

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

ASTORGA (ESP LEON)

Altitude: 868 m.

Latitude: 42°27'N Longitude: 6°3'W

Temperature observation period.: 1944-1969 (26)

Rainfall observation period....: 1944-1969 (26)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	3.40	7.80	-1.00	13.70	-6.80	52.0	10.68
Feb.	4.40	9.40	-0.50	14.00	-6.70	53.0	14.33
Mar.	7.20	13.00	1.50	19.10	-3.80	40.0	31.56
Apr.	9.40	15.80	3.10	22.50	-2.30	41.0	46.50
May.	12.50	19.40	5.60	26.70	-0.40	38.0	72.39
Jun.	16.00	23.60	8.40	30.90	2.70	36.0	96.68
Jul.	18.00	26.00	10.10	33.10	5.10	18.0	111.44
Aug.	18.00	26.50	9.50	32.70	5.30	15.0	103.61
Sep.	15.80	23.70	7.80	30.20	2.50	32.0	78.04
Oct.	11.40	18.30	4.50	24.80	-0.60	39.0	49.14
Nov.	6.30	11.70	0.90	18.90	-4.50	54.0	21.58
Dec.	3.80	8.30	-0.80	14.70	-7.00	52.0	11.68
Year	10.52	16.96	4.09	23.44	-1.37	470	647.64

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	173
Compensated thermicity index.....(Itc):	173
Simple continentality index.....(Ic):	14.6
Diurnality index.....(Id):	17.0
Annual ombrothermic index.....(Io):	3.72
Monthly estival ombrothermic index.....(Ios1):	0.83
Bimonthly estival ombrothermic index.....(Ios2):	0.92
Threemonthly estival ombrothermic index.....(Ios3):	1.33
Fourmonthly estival ombrothermic index.....(Ios4):	1.66
Annual ombro-evaporation index.....(Ioe):	0.61
Annual positive temperature.....(Tp):	1262
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	520
Positive precipitation.....(Pp):	470

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	6	4	1	1	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - High Euoceanic

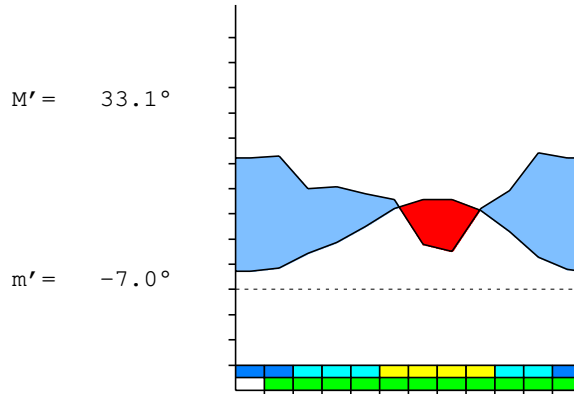
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: LOW SUPRAMEDITERRANEAN LOW SUBHUMID

ASTORGA (ESP LEON)

868 m

P= 470 42° 27'N 6° 3'W 26/26 y.
 T= 10.5° Ic= 14.6 Tp= 1262 Tn= 0
 m= -1.0° M= 7.8° Itc= 173 Io= 3.7



MEDITERRANEAN PLUVISEASONAL-OCEANIC
 LOW SUPRAMEDITERRANEAN LOW SUBHUMID

WATER INDEX CARD

ASTORGA (ESP LEON)

Altitude: 868 m.

Latitude: 42° 27'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	3.4	11	52	27	100	11	0	14	7	3.8
Feb.	4.4	14	53	0	100	14	0	39	23	2.6
Mar.	7.2	32	40	0	100	32	0	8	16	0.2
Apr.	9.4	47	41	-6	94	47	0	0	8	-0.1
May.	12.5	72	38	-34	60	72	0	0	4	-0.4
Jun.	16.0	97	36	-60	0	96	1	0	2	-0.6
Jul.	18.0	111	18	0	0	18	93	0	1	-0.8
Aug.	18.0	104	15	0	0	15	89	0	0	-0.8
Sep.	15.8	78	32	0	0	32	46	0	0	-0.5
Oct.	11.4	49	39	0	0	39	10	0	0	-0.2
Nov.	6.3	22	54	32	32	22	0	0	0	1.5
Dec.	3.8	12	52	40	73	12	0	0	0	3.4
Year	10.5	648	470	*	*	409	239	61	61	*

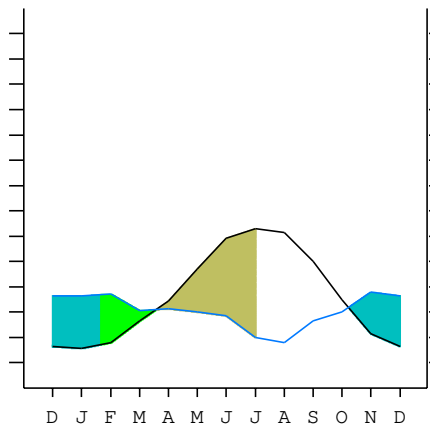
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

ASTORGA (ESP LEON)

42°27'N 6°3'W 868 m 26/26 y.

T= 10.5 Ic= 14.6 MEDITERRANEAN PLUVISEASONAL-OCEANIC
 m= -1.0 Tp= 1262 LOW SUPRAMEDITERRANEAN
 M= 7.8 Tn= 0 LOW SUBHUMID
 M' = 33.1 Itc= 173
 m' = -7.0 Io= 3.7
 P= 470 mm ———
 PE= 648 mm ———

Imbibing	8 Oct.
Saturation	20 Jan.
Reserve Use	19 Mar.
Deficit	30 Jun.



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2a]
 + Type: B. Oceanic
 + Subtype: 2. Euoceanic
 + Variant: a. High

Thermic types [B1.B5]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. Low eutemperate
 + Thermic type: B. Temperate
 + Thermic subtype: 5. Subtemperate

Bioclimatic types [B8.4b.6b]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 8. PLUVISEASONAL-OCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 4. SUPRAMEDITERRANEAN
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Mehc.Sme.Shu

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 178
 Coldest semester of the year.....(Psw): 292
 Warmest four months period of the year.....(Pcm1): 101
 Following warmest four months period.....(Pcm2): 197
 Positive precipitation dryest 3 months.....(Ppd): 65
 Positive precipitation dryest 2 months.....(Ppd2): 33
 Positive precipitation dryest 1 month.....(Ppd1): 15
 Positive precipitation warmest 3 months.....(Pps): 69
 Positive precipitation warmest 2 months.....(Pps2): 33
 Positive precipitation warmest 1 month.....(Pps1): 18
 Positive precipitation coldest 3 months.....(Ppw): 157
 Positive precipitation coldest 2 months.....(Ppw2): 104
 Positive precipitation coldest 1 month.....(Ppw1): 52

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	157	119	69	125

Seasonal rainfall rhythms: W > F > P > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 18.0
 Average coldest month [T].....(Tmin): 3.4
 Maximum temp. warmest month [M].....(Tmmax): 26.5
 Minimum temp. coldest month [m].....(Tmmin): -1.0
 Absolute Max.temp. warmest month [M'].....(Tamax): 33.1
 Absolute Min.temp. coldest month [m'].....(Tamin): -7.0
 First warmest contrasted month [M].....(Tcmax): 26.5 (8)
 First coldest contrasted month [m].....(Tcmin): 9.5 (8)
 Estival temperature.....(Ts): 520
 Positive temperature dryest 3 months.....(Tpd): 518
 Positive temperature dryest 2 months.....(Tpd2): 360
 Positive temperature dryest 1 month.....(Tpd1): 180
 Positive temperature warmest 3 months.....(Tps): 520
 Positive temperature warmest 2 months.....(Tps2): 360
 Positive temperature warmest 1 month.....(Tps1): 180
 Positive temperature coldest 3 months.....(Tpw): 116
 Positive temperature coldest 2 months.....(Tpw2): 72
 Positive temperature coldest 1 month.....(Tpw1): 34

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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
Pregelid.....[m' <=0] (Pf)	o	o	o	o	o					o	o	o
Agelid.....[m' > 0] (Pf)						o	o	o	o			
HiperAgelid..[all>0] (Pf)						o	o	o	o			

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.38
 Mediterranean index of July.[PE/P].....(Im1): 6.19
 Mediterranean index of July & August.....(Im2): 6.52
 Mediterranean index of June, July & August....(Im3): 4.52

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	520	520	530	400	410	380	360	180	150	320	390	540
Tp	38	34	44	72	94	125	160	180	180	158	114	63
Io (Iom)	13.7	15.3	12.0	5.56	4.36	3.04	2.25	1.00	0.83	2.03	3.42	8.57
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	1570 / 116			1190 / 291			690 / 520			1250 / 335		
Io (Iot)	13.53			4.089			1.327			3.731		
Semesters	December-May						June-November					
Pp(x10)/Tp	2760 / 407						1940 / 855					
Io (Iosm)	6.781						2.269					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 4700/1262=3.72 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	520	520	530	400	410	380	360	180	150	320	390	540
Tp [T*10]	38	34	44	72	94	125	160	180	180	158	114	63
Iom [Pp/Tp]	\$\$	\$\$	\$\$	556	436	304	225	100	83	203	342	857
Avm [200-Iom]	***	***	***	***	***	***	***	100	117	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	1570 / 116			1190 / 291			690 / 520			1250 / 335		
Iot [Pp/Tp]	1353			409			133			373		
Avs E[Avm<200]	***			***			***			***		
Weak upper arid [2]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 14.60
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 16.37
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 17.31
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 0.96
 + Oceanic (0.6<CI<1.1)
 Rainfall Index of Lang (1925) [R=P/T]: 44.69
 + Semiarid (60>R>40)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 22.91
 + Subhumid (30>Ia>20)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 67.02
 + Subhumid (90>Q>50)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 2.24
 + Semiarid (3>DR>2)
 Aridity Index of UNEP [I=P/PE]: 0.73
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 6.20
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 3. Termoxeroteric (Mediterranean warm)
 + Thermic type: 5. Meso-microthermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.34	0.34	0.22	0.21	0.18	0.15	0.07	0.05	0.13	0.19	0.32	0.34
T-E ratio	1.53	1.98	3.24	4.23	5.63	7.20	8.10	8.10	7.11	5.13	2.84	1.71
Precipitation-effectiveness: 25.37						Temperature-efficiency: 56.79						
Moisture Index [MI=100*(P-PE)/PE]: -27.43 + C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE]: 36.87 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]: 9.43 + No surplus (0<HI<10)												
Potential Evapotranspiration PE: 647.64 + First mesothermic (570<PE<712)												

