

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

S.Rivas-Martinez(+) & S.Rivas-Saenz

(Adapted to Synoptical Table 14/02/2020)

CLERMONT (FRANCE)

Altitude: 329 m.

Latitude: 45°48'N Longitude: 3°9'E

Temperature observation period.: 1959-1980 (22)

Rainfall observation period....: 1959-1980 (22)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	2.70	15.20	-10.20	19.50	-22.00	25.0	7.28
Feb.	3.50	17.30	-10.60	25.90	-19.60	25.0	10.01
Mar.	7.30	21.00	-6.90	26.30	-21.30	29.0	30.29
Apr.	10.10	24.90	-3.10	31.30	-6.40	43.0	49.17
May.	13.70	27.40	0.40	33.00	-4.20	67.0	80.34
Jun.	17.20	31.60	5.20	37.40	1.80	72.0	105.80
Jul.	19.20	34.10	6.80	39.30	3.80	51.0	122.27
Aug.	18.80	33.70	6.40	39.60	2.80	68.0	110.24
Sep.	16.10	30.40	2.70	34.60	-2.80	61.0	78.31
Oct.	11.00	25.00	-2.90	29.10	-8.20	49.0	45.22
Nov.	6.70	19.00	-5.80	23.40	-11.60	40.0	21.21
Dec.	3.50	16.00	-9.10	19.40	-25.80	33.0	9.26
Year	10.82	24.63	-2.26	29.90	-9.46	563	669.40

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	158
Compensated thermicity index.....(Itc):	158
Simple continentality index.....(Ic):	16.5
Diurnality index.....(Id):	28.0
Annual ombrothermic index.....(Io):	4.34
Monthly estival ombrothermic index.....(Ios1):	2.66
Bimonthly estival ombrothermic index.....(Ios2):	3.13
Threemonthly estival ombrothermic index.....(Ios3):	3.46
Fourmonthly estival ombrothermic index.....(Ios4):	3.74
Annual ombro-evaporation index.....(Ioe):	0.84
Annual positive temperature.....(Tp):	1298
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	552
Positive precipitation.....(Pp):	563

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	8	4	0	0	0

Latitudinal Belt...: High Eutemperate

Continentality.....: Oceanic - Low Euoceanic

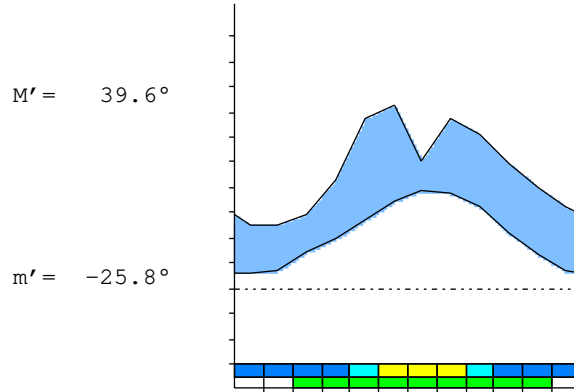
Bioclimate(Variant): TEMPERATE OCEANIC (SUBMEDITERRANEAN)

Bioclimatic Belt...: LOW SUPRATEMPERATE LOW SUBHUMID

CLERMONT (FRANCE)

329 m

P= 563 45° 48'N 3° 9'E 22/22 y.
 T= 10.8 ° Ic= 16.5 Tp= 1298 Tn= 0
 m= -10.2 ° M= 15.2 ° Itc= 158 Io= 4.3



TEMPERATE OCEANIC (SUBMEDITERRANEAN)
 LOW SUPRATEMPERATE LOW SUBHUMID

WATER INDEX CARD CLERMONT (FRANCE)
 Altitude: 329 m. Latitude: 45° 48'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	2.7	7	25	18	64	7	0	0	0	2.4
Feb.	3.5	10	25	15	79	10	0	0	0	1.4
Mar.	7.3	30	29	-1	78	30	0	0	0	0.0
Apr.	10.1	49	43	-6	72	49	0	0	0	-0.1
May.	13.7	80	67	-13	58	80	0	0	0	-0.1
Jun.	17.2	106	72	-34	24	106	0	0	0	-0.3
Jul.	19.2	122	51	-24	0	75	47	0	0	-0.5
Aug.	18.8	110	68	0	0	68	42	0	0	-0.3
Sep.	16.1	78	61	0	0	61	17	0	0	-0.2
Oct.	11.0	45	49	4	4	45	0	0	0	0.0
Nov.	6.7	21	40	19	23	21	0	0	0	0.8
Dec.	3.5	9	33	24	46	9	0	0	0	2.5
Year	10.8	669	563	*	*	563	106	0	0	*

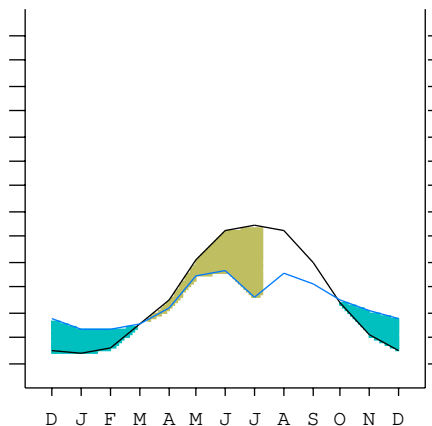
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

CLERMONT (FRANCE)

45°48'N 3°9'E 329 m 22/22 y.

T= 10.8 Ic= 16.5 TEMPERATE OCEANIC (SUBMEDITERRANEAN)
 m= -10.2 Tp= 1298 LOW SUPRATEMPERATE
 M= 15.2 Tn= 0 LOW SUBHUMID
 M' = 39.6 Itc= 158
 m' = -25.8 Io= 4.3
 P= 563 mm ———
 PE= 669 mm ———

Imbibing	25 Sep.
Saturation	28 Feb.
Reserve Use	11 Jul.
Deficit	



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2b]
 + Type: B. Oceanic
 + Subtype: 2. Euoceanic
 + Variant: b. Low
 Thermic types [B1.B5]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. High Eutemperate
 + Thermic type: B. Temperate
 + Thermic subtype: 5. Subtemperate
 Bioclimatic types [C3b.4b.6b]
 + Macrobioclimate: C. TEMPERATE
 + Bioclimate: 3. OCEANIC
 + Bioclimatic variant .: SUBMEDITERRANEAN
 + Thermic type.....: 4. SUPRATEMPERATE
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic ClassificationTeoc(Sbm).Ste.Shu.Euo

CLERMONT (FRANCE)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 368
 Coldest semester of the year.....(Psw): 195
 Warmest four months period of the year.....(Pcm1): 252
 Following warmest four months period.....(Pcm2): 147
 Positive precipitation dryest 3 months.....(Ppd): 79
 Positive precipitation dryest 2 months.....(Ppd2): 50
 Positive precipitation dryest 1 month.....(Ppd1): 25
 Positive precipitation warmest 3 months.....(Pps): 191
 Positive precipitation warmest 2 months.....(Pps2): 119
 Positive precipitation warmest 1 month.....(Pps1): 51
 Positive precipitation coldest 3 months.....(Ppw): 83
 Positive precipitation coldest 2 months.....(Ppw2): 50
 Positive precipitation coldest 1 month.....(Ppw1): 25

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Autumn Tr4-F
Rainfall	83	139	191	150

Seasonal rainfall rhythms: S > F > P > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 19.2
 Average coldest month [T].....(Tmin): 2.7
 Maximum temp. warmest month [M].....(Tmax): 34.1
 Minimum temp. coldest month [m].....(Tmin): -10.6
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.6
 Absolute Min.temp. coldest month [m'].....(Tamin): -25.8
 First warmest contrasted month [M].....(Tcmax): 24.9 (4)
 First coldest contrasted month [m].....(Tcmin): -3.1 (4)
 Estival temperature.....(Ts): 552
 Positive temperature dryest 3 months.....(Tpd): 135
 Positive temperature dryest 2 months.....(Tpd2): 62
 Positive temperature dryest 1 month.....(Tpd1): 27
 Positive temperature warmest 3 months.....(Tps): 552
 Positive temperature warmest 2 months.....(Tps2): 380
 Positive temperature warmest 1 month.....(Tps1): 192
 Positive temperature coldest 3 months.....(Tpw): 97
 Positive temperature coldest 2 months.....(Tpw2): 62
 Positive temperature coldest 1 month.....(Tpw1): 27

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SEASONAL PARAMETERS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Warmest semester... (Sms)					o	o	o	o	o	o		
Dryest semester... (Smd)	o	o	o	o							o	o
Warmest 4 months... (Cm1)						o	o	o	o			
Dryest 4 months... (Cmd)	o	o	o									o
Vegetation Activity (Pav)		o	o	o	o	o	o	o	o	o	o	o
Ultragelid... [M' <= 0] (Pf)												
Hypergelid... [M <= 0] (Pf)												
Gelid... [T <= 0] (Pf)												
Subgelid... [m <= 0] (Pf)	o	o	o	o						o	o	o
Pregelid... [m' <= 0] (Pf)	o	o	o	o	o				o	o	o	o
Agelid... [m' > 0] (Pf)						o	o	o				
HiperAgelid... [all > 0] (Pf)						o	o	o				

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OMBROTHERMIC PARAMETERS

Annual aridity index. [PE/P]..... (Iar): 1.19
 Mediterranean index of July. [PE/P]..... (Im1): 2.40
 Mediterranean index of July & August..... (Im2): 1.95
 Mediterranean index of June, July & August.... (Im3): 1.77

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp (x10)	330	250	250	290	430	670	720	510	680	610	490	400
Tp	35	27	35	73	101	137	172	192	188	161	110	67
Io (Iom)	9.43	9.26	7.14	3.97	4.26	4.89	4.19	2.66	3.62	3.79	4.45	5.97
Seasons	Winter			Spring			Summer			Autumn		
Pp (x10) / Tp	830 / 97			1390 / 311			1910 / 552			1500 / 338		
Io (Iot)	8.557			4.469			3.460			4.438		
Semesters	December-May						June-November					
Pp (x10) / Tp	2220 / 408						3410 / 890					
Io (Iosm)	5.441						3.831					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 5630/1298=4.34 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	330	250	250	290	430	670	720	510	680	610	490	400
Tp [T*10]	35	27	35	73	101	137	172	192	188	161	110	67
Iom [Pp/Tp]	943	926	714	397	426	489	419	266	362	379	445	597
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	830 / 97			1390 / 311			1910 / 552			1500 / 338		
Iot [Pp/Tp]	856			447			346			444		
Avs E [Avm < 200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp): 16.50
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]	18.73
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]	19.91
+ Hyperoceanic (-20<CI<20)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)]	1.01
+ Oceanic (0.6<CI<1.1)	
Rainfall Index of Lang (1925) [R=P/T]	52.05
+ Semiarid (60>R>40)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)]	27.05
+ Subhumid (30>Ia>20)	
I of Emberger (1930) [Q=100*P/(Tmmax ² -Tmmin ²)]	53.60
+ Subhumid (90>Q>50)	
I of Dantin & Revenga (1940) [DR=100*T/P]	1.92
+ Humid (2>DR>0)	
Aridity Index of UNEP [I=P/PE]	0.84
+ Humid (I>0.65)	
Potencial Erosion I of Fournier (1960) [K=Pi ² /P].....	9.21
+ Very low (K<60)	

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate A. Warm and temperate warm
 + Region 7. Mesoaxeric (Axeric temperate)
 + Thermic type: 5. Meso-microthermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.16	0.15	0.15	0.22	0.32	0.31	0.20	0.28	0.27	0.24	0.23	0.21
T-E ratio	1.22	1.57	3.29	4.55	6.16	7.74	8.64	8.46	7.25	4.95	3.01	1.57
Precipitation-effectiveness: 27.37						Temperature-efficiency: 58.41						
Moisture Index [MI=100*(P-PE)/PE]												
+ C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE]												
+ No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]												
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												
+ First mesothermic (570<PE<712)												

