

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

MATSUYAMA (JAPAN)

Altitude: 4 m.

Latitude: 33°49'N Longitude: 132°42'E

Temperature observation period.: 1959-1994 (36)

Rainfall observation period....: 1964-1994 (31)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	5.28	10.00	0.56	24.44	-7.22	56.9	8.68
Feb.	5.28	10.00	0.56	24.44	-8.33	58.2	8.48
Mar.	8.06	13.33	2.78	26.11	-6.11	99.3	20.16
Apr.	13.06	18.89	7.22	27.22	-2.78	118.1	46.64
May.	17.23	22.78	11.67	31.11	1.67	135.9	80.46
Jun.	21.39	26.11	16.67	35.00	5.56	222.5	114.23
Jul.	25.84	30.00	21.67	36.67	14.44	177.3	157.76
Aug.	26.95	31.67	22.22	37.22	15.56	108.0	161.36
Sep.	23.33	28.33	18.33	36.11	8.89	178.3	112.86
Oct.	17.23	22.78	11.67	33.33	2.22	102.4	65.04
Nov.	11.95	17.22	6.67	27.22	-1.11	74.9	32.24
Dec.	7.22	12.22	2.22	22.78	-5.56	61.0	14.08
Year	15.23	20.28	10.19	30.14	1.44	1393	821.98

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	258
Compensated thermicity index.....(Itc):	283
Simple continentality index.....(Ic):	21.7
Diurnality index.....(Id):	11.7
Annual ombrothermic index.....(Io):	7.62
Monthly estival ombrothermic index.....(Ios1):	4.01
Bimonthly estival ombrothermic index.....(Ios2):	5.40
Threemonthly estival ombrothermic index.....(Ios3):	6.85
Fourmonthly estival ombrothermic index.....(Ios4):	7.04
Annual ombro-evaporation index.....(Ioe):	1.97
Annual positive temperature.....(Tp):	1828
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	742
Positive precipitation.....(Pp):	1393

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	12	0	0	0	0

Latitudinal Belt...: Subtropical

Continentalty.....: Continental - Low Subcontinental

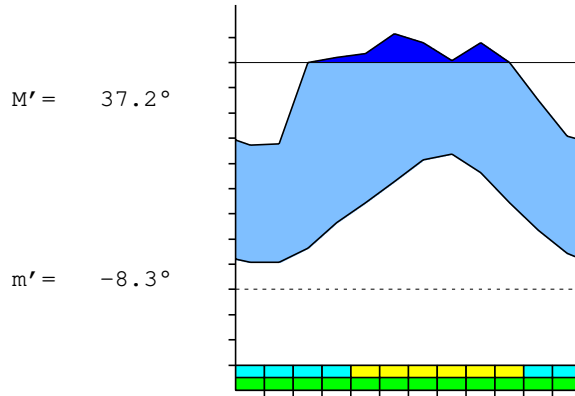
Bioclimate.....: TEMPERATE CONTINENTAL

Bioclimatic Belt...: LOW MESOTEMPERATE LOW HUMID

MATSUYAMA (JAPAN)

4 m

P= 1393 33° 49'N 132° 42'E 36/31 y.
 T= 15.2° Ic= 21.7 Tp= 1828 Tn= 0
 m= 0.6° M= 10.0° Itc= 283 Io= 7.6



TEMPERATE CONTINENTAL
 LOW MESOTEMPERATE LOW HUMID

WATER INDEX CARD

MATSUYAMA (JAPAN)

Altitude: 4 m.

Latitude: 33° 49'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	5.3	9	57	0	100	9	0	48	45	5.5
Feb.	5.3	8	58	0	100	8	0	50	47	5.8
Mar.	8.1	20	99	0	100	20	0	79	63	3.9
Apr.	13.1	47	118	0	100	47	0	71	67	1.5
May.	17.2	80	136	0	100	80	0	55	61	0.6
Jun.	21.4	114	223	0	100	114	0	108	85	0.9
Jul.	25.8	158	177	0	100	158	0	20	52	0.1
Aug.	27.0	161	108	-53	47	161	0	0	26	-0.3
Sep.	23.3	113	178	53	100	113	0	12	19	0.5
Oct.	17.2	65	102	0	100	65	0	37	28	0.5
Nov.	11.9	32	75	0	100	32	0	43	35	1.3
Dec.	7.2	14	61	0	100	14	0	47	41	3.3
Year	15.2	822	1393	*	*	822	0	571	571	*

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

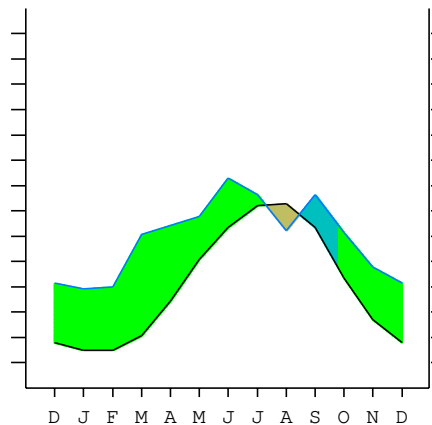
MATSUYAMA (JAPAN)

33°49'N 132°42'E

4 m 36/31 y.

T= 15.2 Ic= 21.7 TEMPERATE CONTINENTAL
 m= 0.6 Tp= 1828 LOW MESOTEMPERATE
 M= 10.0 Tn= 0 LOW HUMID
 M' = 37.2 Itc= 283
 m' = -8.3 Io= 7.6
 P= 1393 mm ———
 PE= 822 mm ———

Imbibing	14 Aug.
Saturation	25 Sep.
Reserve Use	9 Jul.
Deficit	



MATSUYAMA (JAPAN)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [C2a]
 + Type: C. Continental
 + Subtype: 2. Subcontinental
 + Variant: a. Low

Thermic types [A3.A3]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 3. Subtropical
 + Thermic type: A. Warm
 + Thermic subtype: 3. Subwarm

Bioclimatic types [C2.3b.7b]
 + Macrobioclimate: C. TEMPERATE
 + Bioclimate: 2. CONTINENTAL
 + Bioclimatic variant .:
 + Thermic type.....: 3. MESOTEMPERATE
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification: Teoc.Mte.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 924
 Coldest semester of the year.....(Psw): 468
 Warmest four months period of the year.....(Pcm1): 686
 Following warmest four months period.....(Pcm2): 295
 Positive precipitation dryest 3 months.....(Ppd): 176
 Positive precipitation dryest 2 months.....(Ppd2): 115
 Positive precipitation dryest 1 month.....(Ppd1): 57
 Positive precipitation warmest 3 months.....(Pps): 464
 Positive precipitation warmest 2 months.....(Pps2): 285
 Positive precipitation warmest 1 month.....(Pps1): 108
 Positive precipitation coldest 3 months.....(Ppw): 176
 Positive precipitation coldest 2 months.....(Ppw2): 115
 Positive precipitation coldest 1 month.....(Ppw1): 57

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	176	353	507	355

Seasonal rainfall rhythms: S > F > P > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.0
 Average coldest month [T].....(Tmin): 5.3
 Maximum temp. warmest month [M].....(Tmmax): 31.7
 Minimum temp. coldest month [m].....(Tmmin): 0.6
 Absolute Max.temp. warmest month [M'].....(Tamax): 37.2
 Absolute Min.temp. coldest month [m'].....(Tamin): -8.3
 First warmest contrasted month [M].....(Tcmax): 18.9 (4)
 First coldest contrasted month [m].....(Tcmin): 7.2 (4)
 Estival temperature.....(Ts): 742
 Positive temperature dryest 3 months.....(Tpd): 178
 Positive temperature dryest 2 months.....(Tpd2): 106
 Positive temperature dryest 1 month.....(Tpd1): 53
 Positive temperature warmest 3 months.....(Tps): 761
 Positive temperature warmest 2 months.....(Tps2): 528
 Positive temperature warmest 1 month.....(Tps1): 270
 Positive temperature coldest 3 months.....(Tpw): 178
 Positive temperature coldest 2 months.....(Tpw2): 106
 Positive temperature coldest 1 month.....(Tpw1): 53

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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	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): 0.59
 Mediterranean index of July.[PE/P].....(Im1): 0.89
 Mediterranean index of July & August.....(Im2): 1.12
 Mediterranean index of June, July & August....(Im3): 0.85

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	610	569	582	993	1181	1359	2225	1773	1080	1783	1024	749
Tp	72	53	53	81	131	172	214	258	270	233	172	120
Io (Iom)	8.45	10.8	11.0	12.3	9.04	7.89	10.4	6.86	4.01	7.64	5.94	6.27
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	1761 / 178			3533 / 384			5078 / 742			3556 / 525		
Io (Iot)	9.904			9.213			6.846			6.772		
Semesters	December-May						June-November					
Pp(x10)/Tp	5294 / 561						8634 / 1267					
Io (Iosm)	9.432						6.815					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 13928/1828=7.62 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	610	569	582	993	1181	1359	2225	1773	1080	1783	1024	749
Tp [T*10]	72	53	53	81	131	172	214	258	270	233	172	120
Iom [Pp/Tp]	845	\$\$	\$\$	\$\$	904	789	\$\$	686	401	764	594	627
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	1761 / 178			3533 / 384			5078 / 742			3556 / 525		
Iot [Pp/Tp]	990			921			685			677		
Avs E[Avm<200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 21.67
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 45.79
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 39.21
 + Oceanic (20<CI<40)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 1.77
 + Continental (1.7<CI<2.3)
 Rainfall Index of Lang (1925) [R=P/T]: 91.42
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 55.19
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 138.91
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.09
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.69
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 35.54
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 7. Mesoaxeric (Axeric temperate)
 + Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.35	0.36	0.59	0.61	0.63	0.98	0.68	0.38	0.73	0.46	0.38	0.35
T-E ratio	2.38	2.38	3.63	5.88	7.75	9.63	11.63	12.13	10.50	7.75	5.38	3.25
Precipitation-effectiveness: 65.16						Temperature-efficiency: 82.27						
Moisture Index [MI=100*(P-PE)/PE]: 69.45 + B3.Humid high-humid (60<MI<80)												
Index of dryness [DI=100*d/PE]: 0.00 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]: 69.44 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 821.98 + Second mesothermic (712<PE<855)												

