

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

COLLADO VILLALBA (ESP MADRID)

Altitude: 917 m.

Latitude: 40°39'N Longitude: 3°59'W

Temperature observation period.: 1955-1968 (14)

Rainfall observation period....: 1955-1968 (14)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	5.10	10.40	-0.20	17.30	-5.90	58.0	10.84
Feb.	6.10	11.70	0.50	19.50	-5.60	56.0	13.98
Mar.	8.80	14.50	2.70	22.60	-3.40	58.0	29.15
Apr.	11.10	17.20	5.10	25.20	-0.80	55.0	43.66
May.	16.20	23.50	8.90	32.10	2.40	41.0	84.03
Jun.	19.90	27.30	12.50	35.80	5.20	50.0	113.38
Jul.	24.20	32.60	15.90	39.00	10.40	6.0	150.80
Aug.	23.50	32.20	14.80	38.70	9.20	17.0	135.54
Sep.	20.20	27.50	12.90	34.90	7.10	60.0	95.59
Oct.	13.30	19.30	7.30	27.80	0.90	73.0	48.80
Nov.	7.10	12.30	1.90	20.40	-3.10	70.0	17.12
Dec.	5.20	10.40	0.00	17.80	-5.10	93.0	10.74
Year	13.39	19.91	6.86	27.59	0.94	637	753.64

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	236
Compensated thermicity index.....(Itc):	241
Simple continentality index.....(Ic):	19.1
Diurnality index.....(Id):	17.4
Annual ombrothermic index.....(Io):	3.96
Monthly estival ombrothermic index.....(Ios1):	0.25
Bimonthly estival ombrothermic index.....(Ios2):	0.48
Threemonthly estival ombrothermic index.....(Ios3):	1.08
Fourmonthly estival ombrothermic index.....(Ios4):	1.36
Annual ombro-evaporation index.....(Ioe):	0.63
Annual positive temperature.....(Tp):	1607
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	676
Positive precipitation.....(Pp):	637

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	7	3	0	2	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - High Semicontinental

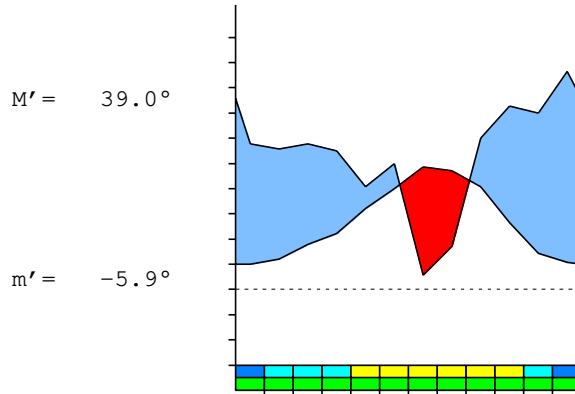
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: UPPER MESOMEDITERRANEAN LOW SUBHUMID

COLLADO VILLALBA (ESP MADRID)

917 m

P= 637 40° 39'N 3° 59'W 14/14 y.
 T= 13.4° Ic= 19.1 Tp= 1607 Tn= 0
 m= -0.2° M= 10.4° Itc= 241 Io= 4.0



MEDITERRANEAN PLUVISEASONAL-OCEANIC
 UPPER MESOMEDITERRANEAN LOW SUBHUMID

WATER INDEX CARD

COLLADO VILLALBA (ESP MADRID)

Altitude: 917 m.

Latitude: 40° 39'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	5.1	11	58	0	100	11	0	47	38	4.3
Feb.	6.1	14	56	0	100	14	0	42	40	3.0
Mar.	8.8	29	58	0	100	29	0	29	35	0.9
Apr.	11.1	44	55	0	100	44	0	11	23	0.2
May.	16.2	84	41	-43	57	84	0	0	11	-0.5
Jun.	19.9	113	50	-57	0	107	6	0	6	-0.5
Jul.	24.2	151	6	0	0	6	145	0	3	-0.9
Aug.	23.5	136	17	0	0	17	119	0	1	-0.8
Sep.	20.2	96	60	0	0	60	36	0	1	-0.3
Oct.	13.3	49	73	24	24	49	0	0	0	0.4
Nov.	7.1	17	70	53	77	17	0	0	0	3.0
Dec.	5.2	11	93	23	100	11	0	59	30	7.6
Year	13.4	754	637	*	*	448	305	189	189	*

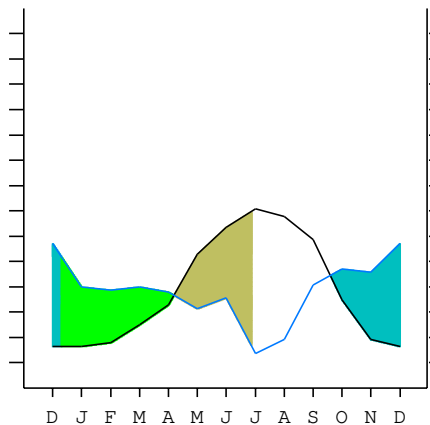
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

COLLADO VILLALBA (ESP MADRID)

40°39'N 3°59'W 917 m 14/14 y.

T= 13.4 Ic= 19.1 MEDITERRANEAN PLUVISEASONAL-OCEANIC
 m= -0.2 Tp= 1607 UPPER MESOMEDITERRANEAN
 M= 10.4 Tn= 0 LOW SUBHUMID
 M' = 39.0 Itc= 241
 m' = -5.9 Io= 4.0
 P= 637 mm ———
 PE= 754 mm ———

Imbibing	18 Sep.
Saturation	9 Dec.
Reserve Use	7 Apr.
Deficit	27 Jun.



COLLADO VILLALBA (ESP MADRID)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1b]
 + Type: B. Oceanic
 + Subtype: 1. Semicontinental
 + Variant: b. High

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

Bioclimatic types [B8.3a.6b]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 8. PLUVISEASONAL-OCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 3. MESOMEDITERRANEAN
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Mehc.Mme.Shu

COLLADO VILLALBA (ESP MADRID)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 247
 Coldest semester of the year.....(Psw): 390
 Warmest four months period of the year.....(Pcm1): 133
 Following warmest four months period.....(Pcm2): 294
 Positive precipitation dryest 3 months.....(Ppd): 73
 Positive precipitation dryest 2 months.....(Ppd2): 23
 Positive precipitation dryest 1 month.....(Ppd1): 6
 Positive precipitation warmest 3 months.....(Pps): 83
 Positive precipitation warmest 2 months.....(Pps2): 23
 Positive precipitation warmest 1 month.....(Pps1): 6
 Positive precipitation coldest 3 months.....(Ppw): 207
 Positive precipitation coldest 2 months.....(Ppw2): 151
 Positive precipitation coldest 1 month.....(Ppw1): 58

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	207	154	73	203

Seasonal rainfall rhythms: W > F > P > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 24.2
 Average coldest month [T].....(Tmin): 5.1
 Maximum temp. warmest month [M].....(Tmmax): 32.6
 Minimum temp. coldest month [m].....(Tmmin): -0.2
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.0
 Absolute Min.temp. coldest month [m'].....(Tamin): -5.9
 First warmest contrasted month [M].....(Tcmax): 32.2 (8)
 First coldest contrasted month [m].....(Tcmin): 14.8 (8)
 Estival temperature.....(Ts): 676
 Positive temperature dryest 3 months.....(Tpd): 676
 Positive temperature dryest 2 months.....(Tpd2): 477
 Positive temperature dryest 1 month.....(Tpd1): 242
 Positive temperature warmest 3 months.....(Tps): 679
 Positive temperature warmest 2 months.....(Tps2): 477
 Positive temperature warmest 1 month.....(Tps1): 242
 Positive temperature coldest 3 months.....(Tpw): 164
 Positive temperature coldest 2 months.....(Tpw2): 103
 Positive temperature coldest 1 month.....(Tpw1): 51

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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	o
Ultragelid...[M' <=0] (Pf)												
Hypergelid...[M <=0] (Pf)												
Gelid.....[T <=0] (Pf)												
Subgelid.....[m <=0] (Pf)	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		

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.18
 Mediterranean index of July.[PE/P].....(Im1): 25.13
 Mediterranean index of July & August.....(Im2): 12.45
 Mediterranean index of June, July & August....(Im3): 5.48

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	930	580	560	580	550	410	500	60	170	600	730	700
Tp	52	51	61	88	111	162	199	242	235	202	133	71
Io (Iom)	17.9	11.4	9.18	6.59	4.95	2.53	2.51	0.25	0.72	2.97	5.49	9.86
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	2070 / 164			1540 / 361			730 / 676			2030 / 406		
Io (Iot)	12.62			4.266			1.080			5.000		
Semesters	December-May						June-November					
Pp(x10)/Tp	3610 / 525						2760 / 1082					
Io (Iosm)	6.876						2.551					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 6370/1607=3.96 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	930	580	560	580	550	410	500	60	170	600	730	700
Tp [T*10]	52	51	61	88	111	162	199	242	235	202	133	71
Iom [Pp/Tp]	\$\$	\$\$	918	659	495	253	251	25	72	297	549	986
Avm [200-Iom]	***	***	***	***	***	***	***	175	128	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	2070 / 164			1540 / 361			730 / 676			2030 / 406		
Iot [Pp/Tp]	1262			427			108			500		
Avs E[Avm<200]	***			***			***			***		
Lower hyperarid [1]							Strong upper arid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	19.10
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		29.44
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		27.99
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		1.31
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T]		47.57
+ Semiarid (60>R>40)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		27.23
+ Subhumid (30>Ia>20)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		59.94
+ Subhumid (90>Q>50)		
I of Dantin & Revenga (1940) [DR=100*T/P]		2.10
+ Semiarid (3>DR>2)		
Aridity Index of UNEP [I=P/PE]		0.85
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		13.58
+ Very low (K<60)		

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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	0.36	0.34	0.32	0.28	0.17	0.19	0.02	0.05	0.23	0.35	0.42	0.61
T-E ratio	2.29	2.74	3.96	5.00	7.29	8.95	10.89	10.57	9.09	5.99	3.19	2.34
Precipitation-effectiveness: 33.43						Temperature-efficiency						72.32
Moisture Index [MI=100*(P-PE)/PE]												-15.48
+ C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE]												40.51
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												25.04
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE												753.64
+ Second mesothermic (712<PE<855)												

