

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

CLARIANA DE CARDENER (ESP LERIDA) Altitude: 618 m.

Latitude: 41°58'N Longitude: 1°36'E
 Temperature observation period.: 1952-1963 (12)
 Rainfall observation period....: 1952-1963 (12)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	3.80	9.50	-1.90	15.90	-8.10	28.0	8.13
Feb.	5.00	11.60	-1.60	17.70	-7.90	40.0	11.76
Mar.	9.00	15.80	2.30	21.90	-3.70	58.0	32.56
Apr.	11.10	18.10	4.10	24.00	-1.30	53.0	46.95
May.	15.50	22.70	8.30	28.60	3.20	71.0	82.78
Jun.	18.90	25.70	12.10	31.70	7.20	78.0	108.95
Jul.	22.00	29.50	14.50	34.50	10.40	42.0	134.70
Aug.	21.70	29.00	14.40	34.00	9.60	62.0	122.94
Sep.	19.00	25.50	12.40	31.50	6.90	77.0	89.85
Oct.	13.70	19.90	7.50	25.10	0.50	64.0	52.86
Nov.	8.00	13.80	2.10	19.90	-3.20	45.0	22.13
Dec.	4.80	10.30	-0.80	16.40	-7.00	38.0	10.72
Year	12.71	19.28	6.12	25.10	0.55	656	724.33

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	203
Compensated thermicity index.....(Itc):	204
Simple continentality index.....(Ic):	18.2
Diurnality index.....(Id):	15.0
Annual ombrothermic index.....(Io):	4.30
Monthly estival ombrothermic index.....(Ios1):	1.91
Bimonthly estival ombrothermic index.....(Ios2):	2.38
Threemonthly estival ombrothermic index.....(Ios3):	2.91
Fourmonthly estival ombrothermic index.....(Ios4):	3.24
Annual ombro-evaporation index.....(Ioe):	1.50
Annual positive temperature.....(Tp):	1525
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	626
Positive precipitation.....(Pp):	656

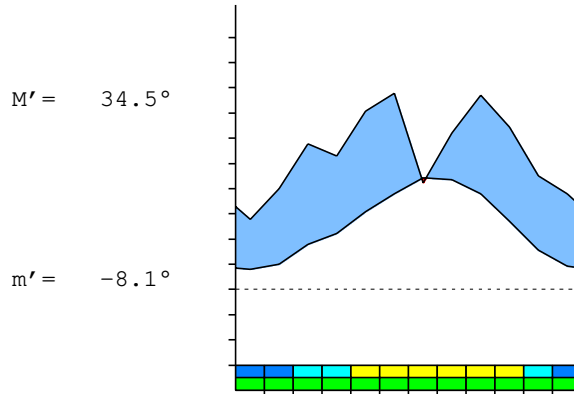
N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	10	1	1	0	0

Latitudinal Belt...: Low eutemperate
 Continentality.....: Oceanic - Low Semicontinental
 Bioclimate(Variant): TEMPERATE OCEANIC (STEPPIIC)
 Bioclimatic Belt...: UPPER MESOTEMPERATE LOW SUBHUMID

CLARIANA DE CARDENER (ESP LERIDA)

618 m

P= 656 41° 58'N 1° 36'E 12/12 y.
 T= 12.7° Ic= 18.2 Tp= 1525 Tn= 0
 m= -1.9° M= 9.5° Itc= 204 Io= 4.3



TEMPERATE OCEANIC (STEPPIC)
 UPPER MESOTEMPERATE LOW SUBHUMID

WATER INDEX CARD CLARIANA DE CARDENER (ESP LERIDA)

Altitude: 618 m. Latitude: 41° 58'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	3.8	8	28	20	81	8	0	0	0	2.4
Feb.	5.0	12	40	19	100	12	0	9	5	2.4
Mar.	9.0	33	58	0	100	33	0	25	15	0.7
Apr.	11.1	47	53	0	100	47	0	6	11	0.1
May.	15.5	83	71	-12	88	83	0	0	5	-0.1
Jun.	18.9	109	78	-31	57	109	0	0	3	-0.2
Jul.	22.0	135	42	-57	0	99	35	0	1	-0.6
Aug.	21.7	123	62	0	0	62	61	0	1	-0.4
Sep.	19.0	90	77	0	0	77	13	0	0	-0.1
Oct.	13.7	53	64	11	11	53	0	0	0	0.2
Nov.	8.0	22	45	23	34	22	0	0	0	1.0
Dec.	4.8	11	38	27	61	11	0	0	0	2.5
Year	12.7	724	656	*	*	615	109	41	41	*

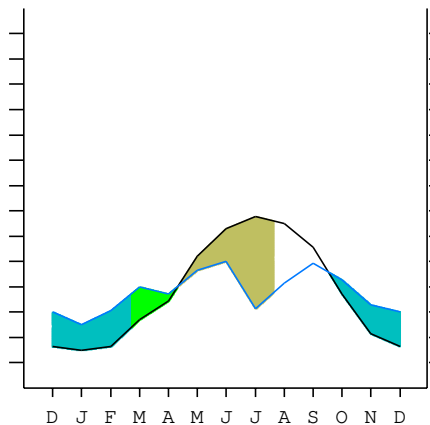
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

CLARIANA DE CARDENER (ESP LERIDA)

41°58'N 1°36'E 618 m 12/12 y.

T= 12.7 Ic= 18.2 TEMPERATE OCEANIC (STEPPIC)
 m= -1.9 Tp= 1525 UPPER MESOTEMPERATE
 M= 9.5 Tn= 0 LOW SUBHUMID
 M' = 34.5 Itc= 204
 m' = -8.1 Io= 4.3
 P= 656 mm ———
 PE= 724 mm ———

Imbibing	17 Sep.
Saturation	21 Feb.
Reserve Use	11 Apr.
Deficit	19 Jul.



CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1a]
 + Type: B. Oceanic
 + Subtype: 1. Semicontinental
 + Variant: a. Low

Thermic types [B1.B4]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. Low eutemperate
 + Thermic type: B. Temperate
 + Thermic subtype: 4. Temperate

Bioclimatic types [C3a.3a.6b]
 + Macrobioclimate: C. TEMPERATE
 + Bioclimate: 3. OCEANIC
 + Bioclimatic variant .: a. STEPPIC
 + Thermic type.....: 3. MESOTEMPERATE
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification: Teco (Stp).Mte.Shu

CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 394
 Coldest semester of the year.....(Psw): 262
 Warmest four months period of the year.....(Pcm1): 259
 Following warmest four months period.....(Pcm2): 175
 Positive precipitation dryest 3 months.....(Ppd): 106
 Positive precipitation dryest 2 months.....(Ppd2): 66
 Positive precipitation dryest 1 month.....(Ppd1): 28
 Positive precipitation warmest 3 months.....(Pps): 181
 Positive precipitation warmest 2 months.....(Pps2): 104
 Positive precipitation warmest 1 month.....(Pps1): 42
 Positive precipitation coldest 3 months.....(Ppw): 106
 Positive precipitation coldest 2 months.....(Ppw2): 66
 Positive precipitation coldest 1 month.....(Ppw1): 28

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	106	182	182	186

Seasonal rainfall rhythms: F > P > S > W

CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 22.0
 Average coldest month [T].....(Tmin): 3.8
 Maximum temp. warmest month [M].....(Tmmax): 29.5
 Minimum temp. coldest month [m].....(Tmmin): -1.9
 Absolute Max.temp. warmest month [M'].....(Tamax): 34.5
 Absolute Min.temp. coldest month [m'].....(Tamin): -8.1
 First warmest contrasted month [M].....(Tcmax): 29.5 (7)
 First coldest contrasted month [m].....(Tcmin): 14.5 (7)
 Estival temperature.....(Ts): 626
 Positive temperature dryest 3 months.....(Tpd): 136
 Positive temperature dryest 2 months.....(Tpd2): 86
 Positive temperature dryest 1 month.....(Tpd1): 38
 Positive temperature warmest 3 months.....(Tps): 627
 Positive temperature warmest 2 months.....(Tps2): 437
 Positive temperature warmest 1 month.....(Tps1): 220
 Positive temperature coldest 3 months.....(Tpw): 136
 Positive temperature coldest 2 months.....(Tpw2): 86
 Positive temperature coldest 1 month.....(Tpw1): 38

CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

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	o
Ultragelid...[M' <=0] (Pf)												
Hypergelid...[M <=0] (Pf)												
Gelid.....[T <=0] (Pf)												
Subgelid.....[m <=0] (Pf)	o	o										o
Pregelid.....[m' <=0] (Pf)	o	o	o	o							o	o
Agelid.....[m' > 0] (Pf)					o	o	o	o	o	o		
HiperAgelid..[all>0] (Pf)					o	o	o	o	o	o		

CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.10
 Mediterranean index of July.[PE/P].....(Im1): 3.21
 Mediterranean index of July & August.....(Im2): 2.48
 Mediterranean index of June, July & August....(Im3): 2.01

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	380	280	400	580	530	710	780	420	620	770	640	450
Tp	48	38	50	90	111	155	189	220	217	190	137	80
Io (Iom)	7.92	7.37	8.00	6.44	4.77	4.58	4.13	1.91	2.86	4.05	4.67	5.63
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	1060 / 136			1820 / 356			1820 / 626			1860 / 407		
Io (Iot)	7.794			5.112			2.907			4.570		
Semesters	December-May						June-November					
Pp(x10)/Tp	2880 / 492						3680 / 1033					
Io (Iosm)	5.854						3.562					

CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 6560/1525=4.30 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	380	280	400	580	530	710	780	420	620	770	640	450
Tp [T*10]	48	38	50	90	111	155	189	220	217	190	137	80
Iom [Pp/Tp]	792	737	800	644	477	458	413	191	286	405	467	563
Avm [200-Iom]	***	***	***	***	***	***	***	9	***	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	1060 / 136			1820 / 356			1820 / 626			1860 / 407		
Iot [Pp/Tp]	779			511			291			457		
Avs E[Avm<200]	***			***			***			***		
Weak upper semiarid [1]												

CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp): 18.20
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]	25.87
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]	25.28
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)]	1.21
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T]	51.62
+ Semiarid (60>R>40)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)]	28.89
+ Subhumid (30>Ia>20)	
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]	75.69
+ Subhumid (90>Q>50)	
I of Dantin & Revenga (1940) [DR=100*T/P]	1.94
+ Humid (2>DR>0)	
Aridity Index of UNEP [I=P/PE]	0.91
+ Humid (I>0.65)	
Potential Erosion I of Fournier (1960) [K=Pi ² /P]	9.27
+ Very low (K<60)	

CLARIANA DE CARDENER (ESP LERIDA)

Latitude: 41°58'N Longitude: 1°36'E Altitude: 618 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 4. Mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.17	0.24	0.31	0.27	0.32	0.33	0.15	0.23	0.32	0.30	0.25	0.23
T-E ratio	1.71	2.25	4.05	5.00	6.97	8.50	9.90	9.77	8.55	6.16	3.60	2.16
Precipitation-effectiveness: 31.22						Temperature-efficiency						68.63
Moisture Index [MI=100*(P-PE)/PE]												-9.43
+ C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE]												15.08
+ No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]												5.63
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												724.33
+ Second mesothermic (712<PE<855)												

