

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

LA GRANADA DE RIOTINTO (ESP HUELVA) Altitude: 436 m.

Latitude: 37°46'N Longitude: 6°29'W
 Temperature observation period.: 1973-1991 (19)
 Rainfall observation period....: 1973-1990 (18)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	9.20	14.50	3.90	20.70	-1.40	117.8	15.86
Feb.	10.20	15.50	4.90	22.70	-0.10	94.4	19.01
Mar.	12.90	19.20	6.50	27.20	1.80	55.3	36.14
Apr.	13.70	19.80	7.60	27.40	3.10	71.7	43.19
May.	18.00	24.70	11.30	31.70	5.30	46.3	80.40
Jun.	23.20	30.20	16.10	37.30	8.70	20.0	130.21
Jul.	27.90	36.20	19.50	41.50	13.70	6.1	183.38
Aug.	28.20	36.10	20.20	41.70	14.70	9.5	174.46
Sep.	25.00	32.40	17.50	38.10	11.80	24.0	125.56
Oct.	18.70	25.00	12.30	33.30	5.90	73.9	67.39
Nov.	13.50	19.40	7.60	26.50	2.90	119.1	32.08
Dec.	9.80	15.10	4.50	21.70	-0.20	159.9	17.43
Year	17.52	24.01	10.99	30.82	5.52	798	925.11

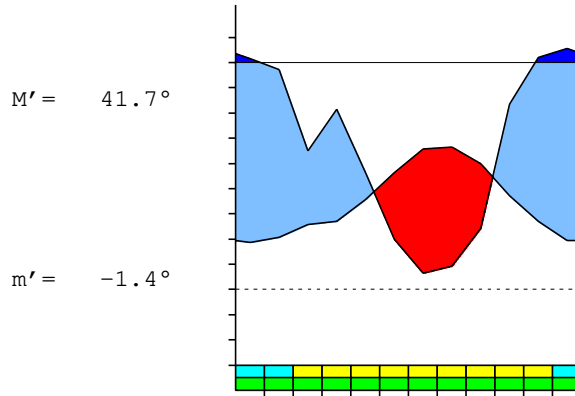
BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	359
Compensated thermicity index.....(Itc):	364
Simple continentality index.....(Ic):	19.0
Diurnality index.....(Id):	16.7
Annual ombrothermic index.....(Io):	3.79
Monthly estival ombrothermic index.....(Ios1):	0.22
Bimonthly estival ombrothermic index.....(Ios2):	0.28
Threemonthly estival ombrothermic index.....(Ios3):	0.45
Fourmonthly estival ombrothermic index.....(Ios4):	0.84
Annual ombro-evaporation index.....(Ioe):	0.29
Annual positive temperature.....(Tp):	2103
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	793
Positive precipitation.....(Pp):	798

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

Latitudinal Belt...: Low eutemperate
 Continentality.....: Oceanic - High Semicontinental
 Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC
 Bioclimatic Belt...: UPPER THERMOMEDITERRANEAN LOW SUBHUMID

LA GRANADA DE RIOTINTO (ESP HUELVA) 436 m
 P= 798 37° 46'N 6° 29'W 19/18 y.
 T= 17.5° Ic= 19.0 Tp= 2103 Tn= 0
 m= 3.9° M= 14.5° Itc= 364 Io= 3.8



MEDITERRANEAN PLUVISEASONAL-OCEANIC
 UPPER THERMOMEDITERRANEAN LOW SUBHUMID

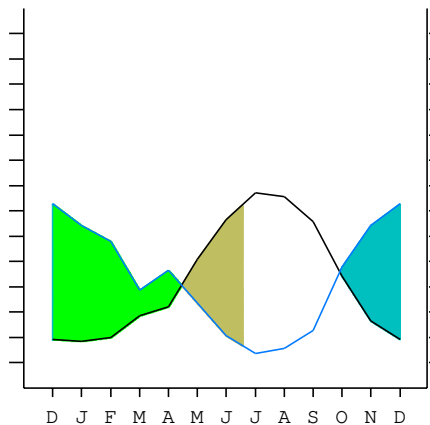
WATER INDEX CARD LA GRANADA DE RIOTINTO (ESP HUELVA)
 Altitude: 436 m. Latitude: 37° 46'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	9.2	16	118	0	100	16	0	102	85	6.4
Feb.	10.2	19	94	0	100	19	0	75	80	3.9
Mar.	12.9	36	55	0	100	36	0	19	50	0.5
Apr.	13.7	43	72	0	100	43	0	29	39	0.6
May.	18.0	80	46	-34	66	80	0	0	20	-0.4
Jun.	23.2	130	20	-66	0	86	44	0	10	-0.8
Jul.	27.9	183	6	0	0	6	177	0	5	-0.9
Aug.	28.2	174	10	0	0	10	165	0	2	-0.9
Sep.	25.0	126	24	0	0	24	102	0	1	-0.8
Oct.	18.7	67	74	7	7	67	0	0	1	0.0
Nov.	13.5	32	119	87	94	32	0	0	0	2.7
Dec.	9.8	17	160	6	100	17	0	136	68	8.1
Year	17.5	925	798	*	*	437	488	361	361	*

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

LA GRANADA DE RIOTINTO (ESP HUELVA) 37°46'N 6°29'W 436 m 19/18 y.
 T= 17.5 Ic= 19.0 MEDITERRANEAN PLUVISEASONAL-OCEANIC
 m= 3.9 Tp= 2103 UPPER THERMOMEDITERRANEAN
 M= 14.5 Tn= 0 LOW SUBHUMID
 M' = 41.7 Itc= 364
 m' = -1.4 Io= 3.8
 P= 798 mm
 PE= 925 mm

Imbibing	29 Sep.
Saturation	2 Dec.
Reserve Use	14 Apr.
Deficit	18 Jun.



LA GRANADA DE RIOTINTO (ESP HUELVA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1b]
 + Type: B. Oceanic
 + Subtype: 1. Semicontinental
 + Variant: b. High
 Thermic types [B1.A3]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. Low eutemperate
 + Thermic type: A. Warm
 + Thermic subtype: 3. Subwarm
 Bioclimatic types [B8.2a.6b]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 8. PLUVISEASONAL-OCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 2. THERMOMEDITERRANEAN
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Mehc.Tme.Shu

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 180
 Coldest semester of the year.....(Psw): 618
 Warmest four months period of the year.....(Pcm1): 60
 Following warmest four months period.....(Pcm2): 471
 Positive precipitation dryest 3 months.....(Ppd): 36
 Positive precipitation dryest 2 months.....(Ppd2): 16
 Positive precipitation dryest 1 month.....(Ppd1): 6
 Positive precipitation warmest 3 months.....(Pps): 40
 Positive precipitation warmest 2 months.....(Pps2): 16
 Positive precipitation warmest 1 month.....(Pps1): 10
 Positive precipitation coldest 3 months.....(Ppw): 372
 Positive precipitation coldest 2 months.....(Ppw2): 278
 Positive precipitation coldest 1 month.....(Ppw1): 118

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	372	173	35	217

Seasonal rainfall rhythms: W > F > P > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 28.2
 Average coldest month [T].....(Tmin): 9.2
 Maximum temp. warmest month [M].....(Tmmax): 36.2
 Minimum temp. coldest month [m].....(Tmmin): 3.9
 Absolute Max.temp. warmest month [M'].....(Tamax): 41.7
 Absolute Min.temp. coldest month [m'].....(Tamin): -1.4
 First warmest contrasted month [M].....(Tcmax): 36.2 (7)
 First coldest contrasted month [m].....(Tcmin): 19.5 (7)
 Estival temperature.....(Ts): 793
 Positive temperature dryest 3 months.....(Tpd): 793
 Positive temperature dryest 2 months.....(Tpd2): 561
 Positive temperature dryest 1 month.....(Tpd1): 279
 Positive temperature warmest 3 months.....(Tps): 811
 Positive temperature warmest 2 months.....(Tps2): 561
 Positive temperature warmest 1 month.....(Tps1): 282
 Positive temperature coldest 3 months.....(Tpw): 292
 Positive temperature coldest 2 months.....(Tpw2): 190
 Positive temperature coldest 1 month.....(Tpw1): 92

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.16
 Mediterranean index of July.[PE/P].....(Im1): 30.06
 Mediterranean index of July & August.....(Im2): 22.94
 Mediterranean index of June, July & August....(Im3): 13.71

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1599	1178	944	553	717	463	200	61	95	240	739	1191
Tp	98	92	102	129	137	180	232	279	282	250	187	135
Io (Iom)	16.3	12.8	9.25	4.29	5.23	2.57	0.86	0.22	0.34	0.96	3.95	8.82
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	3721 / 292			1733 / 446			356 / 793			2170 / 572		
Io (Iot)	12.74			3.886			0.449			3.794		
Semesters	December-May						June-November					
Pp(x10)/Tp	5454 / 738						2526 / 1365					
Io (Iosm)	7.390						1.851					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 7980/2103=3.79 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1599	1178	944	553	717	463	200	61	95	240	739	1191
Tp [T*10]	98	92	102	129	137	180	232	279	282	250	187	135
Iom [Pp/Tp]	\$\$	\$\$	925	429	523	257	86	22	34	96	395	882
Avm [200-Iom]	***	***	***	***	***	***	114	178	166	104	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	3721 / 292			1733 / 446			356 / 793			2170 / 572		
Iot [Pp/Tp]	1274			389			45			379		
Avs E[Avm<200]	***			***			458			***		
Lower hyperarid [1]							Upper hyperarid [1]					
Strong lower arid [1]							Weak upper arid [2]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	19.00
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		32.34
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		29.62
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		1.40
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T]		45.53
+ Semiarid (60>R>40)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		28.99
+ Subhumid (30>Ia>20)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		61.61
+ Subhumid (90>Q>50)		
I of Dantin & Revenga (1940) [DR=100*T/P]		2.20
+ Semiarid (3>DR>2)		
Aridity Index of UNEP [I=P/PE]		0.86
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		32.04
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.69	0.52	0.26	0.34	0.19	0.06	0.02	0.03	0.08	0.31	0.61	0.95
T-E ratio	4.14	4.59	5.80	6.16	8.10	10.44	12.55	12.69	11.25	8.42	6.07	4.41
Precipitation-effectiveness: 40.39						Temperature-efficiency						94.64
Moisture Index [MI=100*(P-PE)/PE]												-13.74
+ C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE]												52.76
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												39.01
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE												925.11
+ Third mesothermic (855<PE<997)												

