

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

SANLUCAR DE GUADIANA (ESP HUELVA) Altitude: 30 m.

Latitude: 37°28'N Longitude: 7°28'W

Temperature observation period.: 1967-1987 (21)

Rainfall observation period....: 1961-1986 (26)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	11.10	16.50	5.70	20.90	0.90	73.5	19.89
Feb.	12.10	17.70	6.50	22.80	2.30	63.7	23.42
Mar.	14.00	20.40	7.60	25.90	3.50	43.0	38.12
Apr.	16.60	22.90	10.20	29.40	6.20	35.0	57.49
May.	19.50	26.00	12.90	33.70	8.40	22.8	88.34
Jun.	24.40	31.50	17.30	39.80	12.30	16.7	140.23
Jul.	27.40	35.30	19.60	41.20	15.40	0.8	178.38
Aug.	27.90	35.90	19.90	40.90	16.10	2.5	171.65
Sep.	25.50	32.70	18.20	39.40	14.00	18.6	128.40
Oct.	20.30	26.90	13.70	33.90	9.10	68.3	76.19
Nov.	15.30	20.70	9.80	27.50	5.10	79.4	37.66
Dec.	11.20	16.20	6.20	20.90	1.80	67.1	19.55
Year	18.77	25.23	12.30	31.36	7.92	491	979.31

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	410
Compensated thermicity index.....(Itc):	410
Simple continentality index.....(Ic):	16.8
Diurnality index.....(Id):	16.0
Annual ombrothermic index.....(Io):	2.18
Monthly estival ombrothermic index.....(Ios1):	0.03
Bimonthly estival ombrothermic index.....(Ios2):	0.06
Threemonthly estival ombrothermic index.....(Ios3):	0.25
Fourmonthly estival ombrothermic index.....(Ios4):	0.43
Annual ombro-evaporation index.....(Ioe):	0.50
Annual positive temperature.....(Tp):	2253
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	797
Positive precipitation.....(Pp):	491

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	4	3	1	4	0

Latitudinal Belt....: Low Eutemperate

Continentality.....: Oceanic - Low Euoceanic

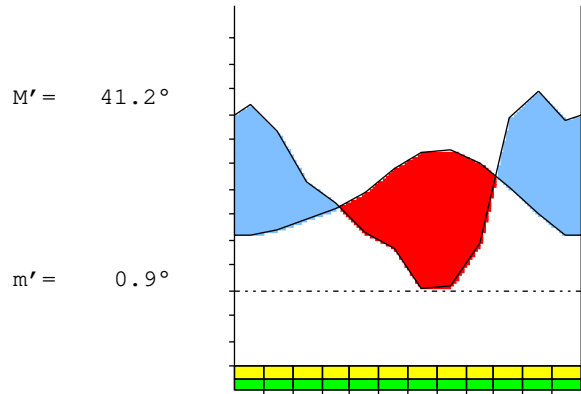
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt....: LOW THERMOMEDITERRANEAN LOW DRY

SANLUCAR DE GUADIANA (ESP HUELVA)

30 m

P= 491 37° 28'N 7° 28'W 21/26 y.
 T= 18.8 ° Ic= 16.8 Tp= 2253 Tn= 0
 m= 5.7 ° M= 16.5 ° Itc= 410 Io= 2.2



MEDITERRANEAN PLUVISEASONAL-OCEANIC
 LOW THERMOMEDITERRANEAN LOW DRY

WATER INDEX CARD

SANLUCAR DE GUADIANA (ESP HUELVA)

Altitude: 30 m.

Latitude: 37° 28'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	11.1	20	74	11	100	20	0	43	21	2.6
Feb.	12.1	23	64	0	100	23	0	40	31	1.7
Mar.	14.0	38	43	0	100	38	0	5	18	0.1
Apr.	16.6	57	35	-22	78	57	0	0	9	-0.3
May.	19.5	88	23	-66	12	88	0	0	4	-0.7
Jun.	24.4	140	17	-12	0	29	112	0	2	-0.8
Jul.	27.4	178	1	0	0	1	178	0	1	-0.9
Aug.	27.9	172	3	0	0	3	169	0	1	-0.9
Sep.	25.5	128	19	0	0	19	110	0	0	-0.8
Oct.	20.3	76	68	0	0	68	8	0	0	-0.1
Nov.	15.3	38	79	42	42	38	0	0	0	1.1
Dec.	11.2	20	67	48	89	20	0	0	0	2.4
Year	18.8	979	491	*	*	403	576	88	88	*

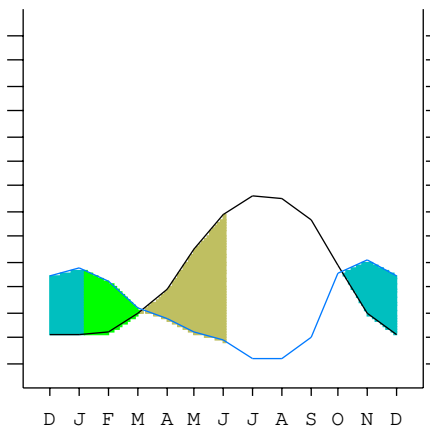
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coeficient DF = Deficit SP = Superavit

SANLUCAR DE GUADIANA (ESP HUELVA)

37°28'N 7°28'W 30 m 21/26 y.

T= 18.8 Ic= 16.8 MEDITERRANEAN PLUVISEASONAL-OCEANIC
 m= 5.7 Tp= 2253 LOW THERMOMEDITERRANEAN
 M= 16.5 Tn= 0 LOW DRY
 M' = 41.2 Itc= 410
 m' = 0.9 Io= 2.2
 P= 491 mm ———
 PE= 979 mm ———

Imbibing	5 Oct.
Saturation	6 Jan.
Reserve Use	6 Mar.
Deficit	3 Jun.



SANLUCAR DE GUADIANA (ESP HUELVA)

Latitude: 37°28'N Longitude: 7°28'W Altitude: 30 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [B2b]
 + Type: B. Oceanic
 + Subtype: 2. Euoceanic
 + Variant: b. Low
 Thermic types [B1.A3]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. Low Eutemperate
 + Thermic type: A. Warm
 + Thermic subtype: 3. Subwarm
 Bioclimatic types [B8.2b.5b]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 8. PLUVISEASONAL-OCEANIC
 + Bioclimatic variant .:
 + Thermic type.....: 2. THERMOMEDITERRANEAN
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 5. DRY
 + Ombrothermic subtype : b. LOW
 Bioclimatic ClassificationMepo.Tme.Dry.Euo

SANLUCAR DE GUADIANA (ESP HUELVA)

Latitude: 37°28'N Longitude: 7°28'W Altitude: 30 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 130
 Coldest semester of the year.....(Psw): 362
 Warmest four months period of the year.....(Pcm1): 39
 Following warmest four months period.....(Pcm2): 288
 Positive precipitation dryest 3 months.....(Ppd): 20
 Positive precipitation dryest 2 months.....(Ppd2): 3
 Positive precipitation dryest 1 month.....(Ppd1): 1
 Positive precipitation warmest 3 months.....(Pps): 22
 Positive precipitation warmest 2 months.....(Pps2): 3
 Positive precipitation warmest 1 month.....(Pps1): 3
 Positive precipitation coldest 3 months.....(Ppw): 204
 Positive precipitation coldest 2 months.....(Ppw2): 141
 Positive precipitation coldest 1 month.....(Ppw1): 74

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	204	100	20	166

Seasonal rainfall rhythms: W > F > P > S

SANLUCAR DE GUADIANA (ESP HUELVA)

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.9
 Average coldest month [T].....(Tmin): 11.1
 Maximum temp. warmest month [M].....(Tmax): 35.9
 Minimum temp. coldest month [m].....(Tmin): 5.7
 Absolute Max.temp. warmest month [M'].....(Tamax): 41.2
 Absolute Min.temp. coldest month [m'].....(Tamin): 0.9
 First warmest contrasted month [M].....(Tcmax): 35.9 (8)
 First coldest contrasted month [m].....(Tcmin): 19.9 (8)
 Estival temperature.....(Ts): 797
 Positive temperature dryest 3 months.....(Tpd): 797
 Positive temperature dryest 2 months.....(Tpd2): 553
 Positive temperature dryest 1 month.....(Tpd1): 274
 Positive temperature warmest 3 months.....(Tps): 808
 Positive temperature warmest 2 months.....(Tps2): 553
 Positive temperature warmest 1 month.....(Tps1): 279
 Positive temperature coldest 3 months.....(Tpw): 344
 Positive temperature coldest 2 months.....(Tpw2): 223
 Positive temperature coldest 1 month.....(Tpw1): 111

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.99
 Mediterranean index of July.[PE/P].....(Im1): 222.98
 Mediterranean index of July & August.....(Im2): 106.07
 Mediterranean index of June, July & August....(Im3): 24.51

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	671	735	637	430	350	228	167	8	25	186	683	794
Tp	112	111	121	140	166	195	244	274	279	255	203	153
Io (Iom)	5.99	6.62	5.26	3.07	2.11	1.17	0.68	0.03	0.09	0.73	3.36	5.19
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	2043 / 344			1008 / 501			200 / 797			1663 / 611		
Io (Iot)	5.939			2.012			0.251			2.722		
Semesters	December-May						June-November					
Pp(x10)/Tp	3051 / 845						1863 / 1408					
Io (Iosm)	3.611						1.323					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 4914/2253=2.18 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	671	735	637	430	350	228	167	8	25	186	683	794
Tp [T*10]	112	111	121	140	166	195	244	274	279	255	203	153
Iom [Pp/Tp]	599	662	526	307	211	117	68	3	9	73	336	519
Avm [200-Iom]	***	***	***	***	***	83	132	197	191	127	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	2043 / 344			1008 / 501			200 / 797			1663 / 611		
Iot [Pp/Tp]	594			201			25			272		
Avs E[Avm<200]	***			***			520			***		
Lower ultrahyperarid [2]						Lower hyperarid [1]						
Weak lower arid [1]						Strong upper arid [1]						
Strong lower semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp): 16.80
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]	26.55
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]	24.76
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)]	1.25
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T]	26.17
+ Steppic (40>R>0)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)]	17.08
+ Semiarid -mediterranean- (20>Ia>15)	
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]	39.11
+ Semiarid (50>Q>30)	
I of Dantin & Revenga (1940) [DR=100*T/P]	3.82
+ Arid (6>DR>3)	
Aridity Index of UNEP [I=P/PE]	0.50
+ Subhumid - dry (0.65>I>0.5)	
Potencial Erosion I of Fournier (1960) [K=Pi ² /P].....	12.83
+ 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: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.38	0.32	0.19	0.14	0.08	0.05	0.00	0.01	0.06	0.27	0.37	0.34
T-E ratio	5.00	5.45	6.30	7.47	8.77	10.98	12.33	12.55	11.48	9.13	6.89	5.04
Precipitation-effectiveness: 22.10						Temperature-efficiency: 101.38						
Moisture Index [MI=100*(P-PE)/PE]												
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]												
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												
+ Third mesothermic (855<PE<997)												

