

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

UBEDA I.N.M. (ESP JAEN)

Altitude: 748 m.

Latitude: 38°0'N Longitude: 3°22'W

Temperature observation period.: 1951-1985 (35)

Rainfall observation period....: 1951-1989 (39)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	7.60	11.50	3.70	17.80	-1.60	70.4	14.34
Feb.	8.90	13.50	4.20	20.90	-0.90	75.6	18.42
Mar.	11.80	17.50	6.20	25.90	1.20	69.4	36.11
Apr.	14.50	20.60	8.30	28.30	3.20	58.6	54.33
May.	18.40	24.70	12.10	32.10	6.50	46.0	90.29
Jun.	21.80	28.00	15.60	34.90	10.00	20.8	120.68
Jul.	25.90	32.50	19.20	37.30	14.70	4.5	162.03
Aug.	25.50	31.90	19.00	36.10	14.80	7.2	147.79
Sep.	21.80	27.40	16.20	33.10	11.60	23.1	101.21
Oct.	16.30	20.70	11.90	26.80	6.50	53.0	57.61
Nov.	10.80	14.20	7.30	20.10	2.60	65.0	25.42
Dec.	7.50	10.90	4.10	16.30	-0.40	86.2	13.69
Year	15.90	21.12	10.65	27.47	5.68	580	841.92

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	309
Compensated thermicity index.....(Itc):	311
Simple continentality index.....(Ic):	18.4
Diurnality index.....(Id):	13.3
Annual ombrothermic index.....(Io):	3.04
Monthly estival ombrothermic index.....(Ios1):	0.17
Bimonthly estival ombrothermic index.....(Ios2):	0.23
Threemonthly estival ombrothermic index.....(Ios3):	0.44
Fourmonthly estival ombrothermic index.....(Ios4):	0.86
Annual ombro-evaporation index.....(Ioe):	0.36
Annual positive temperature.....(Tp):	1908
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	732
Positive precipitation.....(Pp):	580

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	6	2	1	3	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Semicontinental

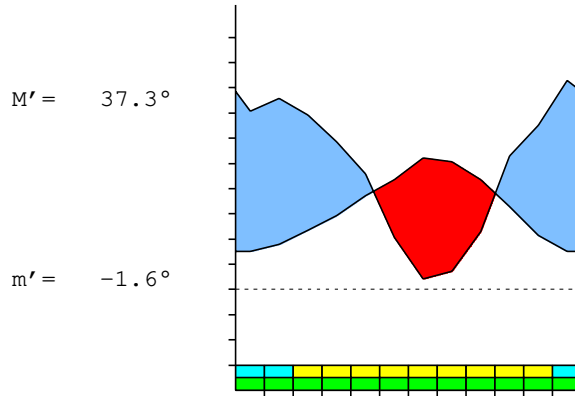
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: LOW MESOMEDITERRANEAN UPPER DRY

UBEDA I.N.M. (ESP JAEN)

748 m

P= 580 38° 0'N 3° 22'W 35/39 y.  
 T= 15.9° Ic= 18.4 Tp= 1908 Tn= 0  
 m= 4.1° M= 10.9° Itc= 311 Io= 3.0



MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 LOW MESOMEDITERRANEAN UPPER DRY

WATER INDEX CARD  
 Altitude: 748 m.

UBEDA I.N.M. (ESP JAEN)  
 Latitude: 38° 0'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	7.6	14	70	0	100	14	0	56	31	3.9
Feb.	8.9	18	76	0	100	18	0	57	44	3.1
Mar.	11.8	36	69	0	100	36	0	33	39	0.9
Apr.	14.5	54	59	0	100	54	0	4	21	0.0
May.	18.4	90	46	-44	56	90	0	0	11	-0.4
Jun.	21.8	121	21	-56	0	77	44	0	5	-0.8
Jul.	25.9	162	5	0	0	5	158	0	3	-0.9
Aug.	25.5	148	7	0	0	7	141	0	1	-0.9
Sep.	21.8	101	23	0	0	23	78	0	1	-0.7
Oct.	16.3	58	53	0	0	53	5	0	0	0.0
Nov.	10.8	25	65	40	40	25	0	0	0	1.5
Dec.	7.5	14	86	60	100	14	0	12	6	5.2
Year	15.9	842	580	*	*	417	425	163	163	*

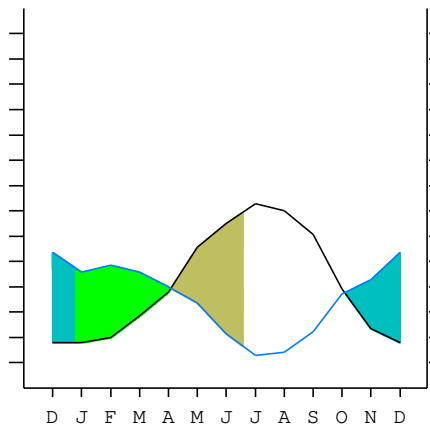
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration  
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

UBEDA I.N.M. (ESP JAEN)

38°0'N 3°22'W 748 m 35/39 y.

T= 15.9 Ic= 18.4 MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 m= 4.1 Tp= 1908 LOW MESOMEDITERRANEAN  
 M= 10.9 Tn= 0 UPPER DRY  
 M' = 37.3 Itc= 311  
 m' = -1.6 Io= 3.0  
 P= 580 mm  
 PE= 842 mm

Imbibing	4 Oct.
Saturation	25 Dec.
Reserve Use	3 Apr.
Deficit	17 Jun.



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

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

Thermic types [B1.A3]  
 + Latitudinal zone ....: B. Temperate  
 + Latitudinal belt ....: 1. Low eutemperate  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 3. Subwarm

Bioclimatic types [B8.3b.5a]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 8. PLUVISEASONAL-OCEANIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 3. MESOMEDITERRANEAN  
 + Thermic subtype.....: b. LOW  
 + Ombrothermic type ...: 5. DRY  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....: Mehc.Mme.Dry

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 155  
 Coldest semester of the year.....(Psw): 425  
 Warmest four months period of the year.....(Pcm1): 56  
 Following warmest four months period.....(Pcm2): 275  
 Positive precipitation dryest 3 months.....(Ppd): 33  
 Positive precipitation dryest 2 months.....(Ppd2): 12  
 Positive precipitation dryest 1 month.....(Ppd1): 5  
 Positive precipitation warmest 3 months.....(Pps): 33  
 Positive precipitation warmest 2 months.....(Pps2): 12  
 Positive precipitation warmest 1 month.....(Pps1): 5  
 Positive precipitation coldest 3 months.....(Ppw): 232  
 Positive precipitation coldest 2 months.....(Ppw2): 157  
 Positive precipitation coldest 1 month.....(Ppw1): 86

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	232	174	32	141

Seasonal rainfall rhythms: W > P > F > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 25.9  
 Average coldest month [T].....(Tmin): 7.5  
 Maximum temp. warmest month [M].....(Tmmax): 32.5  
 Minimum temp. coldest month [m].....(Tmmin): 3.7  
 Absolute Max.temp. warmest month [M'].....(Tamax): 37.3  
 Absolute Min.temp. coldest month [m'].....(Tamin): -1.6  
 First warmest contrasted month [M].....(Tcmax): 32.5 (7)  
 First coldest contrasted month [m].....(Tcmin): 19.2 (7)  
 Estival temperature.....(Ts): 732  
 Positive temperature dryest 3 months.....(Tpd): 732  
 Positive temperature dryest 2 months.....(Tpd2): 514  
 Positive temperature dryest 1 month.....(Tpd1): 259  
 Positive temperature warmest 3 months.....(Tps): 732  
 Positive temperature warmest 2 months.....(Tps2): 514  
 Positive temperature warmest 1 month.....(Tps1): 259  
 Positive temperature coldest 3 months.....(Tpw): 240  
 Positive temperature coldest 2 months.....(Tpw2): 151  
 Positive temperature coldest 1 month.....(Tpw1): 75

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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): 1.45  
 Mediterranean index of July.[PE/P].....(Im1): 36.01  
 Mediterranean index of July & August.....(Im2): 26.48  
 Mediterranean index of June, July & August....(Im3): 13.25

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	862	704	756	694	586	460	208	45	72	231	530	650
Tp	75	76	89	118	145	184	218	259	255	218	163	108
Io (Iom)	11.5	9.26	8.49	5.88	4.04	2.50	0.95	0.17	0.28	1.06	3.25	6.02
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	2322 / 240			1740 / 447			325 / 732			1411 / 489		
Io (Iot)	9.675			3.893			0.444			2.885		
Semesters	December-May						June-November					
Pp(x10)/Tp	4062 / 687						1736 / 1221					
Io (Iosm)	5.913						1.422					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 5798/1908=3.04 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	862	704	756	694	586	460	208	45	72	231	530	650
Tp [T*10]	75	76	89	118	145	184	218	259	255	218	163	108
Iom [Pp/Tp]	\$\$	926	849	588	404	250	95	17	28	106	325	602
Avm [200-Iom]	***	***	***	***	***	***	105	183	172	94	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	2322 / 240			1740 / 447			325 / 732			1411 / 489		
Iot [Pp/Tp]	968			389			44			289		
Avs E[Avm<200]	***			***			459			***		
Upper ultrahyperarid [1]							Lower hyperarid [1]					
Strong lower arid [1]							Weak upper arid [1]					
Strong lower semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 18.40  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 30.41  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 28.09  
 + Oceanic (20<CI<40)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 1.35  
 + Subcontinental (1.1<CI<1.7)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 36.47  
 + Steppic (40>R>0)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 22.39  
 + Subhumid (30>Ia>20)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 55.61  
 + Subhumid (90>Q>50)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 2.74  
 + Semiarid (3>DR>2)  
 Aridity Index of UNEP [I=P/PE] .....: 0.69  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 12.82  
 + 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	0.41	0.42	0.35	0.27	0.18	0.07	0.01	0.02	0.08	0.23	0.34	0.52
T-E ratio	3.42	4.00	5.31	6.52	8.28	9.81	11.65	11.48	9.81	7.33	4.86	3.38
Precipitation-effectiveness: 28.93						Temperature-efficiency .....: 85.86						
Moisture Index [MI=100*(P-PE)/PE] .....: -31.13 + C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE] .....: 50.48 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....: 19.34 + Moderate surplus (10<HI<20)												
Potential Evapotranspiration PE .....: 841.92 + Second mesothermic (712<PE<855)												

