



CARENNOweather Annual Statistical Report

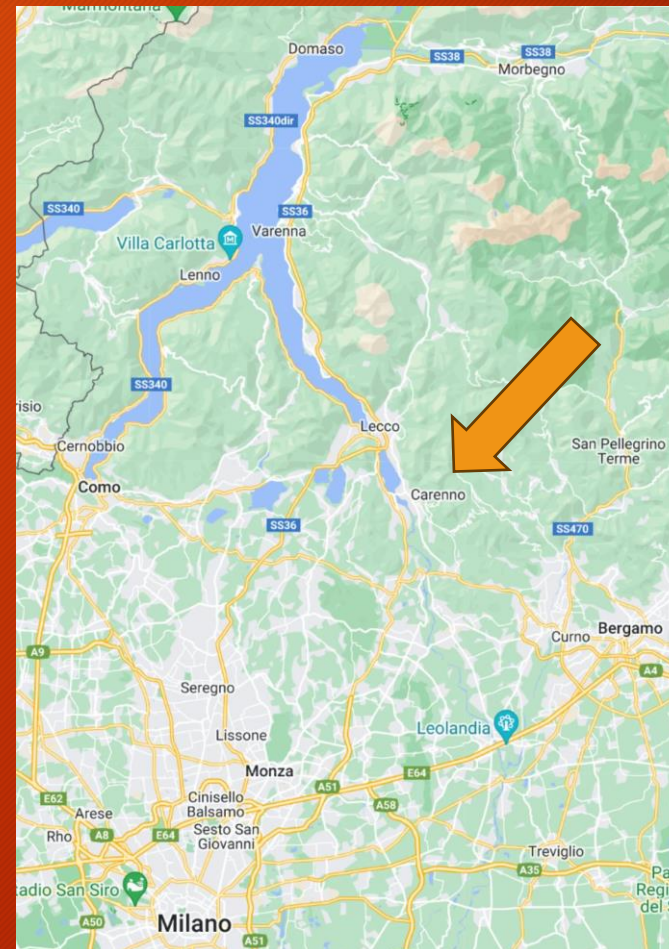
2013 - 2023

Indice

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- #2 - Raccolta dati
- #3 - Analisi condotte - Quadro riassuntivo
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- #5 - Tempo

Stazione meteo

POSIZIONE	Carenno (LC) - Italy
LATITUDINE	N 45° 48' 15"
LONGITUDINE	E 09° 27' 47"
ALTITUDINE	635 m
MODELLO	DAVIS VANTAGE VUE Installazione secondo le linee guida del manuale: “Guide to Meteorological Instruments and Methods of Observation WMO-No. 8”



Raccolta dati

PERIODO DI OSSERVAZIONE	01/2013 - 12/2023
FREQUENZA DI CAMPIONAMENTO	10 minuti
DEVICE DI GESTIONE	Raspberry Pi
STORAGE	Database MySQL
GRANDEZZE MISURATE	<ul style="list-style-type: none">• Data - Ora• Temperatura• Umidità• Accumulo di Pioggia• Gradiente di pioggia• Velocità del vento• Direzione del vento

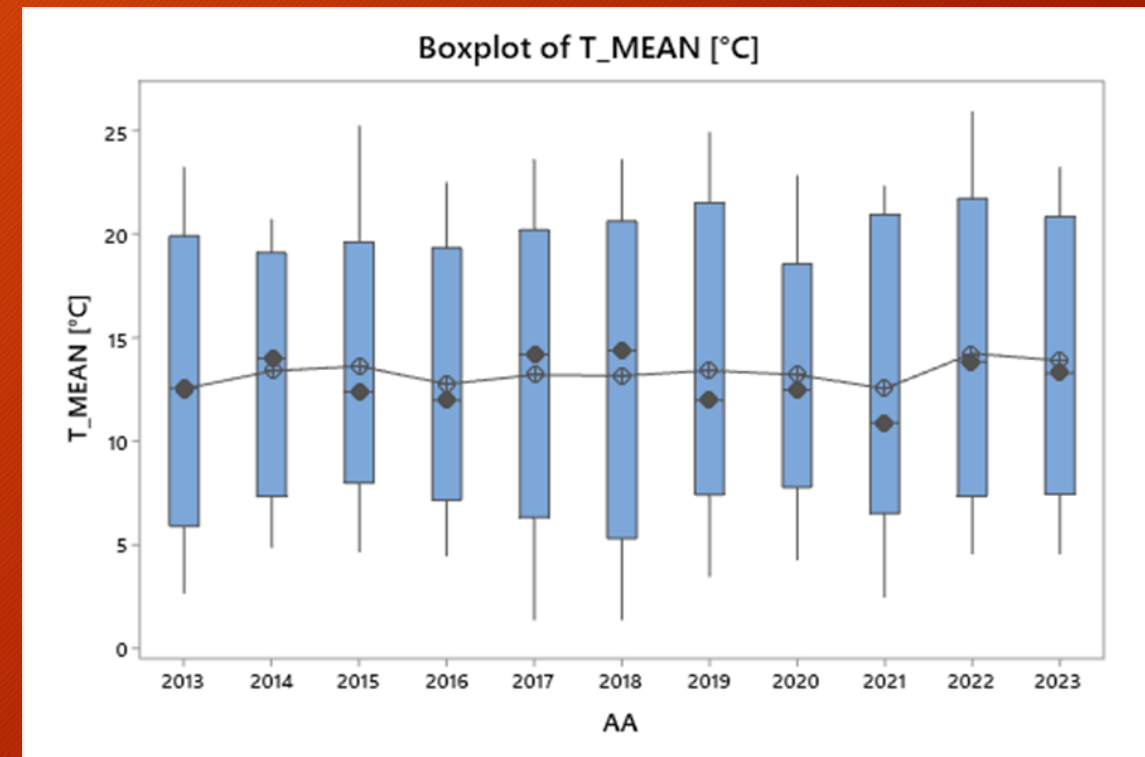
Analisi condotte - Quadro riassuntivo

ANALISI CONDOTTA	TEMPERATURA	PRECIPITAZIONI
Statistica descrittiva per anno	✓	✓
Box plot per anno	✓	✓
Trend medie annuali	✓	
Statistica descrittiva per mese	✓	✓
Box plot per mese	✓	✓
Contour plot	✓	✓
Bar chart per mese e anno	✓	✓
Bar chart per stagione e per anno	✓	
Predictive analysis	✓	
Distribuzione plot	✓	
ANOVA analysis medie annuali	✓	

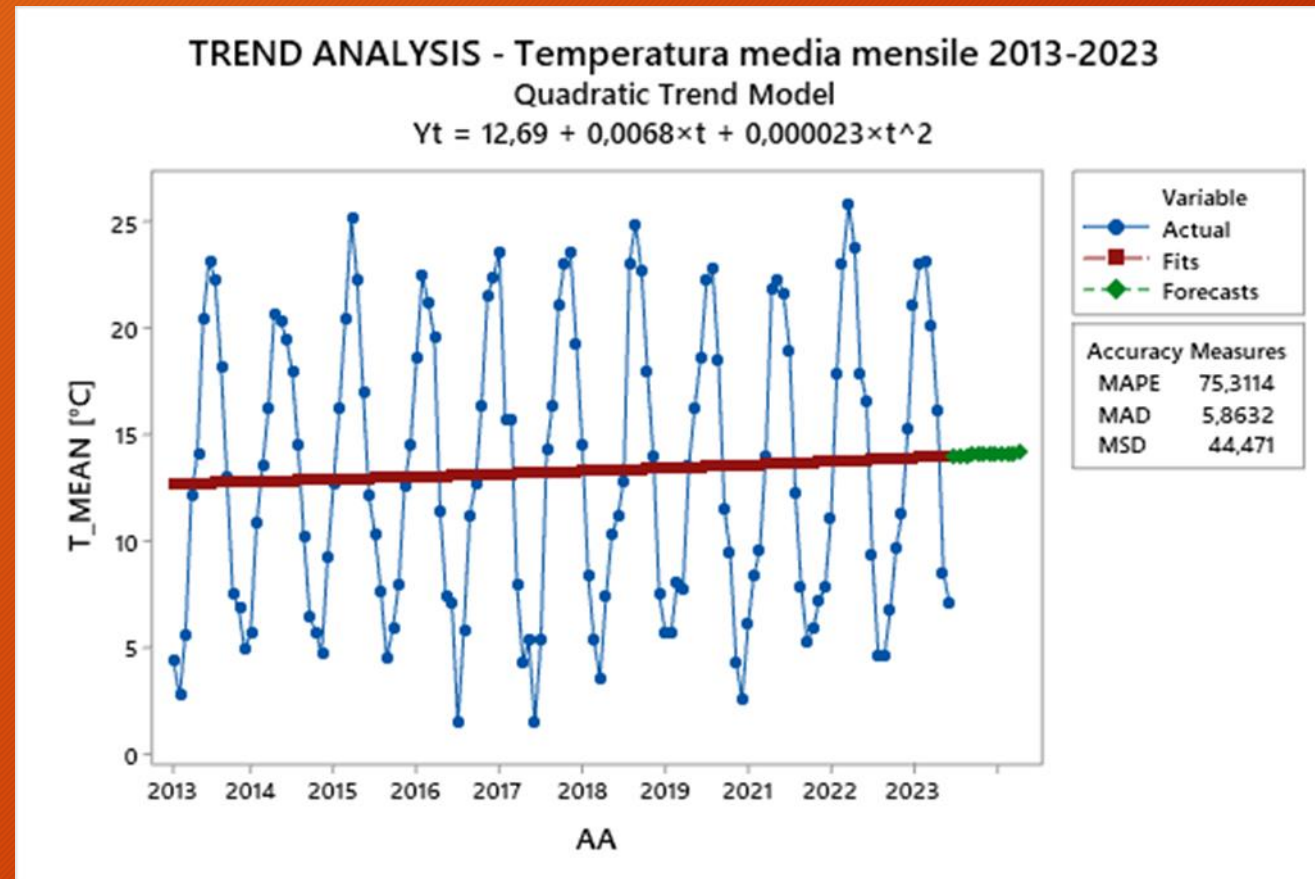
TEMPERATURA - Statistica descrittiva per anno

Statistics

Variable	AA	Mean	StDev	Minimum	Q1	Median	Q3	Maximum	Range
T_MEAN [°C]	2013	12,53	7,24	2,70	5,90	12,55	19,93	23,20	20,50
	2014	13,40	5,78	4,90	7,35	14,00	19,13	20,70	15,80
	2015	13,63	6,66	4,70	8,00	12,40	19,63	25,20	20,50
	2016	12,77	6,41	4,50	7,17	12,00	19,35	22,50	18,00
	2017	13,22	7,32	1,40	6,32	14,20	20,23	23,60	22,20
	2018	13,17	7,80	1,40	5,30	14,40	20,65	23,60	22,20
	2019	13,43	7,24	3,50	7,43	12,00	21,52	24,90	21,40
	2020	13,22	6,41	4,30	7,78	12,50	18,58	22,80	18,50
	2021	12,55	7,09	2,50	6,52	10,90	20,95	22,30	19,80
	2022	14,25	7,53	4,60	7,35	13,85	21,73	25,90	21,30
	2023	13,90	6,78	4,60	7,45	13,30	20,85	23,20	18,60

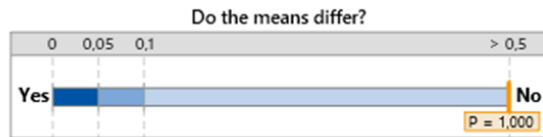


TEMPERATURA - Trend medie annuali



TEMPERATURA - ANOVA analysis medie annuali

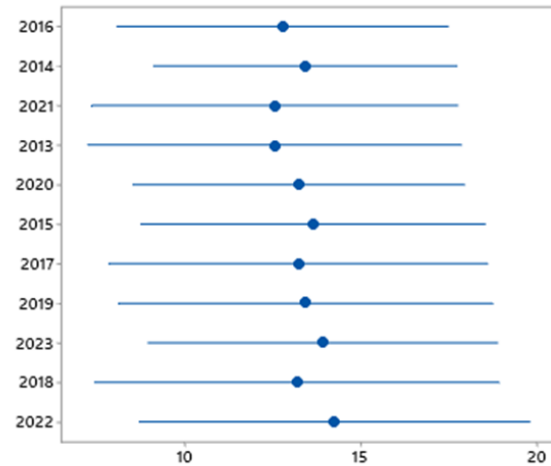
One-Way ANOVA for T_MEAN [°C] by AA
Summary Report



Differences among the means are not significant ($p > 0,05$).

Means Comparison Chart

Blue indicates there are no significant differences.



Which means differ?

#	Sample	Differs from
1	2016	
2	2014	
3	2021	
4	2013	
5	2020	
6	2015	None Identified
7	2017	
8	2019	
9	2023	
10	2018	
11	2022	

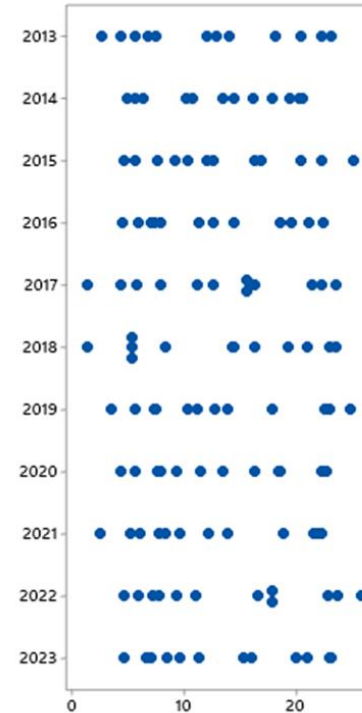
Comments

- Test: There is not enough evidence to conclude that there are differences among the means at the 0,05 level of significance.
- Comparison Chart: Blue intervals indicate that the means do not differ significantly.

One-Way ANOVA for T_MEAN [°C] by AA
Diagnostic Report

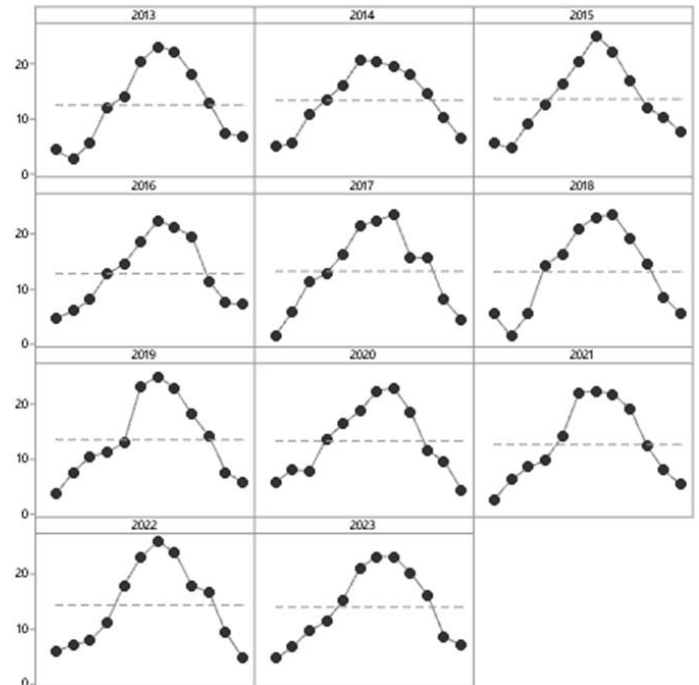
Distribution of Data

Compare the location and spread.

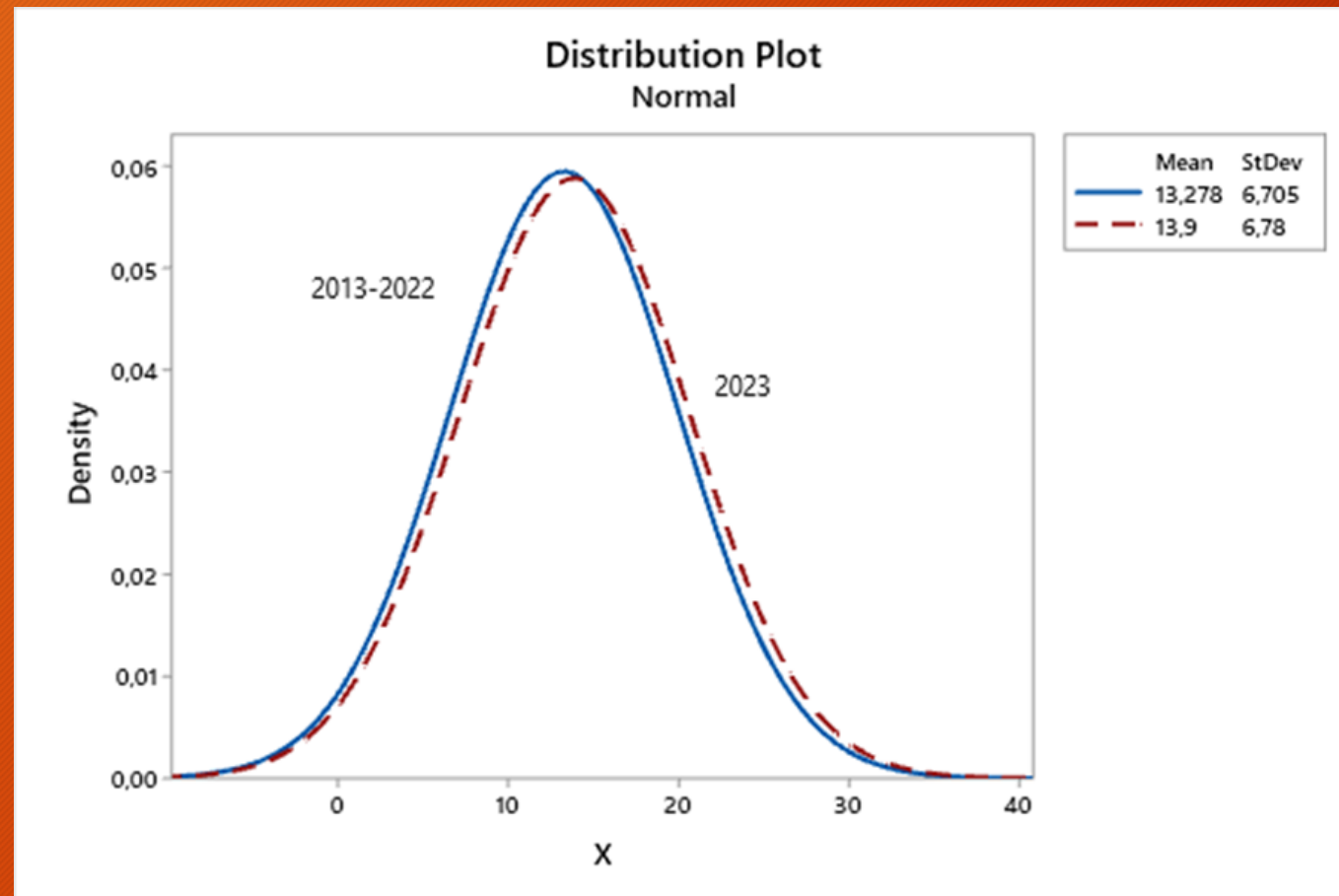


Data in Worksheet Order

Investigate any outliers (marked in red).



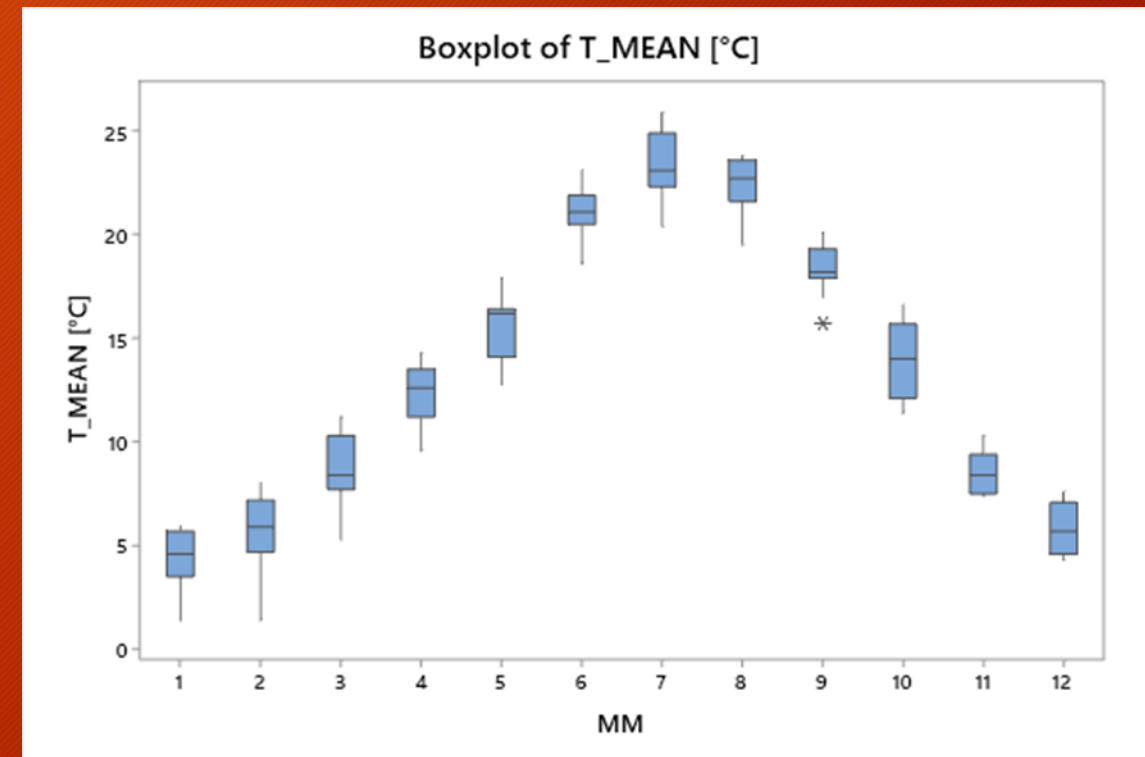
TEMPERATURA - Distribution plot



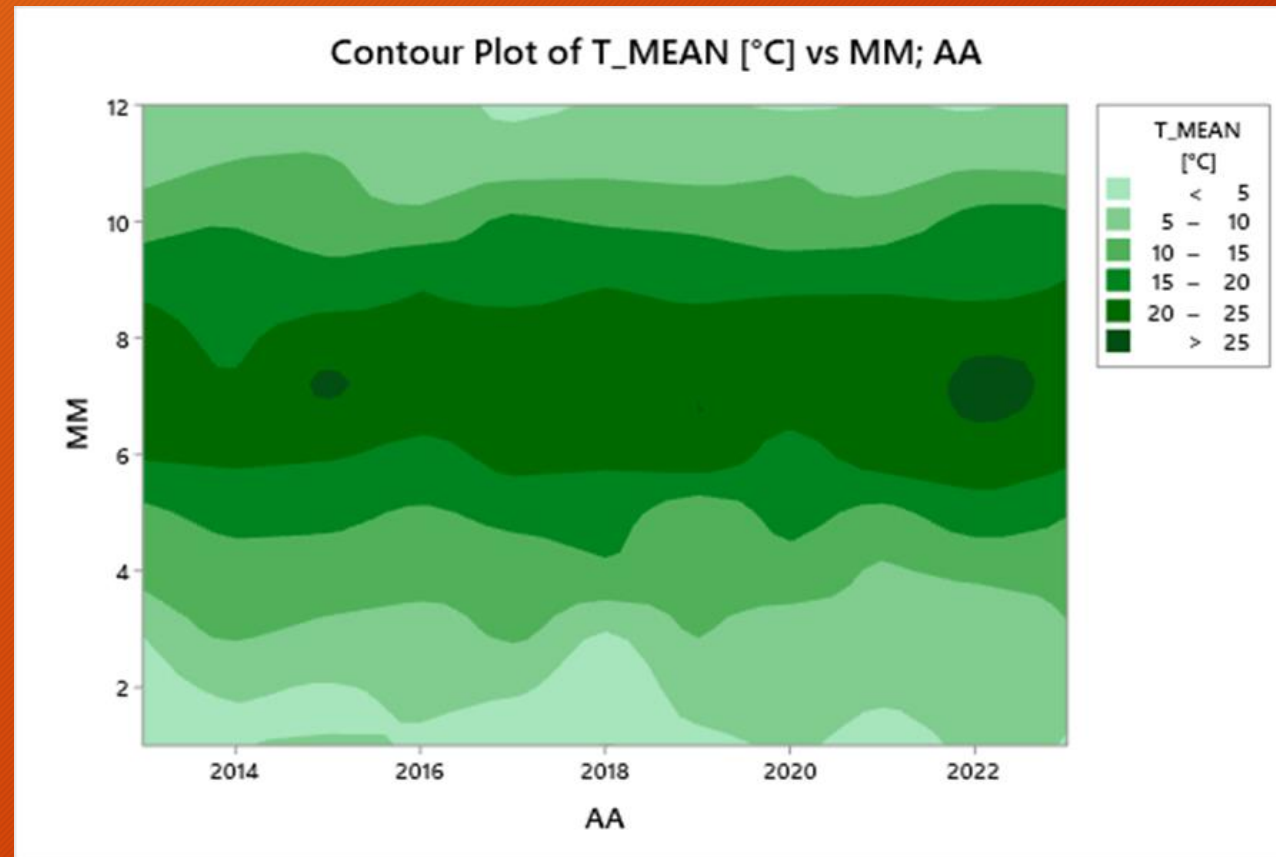
TEMPERATURA - Statistica descrittiva per mese

Statistics

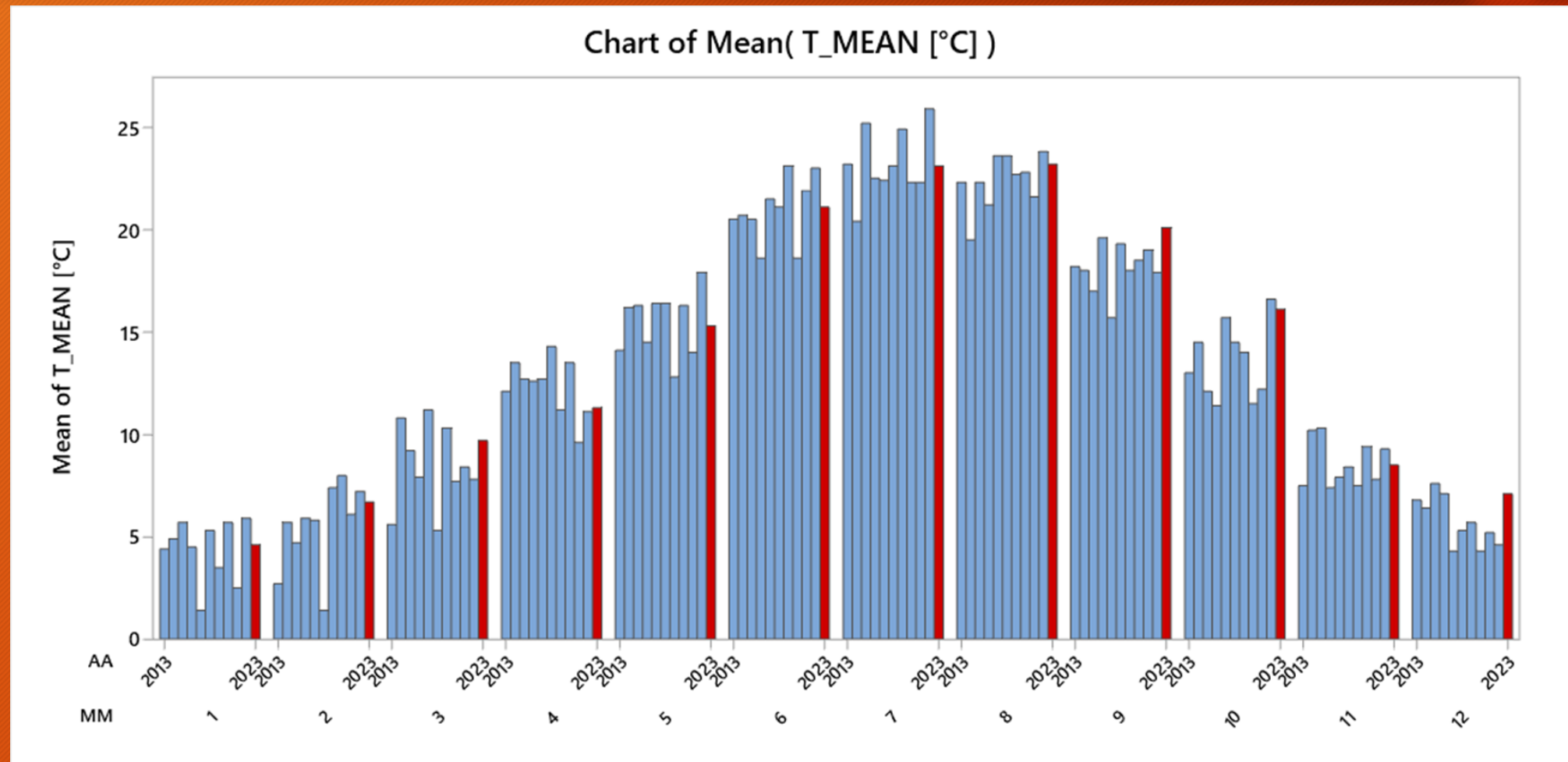
Variable	MM	Mean	StDev	Minimum	Q1	Median	Q3	Maximum	Range
T_MEAN [°C]	1	4,400	1,420	1,400	3,500	4,600	5,700	5,900	4,500
	2	5,600	2,000	1,400	4,700	5,900	7,200	8,000	6,600
	3	8,536	1,946	5,300	7,700	8,400	10,300	11,200	5,900
	4	12,236	1,350	9,600	11,200	12,600	13,500	14,300	4,700
	5	15,473	1,472	12,800	14,100	16,200	16,400	17,900	5,100
	6	20,964	1,469	18,600	20,500	21,100	21,900	23,100	4,500
	7	23,209	1,574	20,400	22,300	23,100	24,900	25,900	5,500
	8	22,418	1,274	19,500	21,600	22,700	23,600	23,800	4,300
	9	18,300	1,235	15,700	17,900	18,200	19,300	20,100	4,400
	10	13,782	1,868	11,400	12,100	14,000	15,700	16,600	5,200
	11	8,564	1,077	7,400	7,500	8,400	9,400	10,300	2,900
	12	5,855	1,204	4,300	4,600	5,700	7,100	7,600	3,300



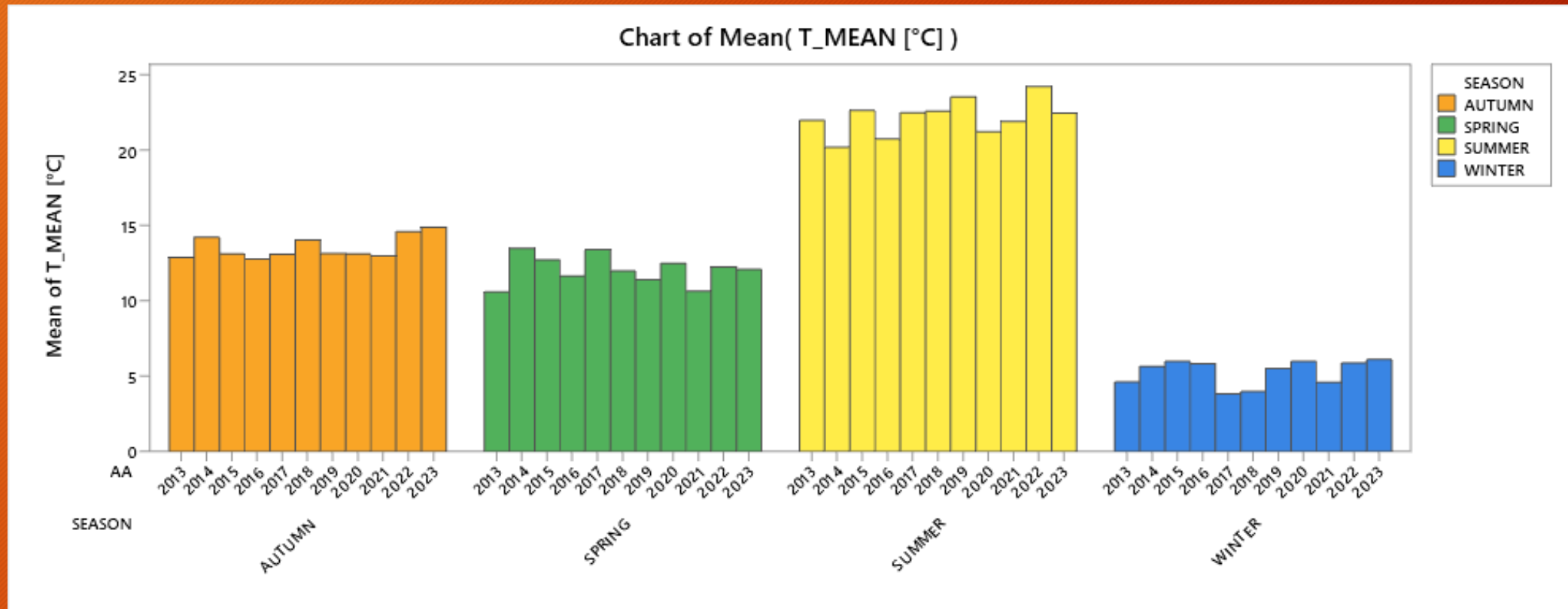
TEMPERATURA - Contour plot



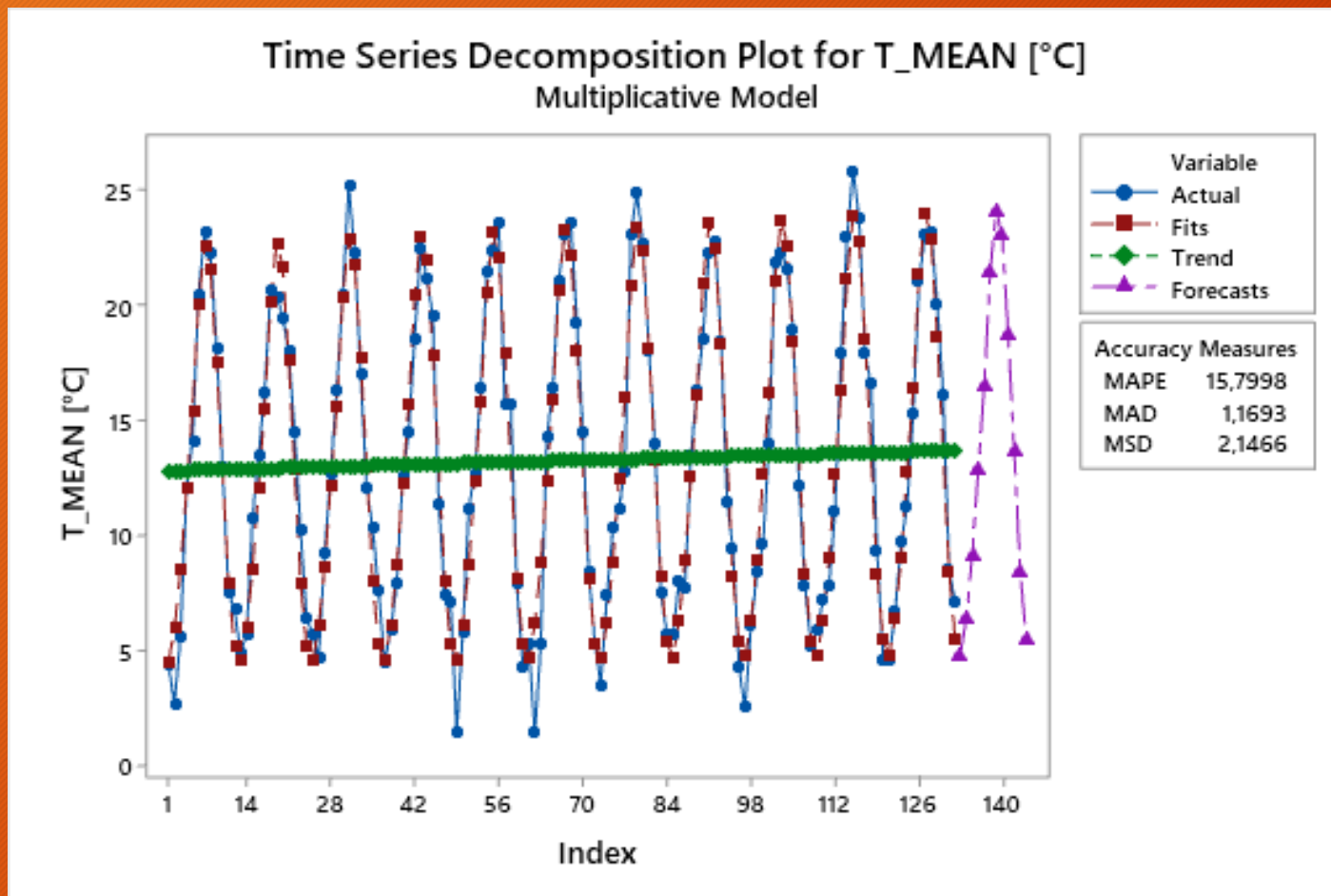
TEMPERATURA - Bar Chart per mese e anno



TEMPERATURA - Bar Chart per stagione e anno



TEMPERATURA - Predictive analysis

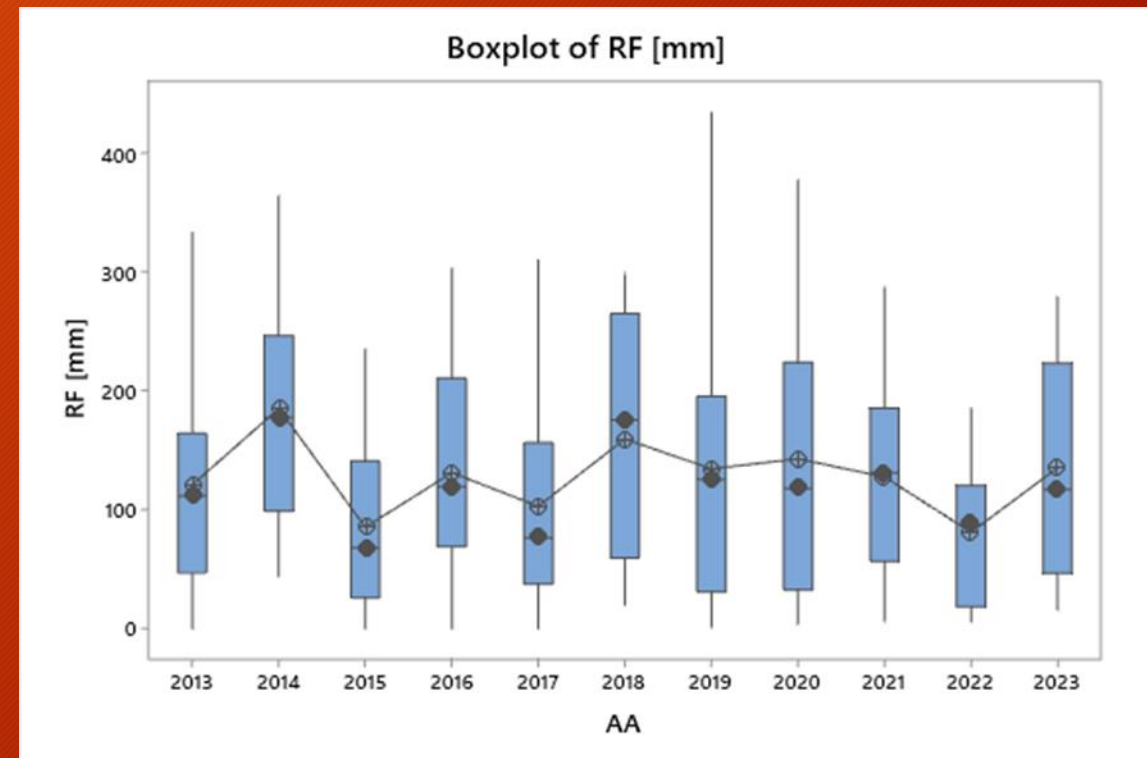


MESE	PREDICTION_T [°C]
01-2024	4,8
02-2024	6,4
03-2024	9,1
04-2024	12,9
05-2024	16,5
06-2024	21,5
07-2024	24,2
08-2024	23,1
09-2024	18,8
10-2024	13,7
11-2024	8,5
12-2024	5,5

PRECIPITAZIONI - Statistica descrittiva per anno

Statistics

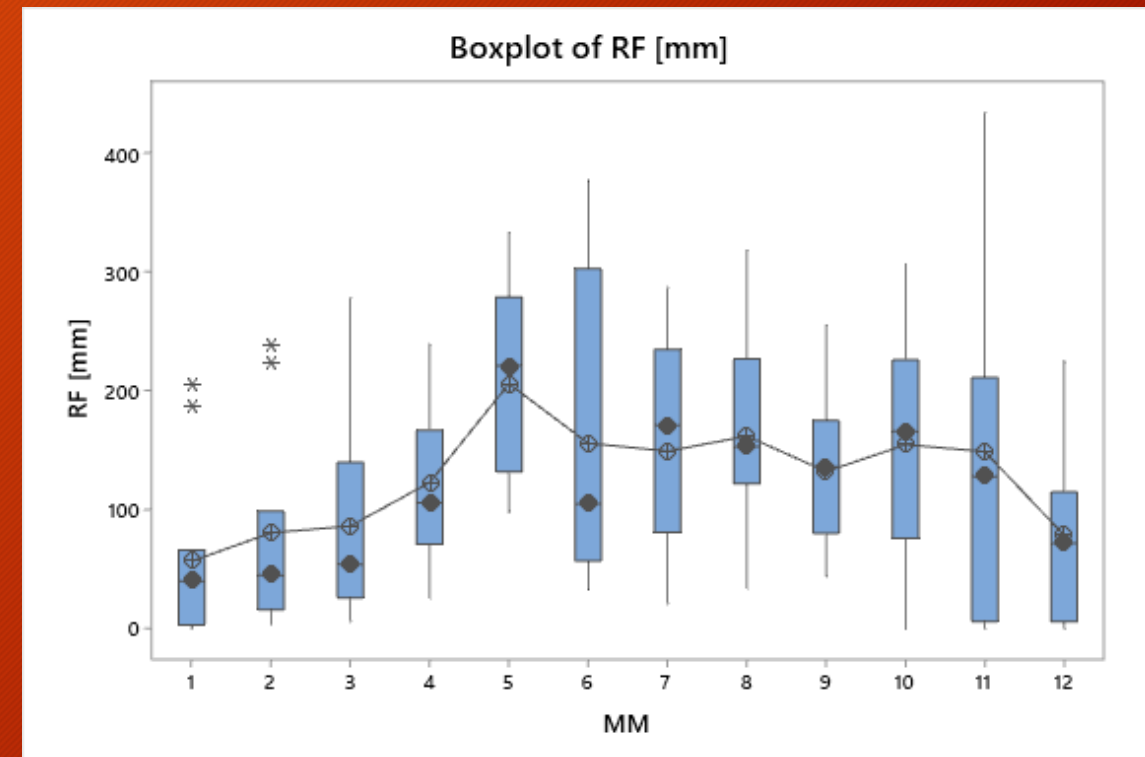
Variable	AA	Mean	StDev	Minimum	Q1	Median	Q3	Maximum	Range
RF [mm]	2013	120,9	93,5	0,0	46,8	111,5	164,5	333,0	333,0
	2014	185,2	97,9	44,0	99,0	177,5	246,3	364,0	320,0
	2015	85,3	77,3	0,0	26,0	68,0	141,0	235,0	235,0
	2016	131,1	93,1	0,0	68,8	119,5	210,8	303,0	303,0
	2017	102,9	96,9	0,0	37,3	76,5	156,5	310,0	310,0
	2018	159,5	102,4	20,0	59,3	175,5	265,3	299,0	279,0
	2019	134,4	121,1	1,0	30,8	125,5	195,3	434,0	433,0
	2020	142,8	120,2	4,0	32,5	118,0	224,0	377,0	373,0
	2021	127,6	86,0	6,0	56,5	131,0	185,5	287,0	281,0
	2022	81,1	59,1	6,0	18,5	88,0	120,5	185,0	179,0
	2023	135,3	88,3	16,0	46,5	117,0	223,3	279,0	263,0



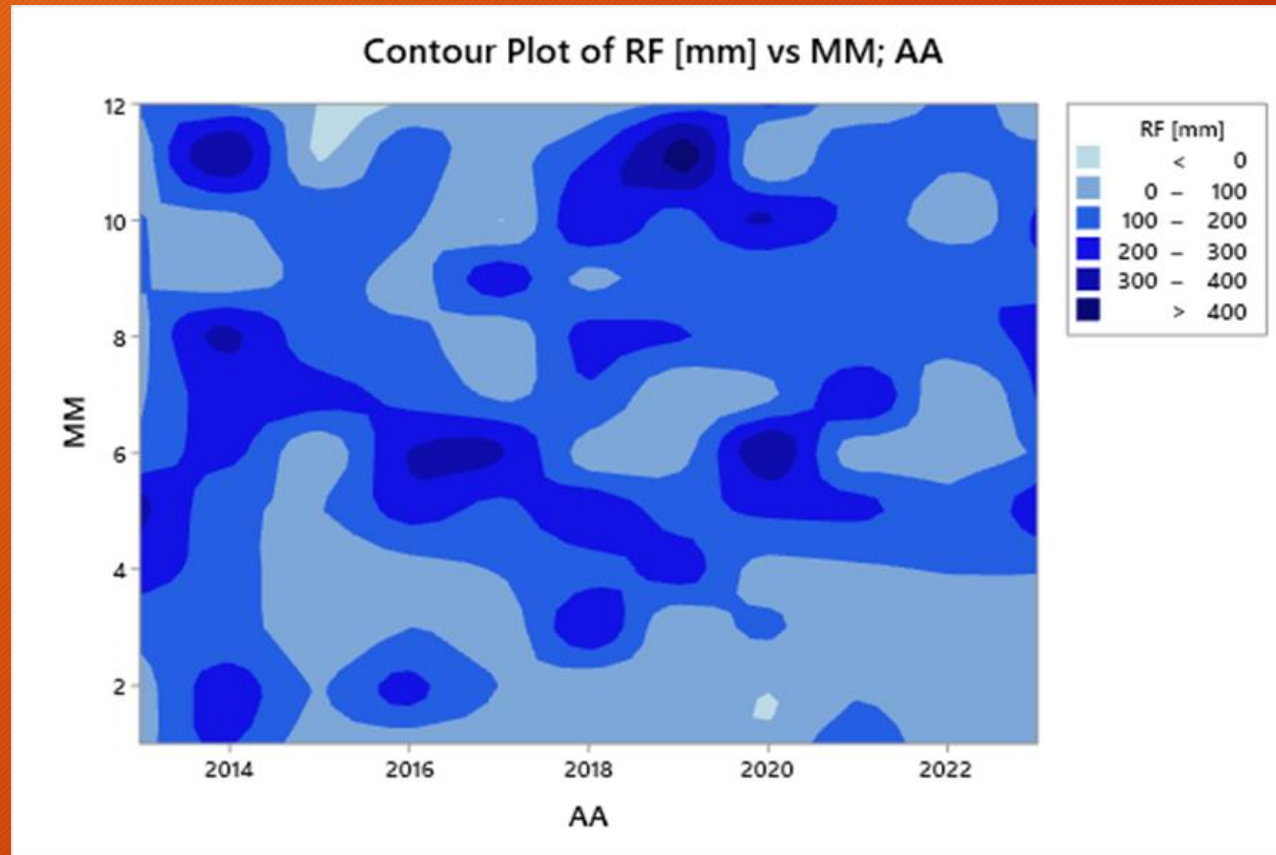
PRECIPITAZIONI - Statistica descrittiva per mese

Statistics

Variable	MM	Mean	StDev	Minimum	Q1	Median	Q3	Maximum	Range
RF [mm]	1	56,7	72,2	0,0	3,0	40,0	66,0	205,0	205,0
	2	80,5	80,8	4,0	16,0	45,0	99,0	238,0	234,0
	3	86,3	82,0	6,0	26,0	54,0	140,0	278,0	272,0
	4	122,9	67,7	26,0	71,0	106,0	167,0	239,0	213,0
	5	206,0	74,6	98,0	132,0	221,0	279,0	333,0	235,0
	6	155,9	123,6	33,0	57,0	105,0	303,0	377,0	344,0
	7	149,3	92,6	21,0	81,0	171,0	235,0	287,0	266,0
	8	161,9	82,1	34,0	122,0	153,0	227,0	318,0	284,0
	9	132,2	59,1	44,0	80,0	136,0	175,0	255,0	211,0
	10	154,7	97,3	0,0	76,0	166,0	226,0	306,0	306,0
	11	148,9	144,9	0,0	6,0	128,0	211,0	434,0	434,0
	12	78,5	73,5	0,0	6,0	72,0	115,0	225,0	225,0



PRECIPITAZIONI - Contour plot



PRECIPITAZIONI - Bar Chart per stagione e anno

