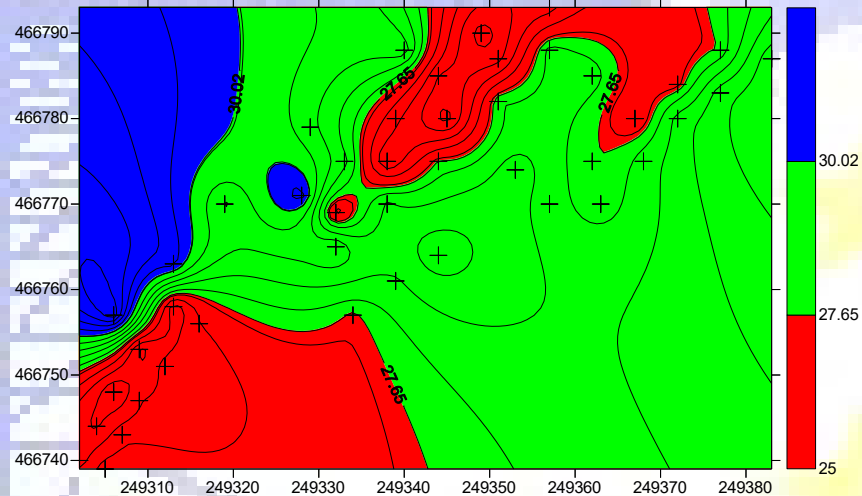


Cardanhas

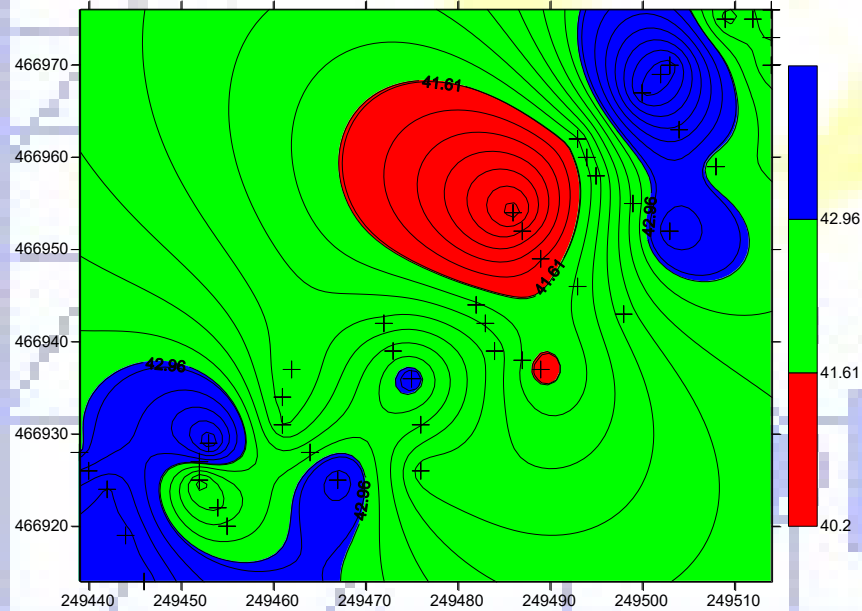


Environmental average humidity in %, in each plot

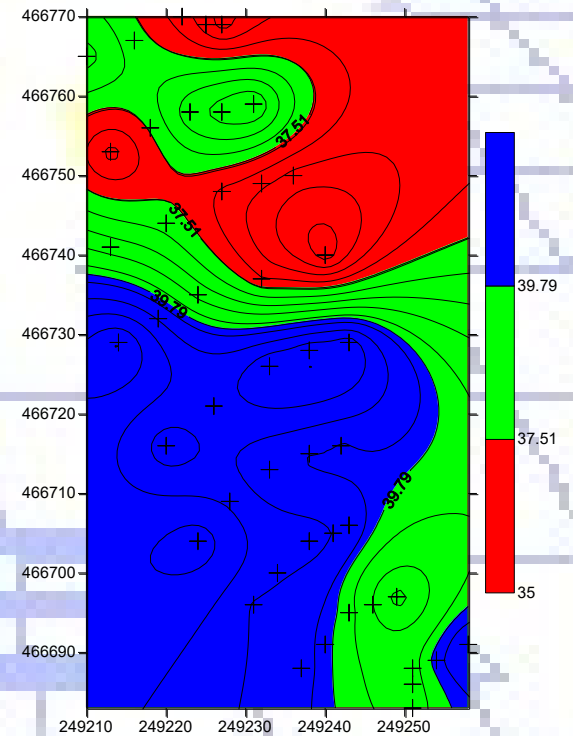
Amendoal



Bico dos Casais

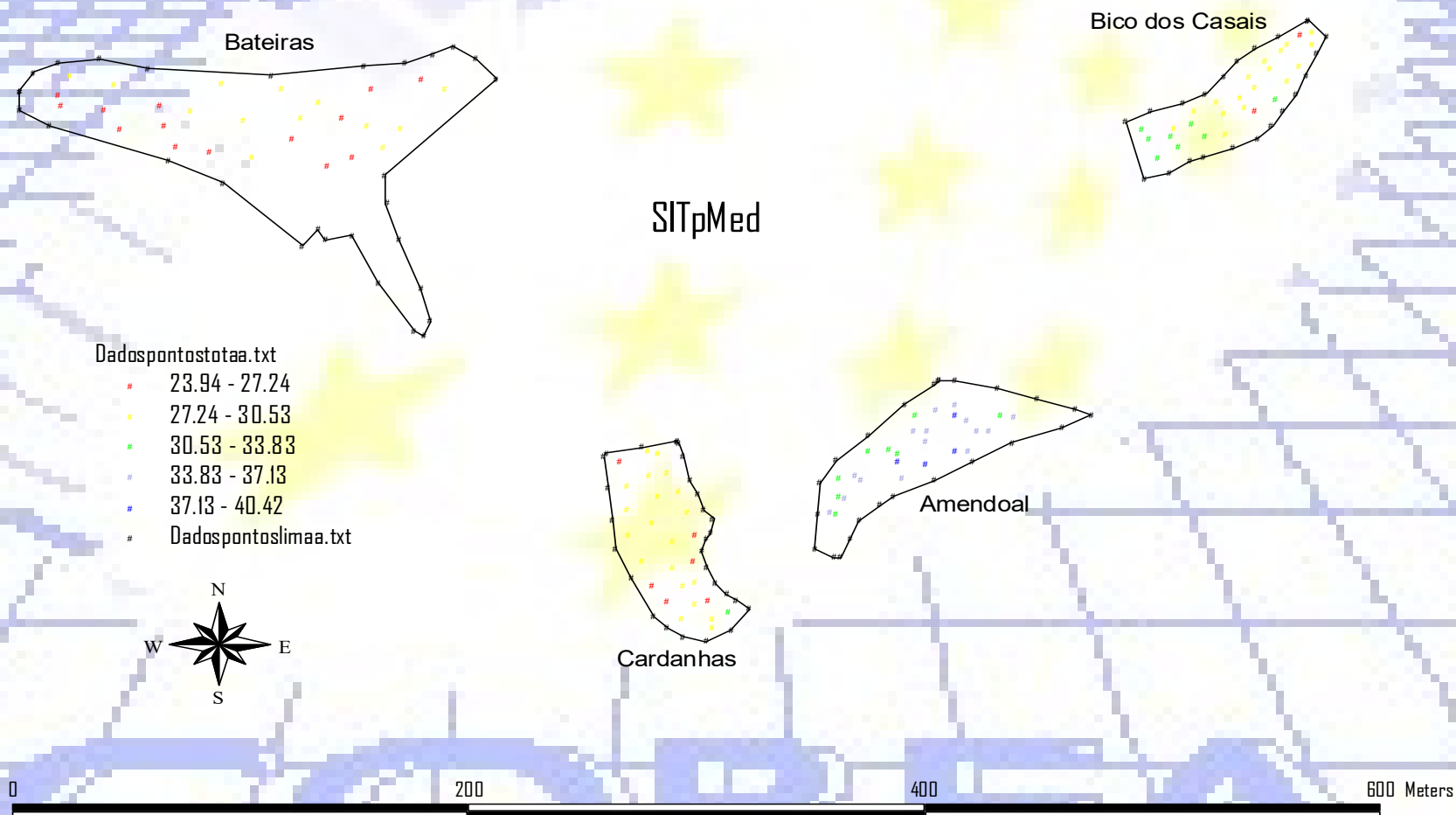


Bateiras



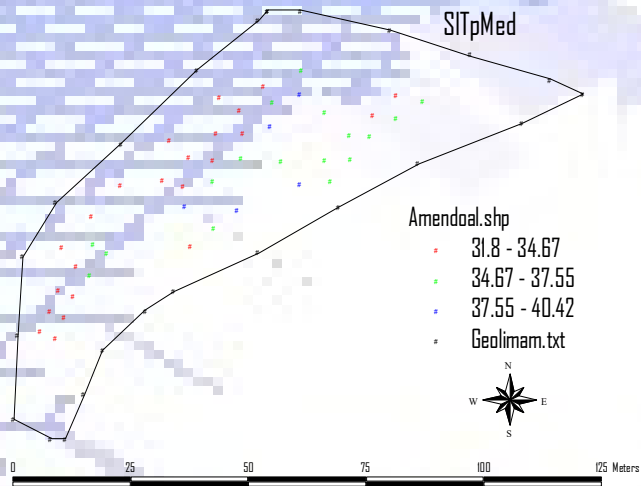
Cardanhas

Soil average temperature, in °C, for all plots

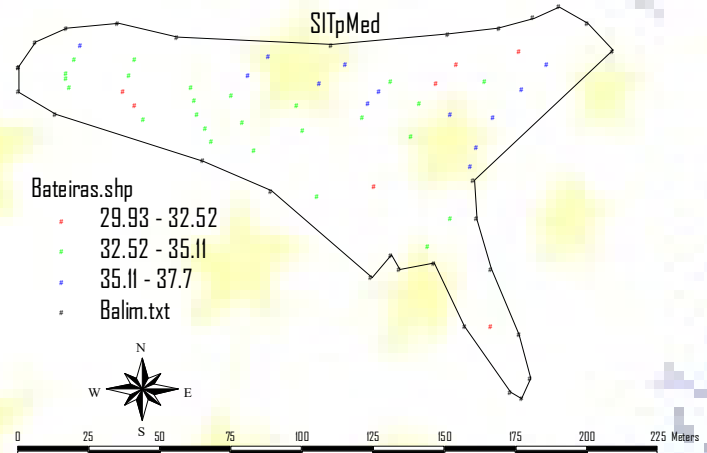


Soil average temperature, in °C, in each plot

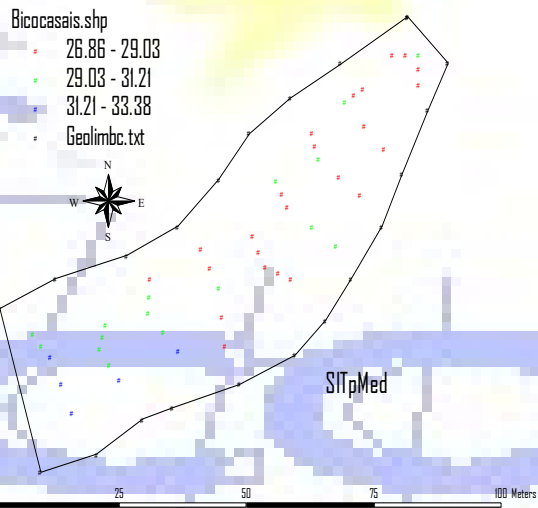
Amendoal



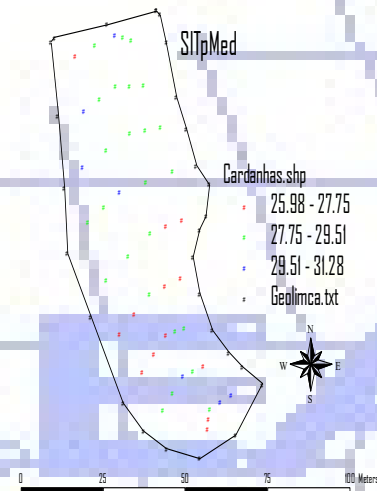
Bateiras



Bico dos Casais

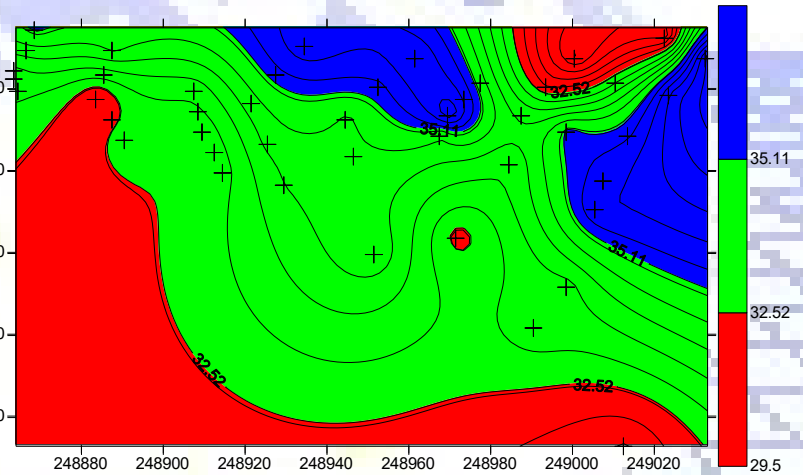
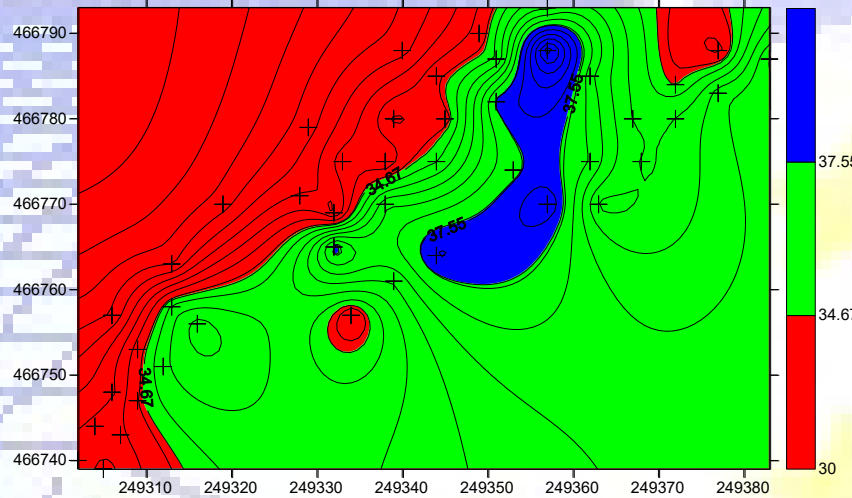


Cardanhas

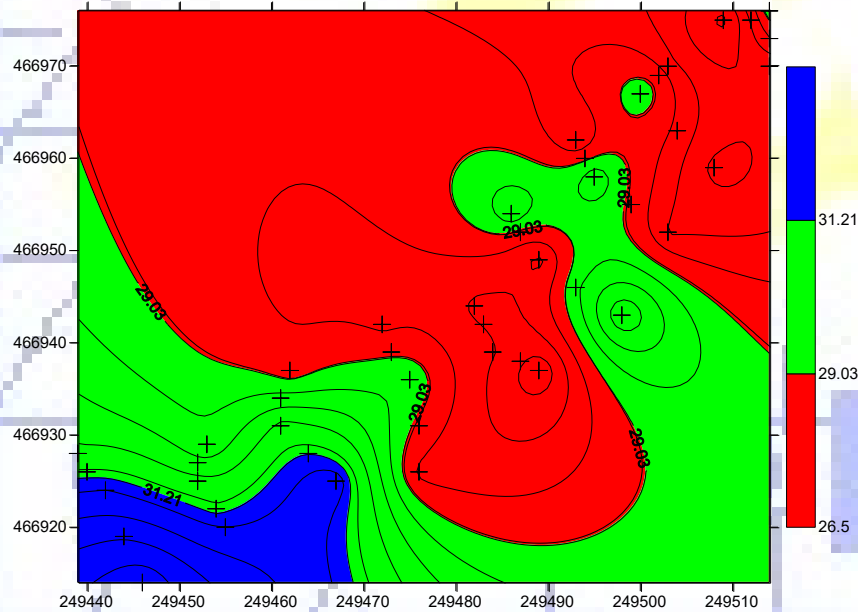


Soil average temperature, in °C, in each plot

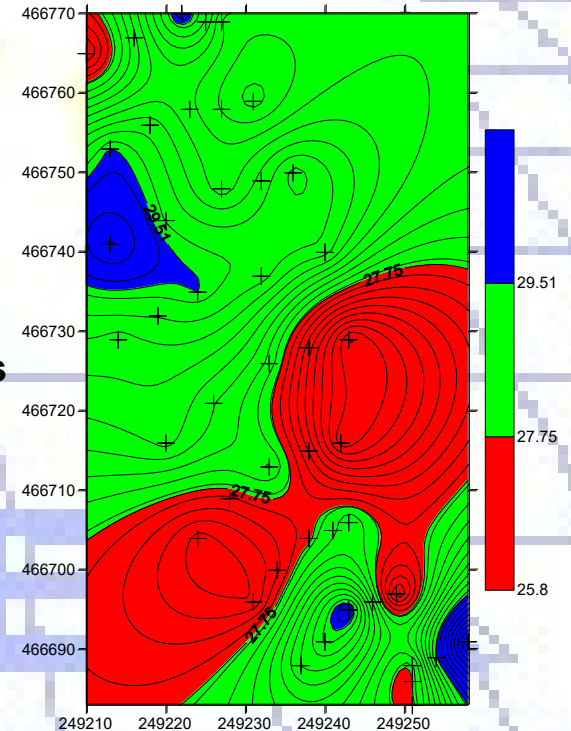
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Bico dos Casais

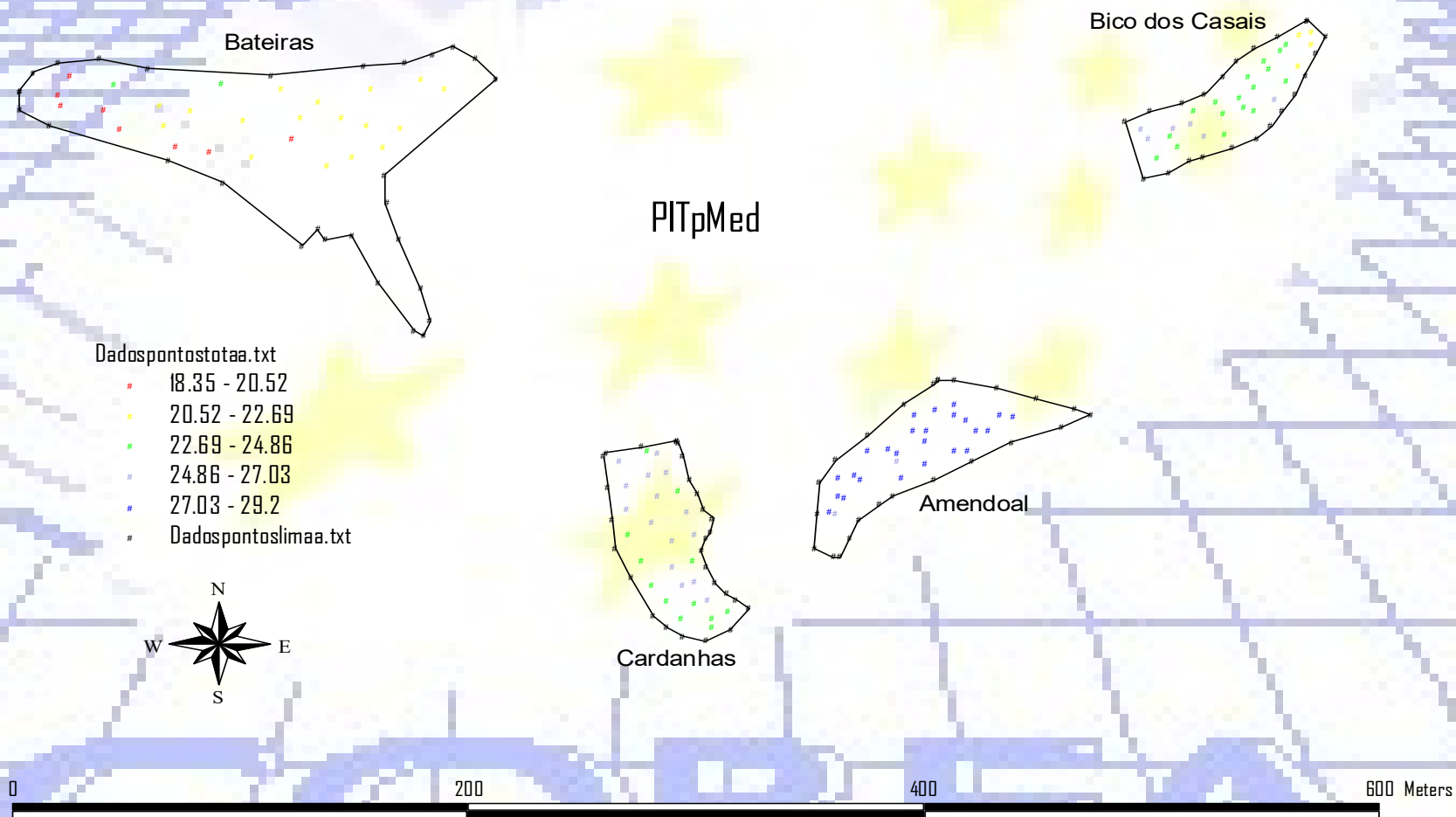


Bateiras



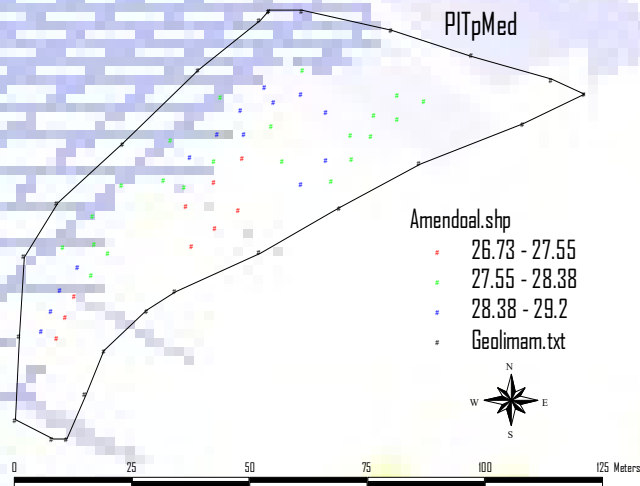
Cardanhas

Plants average temperature, in °C, for all plots.

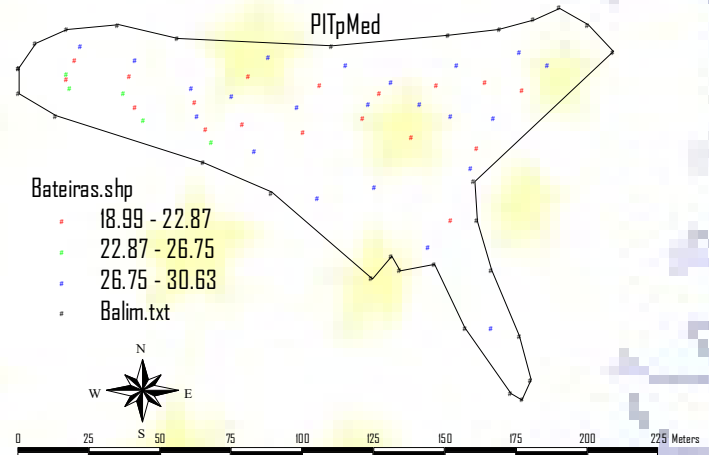


Plants average temperature, in °C, for different plots.

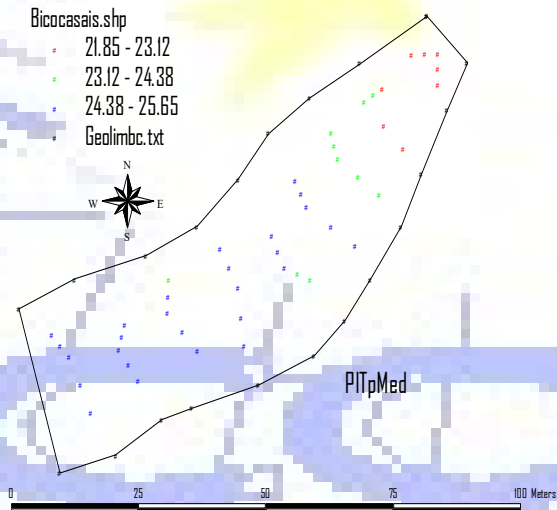
Amendoal



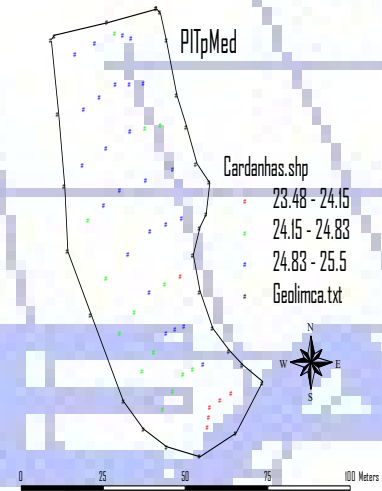
Bateiras



Bico dos Casais

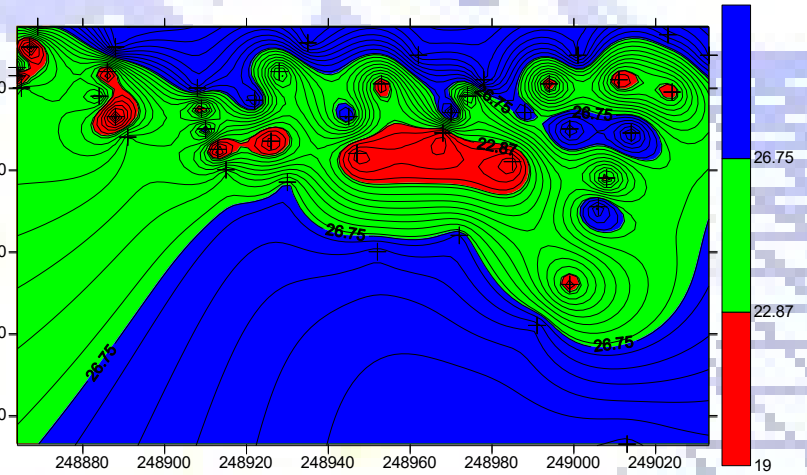
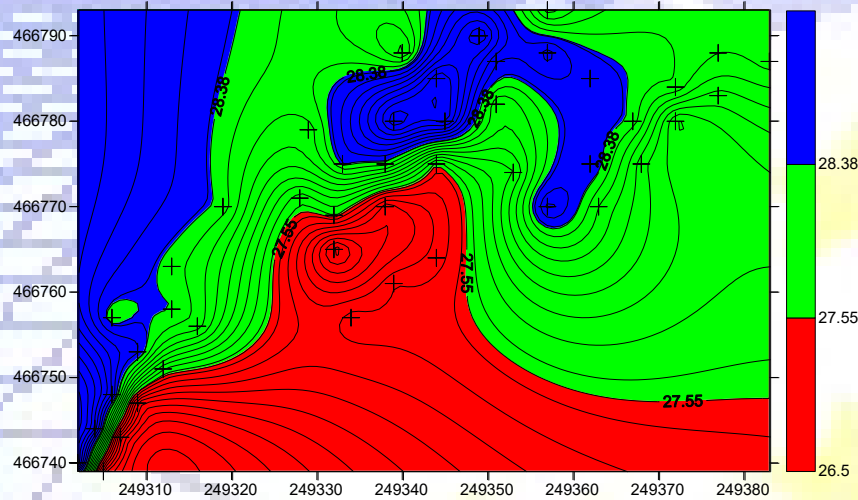


Cardanhas

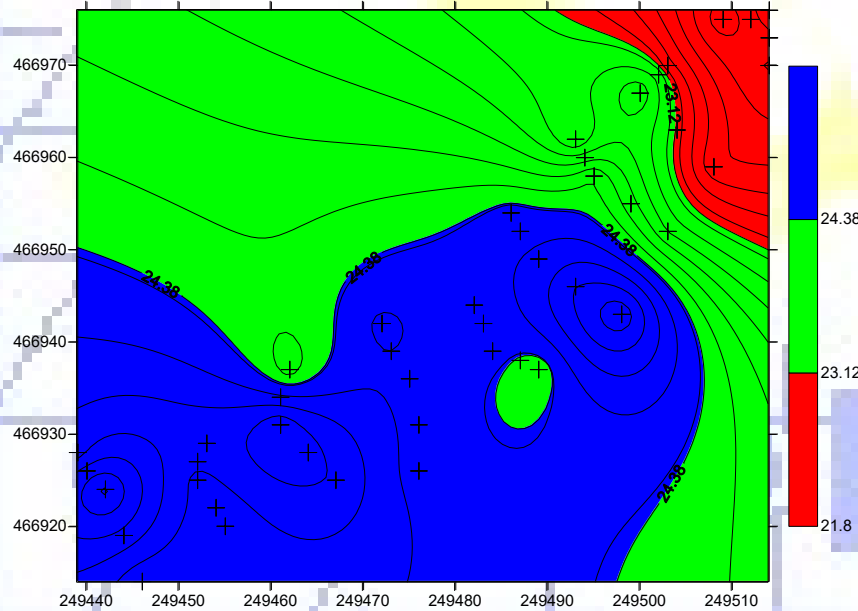


Plants average temperature, in °C, for different plots.

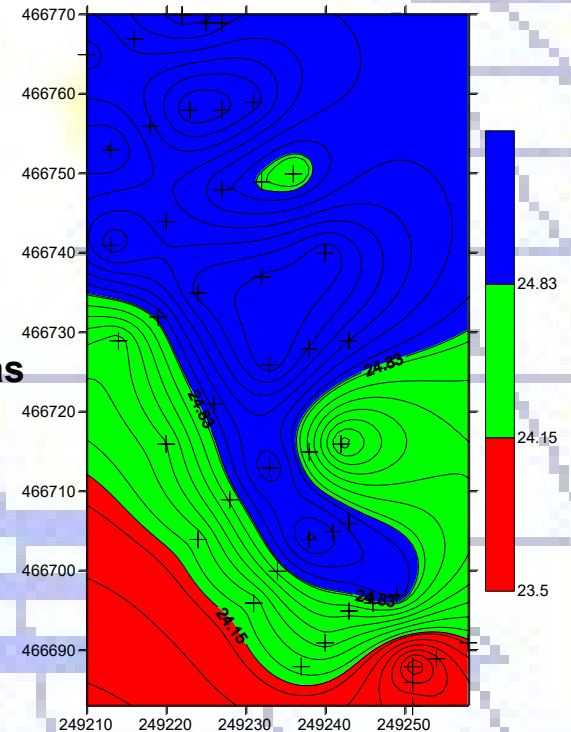
Amendoal



Bico dos Casais



Bateiras



Cardanhas

Plants characterization data

Plants characterization data, located close to the georeferenced sites, are related to:

- plant temperature;**
- date of the main phenological states;**
- nutrients concentration of the leaves;**
- photosynthetical leaves activity;**
- leaf surface area;**
- leaf dry weight**
- weight wood pruning.**

Besides the data relative to the grapevines vegetative development, were determined also the distances between plants, the type graft, the type leading plant, etc.

COOREA

SPAD (1) of leaf in different date (050519, 050617, 050725), for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD05051	9	39.364	1	37.930	40.470
SPAD05061	9	45.170	1	44.000	46.630
SPAD05072	9	42.448	15.154	40.230	44.600

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD05051	9	36.630	25.057	32.230	40.000
SPAD05061	9	43.082	16.419	41.170	46.130
SPAD05072	9	41.788	18.305	39.030	44.130

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD05051	9	39.820	0.6515	38.970	40.570
SPAD05061	9	42.049	23.526	37.970	45.800
SPAD05072	9	37.732	23.779	34.130	40.800

DESCRIPTIVE STATISTICS FOR plot = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD05051	9	40.007	16.641	36.870	41.930
SPAD05061	9	43.274	21.729	40.030	46.500
SPAD05072	9	40.744	28.443	34.400	45.200

(1 - SPAD- Content of leaf chlorophyll)

SPAD of leaf in different date (050519, 050617, 050725) , for terraces (Pt) and slope vineyards (VA).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD05051	18	37.997	2.293	32.230	40.470
SPAD05061	18	44.126	1.662	41.170	46.630
SPAD05072	18	42.118	1.665	39.030	44.600

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD05051	18	39.913	1.230	36.870	41.930
SPAD05061	18	42.662	2.286	37.970	46.500
SPAD05072	18	39.238	2.978	34.130	45.200

COREA

ONE-WAY AOV FOR SPADMED BY EST						ONE-WAY AOV FOR SPADMED BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	6.80185	0.85023	0.33	0.9449	BETWEEN	8	65.0878	8.13597	1.61	0.1908
WITHIN	18	46.8883	2.60490			WITHIN	18	90.9719	5.05400		
TOTAL	26	53.6901				TOTAL	26	156.060			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		13.14	8	0.1070		EQUAL VARIANCES		5.47	8	0.7067	
COCHRAN'S Q			0.3536			COCHRAN'S Q			0.2978		
LARGEST VAR / SMALLEST VAR			58.259			LARGEST VAR / SMALLEST VAR			50.479		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				-0.58489		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.02732	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP					SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV			EST	MEAN	SIZE	STD DEV		
1	42.487	3	1.6884			1	37.633	3	1.6794		
2	41.667	3	2.8793			2	40.753	3	2.7560		
3	43.057	3	1.1724			3	38.500	3	1.6643		
4	41.790	3	1.1829			4	42.043	3	2.6001		
5	42.390	3	0.3772			5	42.010	3	1.8706		
6	43.190	3	0.9007			6	39.543	3	3.6802		
7	41.920	3	0.5406			7	42.170	3	2.1794		
8	42.067	3	2.8459			8	40.333	3	1.8650		
9	42.380	3	0.4293			9	41.510	3	0.5180		
TOTAL	42.327	27	1.6140			TOTAL	40.500	27	2.2481		
CASES INCLUDED	27	MISSING CASES	0			CASES INCLUDED	27	MISSING CASES	0		

ANOVA SPAD average inside Bico dos Casais e Cardanhas

ONE-WAY AOV FOR SPADMED BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	59.3242	7.41552	1.29	0.3103
WITHIN	18	103.740	5.76331		
TOTAL	26	163.064			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		7.84	8	0.4494	
COCHRAN'S Q			0.4058		
LARGEST VAR / SMALLEST VAR			27.993		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.55074	
EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV		
1	39.587	3	1.1915		
2	41.013	3	2.5955		
3	39.053	3	3.0823		
4	37.637	3	1.9757		
5	38.467	3	0.9666		
6	41.000	3	1.6022		
7	38.500	3	2.2381		
8	42.200	3	0.8671		
9	41.347	3	4.5878		
TOTAL	39.867	27	2.4007		
CASES INCLUDED		27	MISSING CASES 0		

ONE-WAY AOV FOR SPADMED BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	93.7301	11.7163	6.61	0.0004
WITHIN	18	31.8938	1.77188		
TOTAL	26	125.624			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		10.22	8	0.2502	
COCHRAN'S Q			0.4307		
LARGEST VAR / SMALLEST VAR			75.864		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				3.31479	
EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV		
1	37.413	3	0.6562		
2	39.843	3	0.3009		
3	42.310	3	1.2301		
4	44.543	3	0.9693		
5	42.213	3	1.7699		
6	42.310	3	1.3001		
7	41.133	3	2.6207		
8	40.623	3	0.4272		
9	41.690	3	1.0484		
TOTAL	41.342	27	1.3311		
CASES INCLUDED		27	MISSING CASES 0		

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ANOVA SPAD average according plots and vineyard installations

ONE-WAY AOV FOR SPADMED BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	30.7513	10.2504	4.37	0.0109
WITHIN	32	74.9966	2.34364		
TOTAL	35	105.748			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	10.66	3	0.0137
COCHRAN'S Q		0.4168	
LARGEST VAR / SMALLEST VAR		13.788	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.87853
EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	42.329	9	0.5323
Ba	40.499	9	1.6476
BC	39.867	9	1.5714
Cd	41.340	9	1.9767
TOTAL	41.009	36	1.5309
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SPADMED BY INST

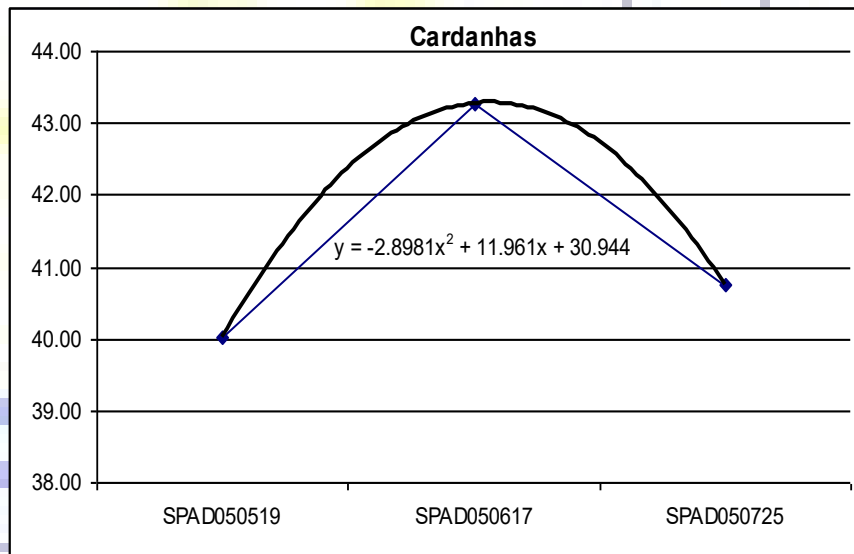
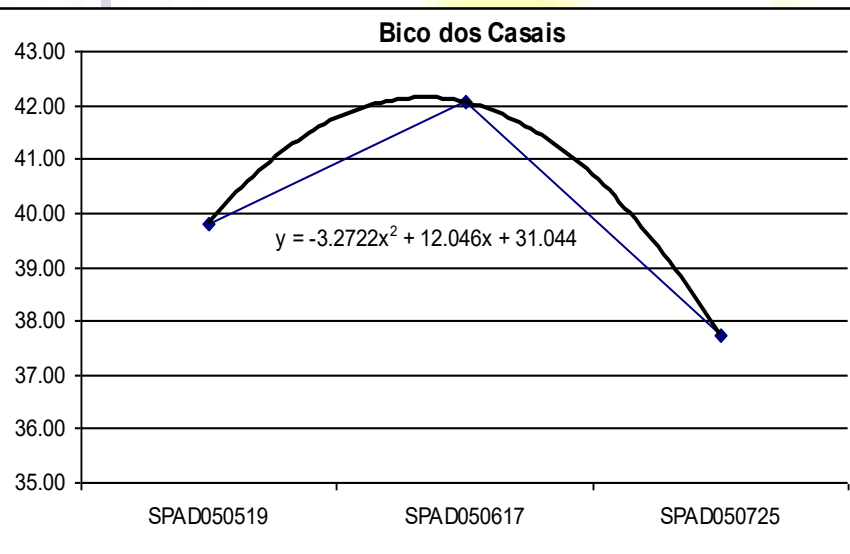
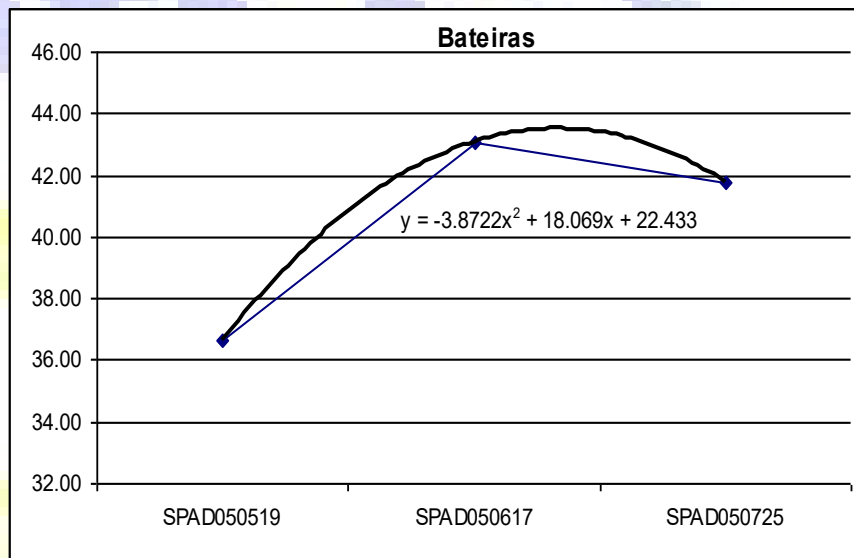
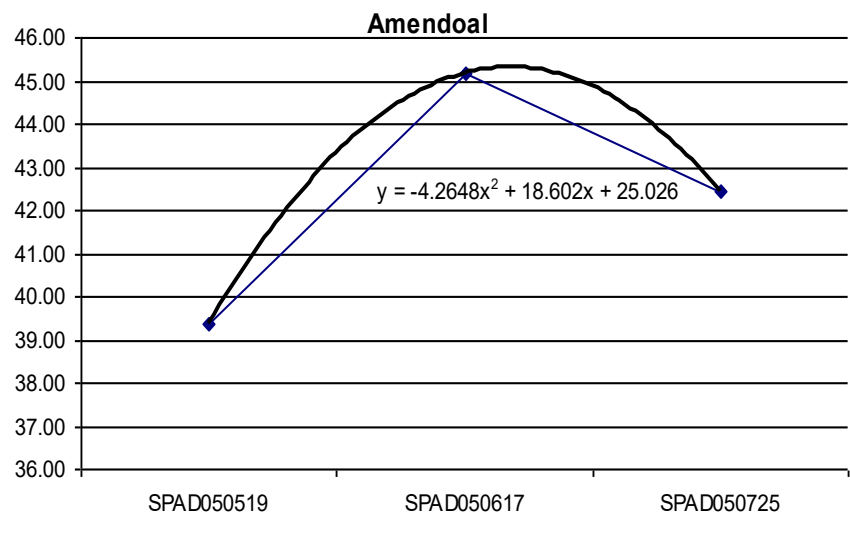
SOURCE	DF	SS	MS	F	P
BETWEEN	1	5.91300	5.91300	2.01	0.1650
WITHIN	34	99.8348	2.93632		
TOTAL	35	105.748			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	0.80	1	0.3707
COCHRAN'S Q		0.6088	
LARGEST VAR / SMALLEST VAR		1.5564	

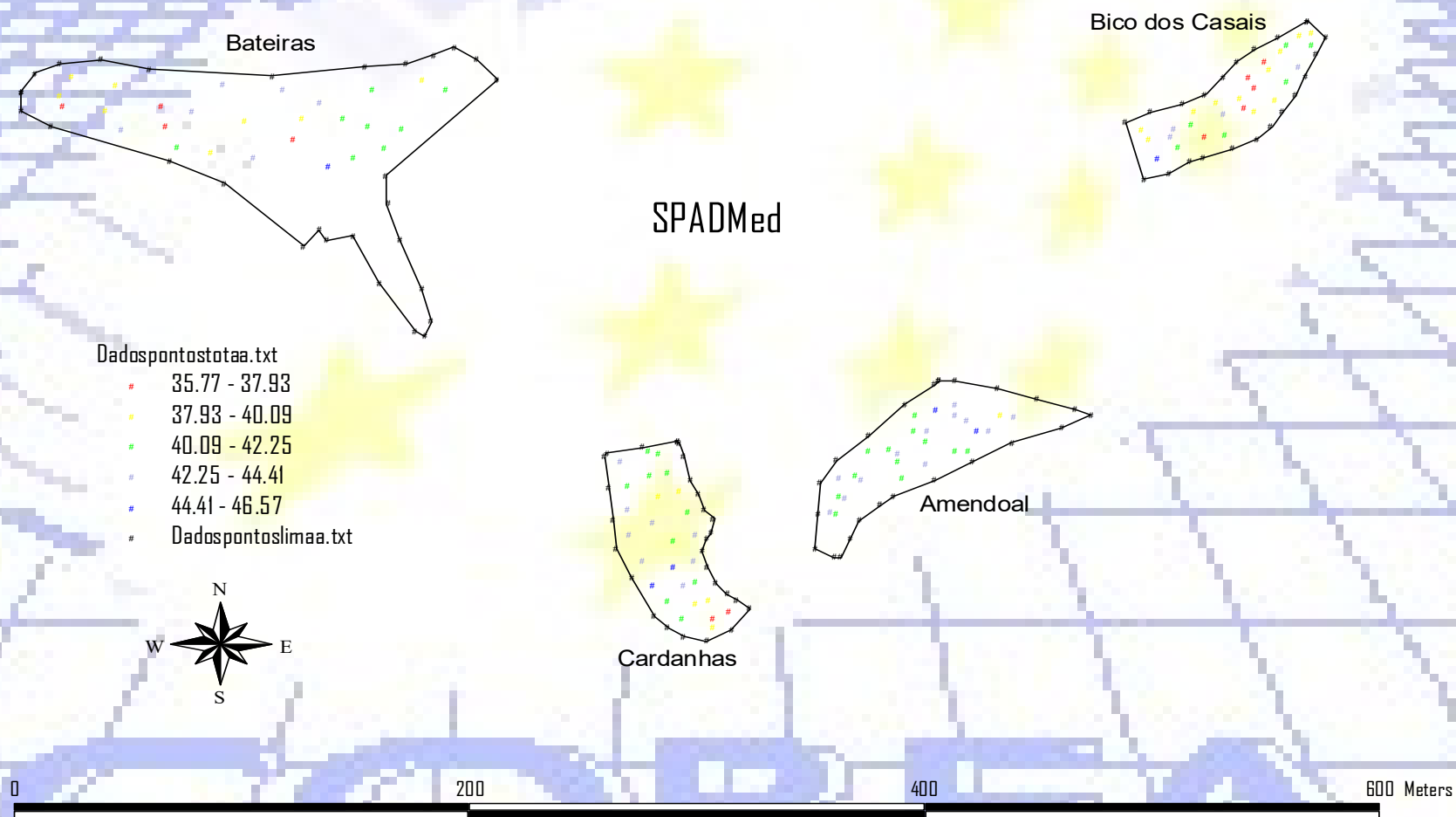
COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.16537
EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	41.414	18	1.5157
VA	40.603	18	1.8909
TOTAL	41.009	36	1.7136
CASES INCLUDED	36	MISSING CASES	0

Regression equation for SPAD during vegetative cycle

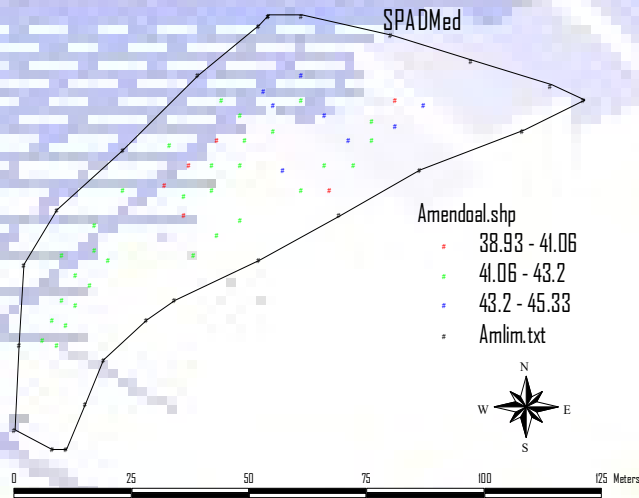


Average leaf SPAD for all plots.

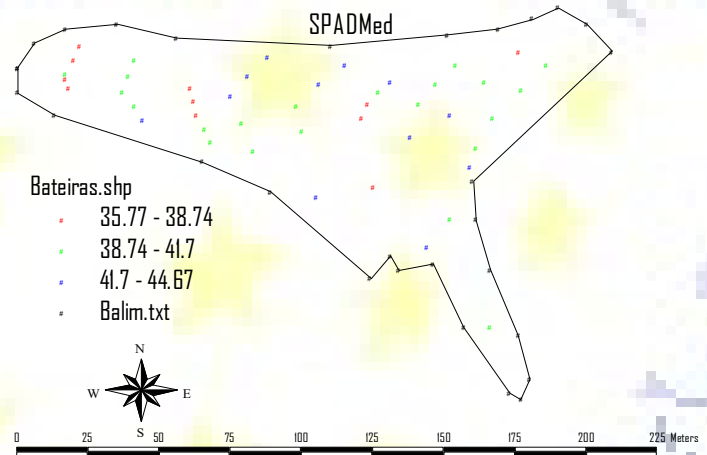


Average leaf SPAD for different plots.

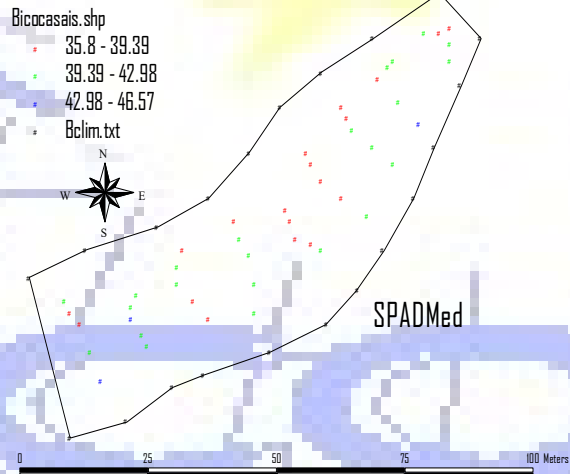
Amendoal



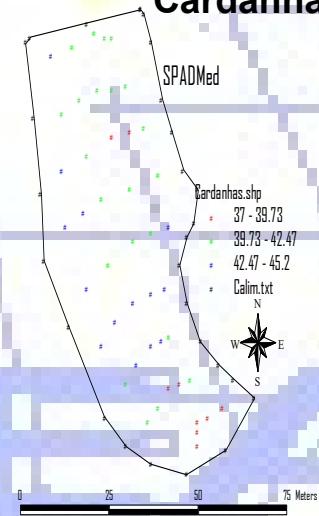
Bateiras



Bico dos Casais

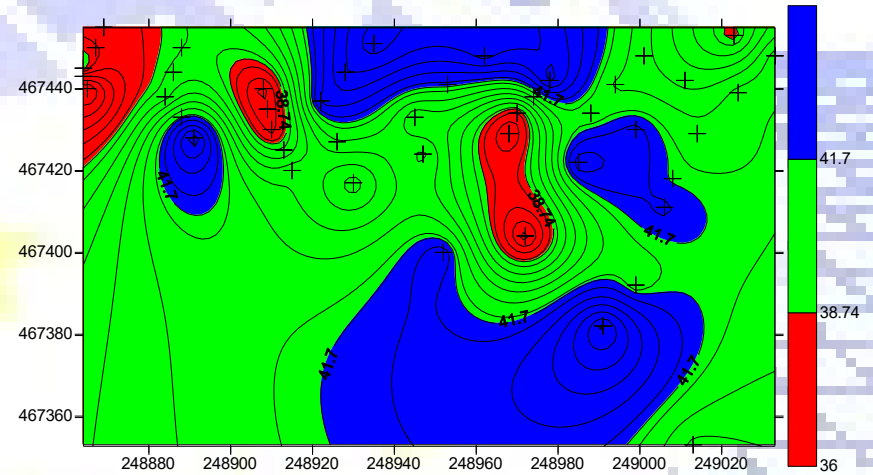
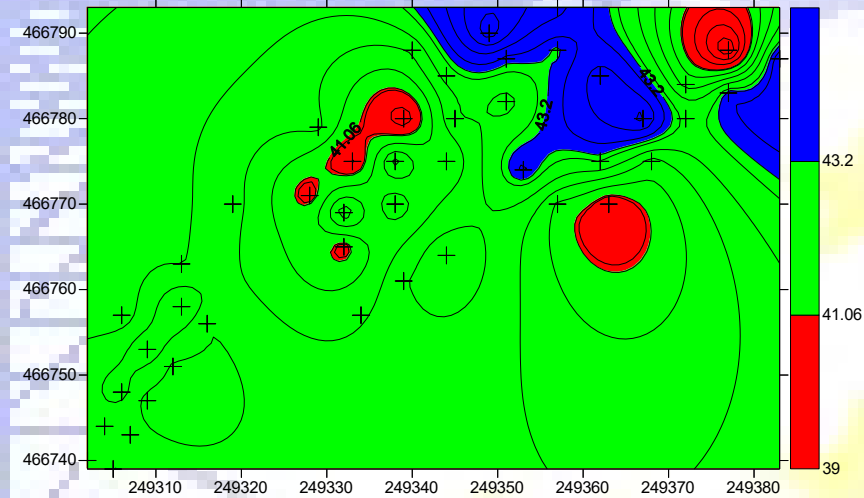


Cardanhas

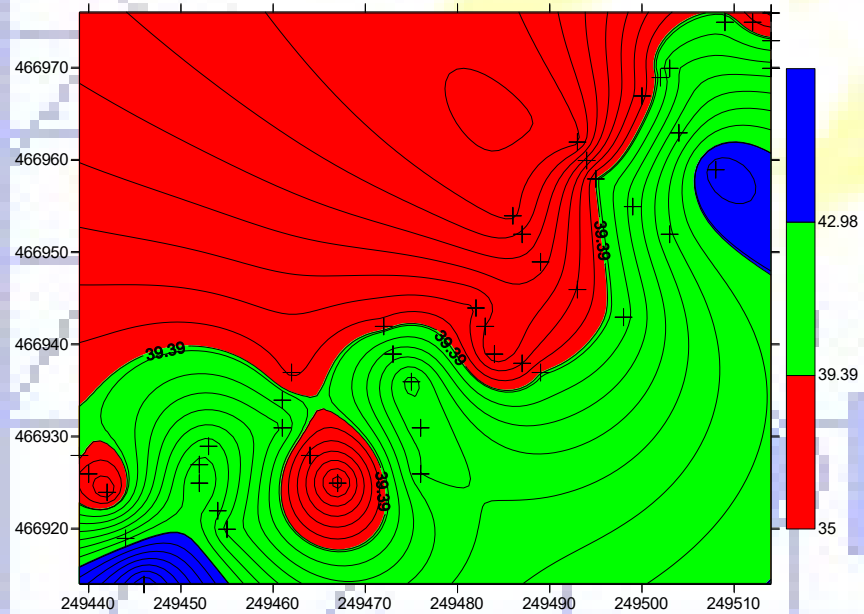


Average leaf SPAD for different plots.

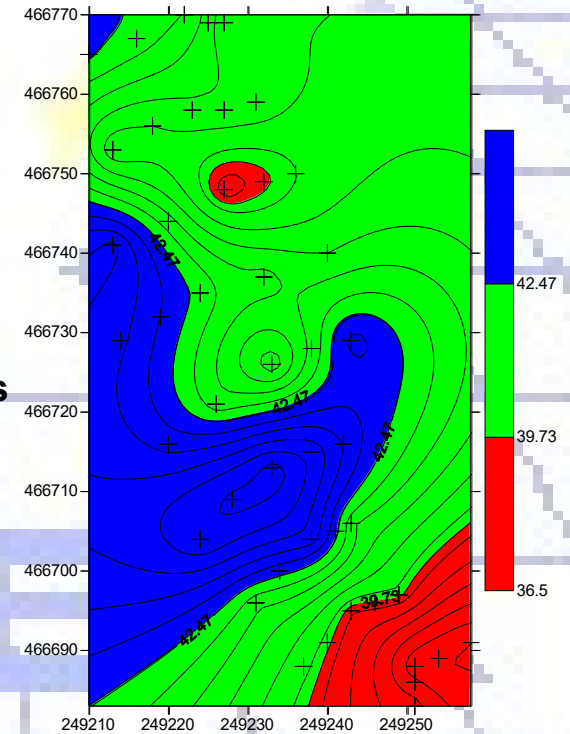
Amendoal



Bico dos Casais



Bateiras



Cardanhas

Dry weight leaf (FLPS), in mg, leaf area (FLAR), in cm², and its relation (FLPA), referent to 050617, for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLPS05061	9	1.812	0.092	1.680	1.960
FLAR05061	9	299.870	11.761	275.710	313.320
FLPA05061	9	0.605	0.036	0.564	0.668

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLPS05061	9	1.753	0.208	1.510	2.140
FLAR05061	9	286.990	37.311	248.740	363.480
FLPA05061	9	0.612	0.027	0.575	0.651

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLPS05061	9	2.503	0.535	1.820	3.520
FLAR05061	9	715.350	86.090	596.010	834.660
FLPA05061	9	0.348	0.050	0.282	0.453

DESCRIPTIVE STATISTICS FOR plot = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLPS05061	9	1.880	0.204	1.620	2.260
FLAR05061	9	337.700	26.568	307.600	381.920
FLPA05061	9	0.556	0.032	0.501	0.592

ANOVA dry weight leaves average inside Amendoal and Bateiras

ONE-WAY AOV FOR FLPS05061 BY EST						ONE-WAY AOV FOR FLPS05061 BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	0.19670	0.02459	0.81	0.6017	BETWEEN	8	1.04561	0.13070	1.66	0.1766
WITHIN	18	0.54533	0.03030			WITHIN	18	1.41640	0.07869		
TOTAL	26	0.74203				TOTAL	26	2.46201			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		7.23	8	0.5125		EQUAL VARIANCES		14.99	8	0.0592	
COCHRAN'S Q			0.4270			COCHRAN'S Q			0.4951		
LARGEST VAR / SMALLEST VAR			29.855			LARGEST VAR / SMALLEST VAR			172.44		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				-0.00190		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.01734	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV			EST	MEAN	SAMPLE SIZE	GROUP STD DEV		
1	1.6867	3	0.1756			1	1.7167	3	0.1940		
2	1.7133	3	0.1320			2	2.1433	3	0.5921		
3	1.8233	3	0.1115			3	2.0267	3	0.0451		
4	1.9633	3	0.1973			4	1.6967	3	0.4257		
5	1.8967	3	0.1002			5	1.5100	3	0.0520		
6	1.8633	3	0.3412			6	1.5767	3	0.1943		
7	1.8000	3	0.0624			7	1.5900	3	0.1868		
8	1.8433	3	0.1888			8	1.7600	3	0.1637		
9	1.7333	3	0.0839			9	1.7467	3	0.1858		
TOTAL	1.8137	27	0.1741			TOTAL	1.7519	27	0.2805		
CASES INCLUDED	27					CASES INCLUDED	27				
MISSING CASES	0					MISSING CASES	0				

ANOVA dry weight leaves average inside Bico dos Casais and Cardanhas

ONE-WAY AOV FOR FLPS05061 BY EST						ONE-WAY AOV FOR FLPS05061 BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	6.90316	0.86290	2.74	0.0360	BETWEEN	8	1.01016	0.12627	1.10	0.4081
WITHIN	18	5.66567	0.31476			WITHIN	18	2.06853	0.11492		
TOTAL	26	12.5688				TOTAL	26	3.07870			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF	-----	-----	-----			BARTLETT'S TEST OF	-----	-----	-----		
EQUAL VARIANCES		15.86	8	0.0444		EQUAL VARIANCES		11.57	8	0.1714	
COCHRAN'S Q			0.2927			COCHRAN'S Q			0.2443		
LARGEST VAR / SMALLEST VAR			200.61			LARGEST VAR / SMALLEST VAR			103.85		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.18271		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.00378	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV			EST	MEAN	SAMPLE SIZE	GROUP STD DEV		
1	2.0300	3	0.6180			1	1.8233	3	0.0945		
2	2.0967	3	0.2369			2	1.7100	3	0.5027		
3	2.3400	3	0.8774			3	1.8100	3	0.1249		
4	1.8167	3	0.3550			4	1.9267	3	0.0493		
5	2.8433	3	0.0643			5	2.1433	3	0.4879		
6	2.2500	3	0.0656			6	2.2600	3	0.3439		
7	3.5200	3	0.9106			7	1.7600	3	0.2252		
8	2.8467	3	0.7044			8	1.8733	3	0.4027		
9	2.7900	3	0.4063			9	1.6167	3	0.4306		
TOTAL	2.5037	27	0.5610			TOTAL	1.8804	27	0.3390		
CASES INCLUDED	27					CASES INCLUDED	27				
MISSING CASES	0					MISSING CASES	0				

ANOVA dry weight leaf according plots and vineyard installations

ONE-WAY AOV FOR FLPS05061 BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	3.26877	1.08959	11.49	0.0000
WITHIN	32	3.03476	0.09484		
TOTAL	35	6.30352			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	22.19	3	0.0001

COCHRAN'S Q 0.7536

LARGEST VAR / SMALLEST VAR 33.754

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.11053

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	1.8122	9	0.0920
Ba	1.7533	9	0.2080
BC	2.5033	9	0.5347
Cd	1.8800	9	0.2043
TOTAL	1.9872	36	0.3080

CASES INCLUDED 36 MISSING CASES 0

ONE-WAY AOV FOR FLPS05061 BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	1.50471	1.50471	10.66	0.0025
WITHIN	34	4.79881	0.14114		
TOTAL	35	6.30352			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	18.52	1	0.0000

COCHRAN'S Q 0.9105

LARGEST VAR / SMALLEST VAR 10.177

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.07575

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	1.7828	18	0.1589
VA	2.1917	18	0.5070
TOTAL	1.9872	36	0.3757

CASES INCLUDED 36 MISSING CASES 0

ANOVA leaves area average inside Amendoal and Bateiras

ONE-WAY AOV FOR FLAR05061 BY EST						ONE-WAY AOV FOR FLAR05061 BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	3318.68	414.835	0.44	0.8781	BETWEEN	8	33411.3	4176.41	4.92	0.0024
WITHIN	18	16780.5	932.248			WITHIN	18	15283.3	849.070		
TOTAL	26	20099.1				TOTAL	26	48694.5			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF	-----	-----	-----			BARTLETT'S TEST OF	-----	-----	-----		
EQUAL VARIANCES	13.83	8	0.0863			EQUAL VARIANCES	9.87	8	0.2740		
COCHRAN'S Q		0.2899				COCHRAN'S Q		0.4162			
LARGEST VAR / SMALLEST VAR		407.41				LARGEST VAR / SMALLEST VAR		53.151			
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				-172.471		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1109.11	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP					SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV			EST	MEAN	SIZE	STD DEV		
1	293.56	3	39.951			1	281.08	3	25.742		
2	303.50	3	15.292			2	363.48	3	44.546		
3	295.00	3	2.4436			3	333.48	3	13.216		
4	309.64	3	48.931			4	287.57	3	56.393		
5	296.18	3	17.092			5	262.21	3	7.7351		
6	313.32	3	49.323			6	248.74	3	17.501		
7	312.37	3	12.001			7	265.28	3	27.665		
8	275.72	3	16.135			8	270.41	3	15.465		
9	299.53	3	32.109			9	270.69	3	16.408		
TOTAL	299.87	27	30.533			TOTAL	286.99	27	29.139		
CASES INCLUDED	27	MISSING CASES	0			CASES INCLUDED	27	MISSING CASES	0		

ANOVA leaves area average inside Bico dos Casais and Cardanhas

ONE-WAY AOV FOR FLAR05061 BY EST						ONE-WAY AOV FOR FLAR05061 BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	177885	22235.6	1.95	0.1145	BETWEEN	8	16940.1	2117.51	1.16	0.3731
WITHIN	18	205521	11417.9			WITHIN	18	32827.1	1823.73		
TOTAL	26	383406				TOTAL	26	49767.1			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		7.97	8	0.4360		EQUAL VARIANCES		7.58	8	0.4757	
COCHRAN'S Q			0.2564			COCHRAN'S Q			0.2352		
LARGEST VAR / SMALLEST VAR			41.247			LARGEST VAR / SMALLEST VAR			62.908		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				3605.92		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				97.9280	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV			EST	MEAN	SAMPLE SIZE	GROUP STD DEV		
1	719.56	3	120.56			1	363.17	3	26.432		
2	610.39	3	57.460			2	319.10	3	61.604		
3	627.00	3	162.34			3	318.90	3	29.461		
4	596.00	3	157.01			4	332.07	3	7.8334		
5	799.80	3	25.276			5	363.50	3	62.130		
6	728.78	3	45.149			6	381.92	3	37.613		
7	776.78	3	137.32			7	307.60	3	21.724		
8	834.67	3	81.099			8	342.15	3	51.538		
9	745.19	3	76.212			9	310.87	3	50.868		
TOTAL	715.35	27	106.85			TOTAL	337.70	27	42.705		
CASES INCLUDED	27					CASES INCLUDED	27				
MISSING CASES	0					MISSING CASES	0				

ANOVA leaf area according plots and vineyard installations

ONE-WAY AOV FOR FLAR05061 BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	1131548	377183	156.38	0.0000
WITHIN	32	77182.0	2411.94		
TOTAL	35	1208730			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	26.72	3	0.0000

COCHRAN'S Q 0.7682

LARGEST VAR / SMALLEST VAR 53.586

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 41641.2
EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	299.87	9	11.761
Ba	286.99	9	37.311
BC	715.35	9	86.090
Cd	337.70	9	26.568
TOTAL	409.98	36	49.111
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR FLAR05061 BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	488995	488995	23.10	0.0000
WITHIN	34	719735	21168.7		
TOTAL	35	1208730			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	43.71	1	0.0000

COCHRAN'S Q 0.9820

LARGEST VAR / SMALLEST VAR 54.408

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 25990.3
EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	293.43	18	27.642
VA	526.52	18	203.90
TOTAL	409.98	36	145.49
CASES INCLUDED	36	MISSING CASES	0

ANOVA relation between dry weight leaf / leaf area average inside Amendoal and Bateiras

ONE-WAY AOV FOR FLPA05061 BY EST						ONE-WAY AOV FOR FLPA05061 BY EST					
SOURCE	DF	SS	MS	F	P	SOURCE	DF	SS	MS	F	P
BETWEEN	8	0.03170	0.00396	1.99	0.1077	BETWEEN	8	0.01743	0.00218	0.75	0.6507
WITHIN	18	0.03587	0.00199			WITHIN	18	0.05247	0.00291		
TOTAL	26	0.06756				TOTAL	26	0.06990			
		CHI-SQ	DF	P				CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----		BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		10.18	8	0.2530		EQUAL VARIANCES		8.23	8	0.4115	
COCHRAN'S Q			0.4814			COCHRAN'S Q			0.3443		
LARGEST VAR / SMALLEST VAR			86.333			LARGEST VAR / SMALLEST VAR			30.111		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				6.565E-04		COMPONENT OF VARIANCE FOR BETWEEN GROUPS				-2.454E-04	
EFFECTIVE CELL SIZE				3.0		EFFECTIVE CELL SIZE				3.0	
EST	MEAN	SAMPLE SIZE	GROUP STD DEV			EST	MEAN	SAMPLE SIZE	GROUP STD DEV		
1	0.5733	3	0.0208			1	0.6133	3	0.0208		
2	0.5667	3	0.0208			2	0.5833	3	0.0950		
3	0.6200	3	0.0346			3	0.6100	3	0.0173		
4	0.6433	3	0.0929			4	0.5867	3	0.0603		
5	0.6400	3	0.0100			5	0.5767	3	0.0379		
6	0.5933	3	0.0404			6	0.6333	3	0.0850		
7	0.5767	3	0.0252			7	0.5967	3	0.0404		
8	0.6667	3	0.0493			8	0.6500	3	0.0361		
9	0.5833	3	0.0493			9	0.6433	3	0.0351		
TOTAL	0.6070	27	0.0446			TOTAL	0.6104	27	0.0540		
CASES INCLUDED	27					CASES INCLUDED	27				
MISSING CASES	0					MISSING CASES	0				

ONE-WAY AOV FOR FLPA05061 BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	0.06173	0.00772	3.32	0.0165
WITHIN	18	0.04187	0.00233		
TOTAL	26	0.10360			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		11.75	8	0.1627	
COCHRAN'S Q			0.4506		
LARGEST VAR / SMALLEST VAR			70.750		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.00180	
EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV		
1	0.2767	3	0.0451		
2	0.3433	3	0.0379		
3	0.3667	3	0.0577		
4	0.3067	3	0.0306		
5	0.3567	3	0.0115		
6	0.3067	3	0.0115		
7	0.4533	3	0.0971		
8	0.3400	3	0.0557		
9	0.3700	3	0.0200		
TOTAL	0.3467	27	0.0482		
CASES INCLUDED	27	MISSING CASES		0	

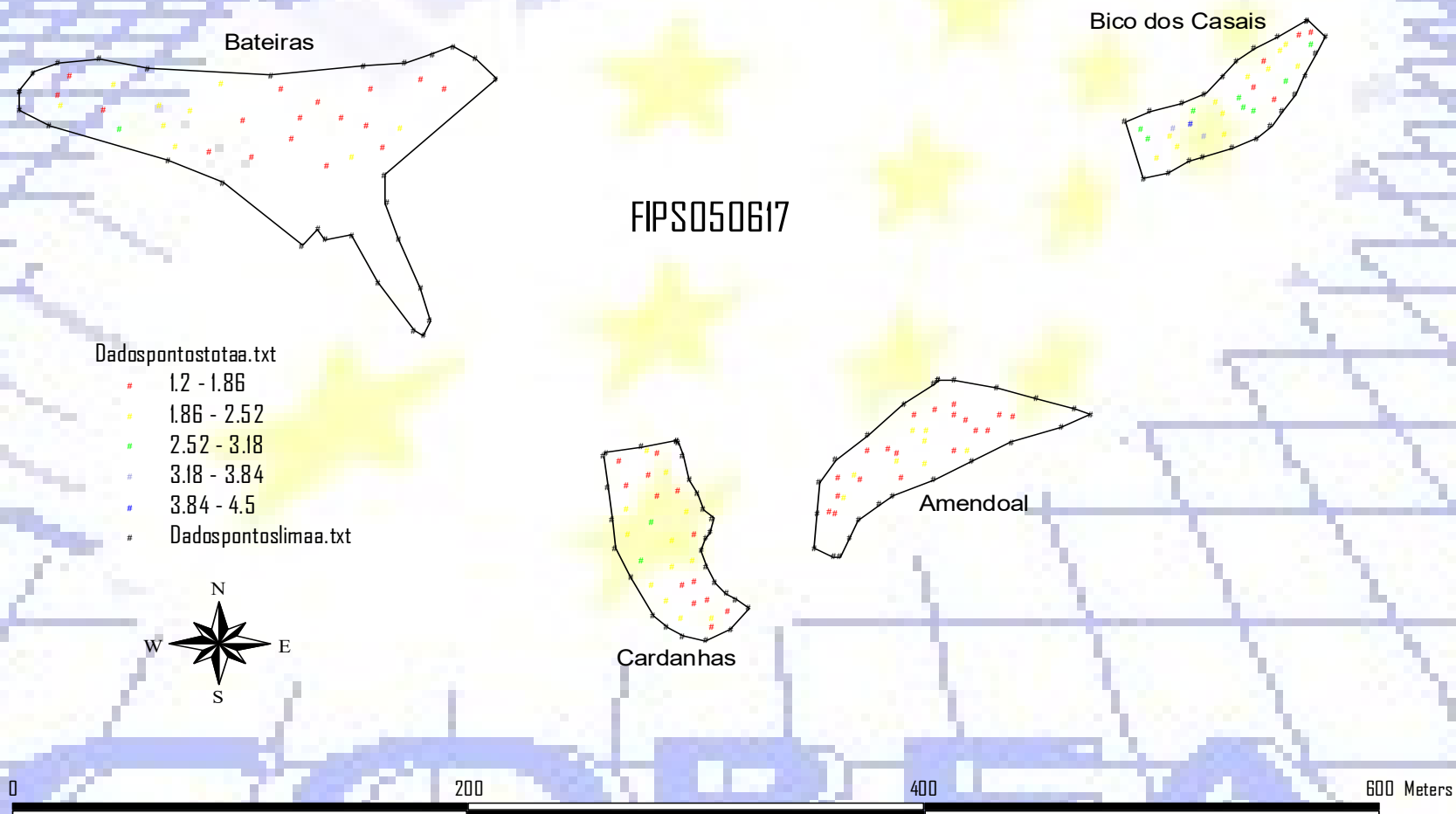
ONE-WAY AOV FOR FLPA05061 BY EST					
SOURCE	DF	SS	MS	F	P
BETWEEN	8	0.02381	0.00298	0.30	0.9568
WITHIN	18	0.17913	0.00995		
TOTAL	26	0.20294			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		22.45	8	0.0041	
COCHRAN'S Q			0.8232		
LARGEST VAR / SMALLEST VAR			316.00		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				-0.00233	
EFFECTIVE CELL SIZE				3.0	
		SAMPLE	GROUP		
EST	MEAN	SIZE	STD DEV		
1	0.5033	3	0.0404		
2	0.5667	3	0.2715		
3	0.5667	3	0.0153		
4	0.5800	3	0.0300		
5	0.5900	3	0.0693		
6	0.5900	3	0.0520		
7	0.5700	3	0.0361		
8	0.5467	3	0.0351		
9	0.5133	3	0.0551		
TOTAL	0.5585	27	0.0998		
CASES INCLUDED	27	MISSING CASES		0	

ANOVA for the relation between dry weight leaf / leaf area, according plots and vineyard installations

ONE-WAY AOV FOR FLPA05061 BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.41378	0.13793	99.16	0.0000
WITHIN	32	0.04451	0.00139		
TOTAL	35	0.45829			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		3.42	3	0.3317	
COCHRAN'S Q			0.4530		
LARGEST VAR / SMALLEST VAR			3.5865		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.01517	
EFFECTIVE CELL SIZE				9.0	
		SAMPLE	GROUP		
PARC	MEAN	SIZE	STD DEV		
Am	0.6053	9	0.0363		
Ba	0.6116	9	0.0265		
BC	0.3484	9	0.0502		
Cd	0.5562	9	0.0320		
TOTAL	0.5304	36	0.0373		
CASES INCLUDED	36	MISSING CASES		0	

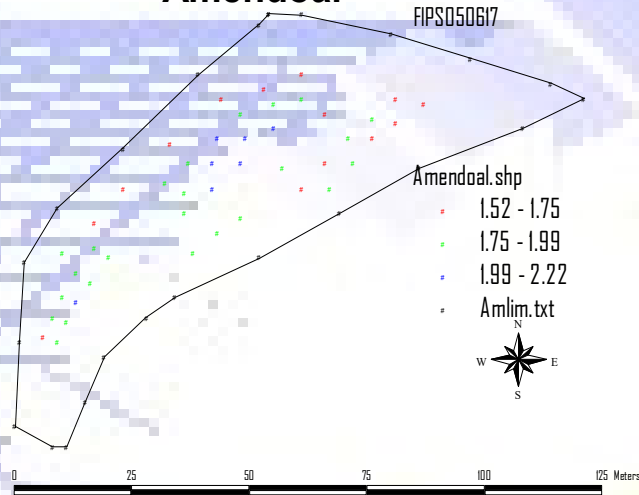
ONE-WAY AOV FOR FLPA05061 BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.21934	0.21934	31.21	0.0000
WITHIN	34	0.23896	0.00703		
TOTAL	35	0.45829			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		22.59	1	0.0000	
COCHRAN'S Q			0.9317		
LARGEST VAR / SMALLEST VAR			13.636		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS					0.01179
EFFECTIVE CELL SIZE					18.0
		SAMPLE	GROUP		
INST	MEAN	SIZE	STD DEV		
Pt	0.6084	18	0.0310		
VA	0.4523	18	0.1144		
TOTAL	0.5304	36	0.0838		
CASES INCLUDED		36	MISSING CASES 0		

Dry weight leaf, in mg, referent to 050617, for different plots.

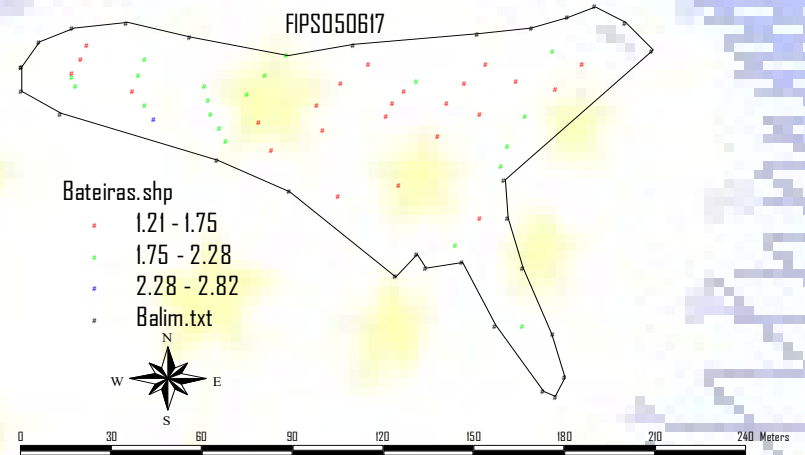


Dry weight leaf, in mg, referent to 050617, for all plots.

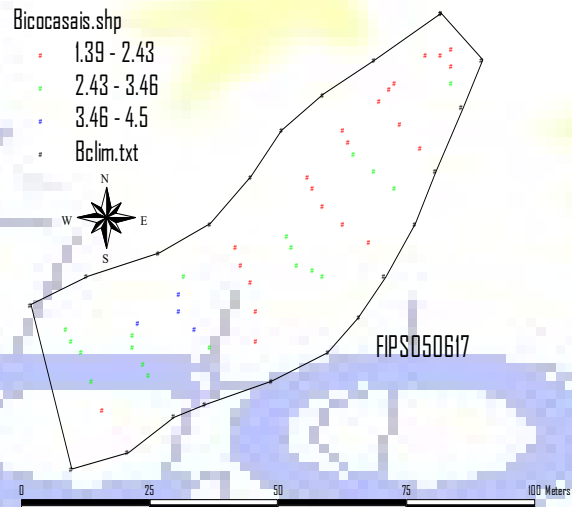
Amendoal



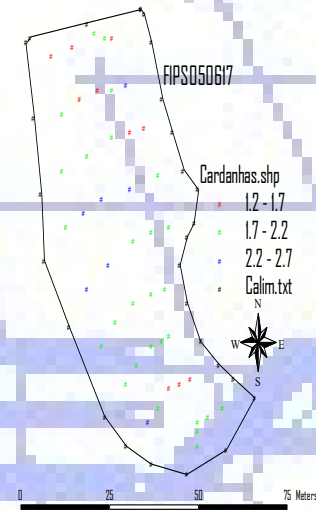
Bateiras



Bico dos Casais

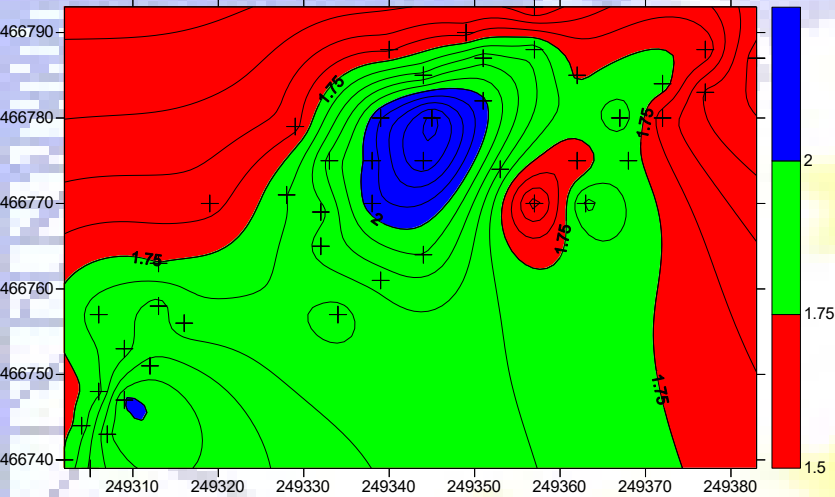


Cardanhas

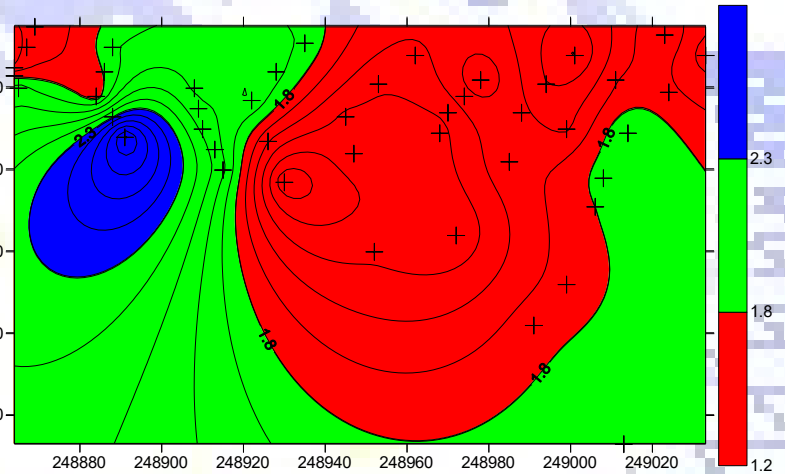
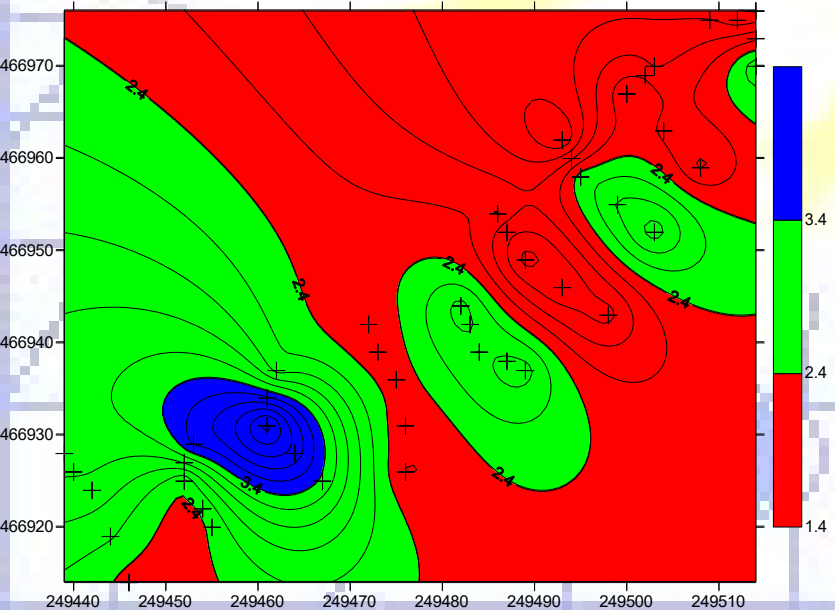


Dry weight leaf, in mg, referent to 050617, for different plots.

Amendoal

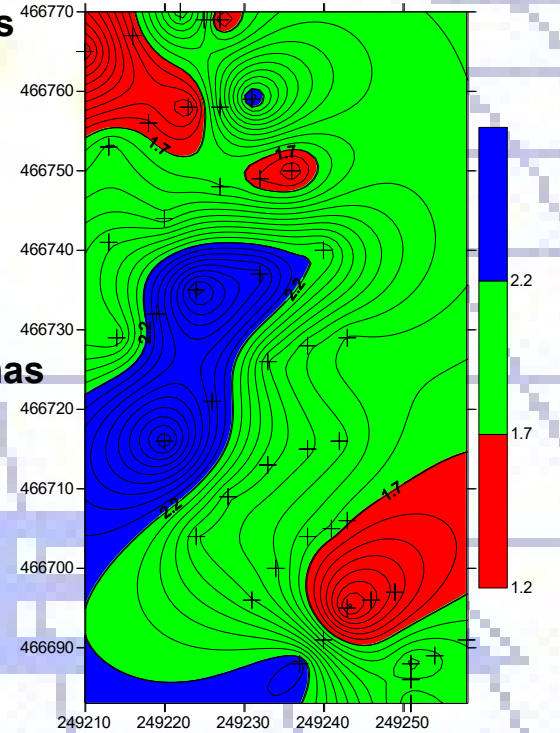


Bico dos Casais

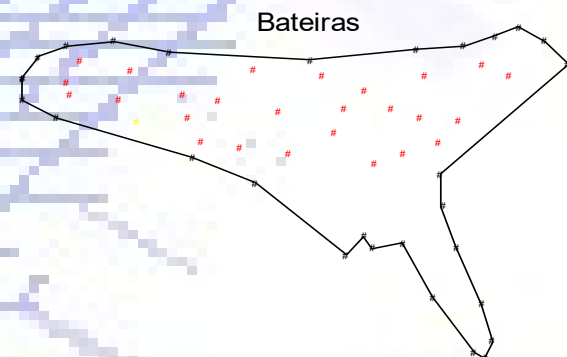


Bateiras

Cardanhas



Leaf area, in cm², referent to 050617, for all plots.



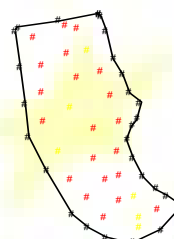
Bico dos Casais



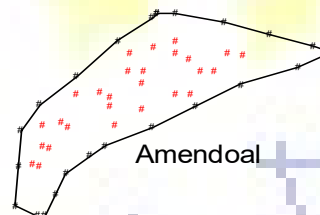
FIAr050617

Dadospontostotaa.txt

- # 230.39 - 366.03
- 366.03 - 501.67
- 501.67 - 637.31
- 637.31 - 772.95
- 772.95 - 908.59
- # Dadospontoslmaa.txt



Cardanhas

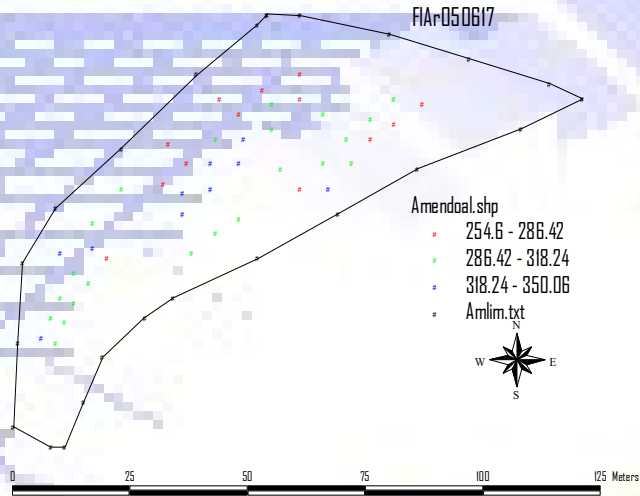


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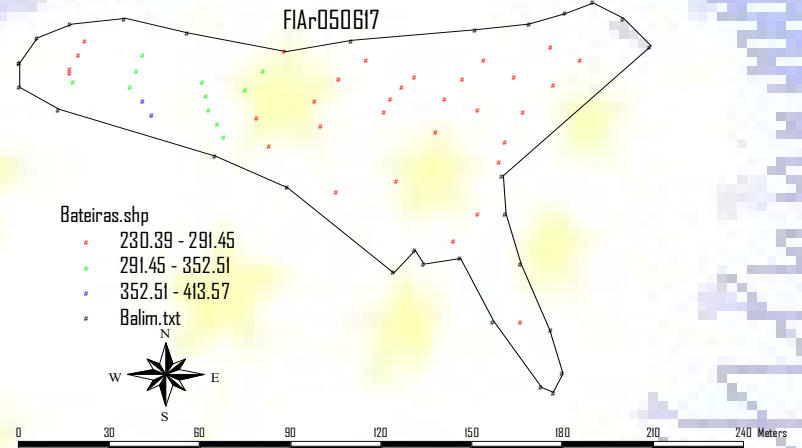


Leaf area, in cm², referent to 050617, for different plots.

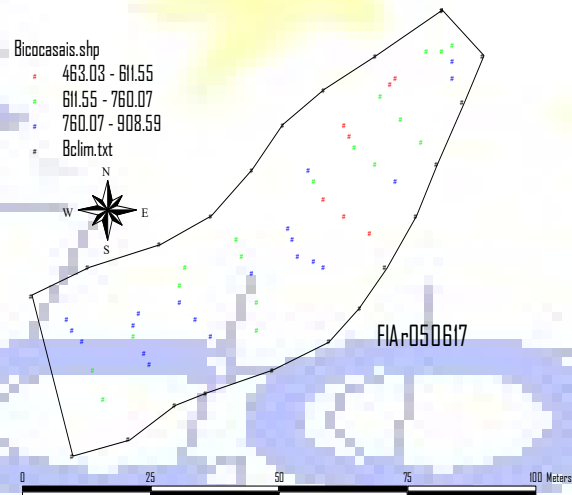
Amendoal



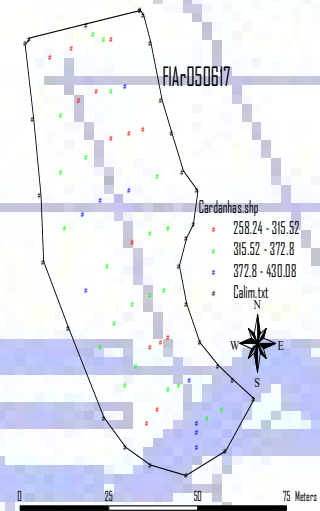
Bateiras



Bico dos Casais

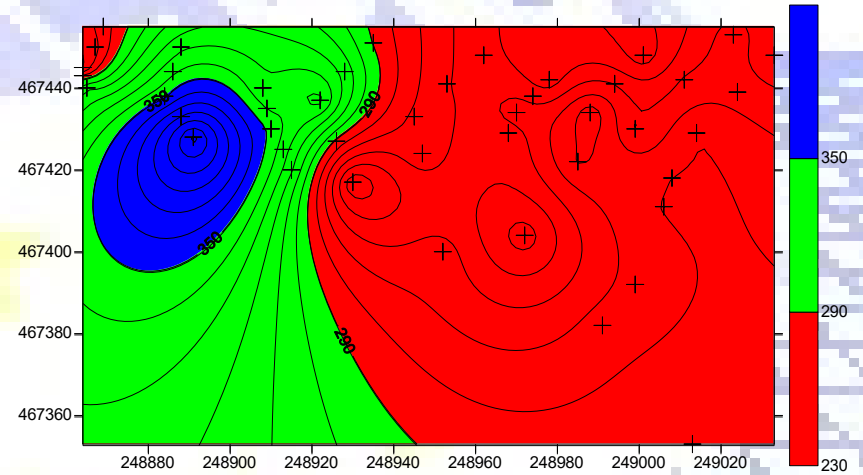
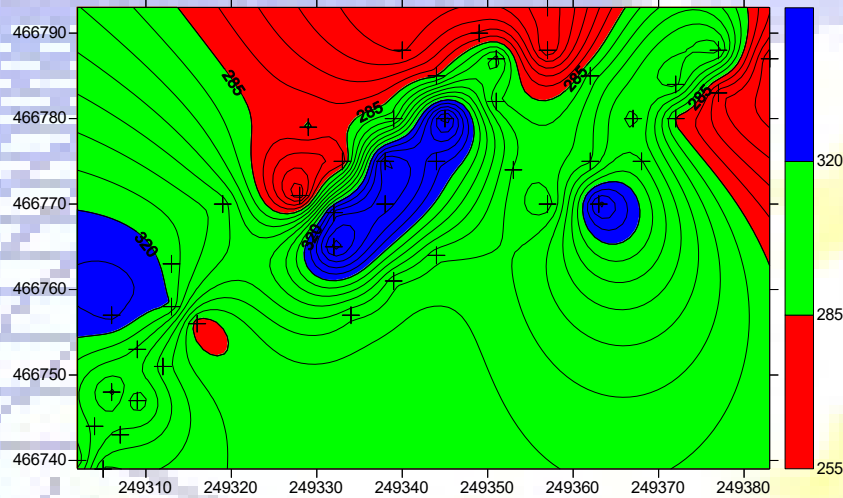


Cardanhas

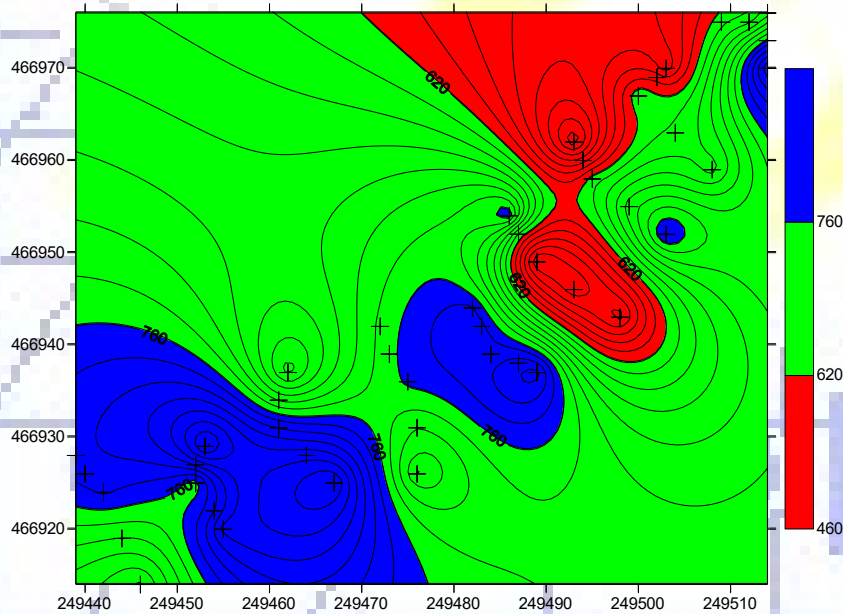


Leaf area, in cm^2 , referent to 050617, for different plots.

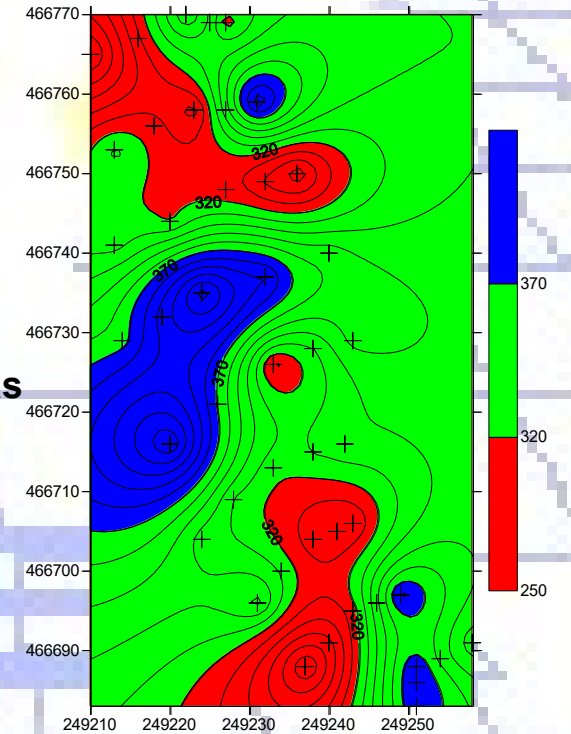
Amendoal



Bico dos Casais



Bateiras



Cardanhas

Content of leaf nitrogen, phosphorus and potassium, in g.kg⁻¹, for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLN050617	9	36.322	2.074	33.100	38.500
FLP050617	9	1.757	0.156	1.560	1.990
FLK050617	9	7.633	1.033	5.600	9.100

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLN050617	9	35.144	0.850	34.000	36.400
FLP050617	9	1.868	0.220	1.660	2.370
FLK050617	9	8.656	1.190	6.300	10.500

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLN050617	9	29.200	2.187	25.300	32.200
FLP050617	9	2.078	0.391	1.670	2.620
FLK050617	9	7.367	1.093	5.600	9.100

DESCRIPTIVE STATISTICS FOR plot = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLN050617	9	32.567	3.242	27.700	36.800
FLP050617	9	1.699	0.137	1.550	1.980
FLK050617	9	7.333	1.868	4.200	10.500

Content of leaf nitrogen, phosphorus and potassium, in g.kg⁻¹, for terraces (Pt) and slope vineyards (VA).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLN050617	18	35.733	1.653	33.100	38.500
FLP050617	18	1.812	0.194	1.560	2.370
FLK050617	18	8.144	1.202	5.600	10.500

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FLN050617	18	30.883	3.193	25.300	36.800
FLP050617	18	1.888	0.345	1.550	2.620
FLK050617	18	7.350	1.485	4.200	10.500

ANOVA leaf nitrogen according plots and vineyard installations

ONE-WAY AOV FOR FLN050617 BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	268.950	89.6499	17.65	0.0000
WITHIN	32	162.538	5.07931		
TOTAL	35	431.487			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	11.02	3	0.0116

COCHRAN'S Q	0.5173
LARGEST VAR / SMALLEST VAR	14.541
COMPONENT OF VARIANCE FOR BETWEEN GROUPS	9.39673
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	36.322	9	2.0741
Ba	35.144	9	0.8502
BC	29.200	9	2.1869
Cd	32.567	9	3.2419
TOTAL	33.308	36	2.2537
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR FLN050617 BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	211.702	211.702	32.75	0.0000
WITHIN	34	219.785	6.46426		
TOTAL	35	431.487			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	6.70	1	0.0097

COCHRAN'S Q	0.7887
LARGEST VAR / SMALLEST VAR	3.7327
COMPONENT OF VARIANCE FOR BETWEEN GROUPS	11.4021
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	35.733	18	1.6528
VA	30.883	18	3.1932
TOTAL	33.308	36	2.5425
CASES INCLUDED	36	MISSING CASES	0

Reference values:

N - 21.5 g kg⁻¹

Origin: Quelhas dos Santos

ANOVA leaf phosphorus according plots and vineyard installations

ONE-WAY AOV FOR FLP050617 BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.75370	0.25123	4.11	0.0142
WITHIN	32	1.95500	0.06109		
TOTAL	35	2.70870			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	10.75	3	0.0132

COCHRAN'S Q 0.6250

LARGEST VAR / SMALLEST VAR 8.1199

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.02113

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	1.7567	9	0.1560
Ba	1.8678	9	0.2202
BC	2.0778	9	0.3908
Cd	1.6989	9	0.1372
TOTAL	1.8503	36	0.2472
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR FLP050617 BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.05214	0.05214	0.67	0.4197
WITHIN	34	2.65656	0.07813		
TOTAL	35	2.70870			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	5.20	1	0.0226

COCHRAN'S Q 0.7598

LARGEST VAR / SMALLEST VAR 3.1632

COMPONENT OF VARIANCE FOR BETWEEN GROUPS -0.00144

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	1.8122	18	0.1937
VA	1.8883	18	0.3446
TOTAL	1.8503	36	0.2795
CASES INCLUDED	36	MISSING CASES	0

Reference values:

P - 1.7 g kg⁻¹

Origin: Quelhas dos Santos

ANOVA leaf potassium according plots and vineyard installations

ONE-WAY AOV FOR FLK050617 BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	10.3875	3.46250	1.93	0.1442
WITHIN	32	57.3422	1.79194		
TOTAL	35	67.7297			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	3.75	3	0.2903

COCHRAN'S Q 0.4869

LARGEST VAR / SMALLEST VAR 3.2693

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.18562

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	7.6333	9	1.0332
Ba	8.6556	9	1.1897
BC	7.3667	9	1.0932
Cd	7.3333	9	1.8682
TOTAL	7.7472	36	1.3386
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR FLK050617 BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	5.68028	5.68028	3.11	0.0867
WITHIN	34	62.0494	1.82498		
TOTAL	35	67.7297			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	0.73	1	0.3922

COCHRAN'S Q 0.6041

LARGEST VAR / SMALLEST VAR 1.5260

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.21418

EFFECTIVE CELL SIZE 18.0

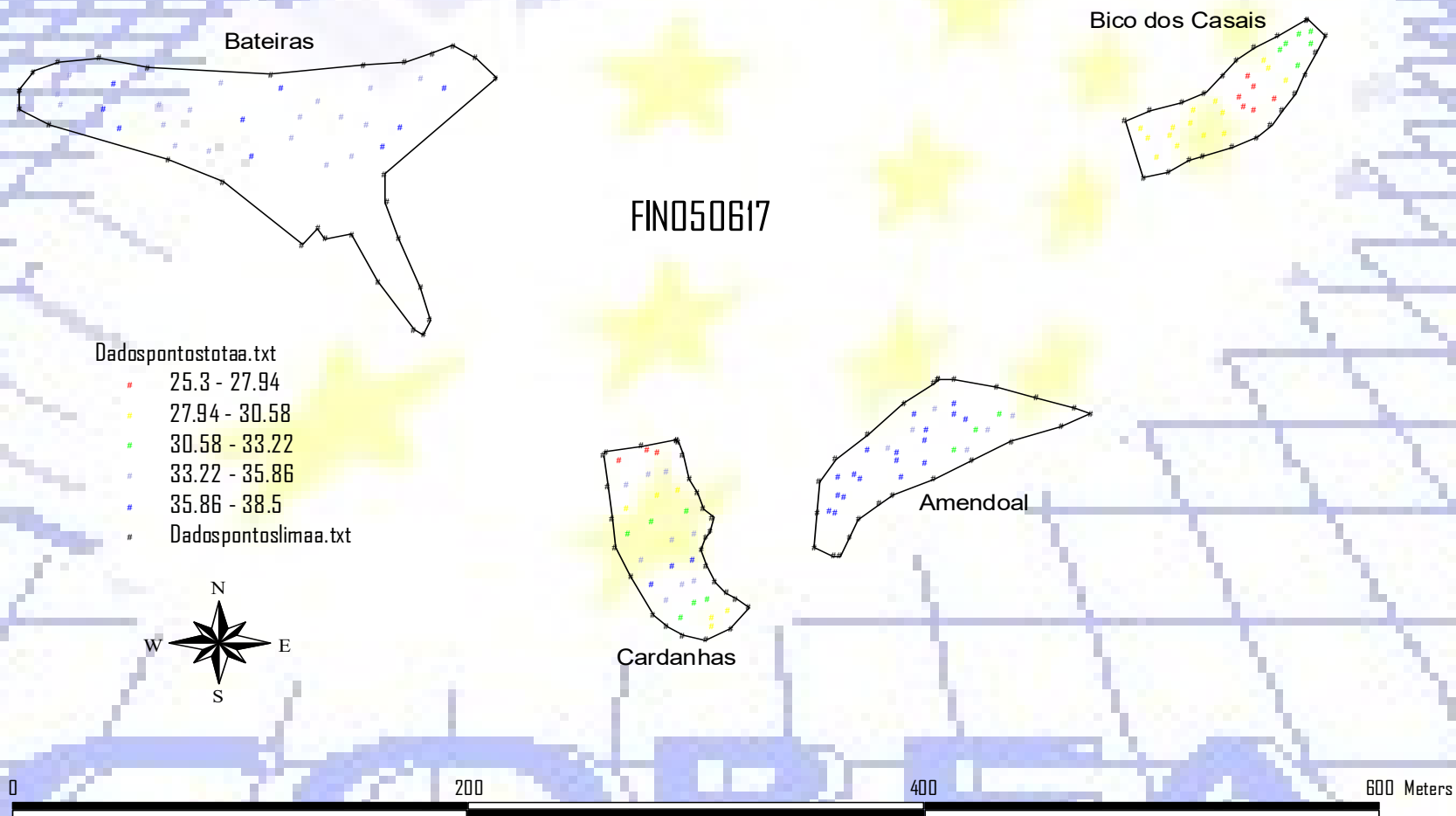
INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	8.1444	18	1.2021
VA	7.3500	18	1.4849
TOTAL	7.7472	36	1.3509
CASES INCLUDED	36	MISSING CASES	0

Reference values:

K - 10.2 g kg⁻¹

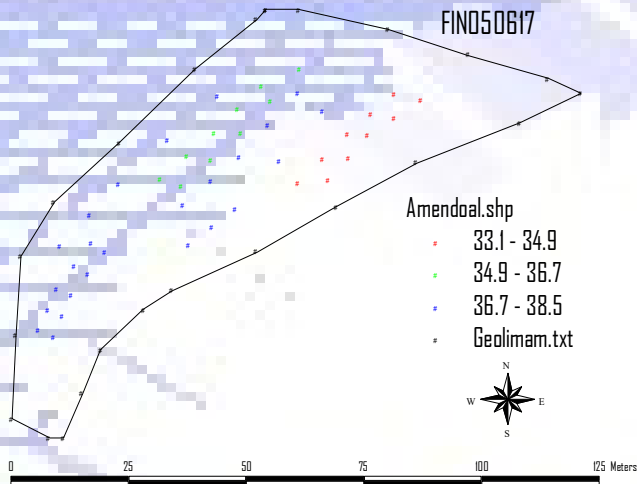
Origin: Quelhas dos Santos

Content of leaf nitrogen, in g.kg^{-1} , for all plots.

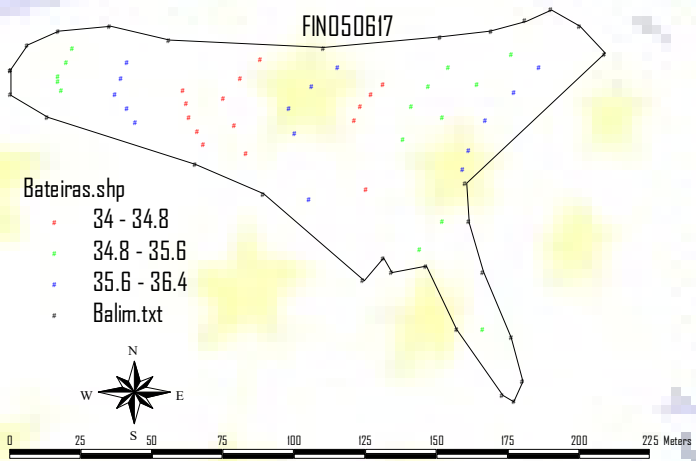


Content of leaf nitrogen, in g.kg⁻¹, for different plots.

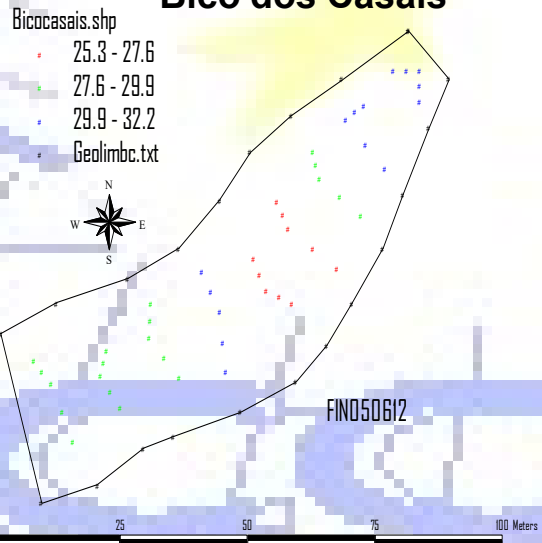
Amendoal



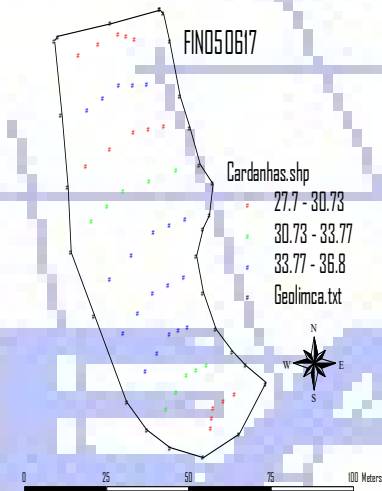
Bateiras



Bico dos Casais

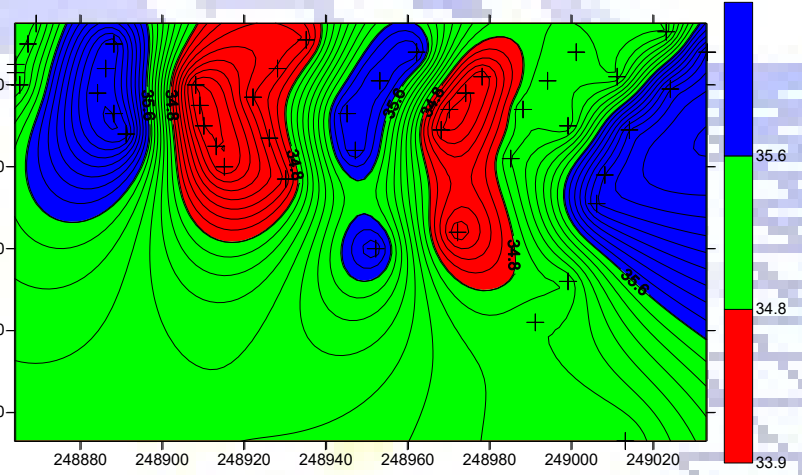
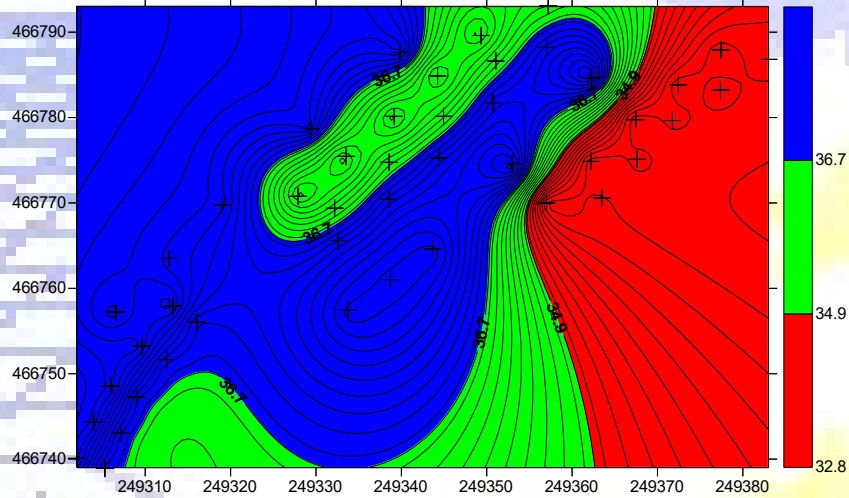


Cardanhas

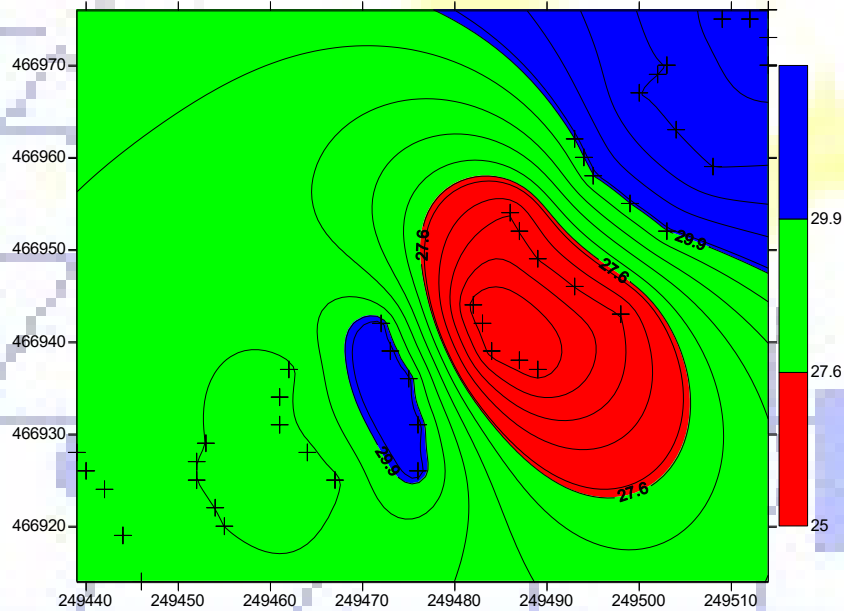


Content of leaf nitrogen, in g.kg⁻¹, for different plots.

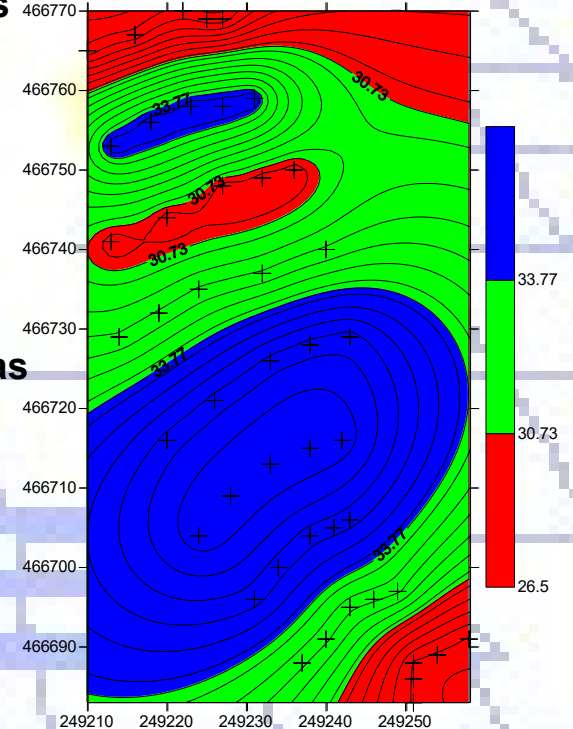
Amendoal



Bico dos Casais

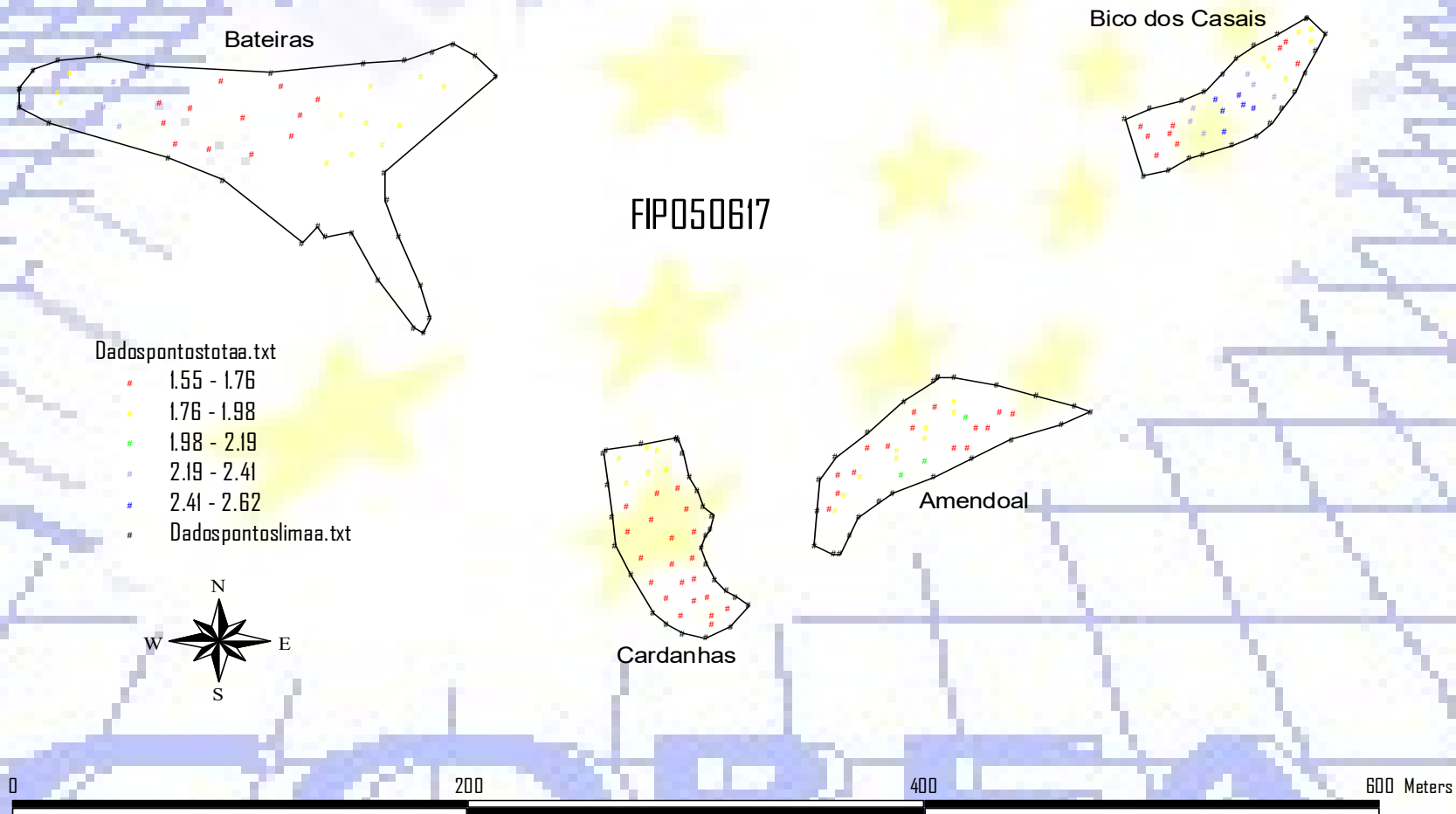


Bateiras



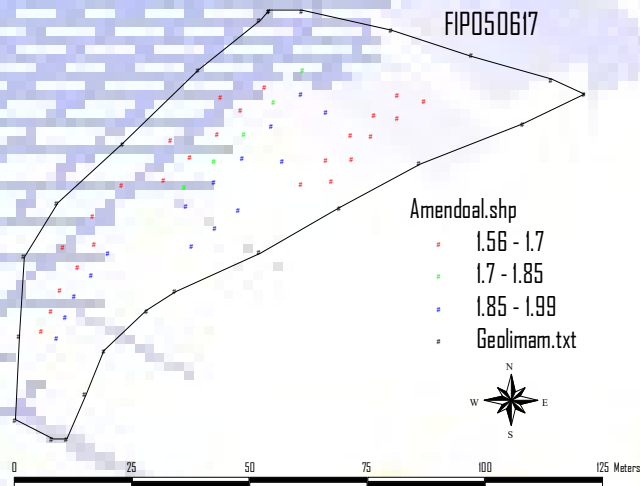
Cardanhas

Content of leaf phosphorus, in g.kg⁻¹, for all plots.

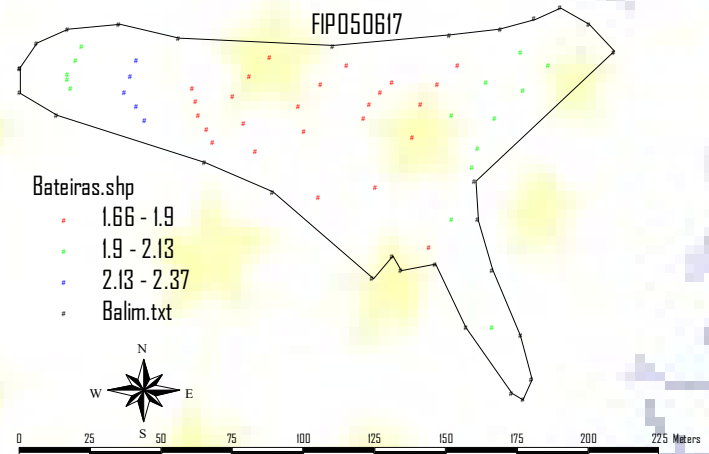


Content of leaf phosphorus, in g.kg^{-1} , for different plots.

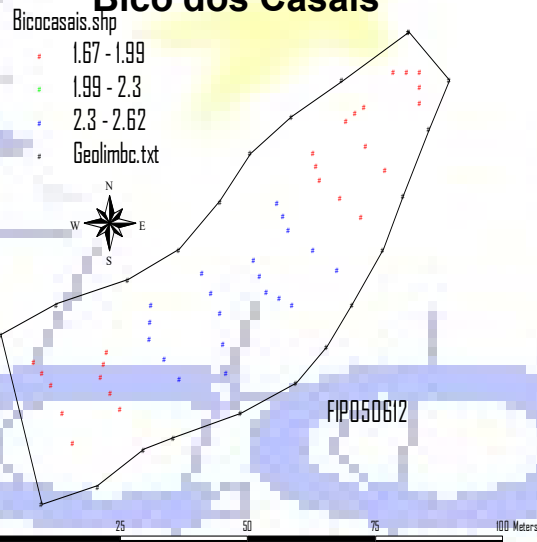
Amendoal



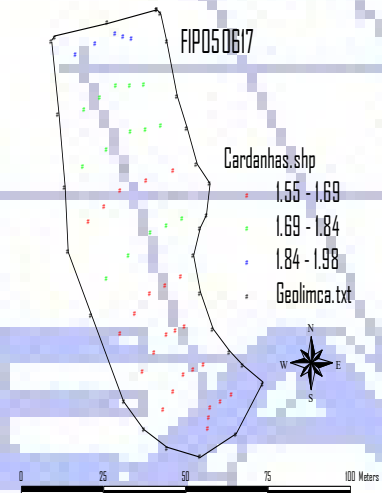
Bateiras



Bico dos Casais

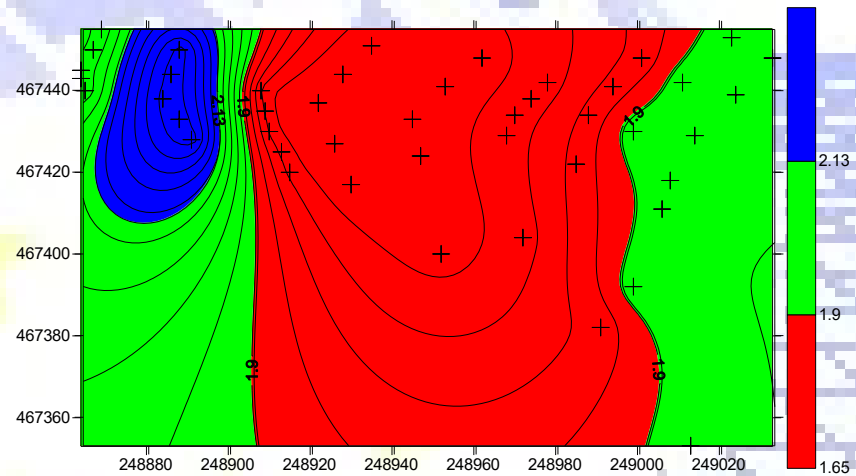
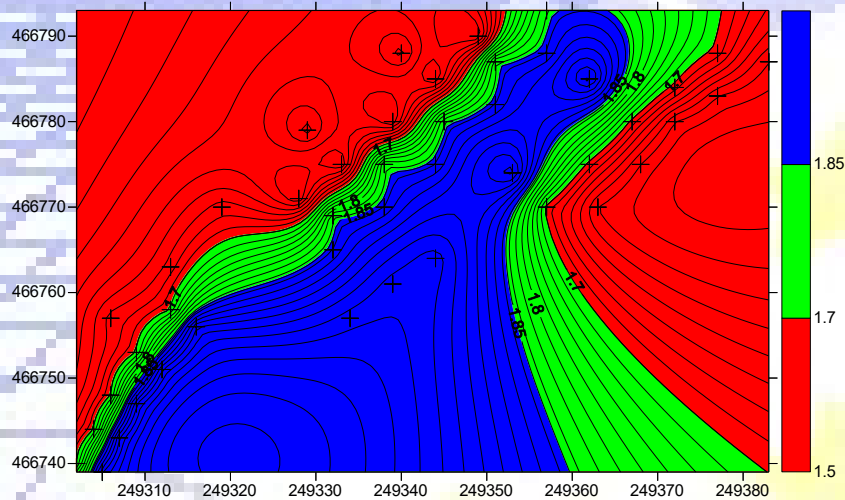


Cardanhas

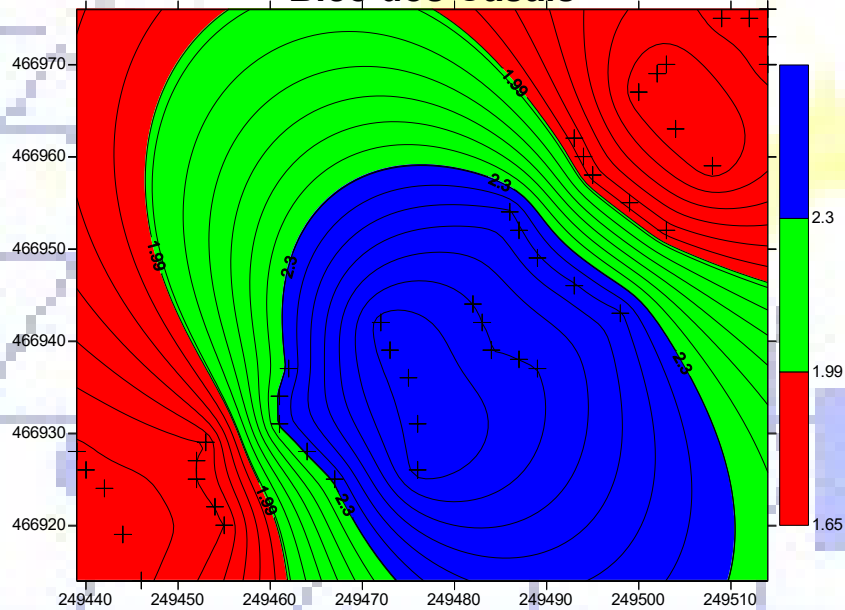


Content of leaf phosphorus, in g.kg⁻¹, for different plots.

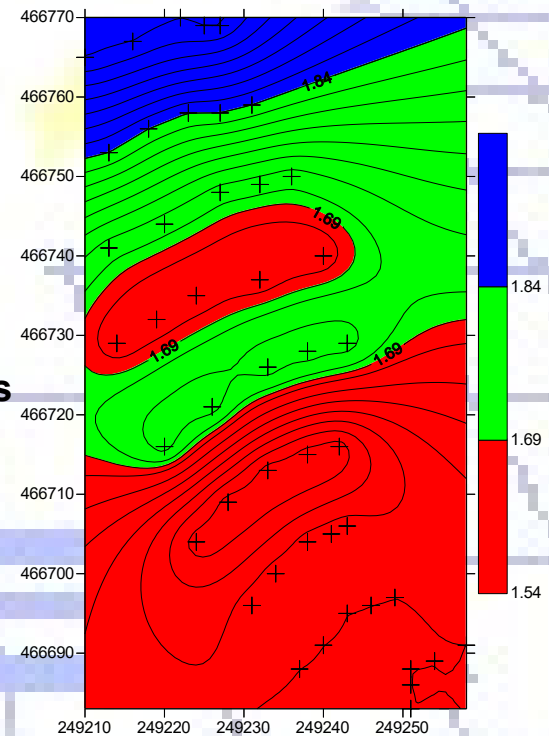
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Bico dos Casais

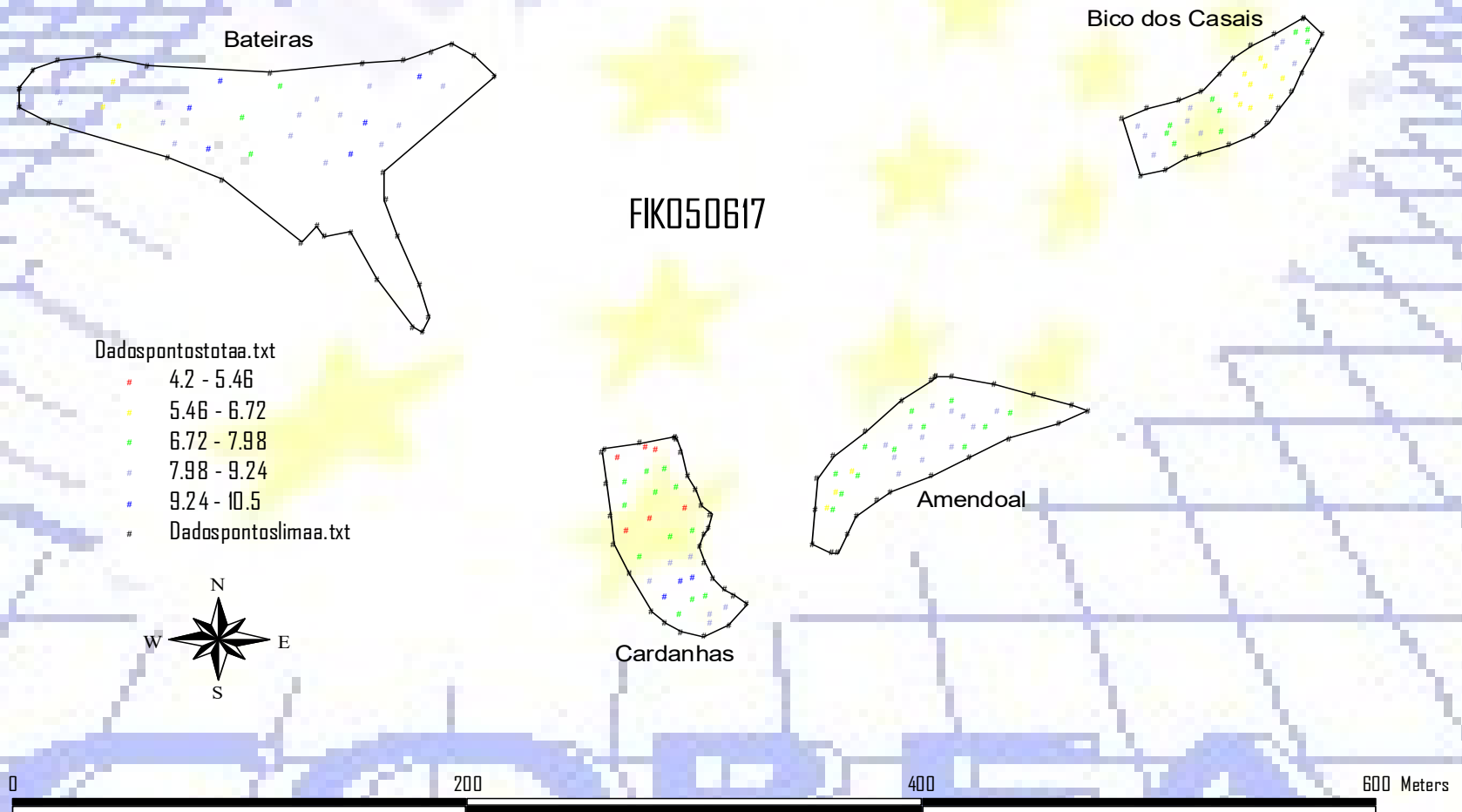


Bateiras



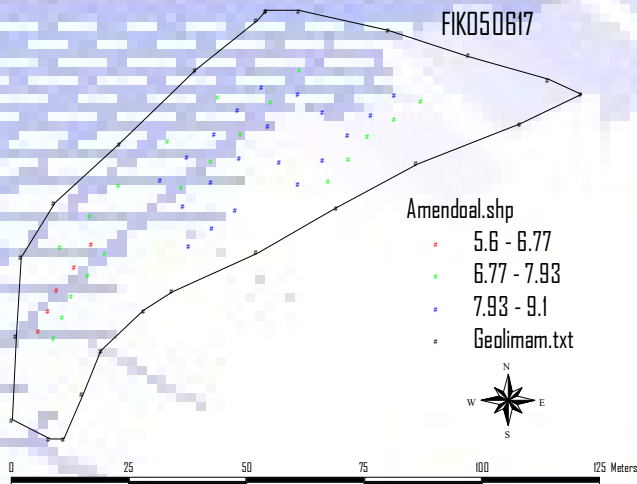
Cardanhas

Content of leaf potassium, in g.kg^{-1} , for all plots.

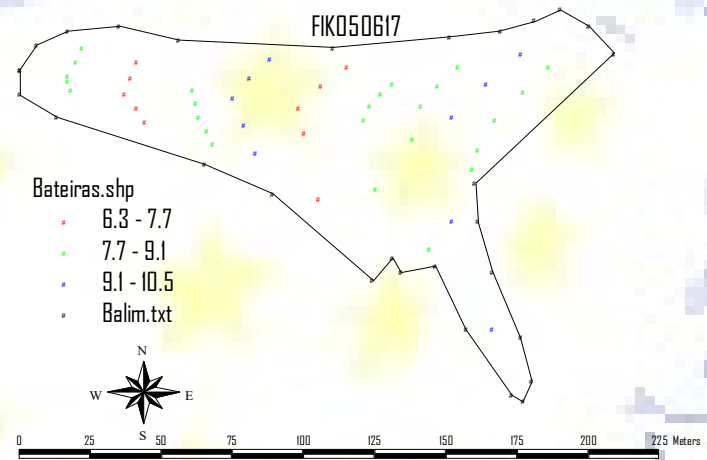


Content of leaf potassium, in g.kg⁻¹, for different plots.

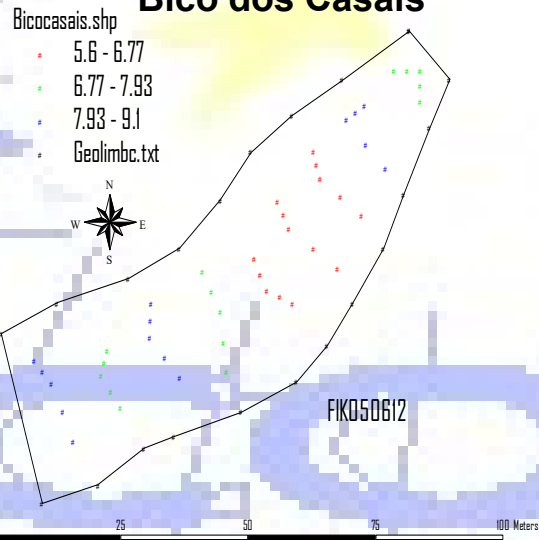
Amendoal



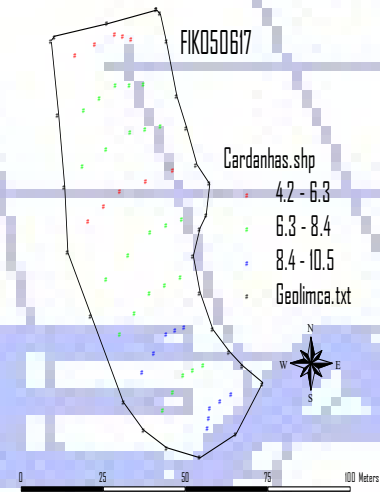
Bateiras



Bico dos Casais

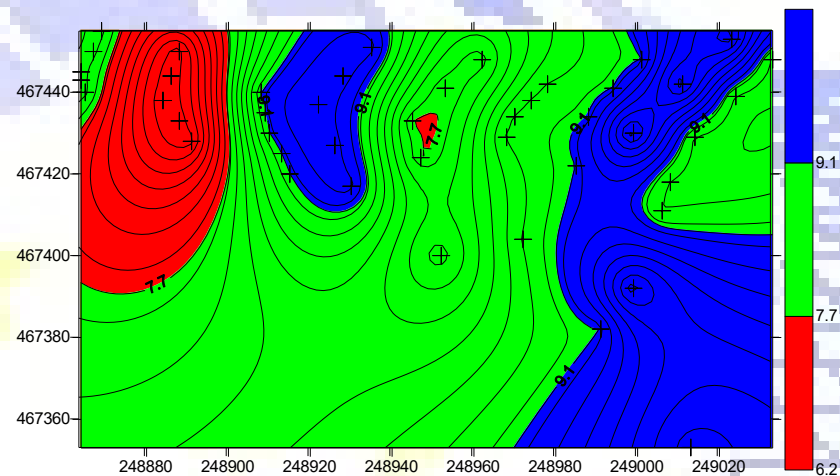
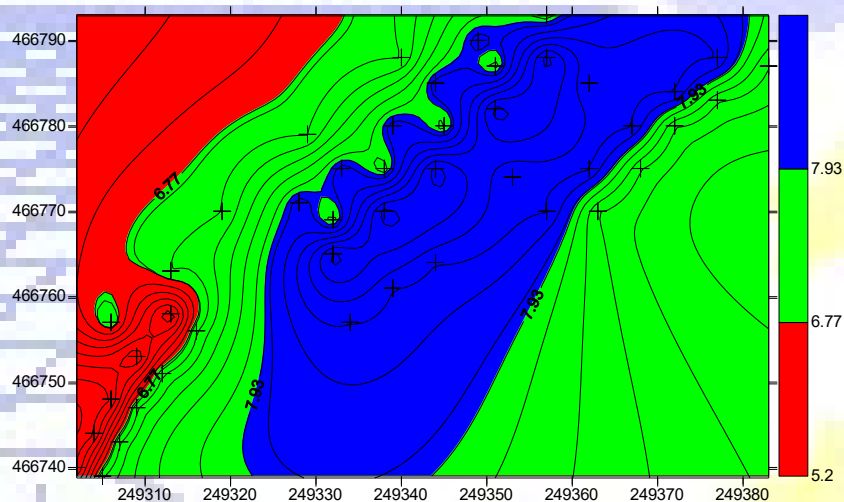


Cardanhas

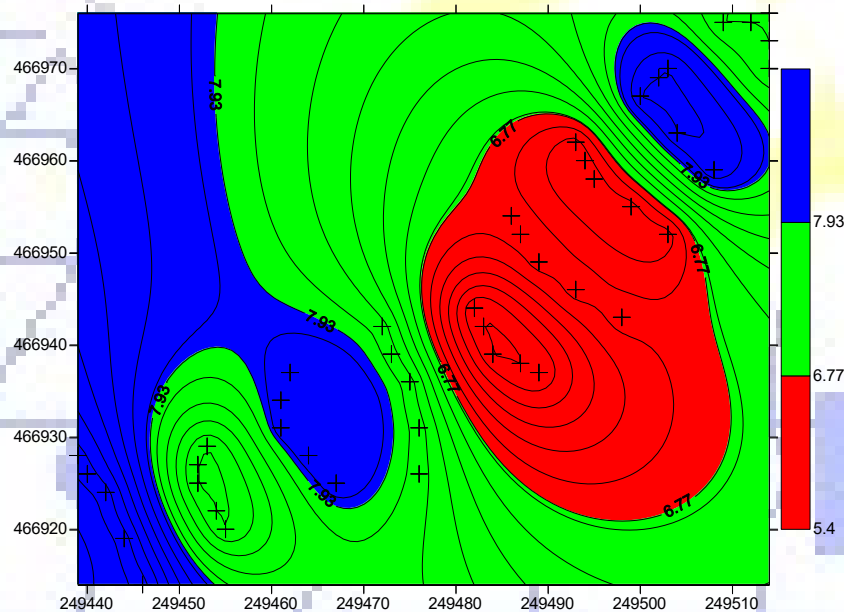


Content of leaf potassium, in g.kg⁻¹, for different plots.

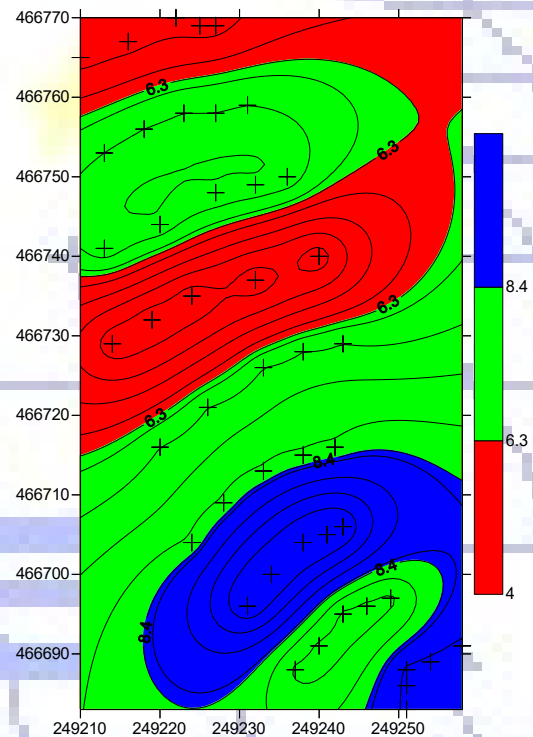
Amendoal



Bico dos Casais



Bateiras



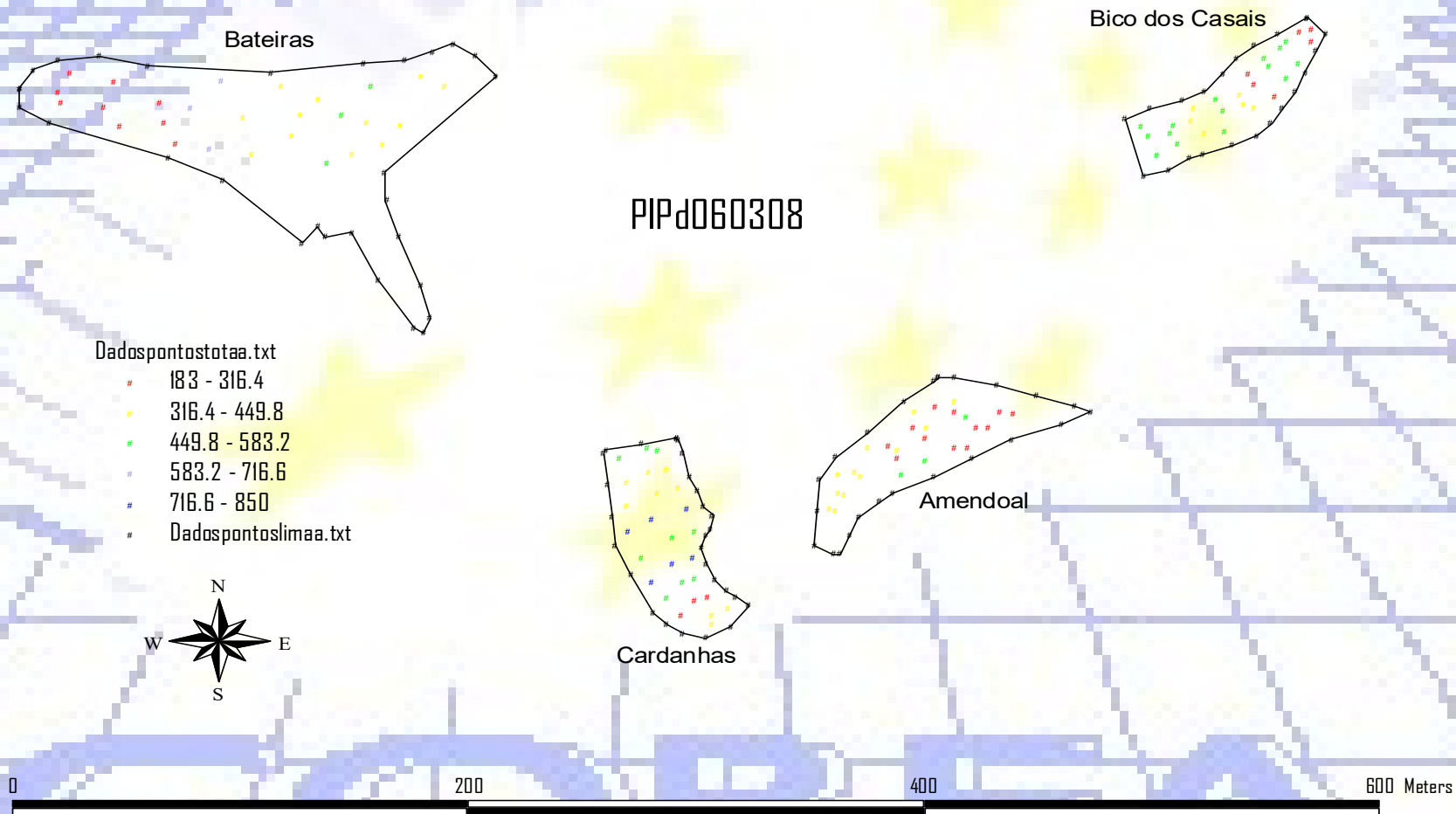
Cardanhas

ANOVA weigh wood, according plots and vineyard installations

ONE-WAY AOV FOR PLPD060308 BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	158597	52865.7	3.04	0.0429
WITHIN	32	555830	17369.7		
TOTAL	35	714428			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		4.27	3	0.2335	
COCHRAN'S Q			0.4772		
LARGEST VAR / SMALLEST VAR			4.3442		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				3944.00	
EFFECTIVE CELL SIZE				9.0	
		SAMPLE	GROUP		
PARC	MEAN	SIZE	STD DEV		
Am	335.11	9	87.365		
Ba	386.00	9	123.22		
BC	421.33	9	116.22		
Ca	516.78	9	182.09		
TOTAL	414.81	36	131.79		
CASES INCLUDED	36	MISSING CASES		1	

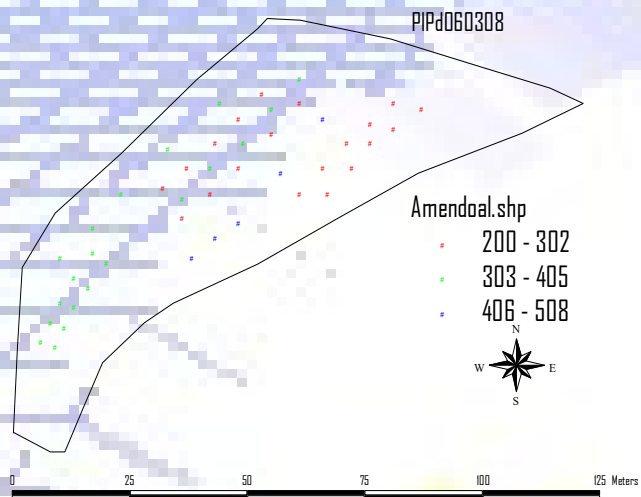
ONE-WAY AOV FOR PLPD060308 BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	105950	105950	5.92	0.0204
WITHIN	34	608477	17896.4		
TOTAL	35	714428			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		2.32	1	0.1280	
COCHRAN'S Q			0.6809		
LARGEST VAR / SMALLEST VAR			2.1337		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				4891.88	
EFFECTIVE CELL SIZE				18.0	
		SAMPLE	GROUP		
INST	MEAN	SIZE	STD DEV		
Pt	360.56	18	106.87		
VA	469.06	18	156.11		
TOTAL	414.81	36	133.78		
CASES INCLUDED		36	MISSING CASES 1		

Weigh wood, in g, for all plots.

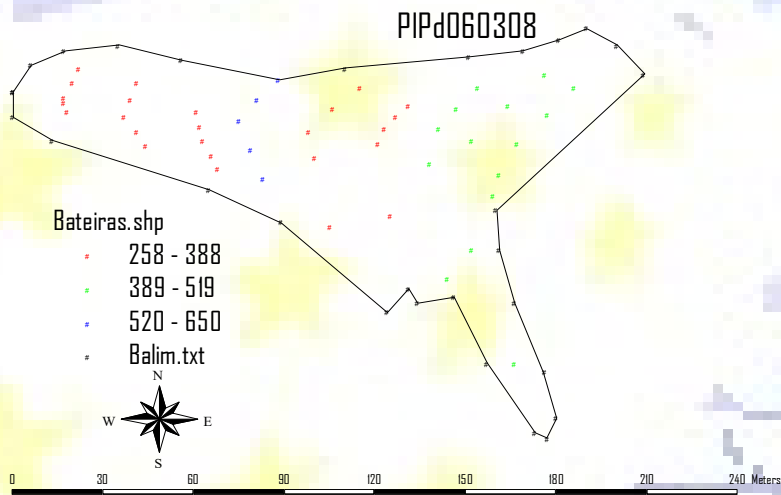


Weigh wood, in g, for different plots.

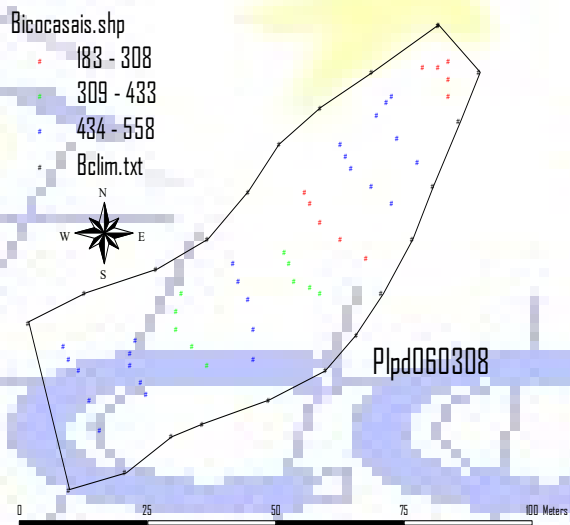
Amendoal



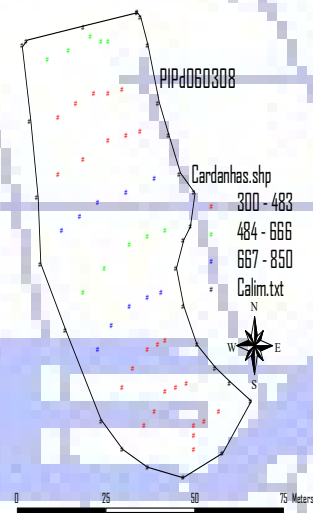
Bateiras



Bico dos Casais

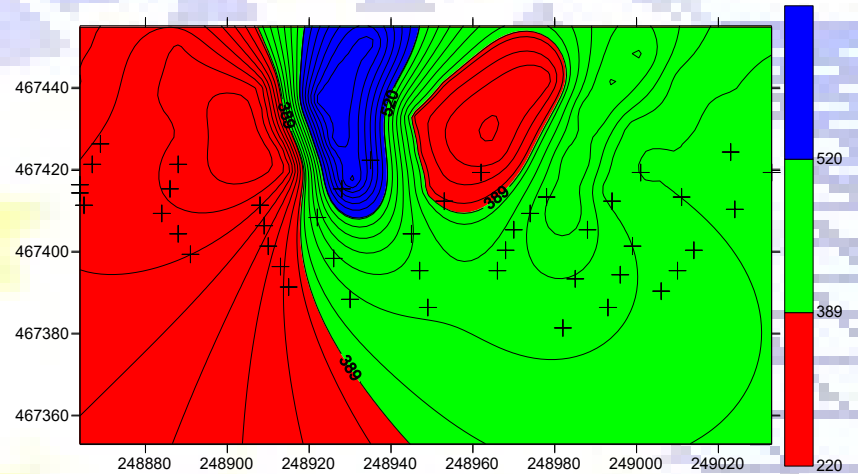
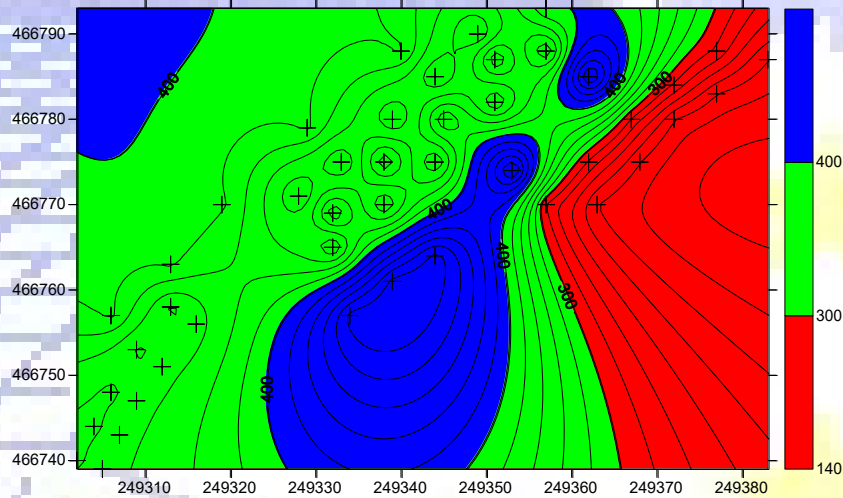


Cardanhas

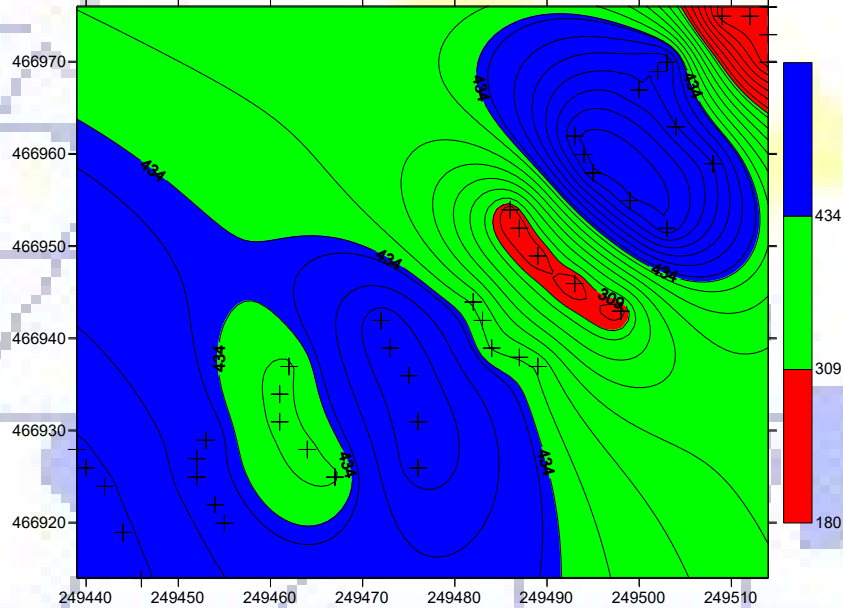


Weigh wood, in g, for different plots.

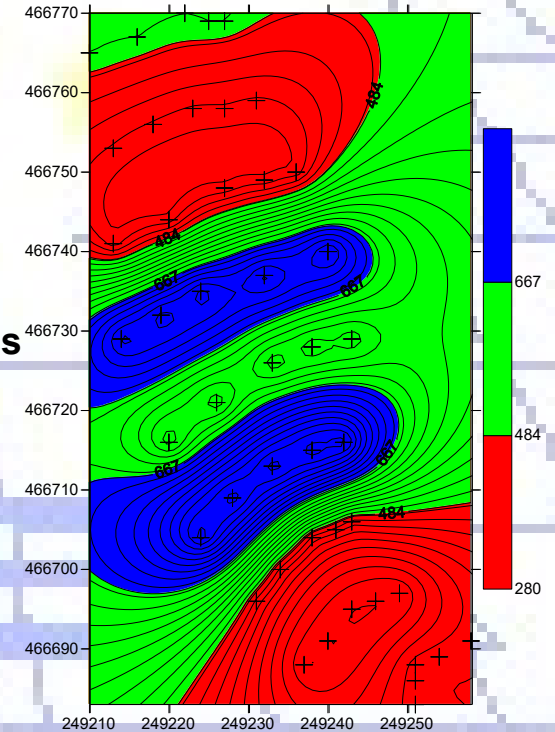
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Bico dos Casais



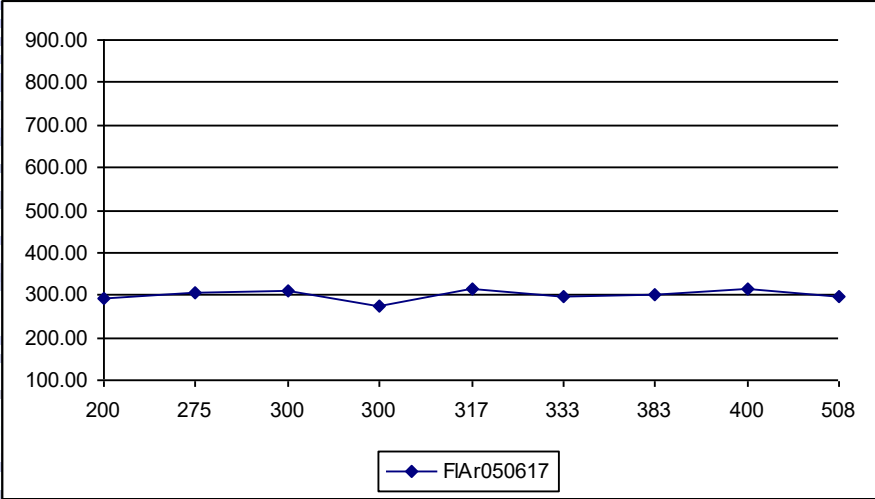
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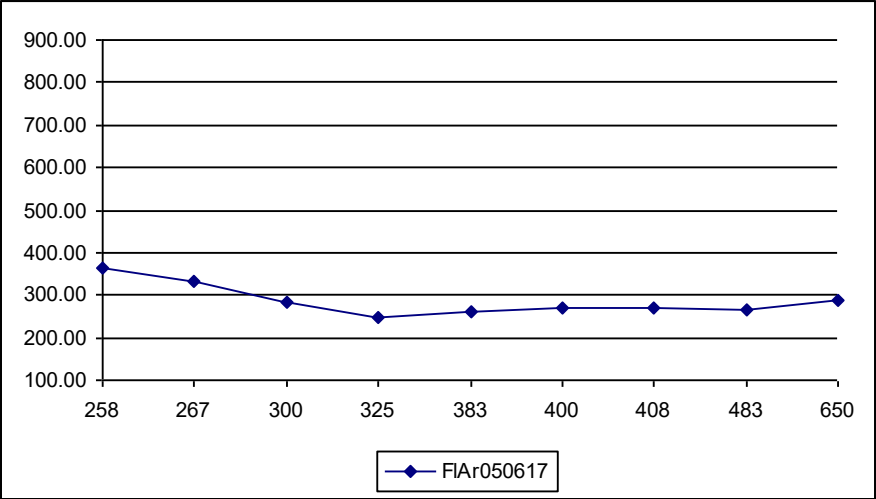
Cardanhas

Relation between leaf area, in cm², and pruning wood weight, in g, for different plots.

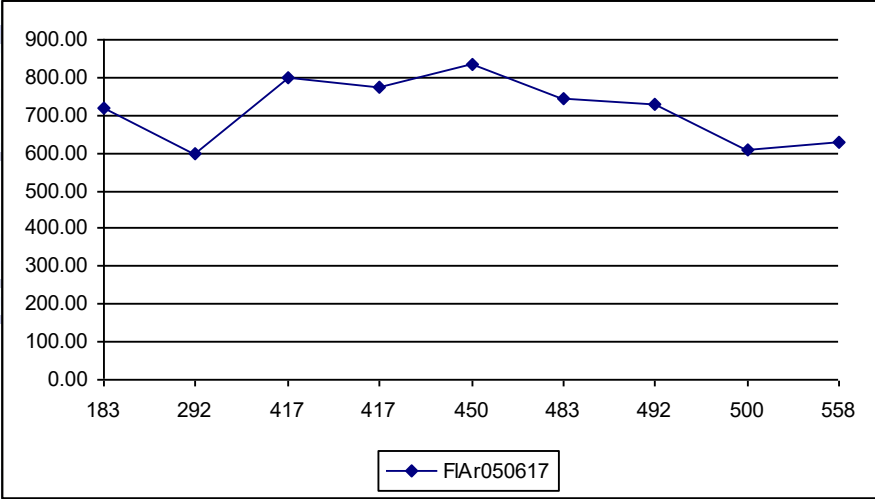
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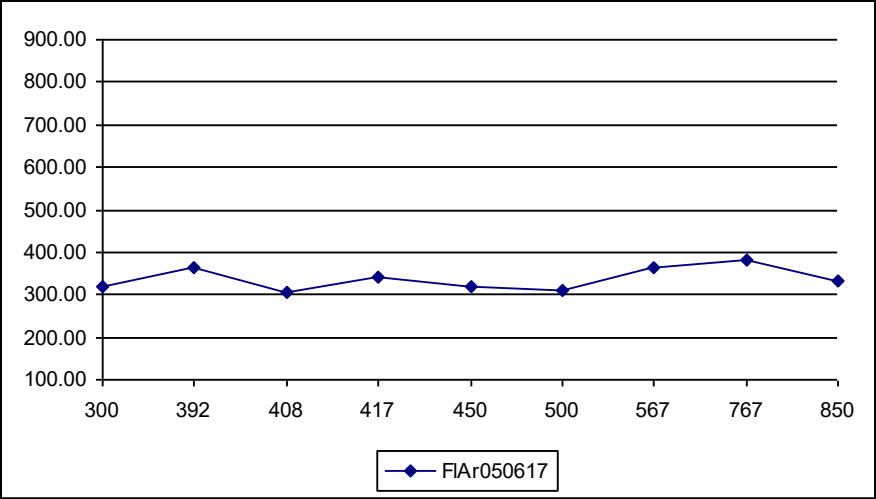
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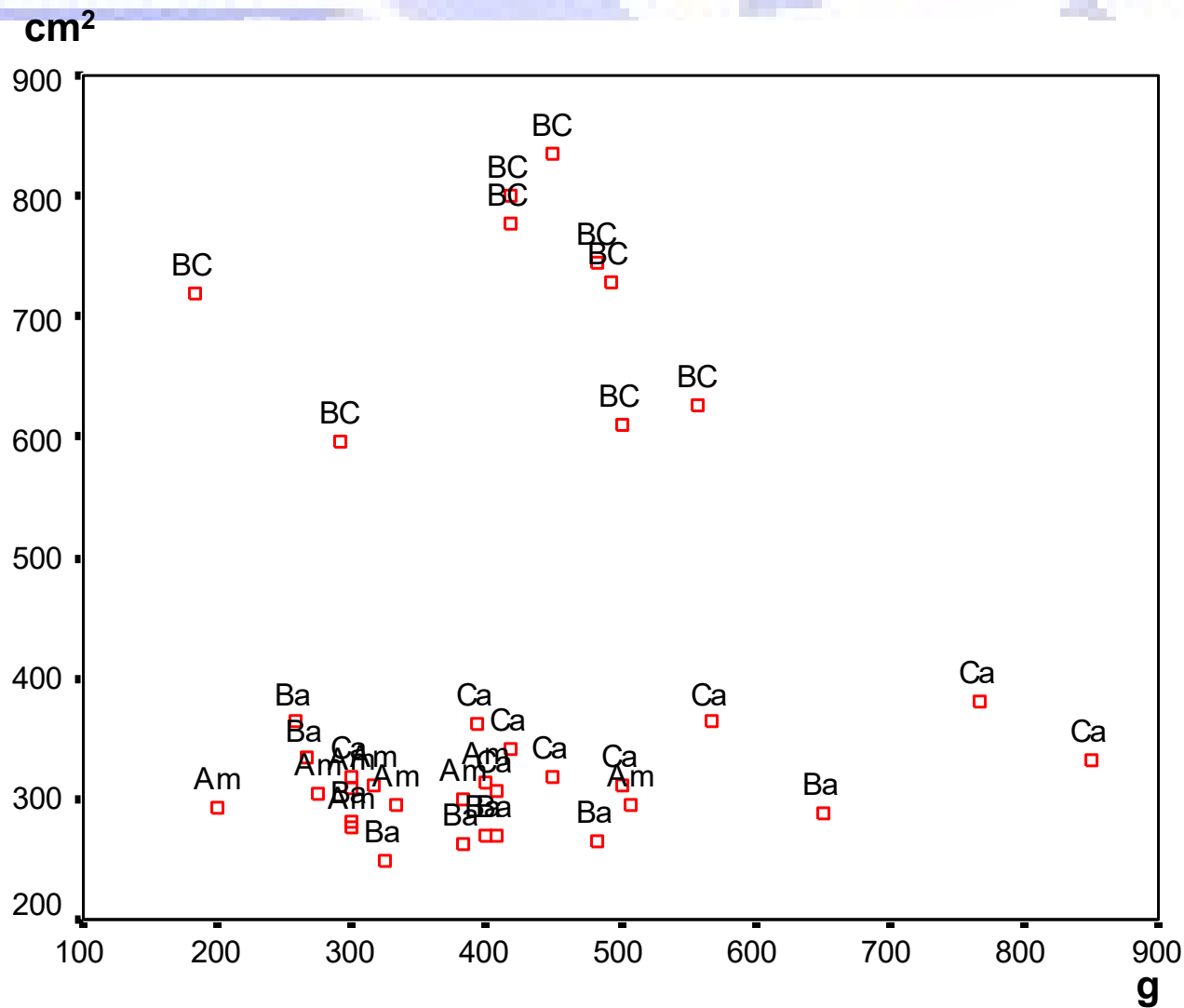
Bico dos Casais



Cardanhas



Relation between leaves area, in cm², and pruning wood, in g, for all plots.



PIPd060308



Soil characterization data

For soil characterization were collected samples close to the georeferenced sites, being the samples of each station mixed and, after this, analysed; using this methodology were done 9 soil analyses for each plot (36 for all trials).

Besides these laboratory data it were measured other parameters as the temperature, the stony covered soil, etc.

Soil pH in H₂O and KCl determined, in the first 20 cm soil depth and between 20 and 40 cm, for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am					
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20PHH2O	9	6.178	0.217	5.800	6.500
SL20PHKCL	9	4.167	0.229	3.700	4.400
SL40PHH2O	9	6.422	0.233	6.000	6.800
SL40PHKCL	9	4.300	0.245	3.800	4.600
DESCRIPTIVE STATISTICS FOR plot = Ba					
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20PHH2O	9	5.733	0.403	5.200	6.500
SL20PHKCL	9	3.322	0.349	2.900	4.100
SL40PHH2O	9	5.722	0.402	5.100	6.300
SL40PHKCL	9	3.322	0.353	2.600	3.800
DESCRIPTIVE STATISTICS FOR plot = BC					
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20PHH2O	9	5.844	0.525	4.800	6.600
SL20PHKCL	9	3.511	0.247	3.000	3.800
SL40PHH2O	9	6.000	0.384	5.200	6.600
SL40PHKCL	9	3.567	0.187	3.300	3.800
DESCRIPTIVE STATISTICS FOR plot = Cd					
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20PHH2O	9	5.078	0.412	4.500	5.700
SL20PHKCL	9	3.233	0.543	2.800	4.500
SL40PHH2O	9	5.211	0.593	4.300	6.500
SL40PHKCL	9	3.333	0.854	2.800	5.500

Soil pH in H₂O and KCl determined, in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA)

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20PHH2O	18	5.956	0.388	5.200	6.500
SL20PHKCL	18	3.744	0.520	2.900	4.400
SL40PHH2O	18	6.072	0.481	5.100	6.800
SL40PHKCL	18	3.811	0.583	2.600	4.600

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20PHH2O	18	5.461	0.604	4.500	6.600
SL20PHKCL	18	3.372	0.434	2.800	4.500
SL40PHH2O	18	5.606	0.632	4.300	6.600
SL40PHKCL	18	3.450	0.612	2.800	5.500

ANOVA soil pH in H₂O, in the first 20 cm, according plots and vineyard installations

ONE-WAY AOV FOR SL20PHH2O BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	5.73417	1.91139	11.69	0.0000
WITHIN	32	5.23333	0.16354		
TOTAL	35	10.9675			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		5.31	3	0.1505	
COCHRAN'S Q			0.4208		
LARGEST VAR / SMALLEST VAR			5.8639		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS					0.19421
EFFECTIVE CELL SIZE					9.0
		SAMPLE	GROUP		
PARC	MEAN	SIZE	STD DEV		
Am	6.1778	9	0.2167		
Ba	5.7333	9	0.4031		
BC	5.8444	9	0.5247		
Cd	5.0778	9	0.4116		
TOTAL	5.7083	36	0.4044		
CASES INCLUDED 36		MISSING CASES 0			

Reference values:

For pH (H₂O) < 5.8 it is recommended to liming the soil

Origin: Quelhas dos Santos

Soil classification according pH in H₂O

pH (H ₂ O)	Soil classification
< 4.5	Very acid
4.6 - 5.5	Acid
5.6 - 6.5	Few acid
6.6 - 7.5	Neutral
7.6 - 8.5	Few alkaline
8.6 - 9.5	Alkaline
> 9.5	Very alkaline

Origin: Quelhas dos Santos

ONE-WAY AOV FOR SL20PHH2O BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	2.20028	2.20028	8.53	0.0062
WITHIN	34	8.76722	0.25786		
TOTAL	35	10.9675			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		3.12	1	0.0773	
COCHRAN'S Q			0.7075		
LARGEST VAR / SMALLEST VAR			2.4188		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.10791	
EFFECTIVE CELL SIZE				18.0	
		SAMPLE		GROUP	
INST	MEAN	SIZE	STD DEV		
Pt	5.9556	18	0.3884		
VA	5.4611	18	0.6040		
TOTAL	5.7083	36	0.5078		
CASES INCLUDED	36	MISSING CASES		0	

ANOVA soil pH in KCl, in the first 20 cm, according plots and vineyard installations

ONE-WAY AOV FOR SL20PHKCL BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	4.80306	1.60102	12.07	0.0000
WITHIN	32	4.24444	0.13264		
TOTAL	35	9.04750			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	7.50	3	0.0575
COCHRAN'S Q		0.5560	
LARGEST VAR / SMALLEST VAR		5.6190	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.16315
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	4.1667	9	0.2291
Ba	3.3222	9	0.3492
BC	3.5111	9	0.2472
Cd	3.2333	9	0.5431
TOTAL	3.5583	36	0.3642
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20PHKCL BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	1.24694	1.24694	5.44	0.0258
WITHIN	34	7.80056	0.22943		
TOTAL	35	9.04750			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	0.55	1	0.4594
COCHRAN'S Q		0.5903	
LARGEST VAR / SMALLEST VAR		1.4406	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.05653
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	3.7444	18	0.5204
VA	3.3722	18	0.4336
TOTAL	3.5583	36	0.4790
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil pH in H₂O, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40PHH2O BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	6.96556	2.32185	12.99	0.0000
WITHIN	32	5.72000	0.17875		
TOTAL	35	12.6856			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	6.12	3	0.1060
COCHRAN'S Q		0.4911	
LARGEST VAR / SMALLEST VAR		6.4490	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.23812
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	6.4222	9	0.2333
Ba	5.7222	9	0.4024
BC	6.0000	9	0.3841
Cd	5.2111	9	0.5925
TOTAL	5.8389	36	0.4228
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40PHH2O BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	1.96000	1.96000	6.21	0.0177
WITHIN	34	10.7256	0.31546		
TOTAL	35	12.6856			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	1.21	1	0.2709
COCHRAN'S Q		0.6330	
LARGEST VAR / SMALLEST VAR		1.7249	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.09136
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	6.0722	18	0.4812
VA	5.6056	18	0.6320
TOTAL	5.8389	36	0.5617
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil pH in KCl, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40PHKCL BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	5.72083	1.90694	8.03	0.0004
WITHIN	32	7.59556	0.23736		
TOTAL	35	13.3164			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	21.38	3	0.0001
COCHRAN'S Q		0.7689	
LARGEST VAR / SMALLEST VAR		20.857	
COMPONENT OF VARIANCE FOR BETWEEN GROUPS			0.18551
EFFECTIVE CELL SIZE			9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	4.3000	9	0.2449
Ba	3.3222	9	0.3528
BC	3.5667	9	0.1871
Cd	3.3333	9	0.8544
TOTAL	3.6306	36	0.4872
CASES INCLUDED	36	MISSING CASES	0

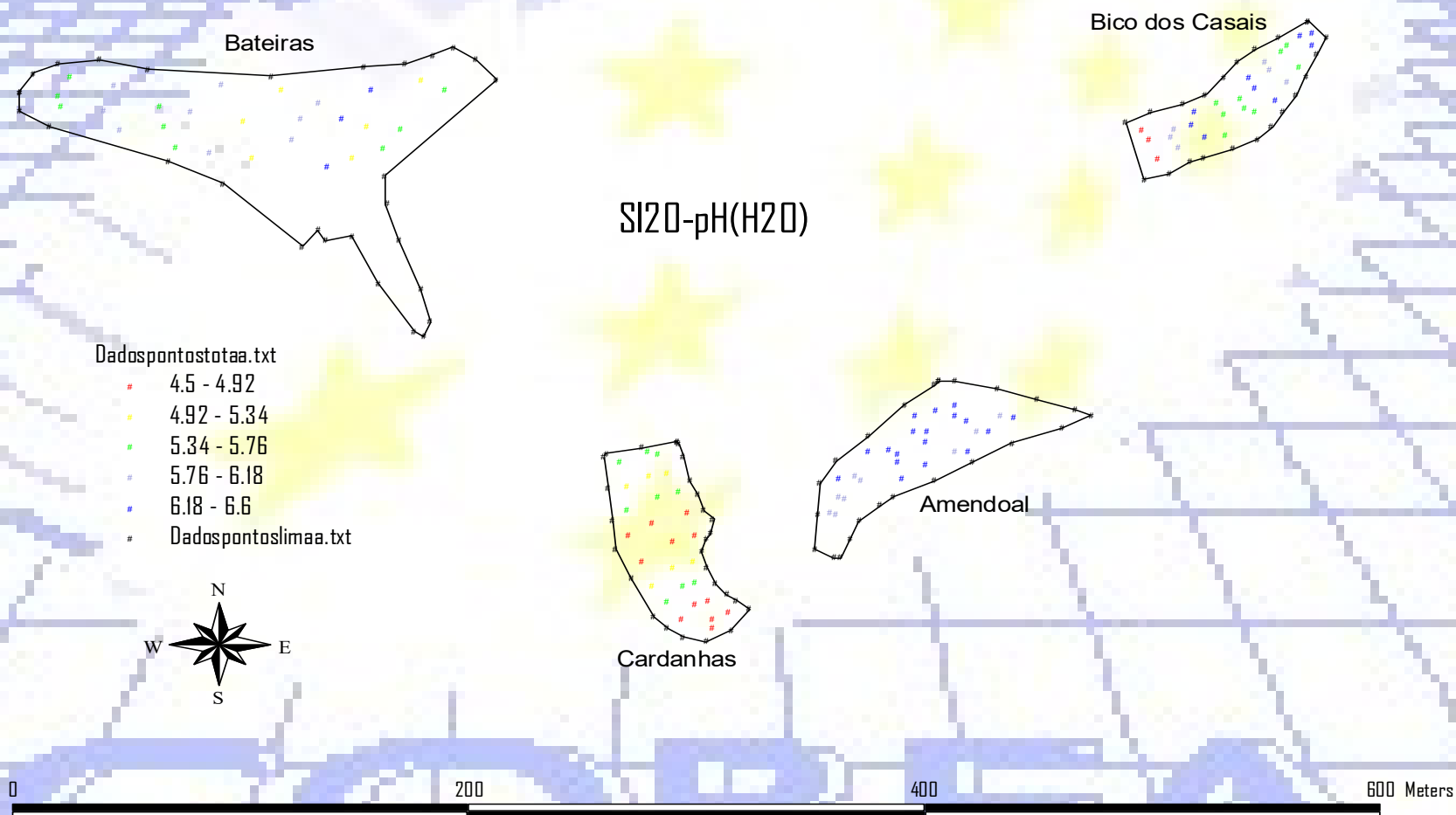
ONE-WAY AOV FOR SL40PHKCL BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	1.17361	1.17361	3.29	0.0787
WITHIN	34	12.1428	0.35714		
TOTAL	35	13.3164			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	0.04	1	0.8441
COCHRAN'S Q		0.5242	
LARGEST VAR / SMALLEST VAR		1.1016	
COMPONENT OF VARIANCE FOR BETWEEN GROUPS			0.04536
EFFECTIVE CELL SIZE			18.0

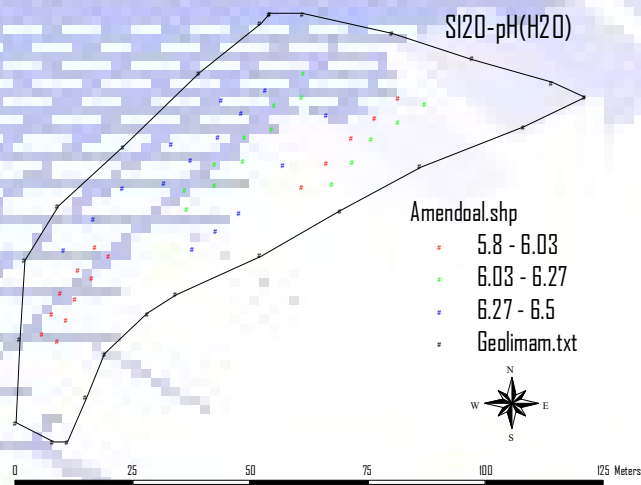
INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	3.8111	18	0.5830
VA	3.4500	18	0.6119
TOTAL	3.6306	36	0.5976
CASES INCLUDED	36	MISSING CASES	0

Soil pH in H₂O determined, in the first 20 cm soil depth in all plots

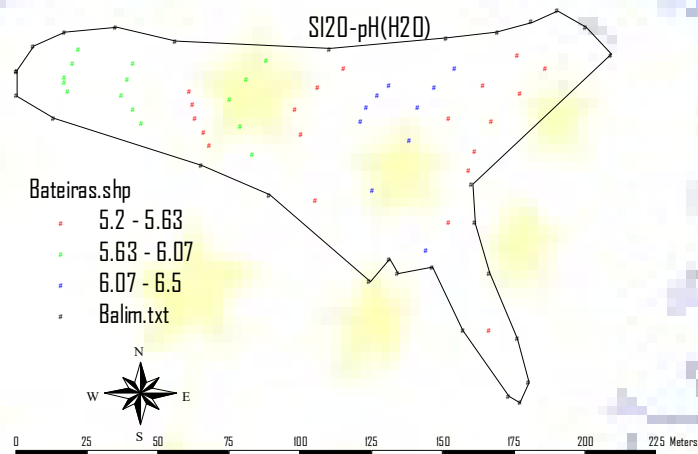


Soil pH in H₂O determined, in the first 20 cm soil depth inside each plot

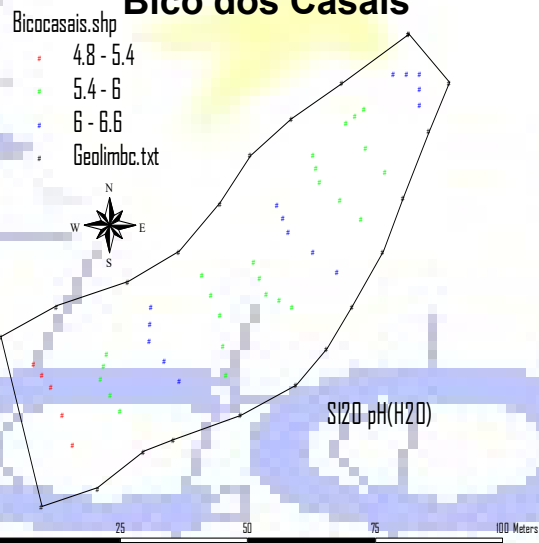
Amendoal



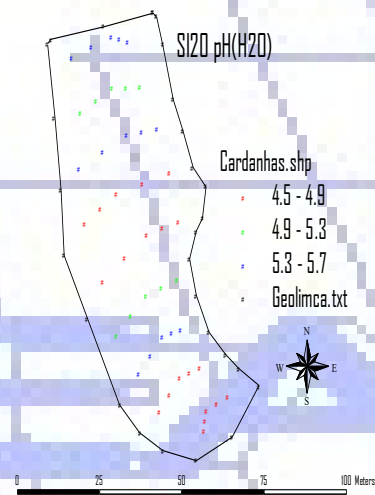
Bateiras



Bico dos Casais

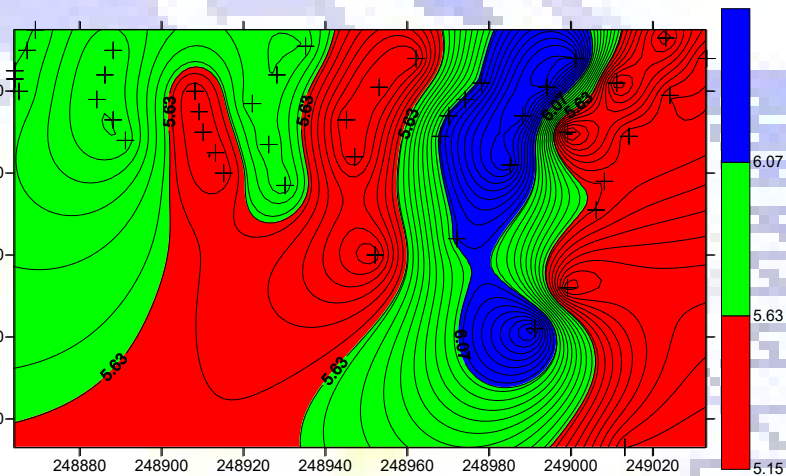
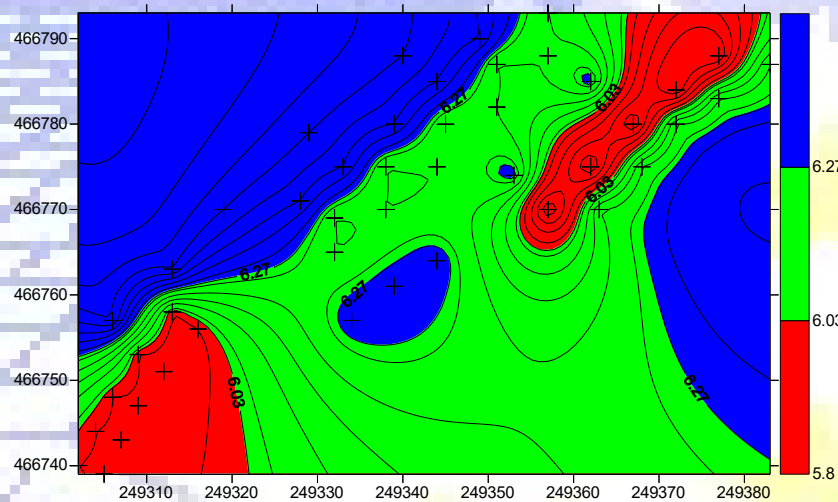


Cardanhas



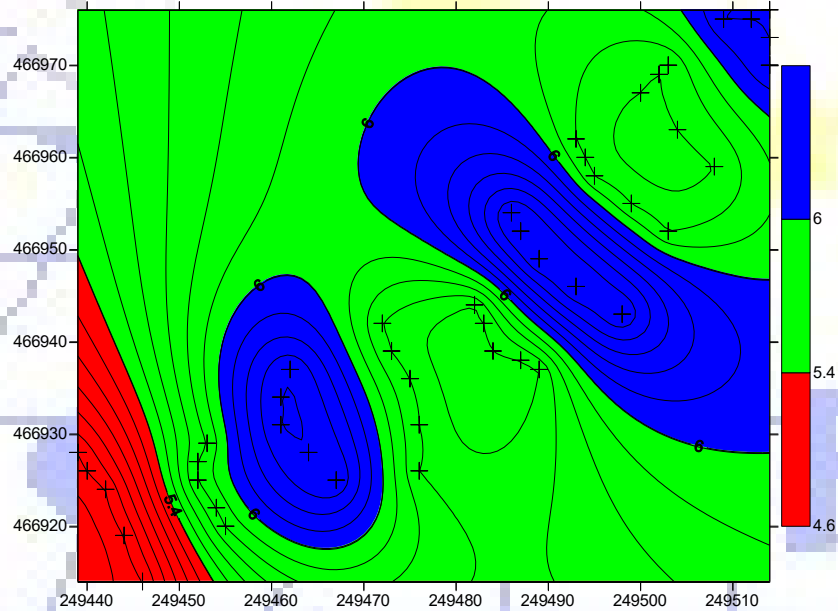
Soil pH in H₂O determined, in the first 20 cm soil depth inside each plot

Amendoal

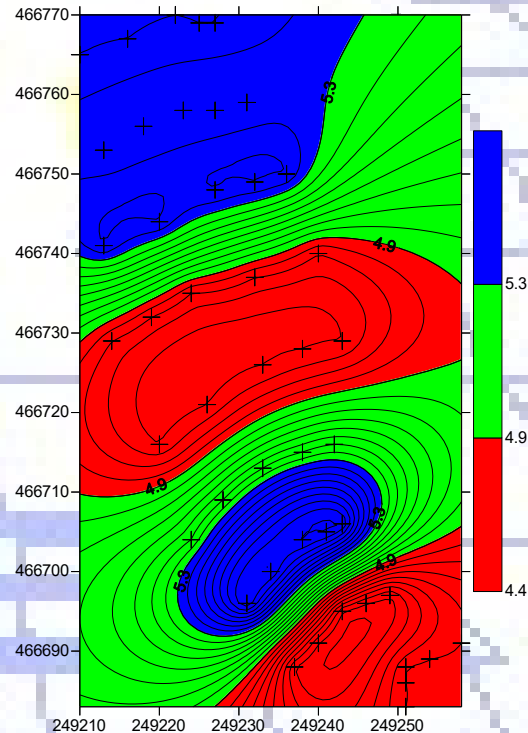


Bateiras

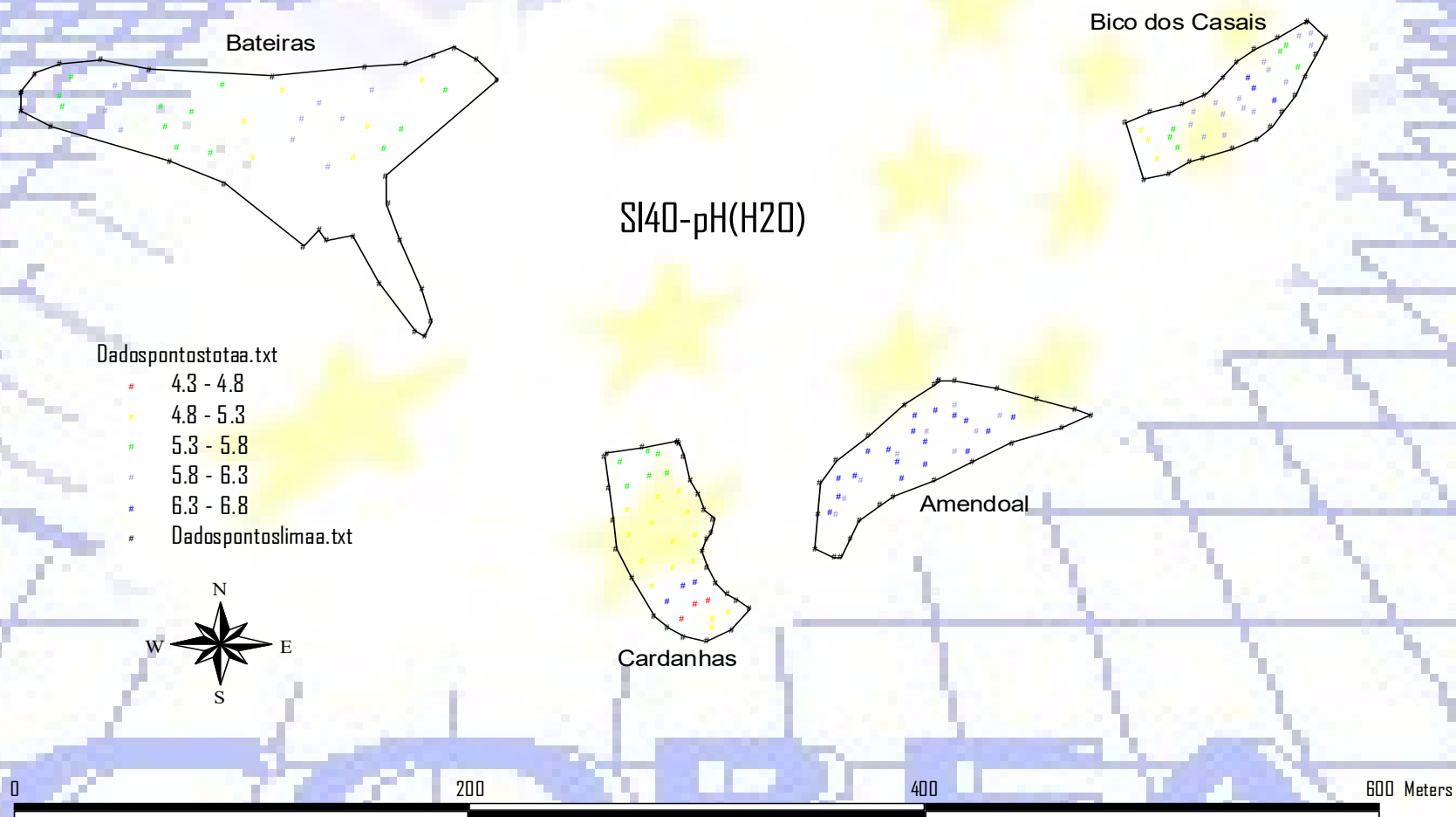
Bico dos Casais



Cardanhas

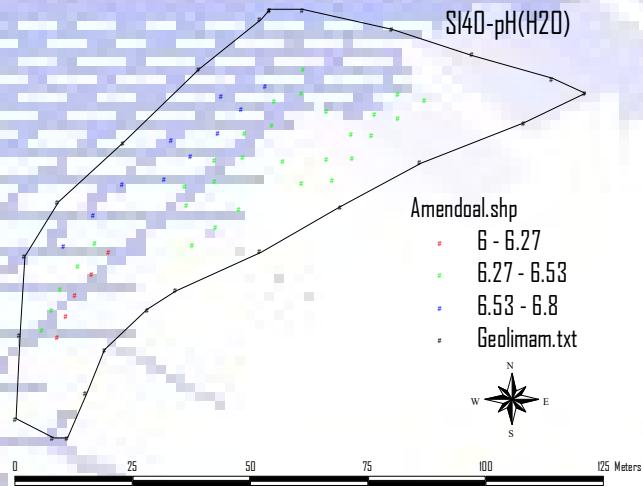


Soil pH in H₂O determined between 20 - 40 cm soil depth in all plots

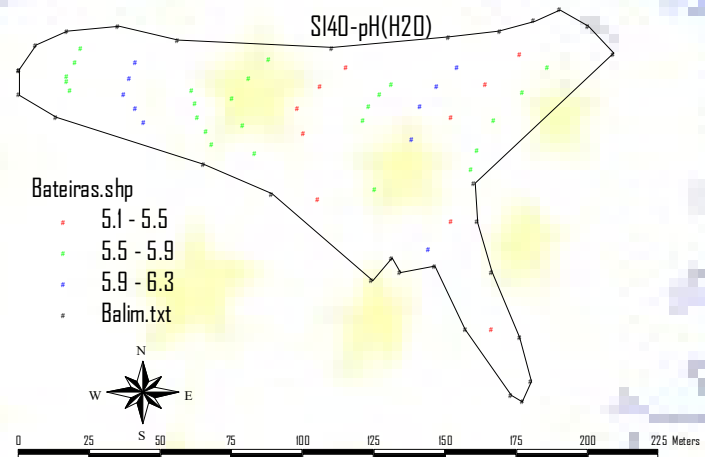


Soil pH in H₂O determined between 20 - 40 cm soil depth inside each plot

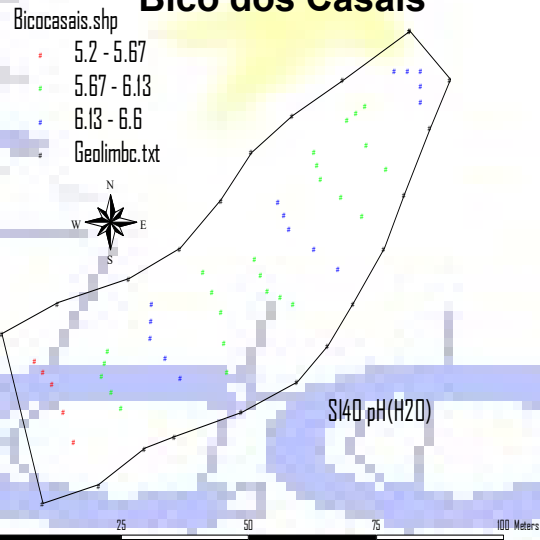
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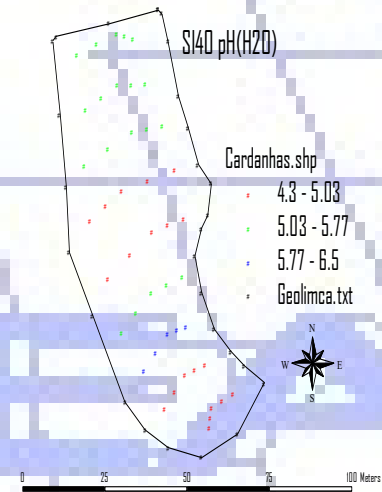
Bateiras



Bico dos Casais

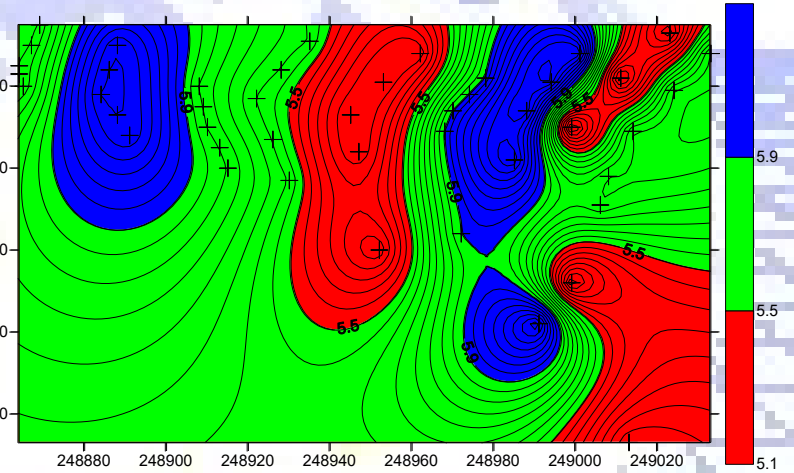
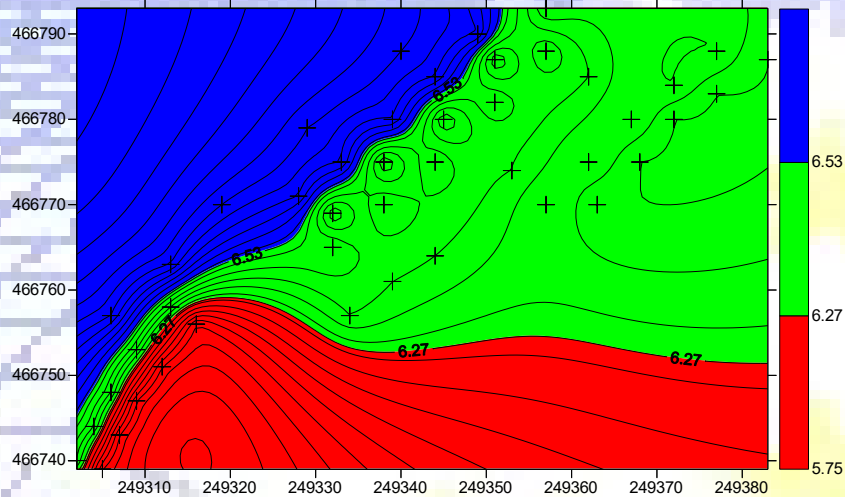


Cardanhas

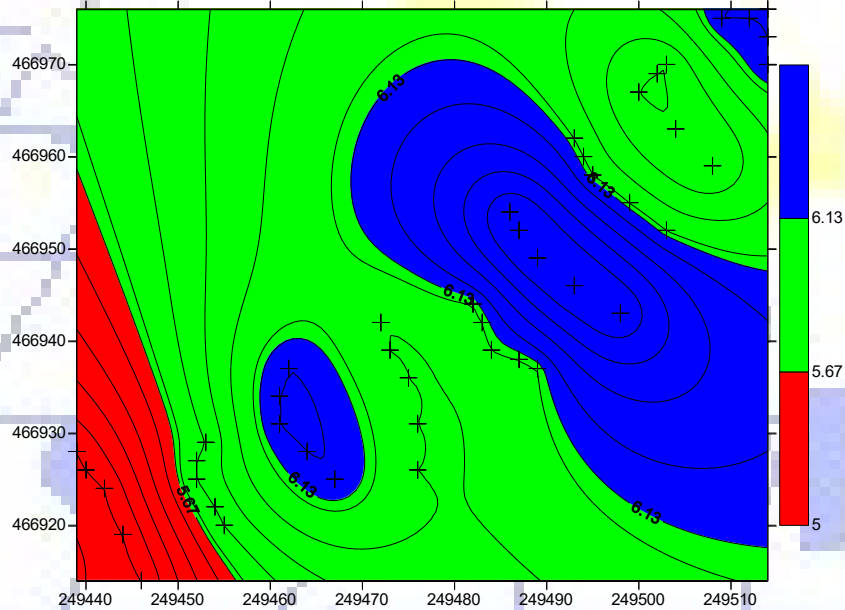


Soil pH in H₂O determined between 20 - 40 cm soil depth inside each plot

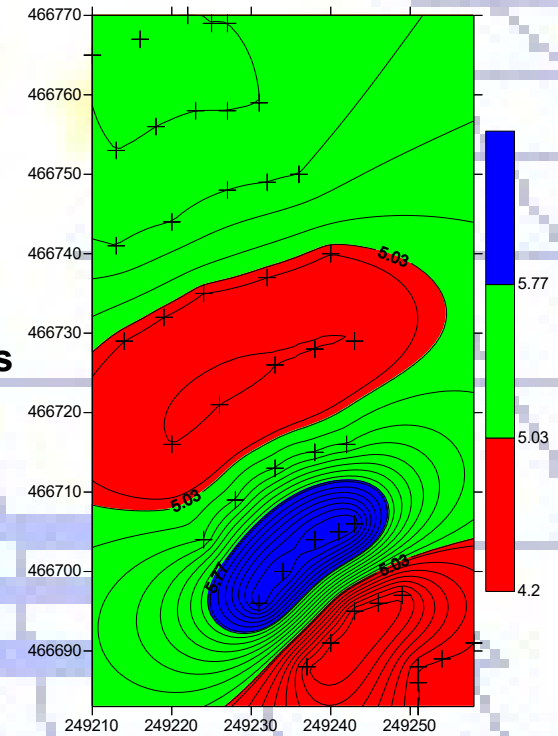
Amendoal



Bico dos Casais



Bateiras



Cardanhas

SI20-pH(KCl)

Bateiras

Bico dos Casais

Dadospontostotaa.txt

■ 2.8 - 3.14

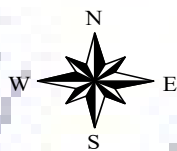
■ 3.14 - 3.48

■ 3.48 - 3.82

■ 3.82 - 4.16

■ 4.16 - 4.5

■ Dadospontoslmaa.txt



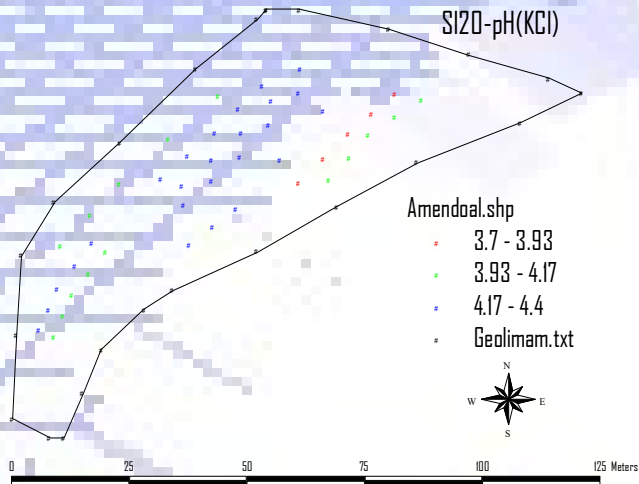
Amendoal

Cardanhas

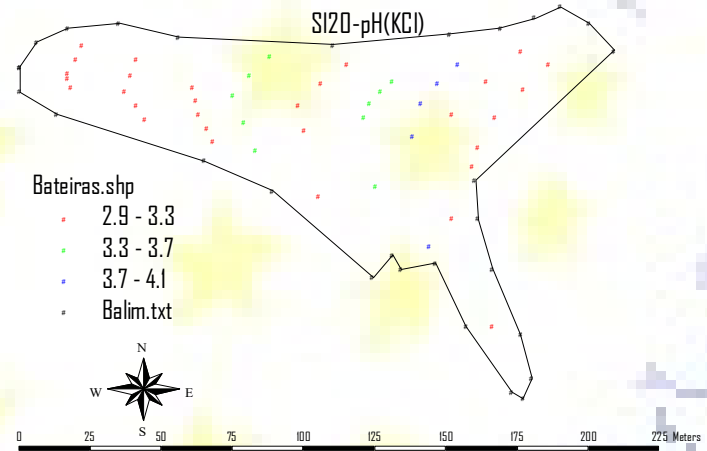


Soil pH in KCl determined in the first 20 cm soil depth inside each plot

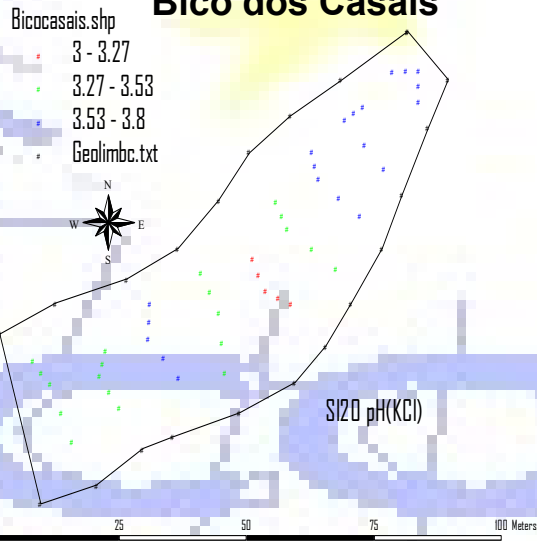
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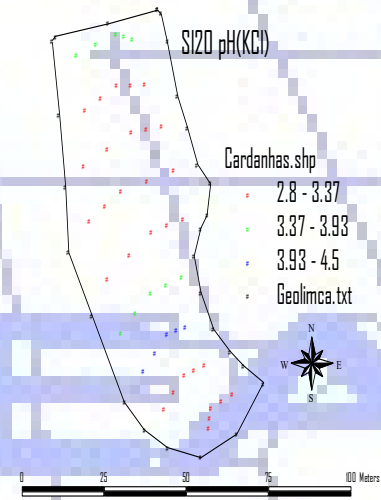
Bateiras



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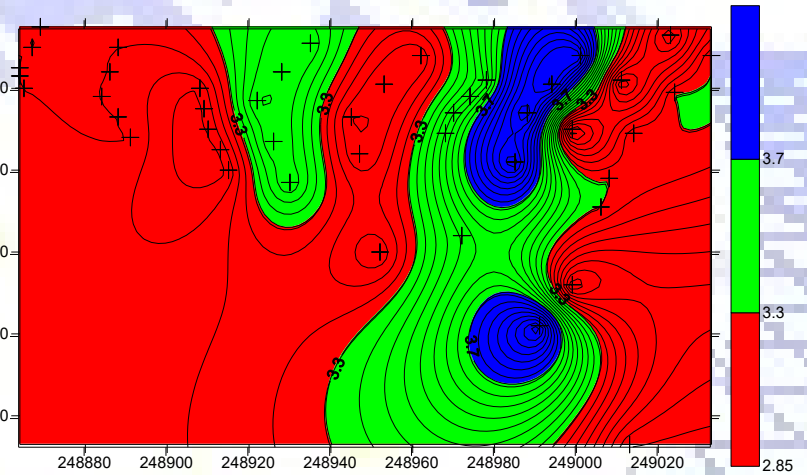
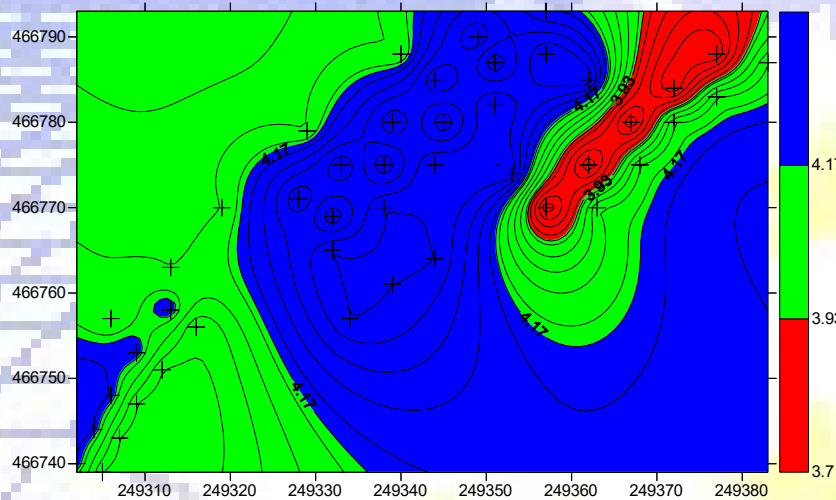


Cardanhas

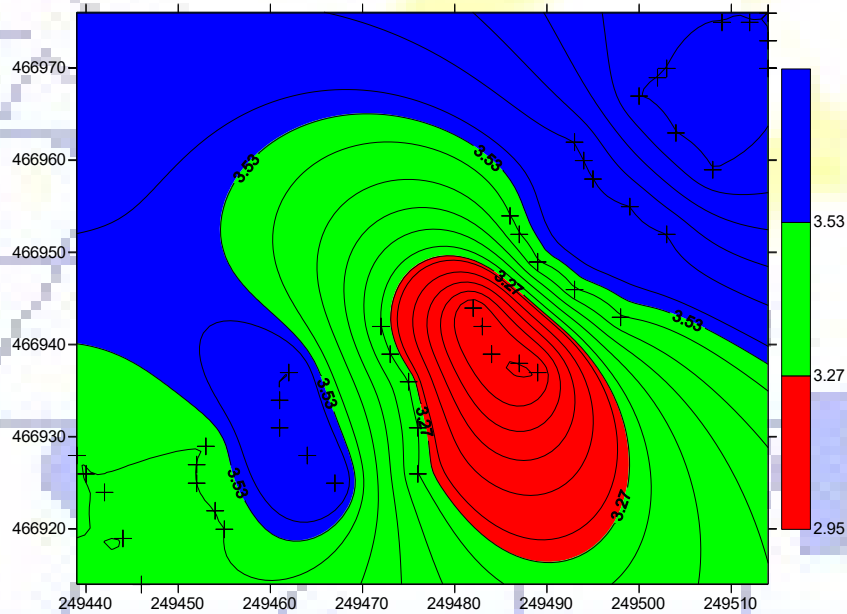


Soil pH in KCl determined in the first 20 cm soil depth inside each plot

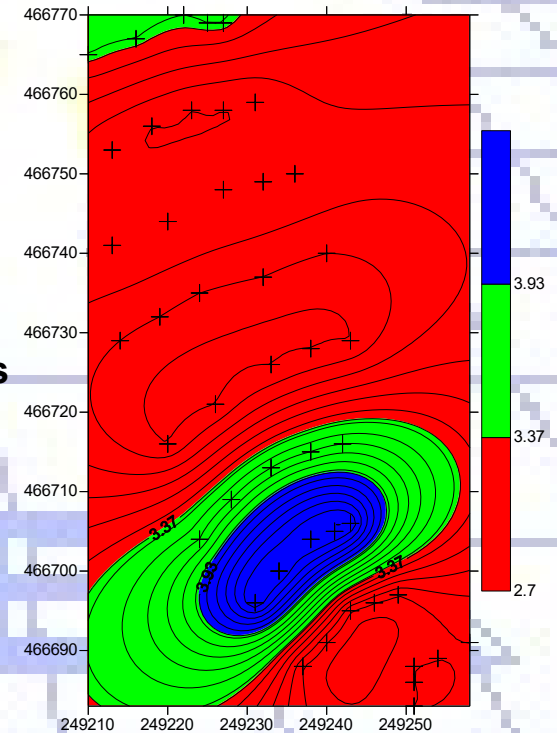
Amendoal



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Bateiras



Cardanhas

SI40-pH(KCl)

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Dadospontostotaa.txt

2.6 - 3.18

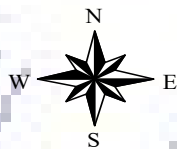
■ 3.18 - 3.76

■ 3.76 - 4.34

■ 4.34 - 4.92

■ 4.92 - 5.5

Dadospontoslmaa.txt



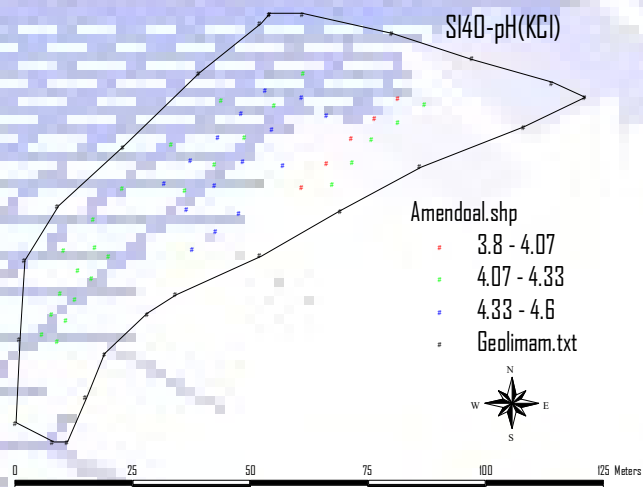
Amendoal

Cardanhas

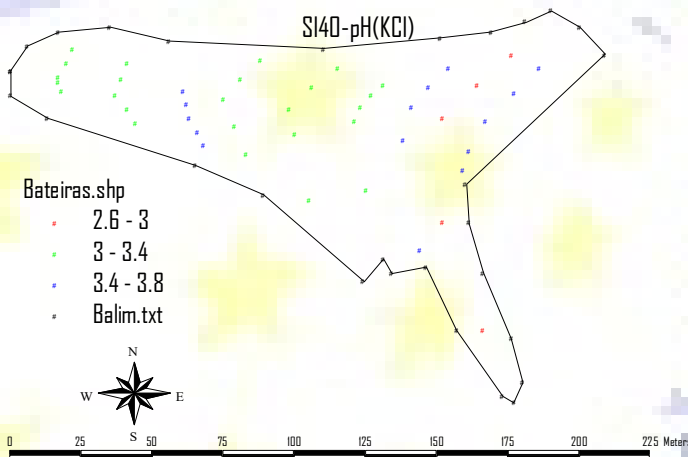


Soil pH in KCl determined between 20 - 40 cm soil depth inside each plot

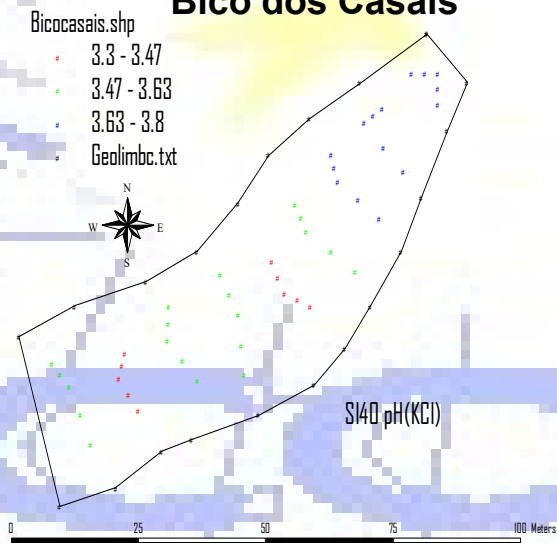
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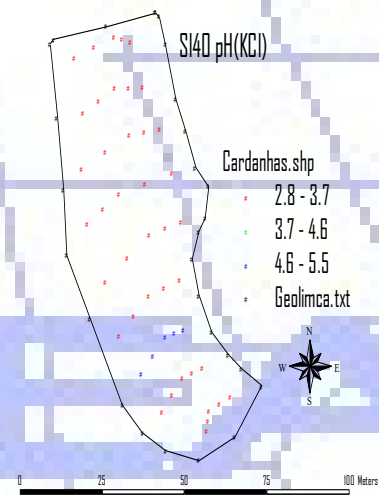
Bateiras



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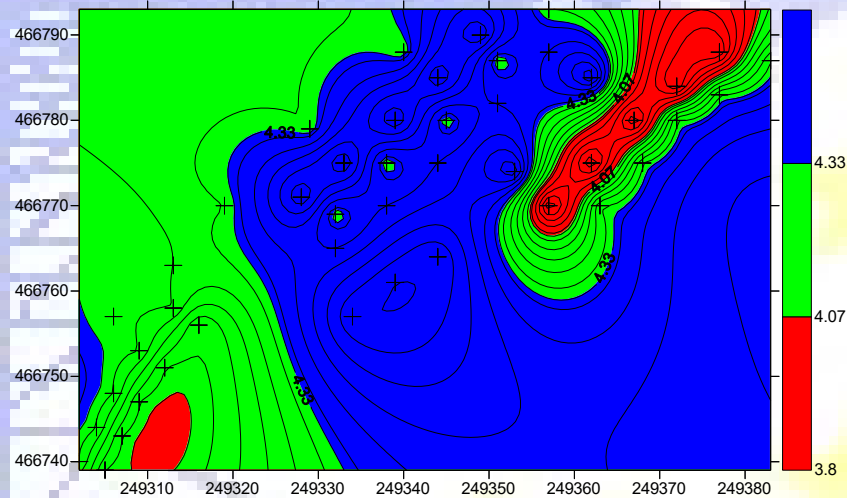


Cardanhas

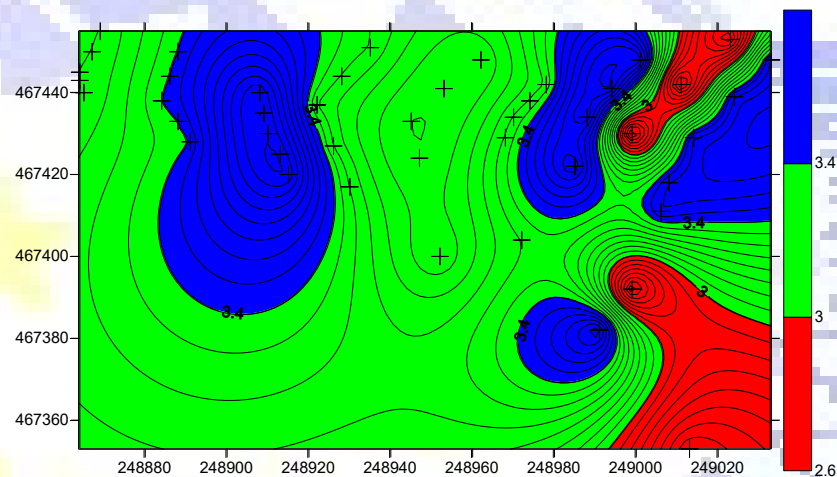


Soil pH in KCl determined between 20 - 40 cm soil depth inside each plot

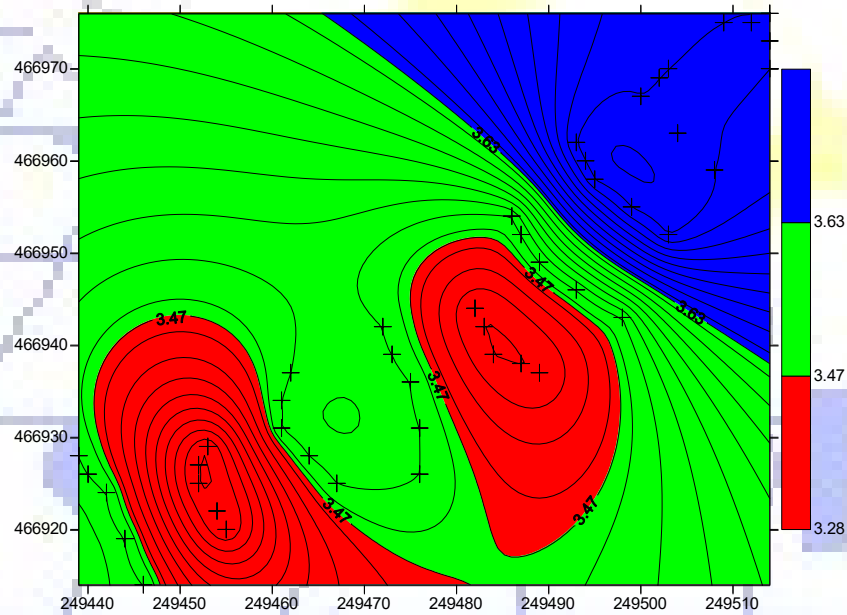
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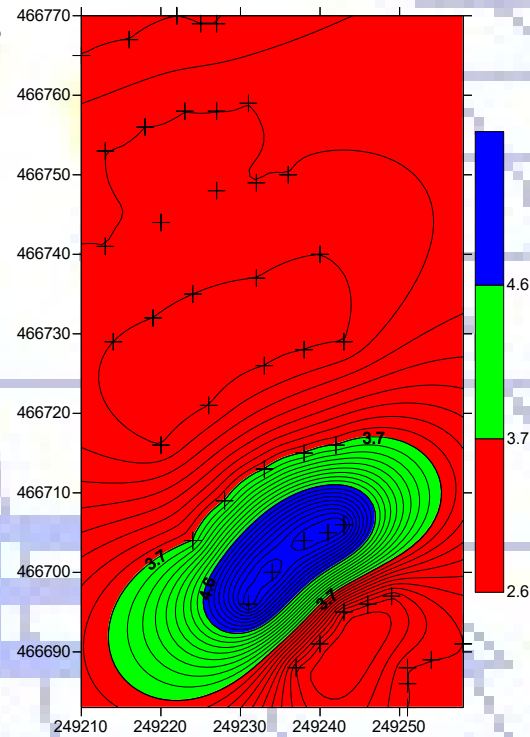
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Soil MO (%), determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MO	9	1.246	0.157	0.980	1.470
SL40MO	9	0.944	0.242	0.620	1.360

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MO	9	0.706	0.121	0.500	0.880
SL40MO	9	0.544	0.195	0.190	0.790

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MO	9	0.572	0.426	0.160	1.640
SL40MO	9	0.547	0.388	0.120	1.500

DESCRIPTIVE STATISTICS FOR plot = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MO	9	0.853	0.337	0.470	1.310
SL40MO	9	0.642	0.222	0.260	0.970

COPIRE

Soil MO (%), determined in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MO	18	0.976	0.309	0.500	1.470
SL40MO	18	0.744	0.296	0.190	1.360

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MO	18	0.713	0.400	0.160	1.640
SL40MO	18	0.594	0.310	0.120	1.500

ANOVA soil MO, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20MO BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	2.28927	0.76309	9.12	0.0002
WITHIN	32	2.67740	0.08367		
TOTAL	35	4.96667			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	14.34	3	0.0025

COCHRAN'S Q	0.5427
LARGEST VAR / SMALLEST VAR	12.480
COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.07549
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	1.2456	9	0.1572
Ba	0.7056	9	0.1206
BC	0.5722	9	0.4262
Cd	0.8533	9	0.3373
TOTAL	0.8442	36	0.2893
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20MO BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.62147	0.62147	4.86	0.0343
WITHIN	34	4.34521	0.12780		
TOTAL	35	4.96667			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	1.08	1	0.2990

COCHRAN'S Q	0.6257
LARGEST VAR / SMALLEST VAR	1.6719
COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.02743
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.9756	18	0.3093
VA	0.7128	18	0.3999
TOTAL	0.8442	36	0.3575
CASES INCLUDED	36	MISSING CASES	0

Soils classification concerning MO

% of M.O.		Classification
Light soils	Medium and heavy soils	
< 0.5	< 1.0	Very low
0.6 - 1.5	1.1 - 2.0	Low
1.6 - 5.0	2.1 - 7.0	Medium
5.1 - 10.0	7.1 - 15.0	Hight
> 10.0	> 15.0	Very hight

Origin: Quelhas dos Santos

ANOVA soil MO, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40MO BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.96359	0.32120	4.34	0.0113
WITHIN	32	2.36800	0.07400		
TOTAL	35	3.33159			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----

EQUAL VARIANCES 4.56 3 0.2069

COCHRAN'S Q 0.5074

LARGEST VAR / SMALLEST VAR 3.9575

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.02747

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	0.9444	9	0.2418
Ba	0.5444	9	0.1948
BC	0.5467	9	0.3876
Cd	0.6422	9	0.2222
TOTAL	0.6694	36	0.2720
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40MO BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.20250	0.20250	2.20	0.1472
WITHIN	34	3.12909	0.09203		
TOTAL	35	3.33159			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----

EQUAL VARIANCES 0.04 1 0.8489

COCHRAN'S Q 0.5234

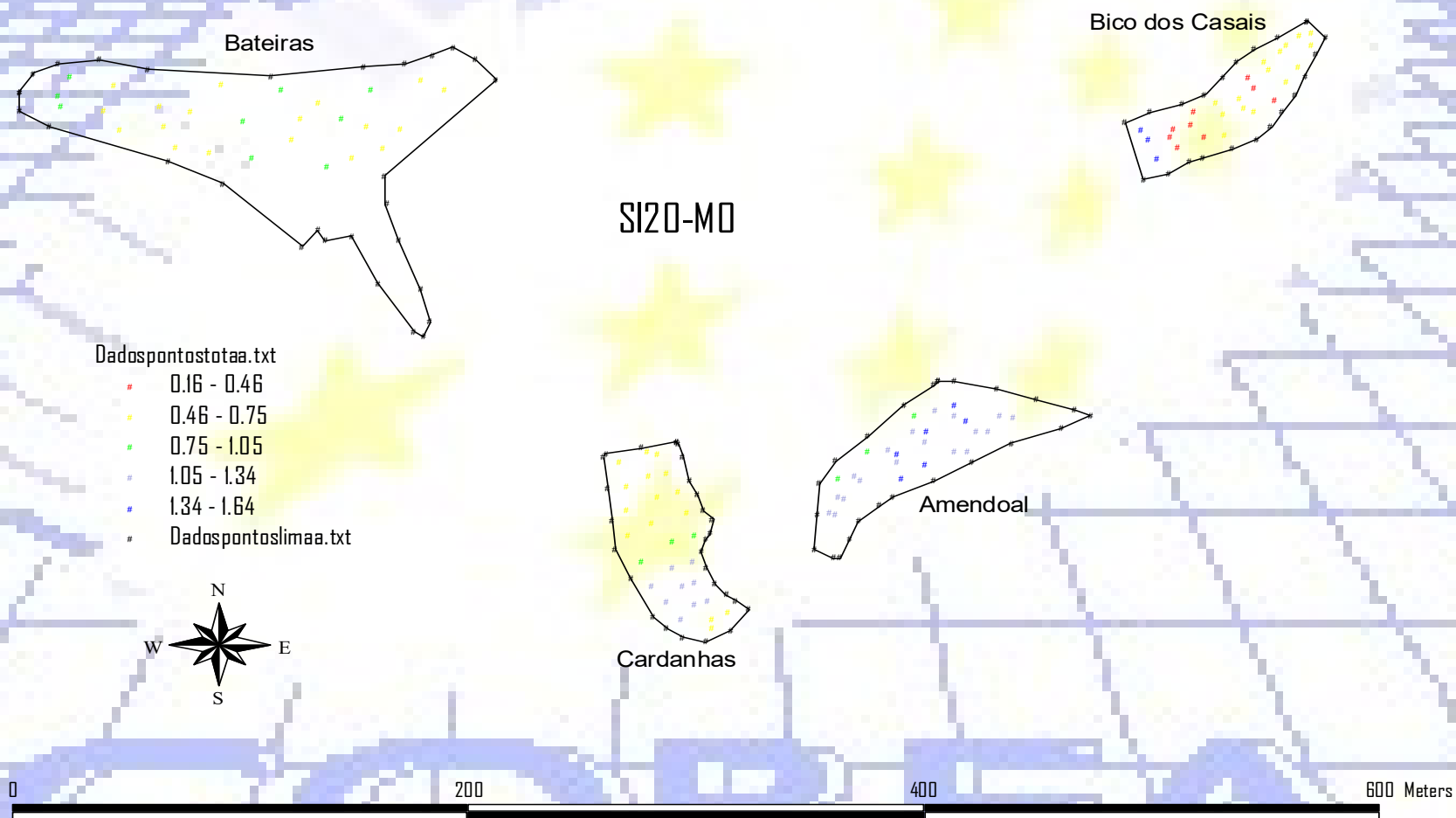
LARGEST VAR / SMALLEST VAR 1.0983

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.00614

EFFECTIVE CELL SIZE 18.0

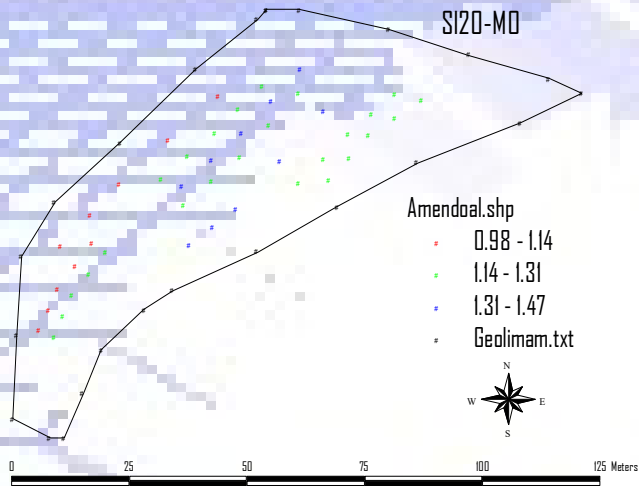
INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.7444	18	0.2962
VA	0.5944	18	0.3104
TOTAL	0.6694	36	0.3034
CASES INCLUDED	36	MISSING CASES	0

Soil MO (%), determined in the first 20 cm soil depth in all plots

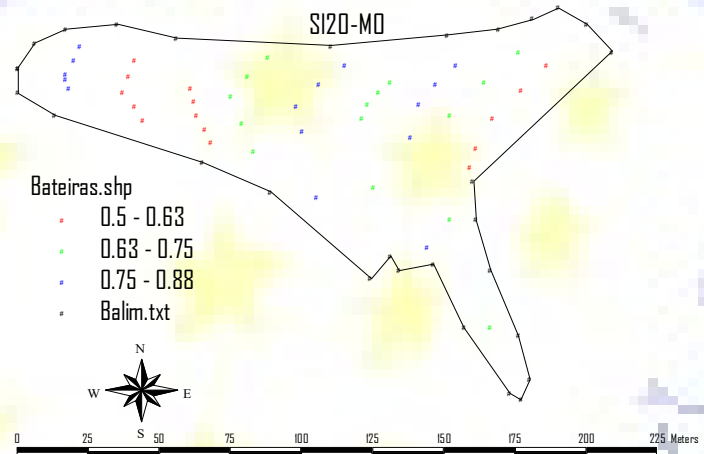


Soil MO (%), determined in the first 20 cm soil depth inside each plot

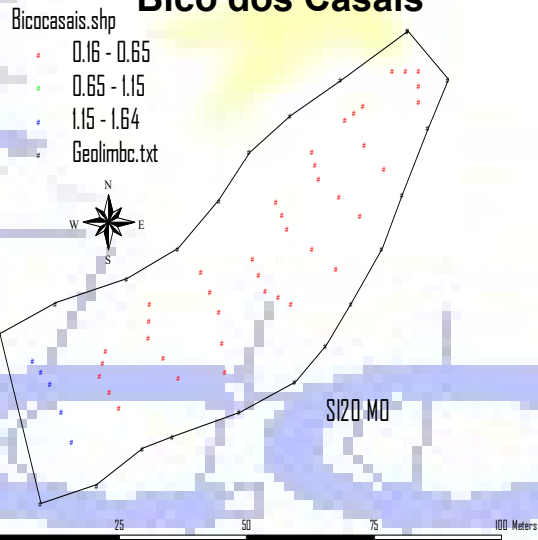
Amendoal



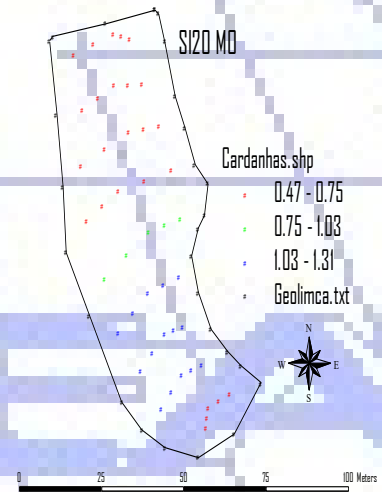
Bateiras



Bico dos Casais

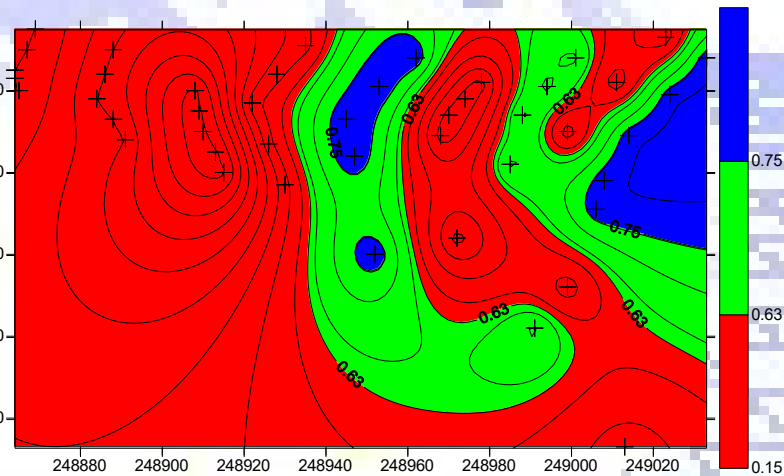
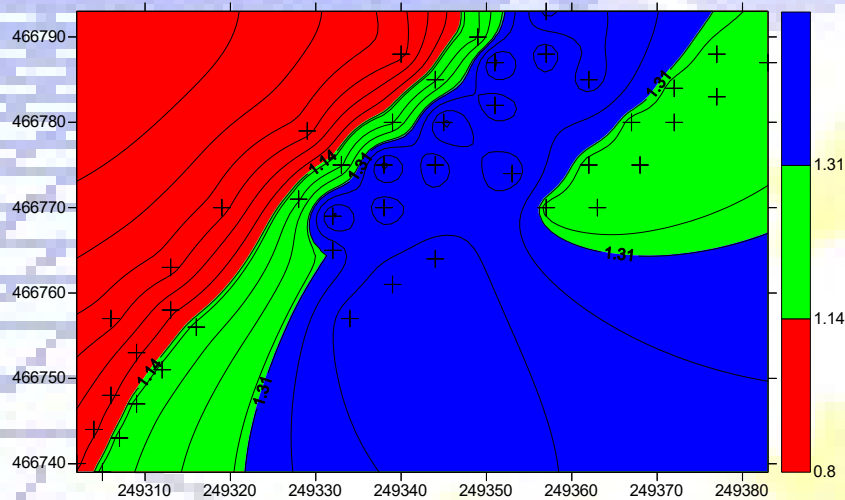


Cardanhas

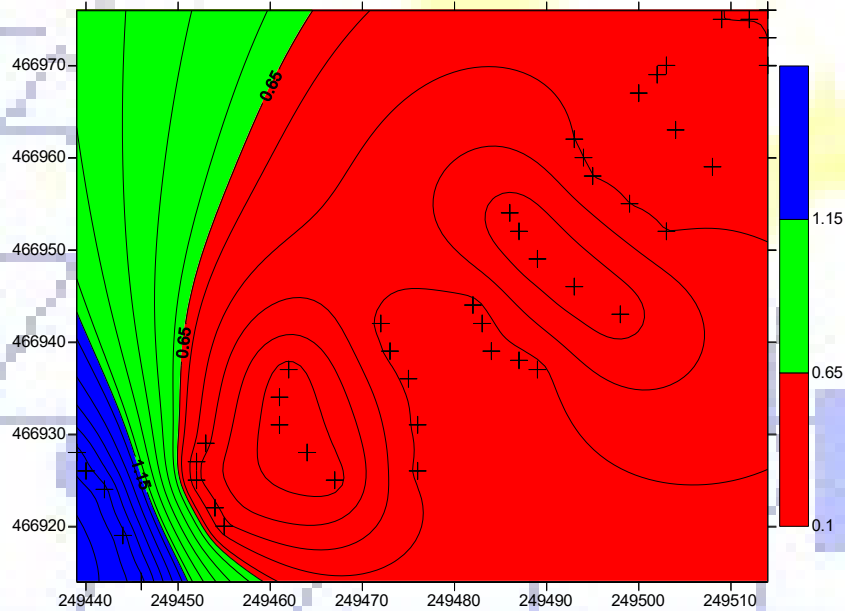


Soil MO (%), determined in the first 20 cm soil depth inside each plot

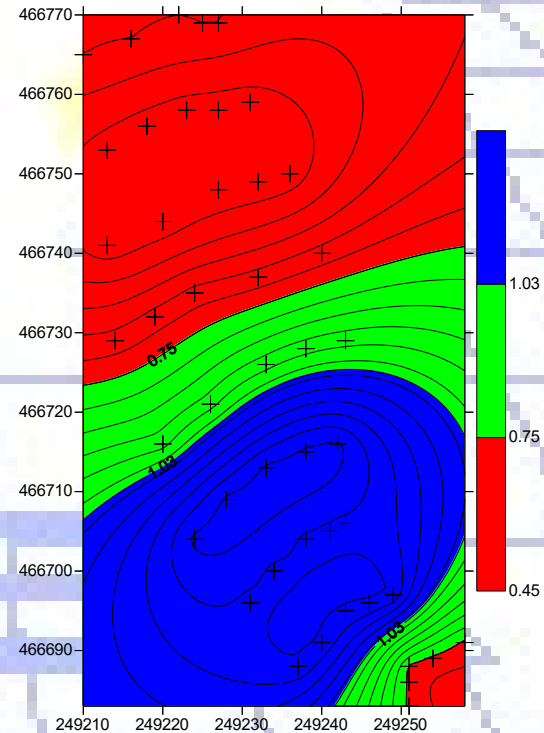
Amendoal



Bico dos Casais

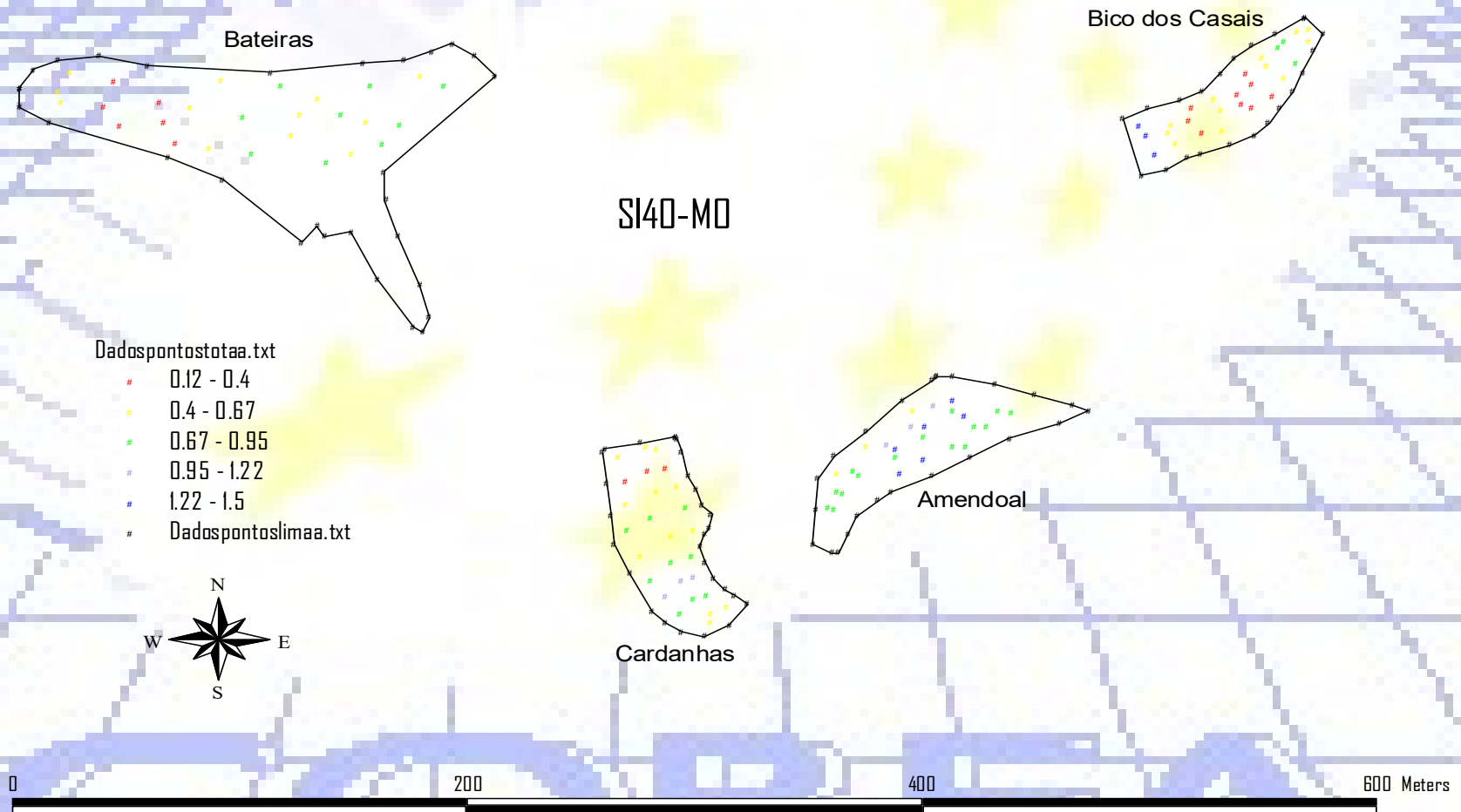


Bateiras



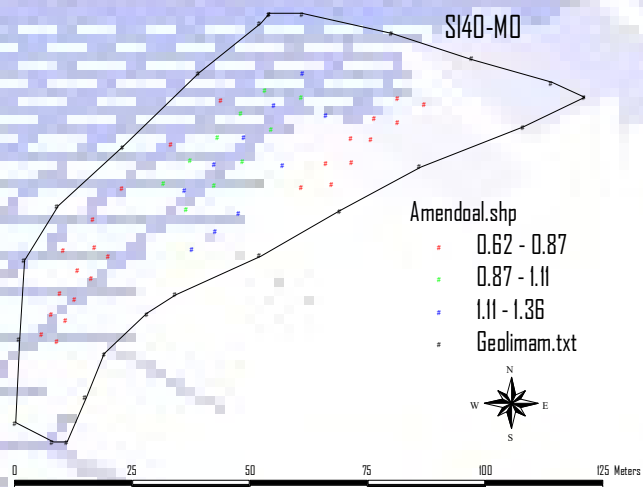
Cardanhas

Soil MO (%), determined between 20 and 40 cm soil depth in all plots

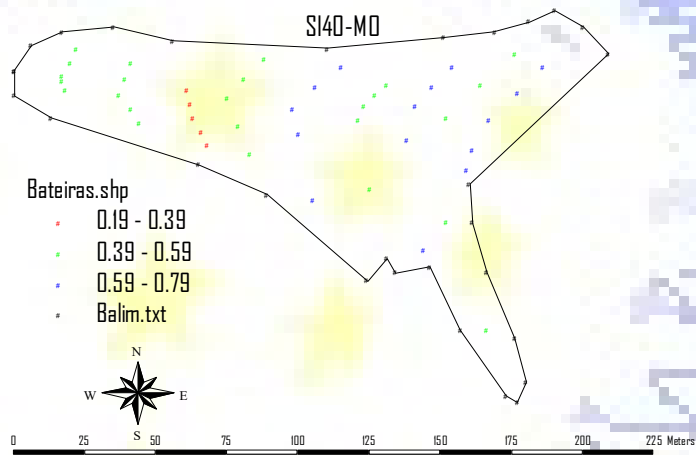


Soil MO (%), determined between 20 and 40 cm soil depth inside each plot

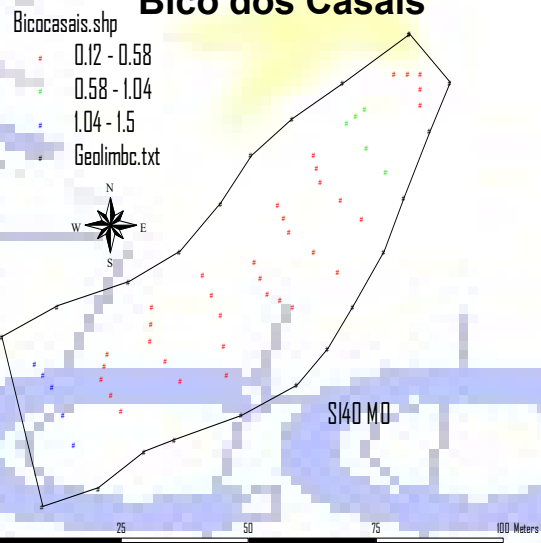
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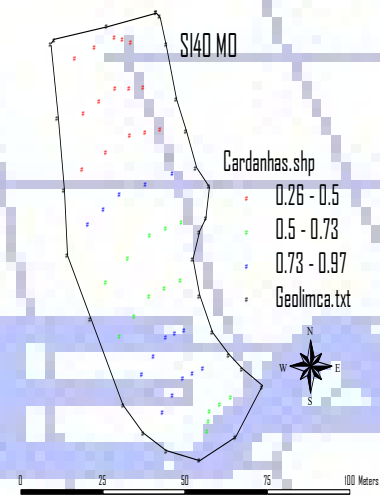
Bateiras



Bico dos Casais

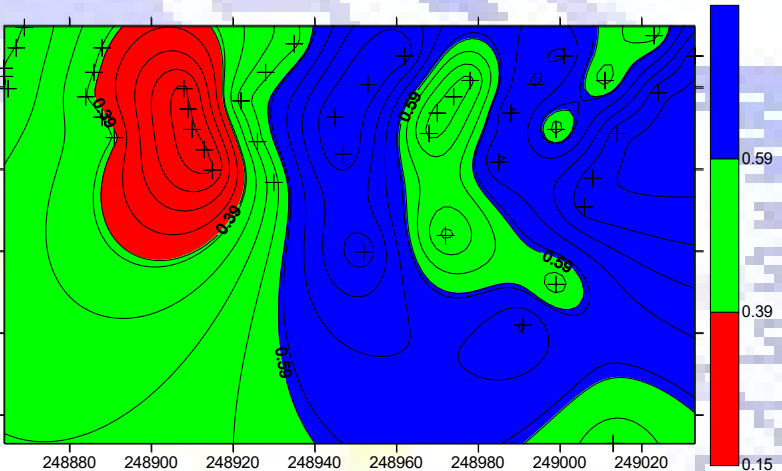
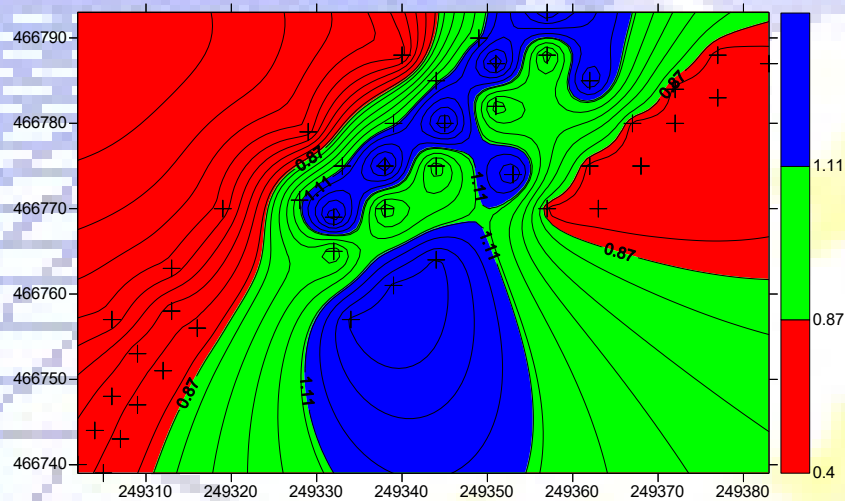


Cardanhas

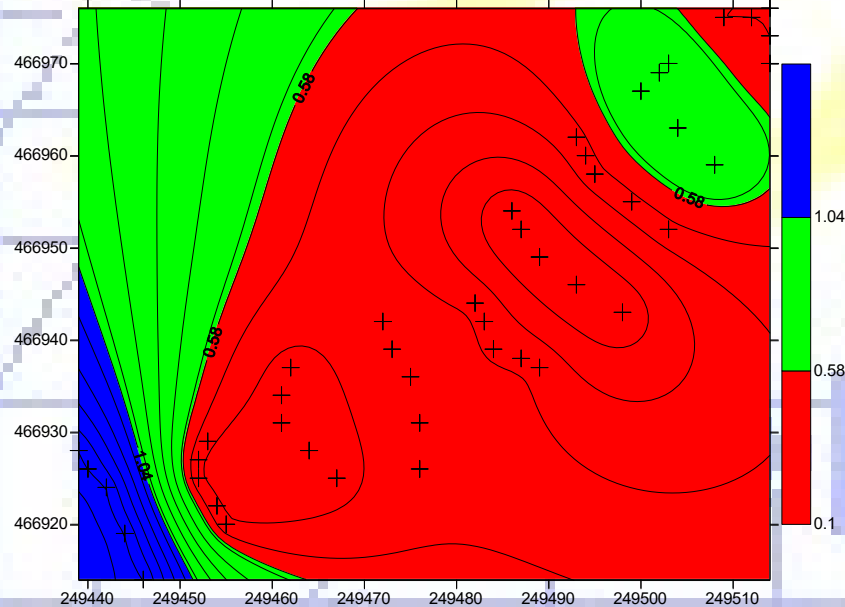


Soil MO (%), determined between 20 and 40 cm soil depth inside each plot

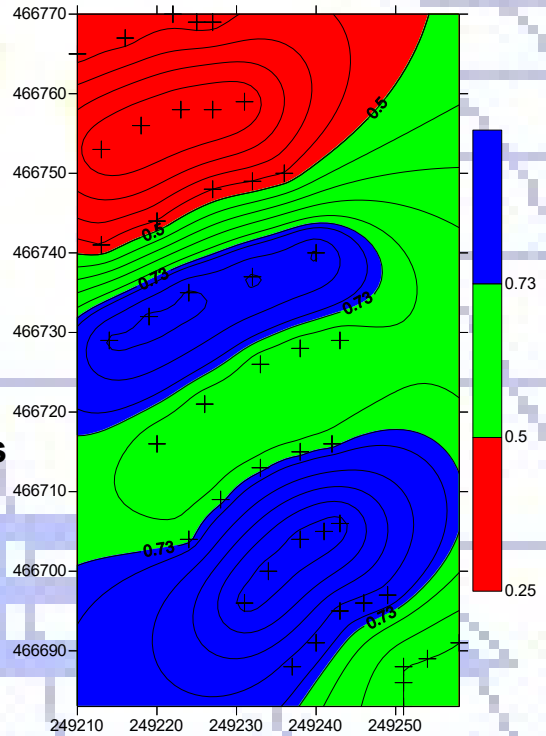
Amendoal



Bico dos Casais



Bateiras



Cardanhas

mg P₂O₅ / kg (1), determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots (Egner-Riehm extraction method).

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGP2O	9	36.222	16.354	12.000	69.000
SL40MGP2O	9	32.889	9.103	21.000	51.000

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGP2O	9	122.220	101.980	25.000	288.000
SL40MGP2O	9	102.330	79.812	24.000	275.000

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGP2O	9	77.556	100.560	18.000	341.000
SL40MGP2O	9	43.778	14.923	25.000	70.000

DESCRIPTIVE STATISTICS FOR plot = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGP2O	9	156.780	85.738	51.000	324.000
SL40MGP2O	9	150.220	108.760	29.000	352.000

(1) Amount of assimilable phosphorus

mg P₂O₅ / kg, determined in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA)(Egner-Riehm extraction method).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGP2O	18	79.222	83.531	12.000	288.000
SL40MGP2O	18	67.611	65.675	21.000	275.000

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGP2O	18	117.170	99.397	18.000	341.000
SL40MGP2O	18	97.000	93.115	25.000	352.000

ANOVA soil mg P₂O₅ / kg, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20MGP2O5 BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	74482.8	24827.6	3.53	0.0257
WITHIN	32	225045	7032.65		
TOTAL	35	299528			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	18.79	3	0.0003
COCHRAN'S Q		0.3697	
LARGEST VAR / SMALLEST VAR		38.884	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	1977.21
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	36.222	9	16.354
Ba	122.22	9	101.98
BC	77.556	9	100.56
Cd	156.78	9	85.738
TOTAL	98.194	36	83.861
CASES INCLUDED	36	MISSING CASES	0

Soil classification concerning P₂O₅ assimilable

P ₂ O ₅ (mg/Kg)	Soil classification
< 20	Very poor
26 - 40	Poor
40 - 80	Sufficient
80 - 120	Rich
> 120	Very rich

Origin: João Coutinho

ONE-WAY AOV FOR SL20MGP2O5 BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	12958.0	12958.0	1.54	0.2235
WITHIN	34	286570	8428.52		
TOTAL	35	299528			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	0.50	1	0.4808
COCHRAN'S Q		0.5861	
LARGEST VAR / SMALLEST VAR		1.4160	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	251.639
EFFECTIVE CELL SIZE	18.0

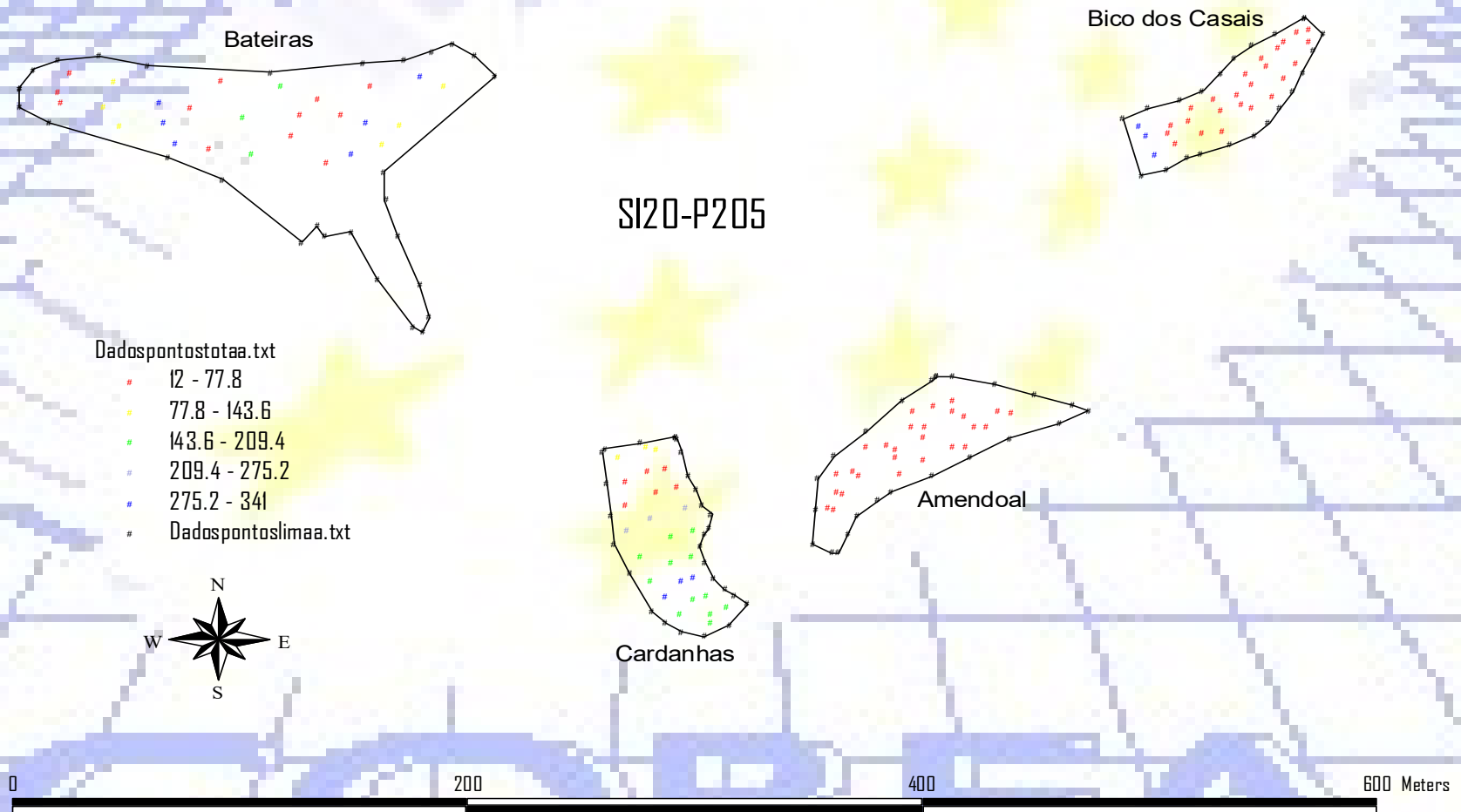
INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	79.222	18	83.531
VA	117.17	18	99.397
TOTAL	98.194	36	91.807
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil mg P₂O₅ / kg, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40MGP2O5 BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	80461.6	26820.5	5.80	0.0028
WITHIN	32	148032	4626.00		
TOTAL	35	228494			
BARTLETT'S TEST OF EQUAL VARIANCES					
CHI-SQ	DF	P			
44.08	3	0.0000			
COCHRAN'S Q		0.6392			
LARGEST VAR / SMALLEST VAR		142.75			
COMPONENT OF VARIANCE FOR BETWEEN GROUPS		2466.06			
EFFECTIVE CELL SIZE		9.0			
PARC	MEAN	SAMPLE SIZE	GROUP STD DEV		
Am	32.889	9	9.1028		
Ba	102.33	9	79.812		
BC	43.778	9	14.923		
Cd	150.22	9	108.76		
TOTAL	82.306	36	68.015		
CASES INCLUDED	36	MISSING CASES	0		

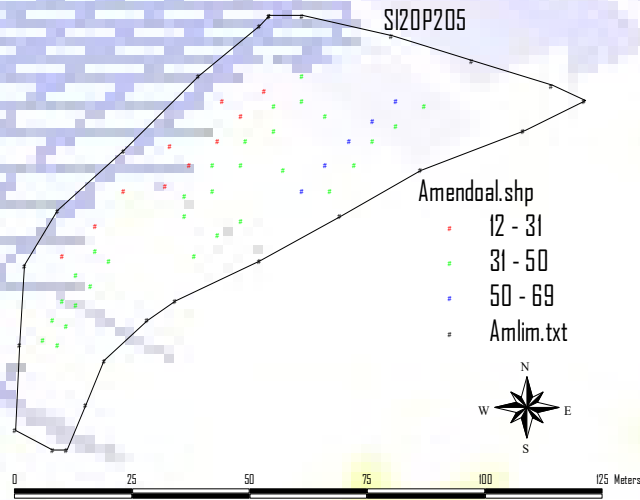
ONE-WAY AOV FOR SL40MGP2O5 BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	7773.36	7773.36	1.20	0.2815
WITHIN	34	220720	6491.77		
TOTAL	35	228494			
BARTLETT'S TEST OF EQUAL VARIANCES					
CHI-SQ	DF	P			
1.97	1	0.1601			
COCHRAN'S Q		0.6678			
LARGEST VAR / SMALLEST VAR		2.0102			
COMPONENT OF VARIANCE FOR BETWEEN GROUPS		71.1993			
EFFECTIVE CELL SIZE		18.0			
INST	MEAN	SAMPLE SIZE	GROUP STD DEV		
Pt	67.611	18	65.675		
VA	97.000	18	93.115		
TOTAL	82.306	36	80.572		
CASES INCLUDED	36	MISSING CASES	0		

mg P₂O₅ / kg, determined in the first 20 cm soil depth for all plots
(Egner-Riehm extraction method).

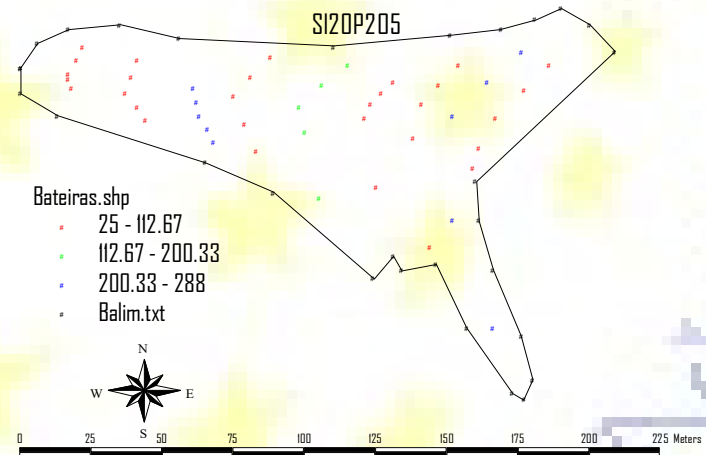


**mg P₂O₅ / kg, determined in the first 20 cm soil depth for different plots
(Egner-Riehm extraction method).**

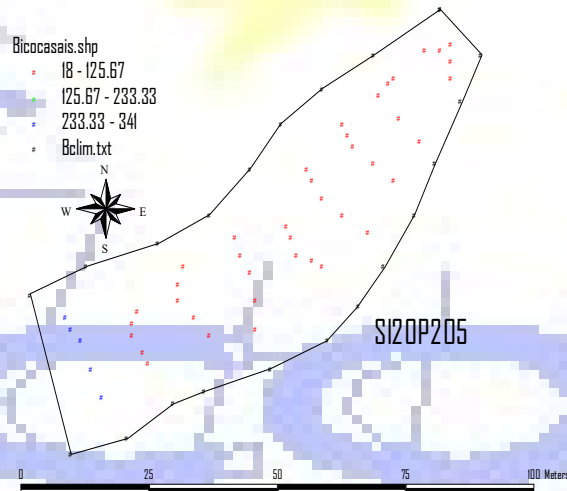
Amendoal



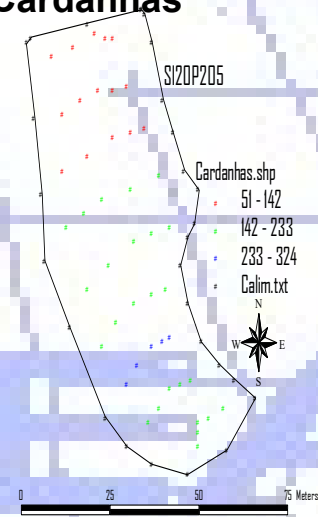
Bateiras



Bico dos Casais

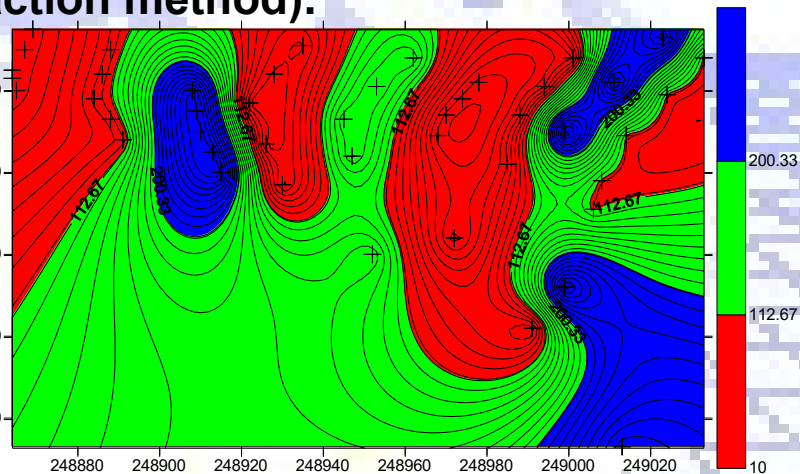
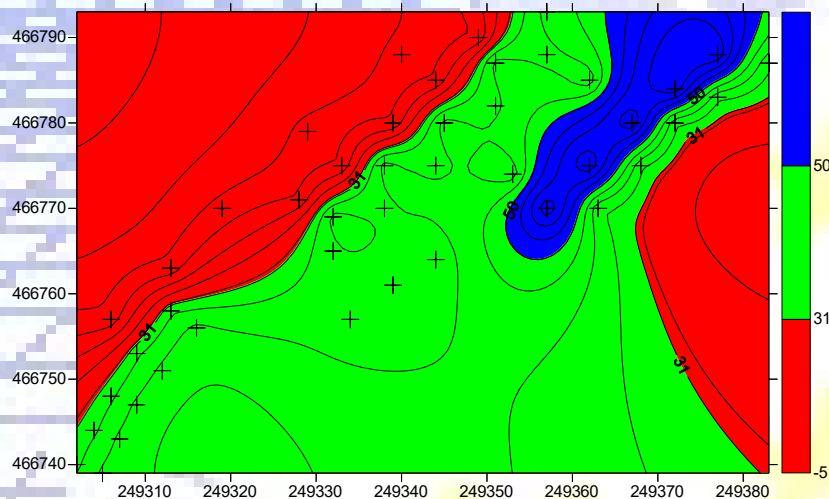


Cardanhas

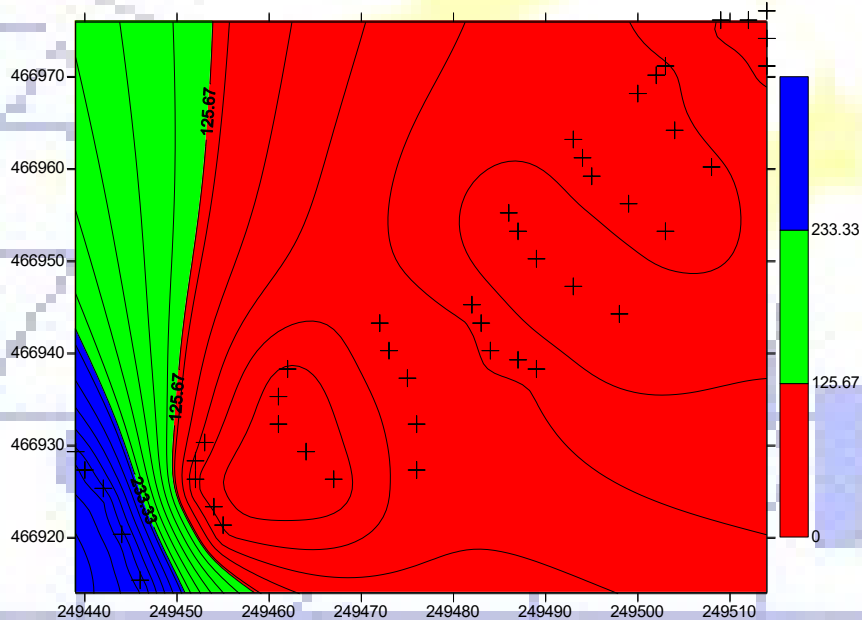


mg P₂O₅ / kg, determined in the first 20 cm soil depth for different plots (Egner-Riehm extraction method).

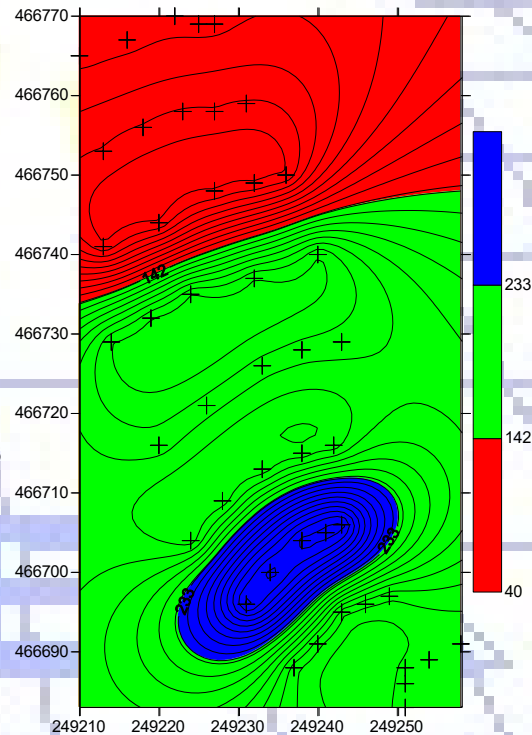
Amendoal



Bico dos Casais

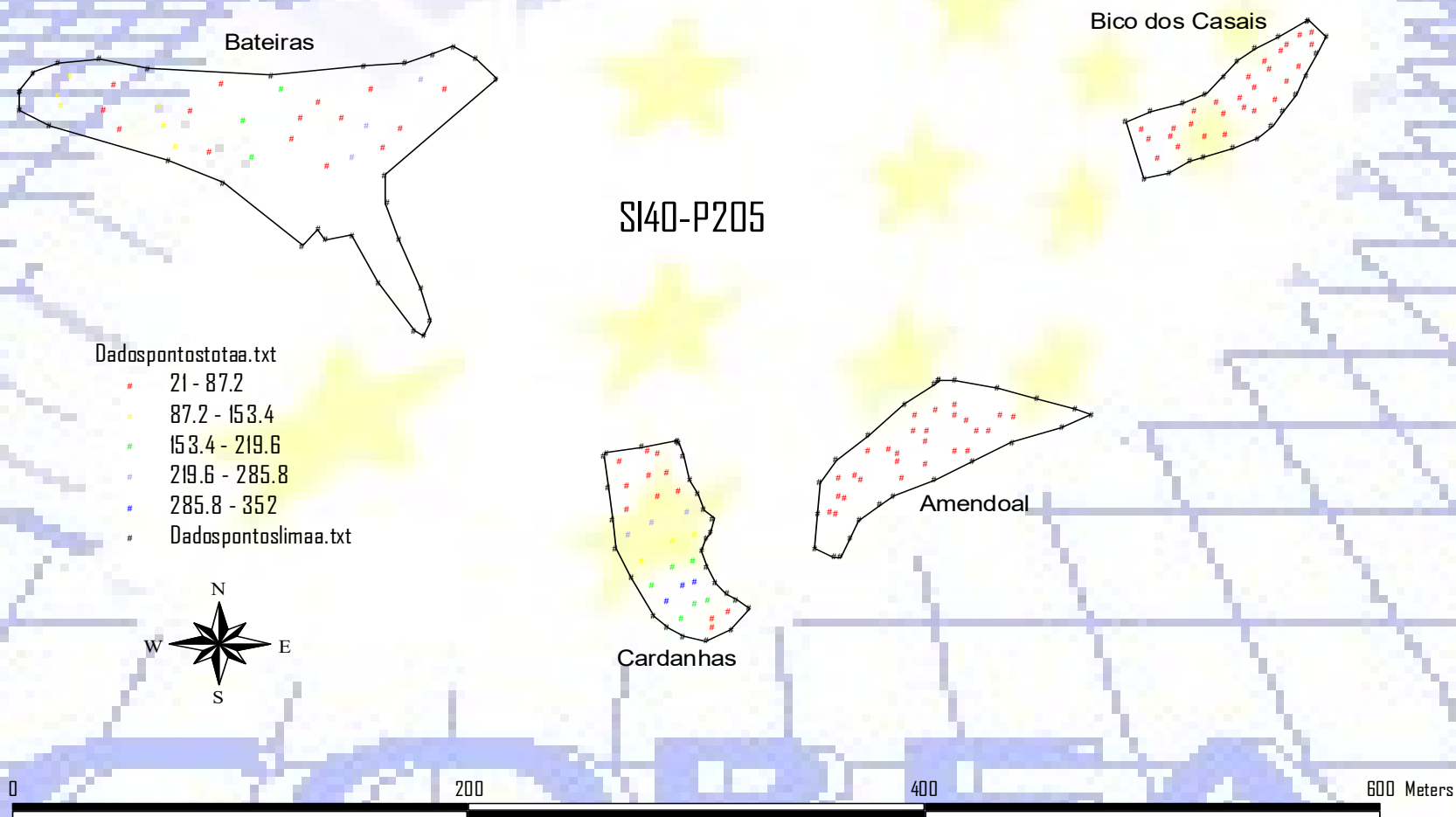


Bateiras



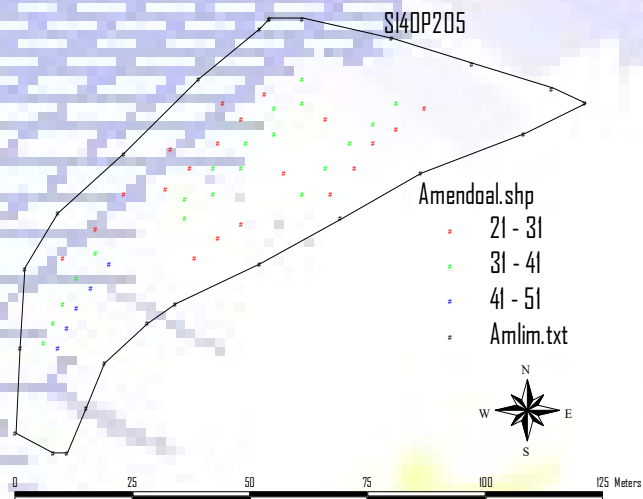
Cardanhas

mg P₂O₅ / kg, determined between 20 and 40 cm dept, for all plots
(Egner-Riehm extraction method).

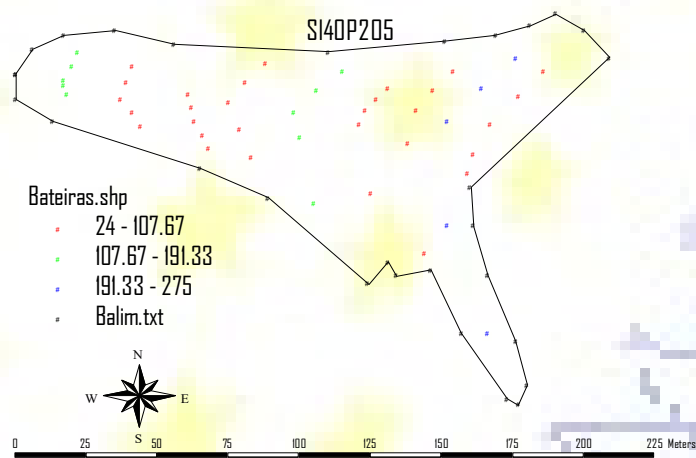


mg P_2O_5 / kg, determined between 20 and 40 cm dept, for different plots
(Egner-Riehm extraction method).

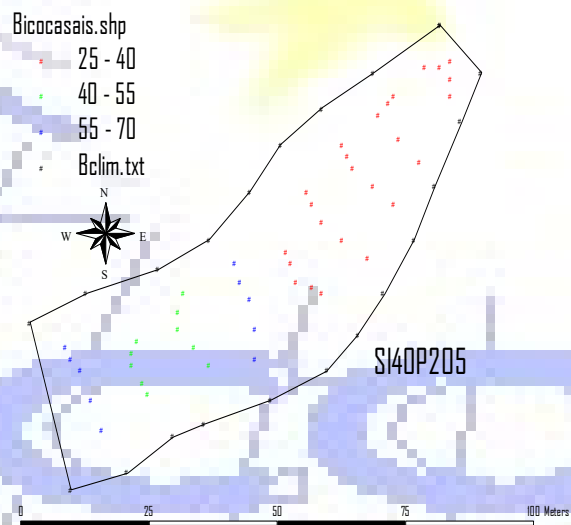
Amendoal



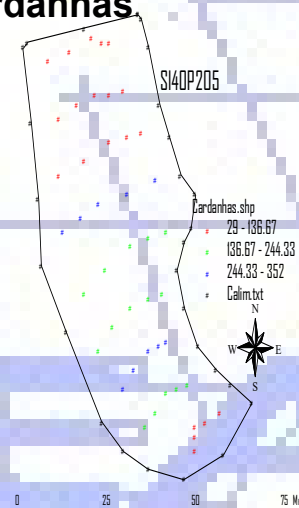
Bateiras



Bico dos Casais

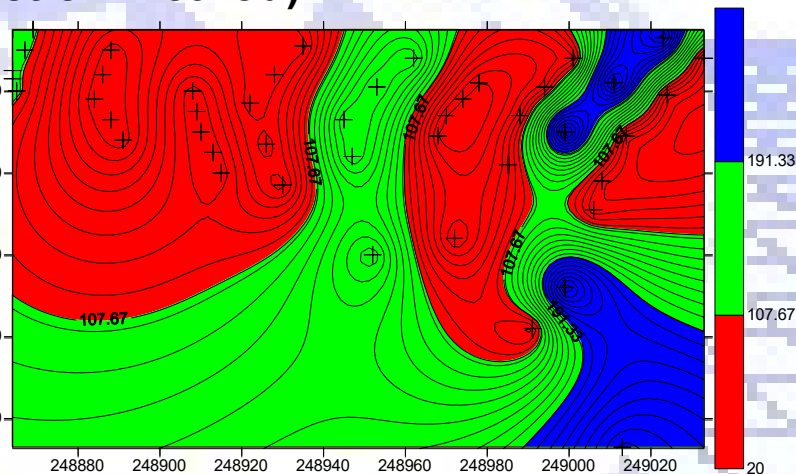
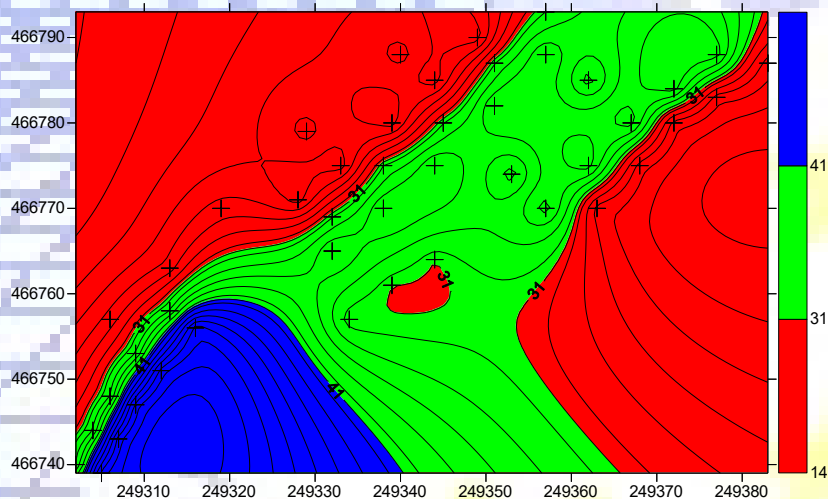


Cardanhas

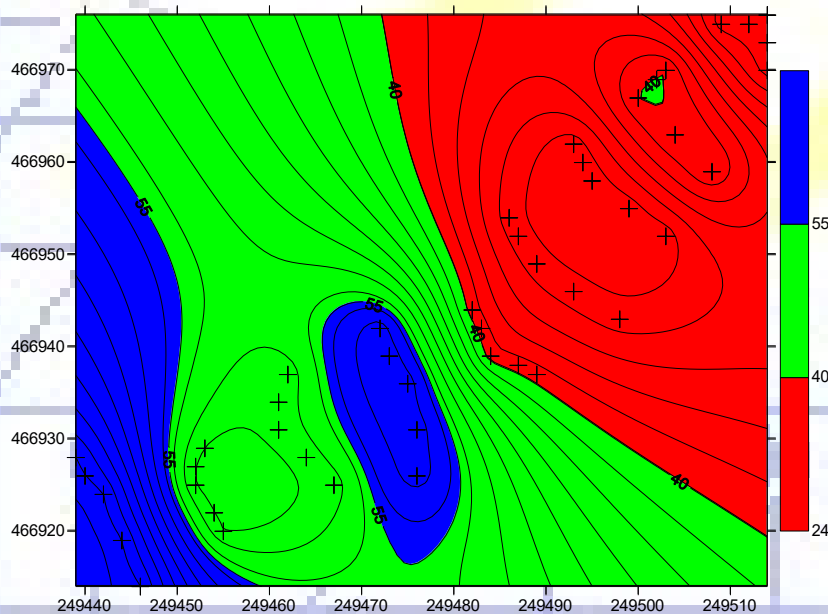


mg P₂O₅ / kg, determined between 20 and 40 cm dept, for different plots (Egner-Riehm extraction method).

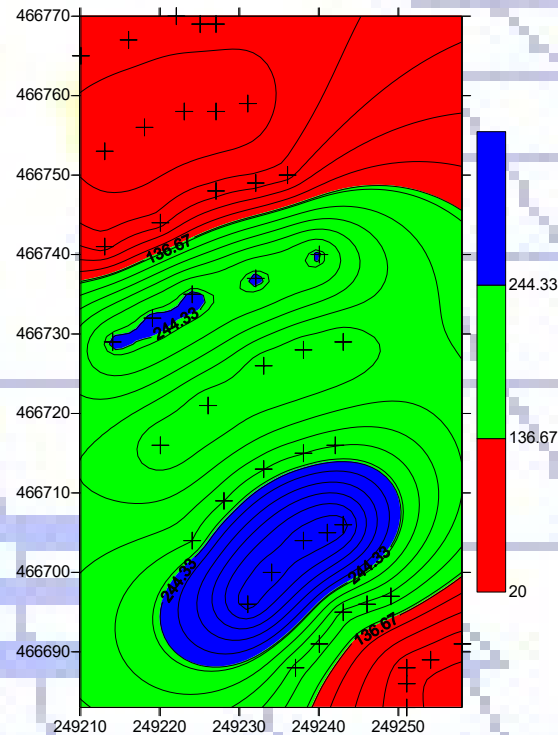
Amendoal



Bico dos Casais



Bateiras



Cardanhas

mg K₂O / kg (1), determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots (Egner-Riehm extraction method).

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGK2O	9	47.333	8.124	34.000	58.000
SL40MGK2O	9	46.444	8.819	32.000	56.000

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGK2O	9	46.222	4.738	40.000	54.000
SL40MGK2O	9	46.889	5.926	40.000	60.000

DESCRIPTIVE STATISTICS FOR PARC = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGK2O	9	66.889	17.353	44.000	94.000
SL40MGK2O	9	62.889	10.868	48.000	82.000

DESCRIPTIVE STATISTICS FOR PARC = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGK2O	9	63.333	15.620	46.000	98.000
SL40MGK2O	9	61.333	14.248	40.000	76.000

(1) Amount of assimilable potassium

mg K₂O / kg, determined in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA)(Egner-Riehm extraction method).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGK2O	18	46.778	6.477	34.000	58.000
SL40MGK2O	18	46.667	7.292	32.000	60.000

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20MGK2O	18	65.111	16.120	44.000	98.000
SL40MGK2O	18	62.111	12.319	40.000	82.000

ANOVA soil mg K₂O / kg, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20MGK2O BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	3087.44	1029.15	6.50	0.0015
WITHIN	32	5068.44	158.389		
TOTAL	35	8155.89			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		13.34	3	0.0039	
COCHRAN'S Q			0.4753		
LARGEST VAR / SMALLEST VAR			13.416		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				96.7510	
EFFECTIVE CELL SIZE				9.0	
		SAMPLE	GROUP		
PARC	MEAN	SIZE	STD DEV		
-----	-----	-----	-----		
Am	47.333	9	8.1240		
Ba	46.222	9	4.7376		
BC	66.889	9	17.353		
Cd	63.333	9	15.620		
TOTAL	55.944	36	12.585		
CASES INCLUDED 36		MISSING CASES 0			

ONE-WAY AOV FOR SL20MGK2O BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	3025.00	3025.00	20.05	0.0001
WITHIN	34	5130.89	150.908		
TOTAL	35	8155.89			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		12.17	1	0.0005	
COCHRAN'S Q			0.8610		
LARGEST VAR / SMALLEST VAR			6.1951		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				159.672	
EFFECTIVE CELL SIZE				18.0	
		SAMPLE	GROUP		
INST	MEAN	SIZE	STD DEV		
Pt	46.778	18	6.4767		
VA	65.111	18	16.120		
TOTAL	55.944	36	12.284		
CASES INCLUDED	36	MISSING CASES		0	

Soil classification concerning K₂O assimilable

K ₂ O (mg/Kg)	Soil classification
< 60	Very poor
60 - 120	Poor
120 - 200	Sufficient
200 - 300	Rich
> 300	Very rich

Origin: João Coutinho

ANOVA soil mg K₂O / kg , between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40MGK20 BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	2158.56	719.519	6.63	0.0013
WITHIN	32	3472.00	108.500		
TOTAL	35	5630.56			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	5.70	3	0.1271
COCHRAN'S Q		0.4677	
LARGEST VAR / SMALLEST VAR		5.7816	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	67.8909
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	46.444	9	8.8192
Ba	46.889	9	5.9255
BC	62.889	9	10.868
Cd	61.333	9	14.248
TOTAL	54.389	36	10.416
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40MGK20 BY INST

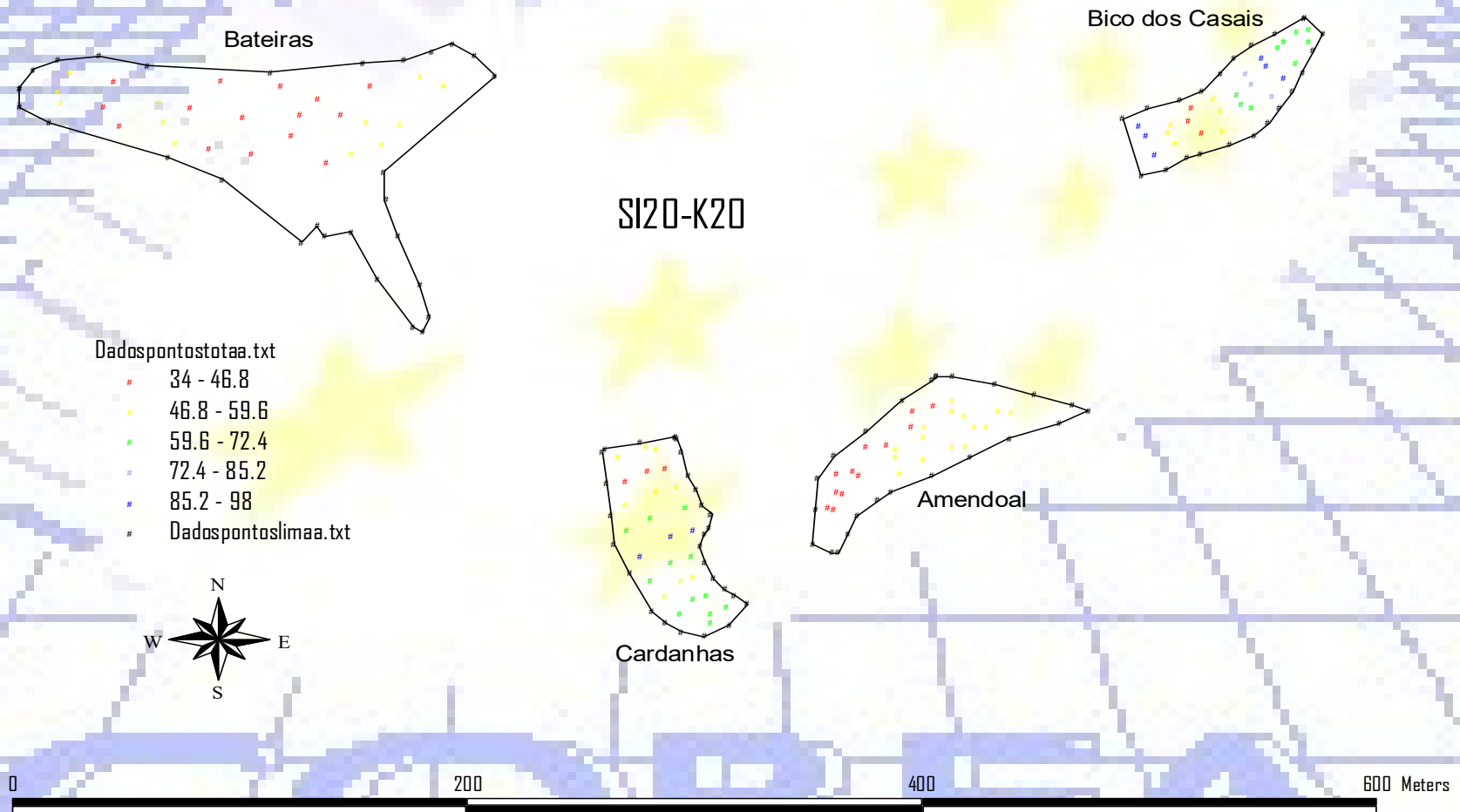
SOURCE	DF	SS	MS	F	P
BETWEEN	1	2146.78	2146.78	20.95	0.0001
WITHIN	34	3483.78	102.464		
TOTAL	35	5630.56			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	4.35	1	0.0371
COCHRAN'S Q		0.7405	
LARGEST VAR / SMALLEST VAR		2.8537	

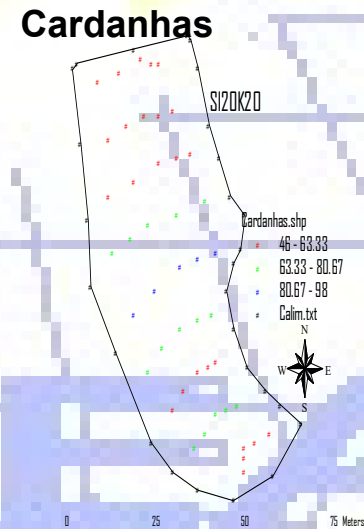
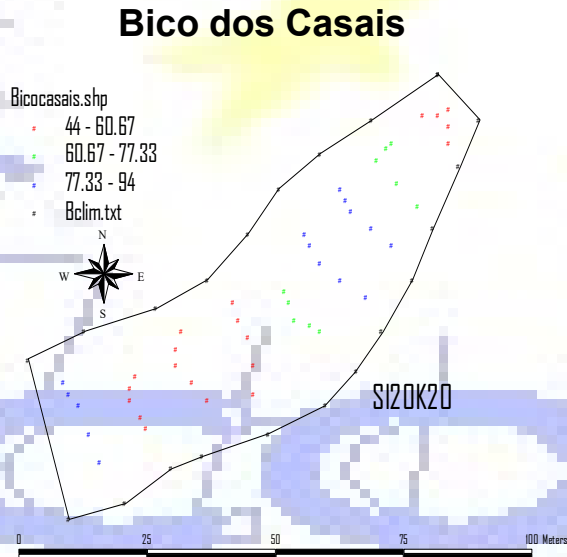
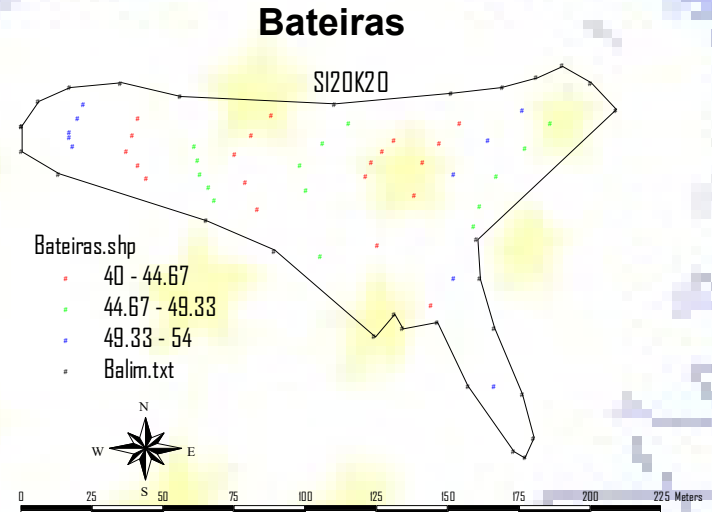
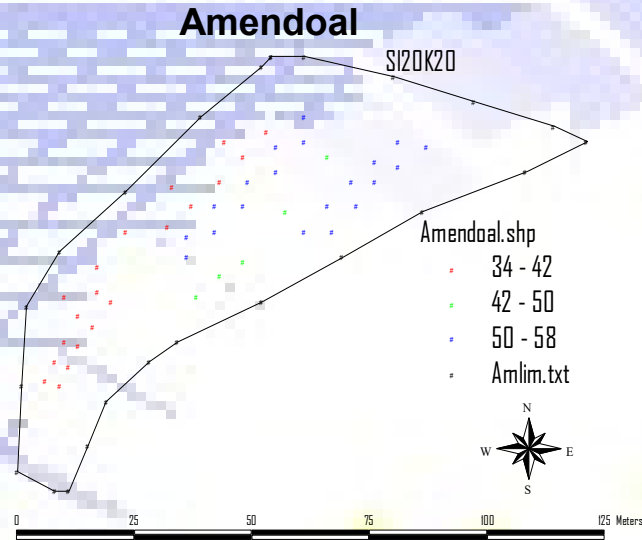
COMPONENT OF VARIANCE FOR BETWEEN GROUPS	113.573
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	46.667	18	7.2922
VA	62.111	18	12.319
TOTAL	54.389	36	10.122
CASES INCLUDED	36	MISSING CASES	0

mg K₂O / kg, determined in the first 20 cm soil depth, for all plots
(Egner-Riehm extraction method).

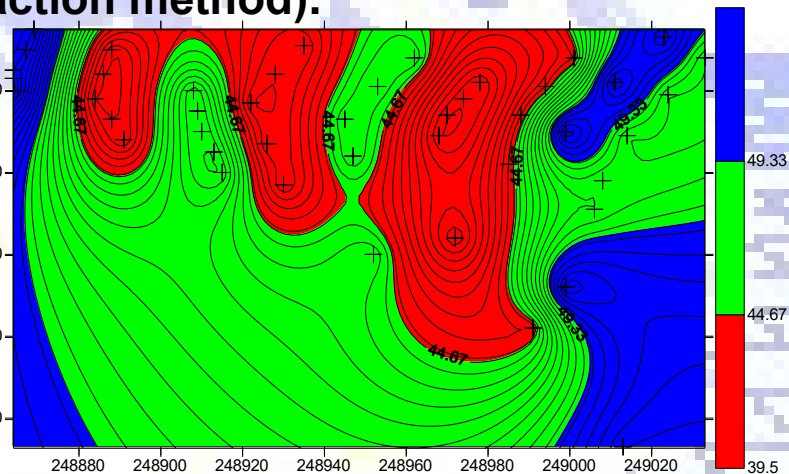
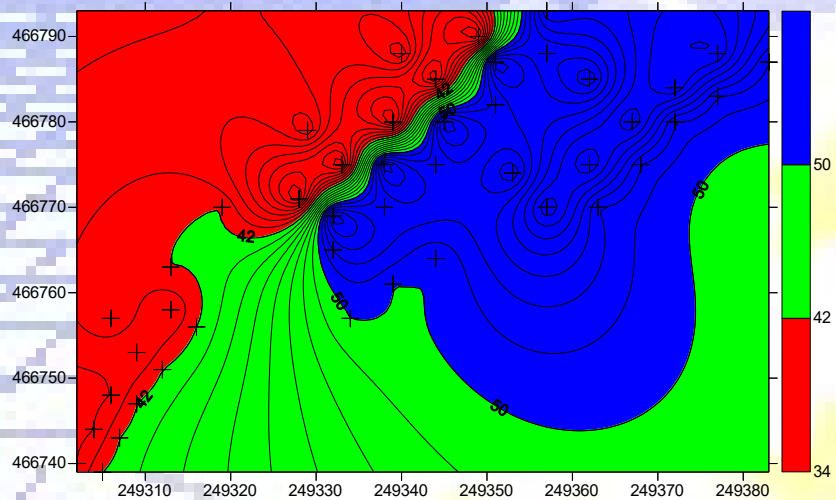


**mg K₂O / kg, determined in the first 20 cm soil depth, for different plots
(Egner-Riehm extraction method).**

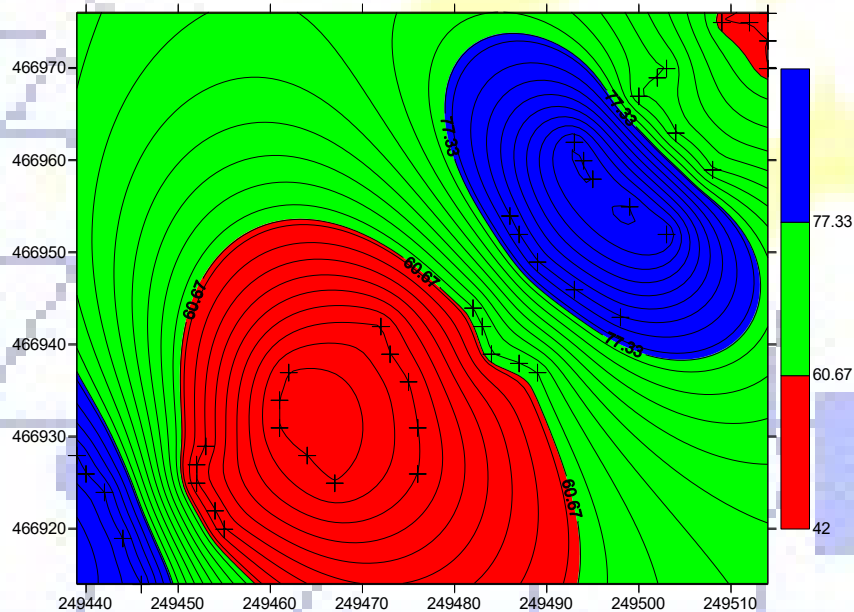


mg K₂O / kg, determined in the first 20 cm soil depth, for different plots (Egner-Riehm extraction method).

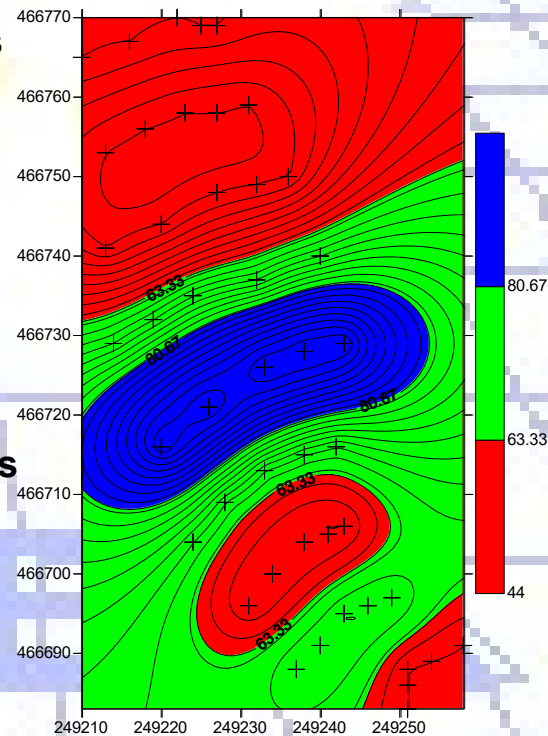
Amendoal



Bico dos Casais

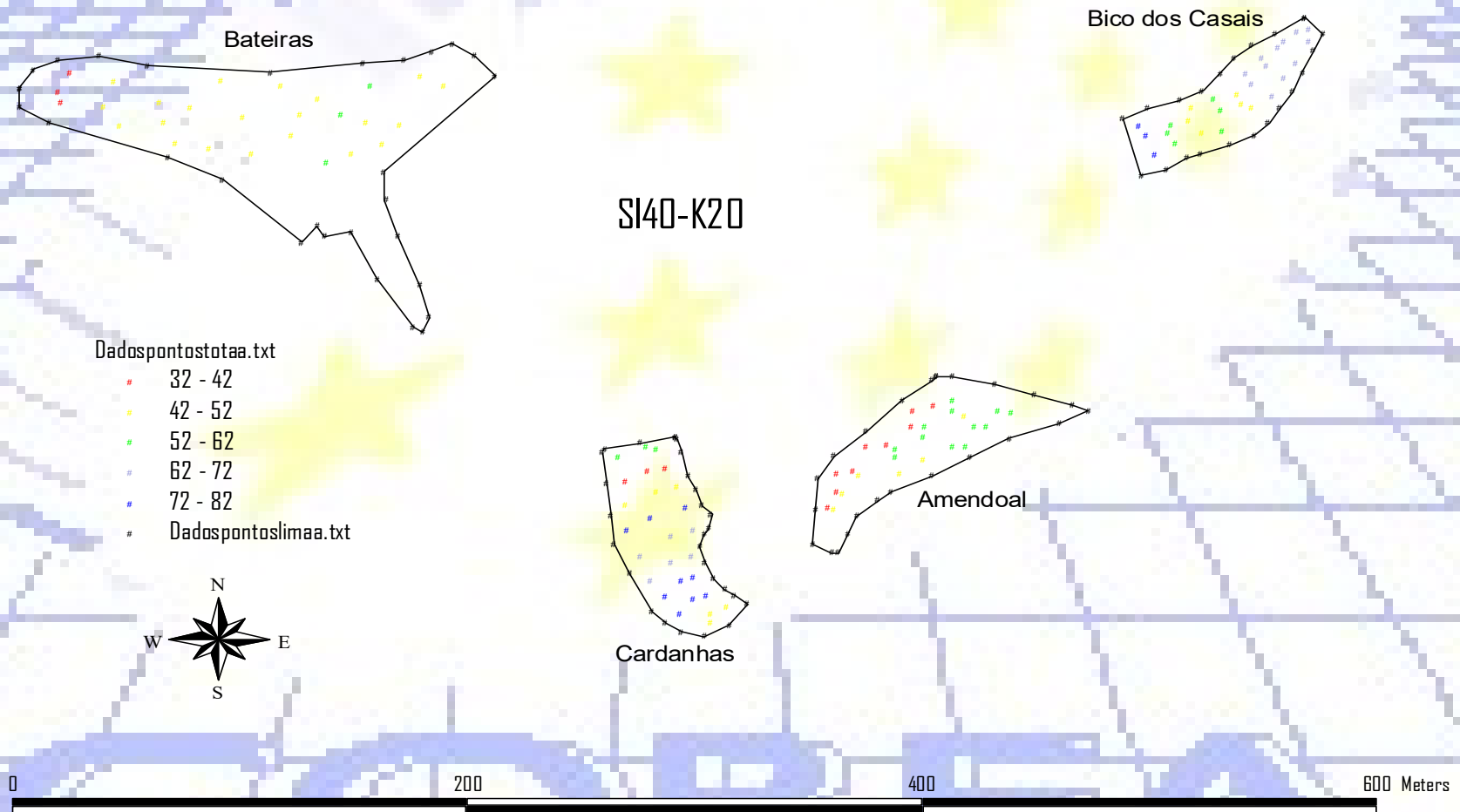


Bateiras



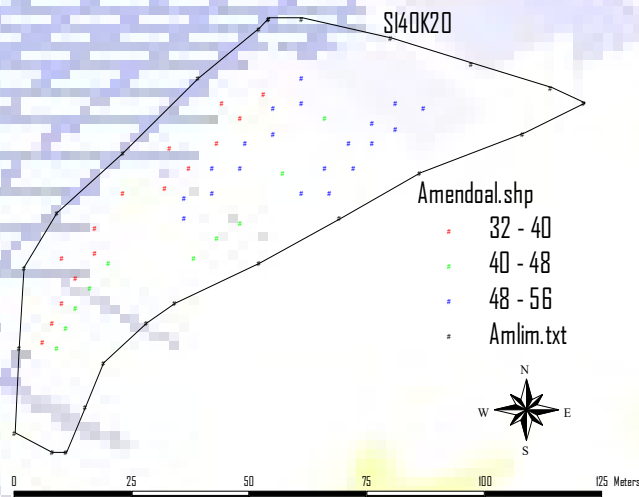
Cardanhas

mg K₂O / kg, determined between 20 and 40 cm soil dept, for all plots
(Egner-Riehm extraction method).

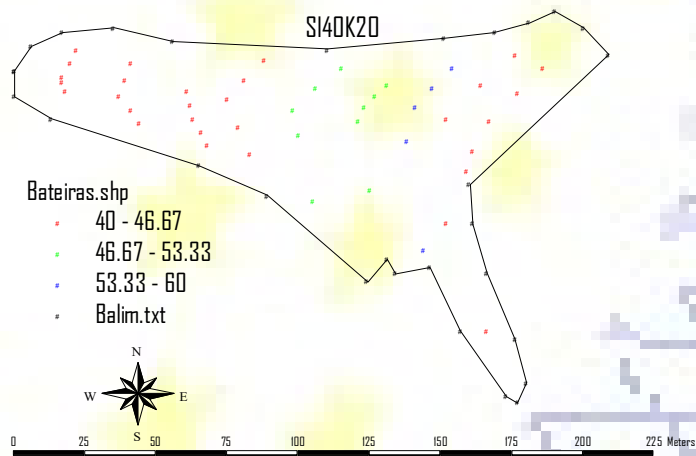


mg K_2O / kg, determined between 20 and 40 cm soil dept, for different plots
(Egner-Riehm extraction method).

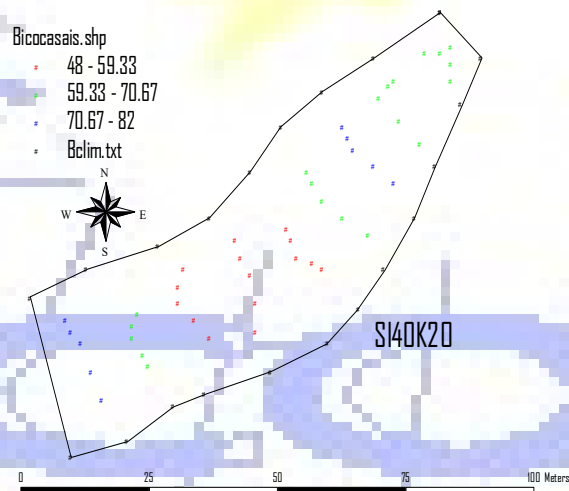
Amendoal



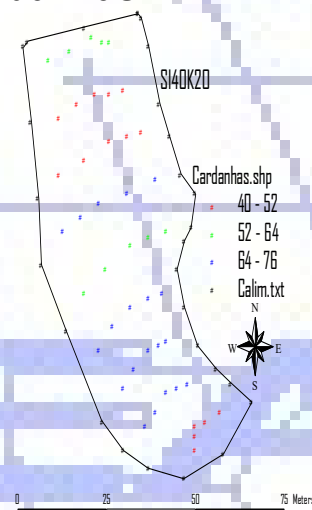
Bateiras



Bico dos Casais

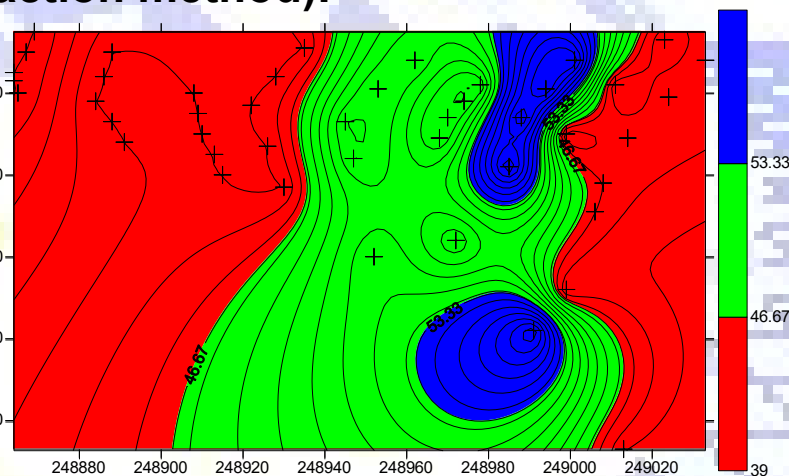
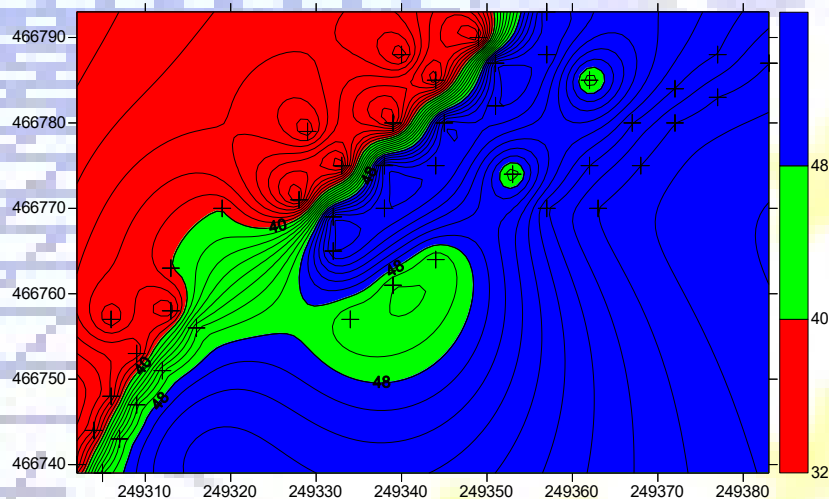


Cardanhas



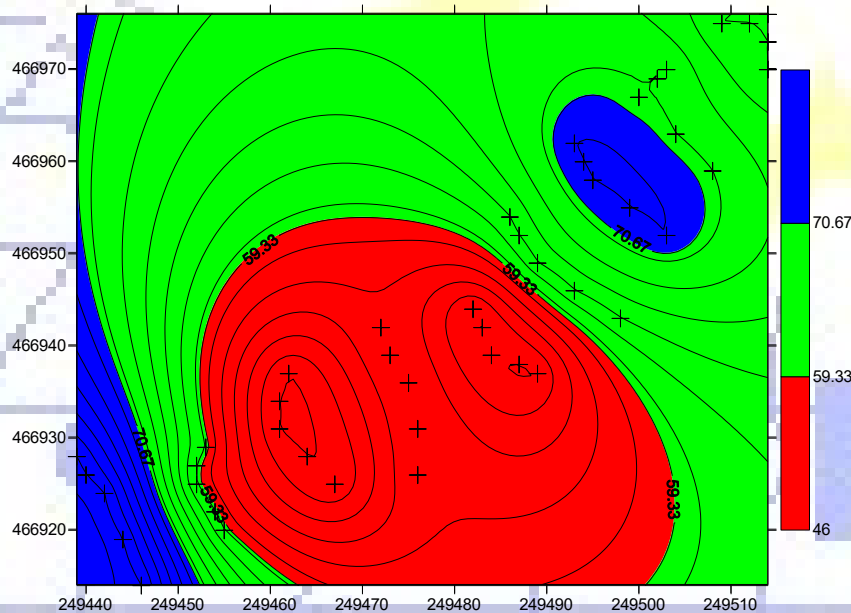
**mg K₂O / kg, determined between 20 and 40 cm soil dept, for different plots
(Egner-Riehm extraction method).**

Amendoal

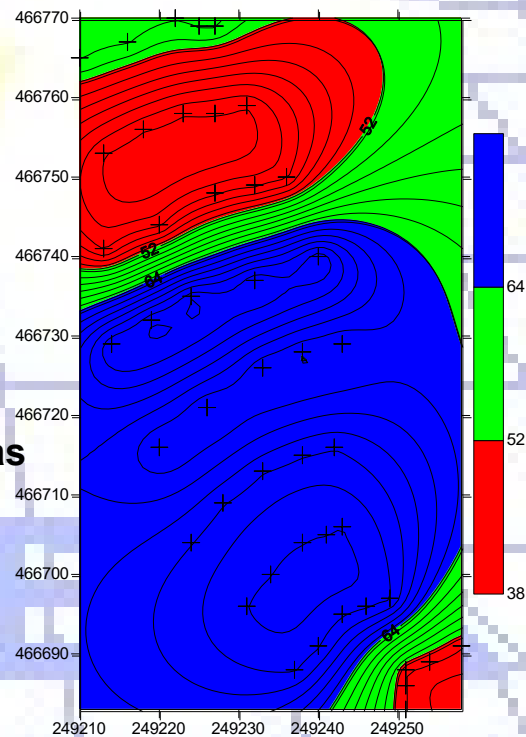


Bateiras

Bico dos Casais



Cardanhas



Calcium, Magnesium, Potassium and Sodium (cmol+ / kg), determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20CA	9	8.756	0.902	7.200	9.760
SL20MG	9	2.000	0.258	1.600	2.270
SL20K	9	0.123	0.018	0.090	0.140
SL20NA	9	0.127	0.024	0.090	0.150
SL40CA	9	0.000	0.000	0.000	0.000
SL40MG	9	2.010	0.261	1.440	2.270
SL40K	9	0.111	0.015	0.090	0.130
SL40NA	9	0.123	0.026	0.080	0.150

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20CA	9	7.888	1.183	6.060	9.760
SL20MG	9	2.148	0.473	1.730	3.330
SL20K	9	0.103	0.010	0.090	0.120
SL20NA	9	0.099	0.043	0.010	0.150
SL40CA	9	0.000	0.000	0.000	0.000
SL40MG	9	2.060	0.291	1.870	2.800
SL40K	9	0.098	0.011	0.090	0.120
SL40NA	9	0.110	0.044	0.020	0.170

Calcium, Magnesium, Potassium and Sodium (cmol+ / kg), determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots.

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20CA	9	11.550	3.961	6.480	17.360
SL20MG	9	0.547	0.220	0.290	0.990
SL20K	9	0.133	0.024	0.090	0.170
SL20NA	9	0.132	0.059	0.060	0.260
SL40CA	9	0.000	0.000	0.000	0.000
SL40MG	9	0.533	0.201	0.320	0.880
SL40K	9	0.137	0.029	0.090	0.190
SL40NA	9	0.139	0.096	0.060	0.380

DESCRIPTIVE STATISTICS FOR plot = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20CA	9	5.023	0.963	3.120	6.100
SL20MG	9	1.256	0.280	0.830	1.730
SL20K	9	0.109	0.024	0.070	0.140
SL20NA	9	0.063	0.029	0.000	0.090
SL40CA	9	0.000	0.000	0.000	0.000
SL40MG	9	1.273	0.358	0.690	1.730
SL40K	9	0.118	0.030	0.070	0.160
SL40NA	9	0.069	0.025	0.020	0.100

Calcium, Magnesium, Potassium and Sodium (cmol+ / kg), determined in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20CA	18	8.322	1.114	6.060	9.760
SL20K	18	0.113	0.018	0.090	0.140
SL20MG	18	2.074	0.377	1.600	3.330
SL20NA	18	0.113	0.036	0.010	0.150
SL40CA	18	8.237	1.165	5.820	10.000
SL40K	18	0.104	0.014	0.090	0.130
SL40MG	18	2.035	0.269	1.440	2.800
SL40NA	18	0.117	0.036	0.020	0.170

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20CA	18	8.287	4.370	3.120	17.360
SL20K	18	0.121	0.027	0.070	0.170
SL20MG	18	0.901	0.439	0.290	1.730
SL20NA	18	0.098	0.057	0.000	0.260
SL40CA	18	8.193	4.077	2.400	17.280
SL40K	18	0.127	0.030	0.070	0.190
SL40MG	18	0.903	0.474	0.320	1.730
SL40NA	18	0.104	0.077	0.020	0.380

ANOVA soil Ca, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20CA BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	195.088	65.0293	13.81	0.0000
WITHIN	32	150.640	4.70751		
TOTAL	35	345.728			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		25.78	3	0.0000	
COCHRAN'S Q			0.8333		
LARGEST VAR / SMALLEST VAR			19.301		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				6.70242	
EFFECTIVE CELL SIZE					9.0
		SAMPLE	GROUP		
PARC	MEAN	SIZE	STD DEV		
Am	8.7556	9	0.9017		
Ba	7.8878	9	1.1828		
BC	11.550	9	3.9612		
Cd	5.0233	9	0.9628		
TOTAL	8.3042	36	2.1697		
CASES INCLUDED 36		MISSING CASES 0			

ONE-WAY AOV FOR SL20CA BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.01103	0.01103	0.00	0.9739
WITHIN	34	345.717	10.1682		
TOTAL	35	345.728			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		24.34	1	0.0000	
COCHRAN'S Q			0.9390		
LARGEST VAR / SMALLEST VAR			15.397		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				-0.56428	
EFFECTIVE CELL SIZE				18.0	
		SAMPLE	GROUP		
INST	MEAN	SIZE	STD DEV		
Pt	8.3217	18	1.1137		
VA	8.2867	18	4.3699		
TOTAL	8.3042	36	3.1888		
CASES INCLUDED 36		MISSING CASES 0			

Soil classification concerning Ca assimilable

Ca (cmol+/Kg)	Soil classification
< 10	Very poor
10 - 20	Poor
20 - 200	Sufficient
200 - 300	Rich
> 300	Very rich

Origin: João Coutinho

ANOVA soil Mg, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20MG BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	14.7383	4.91277	47.19	0.0000
WITHIN	32	3.33118	0.10410		
TOTAL	35	18.0695			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	5.60	3	0.1327
COCHRAN'S Q		0.5361	
LARGEST VAR / SMALLEST VAR		4.6215	
COMPONENT OF VARIANCE FOR BETWEEN GROUPS			0.53430
EFFECTIVE CELL SIZE			9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	2.0000	9	0.2582
Ba	2.1478	9	0.4725
BC	0.5467	9	0.2198
Cd	1.2556	9	0.2796
TOTAL	1.4875	36	0.3226
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20MG BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	12.3787	12.3787	73.96	0.0000
WITHIN	34	5.69081	0.16738		
TOTAL	35	18.0695			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	0.38	1	0.5387
COCHRAN'S Q		0.5752	
LARGEST VAR / SMALLEST VAR		1.3541	
COMPONENT OF VARIANCE FOR BETWEEN GROUPS			0.67841
EFFECTIVE CELL SIZE			18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	2.0739	18	0.3771
VA	0.9011	18	0.4388
TOTAL	1.4875	36	0.4091
CASES INCLUDED	36	MISSING CASES	0

Soil classification concerning Mg assimilable

Mg (cmol+/Kg)	Soil classification
< 0.75	Very poor
0.75 - 1.5	Poor
1.5 - 3.0	Sufficient
3 - 4.5	Rich
> 4.5	Very rich

Origin: João Coutinho

ANOVA soil K, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20K BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.00503	0.00168	4.23	0.0126
WITHIN	32	0.01269	3.965E-04		
TOTAL	35	0.01772			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		6.19	3	0.1027	
COCHRAN'S Q			0.3695		
LARGEST VAR / SMALLEST VAR			5.8611		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.424E-04	
EFFECTIVE CELL SIZE					9.0
		SAMPLE	GROUP		
PARC	MEAN	SIZE	STD DEV		
-----	-----	-----	-----		
Am	0.1233	9	0.0180		
Ba	0.1033	9	0.0100		
BC	0.1333	9	0.0240		
Cd	0.1089	9	0.0242		
TOTAL	0.1172	36	0.0199		
CASES INCLUDED		36	MISSING CASES 0		

ONE-WAY AOV FOR SL20K BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	5.444E-04	5.444E-04	1.08	0.3066
WITHIN	34	0.01718	5.052E-04		
TOTAL	35	0.01772			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		2.79	1	0.0946	
COCHRAN'S Q			0.6973		
LARGEST VAR / SMALLEST VAR			2.3034		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				2.179E-06	
EFFECTIVE CELL SIZE					18.0
		SAMPLE	GROUP		
INST	MEAN	SIZE	STD DEV		
Pt	0.1133	18	0.0175		
VA	0.1211	18	0.0265		
TOTAL	0.1172	36	0.0225		
CASES INCLUDED	36	MISSING CASES		0	

ANOVA soil Na, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20NA BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.02685	0.00895	5.36	0.0042
WITHIN	32	0.05344	0.00167		
TOTAL	35	0.08030			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	7.58	3	0.0556
COCHRAN'S Q		0.5231	
LARGEST VAR / SMALLEST VAR		6.3535	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 8.090E-04
EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	0.1267	9	0.0235
Ba	0.0989	9	0.0426
BC	0.1322	9	0.0591
Cd	0.0633	9	0.0287
TOTAL	0.1053	36	0.0409
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20NA BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.00202	0.00202	0.88	0.3549
WITHIN	34	0.07827	0.00230		
TOTAL	35	0.08030			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	3.35	1	0.0671
COCHRAN'S Q		0.7143	
LARGEST VAR / SMALLEST VAR		2.5004	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS -1.540E-05
EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.1128	18	0.0363
VA	0.0978	18	0.0573
TOTAL	0.1053	36	0.0480
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil Ca, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40CA BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	159.900	53.3002	11.70	0.0000
WITHIN	32	145.761	4.55504		
TOTAL	35	305.662			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	18.93	3	0.0003

COCHRAN'S Q 0.7558

LARGEST VAR / SMALLEST VAR 18.011

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 5.41612

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	8.6244	9	0.8744
Ba	7.8489	9	1.3346
BC	11.148	9	3.7109
Cd	5.2378	9	1.3796
TOTAL	8.2147	36	2.1343
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40CA BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.01734	0.01734	0.00	0.9652
WITHIN	34	305.645	8.98955		
TOTAL	35	305.662			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	21.07	1	0.0000

COCHRAN'S Q 0.9245

LARGEST VAR / SMALLEST VAR 12.247

COMPONENT OF VARIANCE FOR BETWEEN GROUPS -0.49846

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	8.2367	18	1.1650
VA	8.1928	18	4.0770
TOTAL	8.2147	36	2.9983
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil Mg, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40MG BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	14.0015	4.66716	58.13	0.0000
WITHIN	32	2.56920	0.08029		
TOTAL	35	16.5707			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	2.54	3	0.4684

COCHRAN'S Q 0.3999

LARGEST VAR / SMALLEST VAR 3.1749

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.50965

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	2.0100	9	0.2605
Ba	2.0600	9	0.2905
BC	0.5333	9	0.2011
Cd	1.2733	9	0.3584
TOTAL	1.4692	36	0.2834
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40MG BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	11.5260	11.5260	77.68	0.0000
WITHIN	34	5.04465	0.14837		
TOTAL	35	16.5707			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	5.03	1	0.0249

COCHRAN'S Q 0.7563

LARGEST VAR / SMALLEST VAR 3.1032

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.63209

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	2.0350	18	0.2689
VA	0.9033	18	0.4737
TOTAL	1.4692	36	0.3852
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil K, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40K BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.00708	0.00236	4.55	0.0092
WITHIN	32	0.01660	5.188E-04		
TOTAL	35	0.02367			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	10.11	3	0.0177

COCHRAN'S Q 0.4311

LARGEST VAR / SMALLEST VAR 7.4884

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 2.044E-04

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	0.1111	9	0.0145
Ba	0.0978	9	0.0109
BC	0.1367	9	0.0292
Cd	0.1178	9	0.0299
TOTAL	0.1158	36	0.0228
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40K BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.00467	0.00467	8.35	0.0067
WITHIN	34	0.01901	5.590E-04		
TOTAL	35	0.02367			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	8.61	1	0.0033

COCHRAN'S Q 0.8188

LARGEST VAR / SMALLEST VAR 4.5177

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 2.284E-04

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.1044	18	0.0142
VA	0.1272	18	0.0303
TOTAL	0.1158	36	0.0236
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil Na, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40NA BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.02432	0.00811	2.61	0.0684
WITHIN	32	0.09938	0.00311		
TOTAL	35	0.12370			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	19.32	3	0.0002
COCHRAN'S Q		0.7415	
LARGEST VAR / SMALLEST VAR		14.480	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 5.557E-04
EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	0.1233	9	0.0255
Ba	0.1100	9	0.0439
BC	0.1389	9	0.0960
Cd	0.0689	9	0.0252
TOTAL	0.1103	36	0.0557
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40NA BY INST

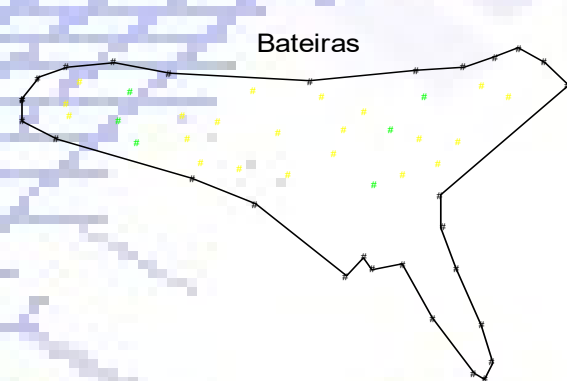
SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.00147	0.00147	0.41	0.5269
WITHIN	34	0.12223	0.00359		
TOTAL	35	0.12370			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	9.06	1	0.0026
COCHRAN'S Q		0.8249	
LARGEST VAR / SMALLEST VAR		4.7116	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS -1.180E-04
EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.1167	18	0.0355
VA	0.1039	18	0.0770
TOTAL	0.1103	36	0.0600
CASES INCLUDED	36	MISSING CASES	0

Calcium, in cmol+/kg, determined in the first 20 cm soil depth, for all plots



SI20-Ca

Dadospontostotaa.txt

■ 3.12 - 5.97

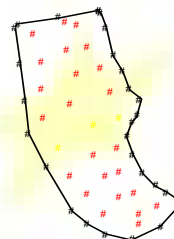
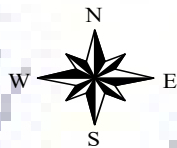
■ 5.97 - 8.82

■ 8.82 - 11.66

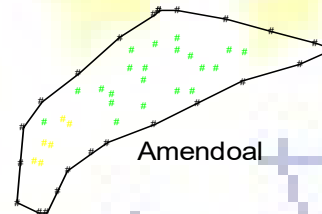
■ 11.66 - 14.51

■ 14.51 - 17.36

■ Dadospontoslmaa.txt



Cardanhas

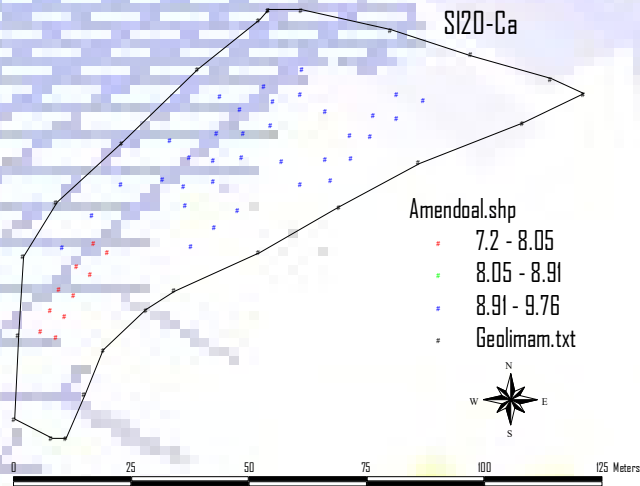


Amendoal

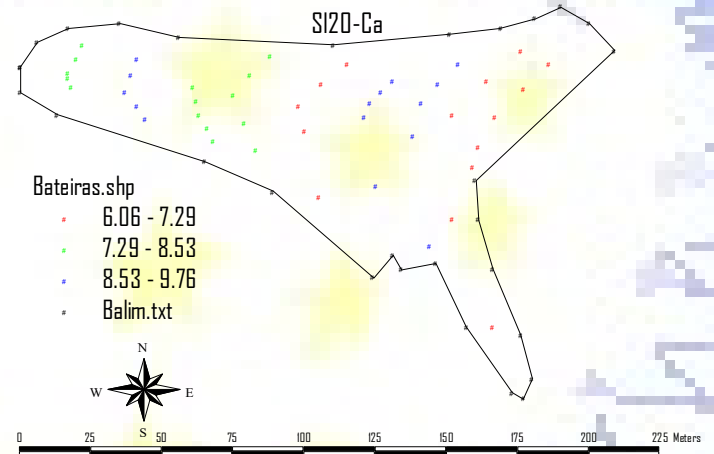


Calcium, in cmol+/kg, determined in the first 20 cm soil depth, inside each plot

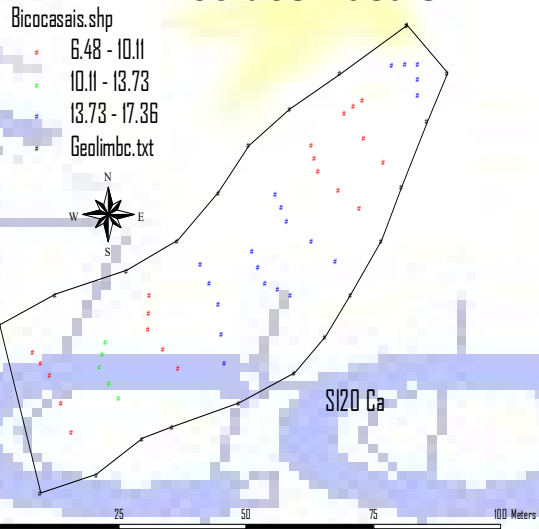
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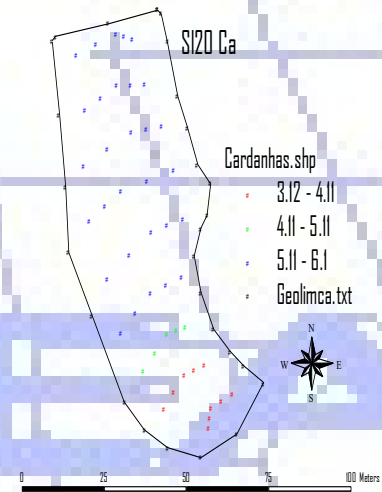
Bateiras



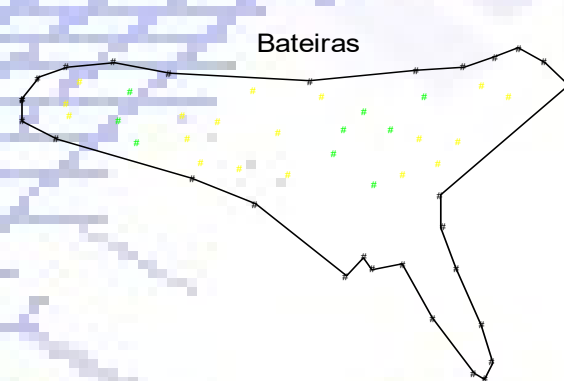
Bico dos Casais



Cardanhas



Calcium, in cmol+/kg, determined between 20 and 40 cm soil dept, for all plots



SI40-Ca

Dadospontostotaa.txt

■ 2.4 - 5.38

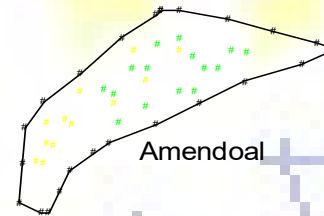
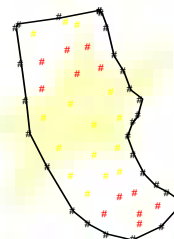
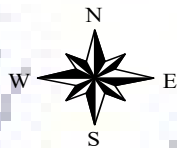
■ 5.38 - 8.35

■ 8.35 - 11.33

■ 11.33 - 14.3

■ 14.3 - 17.28

■ Dadospontoslmaa.txt



Calcium, in cmol+/kg, determined between 20 and 40 cm soil dept, for each plot

Amendoal

SI40-Ca

Amendoal.shp

- 7.12 - 8
- 8 - 8.88
- 8.88 - 9.76
- Geolimam.txt



0 25 50 75 100 125 Meters

Bateiras

SI40-Ca

Bateiras.shp

- 5.82 - 7.21
- 7.21 - 8.61
- 8.61 - 10
- Balim.txt



0 25 50 75 100 125 150 175 200 225 Meters

Bico dos Casais

Bicocasais.shp

- 7.02 - 10.44
- 10.44 - 13.86
- 13.86 - 17.28
- Geolimbc.txt



SI40 Ca

0 25 50 75 100 Meters

Cardanhas

SI40 Ca

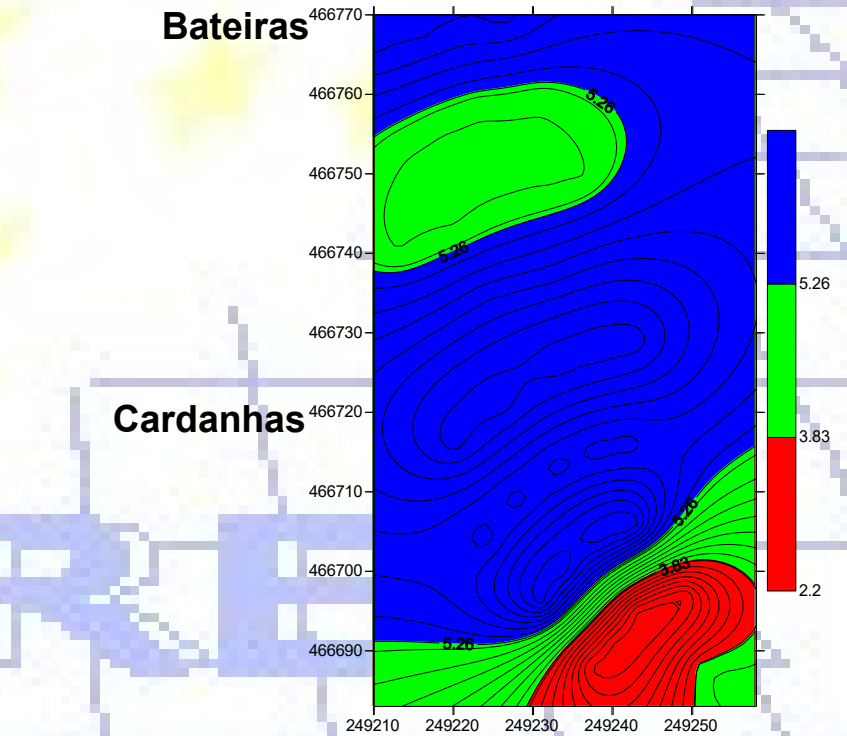
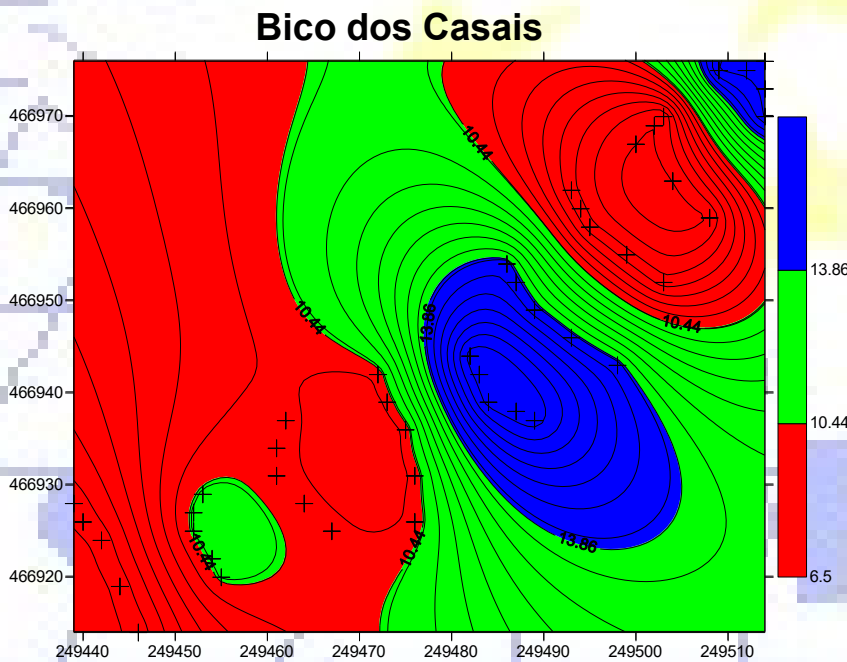
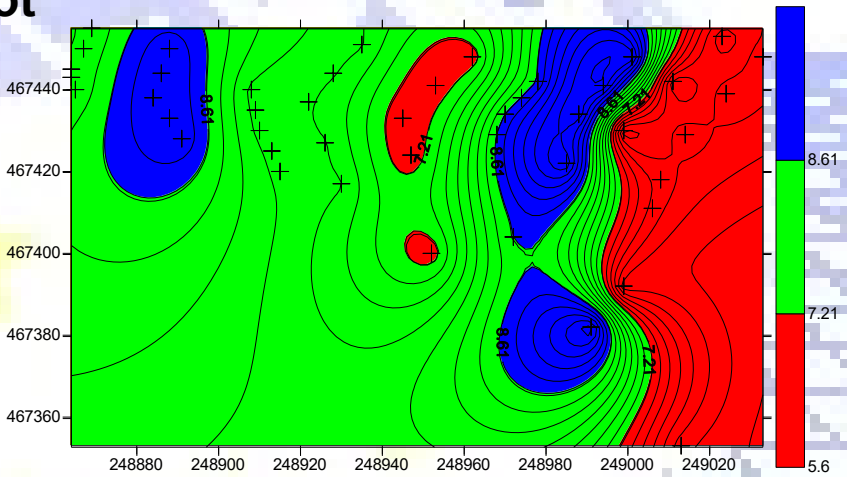
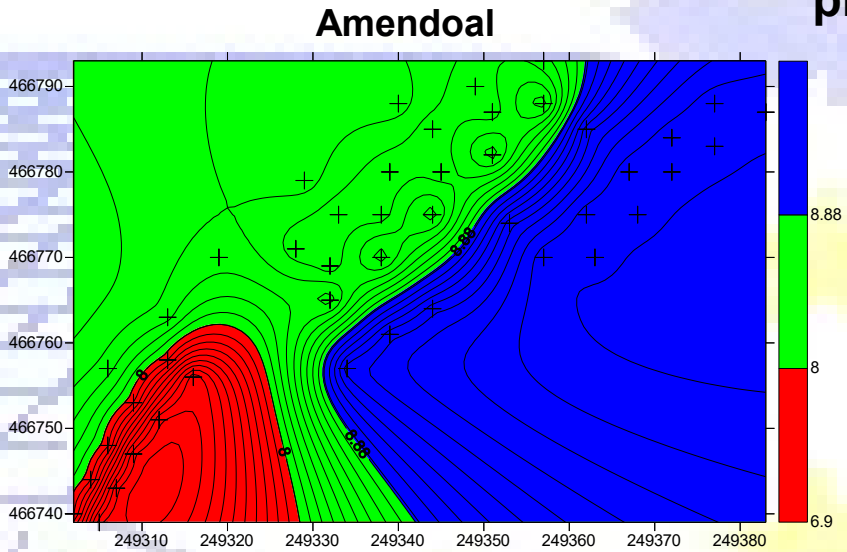
Cardanhas.shp

- 2.4 - 3.83
- 3.83 - 5.26
- 5.26 - 6.69
- Geolimca.txt

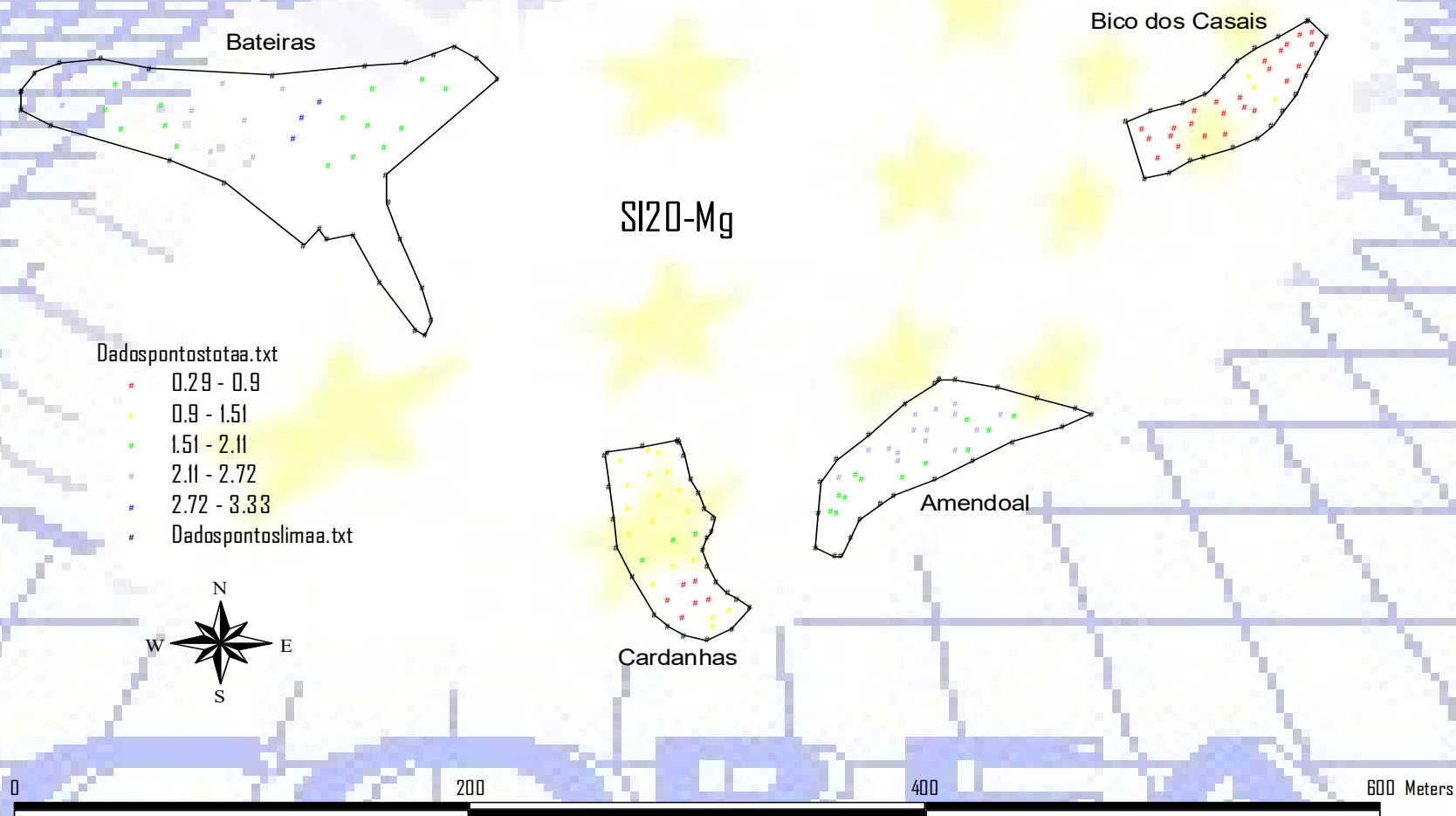


0 25 50 75 100 Meters

Calcium, in cmol+/kg, determined between 20 and 40 cm soil dept, for each plot

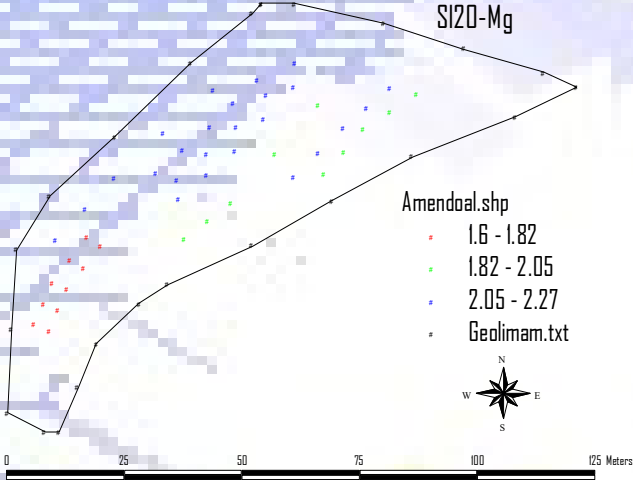


Magnesium, in cmol+/kg, determined in the first 20 cm soil depth, for all plots

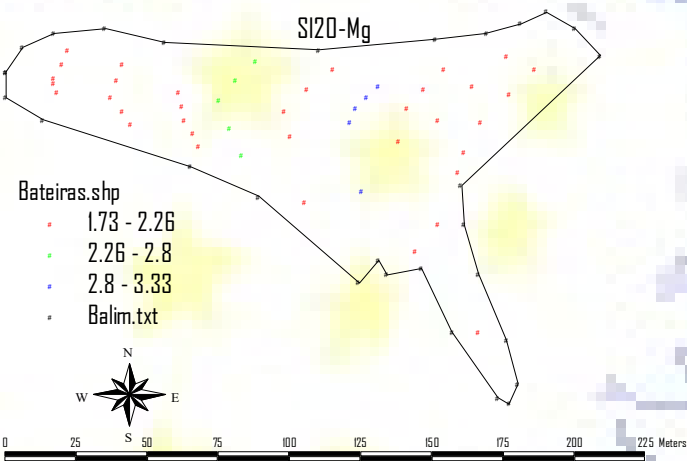


Magnesium, in cmol+/kg, determined in the first 20 cm soil depth, inside each plot

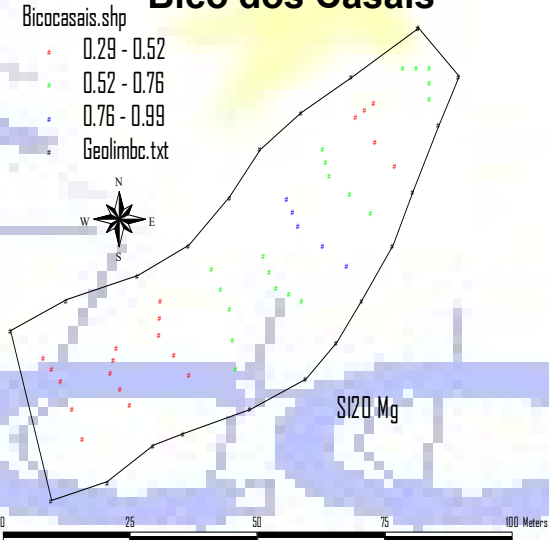
Amendoal



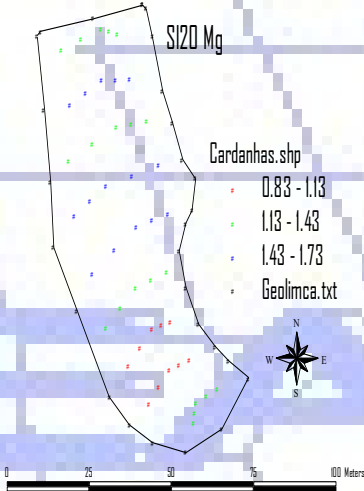
Bateiras



Bico dos Casais

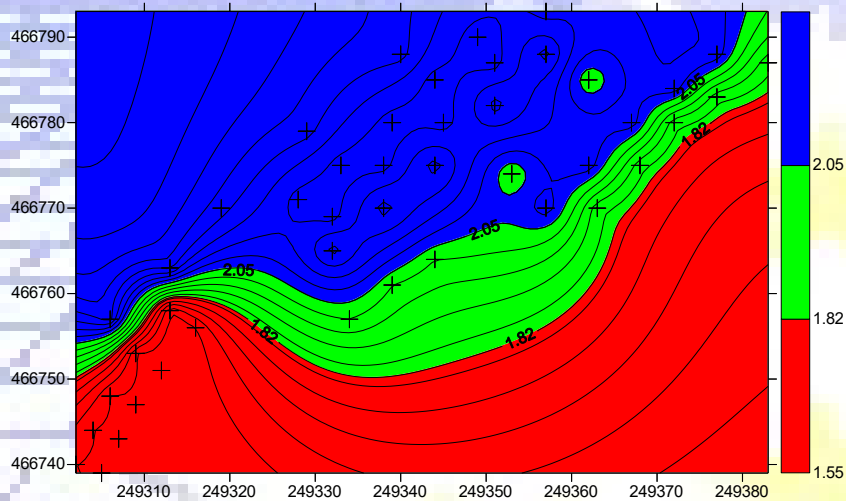


Cardanhas

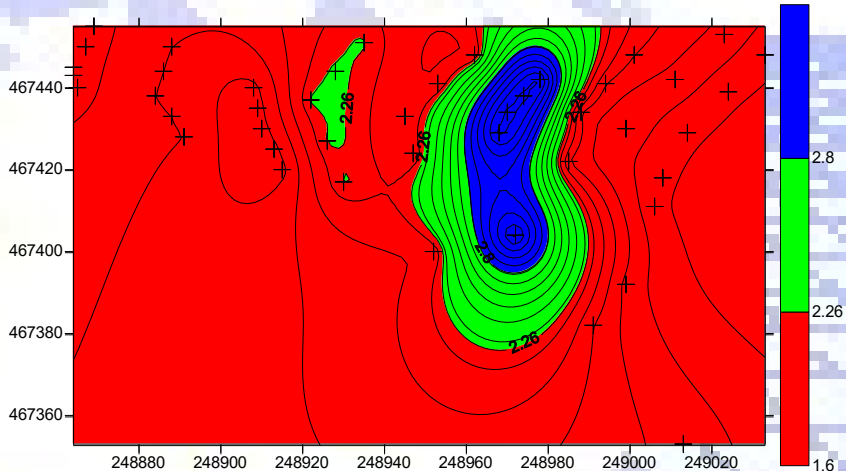


Magnesium, in cmol+/kg, determined in the first 20 cm soil depth, inside each plot

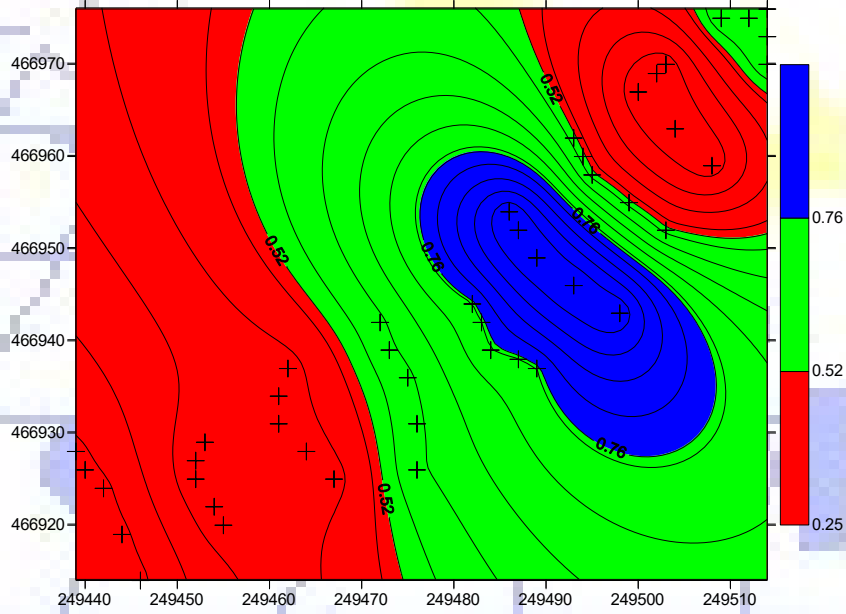
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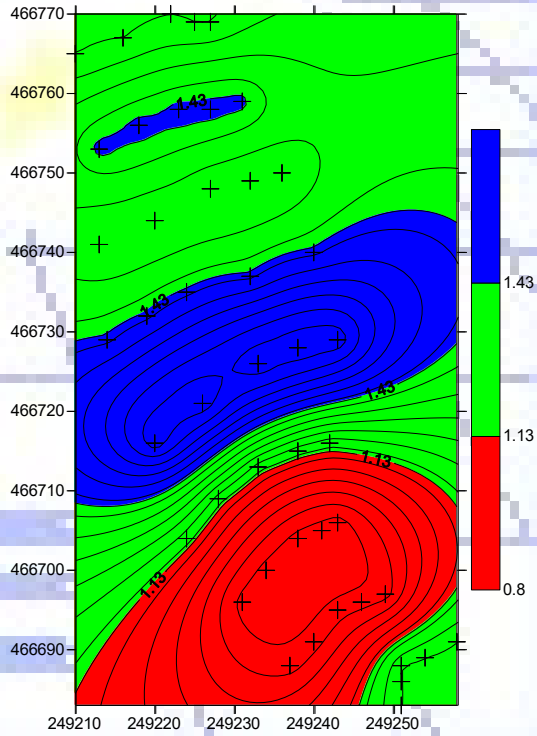
Bateiras



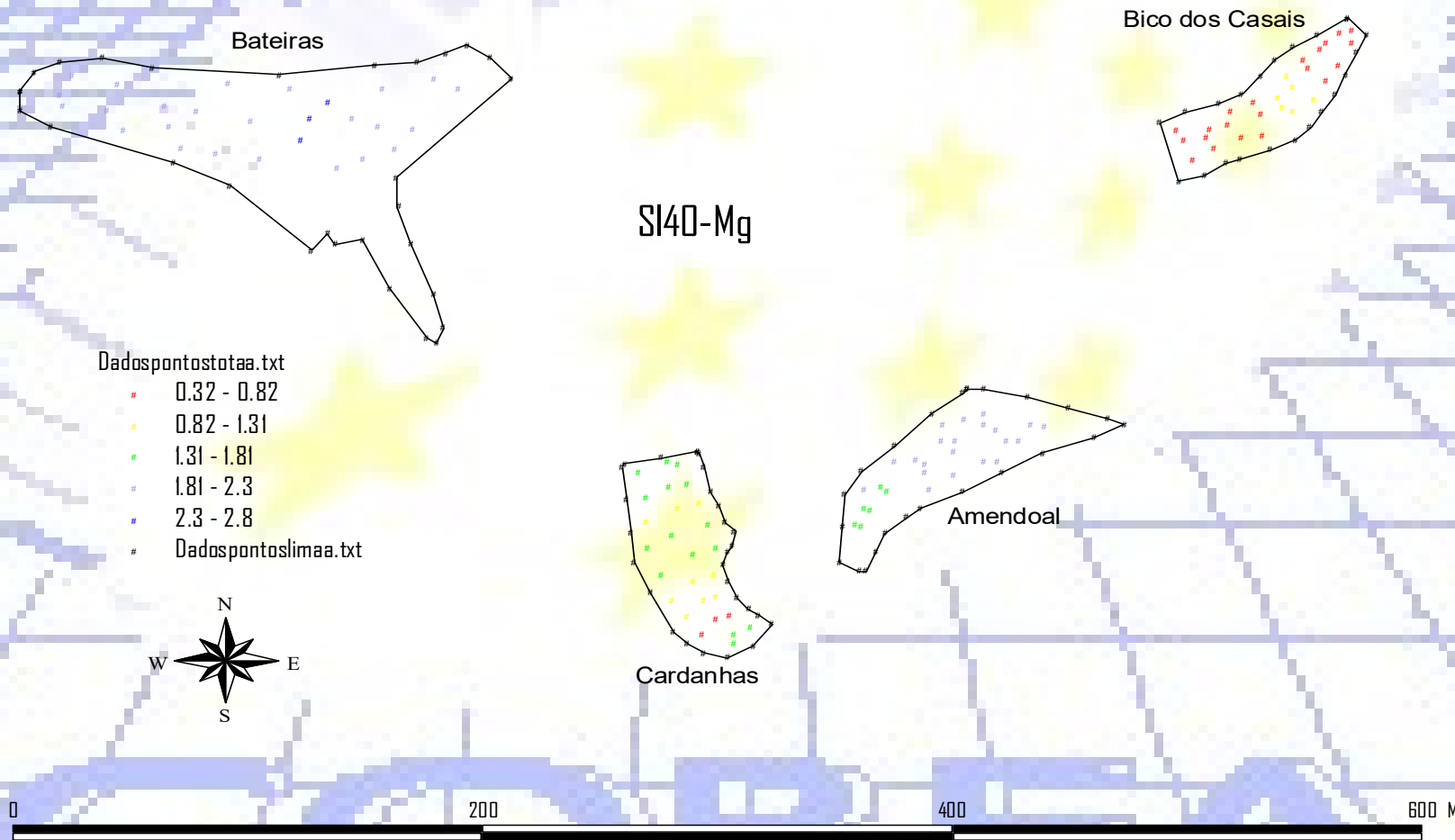
Bico dos Casais



Cardanhas

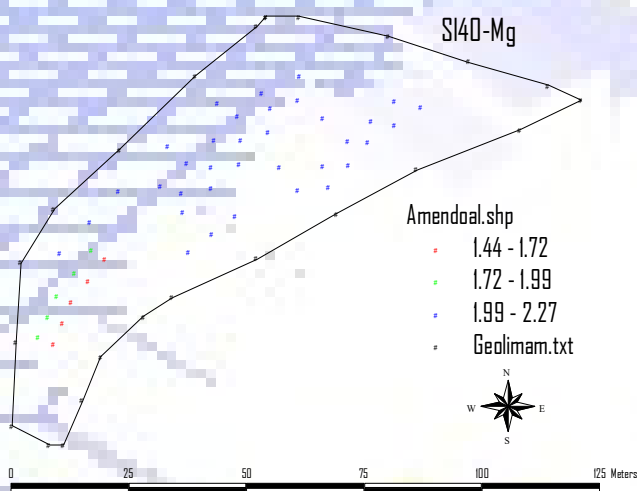


Magnesium, in cmol+ / kg, determined between 20 and 40 cm soil dept, for all plots

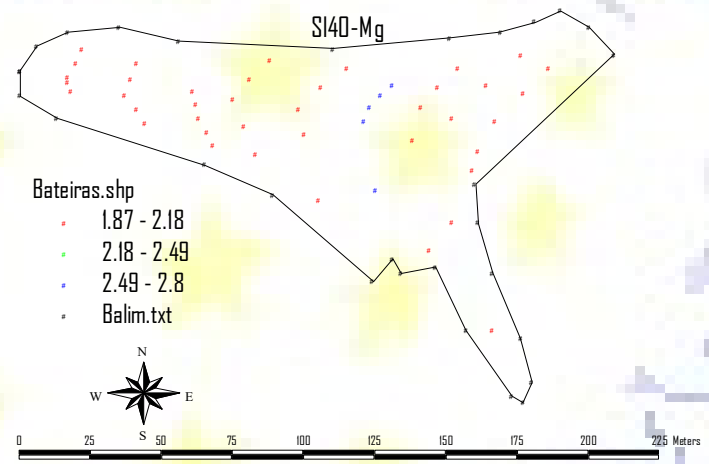


Magnesium, in cmol+ / kg, determined between 20 and 40 cm soil dept, inside each plot

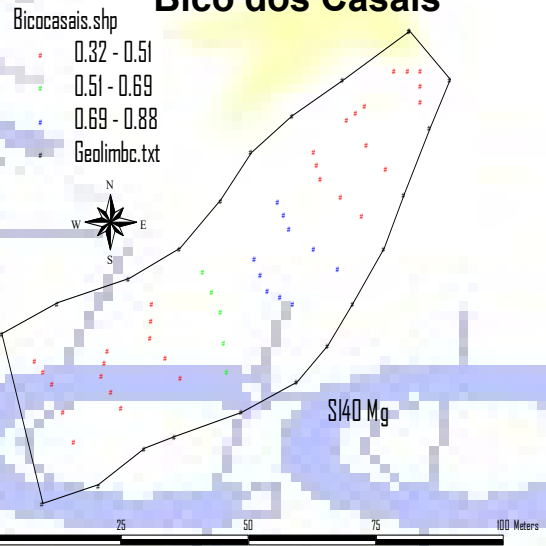
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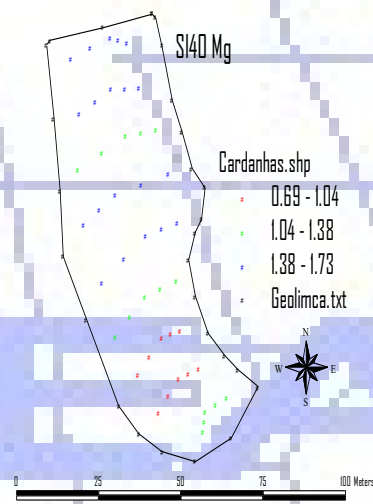
Bateiras



Bico dos Casais

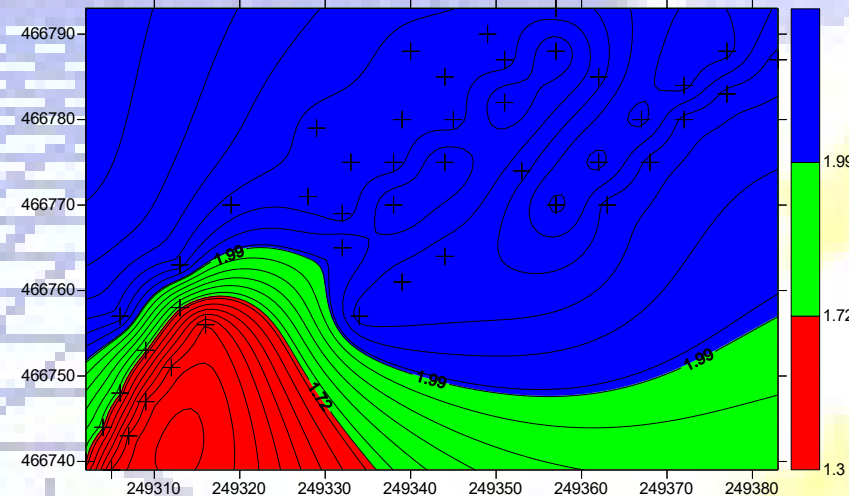


Cardanhas

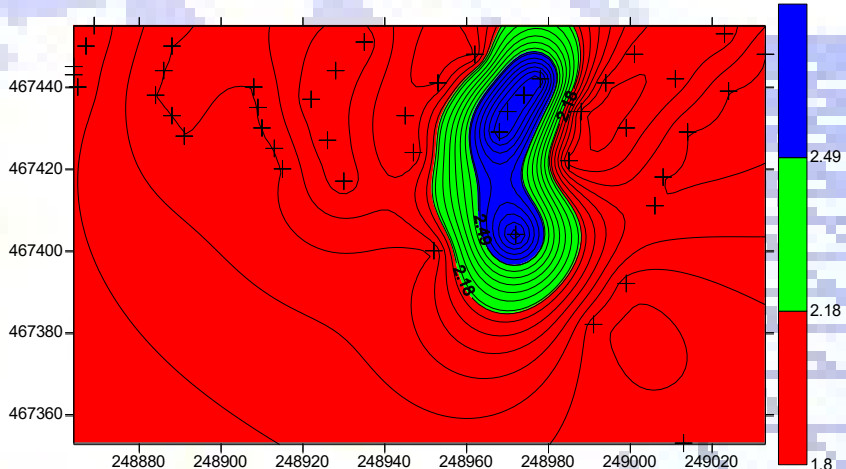


Magnesium, in cmol+ / kg, determined between 20 and 40 cm soil dept, inside each plot

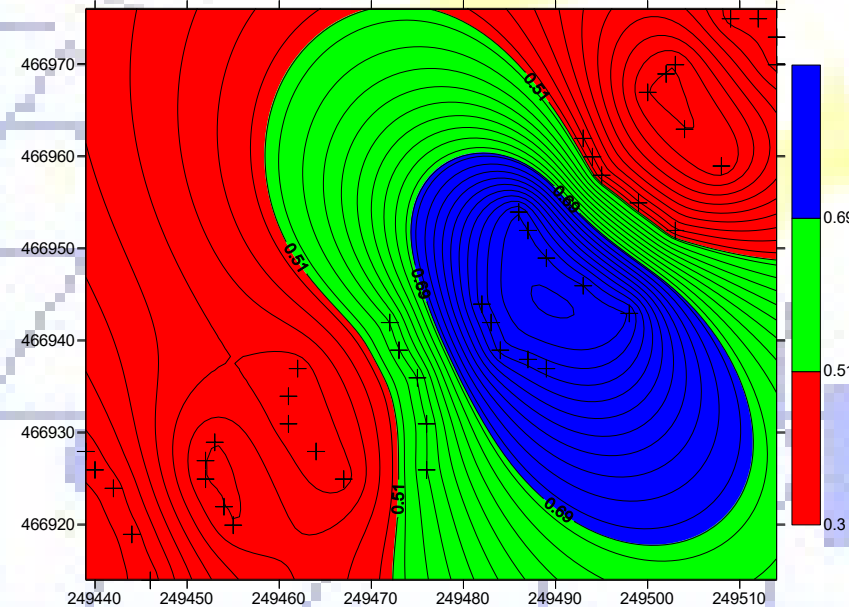
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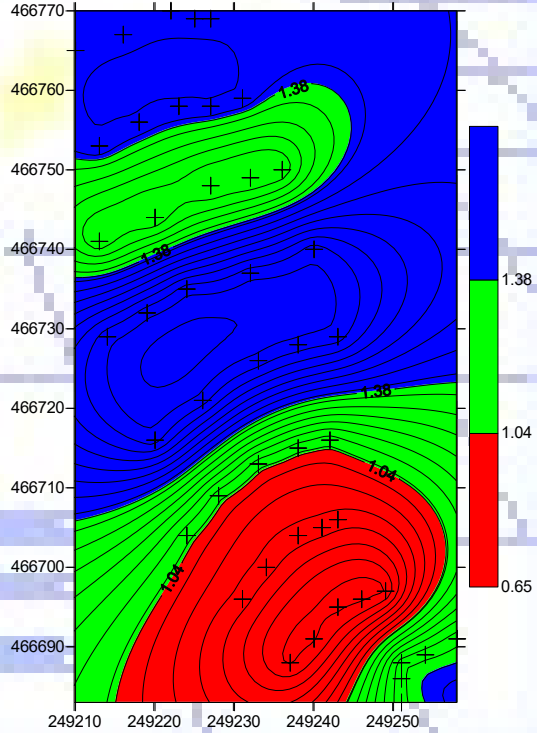
Bateiras



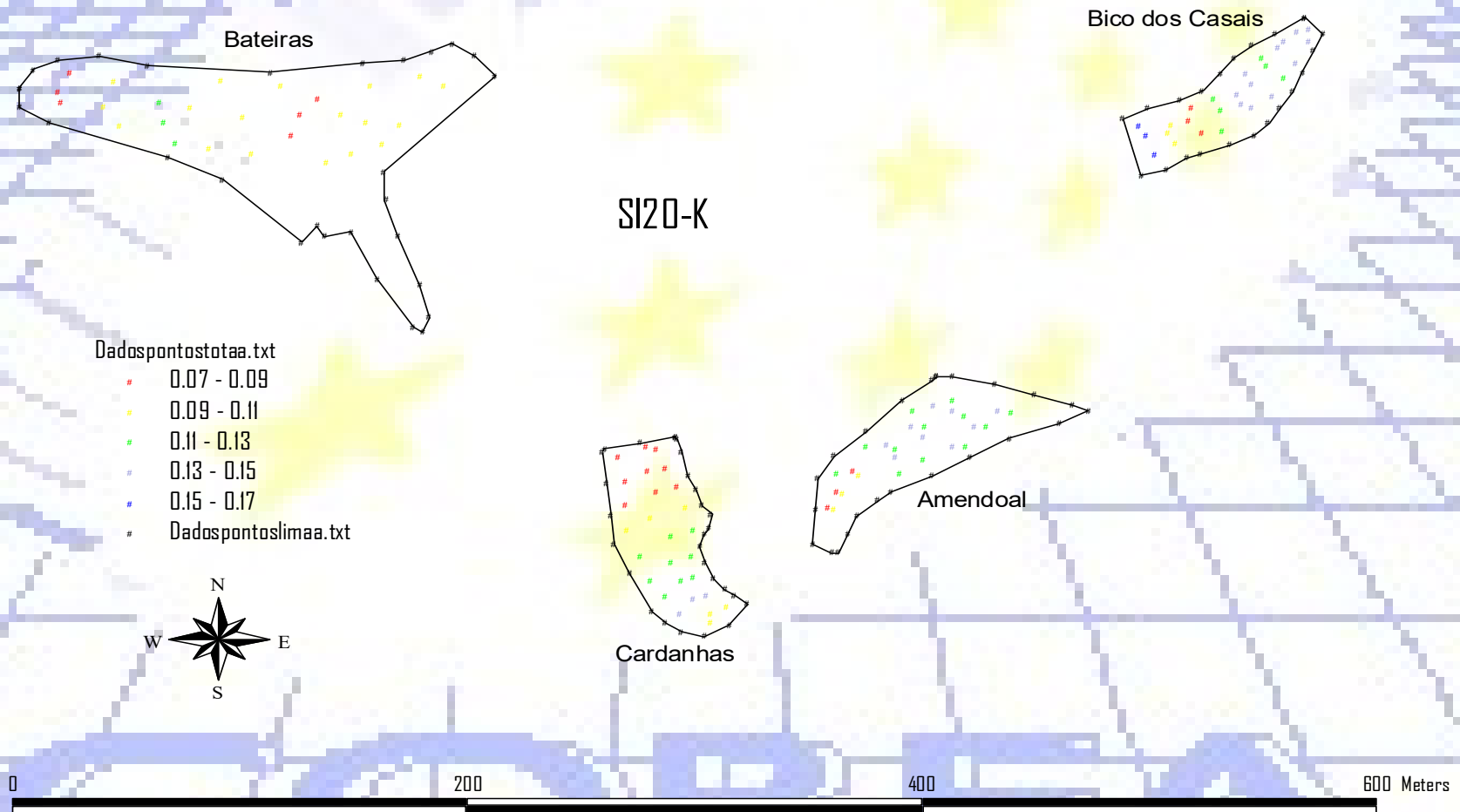
Bico dos Casais



Cardanhas

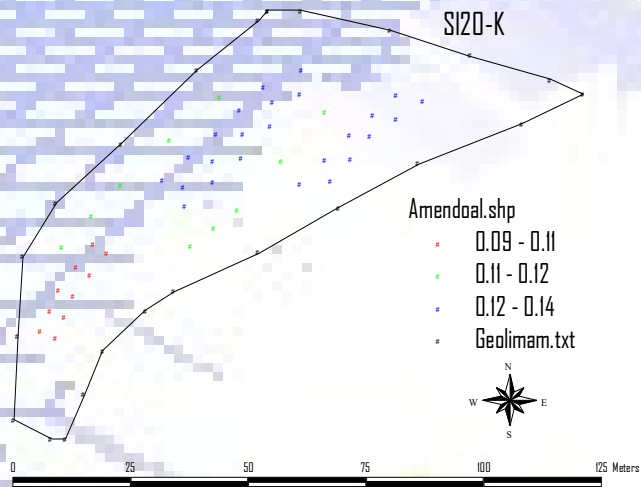


Potassium, in cmol+/kg, determined in the first 20 cm soil depth, for all plots

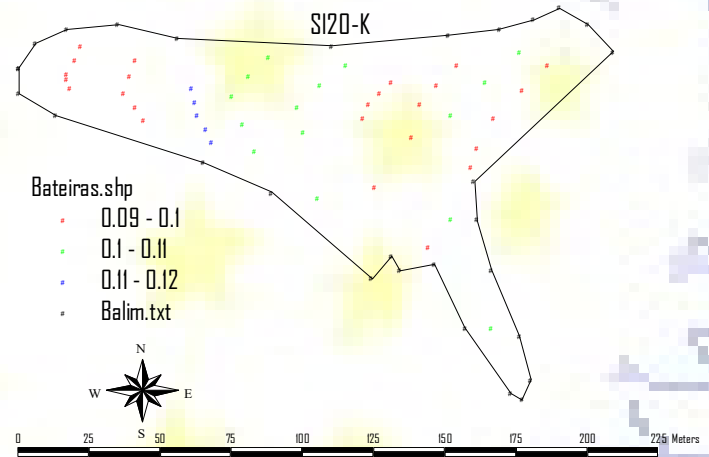


Potassium, in cmol+/kg, determined in the first 20 cm soil depth, inside each plot

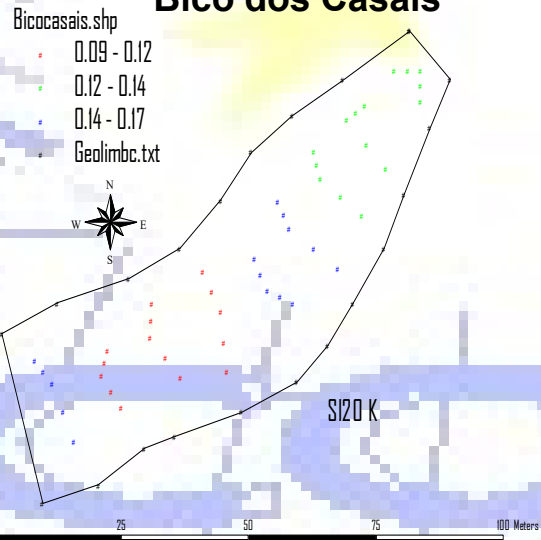
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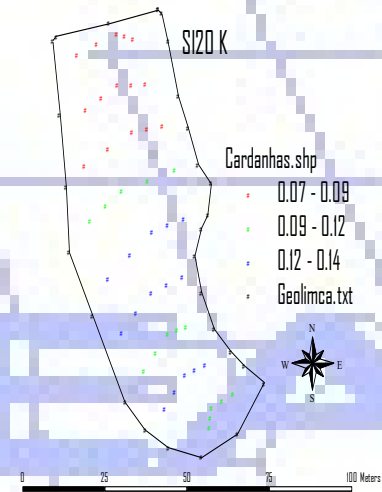
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Bico dos Casais

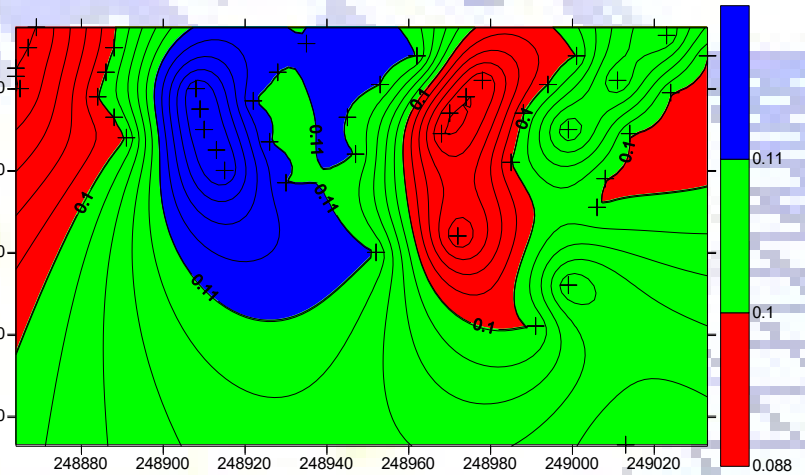
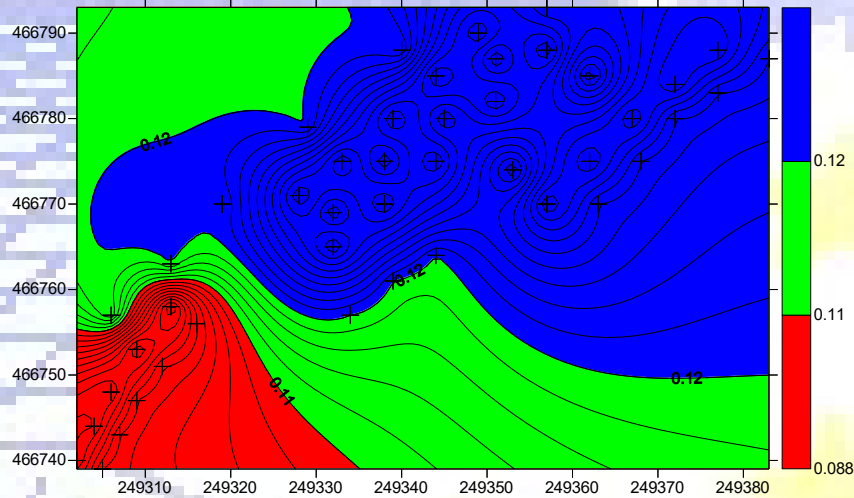


Cardanhas

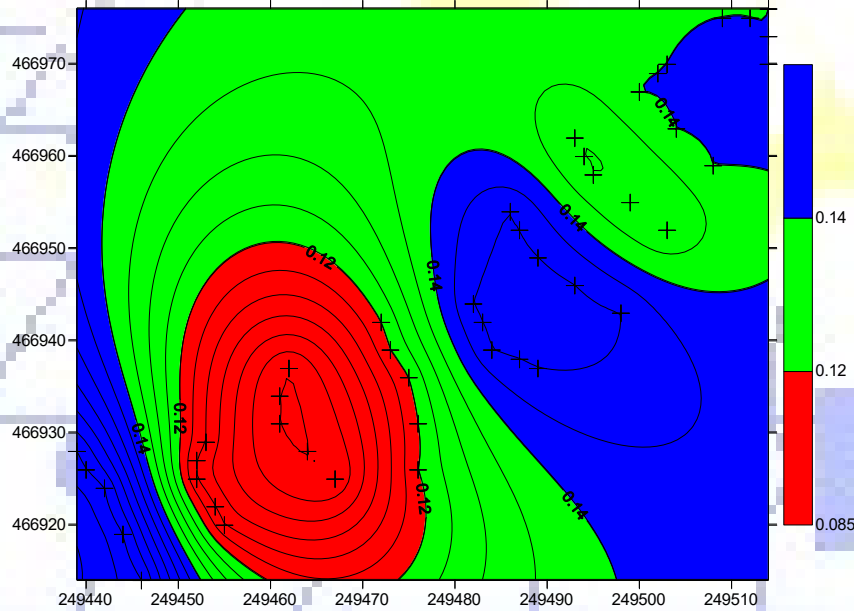


Potassium, in cmol+/kg, determined in the first 20 cm soil depth, inside each plot

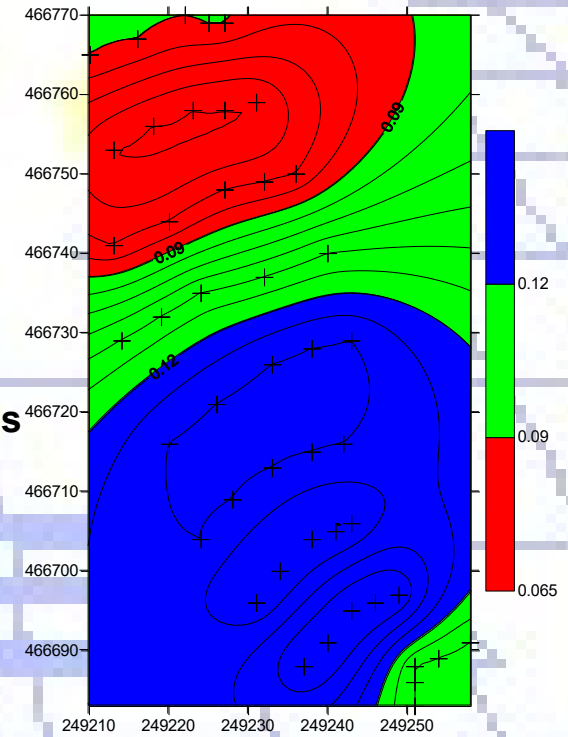
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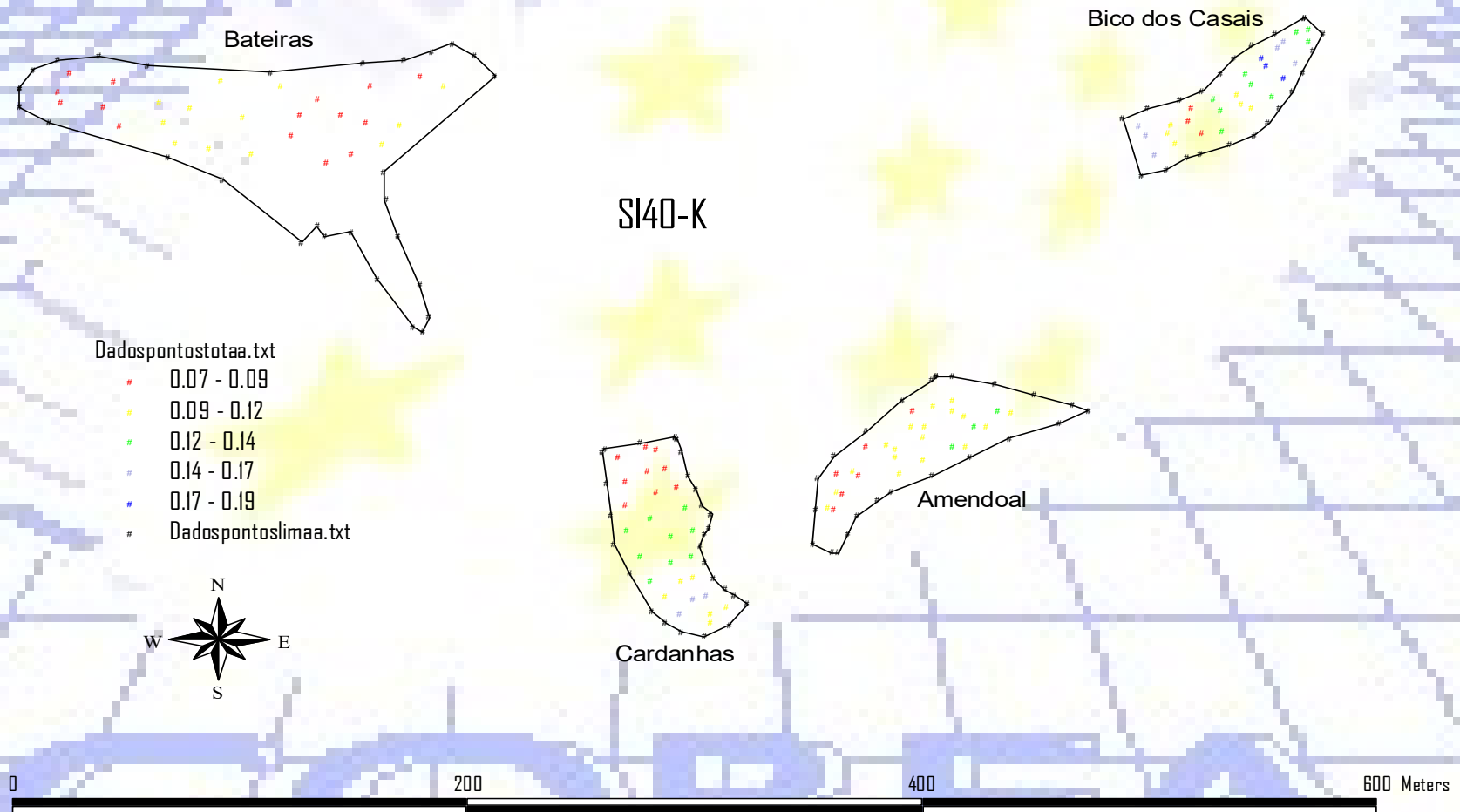
Bico dos Casais



Bateiras

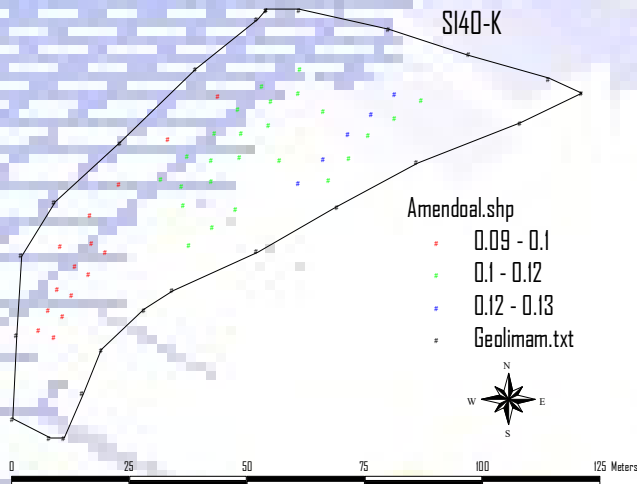


Potassium, in cmol+ / kg, determined between 20 and 40 cm soil dept, for all plots

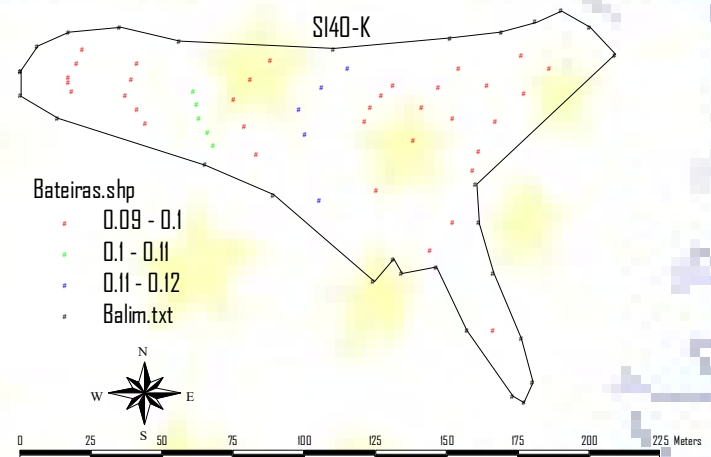


Potassium, in cmol+ / kg, determined between 20 and 40 cm soil dept, inside each plot

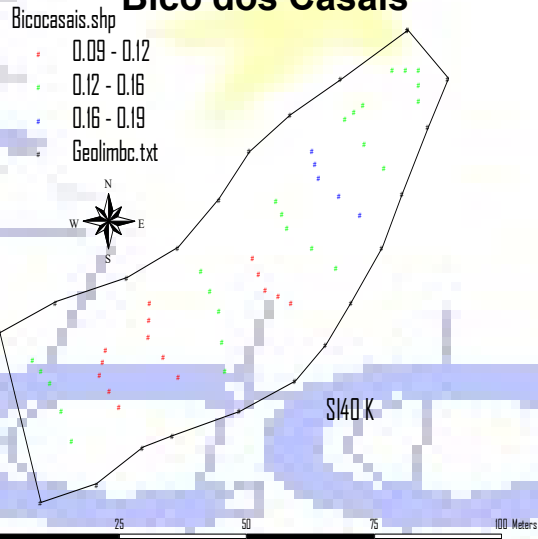
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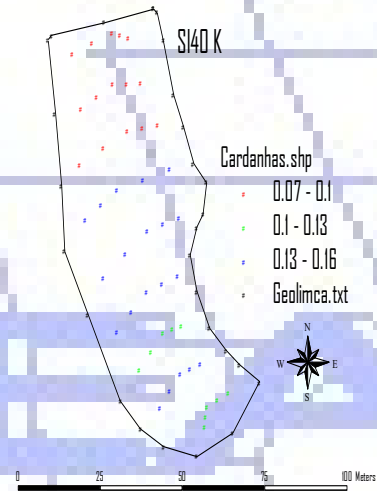
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Bico dos Casais

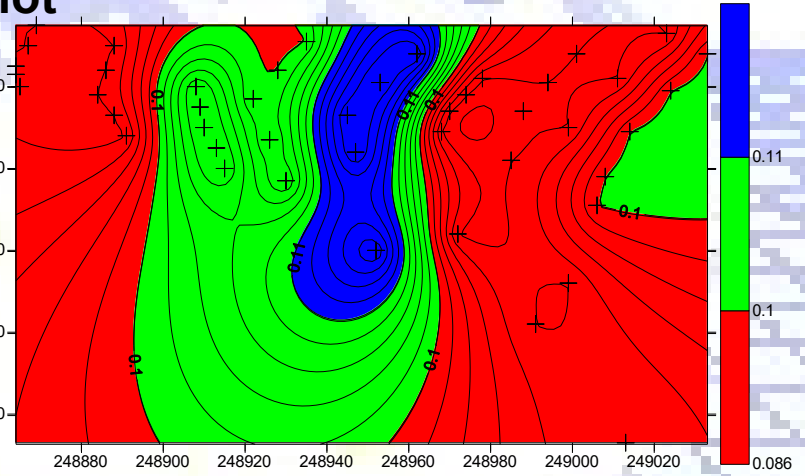
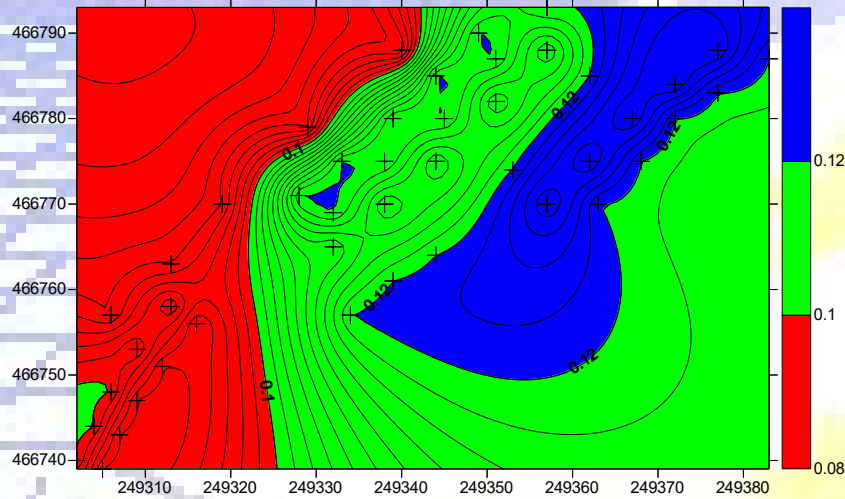


Cardanhas

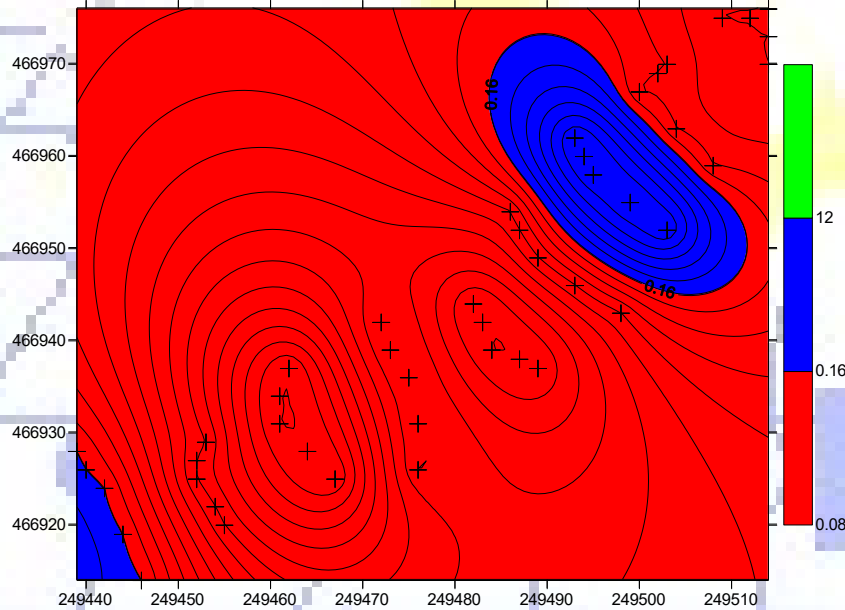


Potassium, in cmol+ / kg, determined between 20 and 40 cm soil dept, inside each plot

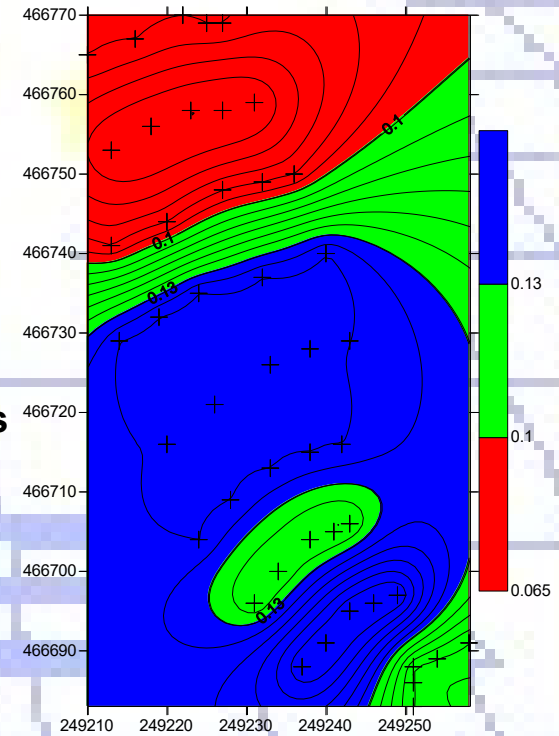
Amendoal



Bico dos Casais

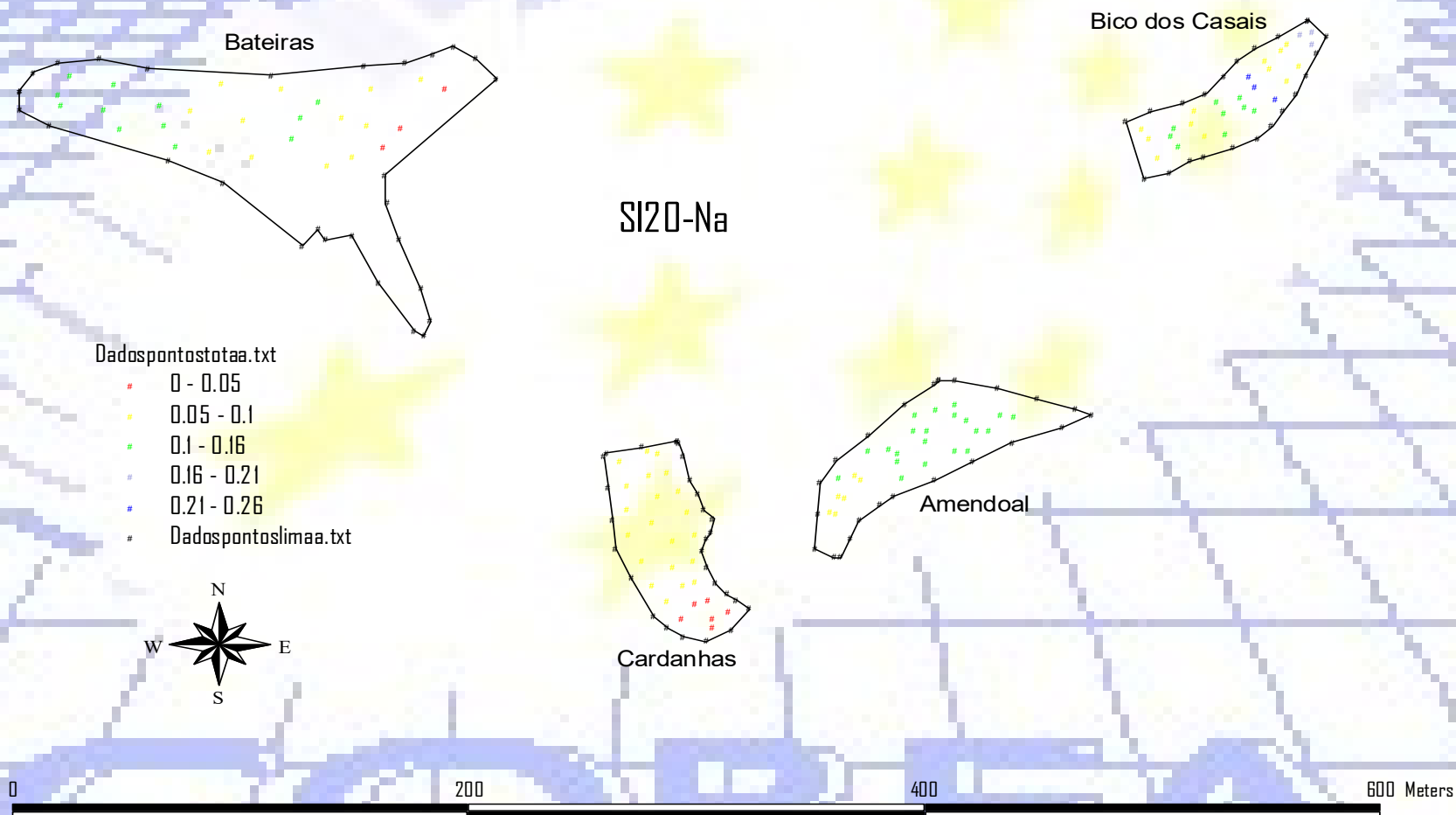


Bateiras



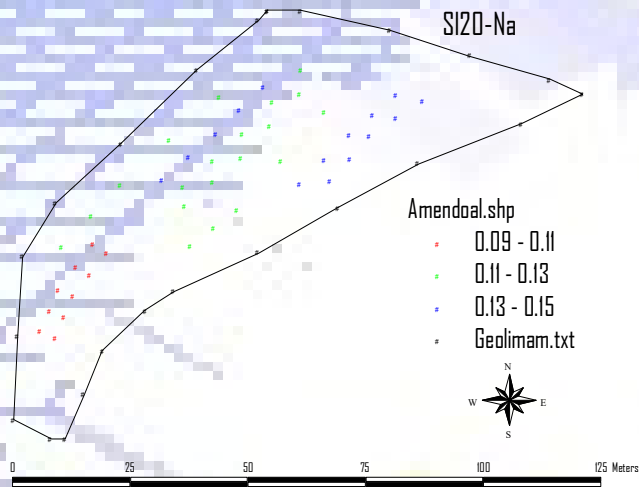
Cardanhas

Sodium, in cmol+ / kg, determined in the first 20 cm soil depth, for all plots

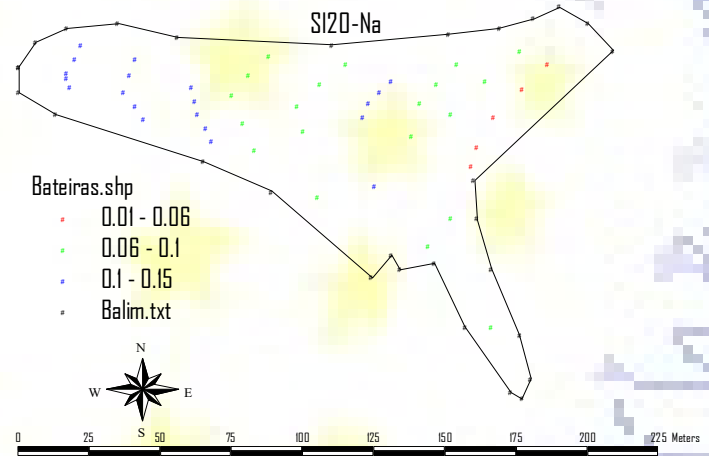


Sodium, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

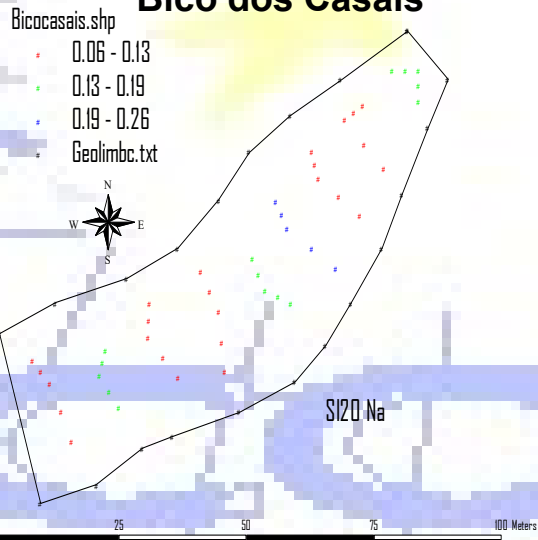
Amendoal



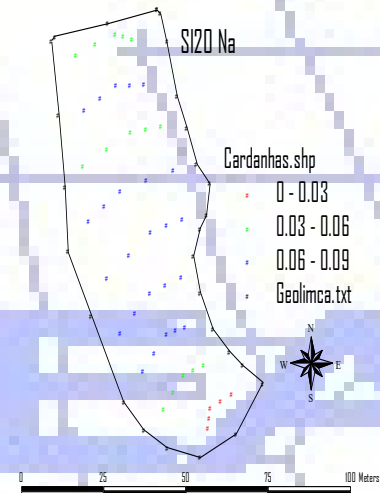
Bateiras



Bico dos Casais

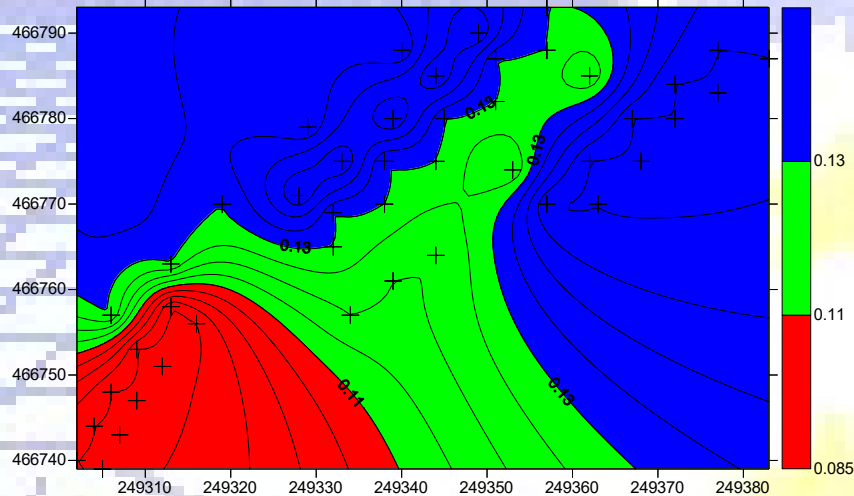


Cardanhas

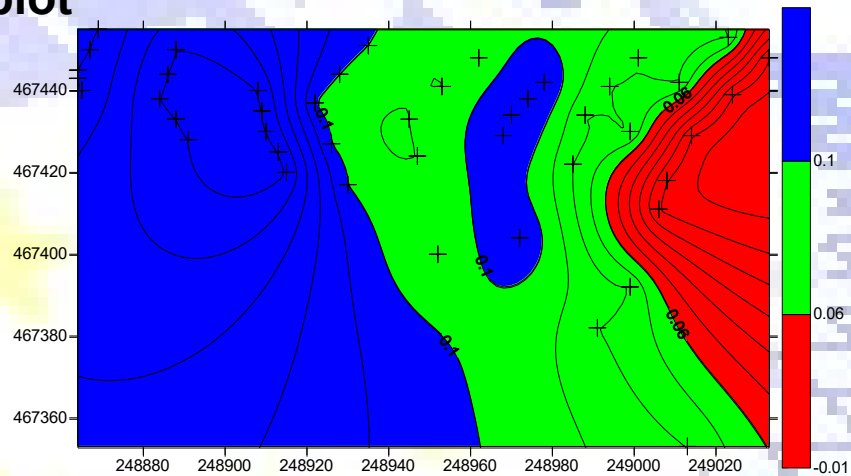


Sodium, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

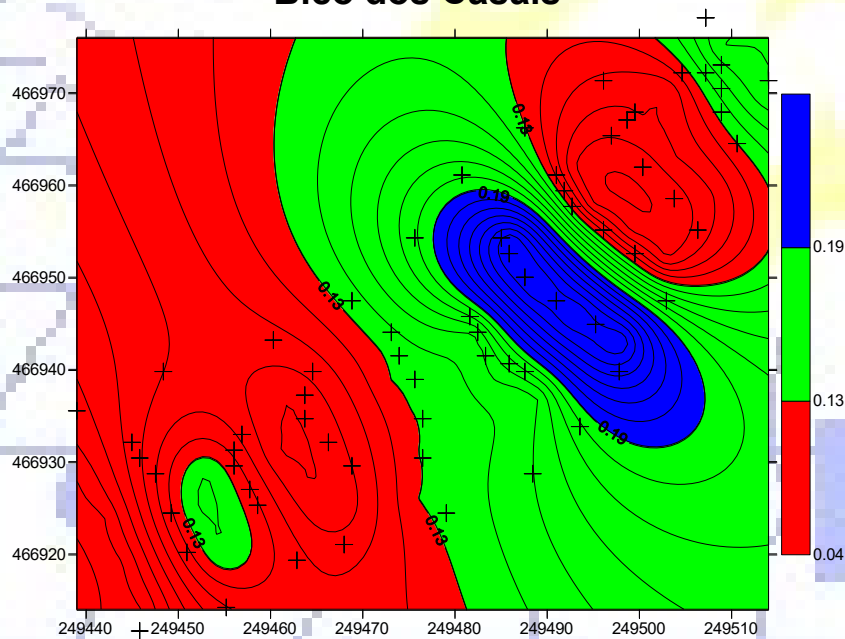
Amendoal



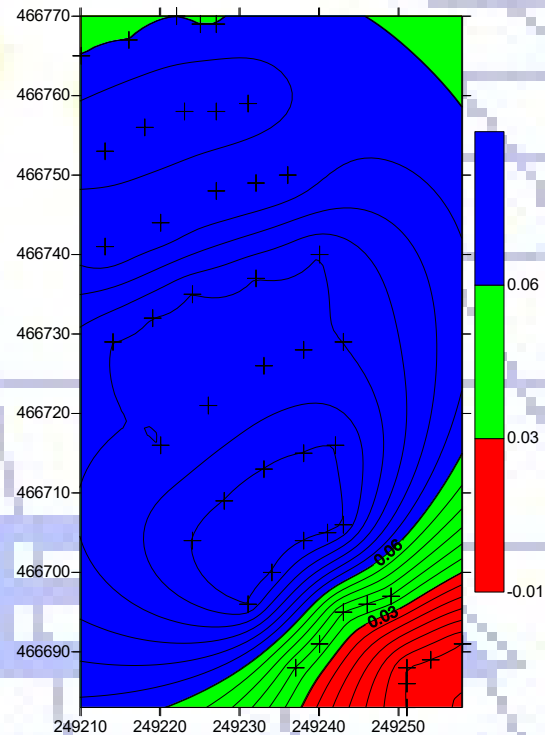
plot



Bico dos Casais

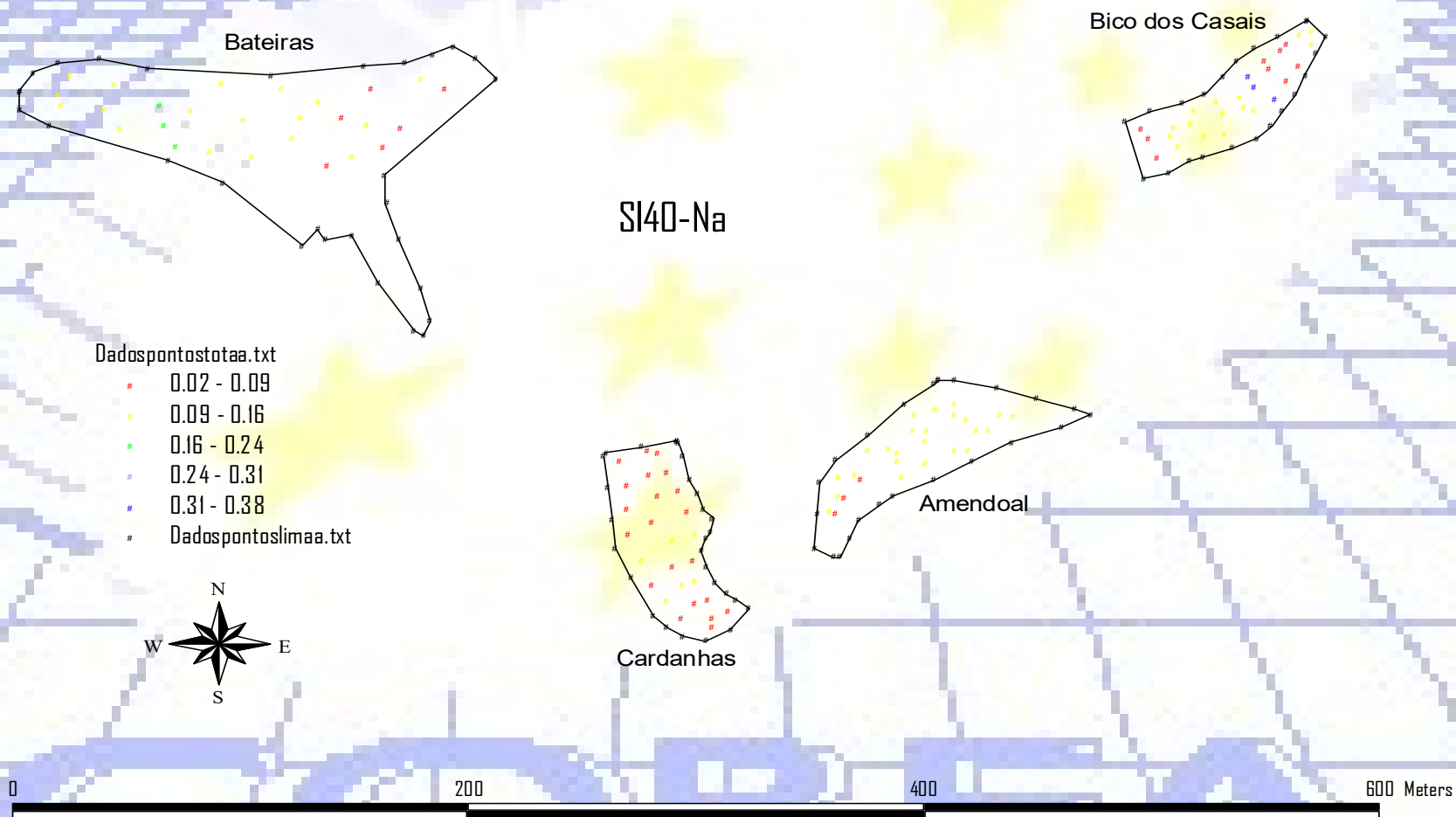


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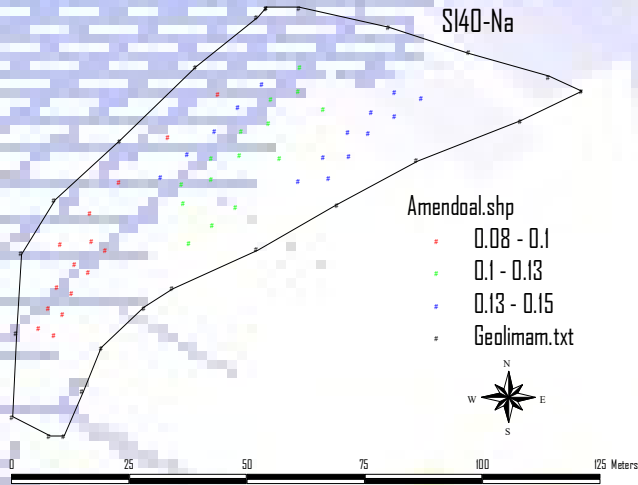
Cardanhas

Sodium, in cmol+ / kg, determined between 20 - 40 cm soil dept, for all plots

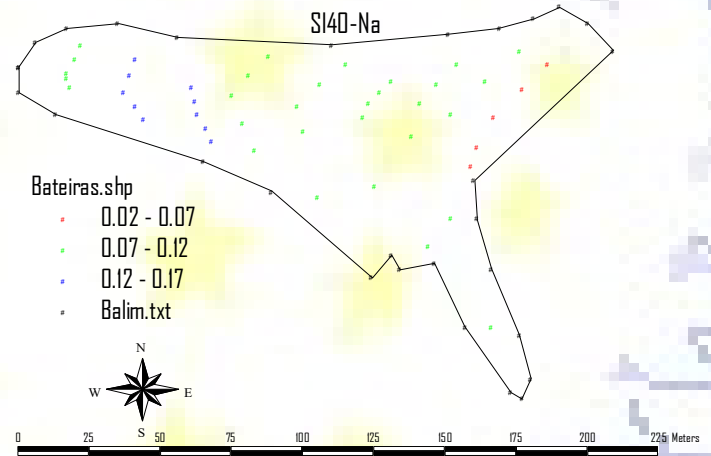


Sodium, in cmol+ / kg, determined between 20 - 40 cm soil dept, inside each plot

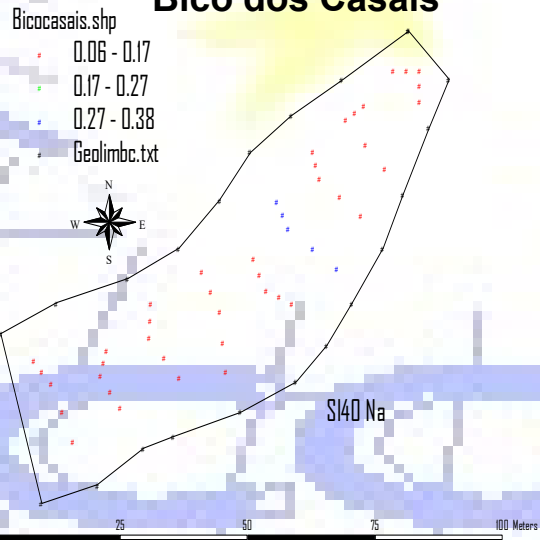
Amendoal



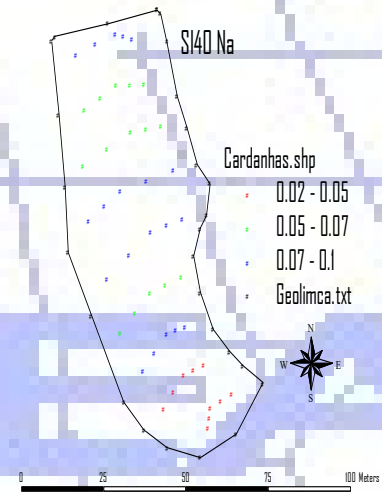
Bateiras



Bico dos Casais

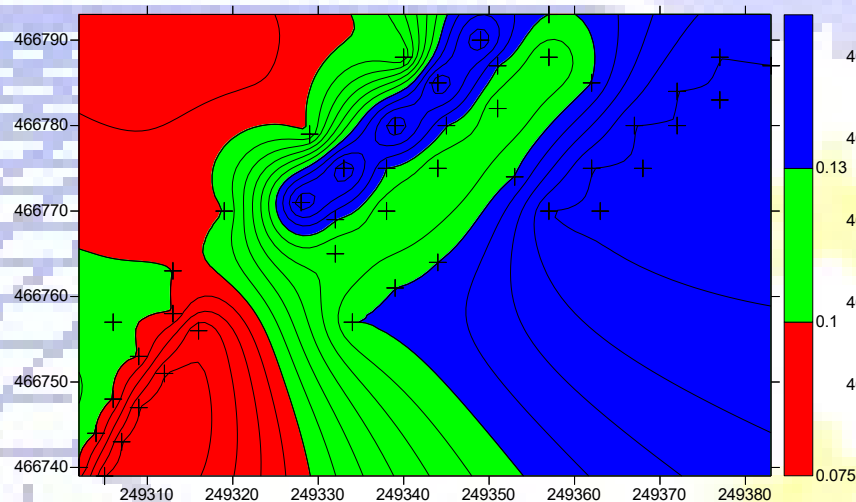


Cardanhas

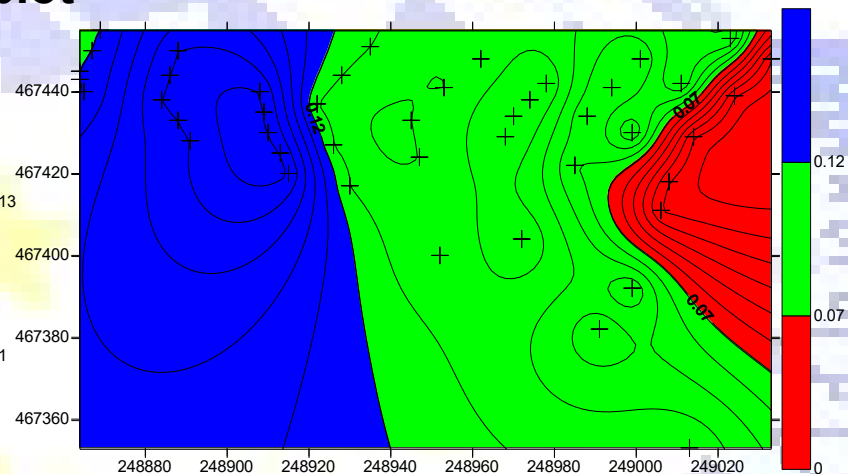


Sodium, in cmol+ / kg, determined between 20 - 40 cm soil dept inside each plot

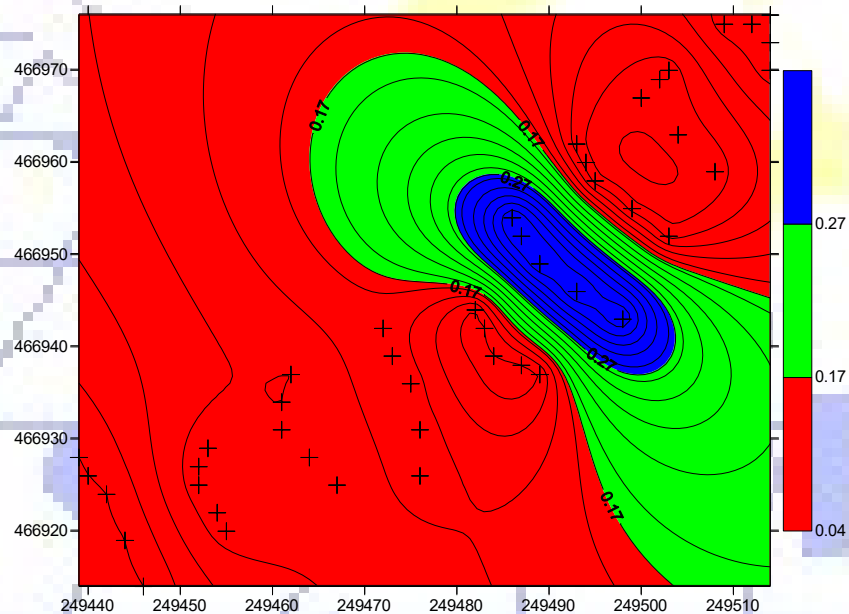
Amendoal



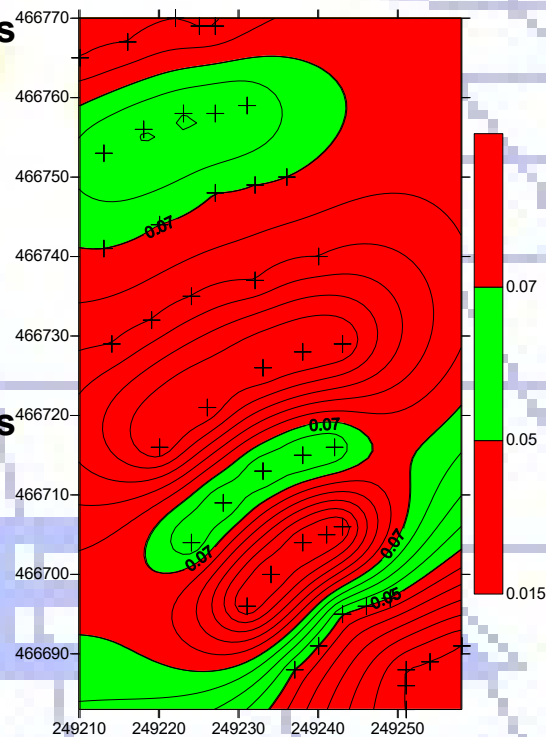
plot



Bico dos Casais



Bateiras



Cardanhas

B ext, in mg / kg, determined in the first 20 cm soil depth and between 20 and 40 cm , for different plots.

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20BH2O	9	0.739	0.153	0.500	0.930
SL40BH2O	9	0.567	0.158	0.330	0.780

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20BH2O	9	0.913	0.444	0.350	1.740
SL40BH2O	9	0.912	0.259	0.630	1.300

DESCRIPTIVE STATISTICS FOR PARC = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20BH2O	9	0.476	0.364	0.130	1.370
SL40BH2O	9	0.502	0.102	0.390	0.700

DESCRIPTIVE STATISTICS FOR PARC = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20BH2O	9	0.690	0.299	0.220	1.170
SL40BH2O	9	0.611	0.265	0.330	1.110

B ext (1), in mg / kg, determined in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20BH2O	18.00	0.83	0.33	0.35	1.74
SL40BH2O	18.00	0.74	0.27	0.33	1.30

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20BH2O	18.00	0.58	0.34	0.13	1.37
SL40BH2O	18.00	0.56	0.20	0.33	1.11

(1)- Boron extracted in warm water

C O R E A

ANOVA soil B, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20BH2O BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.87678	0.29226	2.64	0.0661
WITHIN	32	3.53951	0.11061		
TOTAL	35	4.41629			
BARTLETT'S TEST OF					
		CHI-SQ	DF	P	
EQUAL VARIANCES		7.66	3	0.0535	
COCHRAN'S Q			0.4464		
LARGEST VAR / SMALLEST VAR			8.4282		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.02018	
EFFECTIVE CELL SIZE				9.0	
PARC	MEAN	SAMPLE SIZE	GROUP STD DEV		
Am	0.7389	9	0.1531		
Ba	0.9133	9	0.4444		
BC	0.4756	9	0.3636		
Cd	0.6900	9	0.2987		
TOTAL	0.7044	36	0.3326		
CASES INCLUDED		36	MISSING CASES	0	

ONE-WAY AOV FOR SL20BH2O BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.53290	0.53290	4.67	0.0379
WITHIN	34	3.88339	0.11422		
TOTAL	35	4.41629			
BARTLETT'S TEST OF					
		CHI-SQ	DF	P	
EQUAL VARIANCES		0.01	1	0.9382	
COCHRAN'S Q			0.5095		
LARGEST VAR / SMALLEST VAR			1.0389		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.02326	
EFFECTIVE CELL SIZE				18.0	
INST	MEAN	SAMPLE SIZE	GROUP STD DEV		
Pt	0.8261	18	0.3347		
VA	0.5828	18	0.3412		
TOTAL	0.7044	36	0.3380		
CASES INCLUDED		36	MISSING CASES	0	

Soils classification concerning Bo

B (mg/kg)	Soil classification
< 0.4	Low
0.4 - 1.0	Medium
> 1.0	Hight

Origin: Quelhas dos Santos

ANOVA soil B, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40BH2O BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.89136	0.29712	6.89	0.0010
WITHIN	32	1.37900	0.04309		
TOTAL	35	2.27036			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	7.94	3	0.0472

COCHRAN'S Q 0.4066

LARGEST VAR / SMALLEST VAR 6.7752

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.02823

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	0.5667	9	0.1581
Ba	0.9122	9	0.2587
BC	0.5022	9	0.1017
Cd	0.6111	9	0.2647
TOTAL	0.6481	36	0.2076
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40BH2O BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.30067	0.30067	5.19	0.0291
WITHIN	34	1.96969	0.05793		
TOTAL	35	2.27036			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	1.48	1	0.2243

COCHRAN'S Q 0.6462

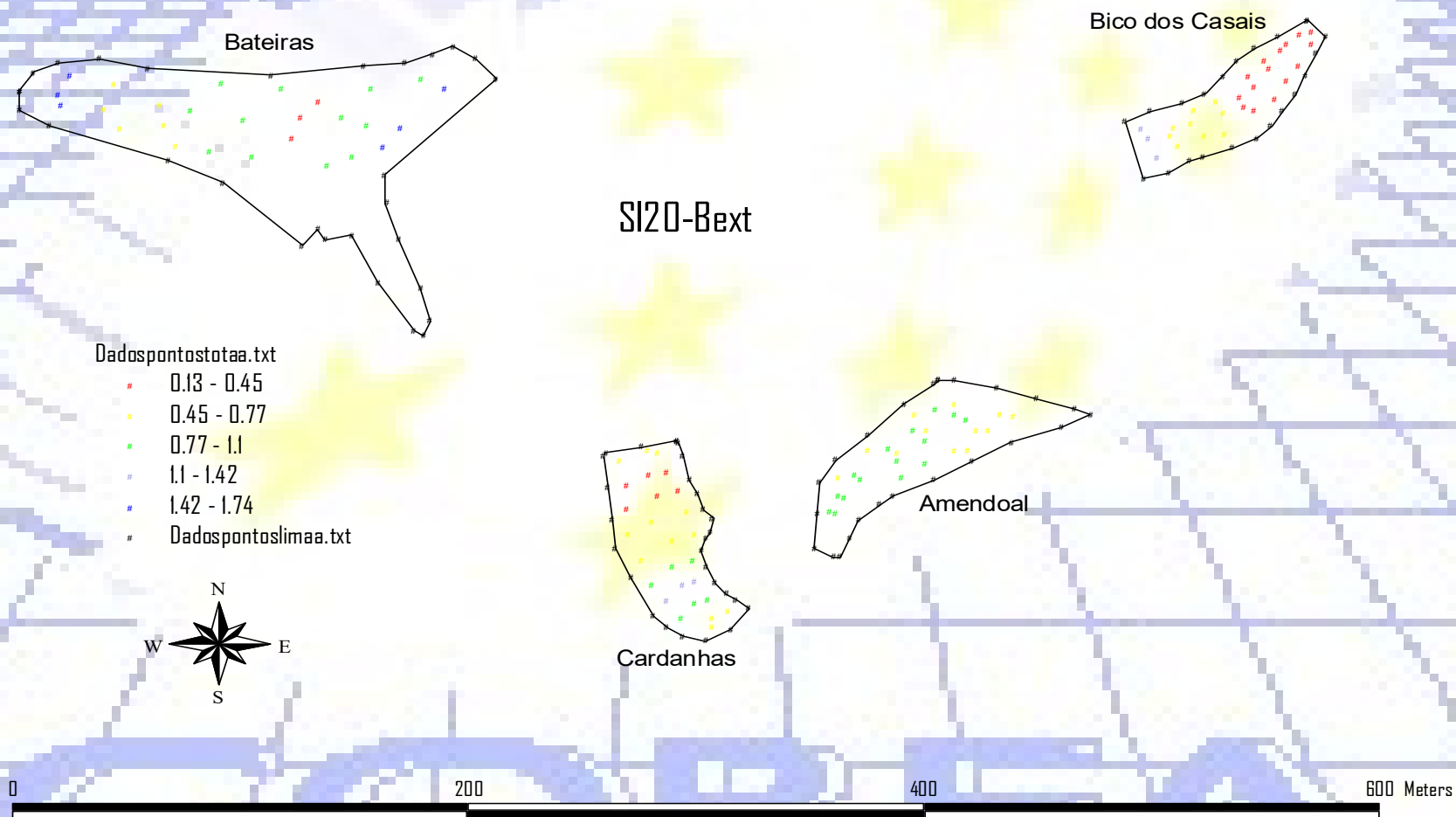
LARGEST VAR / SMALLEST VAR 1.8268

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.01349

EFFECTIVE CELL SIZE 18.0

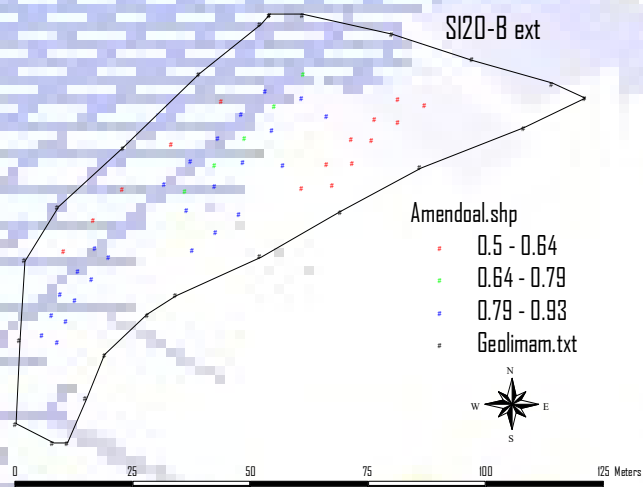
INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.7394	18	0.2736
VA	0.5567	18	0.2025
TOTAL	0.6481	36	0.2407
CASES INCLUDED	36	MISSING CASES	0

B, in mg / kg, determined in the first 20 cm soil depth, for all plots

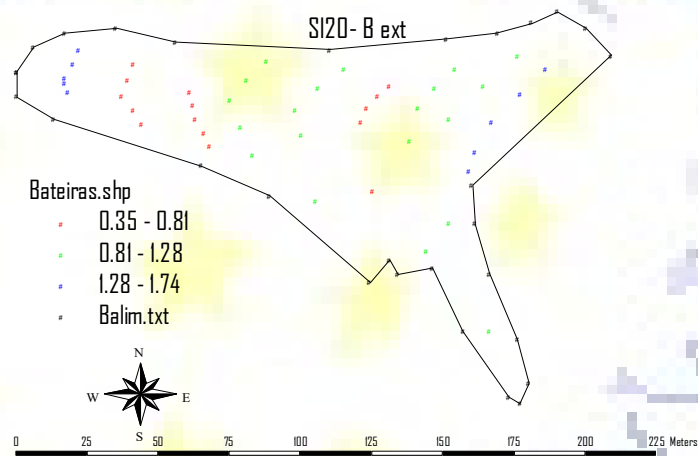


B, in mg / kg, determined in the first 20 cm soil depth, inside each plot

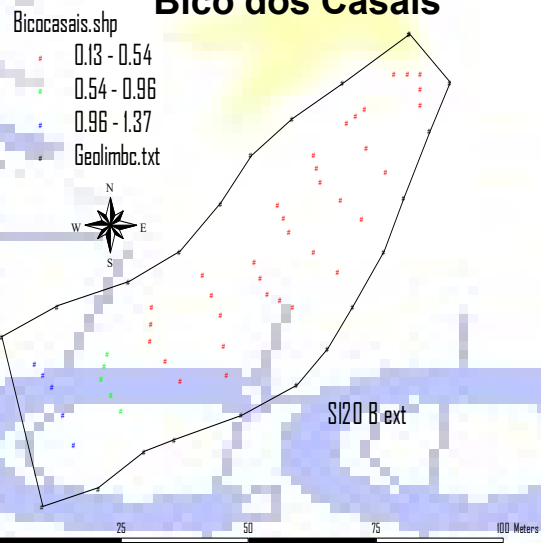
Amendoal



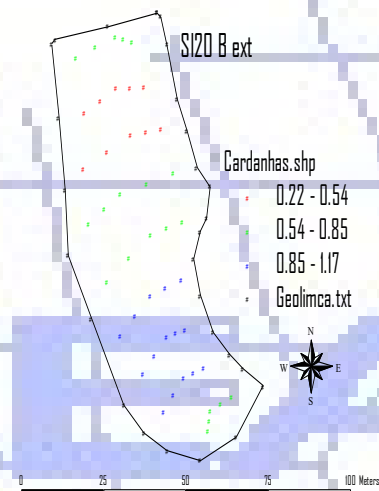
Bateiras



Bico dos Casais

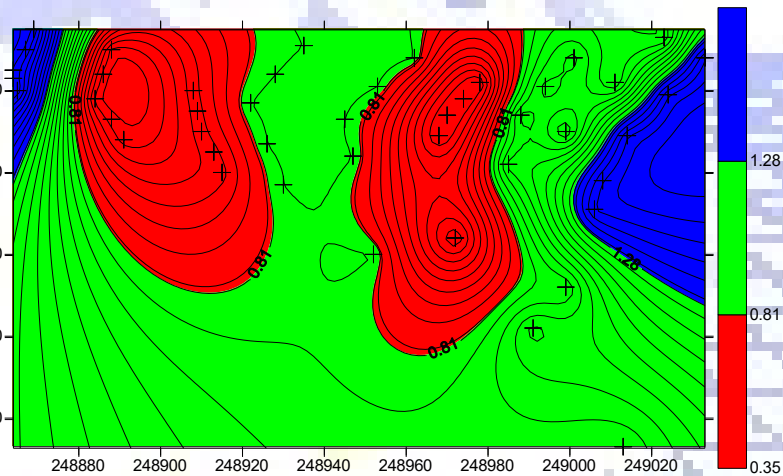
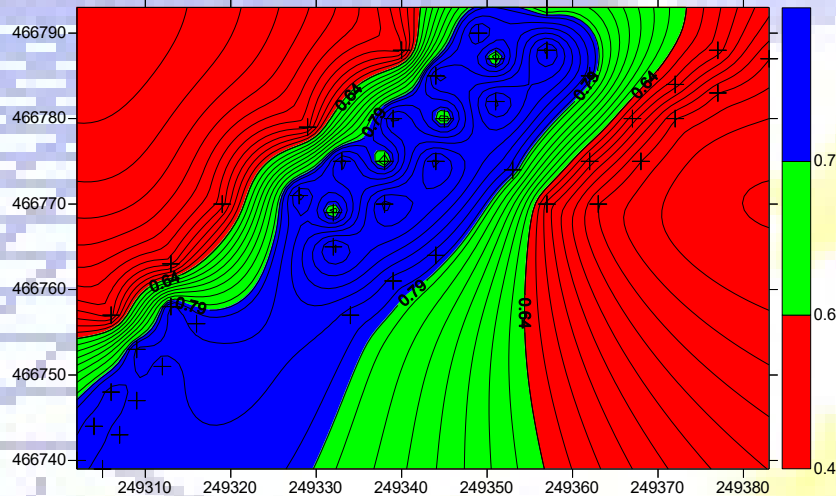


Cardanhas

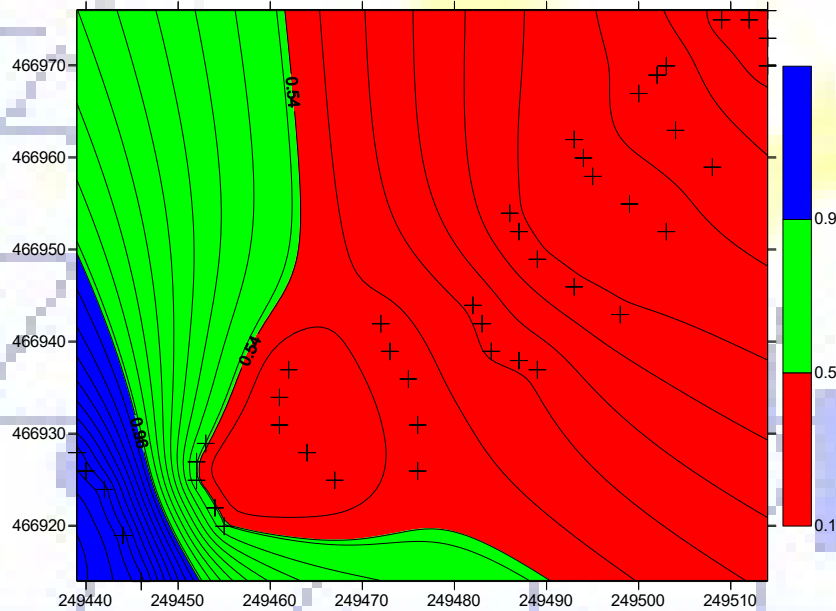


B, in mg / kg, determined in the first 20 cm soil depth, inside each plot

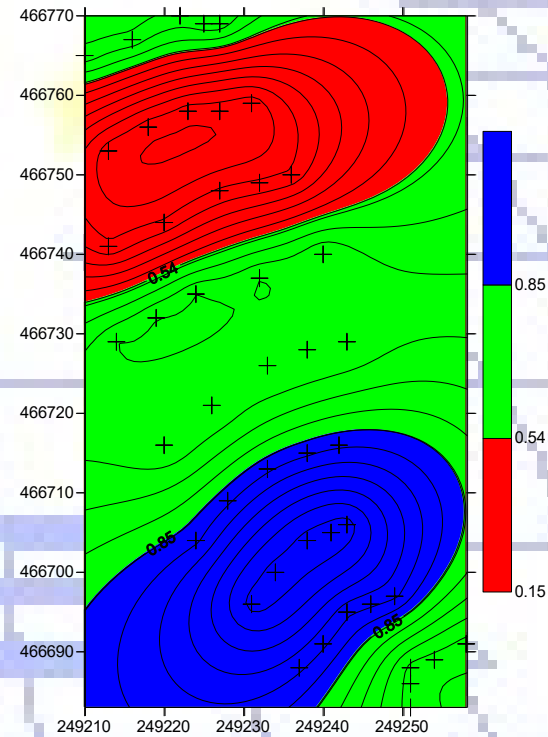
Amendoal



Bico dos Casais

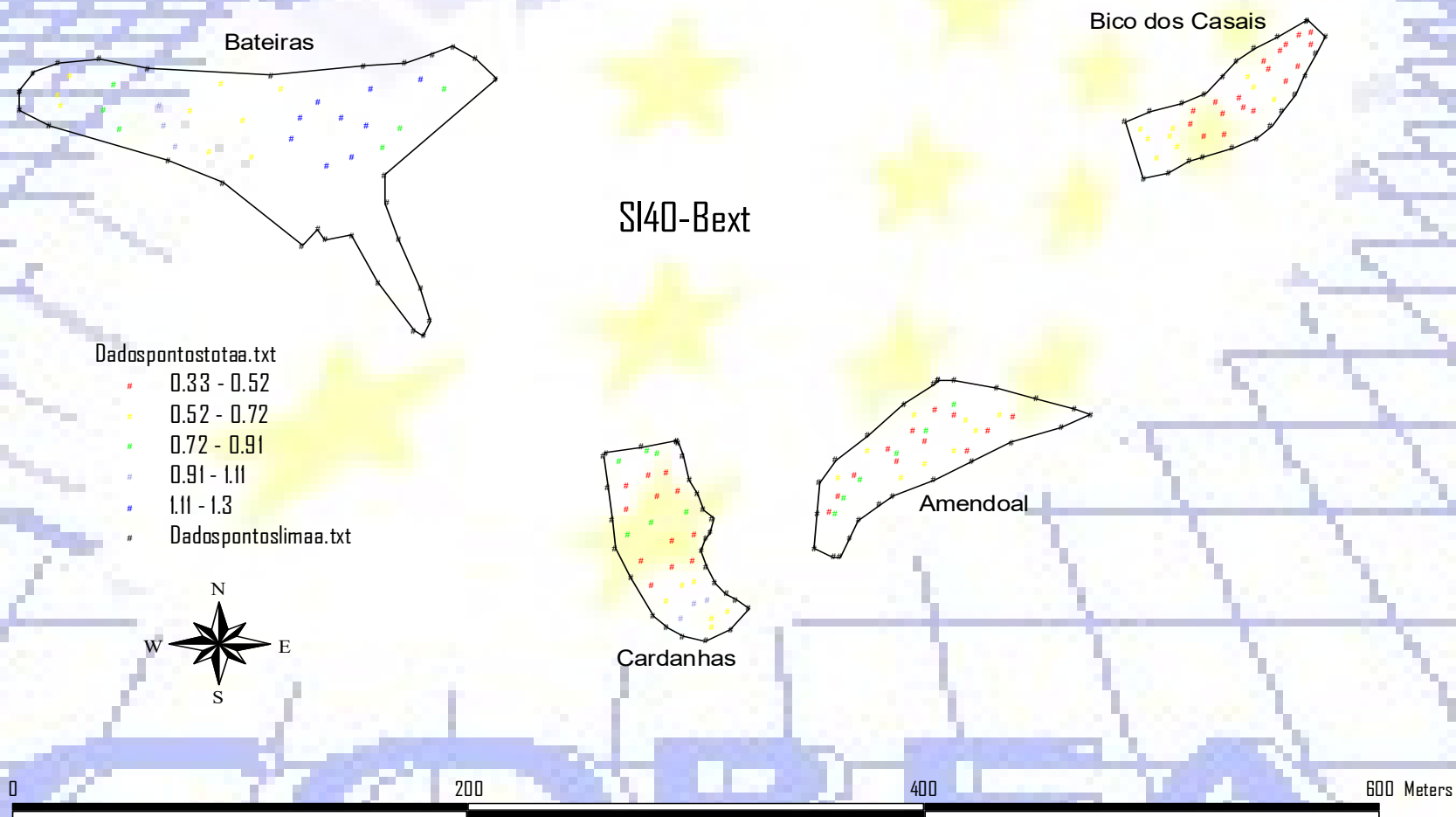


Bateiras



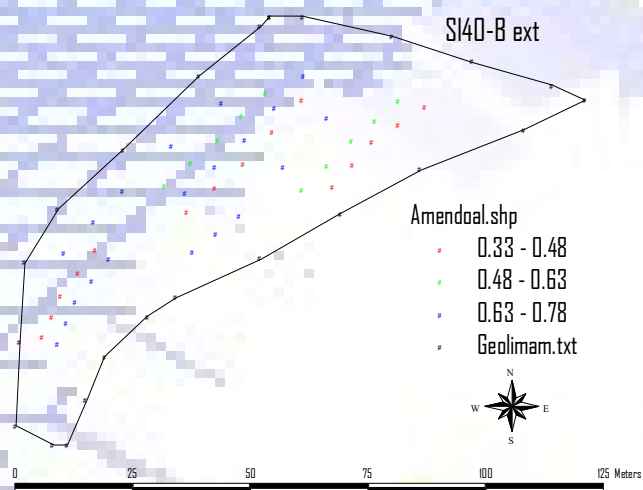
Cardanhas

B, in mg / kg, determined between 20 - 40 cm soil depth, for all plots

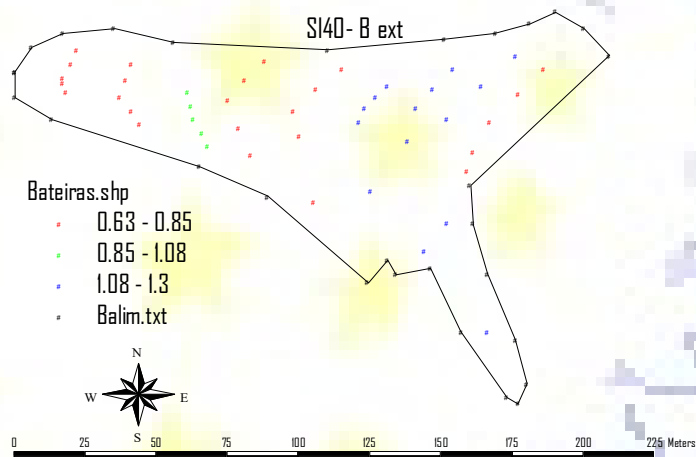


B, in mg / kg, determined between 20 - 40 cm soil depth, inside each plot

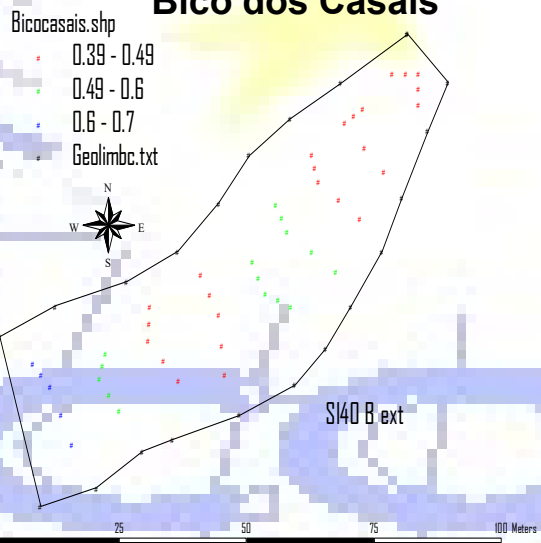
Amendoal



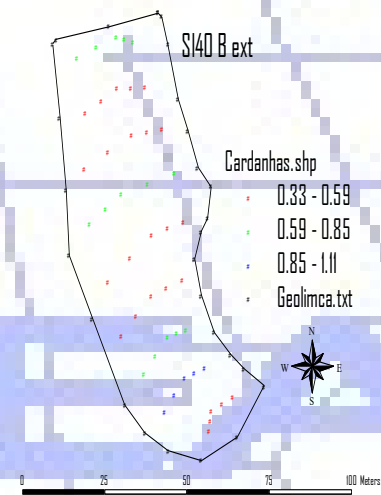
Bateiras



Bico dos Casais

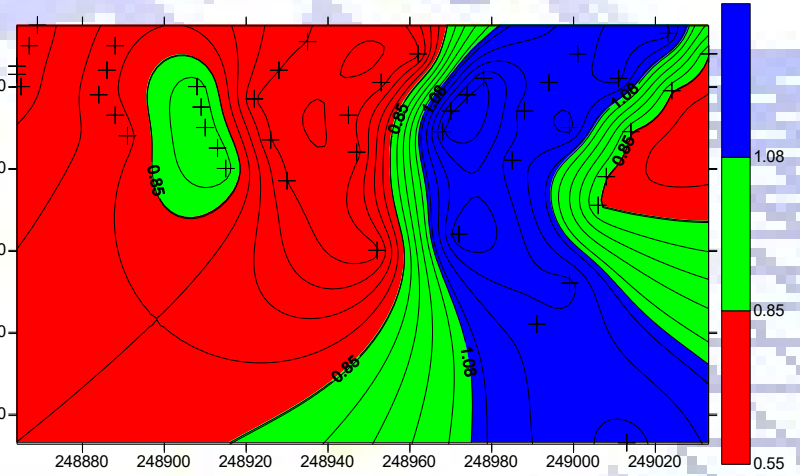
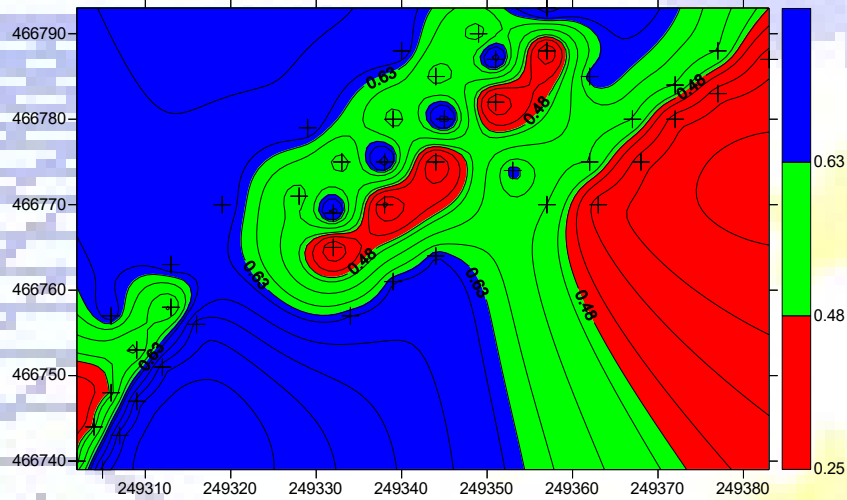


Cardanhas



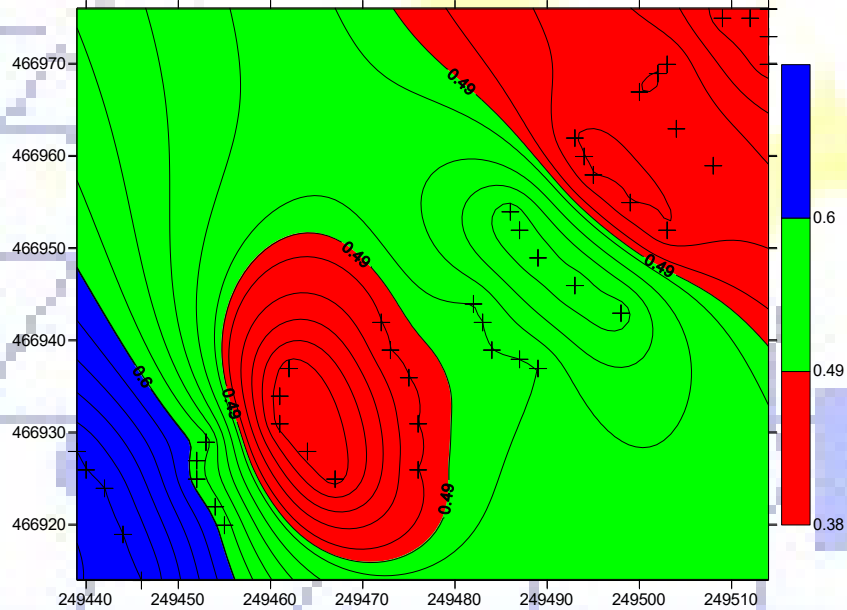
B, in mg / kg, determined between 20 - 40 cm soil depth, inside each plot

Amendoal

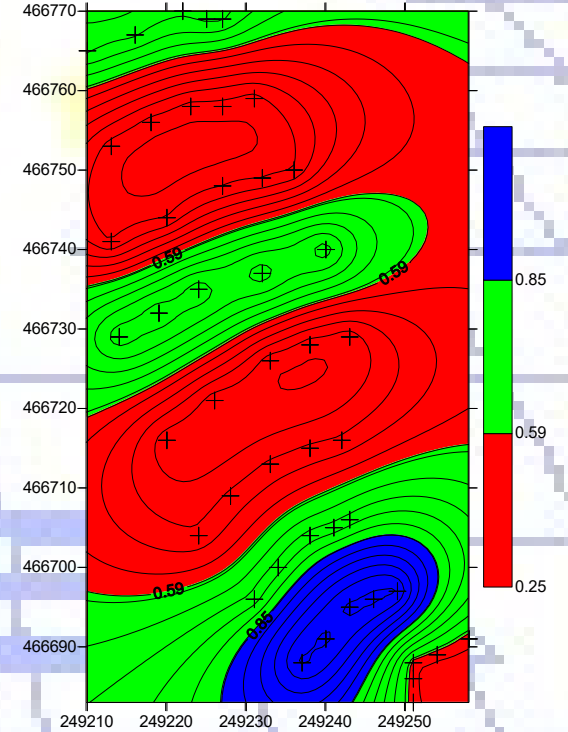


Bateiras

Bico dos Casais



Cardanhas



AT (1), SBT (2), CTCe (3), in cmol+ / kg, determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20AT	9	0.110	0.046	0.070	0.210
SL20SBT	9	11.003	1.160	8.980	12.170
SL20CTCE	9	11.113	1.175	9.050	12.240
SL40AT	9	0.094	0.035	0.050	0.160
SL40SBT	9	10.872	1.139	8.730	12.310
SL40CTCE	9	10.968	1.156	8.830	12.470

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20AT	9	0.386	0.165	0.140	0.640
SL20SBT	9	10.238	1.430	8.120	12.160
SL20CTCE	9	10.624	1.322	8.760	12.430
SL40AT	9	0.424	0.240	0.230	0.990
SL40SBT	9	10.117	1.422	7.940	12.040
SL40CTCE	9	10.543	1.342	8.200	12.270

(1) - Exchange acidity; (2) - Total exchange bases

(3) - Cationic effective exchange capacity

AT, SBT, CTCe, in cmol+ / kg, determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots.

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20AT	9	0.267	0.167	0.000	0.530
SL20SBT	9	12.361	4.166	7.000	18.260
SL20CTCE	9	12.627	4.121	7.530	18.260
SL40AT	9	0.286	0.229	0.000	0.830
SL40SBT	9	11.957	3.900	7.560	18.350
SL40CTCE	9	12.242	3.994	7.770	19.180

DESCRIPTIVE STATISTICS FOR plot = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20AT	9	0.496	0.262	0.070	0.830
SL20SBT	9	6.452	1.176	4.180	8.030
SL20CTCE	9	6.950	1.189	4.990	8.860
SL40AT	9	0.462	0.281	0.050	0.940
SL40SBT	9	6.697	1.609	3.300	8.650
SL40CTCE	9	7.157	1.520	4.240	9.320

CONFIDENTIAL

AT, SBT, CTCe, in cmol+ / kg, determined in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20AT	18	0.248	0.184	0.070	0.640
SL20SBT	18	10.621	1.323	8.120	12.170
SL20CTCE	18	10.869	1.239	8.760	12.430
SL40AT	18	0.259	0.238	0.050	0.990
SL40SBT	18	10.494	1.309	7.940	12.310
SL40CTCE	18	10.756	1.234	8.200	12.470

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20AT	18	0.381	0.243	0.000	0.830
SL20SBT	18	9.407	4.250	4.180	18.260
SL20CTCE	18	9.788	4.146	4.990	18.260
SL40AT	18	0.374	0.265	0.000	0.940
SL40SBT	18	9.327	3.962	3.300	18.350
SL40CTCE	18	9.699	3.929	4.240	19.180

ANOVA soil AT, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20AT BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.73744	0.24581	7.84	0.0005
WITHIN	32	1.00364	0.03136		
TOTAL	35	1.74109			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	16.74	3	0.0008
COCHRAN'S Q		0.5458	
LARGEST VAR / SMALLEST VAR		33.001	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.02383
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	0.1100	9	0.0456
Ba	0.3856	9	0.1646
BC	0.2667	9	0.1667
Cd	0.4956	9	0.2617
TOTAL	0.3144	36	0.1771
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20AT BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.16000	0.16000	3.44	0.0723
WITHIN	34	1.58109	0.04650		
TOTAL	35	1.74109			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	1.27	1	0.2590
COCHRAN'S Q		0.6363	
LARGEST VAR / SMALLEST VAR		1.7492	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.00631
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.2478	18	0.1839
VA	0.3811	18	0.2433
TOTAL	0.3144	36	0.2156
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil SBT, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20SBT BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	173.016	57.6721	10.42	0.0001
WITHIN	32	177.030	5.53220		
TOTAL	35	350.047			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	20.17	3	0.0002

COCHRAN'S Q 0.7843

LARGEST VAR / SMALLEST VAR 12.903

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 5.79333

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	11.003	9	1.1598
Ba	10.238	9	1.4303
BC	12.361	9	4.1660
Cd	6.4522	9	1.1756
TOTAL	10.014	36	2.3521
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20SBT BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	13.2617	13.2617	1.34	0.2553
WITHIN	34	336.785	9.90544		
TOTAL	35	350.047			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	18.70	1	0.0000

COCHRAN'S Q 0.9116

LARGEST VAR / SMALLEST VAR 10.315

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.18646

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	10.621	18	1.3232
VA	9.4067	18	4.2497
TOTAL	10.014	36	3.1473
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil CTCe, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20CTCE BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	156.594	52.1981	9.70	0.0001
WITHIN	32	172.199	5.38121		
TOTAL	35	328.793			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	20.32	3	0.0001
COCHRAN'S Q		0.7890	
LARGEST VAR / SMALLEST VAR		12.306	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	5.20188
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	11.113	9	1.1747
Ba	10.624	9	1.3218
BC	12.627	9	4.1211
Cd	6.9500	9	1.1893
TOTAL	10.329	36	2.3197
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20CTCE BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	10.5084	10.5084	1.12	0.2968
WITHIN	34	318.285	9.36131		
TOTAL	35	328.793			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	19.83	1	0.0000
COCHRAN'S Q		0.9180	
LARGEST VAR / SMALLEST VAR		11.198	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	0.06373
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	10.869	18	1.2389
VA	9.7883	18	4.1458
TOTAL	10.329	36	3.0596
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil AT, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40AT BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.74838	0.24946	5.25	0.0047
WITHIN	32	1.52142	0.04754		
TOTAL	35	2.26980			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	21.90	3	0.0001

COCHRAN'S Q 0.4152

LARGEST VAR / SMALLEST VAR 65.656

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.02243

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	0.0944	9	0.0347
Ba	0.4244	9	0.2401
BC	0.2856	9	0.2289
Cd	0.4622	9	0.2810
TOTAL	0.3167	36	0.2180
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL40AT BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.11788	0.11788	1.86	0.1813
WITHIN	34	2.15192	0.06329		
TOTAL	35	2.26980			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	0.19	1	0.6624

COCHRAN'S Q 0.5536

LARGEST VAR / SMALLEST VAR 1.2400

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.00303

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	0.2594	18	0.2377
VA	0.3739	18	0.2647
TOTAL	0.3167	36	0.2516
CASES INCLUDED	36	MISSING CASES	0

ANOVA soil SBT, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40SBT BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	139.346	46.4488	8.80	0.0002
WITHIN	32	168.956	5.27986		
TOTAL	35	308.302			
BARTLETT'S TEST OF					
		CHI-SQ	DF	P	
EQUAL VARIANCES		15.34	3	0.0015	
COCHRAN'S Q			0.7202		
LARGEST VAR / SMALLEST VAR			11.727		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				4.57433	
EFFECTIVE CELL SIZE				9.0	
PARC	MEAN	SAMPLE SIZE	GROUP STD DEV		
Am	10.872	9	1.1389		
Ba	10.117	9	1.4222		
BC	11.957	9	3.9001		
Cd	6.6967	9	1.6090		
TOTAL	9.9106	36	2.2978		
CASES INCLUDED		36	MISSING CASES	0	

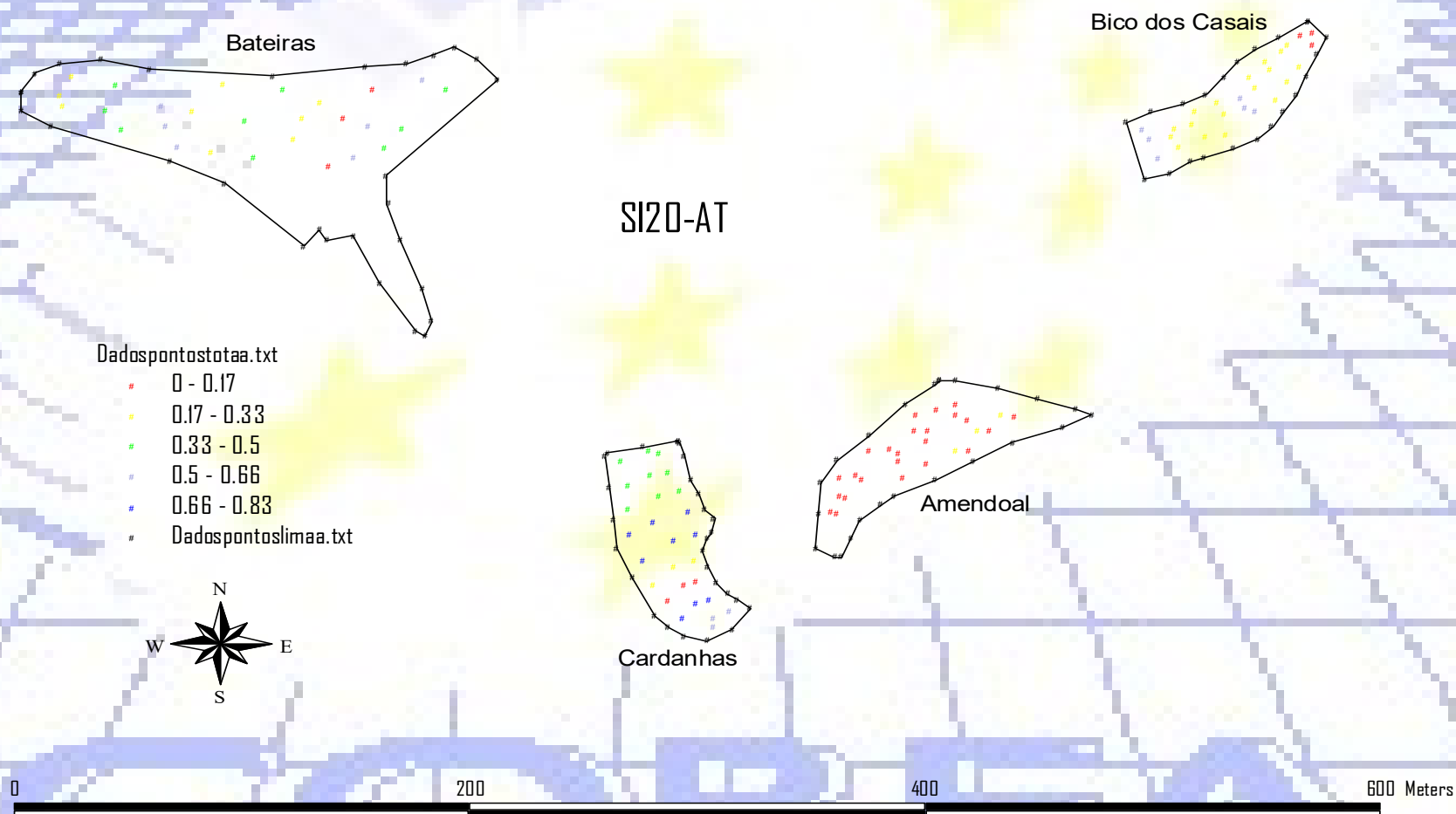
ONE-WAY AOV FOR SL40SBT BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	12.2733	12.2733	1.41	0.2433
WITHIN	34	296.029	8.70672		
TOTAL	35	308.302			
BARTLETT'S TEST OF					
		CHI-SQ	DF	P	
EQUAL VARIANCES		17.11	1	0.0000	
COCHRAN'S Q			0.9016		
LARGEST VAR / SMALLEST VAR			9.1638		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.19815	
EFFECTIVE CELL SIZE				18.0	
INST	MEAN	SAMPLE SIZE	GROUP STD DEV		
Pt	10.494	18	1.3089		
VA	9.3267	18	3.9623		
TOTAL	9.9106	36	2.9507		
CASES INCLUDED		36	MISSING CASES	0	

ANOVA soil CTCe, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40CTCE BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	127.232	42.4107	7.93	0.0004
WITHIN	32	171.139	5.34808		
TOTAL	35	298.371			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		16.91	3	0.0007	
COCHRAN'S Q			0.7455		
LARGEST VAR / SMALLEST VAR			11.944		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				4.11806	
EFFECTIVE CELL SIZE					9.0
		SAMPLE	GROUP		
PARC	MEAN	SIZE	STD DEV		
Am	10.968	9	1.1555		
Ba	10.543	9	1.3416		
BC	12.242	9	3.9935		
Cd	7.1567	9	1.5195		
TOTAL	10.227	36	2.3126		
CASES INCLUDED		36	MISSING CASES 0		

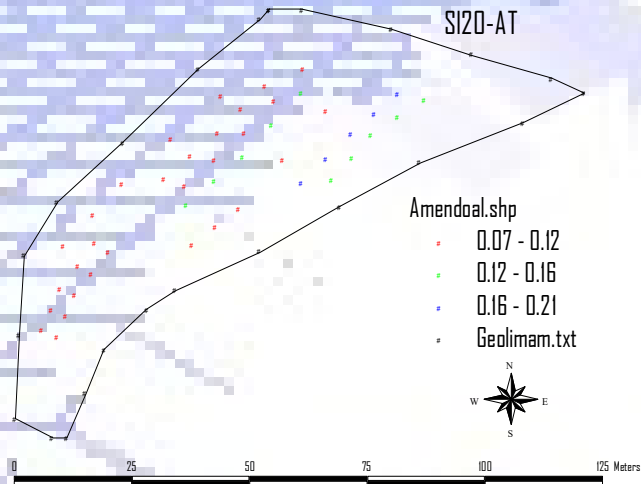
ONE-WAY AOV FOR SL40CTCE BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	10.0383	10.0383	1.18	0.2843
WITHIN	34	288.332	8.48036		
TOTAL	35	298.371			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF		-----	-----	-----	
EQUAL VARIANCES		18.46	1	0.0000	
COCHRAN'S Q			0.9102		
LARGEST VAR / SMALLEST VAR			10.136		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.08655	
EFFECTIVE CELL SIZE					18.0
		SAMPLE	GROUP		
INST	MEAN	SIZE	STD	DEV	
-----	-----	-----	-----	-----	
Pt	10.756	18	1.2341		
VA	9.6994	18	3.9291		
TOTAL	10.227	36	2.9121		
CASES INCLUDED		36	MISSING CASES 0		

AT, in $\text{cmol}^+ / \text{kg}$, determined in the first 20 cm soil depth, for all plots

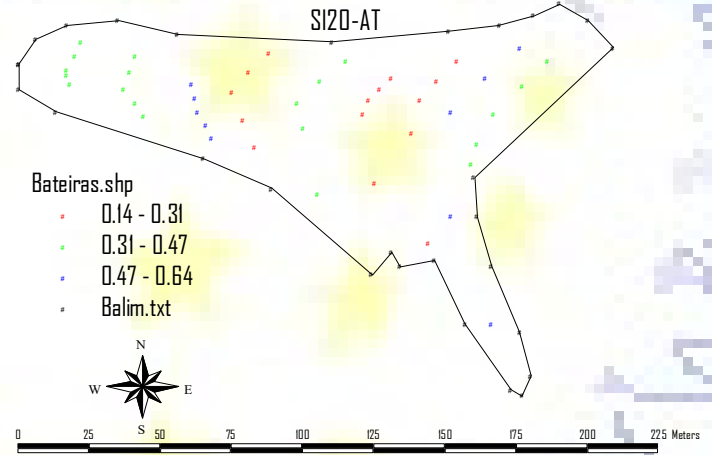


AT, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

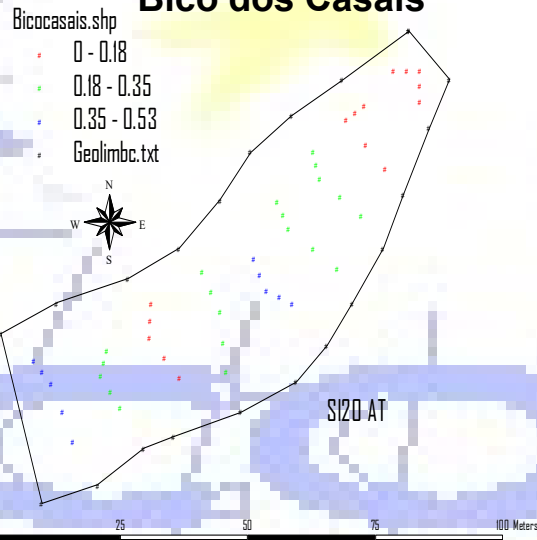
Amendoal



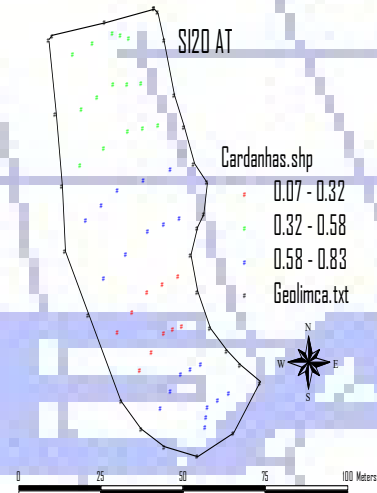
Bateiras



Bico dos Casais

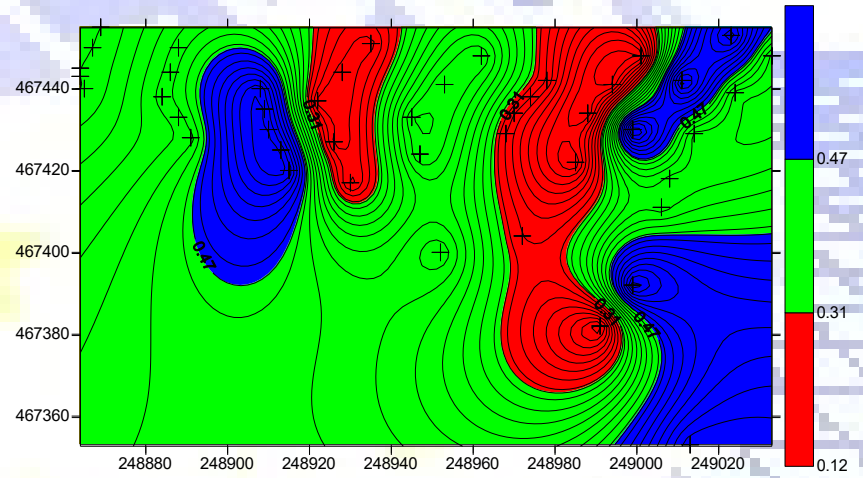
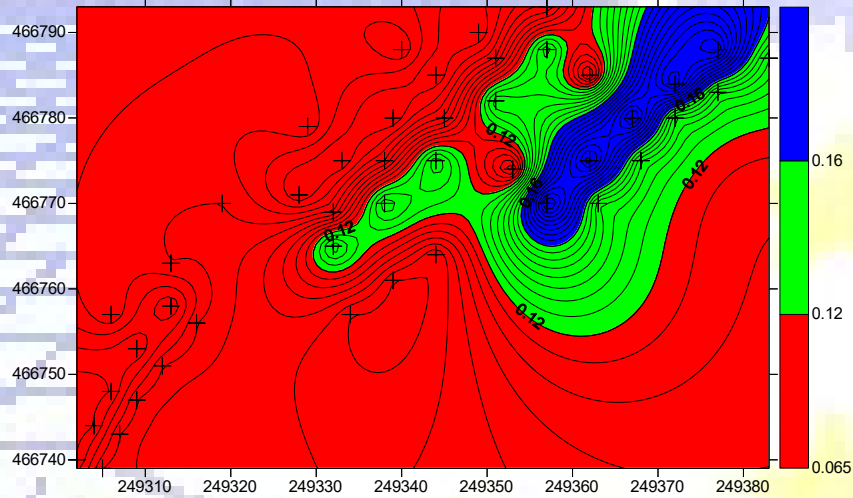


Cardanhas

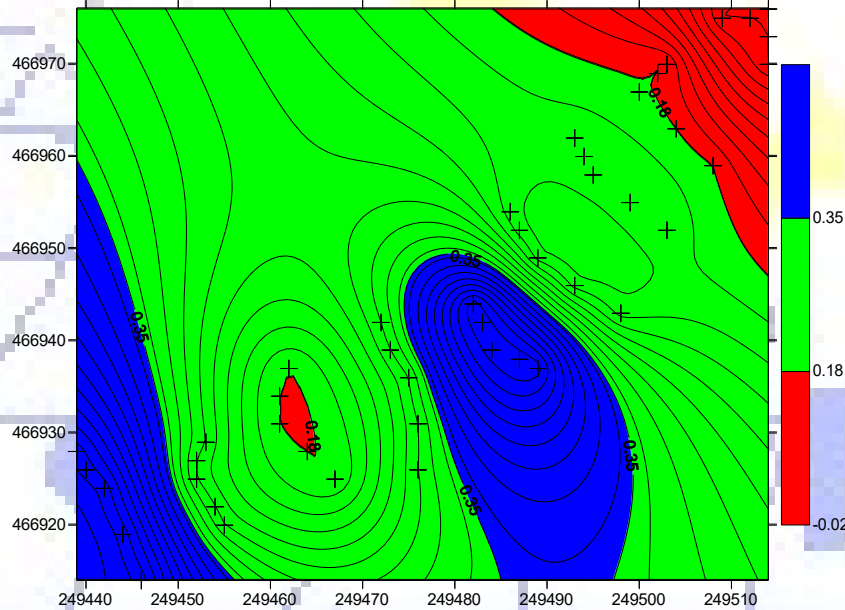


AT, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

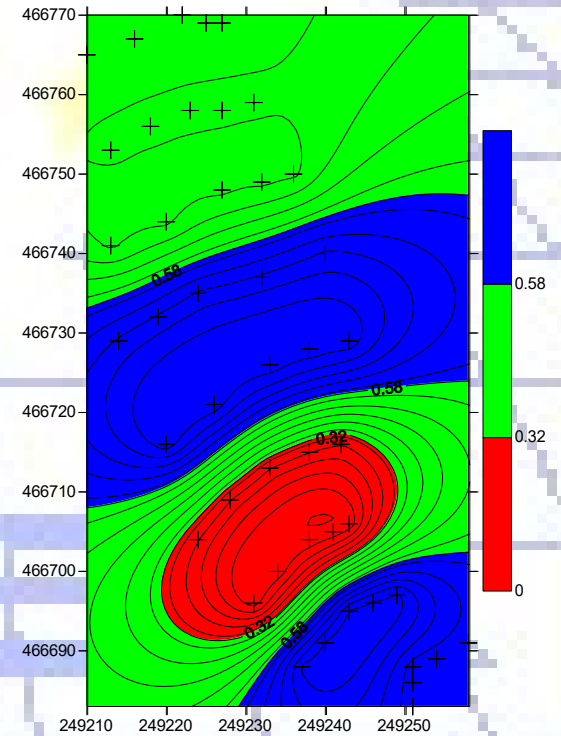
Amendoal



Bico dos Casais

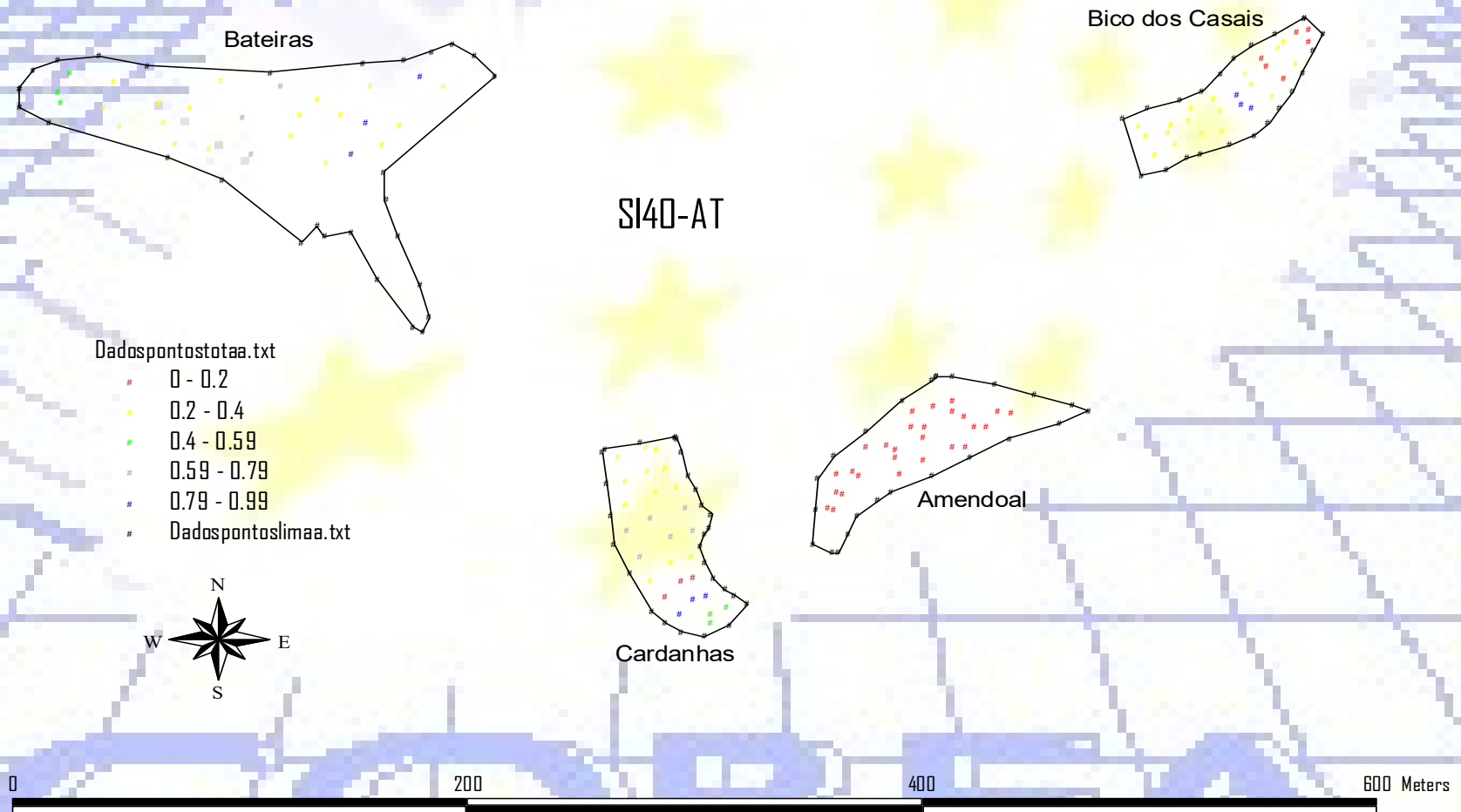


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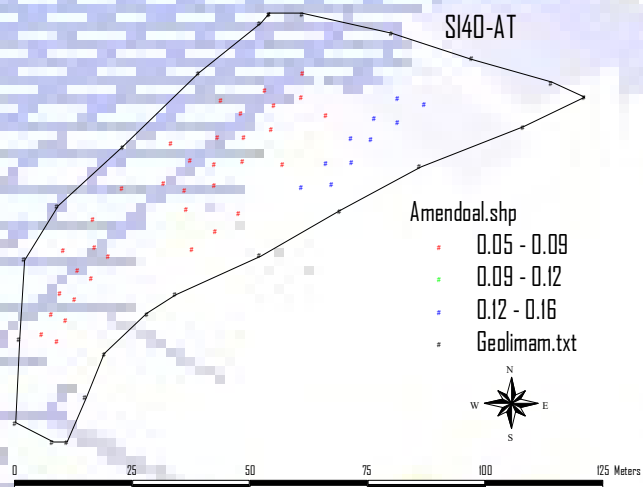
Cardanhas

AT, in cmol+ / kg, determined between 20 - 40 cm soil depth, for all plots

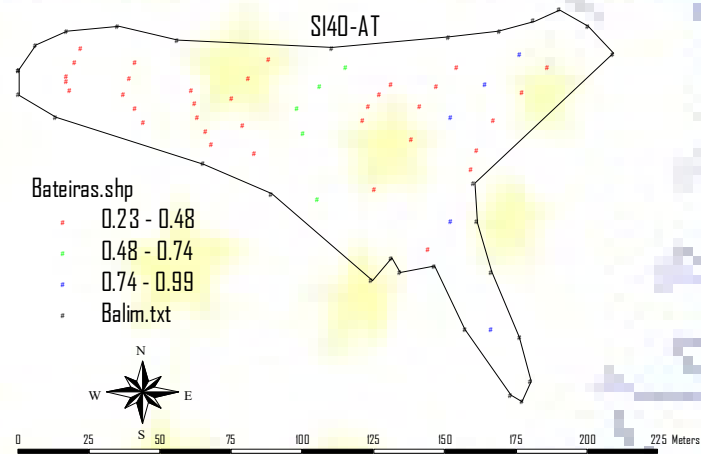


AT, in cmol+ / kg, determined between 20 - 40 cm soil depth, inside each plot

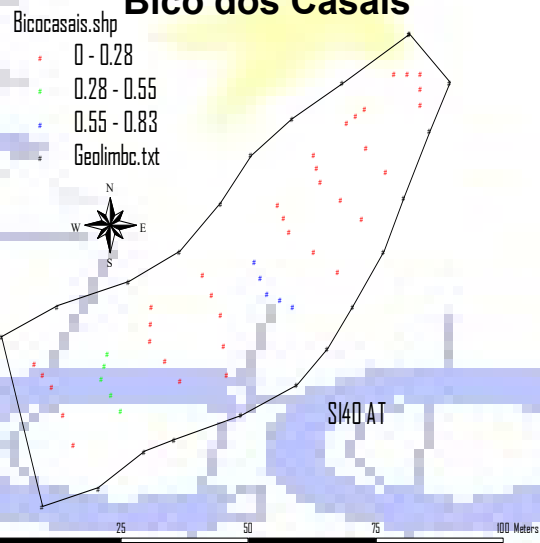
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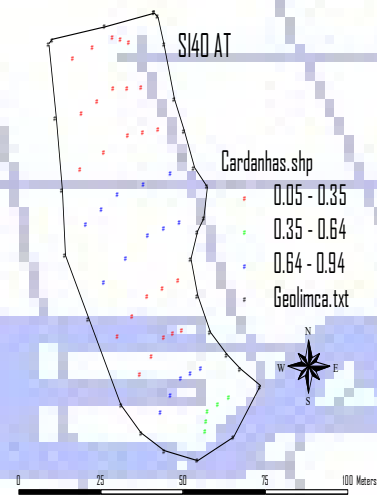
Bateiras



Bico dos Casais

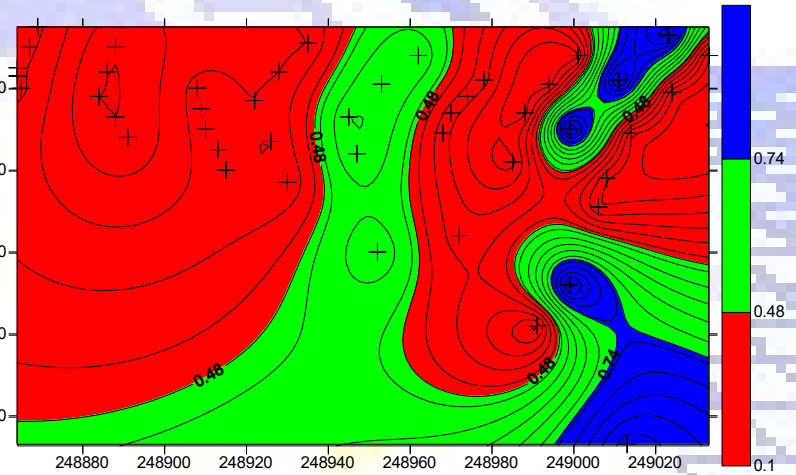
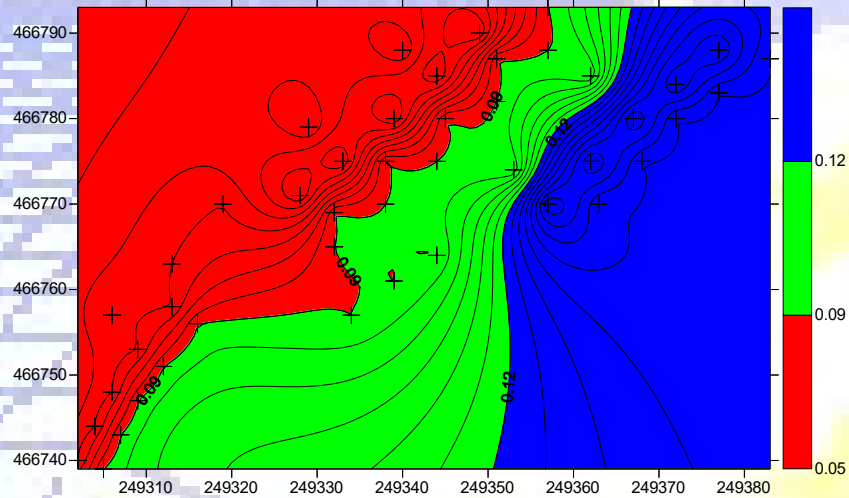


Cardanhas

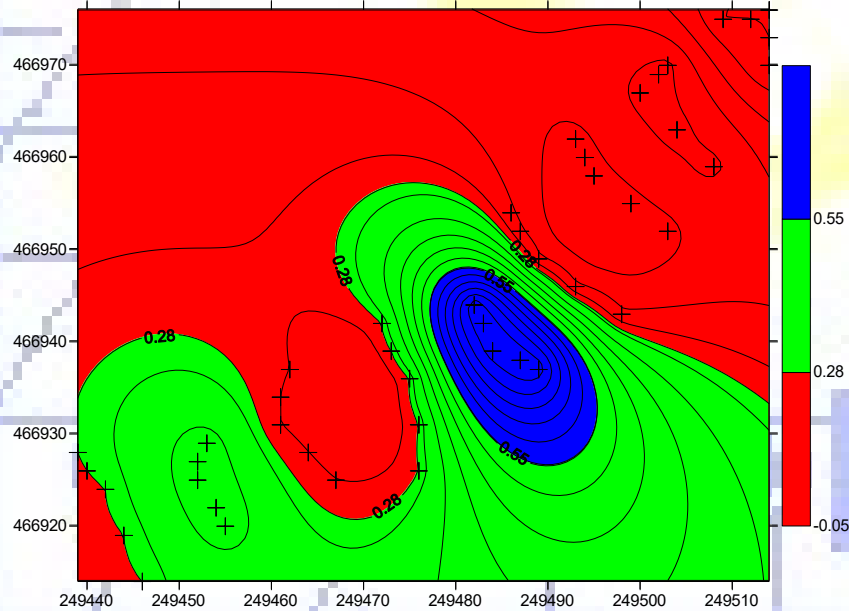


AT, in cmol+ / kg, determined between 20 - 40 cm soil depth, inside each plot

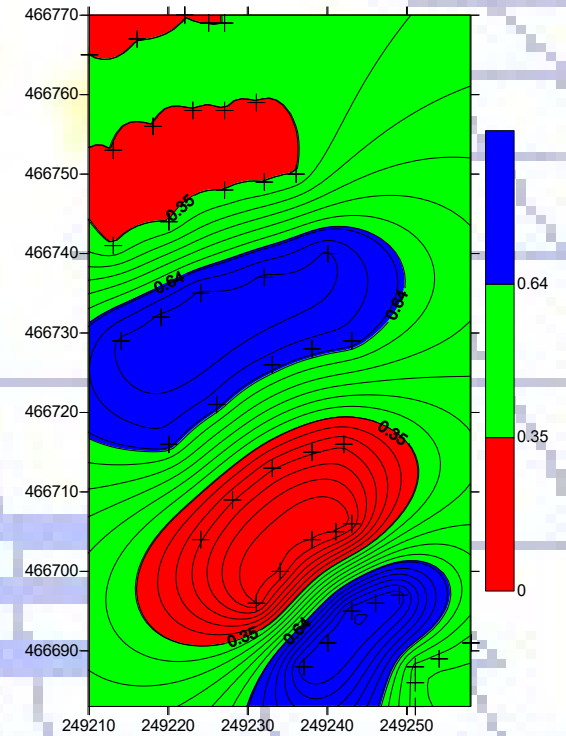
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Bico dos Casais

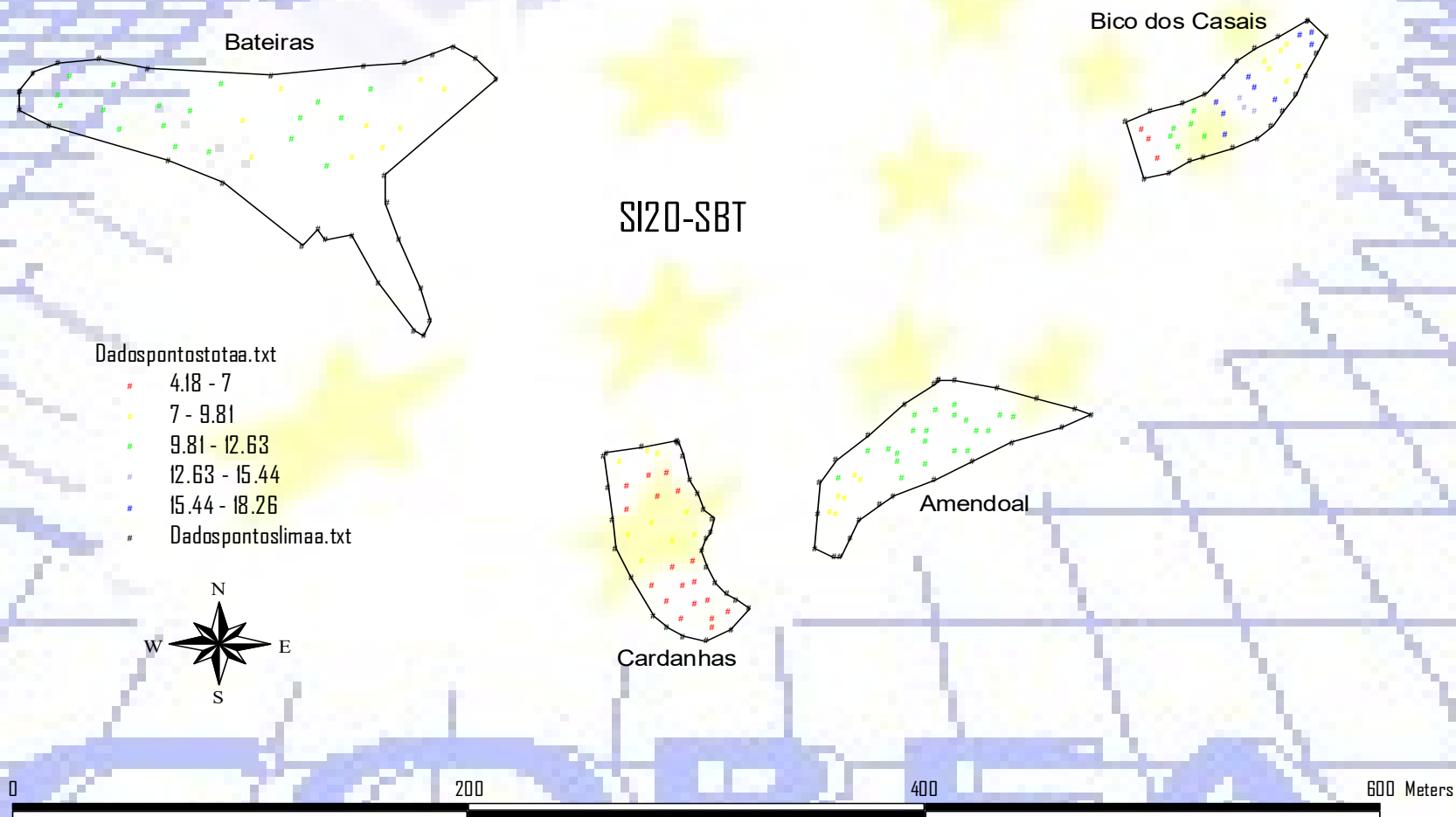


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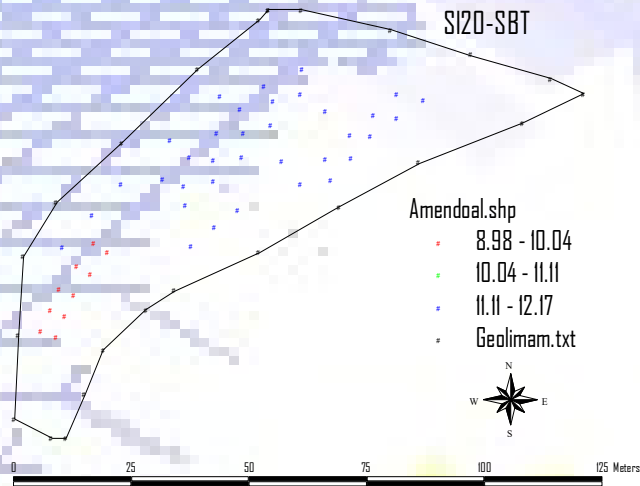
Cardanhas

SBT, in $\text{cmol}^+ / \text{kg}$, determined in the first 20 cm soil depth, for all plots

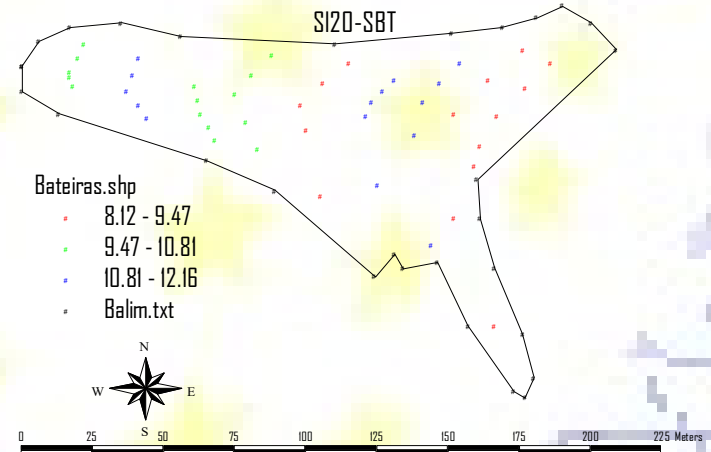


SBT, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

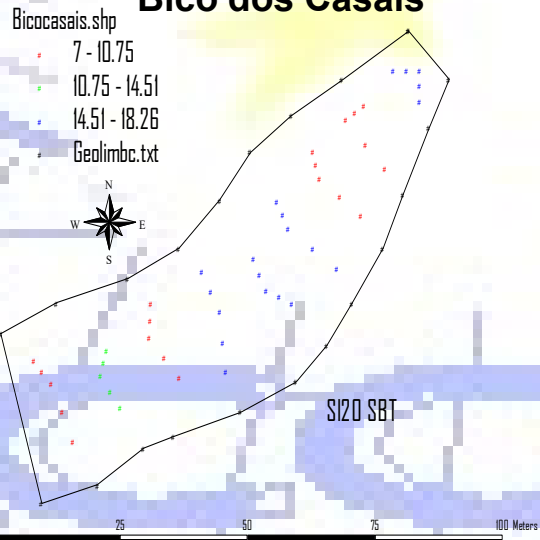
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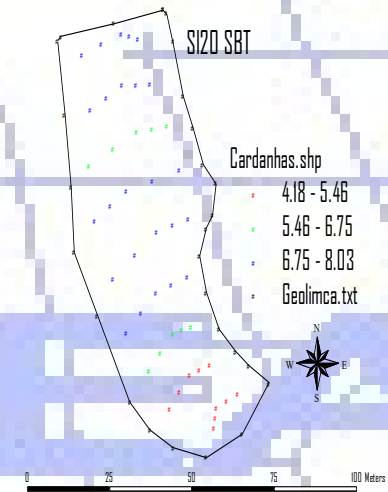
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Bico dos Casais

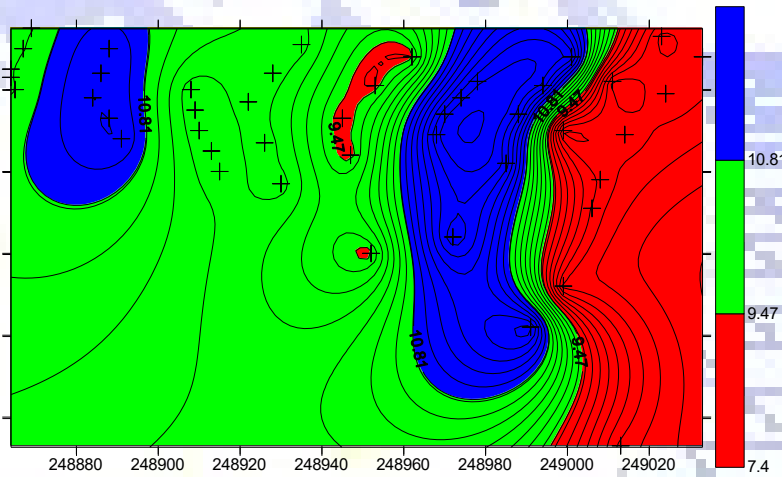
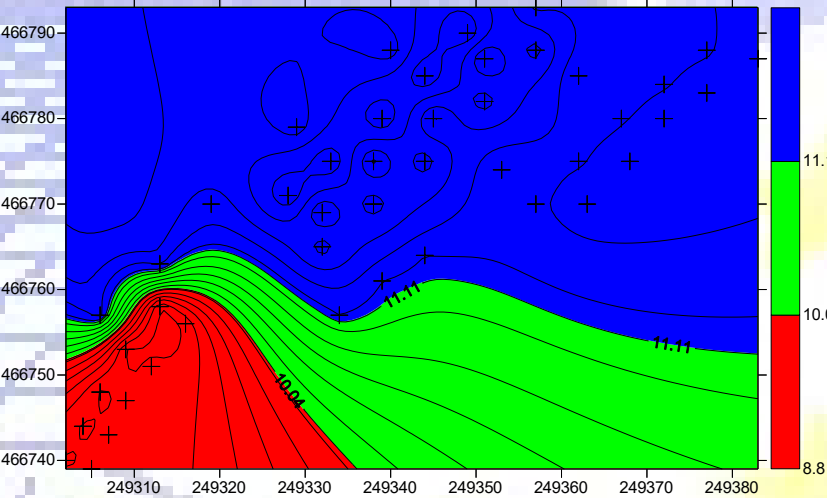


Cardanhas



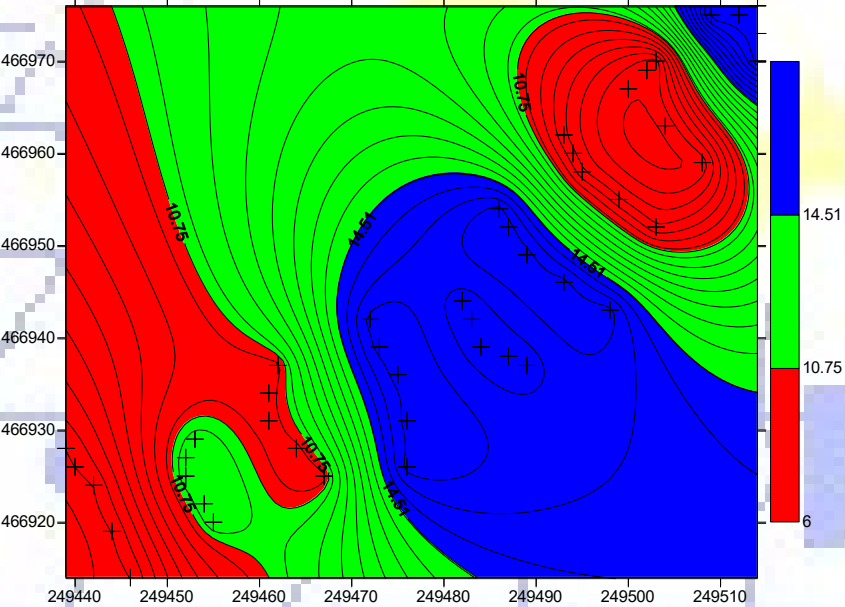
SBT, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

Amendoal

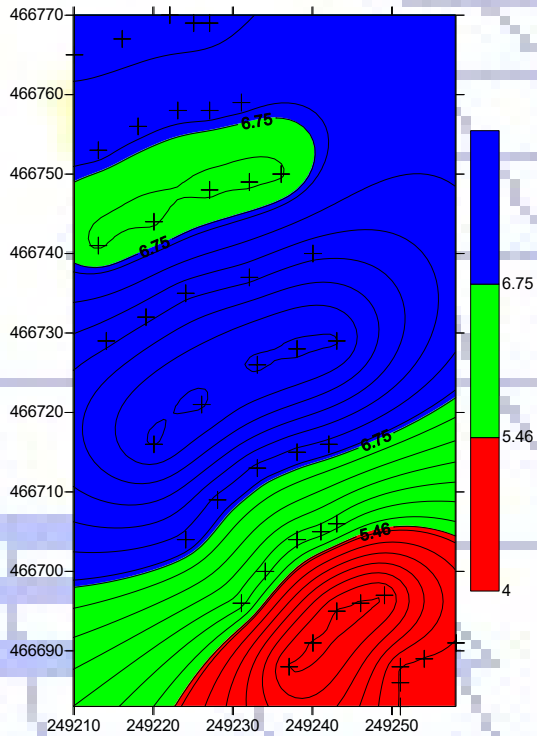


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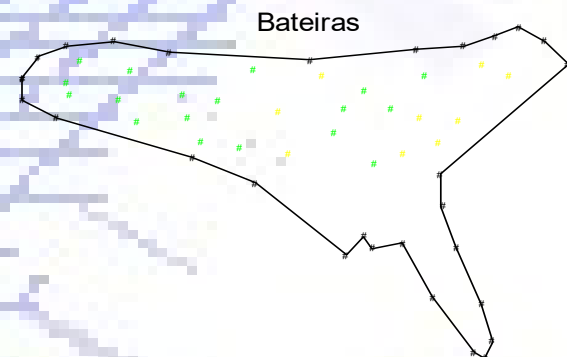
Bico dos Casais



Cardanhas



SBT, in cmol+ / kg, determined between 20 - 40 cm soil depth, for all plots



Bico dos Casais

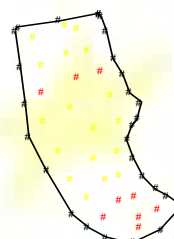


SI40-SBT

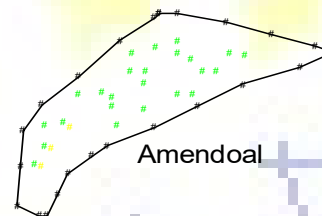
Dadospontostotaa.txt

- 3.3 - 6.31
- 6.31 - 9.32
- 9.32 - 12.33
- 12.33 - 15.34
- 15.34 - 18.35

■ Dadospontoslmaa.txt



Cardanhas

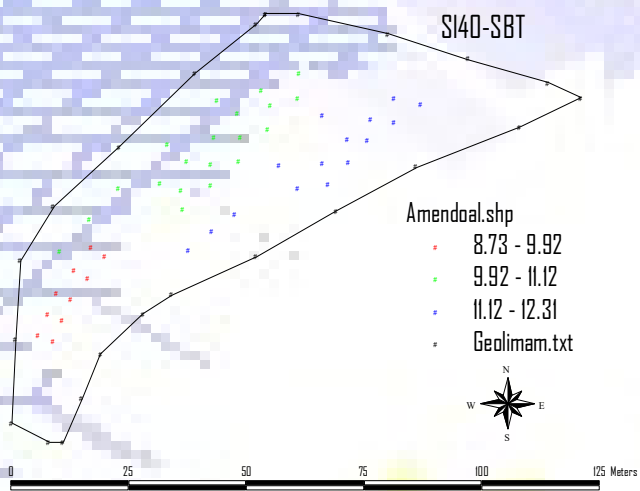


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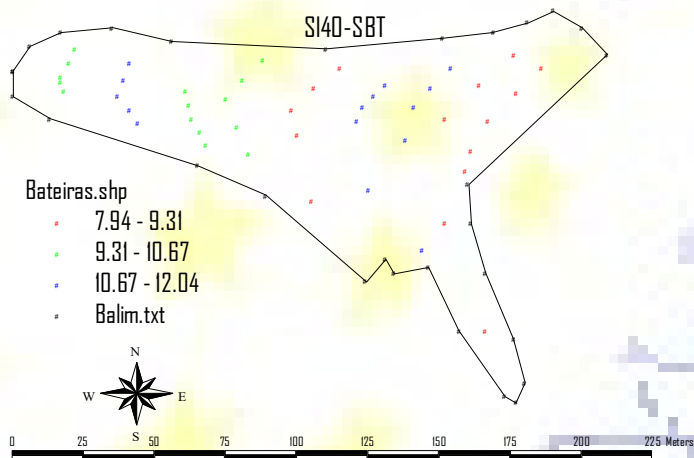


SBT, in cmol+ / kg, determined between 20 - 40 cm soil depth, inside each plot

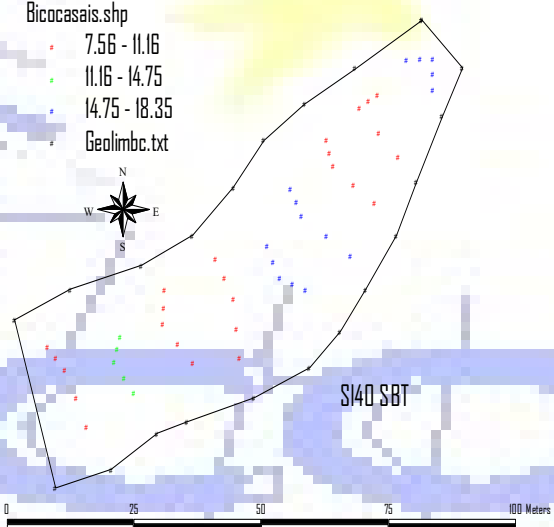
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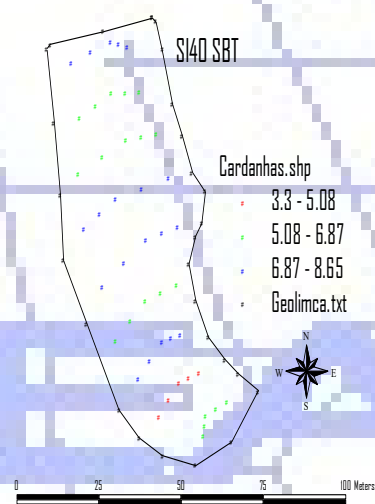
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Bico dos Casais

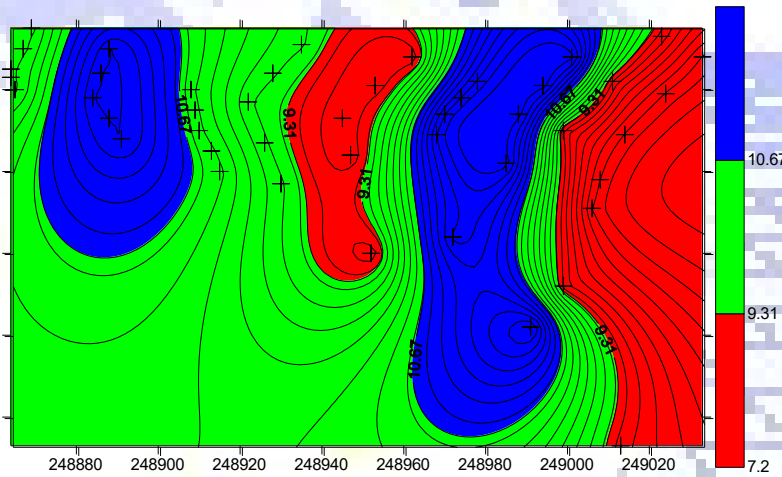
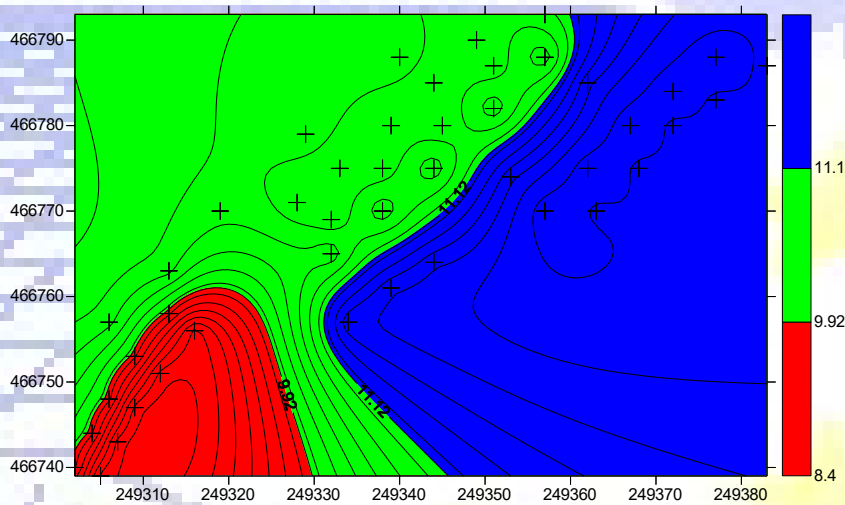


Cardanhas

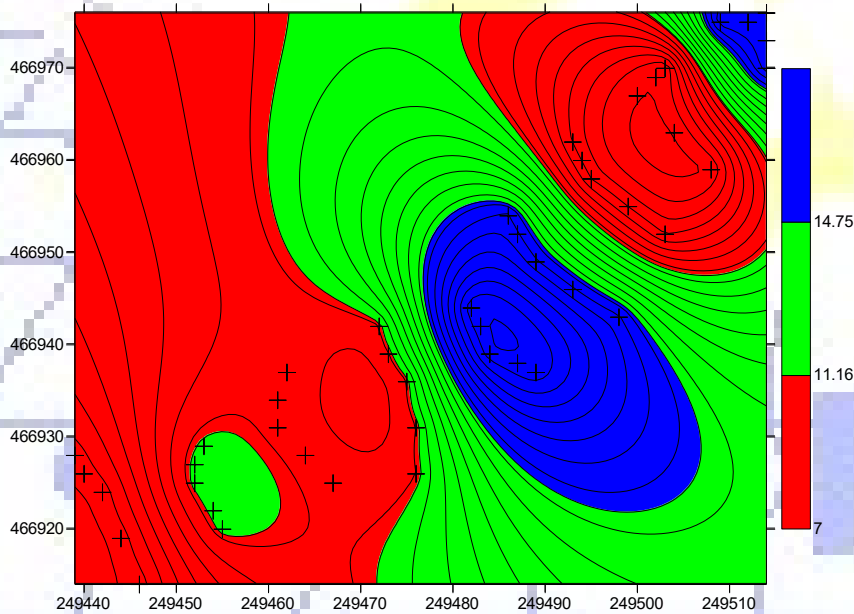


SBT, in cmol+ / kg, determined between 20 - 40 cm soil depth, inside each plot

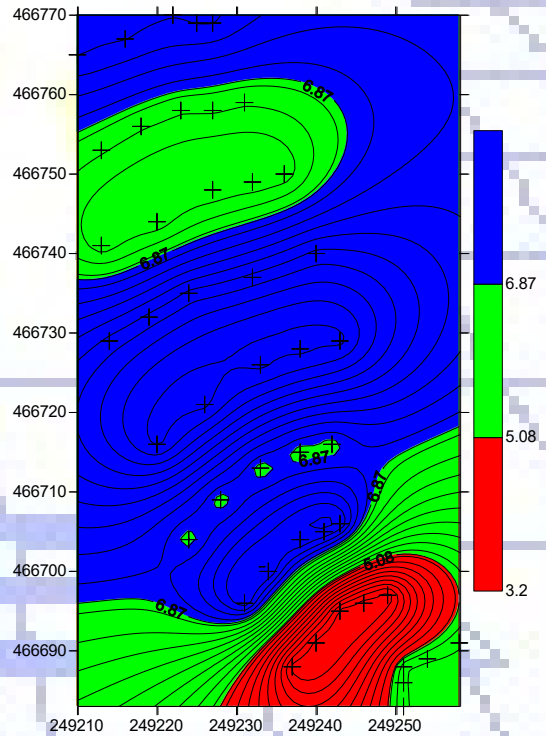
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Bico dos Casais

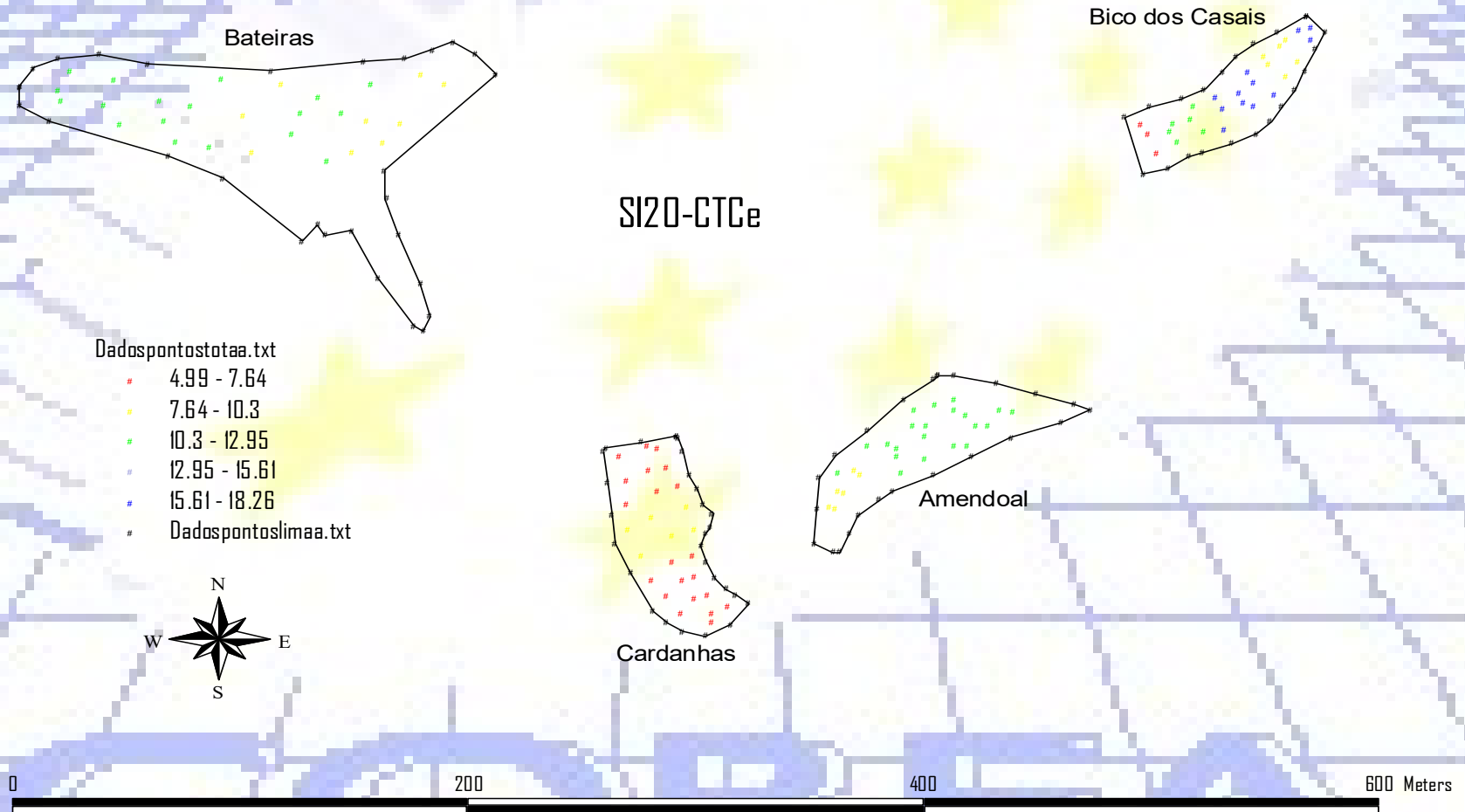


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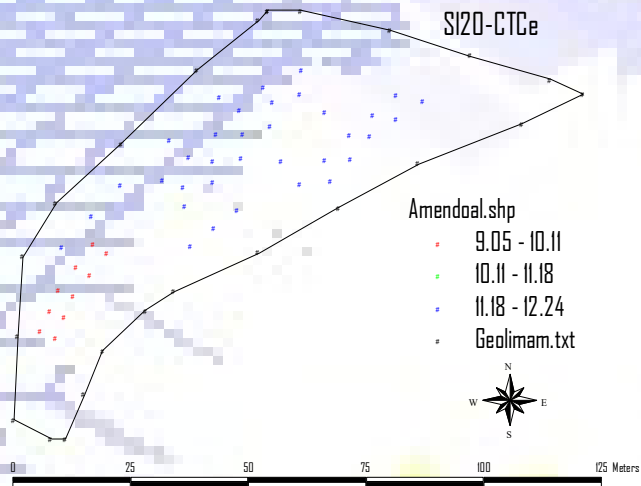
Cardanhas

CTCe, in cmol+ / kg, determined in the first 20 cm soil depth, for all plots

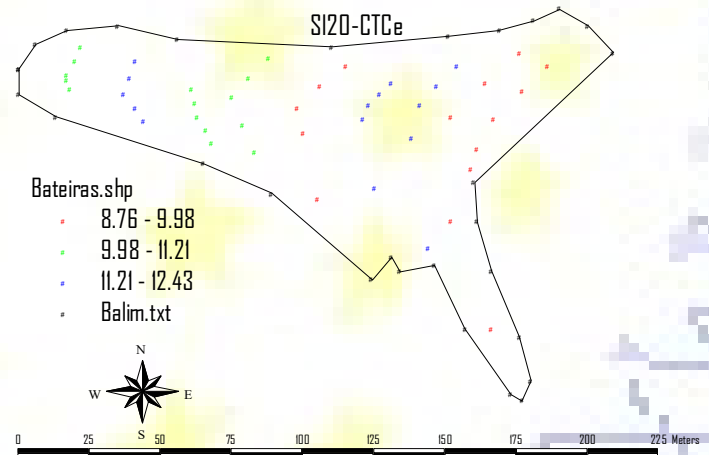


CTCe, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

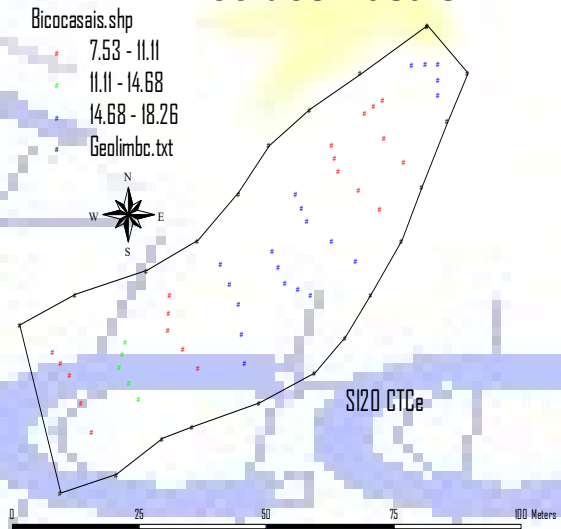
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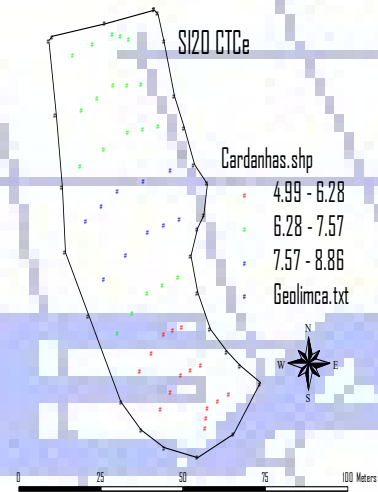
Bateiras



Bico dos Casais

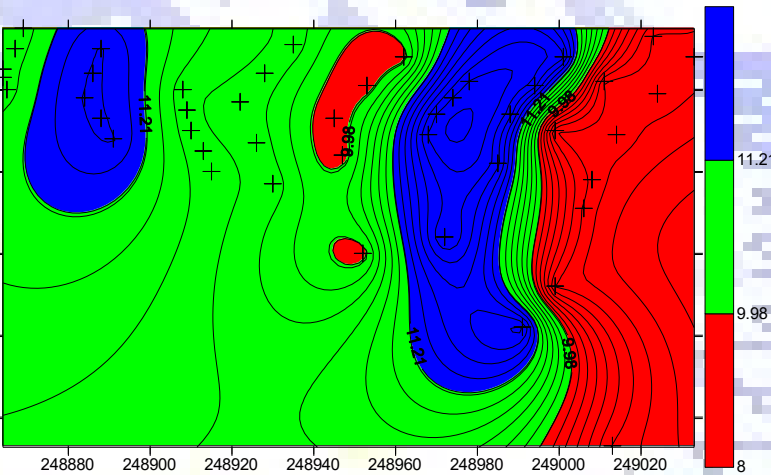
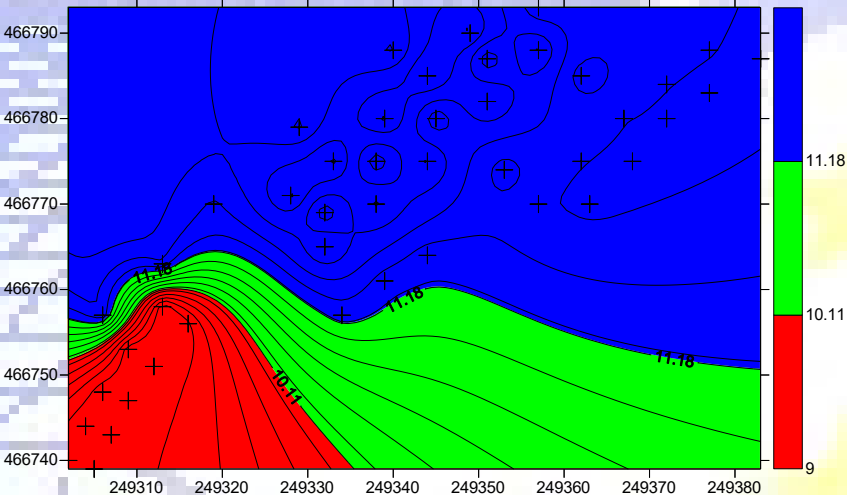


Cardanhas



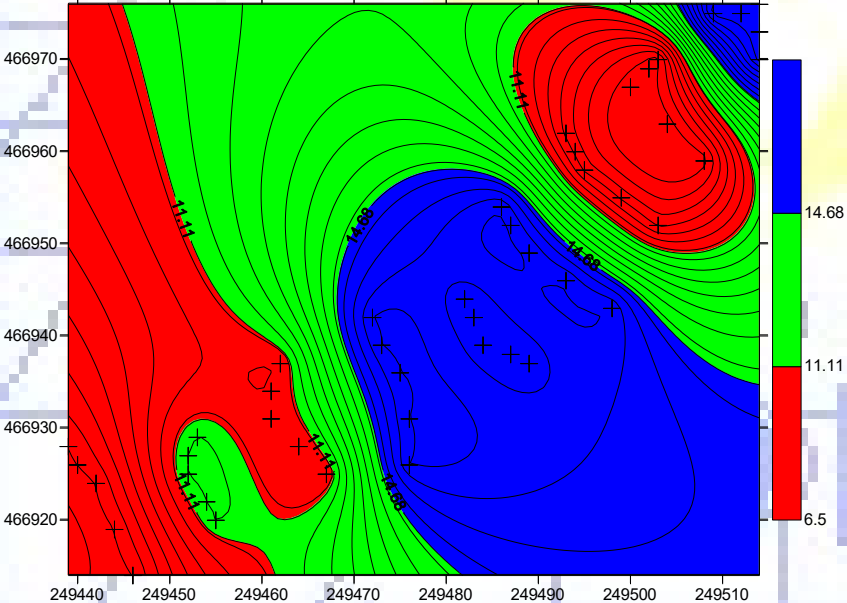
CTCe, in cmol+ / kg, determined in the first 20 cm soil depth, inside each plot

Amendoal

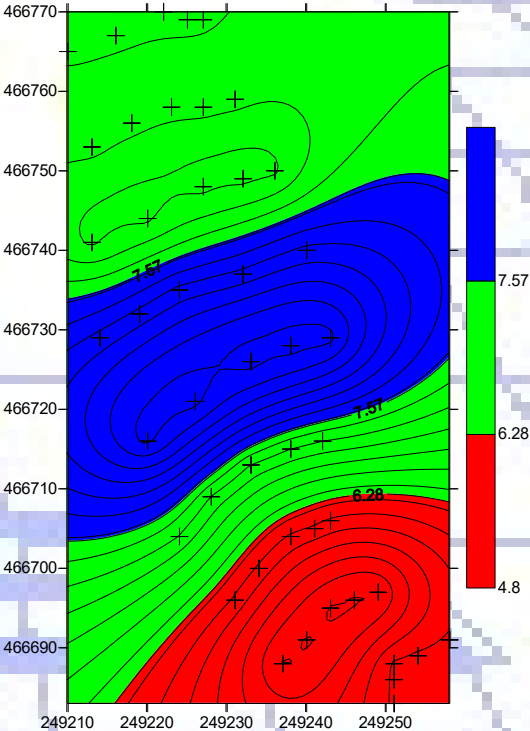


Bateiras

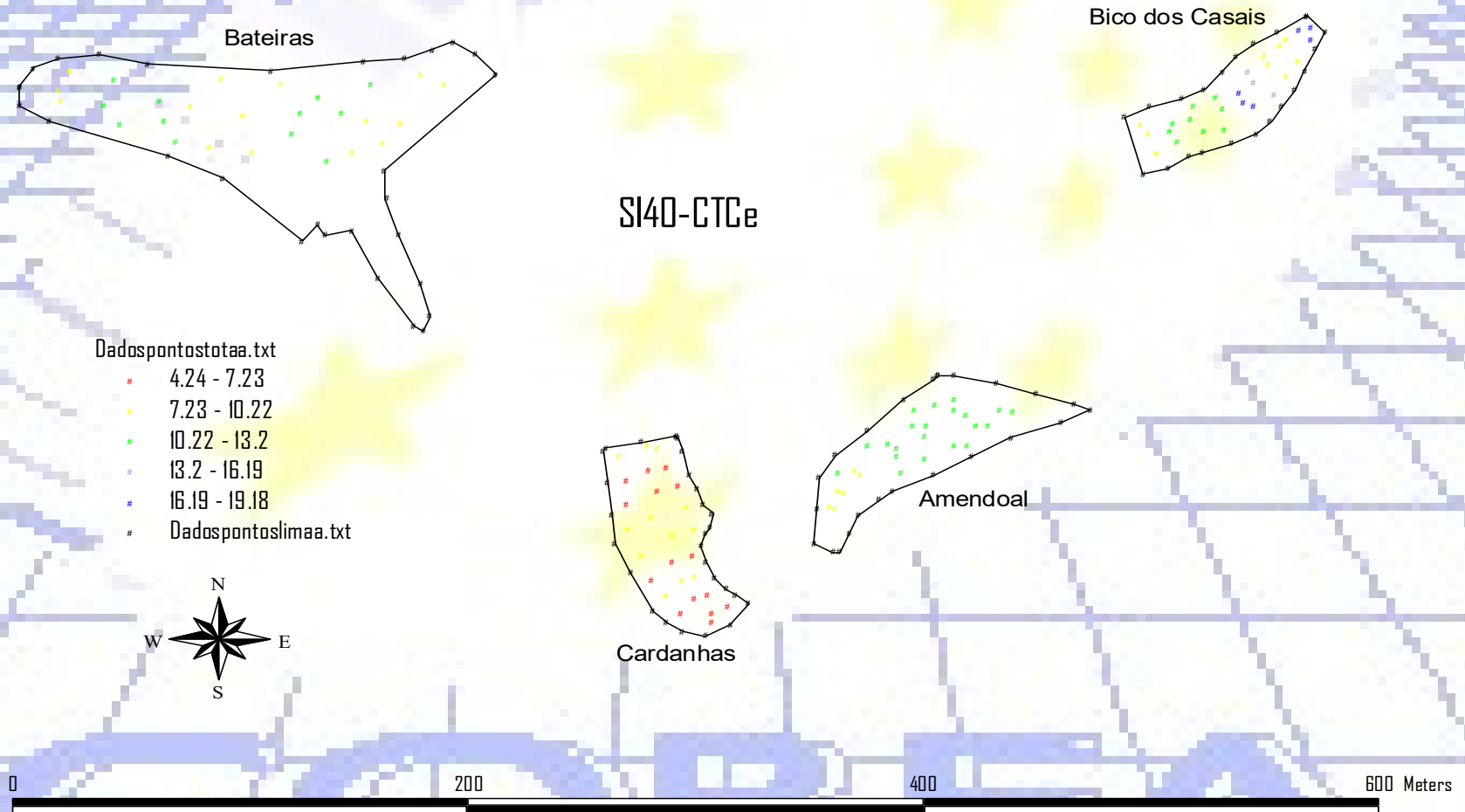
Bico dos Casais



Cardanhas

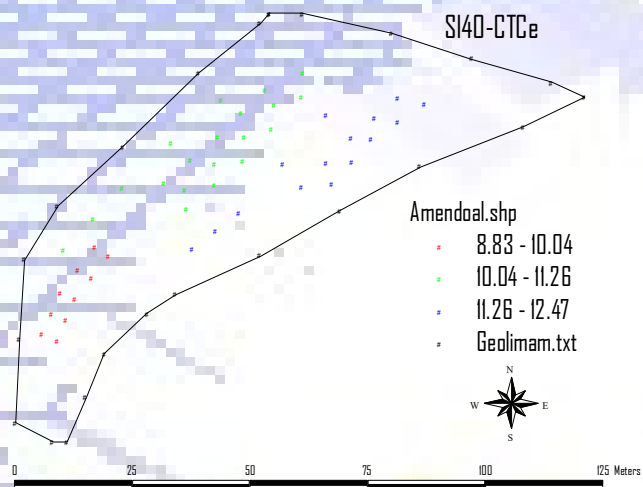


CTCe, in cmol+ / kg, determined between 20 - 40 cm soil depth, for all plots

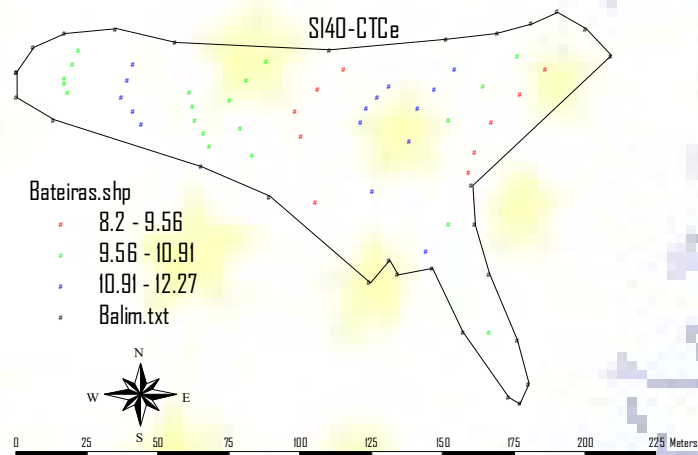


CTCe, in cmol+ / kg, determined between 20 - 40 cm soil depth, inside each plot

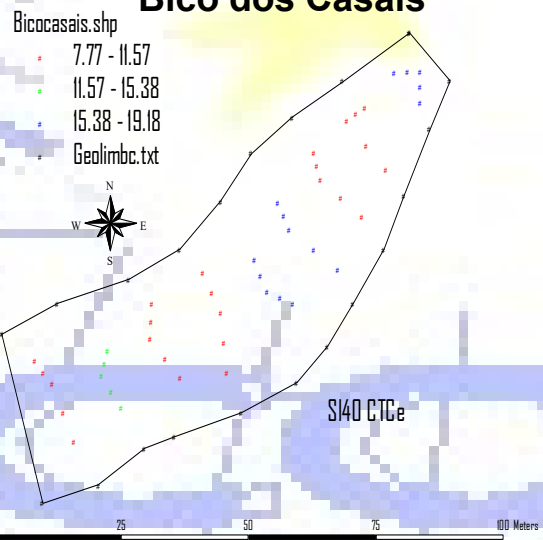
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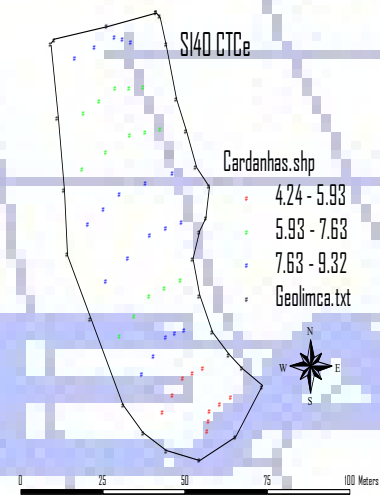
Bateiras



Bico dos Casais

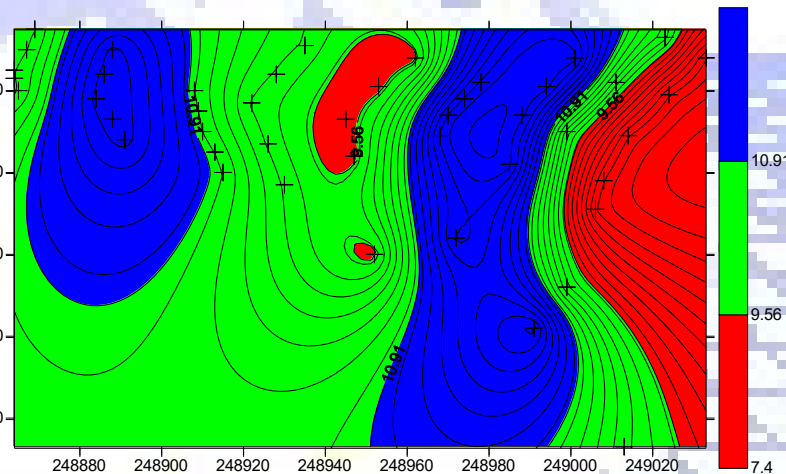
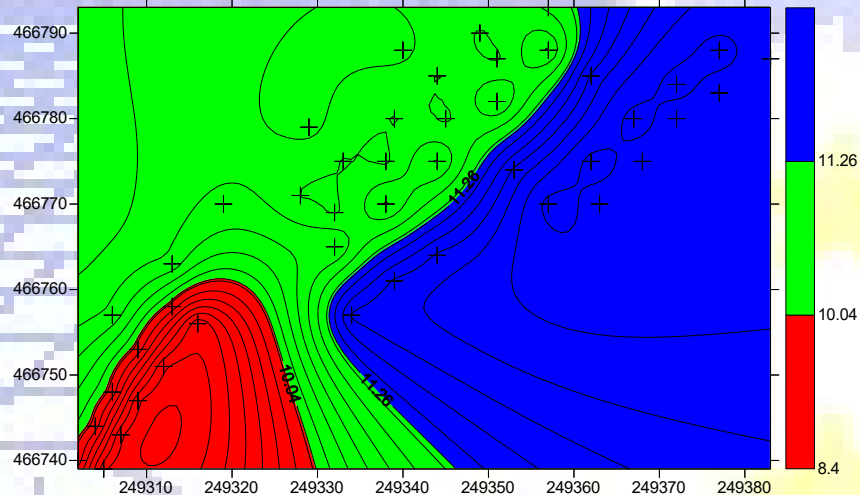


Cardanhas



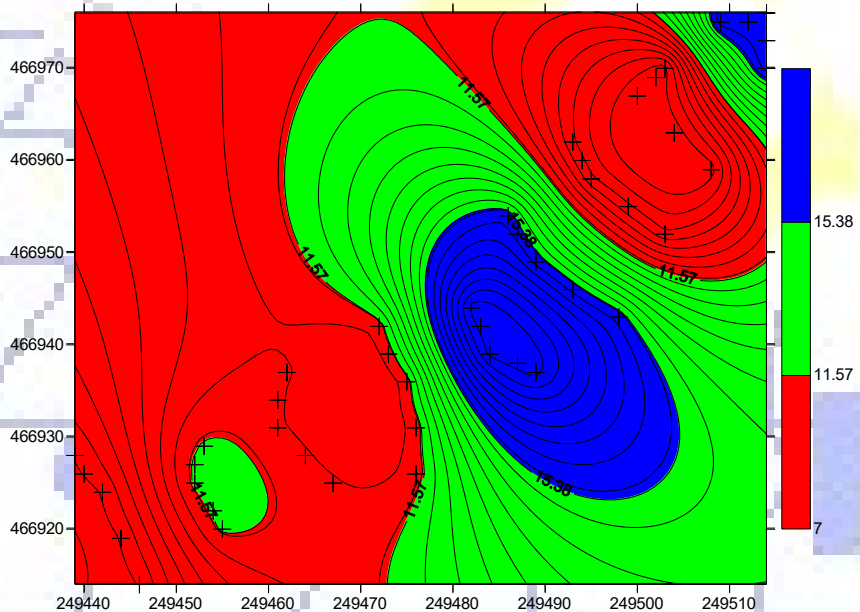
CTCe, in cmol+ / kg, determined between 20 - 40 cm soil depth, inside each plot

Amendoal

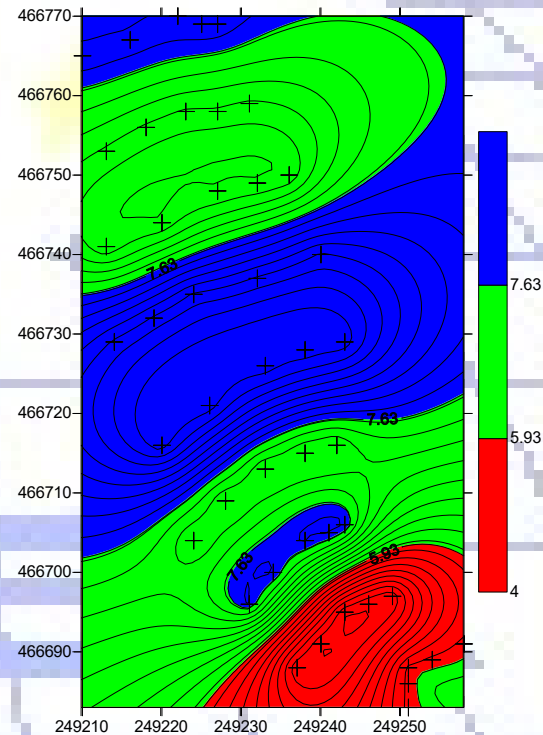


Bateiras

Bico dos Casais



Cardanhas



GSBe (1), in %, determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots.

DESCRIPTIVE STATISTICS FOR plot = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20GSBE	9	99.011	0.355	98.200	99.400
SL40GSBE	9	99.156	0.270	98.700	99.600

DESCRIPTIVE STATISTICS FOR plot = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20GSBE	9	96.200	1.933	92.700	98.900
SL40GSBE	9	95.856	2.475	90.200	98.100

DESCRIPTIVE STATISTICS FOR plot = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20GSBE	9	97.556	1.925	93.000	100.000
SL40GSBE	9	97.656	1.280	95.700	100.000

DESCRIPTIVE STATISTICS FOR plotC = Cd

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20GSBE	9	92.667	4.443	83.900	98.800
SL40GSBE	9	92.833	6.201	77.800	99.400

(1) $GSBe = SBT / CTCe * 100$

GSBe, in %, determined in the first 20 cm soil depth and between 20 and 40 cm, for terraces (Pt) and slope vineyards (VA).

DESCRIPTIVE STATISTICS FOR INST = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20GSBE	18	97.606	19.771	92.700	99.400
SL40GSBE	18	97.506	24.082	90.200	99.600

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SL20GSBE	18	95.111	41.667	83.900	100
SL40GSBE	18	95.244	50.024	77.800	100

C O R E A

ANOVA soil GSBe, in the first 20 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL20GSBE BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	199.116	66.3721	9.72	0.0001
WITHIN	32	218.471	6.82722		
TOTAL	35	417.587			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	31.51	3	0.0000

COCHRAN'S Q	0.7229
LARGEST VAR / SMALLEST VAR	156.55
COMPONENT OF VARIANCE FOR BETWEEN GROUPS	6.61610
EFFECTIVE CELL SIZE	9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	99.011	9	0.3551
Ba	96.200	9	1.9326
BC	97.556	9	1.9249
Cd	92.667	9	4.4433
TOTAL	96.358	36	2.6129
CASES INCLUDED	36	MISSING CASES	0

ONE-WAY AOV FOR SL20GSBE BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	56.0003	56.0003	5.27	0.0280
WITHIN	34	361.587	10.6349		
TOTAL	35	417.587			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	8.44	1	0.0037

COCHRAN'S Q	0.8162
LARGEST VAR / SMALLEST VAR	4.4415
COMPONENT OF VARIANCE FOR BETWEEN GROUPS	2.52030
EFFECTIVE CELL SIZE	18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	97.606	18	1.9771
VA	95.111	18	4.1667
TOTAL	96.358	36	3.2611
CASES INCLUDED	36	MISSING CASES	0

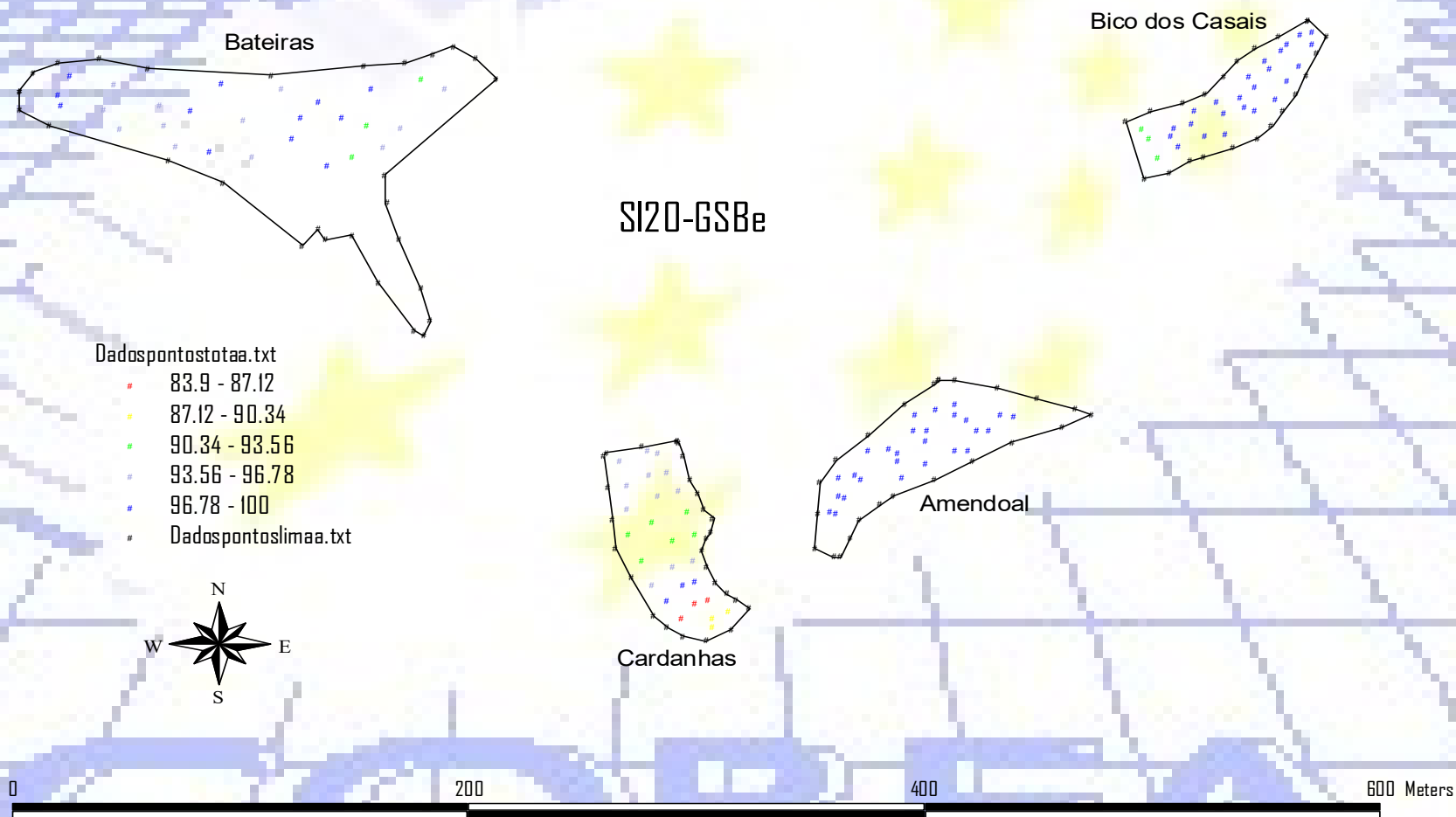
If GSBe < 80 % a soil liming must be done

ANOVA soil GSBe, between 20 - 40 cm depth, according plots and vineyard installations

ONE-WAY AOV FOR SL40GSBE BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	199.661	66.5536	5.75	0.0029
WITHIN	32	370.347	11.5733		
TOTAL	35	570.007			
BARTLETT'S TEST OF					
	CHI-SQ	DF	P		
EQUAL VARIANCES	49.12	3	0.0000		
COCHRAN'S Q		0.8307			
LARGEST VAR / SMALLEST VAR		528.42			
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				6.10892	
EFFECTIVE CELL SIZE				9.0	
PARC	MEAN	SAMPLE SIZE	GROUP STD DEV		
Am	99.156	9	0.2698		
Ba	95.856	9	2.4749		
BC	97.656	9	1.2798		
Cd	92.833	9	6.2014		
TOTAL	96.375	36	3.4020		
CASES INCLUDED	36	MISSING CASES	0		

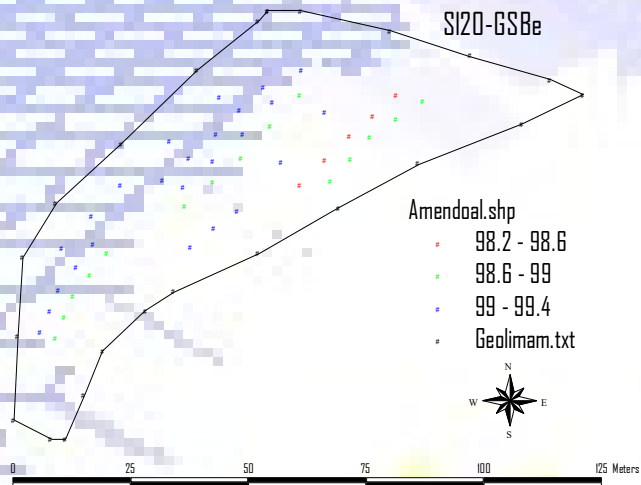
ONE-WAY AOV FOR SL40GSBE BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	46.0136	46.0136	2.99	0.0931
WITHIN	34	523.994	15.4116		
TOTAL	35	570.007			
BARTLETT'S TEST OF					
	CHI-SQ	DF	P		
EQUAL VARIANCES	8.14	1	0.0043		
COCHRAN'S Q		0.8119			
LARGEST VAR / SMALLEST VAR		4.3149			
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.70011	
EFFECTIVE CELL SIZE				18.0	
INST	MEAN	SAMPLE SIZE	GROUP STD DEV		
Pt	97.506	18	2.4082		
VA	95.244	18	5.0024		
TOTAL	96.375	36	3.9258		
CASES INCLUDED	36	MISSING CASES	0		

GSBe, in %, determined in the first 20 cm soil depth, for all plots

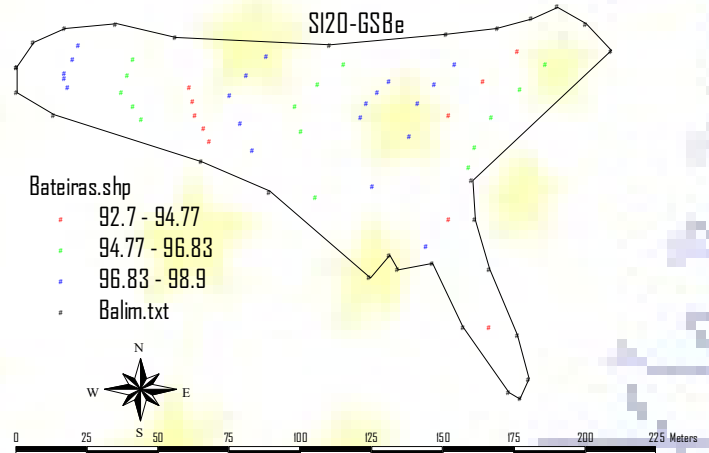


GSBe, in %, determined in the first 20 cm soil depth, inside each plot

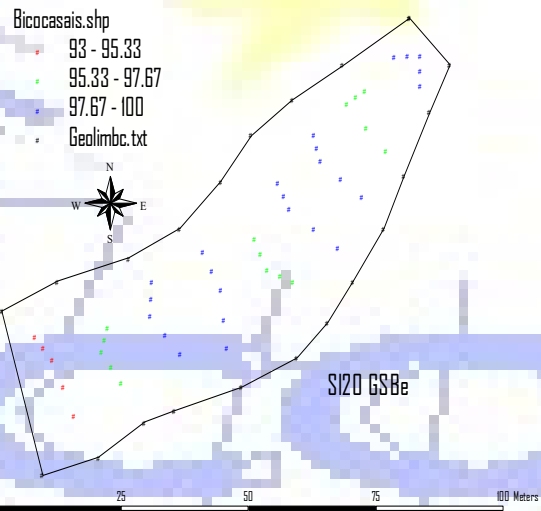
Amendoal



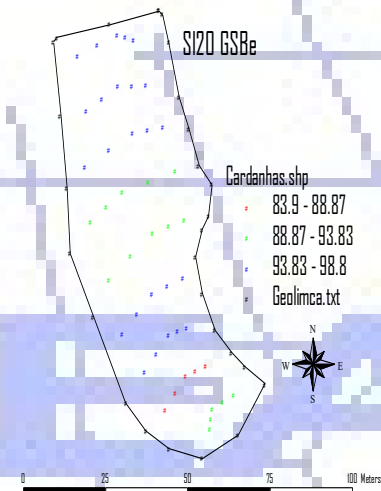
Bateiras



Bico dos Casais

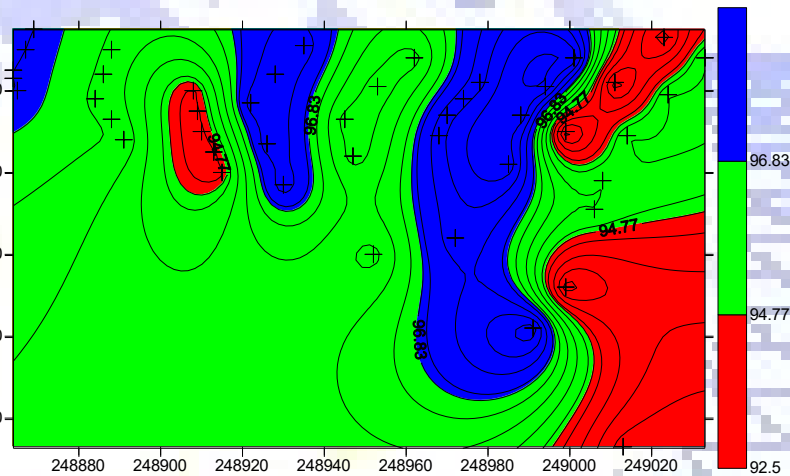
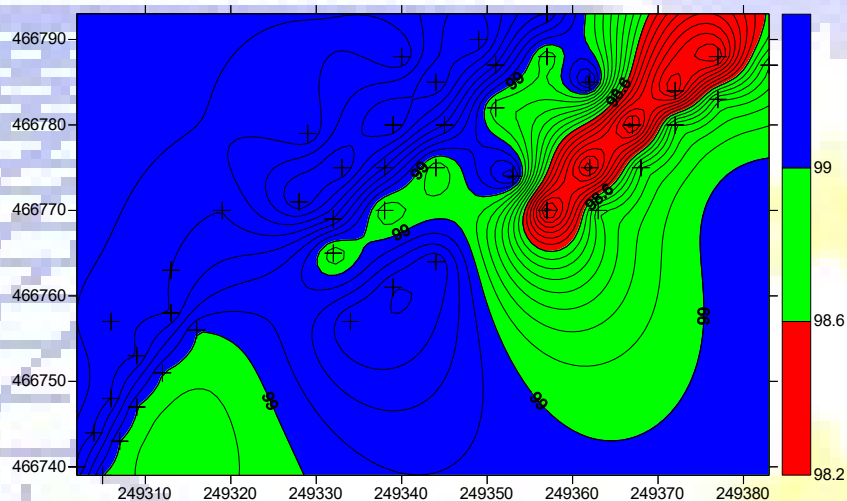


Cardanhas



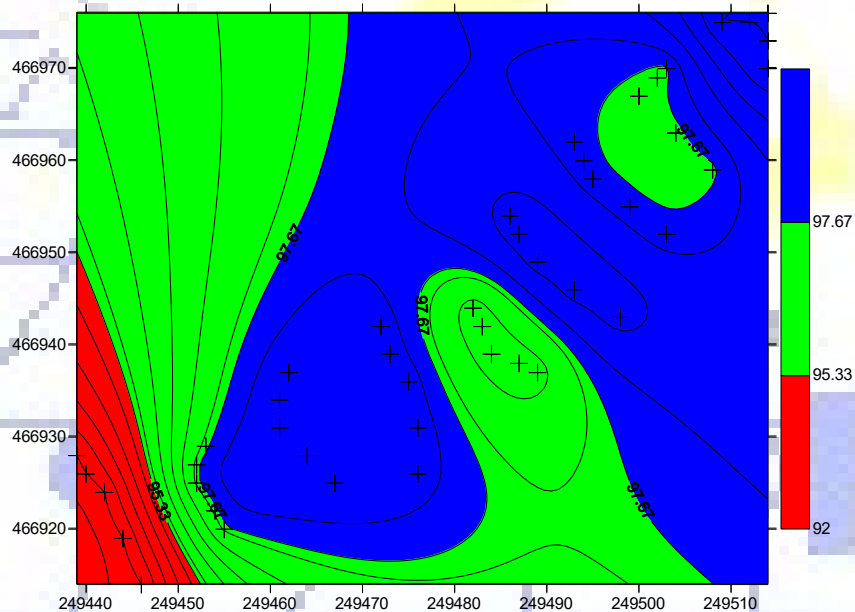
GSBe, in %, determined in the first 20 cm soil depth, inside each plot

Amendoal

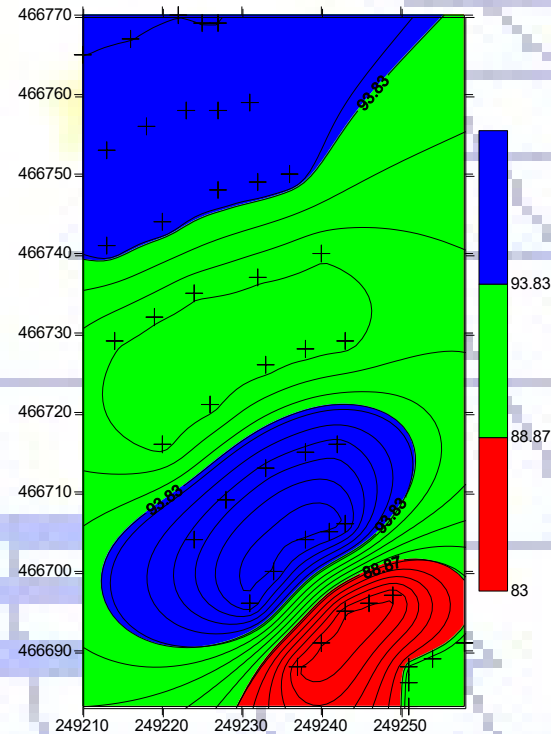


Bateiras

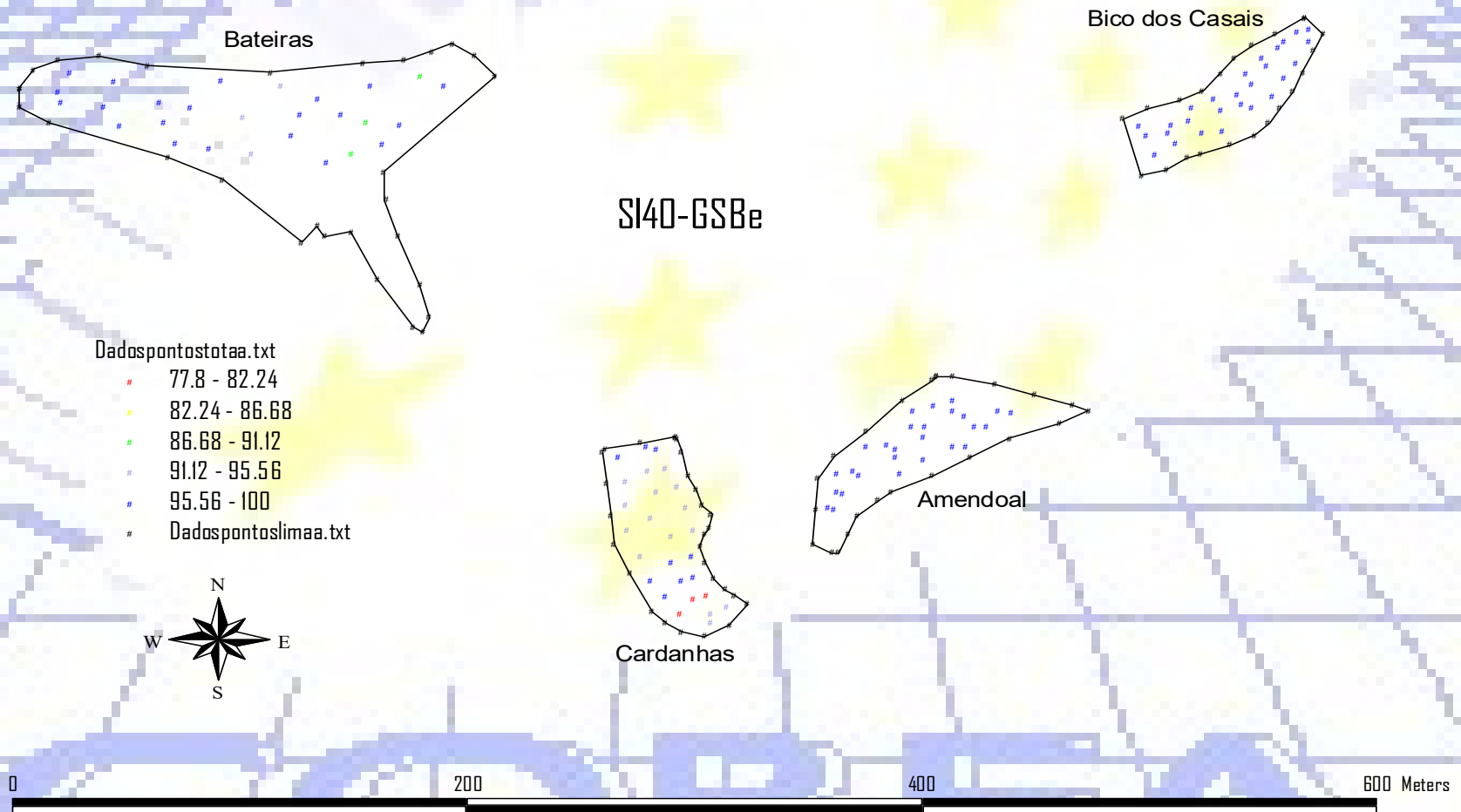
Bico dos Casais



Cardanhas

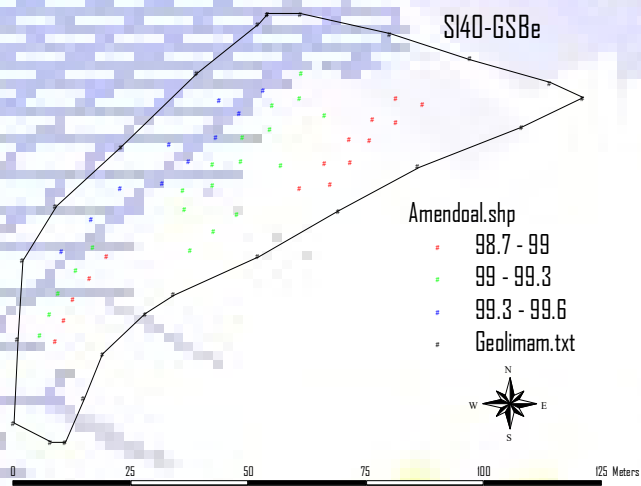


GSBe, in %, determined in between 20 - 40 cm soil depth, for all plots

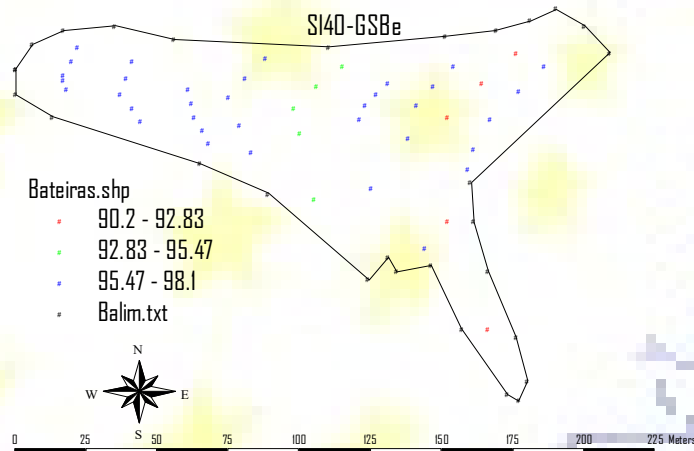


GSBe, in %, determined in between 20 - 40 cm soil depth, inside each plot

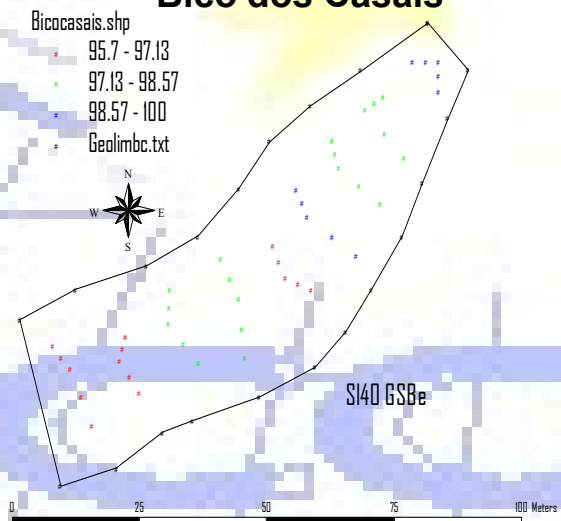
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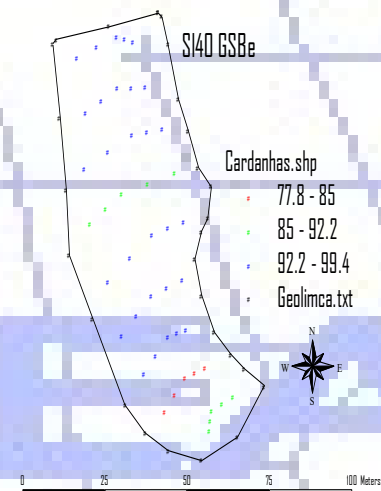
Bateiras



Bico dos Casais

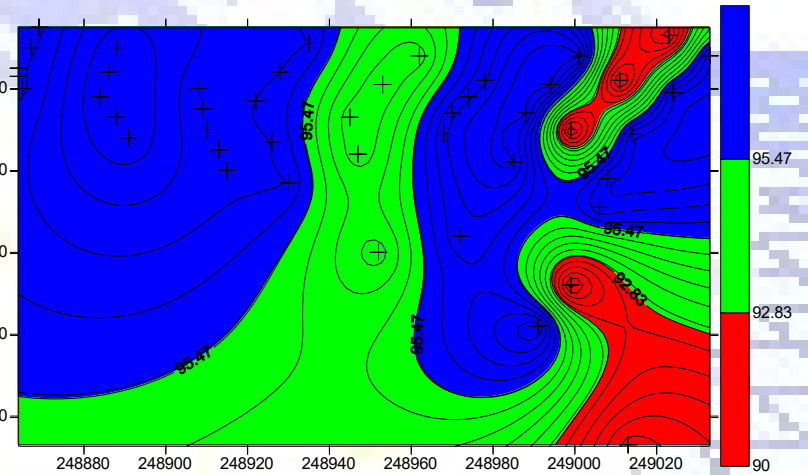
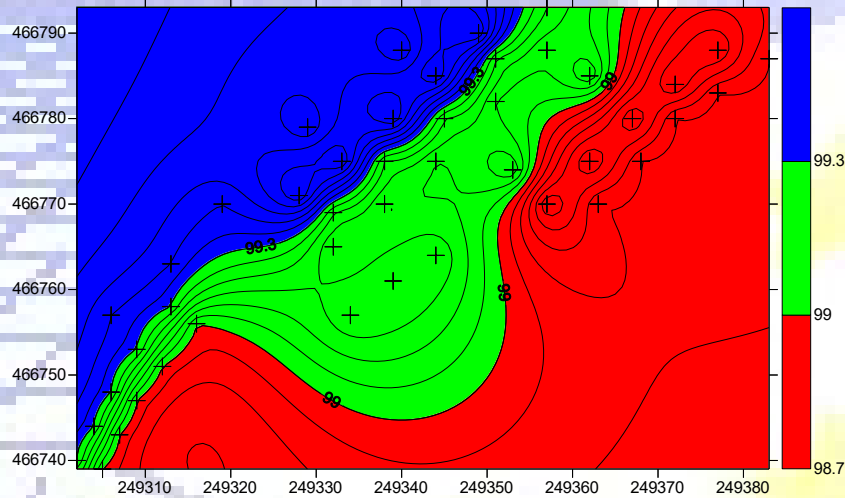


Cardanhas

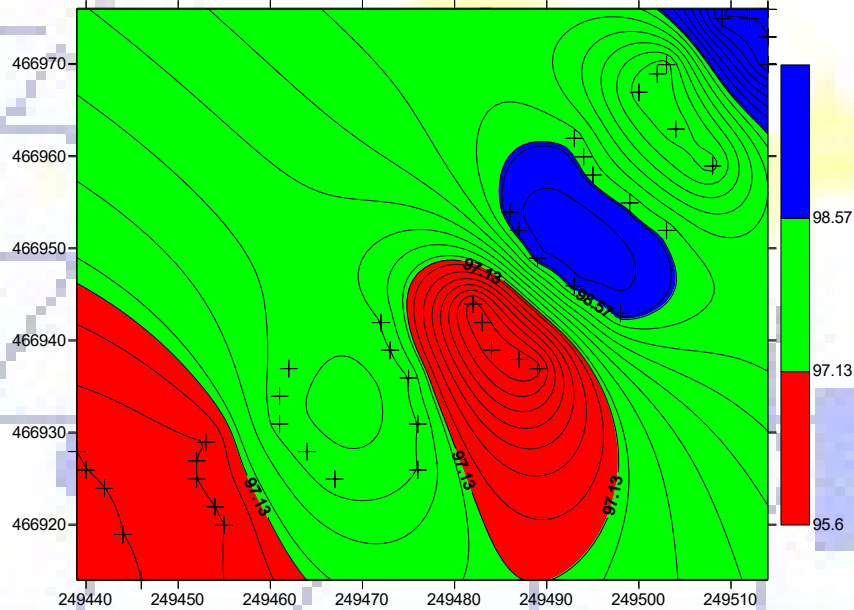


GSBe, in %, determined in between 20 - 40 cm soil depth, inside each plot

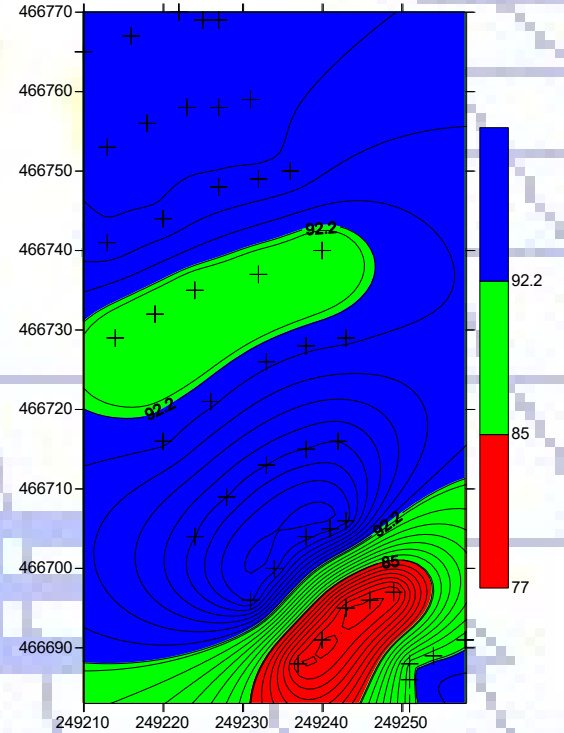
Amendoal



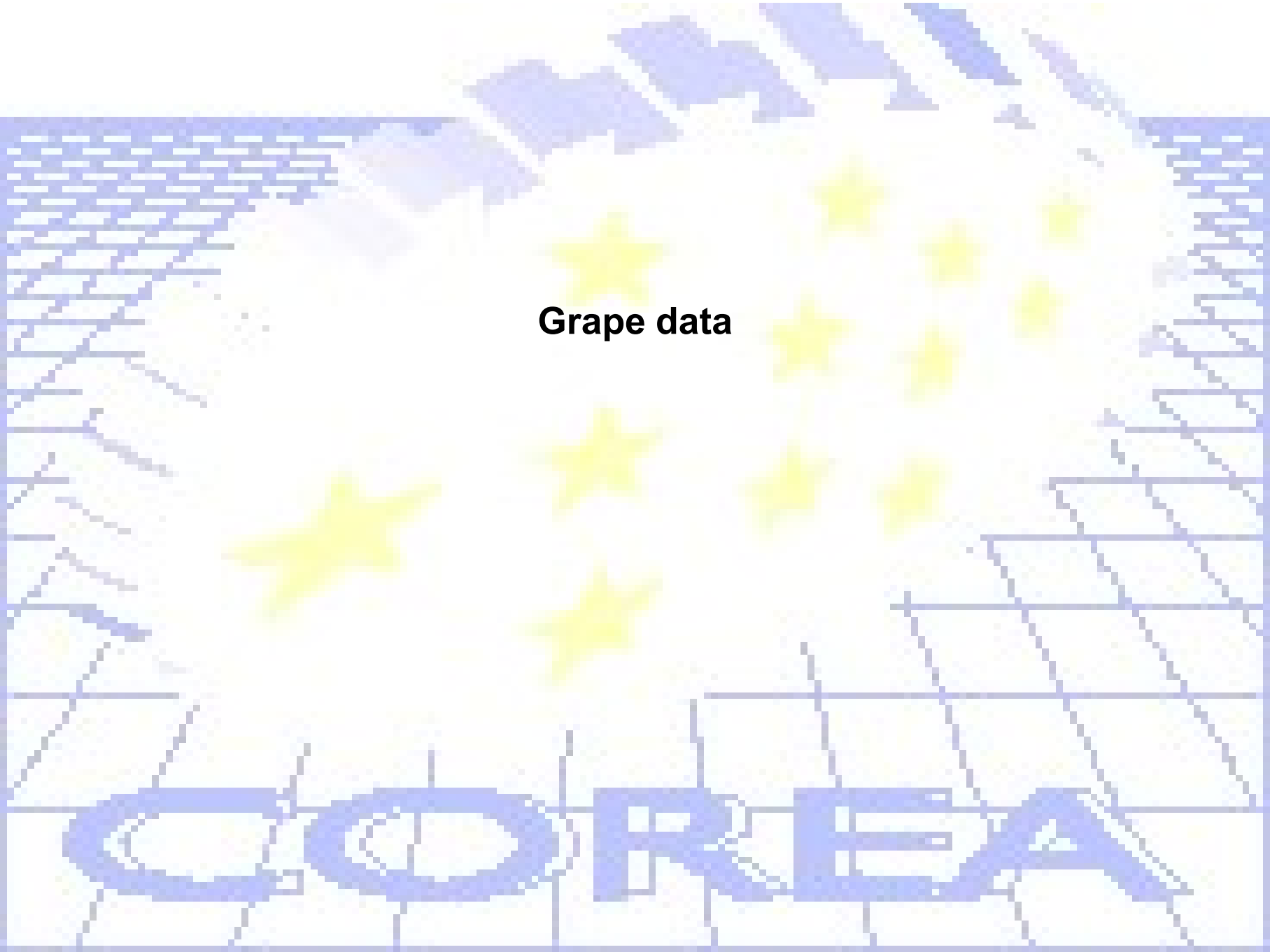
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Bateiras



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Grape data

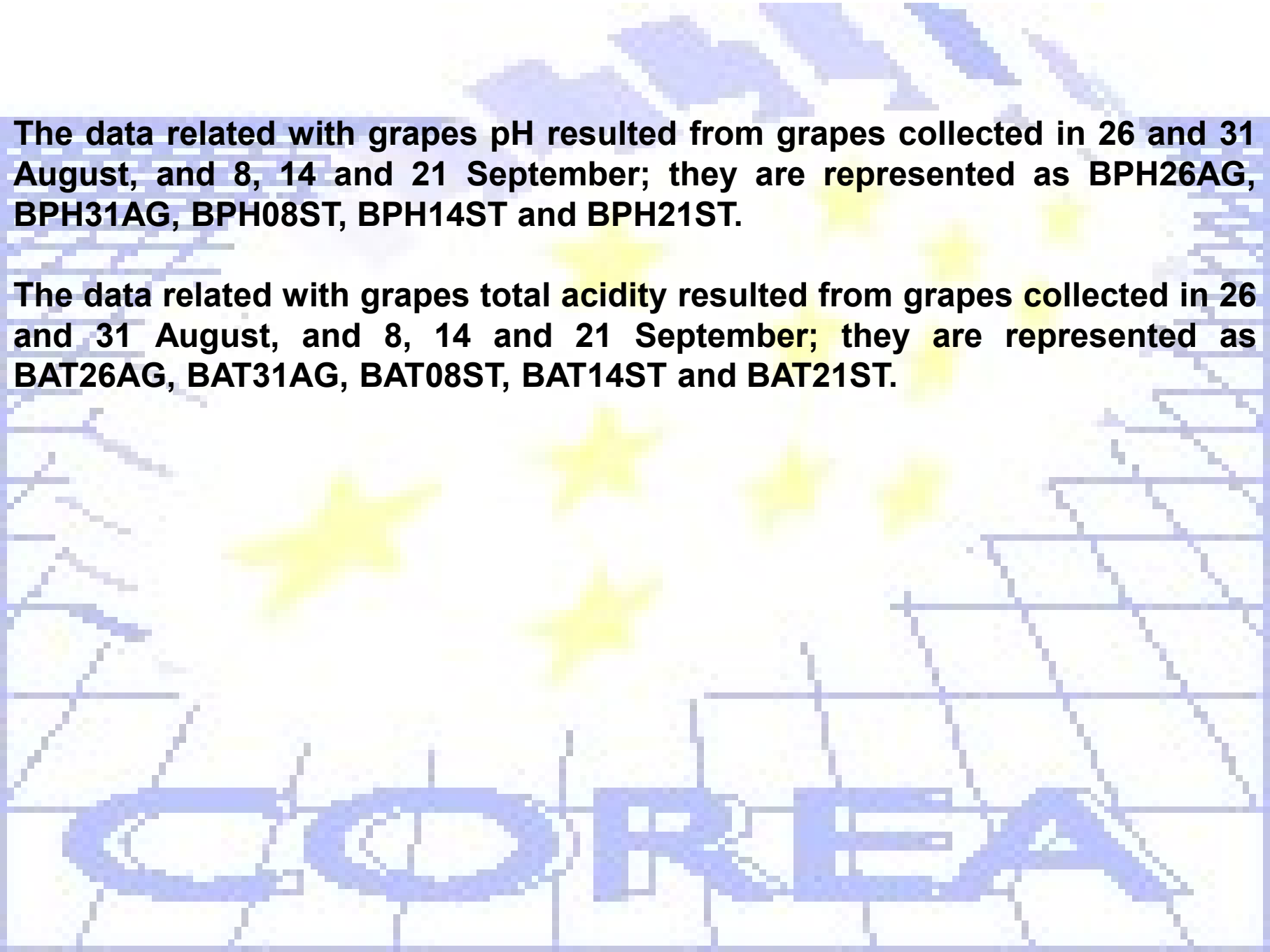
COOREA

The grapes were harvested closed to the georeferenced sites being the grapes of each station jointed with the two immediate ones, in order to get a three sets that result from the join of three stations; the set 1 (E2) result from the join of station 1, 2 and 3, the set 2 (E5), from the station 4, 5 and 6, and the set 3 (E8), from the station 7, 8 and 9. This "simplification" it is necessary because the production of the two grape vineyards closed to the georeferenced point are not enough to do the necessary analysis.

The data grapes are related with the weight of 126 grapes, the probable alcohol, the pH and the total acidity, and were done in each plot identified by PARC.

The data related with weight grape were collected in 26 and 31 August, and 8 and 14 September; they are represented as BP26AG, BP31AG, BP08ST and BP14ST.

The data related with probable alcohol result from grapes collected in 26 and 31 August, and 8, 14 and 21 September; they are represented as BAP26AG, BAP31AG, BAP08ST, BAP14ST and BAP21ST.



The data related with grapes pH resulted from grapes collected in 26 and 31 August, and 8, 14 and 21 September; they are represented as BPH26AG, BPH31AG, BPH08ST, BPH14ST and BPH21ST.

The data related with grapes total acidity resulted from grapes collected in 26 and 31 August, and 8, 14 and 21 September; they are represented as BAT26AG, BAT31AG, BAT08ST, BAT14ST and BAT21ST.

Weight, in g, of 126 grapes

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP26AG	9	151.17	10.360	138.90	162.80
BP31AG	9	148.10	2.2096	145.60	150.70
BP08ST	9	154.93	8.9550	146.90	166.60
BP14ST	9	168.50	16.206	150.20	187.60
BP21ST	9	182.07	32.067	153.50	223.90

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP26AG	9	197.23	7.3711	190.50	206.80
BP31AG	9	185.13	10.691	172.00	196.50
BP08ST	9	192.47	7.1185	183.70	200.00
BP14ST	9	202.17	5.6606	198.00	209.70
BP21ST	9	211.87	6.7196	203.90	219.40

DESCRIPTIVE STATISTICS FOR PARC = BC

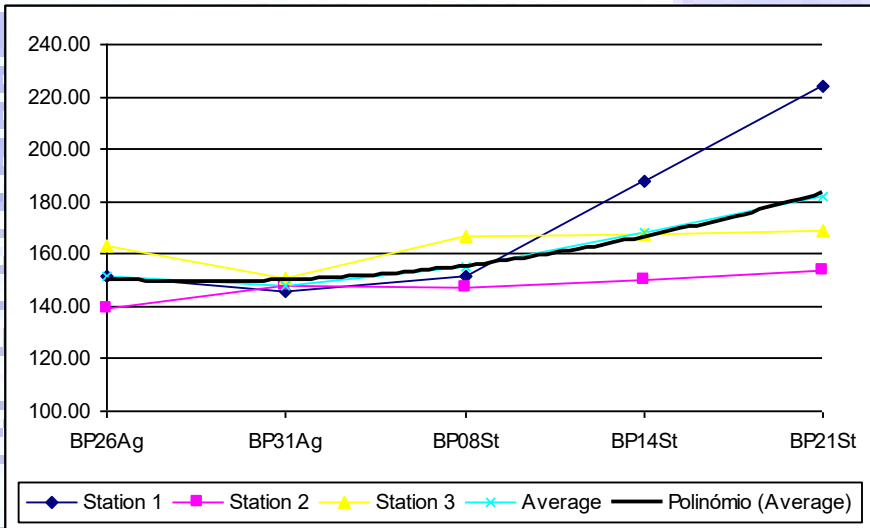
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP26AG	9	148.77	14.201	139.10	167.70
BP31AG	9	139.27	7.2547	129.60	144.40
BP08ST	9	138.57	13.549	121.00	151.00
BP14ST	9	146.03	2.8333	143.00	149.50
BP21ST	9	153.50	10.823	140.20	165.00

DESCRIPTIVE STATISTICS FOR PARC = Cd

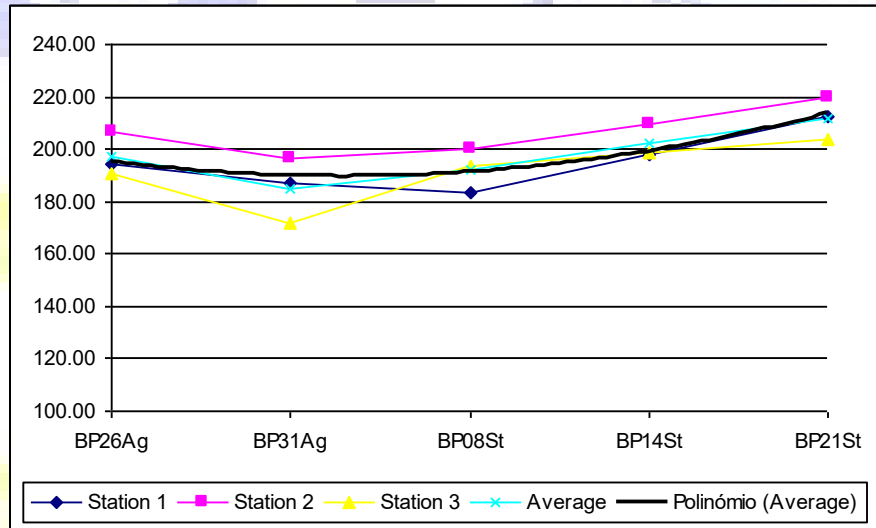
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP26AG	9	145.97	7.9019	140.50	156.50
BP31AG	9	139.07	9.9805	128.00	151.00
BP08ST	9	150.00	7.6520	139.80	155.30
BP14ST	9	157.30	7.2317	149.00	165.70
BP21ST	9	164.60	8.9335	158.20	176.50

Weight increase, in g, of 126 grapes

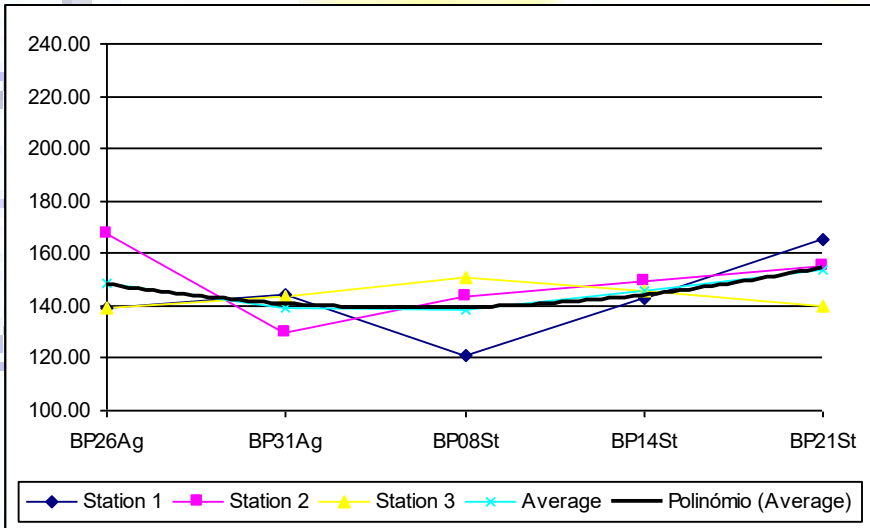
Amendoal



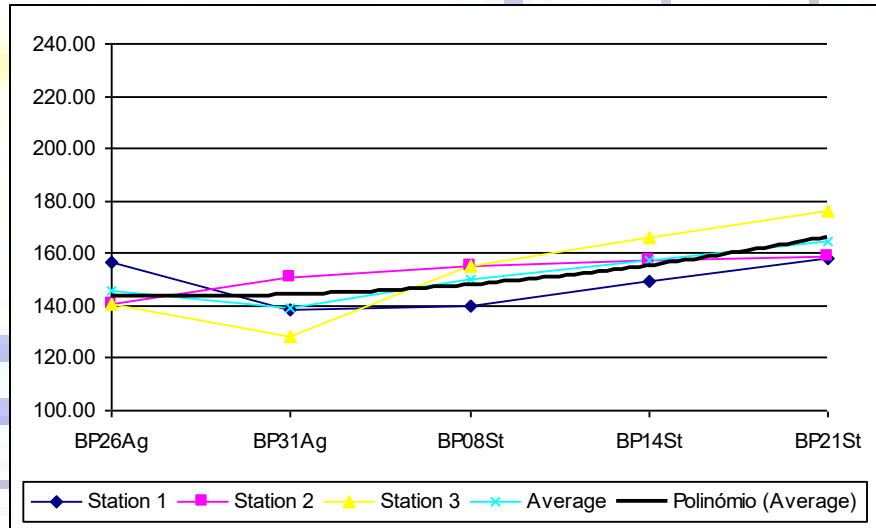
Bateiras



Bico dos Casais



Cardanhas



ANOVA weight grapes according plots and vineyard installations

ONE-WAY AOV FOR BP21ST BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	17489.7	5829.90	18.36	0.0000
WITHIN	32	10163.1	317.596		
TOTAL	35	27652.8			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	23.99	3	0.0000
COCHRAN'S Q		0.8094	
LARGEST VAR / SMALLEST VAR		22.774	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 612.478
EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	182.07	9	32.067
Ba	211.87	9	6.7196
BC	153.50	9	10.823
Ca	164.60	9	8.9335
TOTAL	178.01	36	17.821
CASES INCLUDED	36	MISSING CASES	1

ONE-WAY AOV FOR BP21ST BY INST

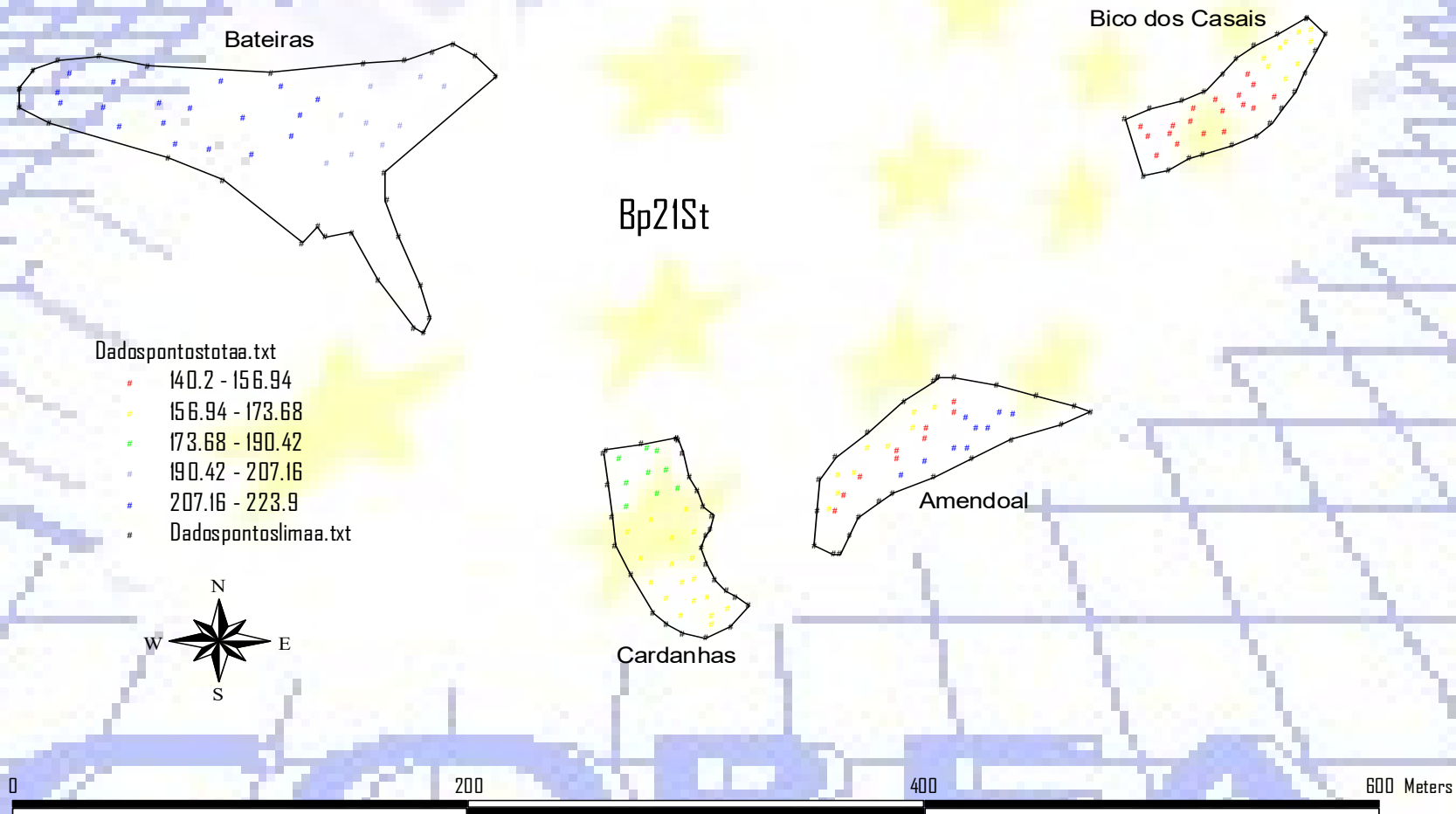
SOURCE	DF	SS	MS	F	P
BETWEEN	1	12939.1	12939.1	29.90	0.0000
WITHIN	34	14713.7	432.756		
TOTAL	35	27652.8			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	11.60	1	0.0007
COCHRAN'S Q		0.8552	
LARGEST VAR / SMALLEST VAR		5.9077	

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 694.795
EFFECTIVE CELL SIZE 18.0

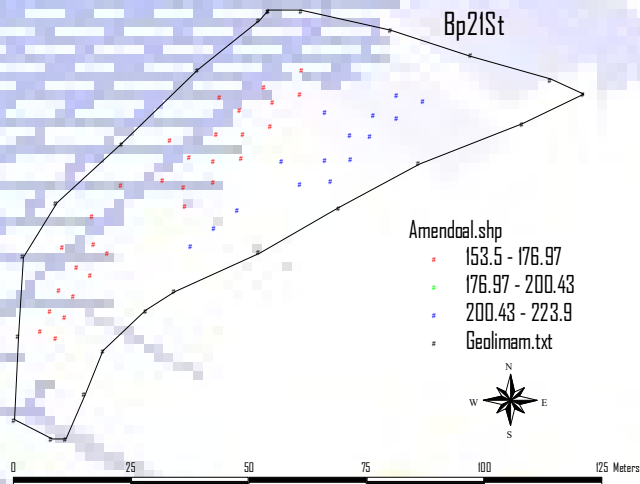
INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	196.97	18	27.207
VA	159.05	18	11.194
TOTAL	178.01	36	20.803
CASES INCLUDED	36	MISSING CASES	0

Weight, in g, of 126 grapes, in all plots

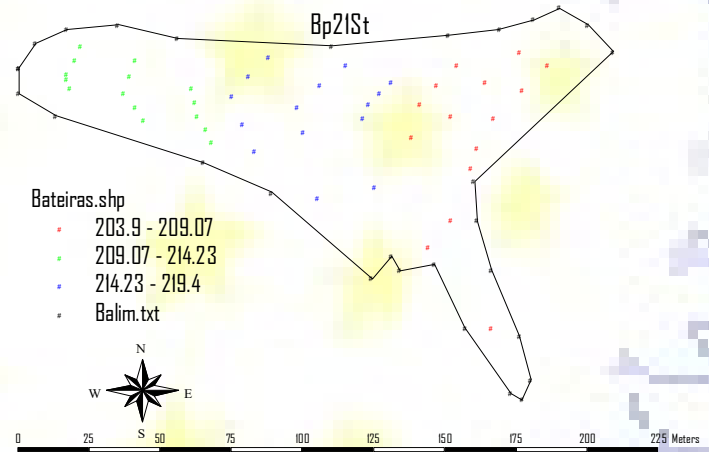


Weight, in g, of 126 grapes

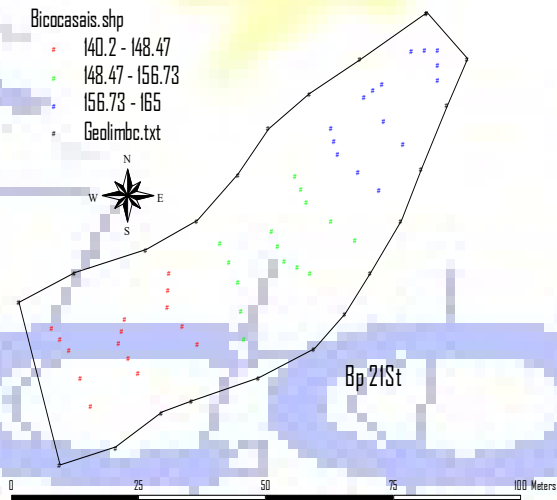
Amendoal



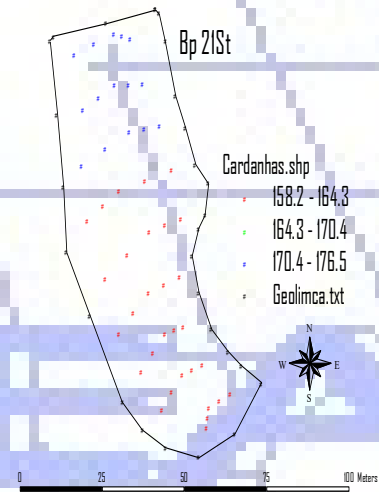
Bateiras



Bico dos Casais

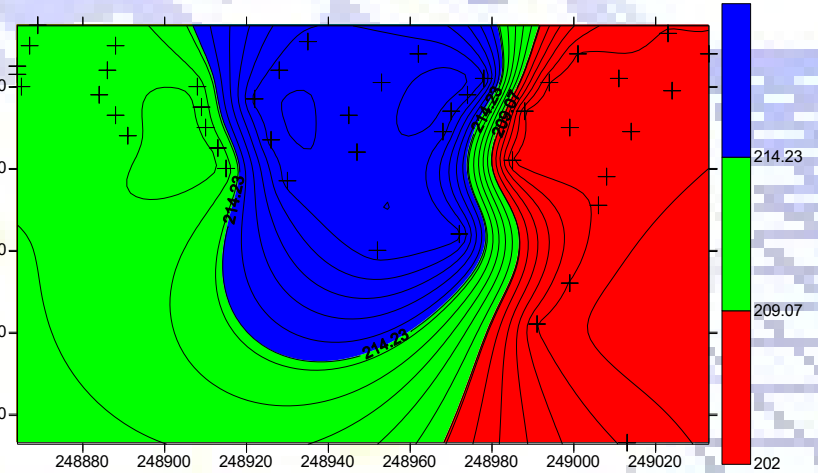
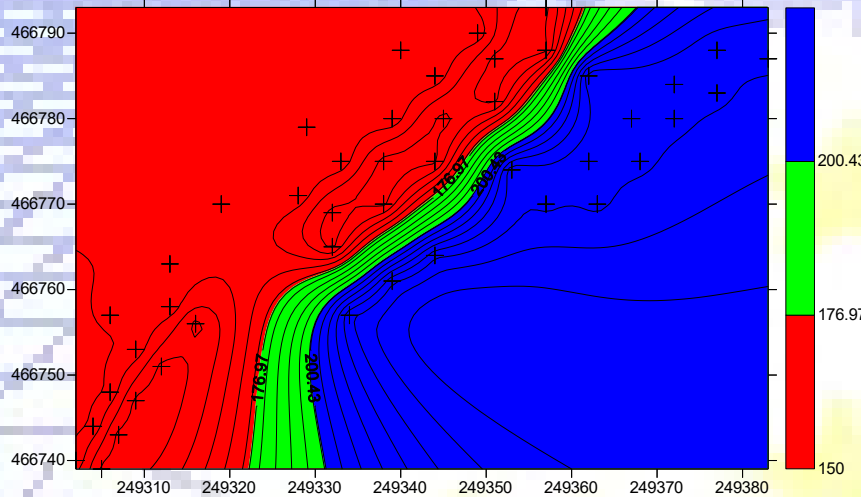


Cardanhas

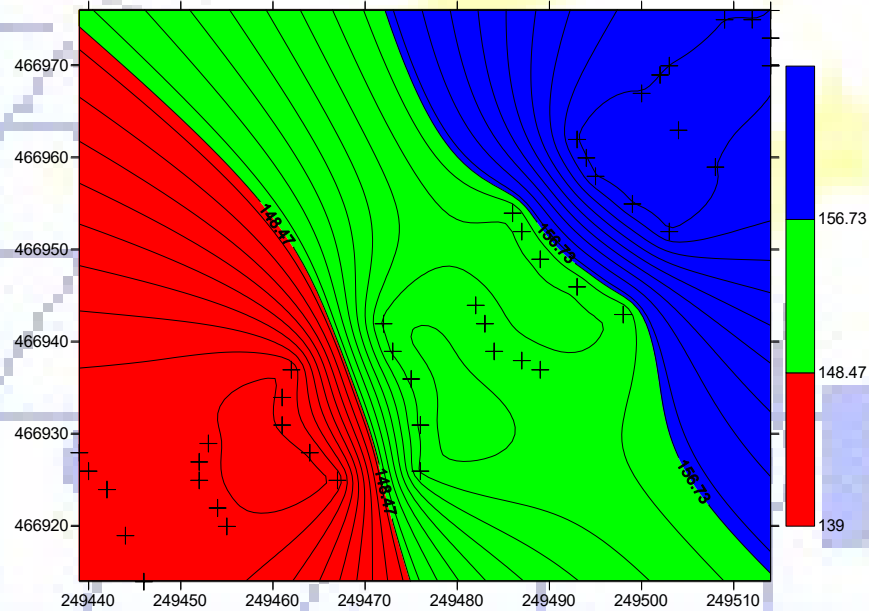


Weight, in g, of 126 grapes

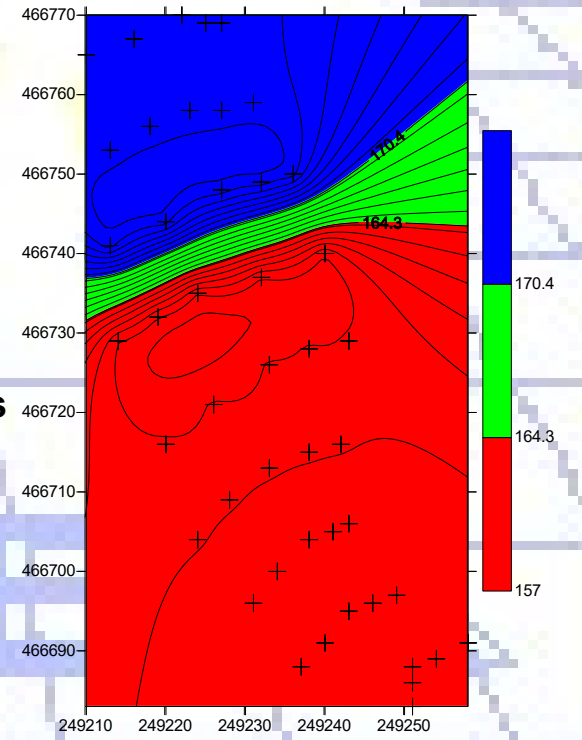
Amendoal



Bico dos Casais



Bateiras



Cardanhas

Grapes - Probable alcohol

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	9	12.367	0.2784	12.000	12.600
BAP31AG	9	12.633	0.1323	12.500	12.800
BAP08ST	9	12.100	0.1732	11.900	12.300
BAP14ST	9	12.000	0.2598	11.700	12.300
BAP21ST	9	12.867	0.3905	12.400	13.300

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	9	12.533	0.1000	12.400	12.600
BAP31AG	9	12.533	0.2000	12.400	12.800
BAP08ST	9	12.533	0.2179	12.300	12.800
BAP14ST	9	12.800	0.1500	12.600	12.900
BAP21ST	9	13.367	0.6384	12.800	14.200

DESCRIPTIVE STATISTICS FOR PARC = BC

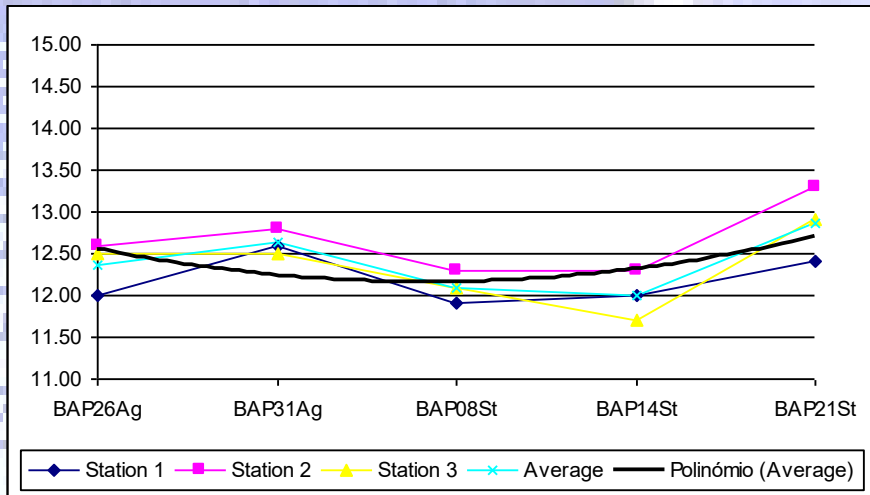
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	9	12.467	0.1323	12.300	12.600
BAP31AG	9	12.600	0.2291	12.300	12.800
BAP08ST	9	12.233	0.1803	12.000	12.400
BAP14ST	9	12.067	0.2500	11.900	12.400
BAP21ST	9	12.033	0.2500	11.700	12.200

DESCRIPTIVE STATISTICS FOR PARC = Cd

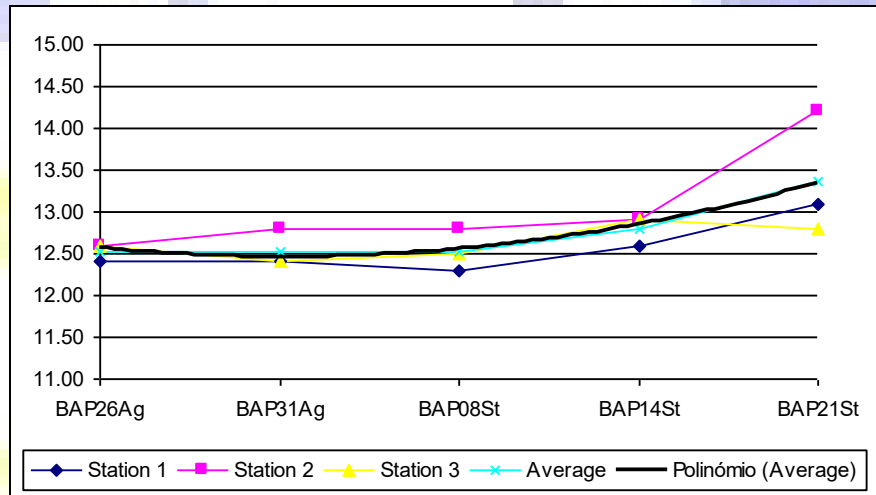
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	9	11.467	0.0500	11.400	11.500
BAP31AG	9	11.533	0.3041	11.200	11.900
BAP08ST	9	11.400	0.1500	11.200	11.500
BAP14ST	9	11.633	0.0500	11.600	11.700
BAP21ST	9	11.333	0.1000	11.200	11.400

Grapes - Probable alcohol

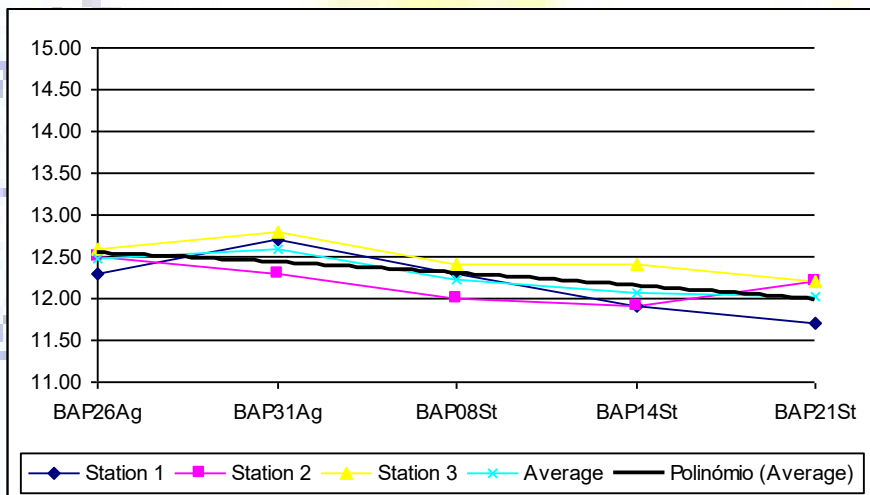
Amendoal



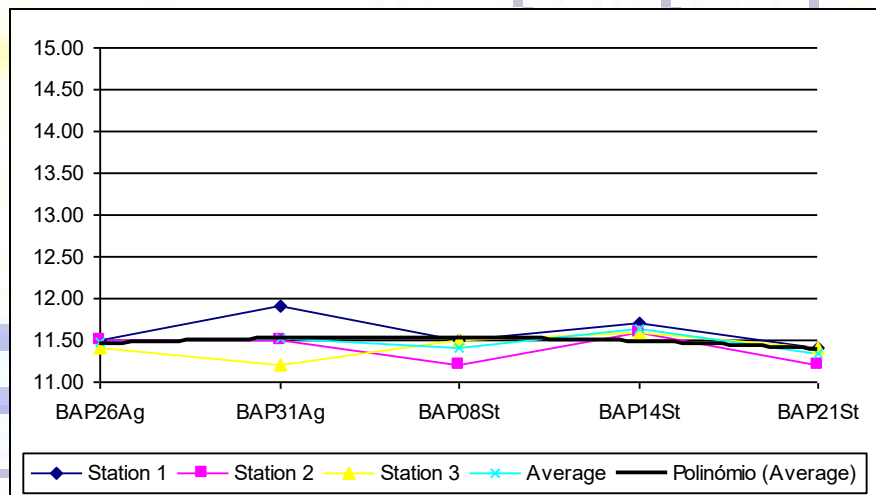
Bateiras



Bico dos Casais



Cardanhas



ANOVA grapes probable alcohol according plots and vineyard installations

ONE-WAY AOV FOR BAP14ST BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	6.44750	2.14917	55.46	0.0000
WITHIN	32	1.24000	0.03875		
TOTAL	35	7.68750			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	17.12	3	0.0007

COCHRAN'S Q 0.4355

LARGEST VAR / SMALLEST VAR 27.000

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.23449

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	12.000	9	0.2598
Ba	12.800	9	0.1500
BC	12.067	9	0.2500
Cd	11.633	9	0.0500
TOTAL	12.125	36	0.1969

ONE-WAY AOV FOR BAP14ST BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	2.72250	2.72250	18.64	0.0001
WITHIN	34	4.96500	0.14603		
TOTAL	35	7.68750			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	3.74	1	0.0531

COCHRAN'S Q 0.7251

LARGEST VAR / SMALLEST VAR 2.6374

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.14314

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	12.400	18	0.4602
VA	11.850	18	0.2834
TOTAL	12.125	36	0.3821

Grapes - Total acidity

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	9	4.6100	0.1064	4.5200	4.7500
BAT31AG	9	4.2300	0.1739	4.0200	4.4200
BAT08ST	9	3.4833	0.1866	3.2400	3.6500
BAT14ST	9	3.3867	0.1343	3.2100	3.5000
BAT21ST	3	4.0500	0.0000	4.0500	4.0500

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	9	4.8200	0.0917	4.7000	4.9000
BAT31AG	9	4.5367	0.0819	4.4300	4.6100
BAT08ST	9	3.8300	0.0770	3.7300	3.9000
BAT14ST	9	3.7200	0.1431	3.5600	3.8900
BAT21ST	3	4.5100	0.0000	4.5100	4.5100

DESCRIPTIVE STATISTICS FOR PARC = BC

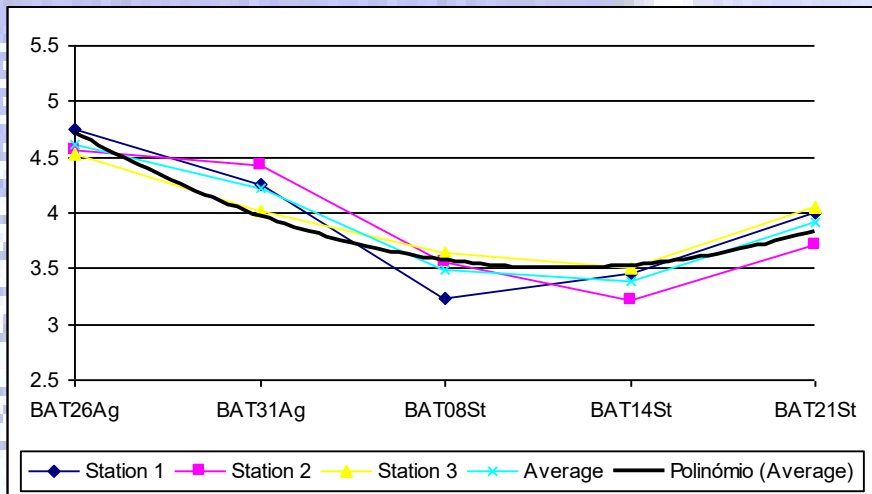
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	9	4.6533	0.1345	4.4800	4.7800
BAT31AG	9	4.2900	0.3637	3.8700	4.7100
BAT08ST	9	3.8000	0.1580	3.6800	4.0100
BAT14ST	9	3.3667	0.1058	3.2600	3.5000
BAT21ST	9	3.1900	0.0377	3.1600	3.2400

DESCRIPTIVE STATISTICS FOR PARC = Cd

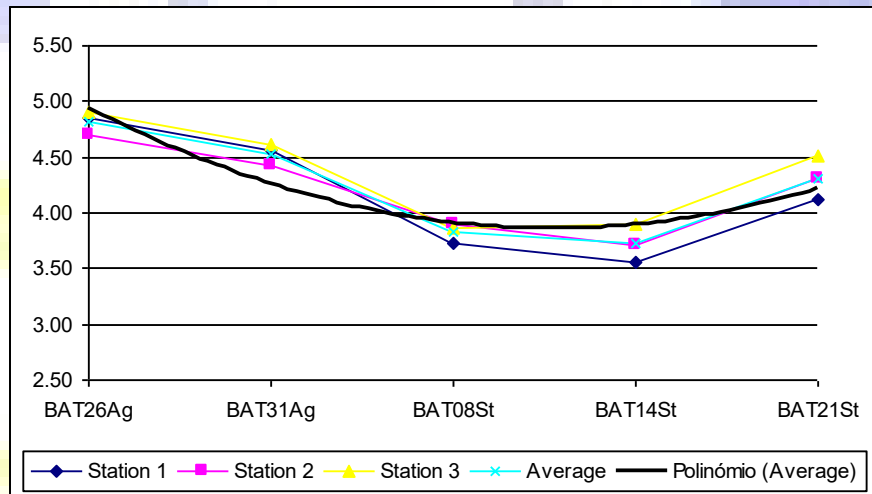
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	9	4.9500	0.1126	4.8700	5.1000
BAT31AG	9	4.4933	0.1434	4.3200	4.6500
BAT08ST	9	3.6867	0.1004	3.6100	3.8200
BAT14ST	9	3.5267	0.1097	3.3900	3.6400
BAT21ST	9	3.5167	0.1460	3.4000	3.7100

Grapes - total acidity

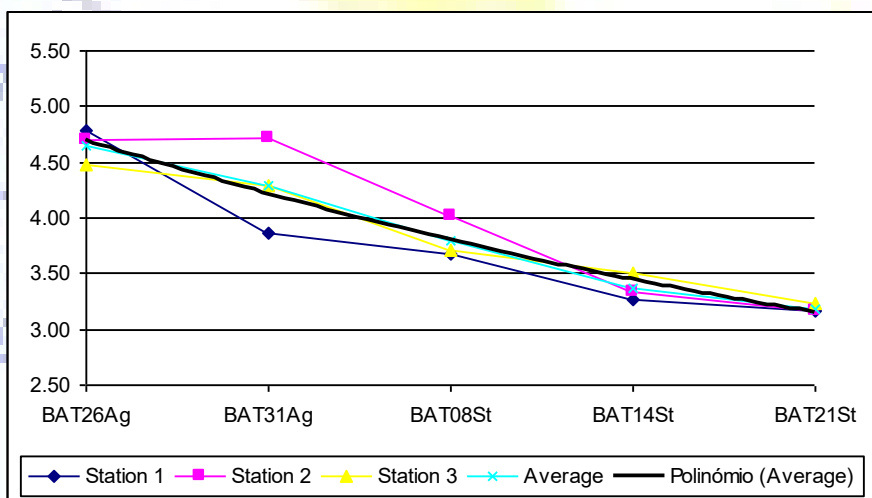
Amendoal



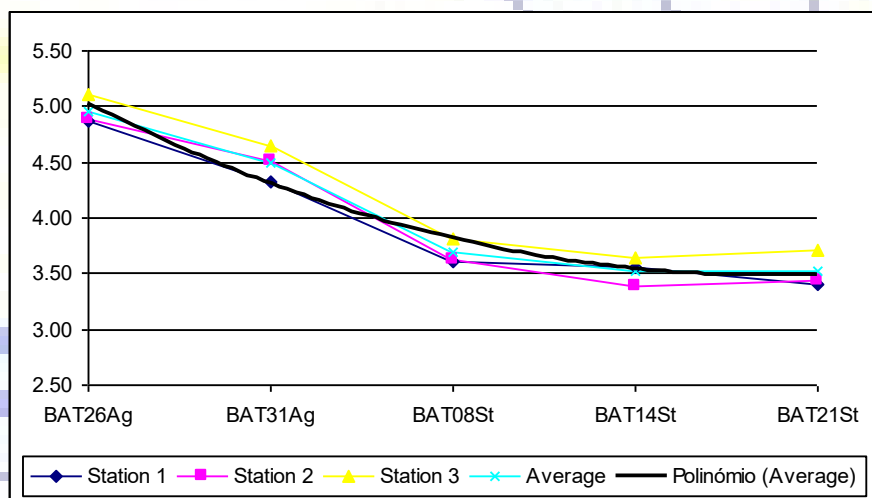
Bateiras



Bico dos Casais



Cardanhas



ANOVA grapes total acidity according plots and vineyard installations

ONE-WAY AOV FOR BAT14ST BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.71760	0.23920	15.50	0.0000
WITHIN	32	0.49380	0.01543		
TOTAL	35	1.21140			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	1.00	3	0.8009

COCHRAN'S Q 0.3317

LARGEST VAR / SMALLEST VAR 1.8281

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.02486

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	3.3867	9	0.1343
Ba	3.7200	9	0.1431
BC	3.3667	9	0.1058
Cd	3.5267	9	0.1097
TOTAL	3.5000	36	0.1242

ONE-WAY AOV FOR BAT14ST BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.10240	0.10240	3.14	0.0854
WITHIN	34	1.10900	0.03262		
TOTAL	35	1.21140			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	3.87	1	0.0491

COCHRAN'S Q 0.7286

LARGEST VAR / SMALLEST VAR 2.6844

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.00388

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	3.5533	18	0.2180
VA	3.4467	18	0.1331
TOTAL	3.5000	36	0.1806

Grapes - pH

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BPH26AG	9	3.6367	0.0200	3.6100	3.6500
BPH31AG	9	3.7267	0.0400	3.7000	3.7800
BPH08ST	9	3.8633	0.0507	3.8200	3.9300
BPH14ST	9	3.8533	0.0444	3.8100	3.9100
BPH21ST	9	3.9200	0.0312	3.8800	3.9500

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BPH26AG	9	3.6400	0.0346	3.6000	3.6800
BPH31AG	9	3.7200	0.0300	3.7000	3.7600
BPH08ST	9	3.8500	0.0229	3.8200	3.8700
BPH14ST	9	3.8500	0.0229	3.8200	3.8700
BPH21ST	9	3.8467	0.0695	3.7700	3.9300

DESCRIPTIVE STATISTICS FOR PARC = BC

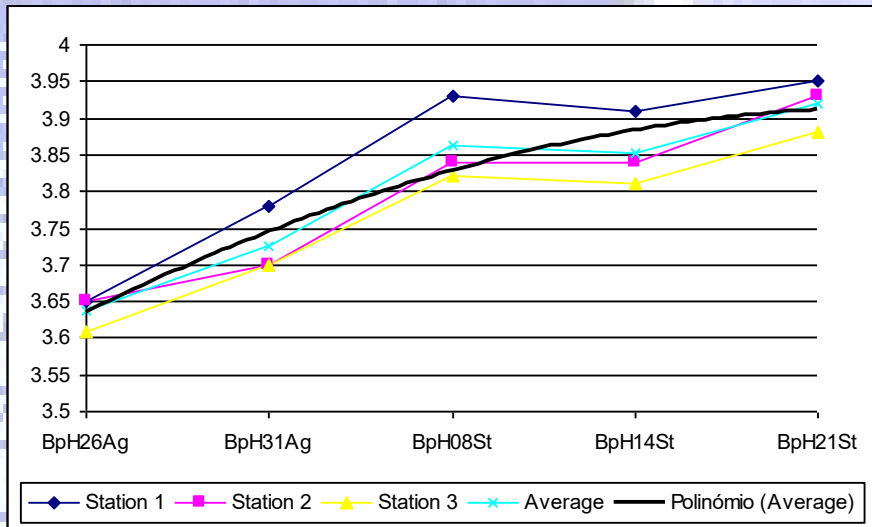
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BPH26AG	9	3.6600	8.660E-03	3.6500	3.6700
BPH31AG	9	3.7800	0.0377	3.7500	3.8300
BPH08ST	9	3.9167	0.1004	3.8100	4.0400
BPH14ST	9	3.9000	0.0229	3.8700	3.9200
BPH21ST	9	3.9767	0.0132	3.9600	3.9900

DESCRIPTIVE STATISTICS FOR PARC = Cd

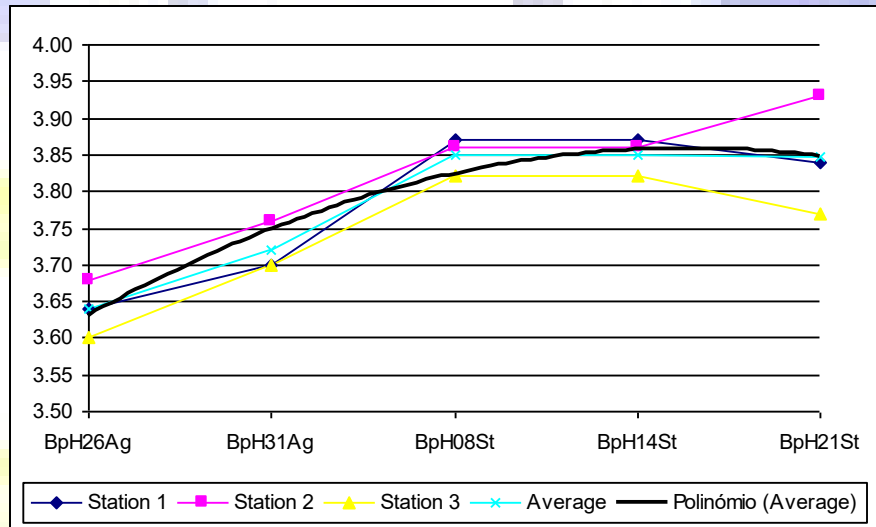
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BPH26AG	9	3.6233	0.0492	3.5600	3.6700
BPH31AG	9	3.7100	0.0482	3.6500	3.7600
BPH08ST	9	3.8600	0.0600	3.7800	3.9000
BPH14ST	9	3.8533	0.0522	3.7900	3.9100
BPH21ST	9	3.9367	0.0577	3.8600	3.9800

Grapes pH

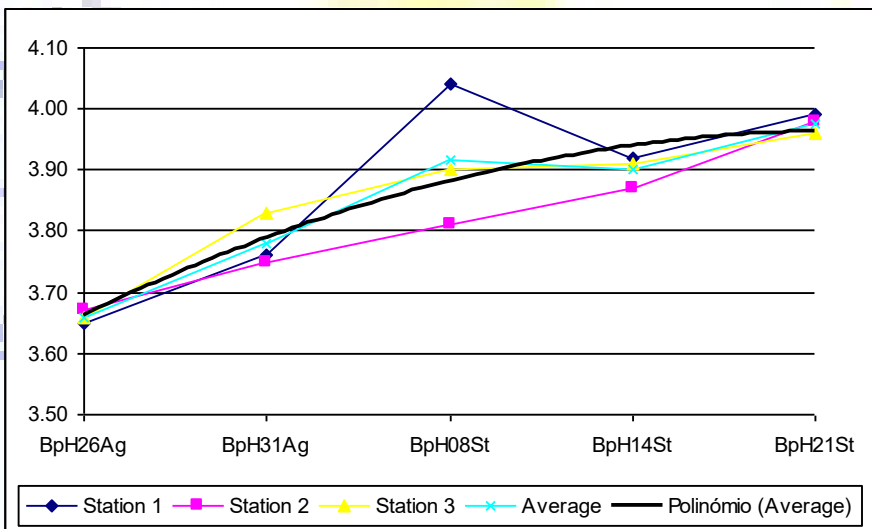
Amendoal



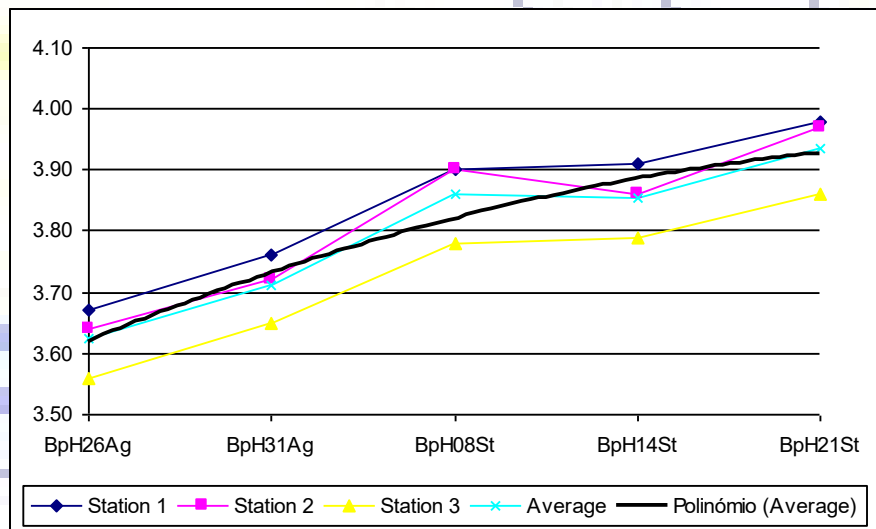
Bateiras



Bico dos Casais



Cardanhas



ANOVA grapes pH according plots and vineyard installations

ONE-WAY AOV FOR BPH14ST BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.01548	0.00516	3.59	0.0242
WITHIN	32	0.04600	0.00144		
TOTAL	35	0.06148			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	8.04	3	0.0452

COCHRAN'S Q 0.4739

LARGEST VAR / SMALLEST VAR 5.1905

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 4.134E-04

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	3.8533	9	0.0444
Ba	3.8500	9	0.0229
BC	3.9000	9	0.0229
Cd	3.8533	9	0.0522
TOTAL	3.8642	36	0.0379

ONE-WAY AOV FOR BPH14ST BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.00563	0.00563	3.42	0.0729
WITHIN	34	0.05585	0.00164		
TOTAL	35	0.06148			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	1.37	1	0.2421

COCHRAN'S Q 0.6410

LARGEST VAR / SMALLEST VAR 1.7855

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 2.212E-04

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	3.8517	18	0.0343
VA	3.8767	18	0.0459
TOTAL	3.8642	36	0.0405



Must data

Must data

For must characterization were used the grapes collected in 21 September. This data are related with probable alcohol, total acidity and pH. The sets used in this determination were got using the same methodology used with the grapes.

The data related with probable alcohol are represented as MAP21ST.

The data related with total acidity are represented as MAT21ST; for the plots Amendoal and Bateiras some data were lost why the set result only from one measurement.

The data related with pH are represented as MPH21ST.

COPIREA

Must - Probable alcohol, total acidity, pH

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	9	12.867	0.3905	12.400	13.300
MAT21ST	3	4.0500	0.0000	4.0500	4.0500
MPH21ST	9	3.9200	0.0312	3.8800	3.9500

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	9	13.367	0.6384	12.800	14.200
MAT21ST	3	4.5100	0.0000	4.5100	4.5100
MPH21ST	9	3.8467	0.0695	3.7700	3.9300

DESCRIPTIVE STATISTICS FOR PARC = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	9	12.033	0.2500	11.700	12.200
MAT21ST	9	3.1900	0.0377	3.1600	3.2400
MPH21ST	9	3.9767	0.0132	3.9600	3.9900

DESCRIPTIVE STATISTICS FOR PARC = Cd

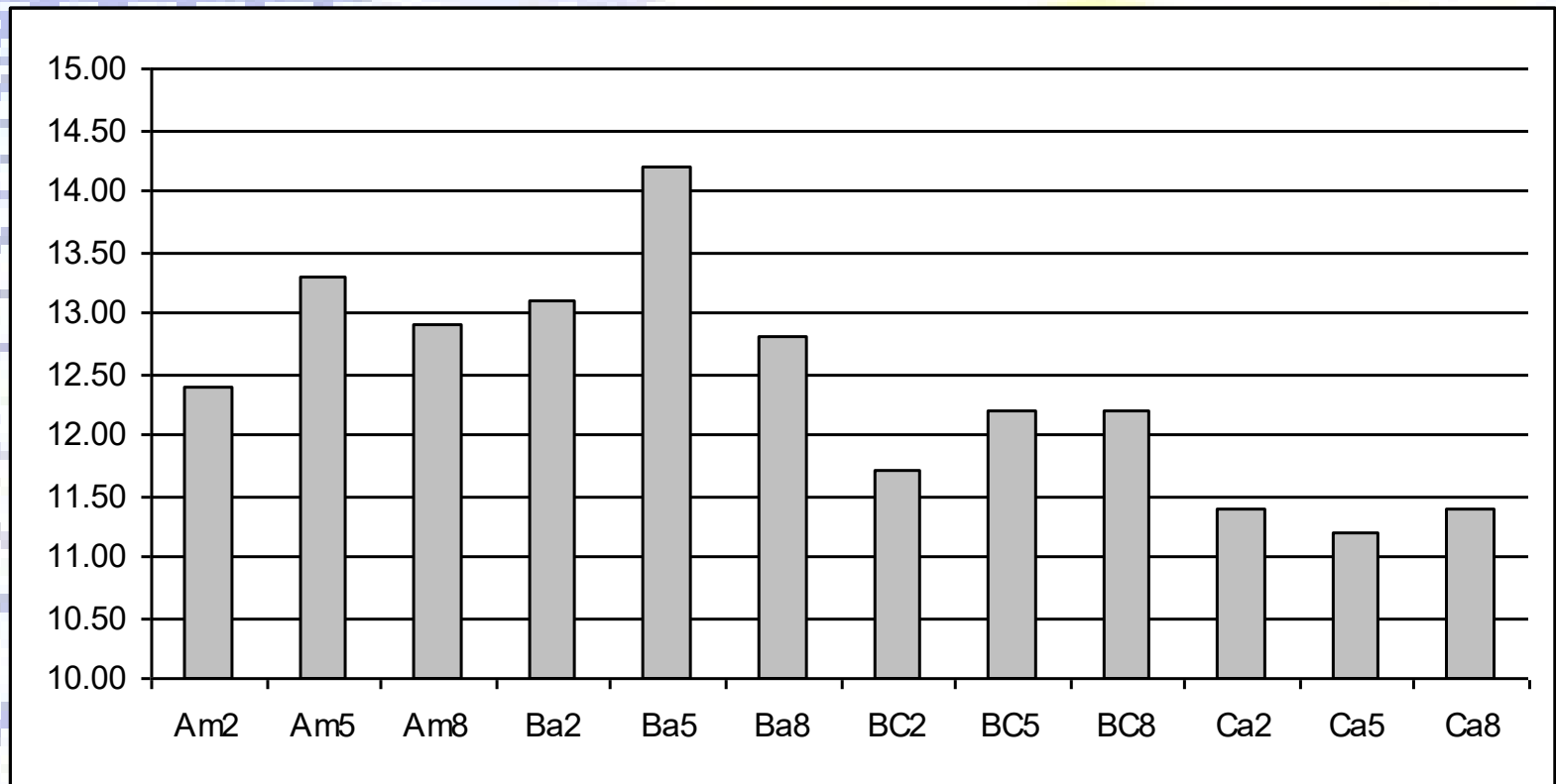
VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	9	11.333	0.1000	11.200	11.400
MAT21ST	9	3.5167	0.1460	3.4000	3.7100
MPH21ST	9	3.9367	0.0577	3.8600	3.9800

ANOVA must probable alcohol according plots and vineyard installations

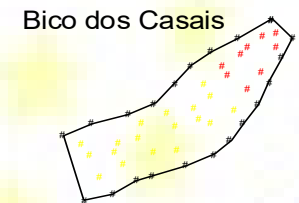
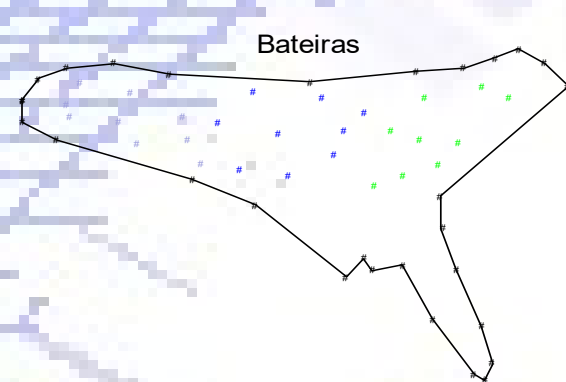
ONE-WAY AOV FOR MAP21ST BY PARC					
SOURCE	DF	SS	MS	F	P
BETWEEN	3	21.8200	7.27333	46.00	0.0000
WITHIN	32	5.06000	0.15812		
TOTAL	35	26.8800			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF					
EQUAL VARIANCES		21.13	3	0.0001	
COCHRAN'S Q			0.6443		
LARGEST VAR / SMALLEST VAR			40.750		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				0.79058	
EFFECTIVE CELL SIZE				9.0	
PARC	MEAN	SAMPLE SIZE	GROUP STD DEV		
Am	12.867	9	0.3905		
Ba	13.367	9	0.6384		
BC	12.033	9	0.2500		
Cd	11.333	9	0.1000		
TOTAL	12.400	36	0.3976		

ONE-WAY AOV FOR MAP21ST BY INST					
SOURCE	DF	SS	MS	F	P
BETWEEN	1	18.4900	18.4900	74.93	0.0000
WITHIN	34	8.39000	0.24676		
TOTAL	35	26.8800			
		CHI-SQ	DF	P	
BARTLETT'S TEST OF					
EQUAL VARIANCES		1.98	1	0.1594	
COCHRAN'S Q			0.6681		
LARGEST VAR / SMALLEST VAR			2.0126		
COMPONENT OF VARIANCE FOR BETWEEN GROUPS				1.01351	
EFFECTIVE CELL SIZE				18.0	
INST	MEAN	SAMPLE SIZE	GROUP STD DEV		
Pt	13.117	18	0.5742		
VA	11.683	18	0.4048		
TOTAL	12.400	36	0.4968		

Must - Probable alcohol (21ST)



Must - Probable alcohol in all plots



Mosto - Álcool Provável

Dadospontostotaa.txt

■ 11.2 - 11.8

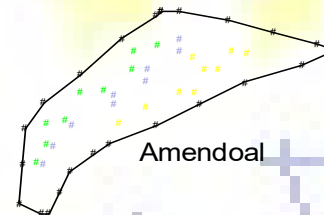
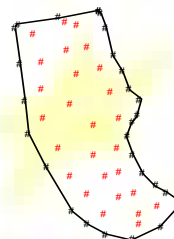
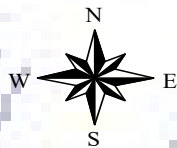
■ 11.8 - 12.4

■ 12.4 - 13

■ 13 - 13.6

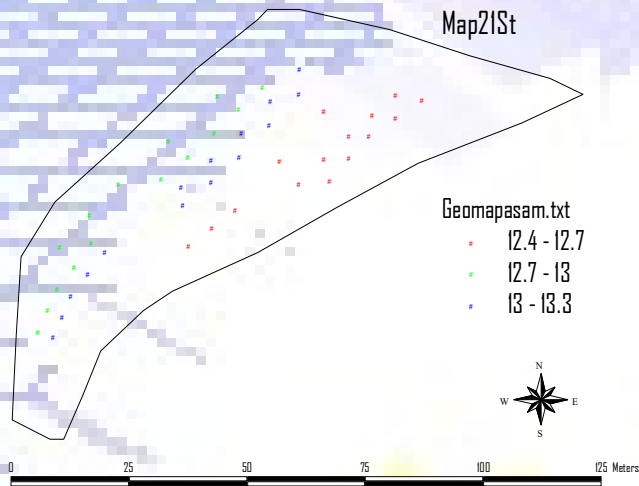
■ 13.6 - 14.2

■ Dadospontoslmaa.txt

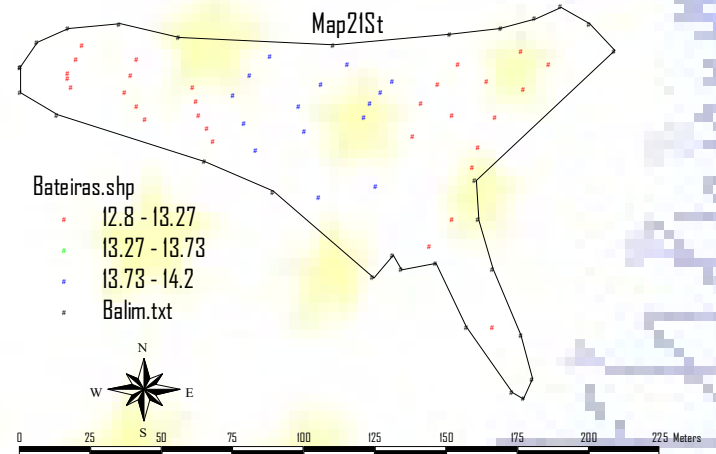


Must - Probable alcohol

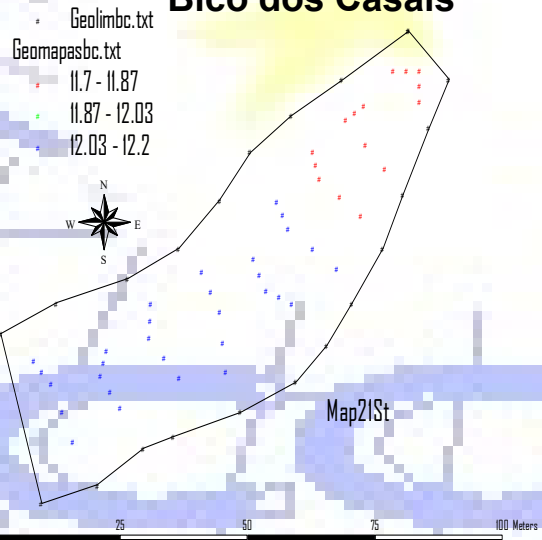
Amendoal



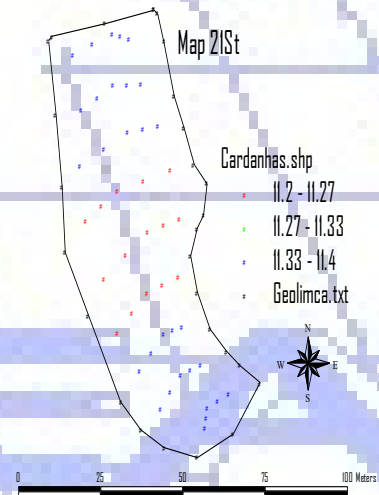
Bateiras



Bico dos Casais

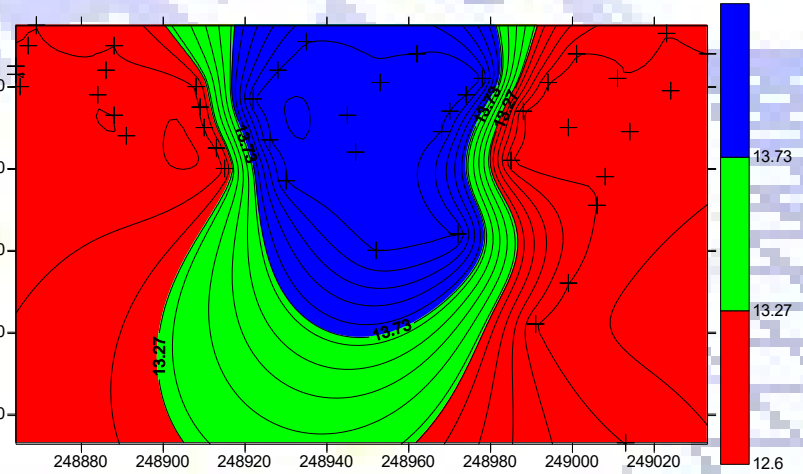
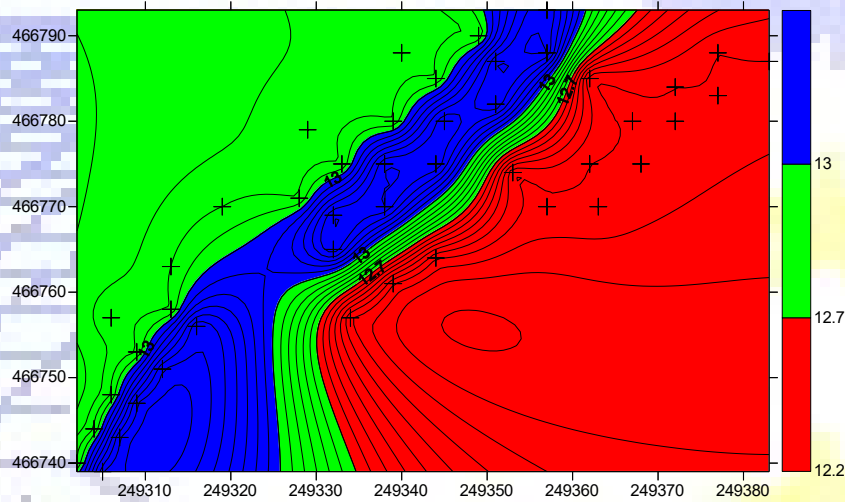


Cardanhas

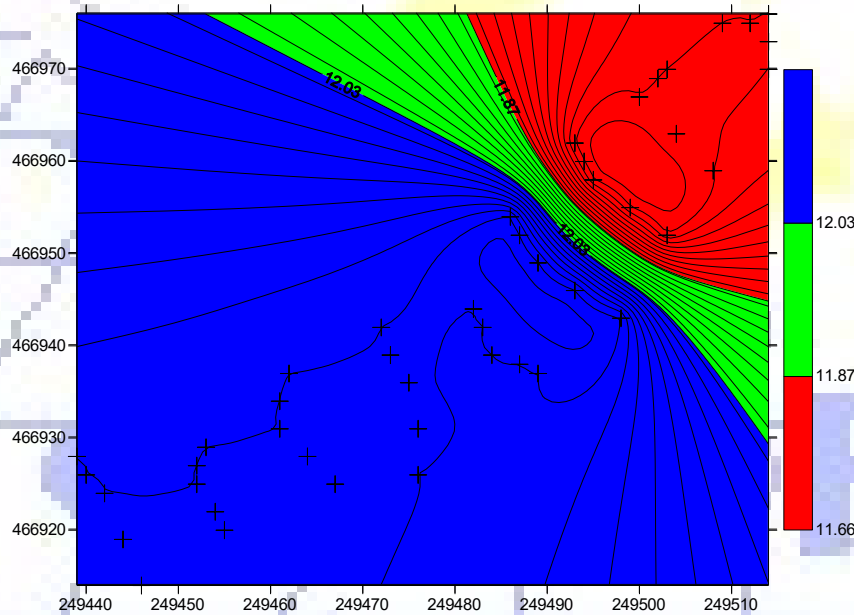


Must - Probable alcohol

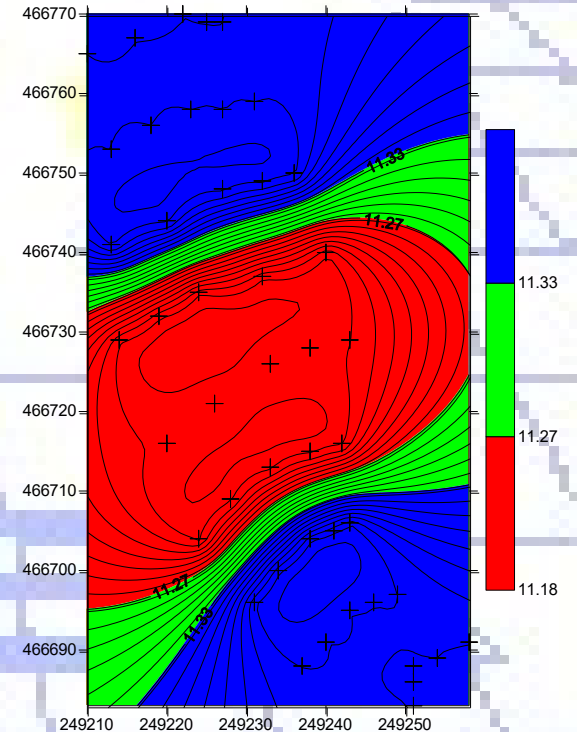
Amendoal



Bico dos Casais



Bateiras



Cardanhas

ANOVA must total acidity according plots and vineyard installations

ONE-WAY AOV FOR MAT21ST BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	4.66180	1.55393	170.76	0.0000
WITHIN	20	0.18200	0.00910		
TOTAL	23	4.84380			

AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.28088
EFFECTIVE CELL SIZE 5.5

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	4.0500	3	0.0000
Ba	4.5100	3	0.0000
BC	3.1900	9	0.0377
Cd	3.5167	9	0.1460
TOTAL	3.5850	24	0.0954
CASES INCLUDED	24	MISSING CASES	12

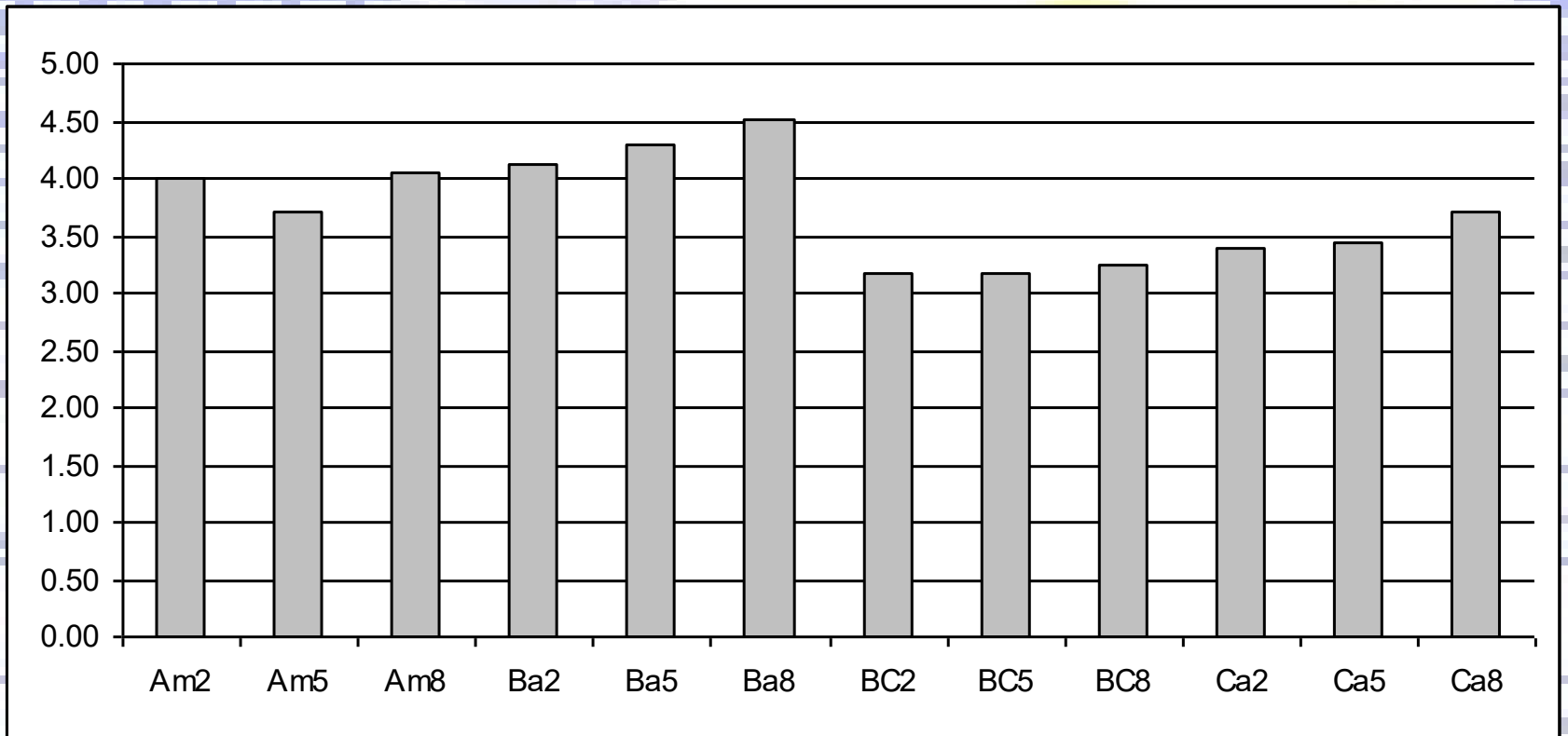
ONE-WAY AOV FOR MAT21ST BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	3.86420	3.86420	86.78	0.0000
WITHIN	22	0.97960	0.04453		
TOTAL	23	4.84380			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	0.47	1	0.4942
COCHRAN'S Q		0.6197	
LARGEST VAR / SMALLEST VAR		1.6297	
COMPONENT OF VARIANCE FOR BETWEEN GROUPS			0.42441
EFFECTIVE CELL SIZE			9.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	4.2800	6	0.2520
VA	3.3533	18	0.1974
TOTAL	3.5850	24	0.2110
CASES INCLUDED	24	MISSING CASES	12

Must - Total acidity (21ST)



Must - Total acidity

Bateiras

Bico dos Casais

Mosto - Acidez Total

Dadospontostotaa.txt

■ 3.16 - 3.43

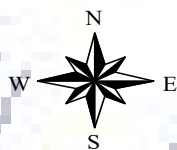
■ 3.43 - 3.7

■ 3.7 - 3.97

■ 3.97 - 4.24

■ 4.24 - 4.51

■ Dadospontoslmaa.txt



Amendoal

Cardanhas

0

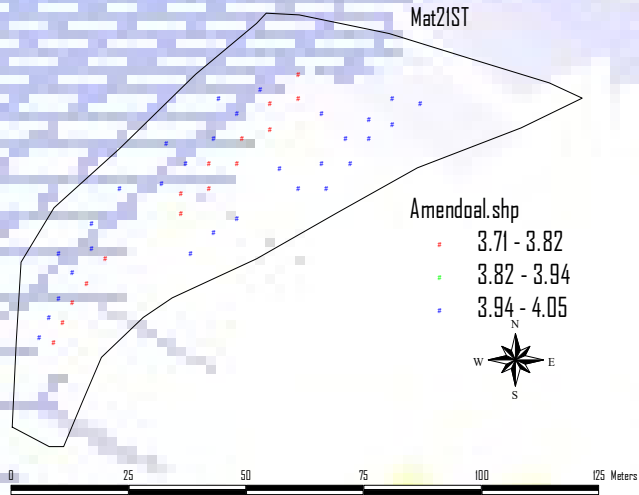
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400

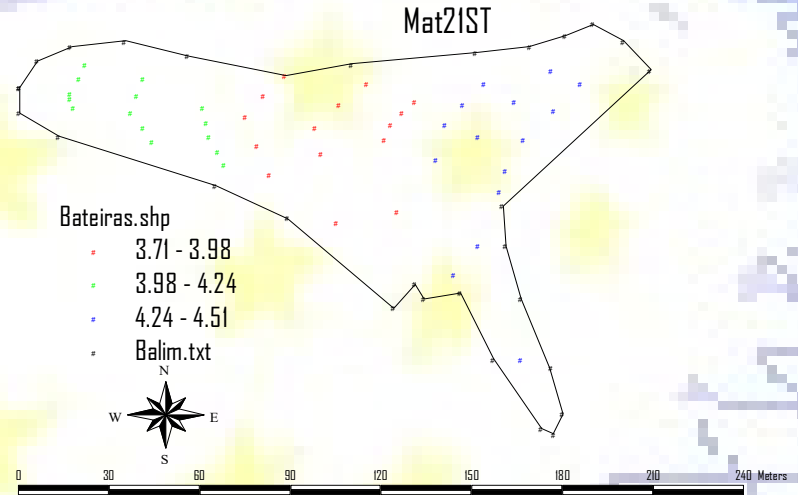
600 Meters

Must - Total acidity

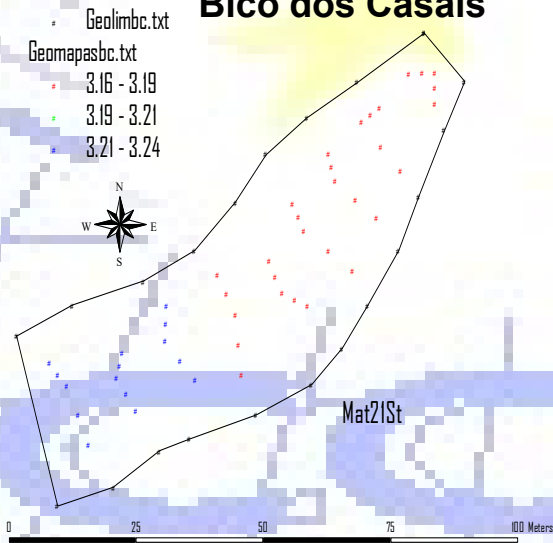
Amendoal



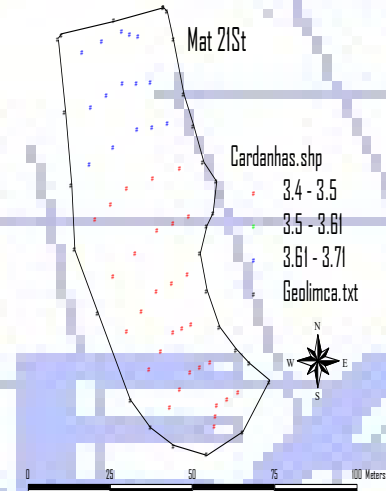
Bateiras



Bico dos Casais

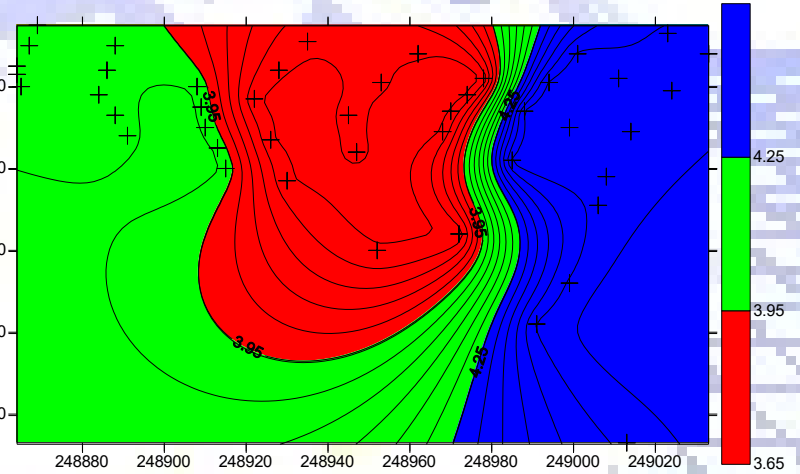
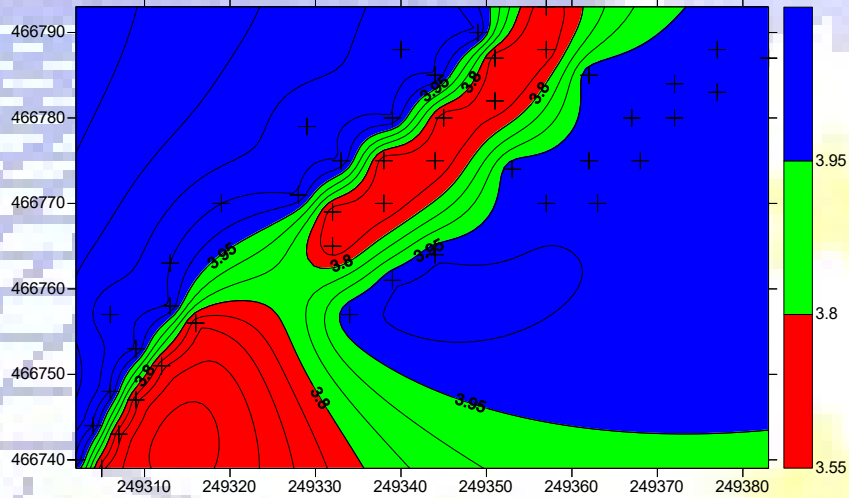


Cardanhas

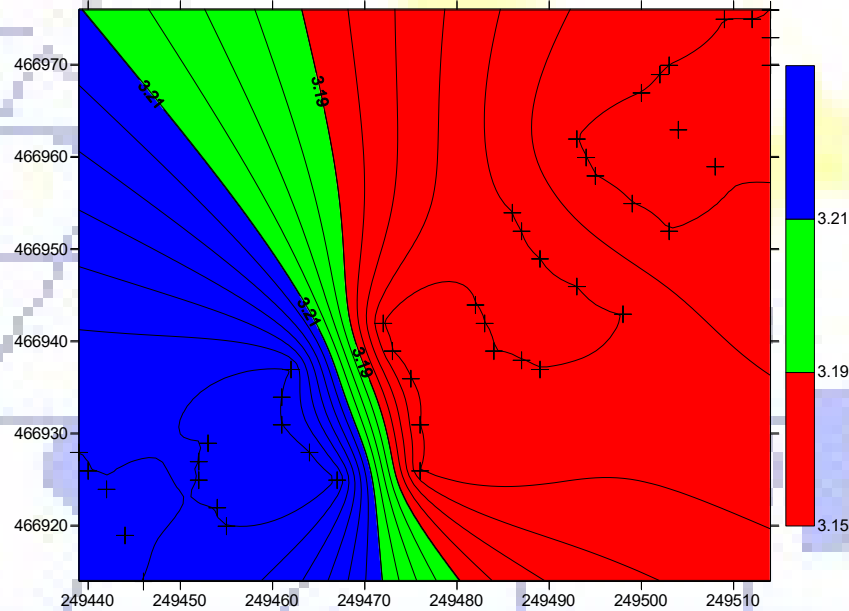


Must - Total acidity

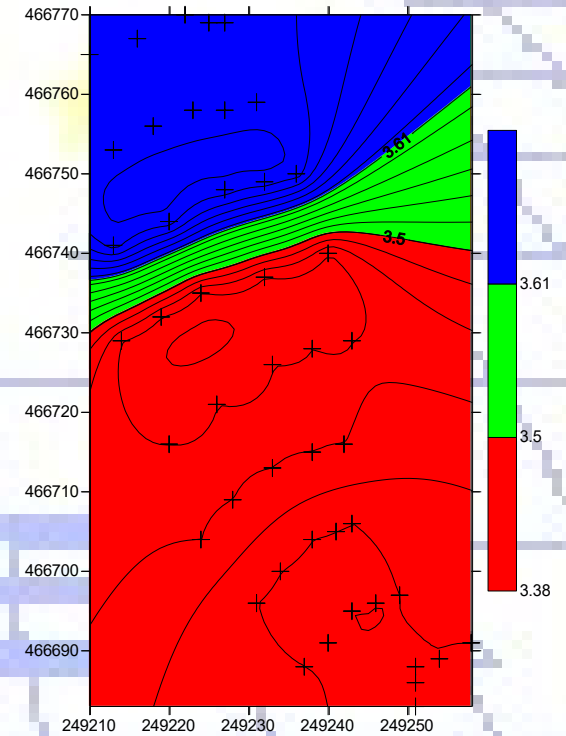
Amendoal



Bico dos Casais



Bateiras



Cardanhas

ANOVA must pH according plots and vineyard installations

ONE-WAY AOV FOR MPH21ST BY PARC

SOURCE	DF	SS	MS	F	P
BETWEEN	3	0.07980	0.02660	11.44	0.0000
WITHIN	32	0.07440	0.00233		
TOTAL	35	0.15420			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	18.01	3	0.0004

COCHRAN'S Q 0.5188

LARGEST VAR / SMALLEST VAR 27.571

COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.00270

EFFECTIVE CELL SIZE 9.0

PARC	MEAN	SAMPLE SIZE	GROUP STD DEV
Am	3.9200	9	0.0312
Ba	3.8467	9	0.0695
BC	3.9767	9	0.0132
Cd	3.9367	9	0.0577
TOTAL	3.9200	36	0.0482

ONE-WAY AOV FOR MPH21ST BY INST

SOURCE	DF	SS	MS	F	P
BETWEEN	1	0.04840	0.04840	15.55	0.0004
WITHIN	34	0.10580	0.00311		
TOTAL	35	0.15420			

	CHI-SQ	DF	P
BARTLETT'S TEST OF	-----	-----	-----
EQUAL VARIANCES	1.96	1	0.1614

COCHRAN'S Q 0.6673

LARGEST VAR / SMALLEST VAR 2.0057

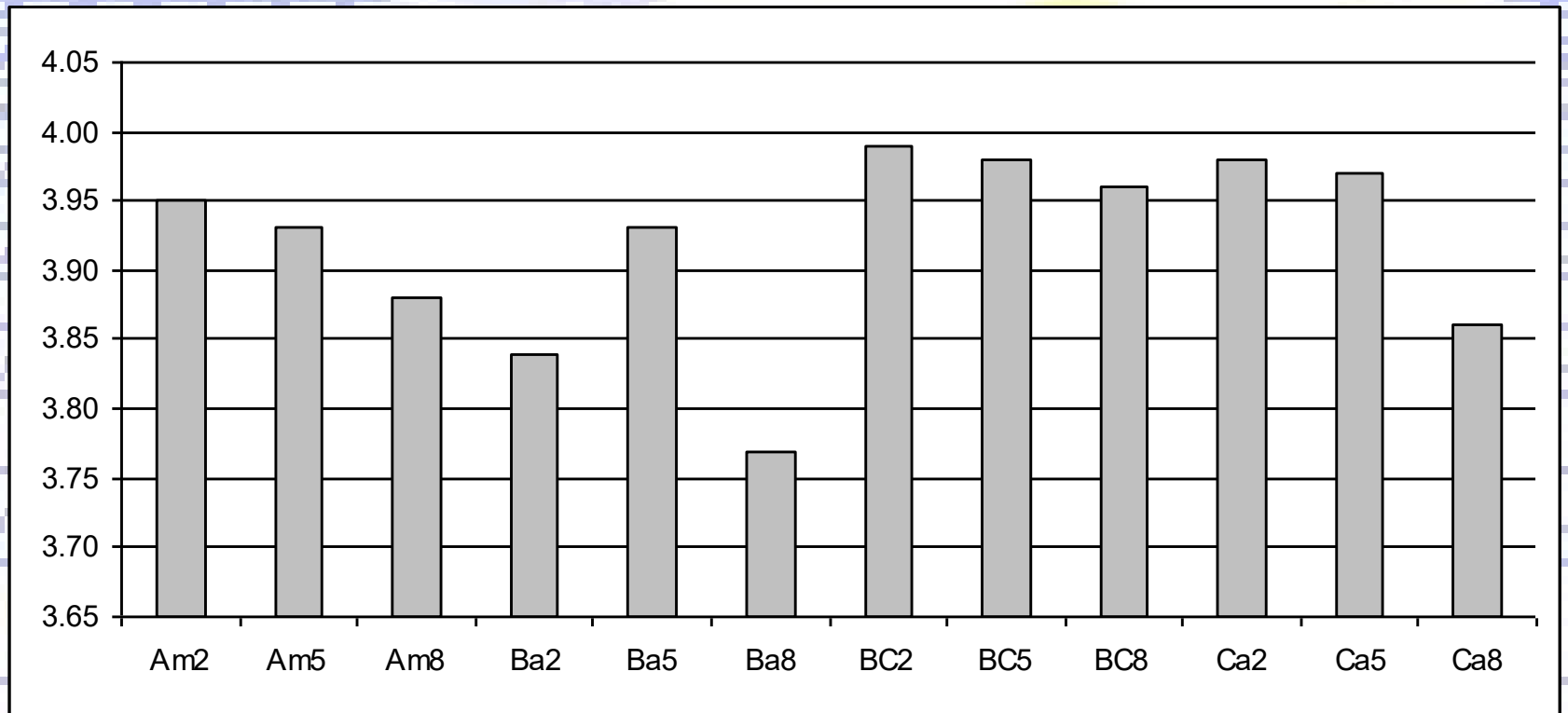
COMPONENT OF VARIANCE FOR BETWEEN GROUPS 0.00252

EFFECTIVE CELL SIZE 18.0

INST	MEAN	SAMPLE SIZE	GROUP STD DEV
Pt	3.8833	18	0.0644
VA	3.9567	18	0.0455
TOTAL	3.9200	36	0.0558

CASES INCLUDED 36 MISSING CASES 0

Must - pH (21ST)



Must - pH

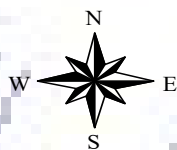
Bateiras

Bico dos Casais

Mosto - pH

Dadospontostotaa.txt

- 3.77 - 3.81
- 3.81 - 3.86
- 3.86 - 3.9
- 3.9 - 3.95
- 3.95 - 3.99
- Dadospontoslmaa.txt



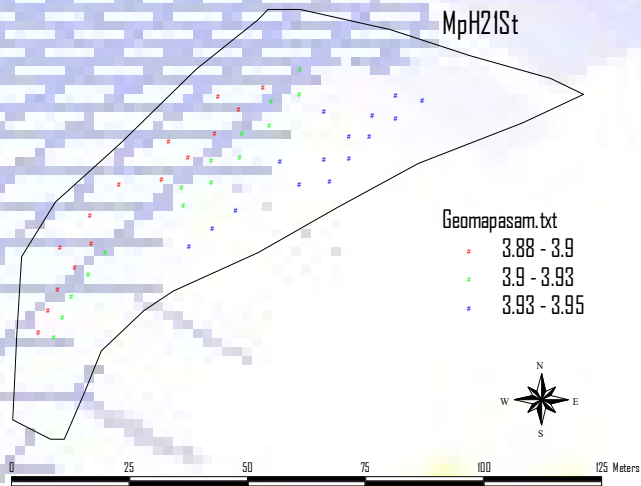
Amendoal

Cardanhas

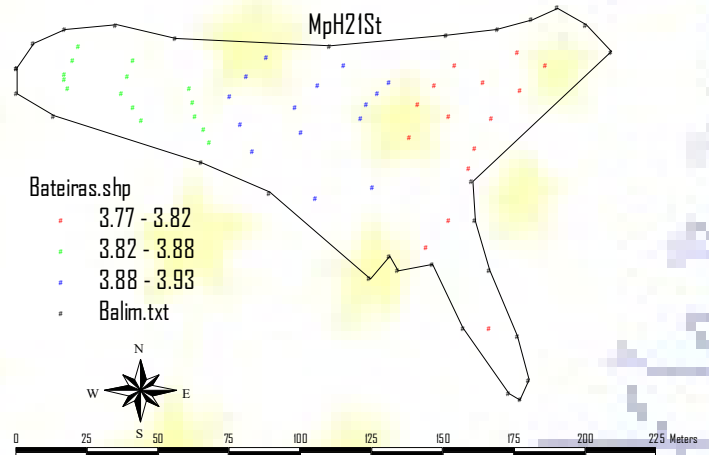


Must - pH

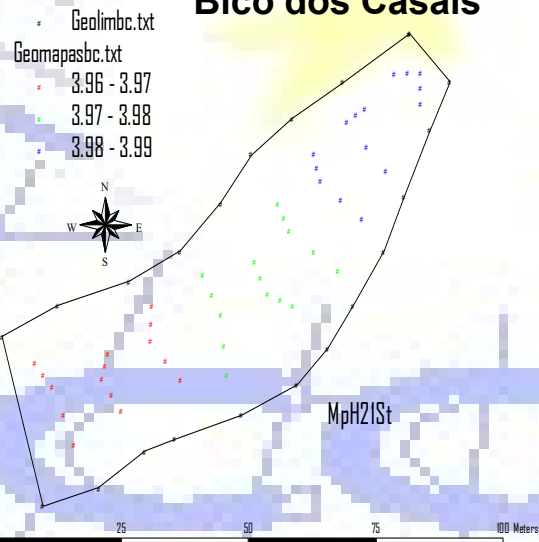
Amendoal



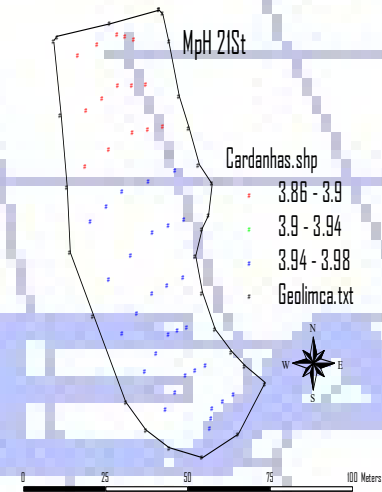
Bateiras



Bico dos Casais

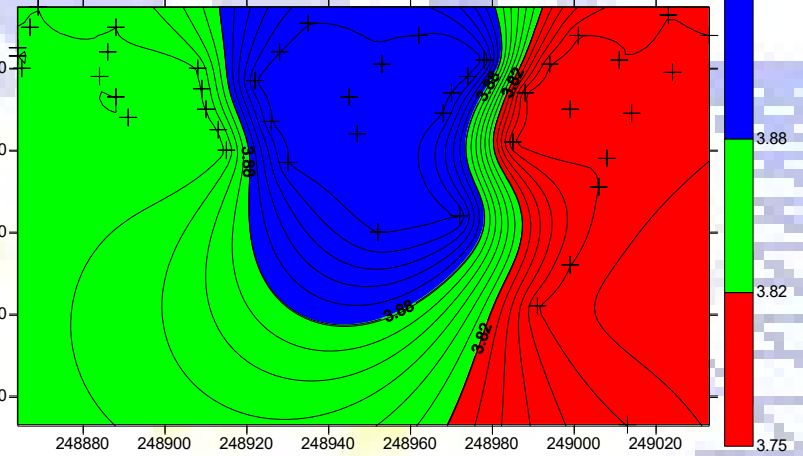
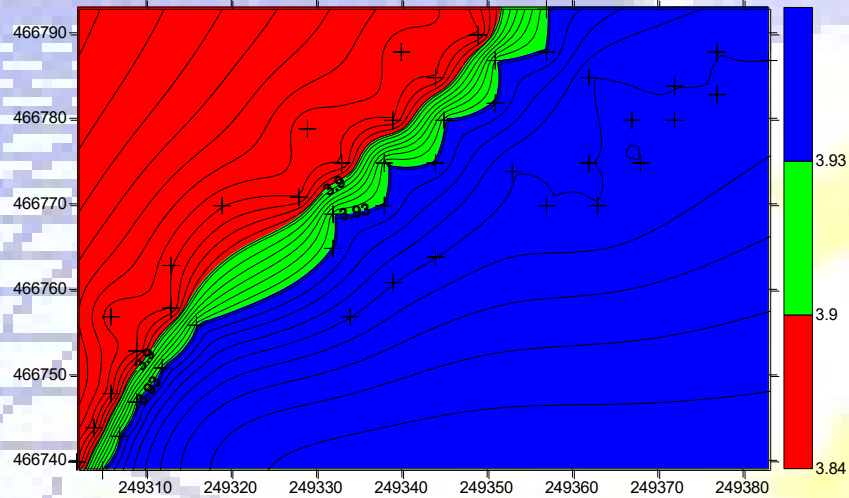


Cardanhas



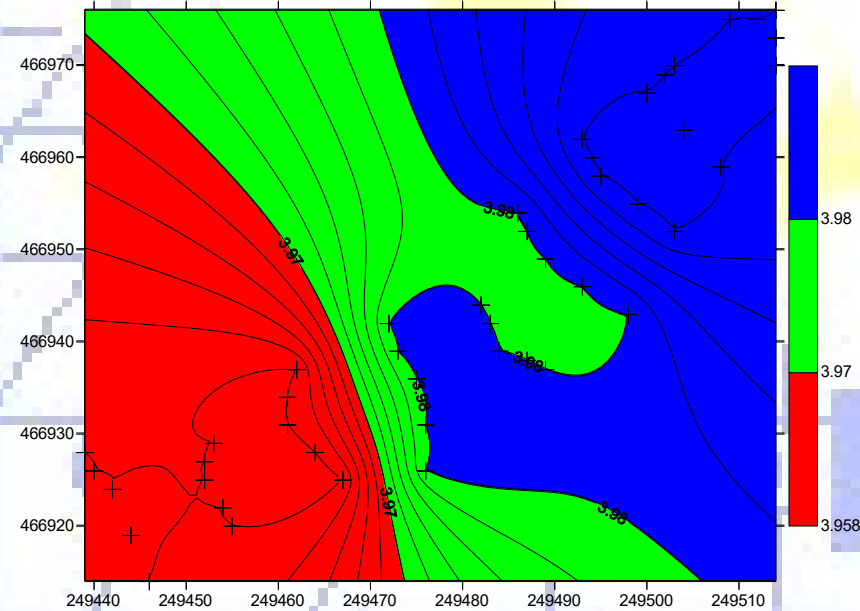
Must - pH

Amendoal

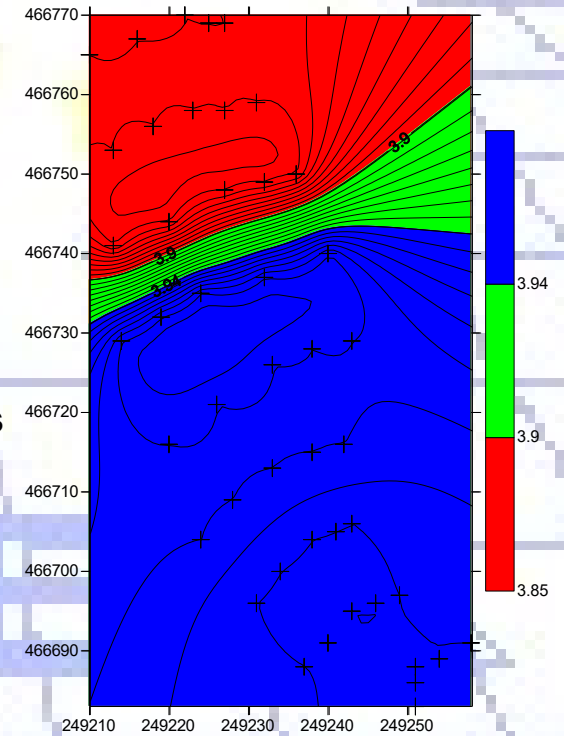


Bateiras

Bico dos Casais

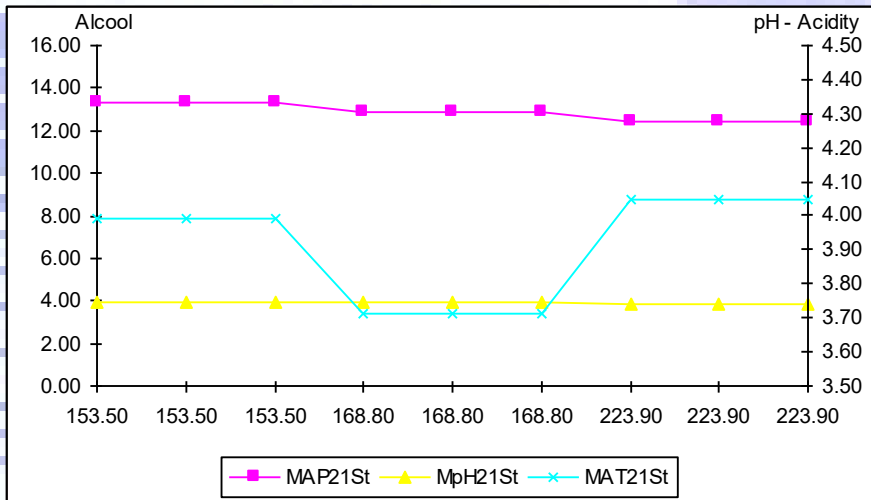


Cardanhas

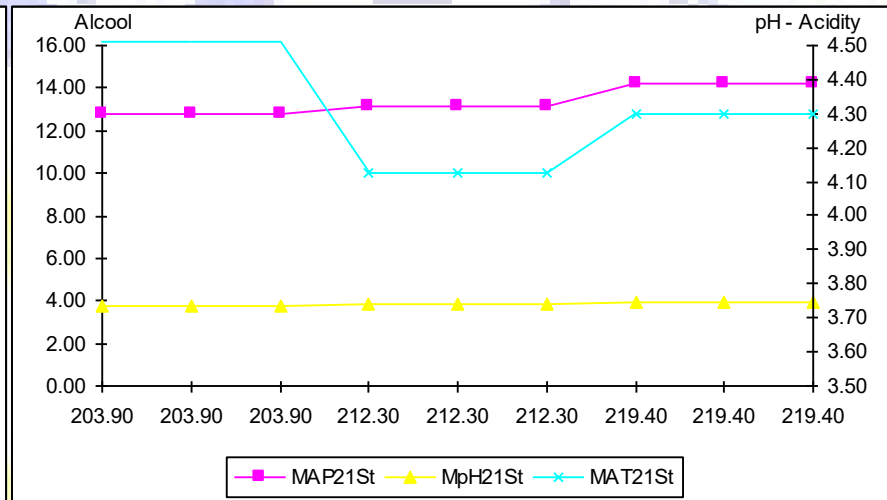


Must data vs weight grape

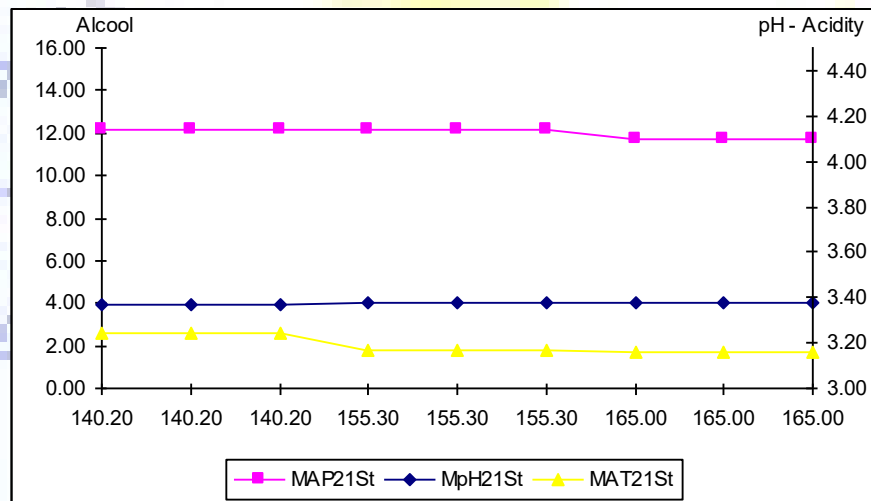
Amendoal



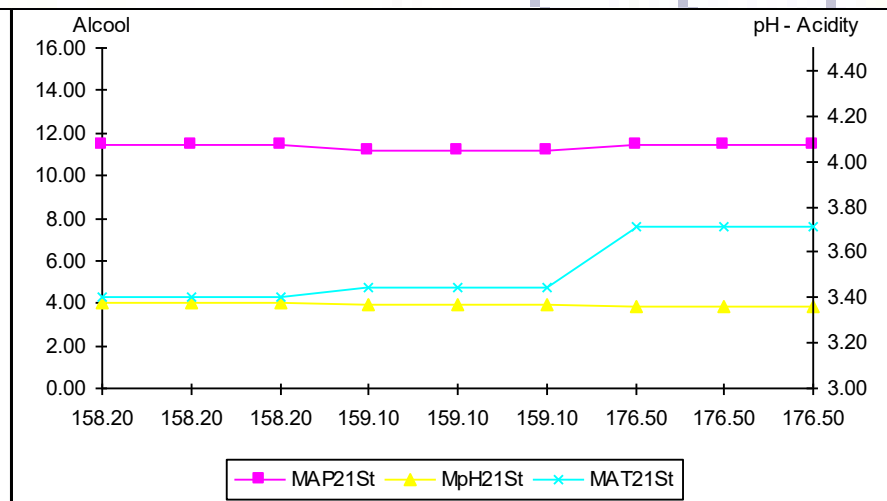
Bateiras

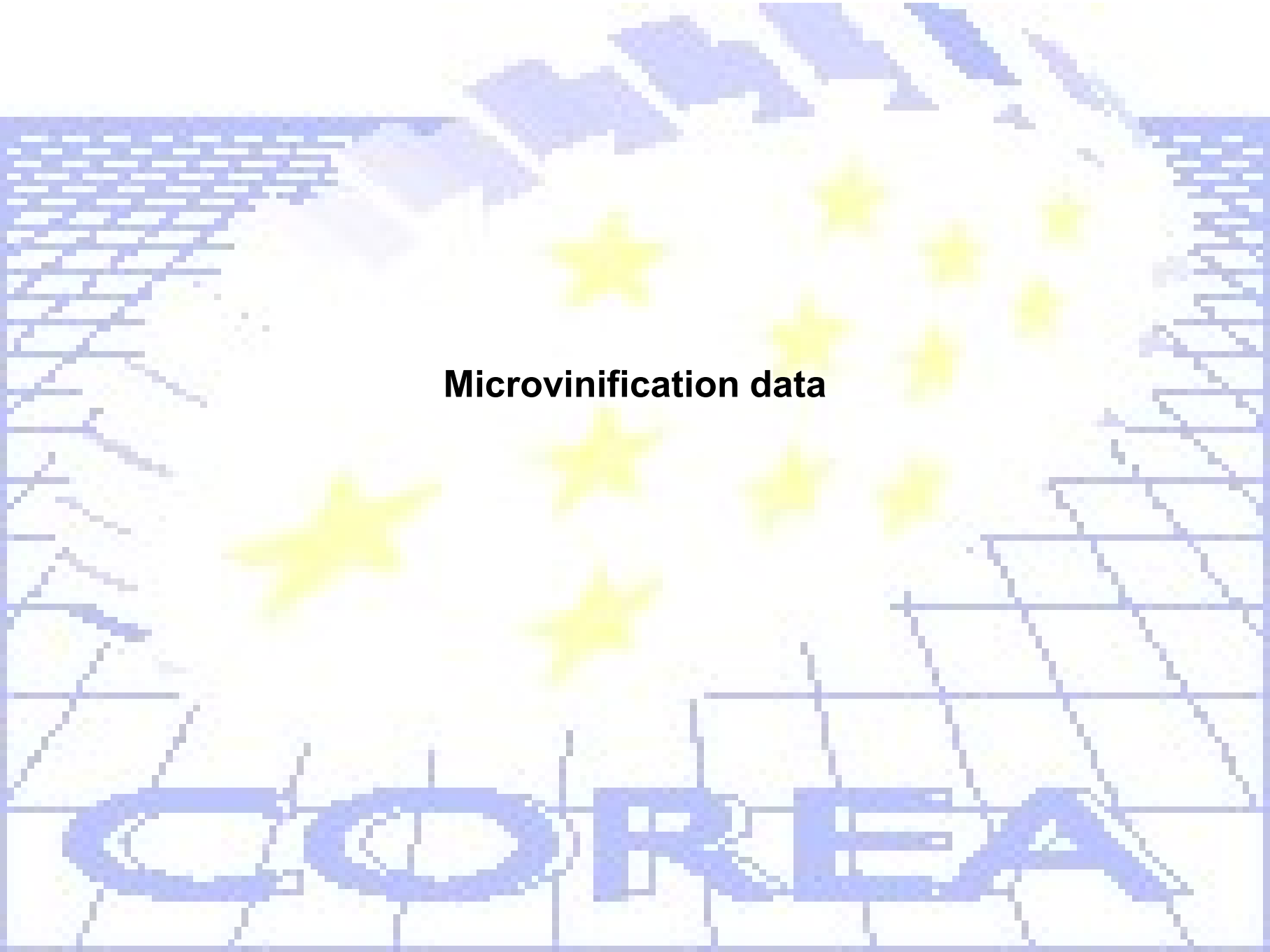


Bico dos Casais



Cardanhas





Microvinification data

Data are being determined.

The microvinifications will follow the usual red wine technical manner with long maceration, to extract all the components, namely flavours and poliphenol. The alcohol fermentation will be followed by the malolatic fermentation witch is control with the addition of commercial lactic bacteria. Finished this, the wine will be microbiologically stabilised using the racking (transfer) and sulphur addition. The wines will be kept in a refrigerator ($\pm 4^{\circ}\text{C}$) during 20 days for the tartaric stabilisation.

After all this operations the wine will be bottled

COOREA

Crop operations done in 2005

Amendoal

Wood pruning (Poda)
Green pruning (Espampa)
??? (Ampara)
1º Spray (Tratamento)
2º Spray (Tratamento)
3º Spray (Tratamento)
Edge pruning (Desponta)

16 de Março
12 de Maio

17de Maio
20 de Maio (Fórum F + Rubigan)
14 de Junho (Enxofre F/Extra)
28 de Junho (Arius)
7 de Julho

Bateiras

Wood pruning (Poda)
Green pruning (Espampa)
??? (Ampara)
1º Spray (Tratamento)
2º Spray (Tratamento)
3º Spray (Tratamento)
Edge pruning (Desponta)

14 e 15 de Março
09 e 10 de Maio
17 de Maio
21 de Maio (Fórum F + Rubigan)
13 de Junho (Enxofre F/Extra)
30 de Junho (Arius)
13 de Julho

Crop operations done in 2005 (cont.)

Bico dos Casais

Wood pruning (Poda)
Green pruning (Espampa)
??? (Ampara)
1º Spray (Tratamento)
2º Spray (Tratamento)
3º Spray (Tratamento)
Edge pruning (Desponta)

14 de Março
04 de Maio
19 de Maio
21 de Maio (Fórum F + Rubigan)
13 de Junho (Enxofre F/Extra)
30 de Junho (Arius)
13 de Julho

Cardanhas

Wood pruning (Poda)
Green pruning (Espampa)
??? (Ampara)
1º Spray (Tratamento)
2º Spray (Tratamento)
3º Spray (Tratamento)
Edge pruning (Desponta)

11 de Março
04 de Maio
19 de Maio
21 de Maio (Fórum F + Rubigan)
13 de Junho (Enxofre F/Extra)
30 de Junho (Arius)
13 de Julho



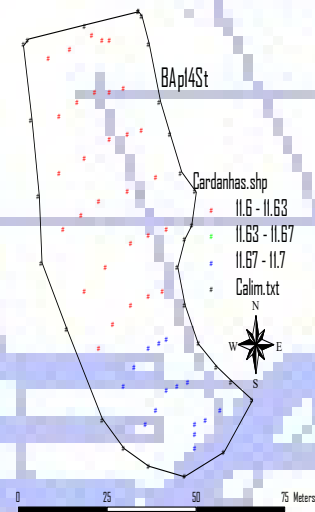
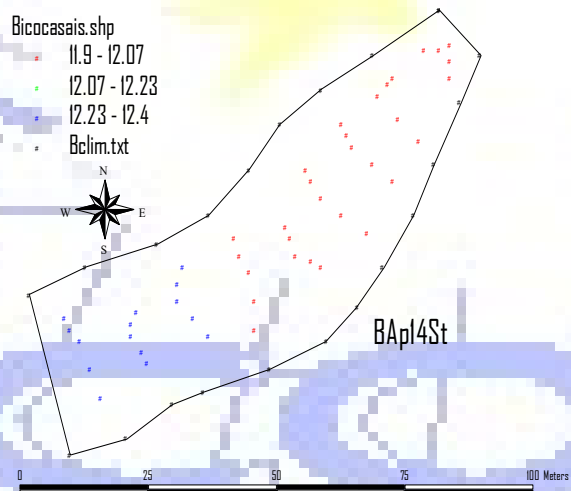
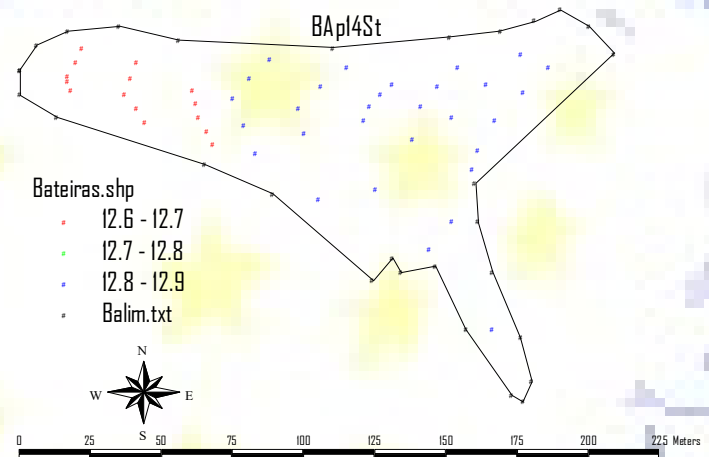
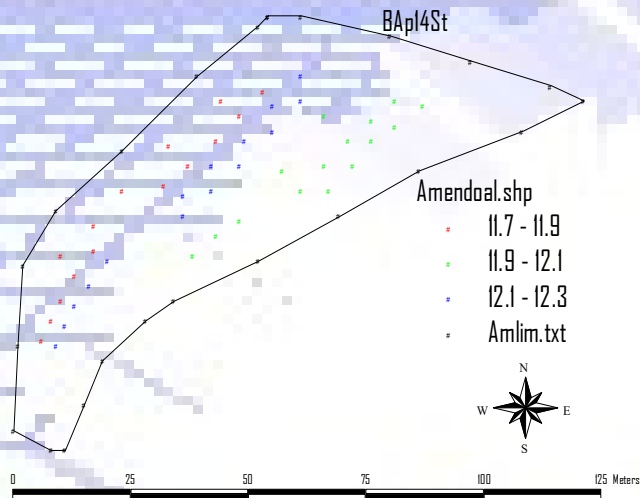


The background is a pixelated image featuring a light blue grid. Overlaid on this grid are several yellow, five-pointed stars of varying sizes, arranged in a pattern reminiscent of the European Union flag. The word "END" is centered in the middle of the image.

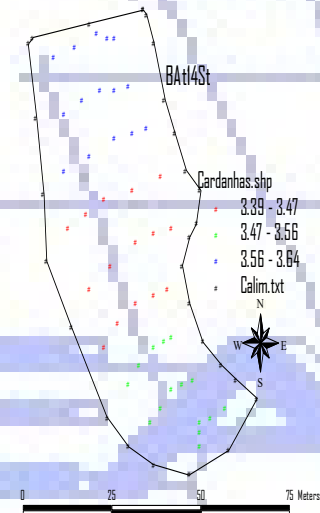
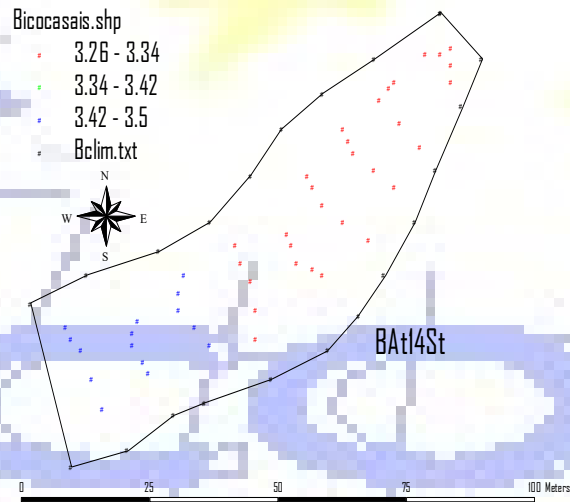
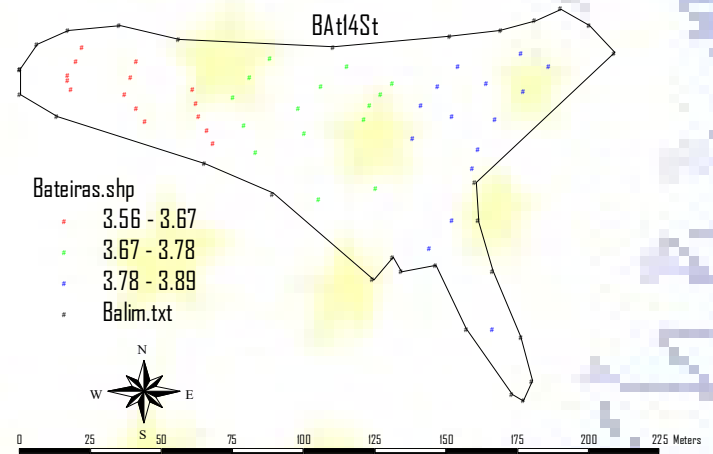
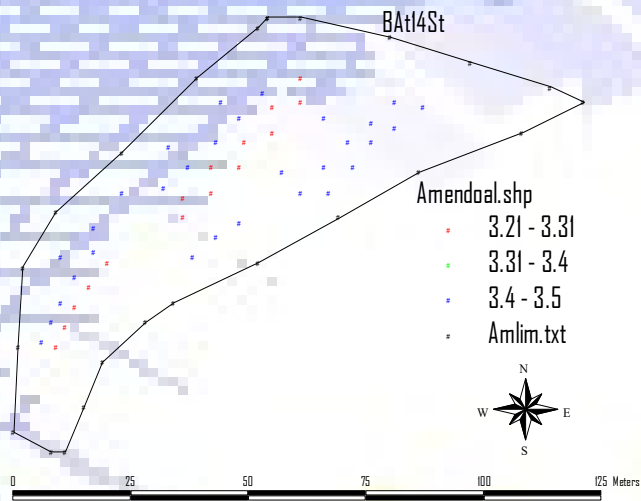
END

COOREA

Grapes - Probable alcohol (14 Set)

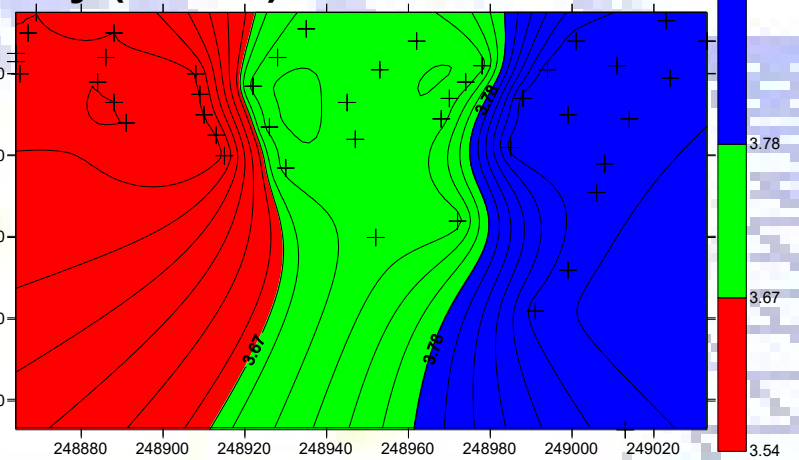
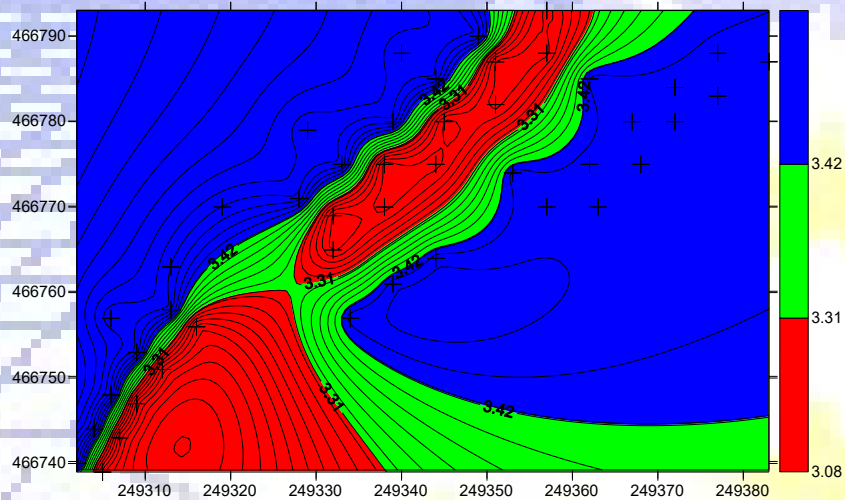


Grapes - total acidity (14 Set)

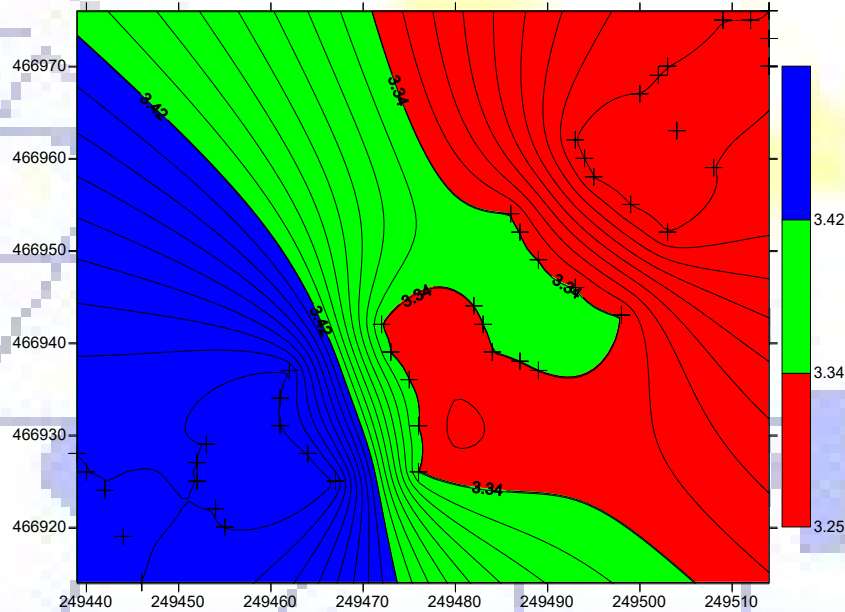


Grapes - total acidity (14 Set)

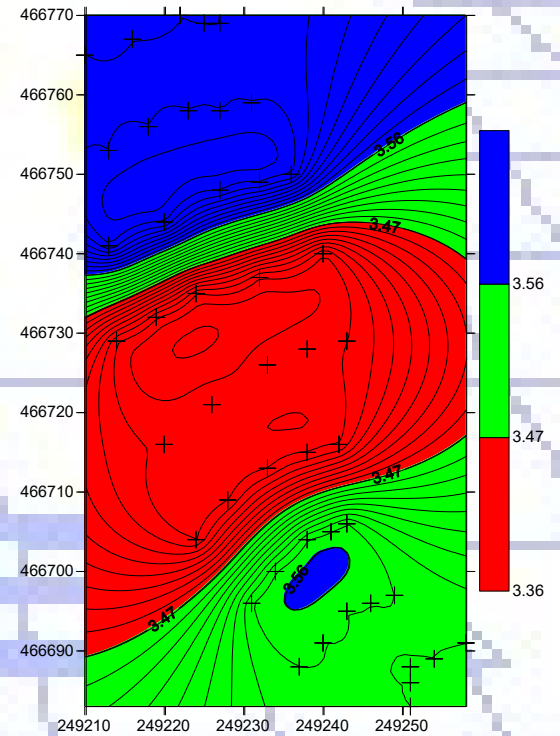
Amendoal



Bico dos Casais

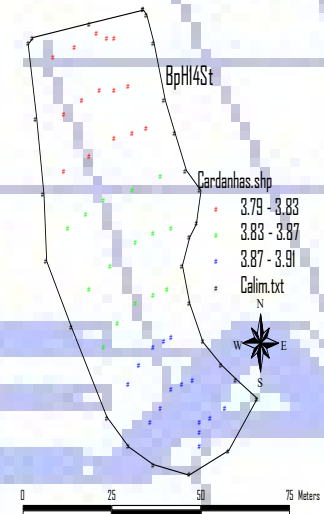
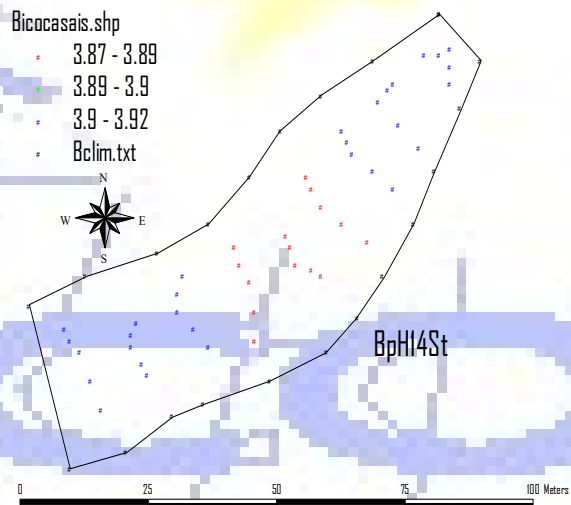
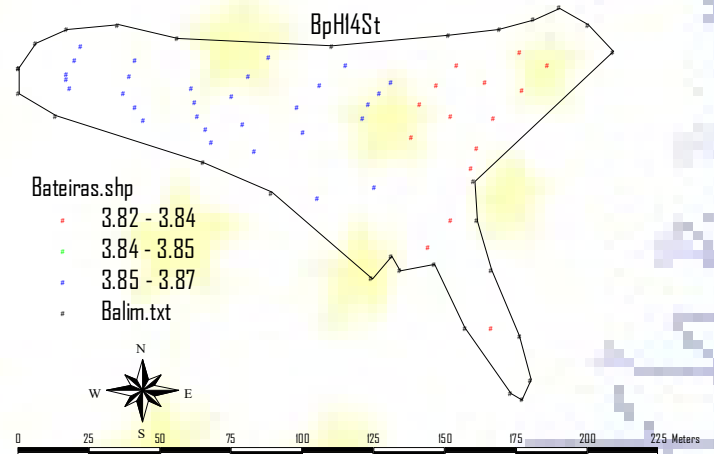
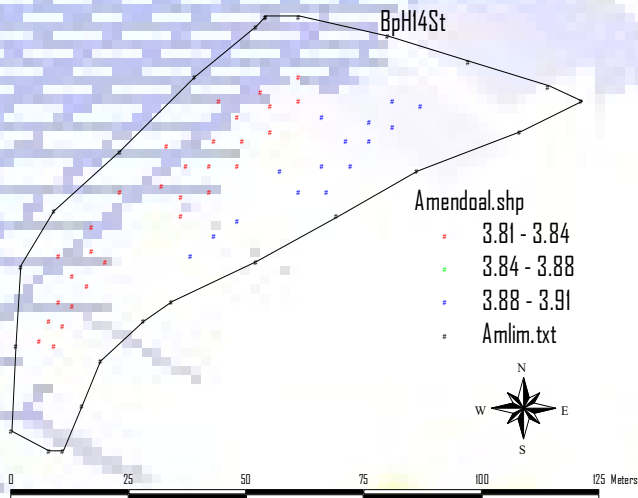


Bateiras



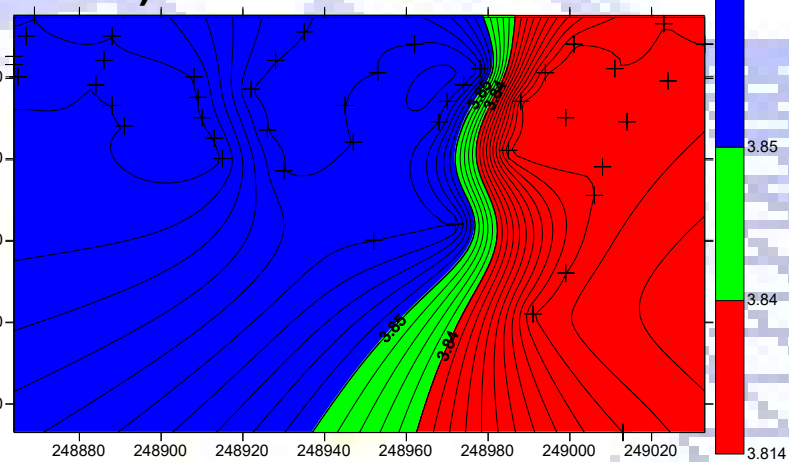
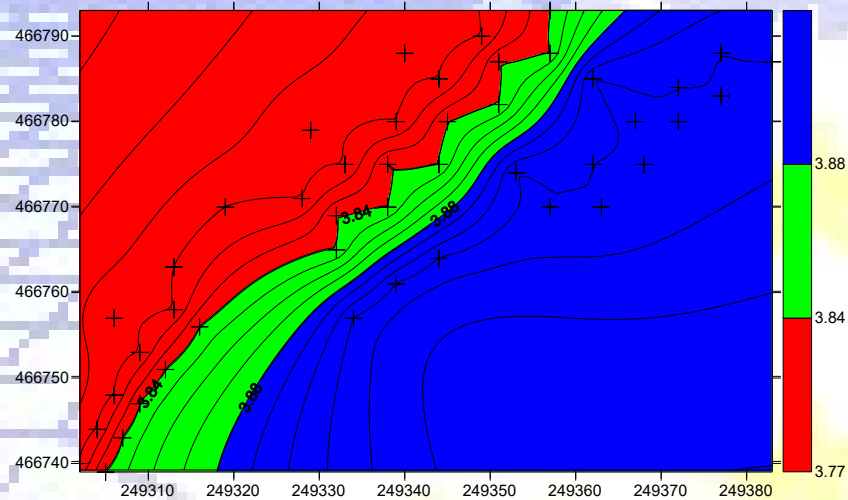
Cardanhas

Grapes pH (14 Set)

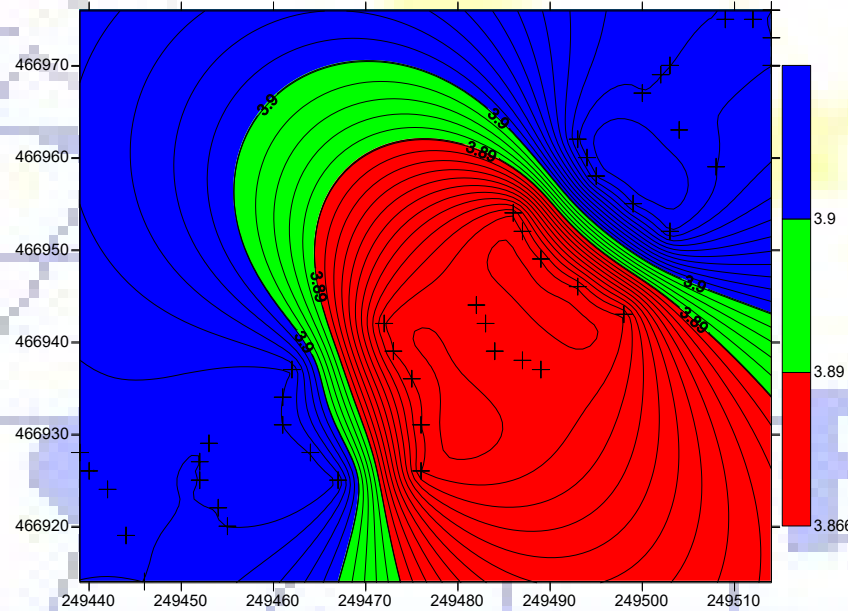


Grapes pH (14 Set)

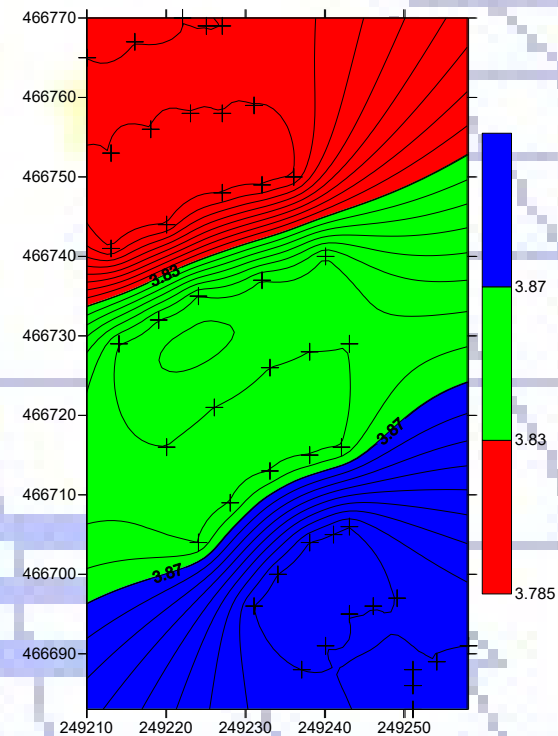
Amendoal



Bico dos Casais



Bateiras



Cardanhas



Mosto - Álcool Provável

Bateiras

Bico dos Casais

Dadospontostotaa.txt

11.2 - 11.8

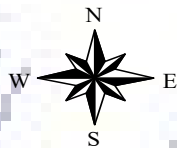
11.8 - 12.4

12.4 - 13

13 - 13.6

13.6 - 14.2

Dadospontoslmaa.txt



Amendoal

Cardanhas



CITpMed

Bateiras

Bico dos Casais

Dadospontostotaa.txt

■ 20.77 - 22.17

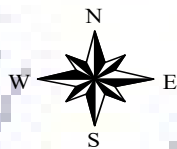
■ 22.17 - 23.58

■ 23.58 - 24.99

■ 24.99 - 26.39

■ 26.39 - 27.8

■ Dadospontoslmaa.txt



Amendoal

Cardanhas







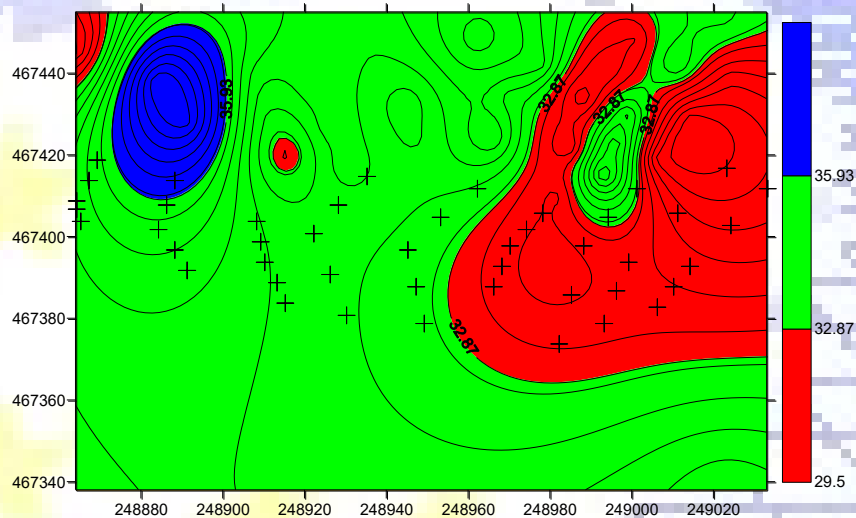
Tinta Roriz

PRODUCTION/ VINE PLANT	BAUME DEGREE	ACIDITY G/L	ALCOHOL	ANTHOCYANS MG/L	QUALITY
< 1,5 Kg	13,5°	6.40g/L	14.0°	105mg/L	Exceptional
1,5- 2,5 Kg	13°	6.26g/L	13.5°	90mg/L	Very Good
> 2,5 Kg	12,6°	6.78g/L	13.0°	72mg/L	Good

COOPREA

Amendoal

Bateiras

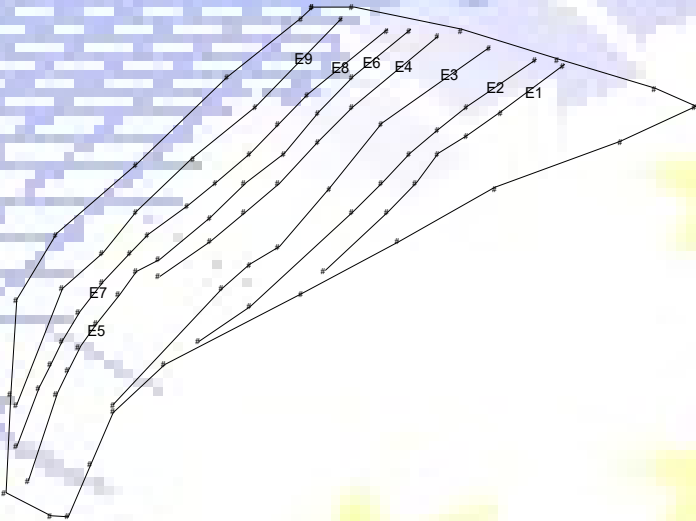


Bico dos Casais

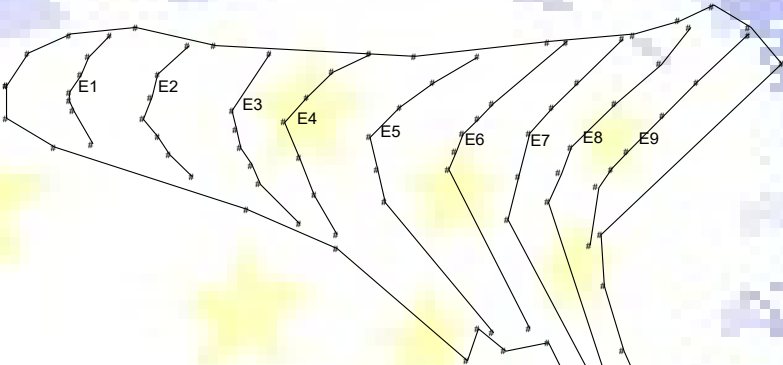
Cardanhas

COBREIA

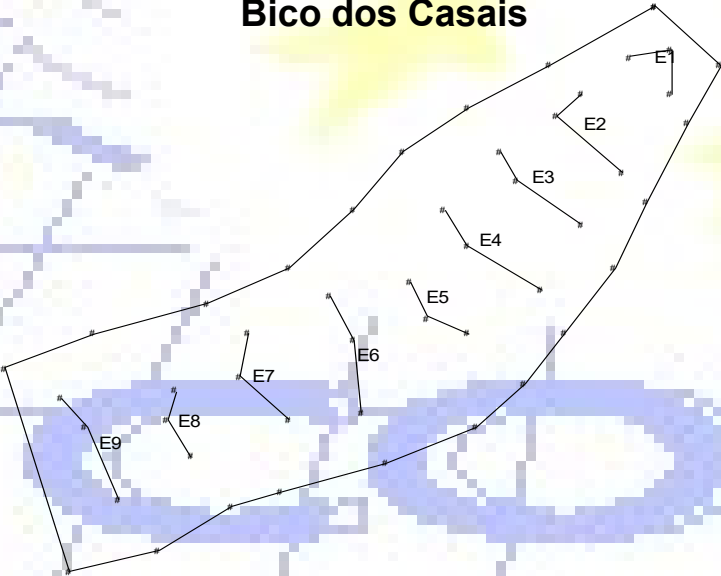
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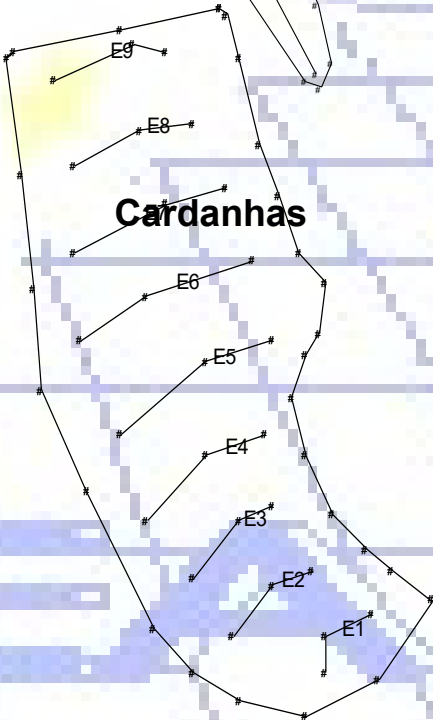
Bateiras



Bico dos Casais



Cardanhas



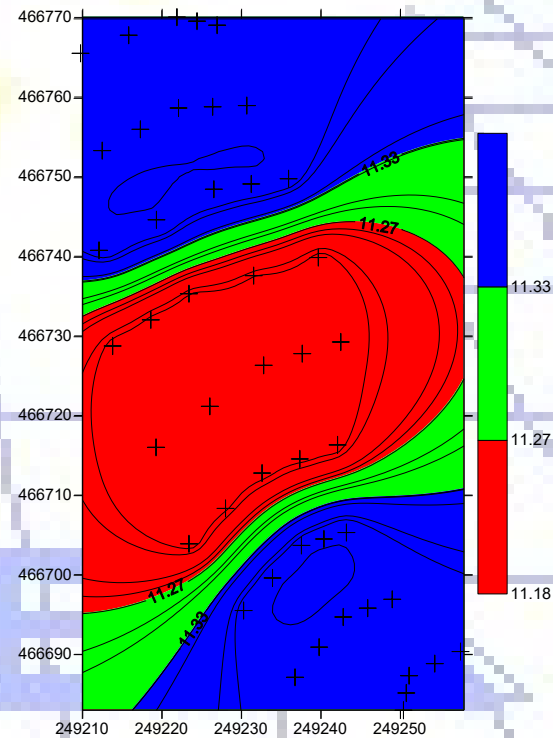
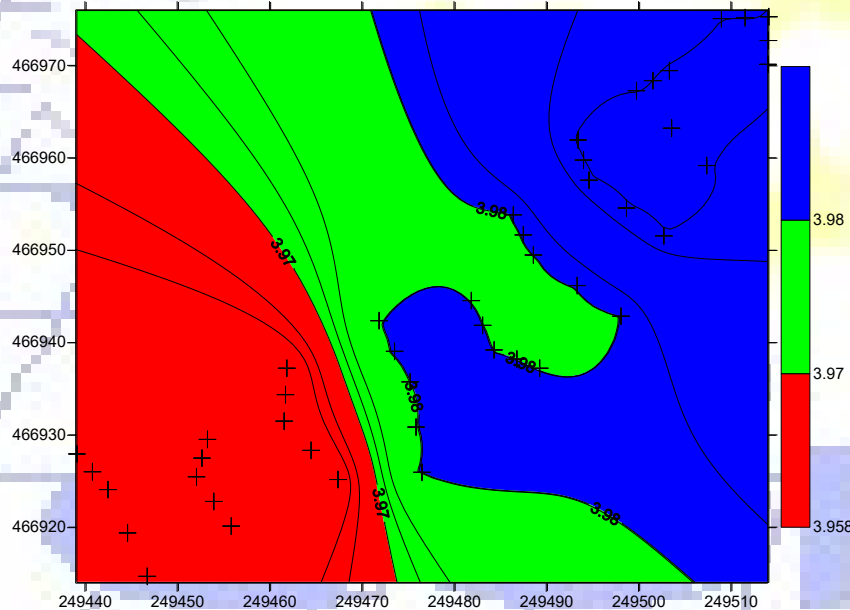
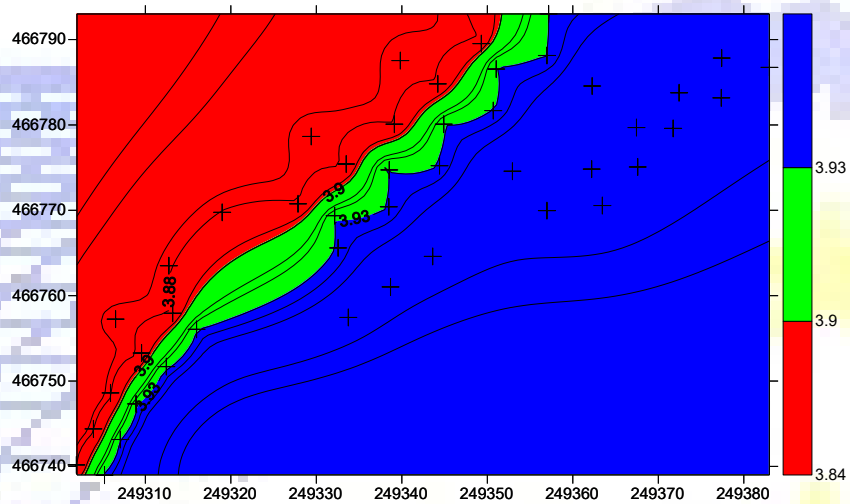




Table 1: Soil mineral nutrient content in data collection zones identified at the Fredonia lab (fig 1), the Betts Vineyard (fig 4), and the Valardo Vineyard (fig 5). Data are from soil cores at 0-20cm.

Vineyard	Zone	% Organic Matter	PH	P	K	Mg	Ca	S	Zn	Mn	Fe	Cu	B
Vin Lab	1	3.9	4.5	276	159	55	294	33	3.2	44	323	18.3	0.2
Vin Lab	2	3.9	4.4	245	232	40	194	28	2.9	40	308	18.1	0.1
Vin Lab	3	2.7	4.5	174	232	33	176	36	1.9	23	193	14.8	0.1
Vin Lab	4	2.3	4.6	123	275	38	185	32	2.1	24	182	8.3	0.2
Betts	1	3.9	5.0	130	151	66	444	27	4.3	40	221	29.2	0.2
Betts	2	3.8	4.4	162	130	41	248	41	2.5	27	260	29.0	0.1
Betts	3	4.4	4.7	162	152	51	354	31	3.1	40	250	30.2	0.2
Betts	4	4.0	4.4	192	198	40	326	46	2.7	36	256	37.1	0.2
Betts	5	3.8	4.8	101	137	48	301	29	2.7	44	237	28.4	0.2
Betts	6	3.2	4.6	80	121	33	222	25	2.4	31	205	23.6	0.2
Valardo	1	5.5	5.4	19	128	161	1130	53	2.0	21	146	8.8	0.6
Valardo	2	6.4	4.7	71	245	117	799	35	3.0	21	247	14.9	0.9
Valardo	3	2.9	4.9	88	242	98	701	26	2.4	15	234	13.0	0.4
Valardo	4	2.7	5.6	36	105	146	1223	21	2.4	35	171	3.0	0.7

Table 2: Plant mineral nutrient content in data collection zones identified at the Fredonia lab (fig 1), the Betts Vineyard (fig 4), and the Valardo Vineyard (fig 5). Data are from veraison petioles.

		%							ppm					
Vineyard	Zone	N	P	K	S	Ca	Mg	Na	Fe	Al	Mn	Cu	Zn	B
Vin Lab	1	0.87	0.15	1.13	0.08	1.57	0.94	0.03	55	43	2078	4	105	32
Vin Lab	2	0.89	0.14	1.24	0.09	1.49	1.00	0.06	69	50	2717	5	114	32
Vin Lab	3	0.94	0.19	1.54	0.09	1.50	0.77	0.04	65	45	1992	5	116	33
Vin Lab	4	0.94	0.16	1.80	0.09	1.54	0.80	0.03	71	50	1471	4	122	33
Betts	1	0.89	0.13	1.91	0.10	1.61	0.54	0.04	43	35	1320	5	80	42
Betts	2	1.07	0.18	2.44	0.12	1.57	0.42	0.02	97	50	1828	7	101	38
Betts	3	0.94	0.13	1.89	0.11	1.67	0.53	0.02	80	45	2003	5	85	37
Betts	4	0.93	0.14	2.53	0.11	1.57	0.35	0.02	73	49	2089	5	102	37
Betts	5	0.92	0.12	1.82	0.12	1.68	0.53	0.02	58	49	1237	4	82	36
Betts	6	0.96	0.14	2.11	0.12	1.83	0.56	0.02	69	49	984	4	93	39
Valardo	1	0.85	0.03	0.21	0.04	0.17	0.03	0.00	42	35	29	9	12	4
Valardo	2	0.87	0.09	1.96	0.12	1.80	0.63	0.05	149	71	417	9	97	49
Valardo	3	0.95	0.09	2.39	0.10	1.92	0.49	0.02	103	65	862	6	132	56
Valardo	4	0.80	0.11	0.73	0.09	1.76	1.19	0.03	101	61	804	5	120	45









