

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

NHA TRANG (VIETNAM)

Altitude: 6 m.

Latitude: 12°13'N Longitude: 109°11'E

Temperature observation period.: 1941-1994 (54)

Rainfall observation period....: 1937-1994 (58)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	24.17	27.78	20.56	31.67	12.22	45.7	92.11
Feb.	24.73	28.89	20.56	33.33	14.44	17.8	93.46
Mar.	25.84	30.00	21.67	34.44	16.11	30.5	123.84
Apr.	27.50	31.67	23.33	36.11	18.89	38.1	149.25
May.	28.61	32.78	24.44	38.33	19.44	61.0	166.10
Jun.	28.89	33.33	24.44	39.44	20.00	45.7	165.45
Jul.	28.61	32.78	24.44	38.89	17.78	40.6	167.63
Aug.	28.61	32.78	24.44	39.44	20.00	53.3	163.06
Sep.	27.78	31.67	23.89	38.33	20.00	165.1	148.66
Oct.	26.67	30.00	23.33	35.00	18.89	322.6	138.23
Nov.	25.56	28.89	22.22	34.44	16.67	363.2	111.85
Dec.	24.73	27.78	21.67	32.78	15.56	177.8	99.56
Year	26.81	30.70	22.92	36.02	17.50	1361	1619.2

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	751
Compensated thermicity index.....(Itc):	751
Simple continentality index.....(Ic):	4.7
Diurnality index.....(Id):	8.9
Annual ombrothermic index.....(Io):	4.23
Monthly dry ombrothermic index.....(Iod1):	0.72
Bimonthly dry ombrothermic index.....(Iod2):	0.96
Threemonthly dry ombrothermic index.....(Iod3):	1.11
Fourmonthly dry ombrothermic index.....(Iod4):	1.29
Annual ombro-evaporation index.....(Ioe):	0.84
Annual positive temperature.....(Tp):	3217
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	781
Positive precipitation.....(Pp):	1361

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

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - High Euhyperoceanic

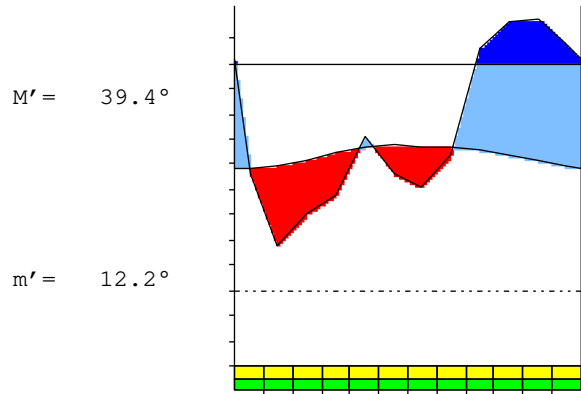
Bioclimate(Variant): TROPICAL PLUVISEASONAL (BIXERIC, SUBXEROPHYTIC)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW SUBHUMID

NHA TRANG (VIETNAM)

6 m

P= 1361 12° 13'N 109° 11'E 54/58 y.
 T= 26.8 ° Ic= 4.7 Tp= 3217 Tn= 0
 m= 20.6 ° M= 27.8 ° Itc= 751 Io= 4.2



TROPICAL PLUVISEASONAL (BIXERIC)
 UPPER INFRATROPICAL LOW SUBHUMID

WATER INDEX CARD

NHA TRANG (VIETNAM)

Altitude: 6 m.

Latitude: 12° 13'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	24.2	92	46	-46	54	92	0	0	57	-0.5
Feb.	24.7	93	18	-54	0	71	22	0	29	-0.8
Mar.	25.8	124	31	0	0	31	93	0	14	-0.7
Apr.	27.5	149	38	0	0	38	111	0	7	-0.7
May.	28.6	166	61	0	0	61	105	0	4	-0.6
Jun.	28.9	165	46	0	0	46	120	0	2	-0.7
Jul.	28.6	168	41	0	0	41	127	0	1	-0.7
Aug.	28.6	163	53	0	0	53	110	0	0	-0.6
Sep.	27.8	149	165	16	16	149	0	0	0	0.1
Oct.	26.7	138	323	84	100	138	0	101	51	1.3
Nov.	25.6	112	363	0	100	112	0	251	151	2.2
Dec.	24.7	100	178	0	100	100	0	78	115	0.7
Year	26.8	1619	1361	*	*	931	688	430	430	*

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

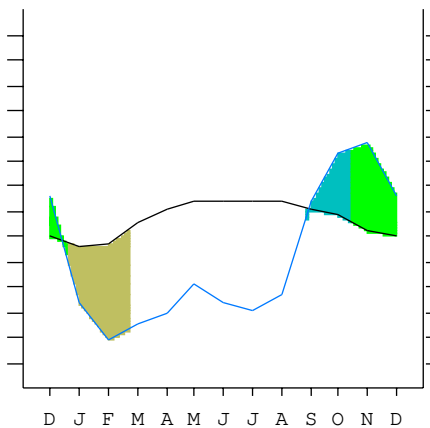
NHA TRANG (VIETNAM)

12°13'N 109°11'E

6 m 54/58 y.

T= 26.8 Ic= 4.7 TROPICAL PLUVISEASONAL (BIXERIC)
 m= 20.6 Tp= 3217 UPPER INFRATROPICAL
 M= 27.8 Tn= 0 LOW SUBHUMID
 M' = 39.4 Itc= 751
 m' = 12.2 Io= 4.2
 P= 1361 mm ———
 PE= 1619 mm ———

Imbibing	27 Aug.
Saturation	14 Oct.
Reserve Use	19 Dec.
Deficit	22 Feb.



NHA TRANG (VIETNAM)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [A2a]
 + Type: A. Hyperoceanic
 + Subtype: 2. Euhyperoceanic
 + Variant: a. High

Thermic types [A2.A1]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 2. Eutropical
 + Thermic type: A. Warm
 + Thermic subtype: 1. Torrid

Bioclimatic types [A4c.1a.6b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant .: BIXERIC, SUBXEROPHYTIC
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW

Bioclimatic ClassificationTrps(Bix).Itr.Shu.Eho

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 404
 Coldest semester of the year.....(Psw): 958
 Warmest four months period of the year.....(Pcm1): 201
 Following warmest four months period.....(Pcm2): 1029
 Positive precipitation dryest 3 months.....(Ppd): 86
 Positive precipitation dryest 2 months.....(Ppd2): 48
 Positive precipitation dryest 1 month.....(Ppd1): 18
 Positive precipitation warmest 3 months.....(Pps): 147
 Positive precipitation warmest 2 months.....(Pps2): 107
 Positive precipitation warmest 1 month.....(Pps1): 46
 Positive precipitation coldest 3 months.....(Ppw): 241
 Positive precipitation coldest 2 months.....(Ppw2): 64
 Positive precipitation coldest 1 month.....(Ppw1): 46

Seasons	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4
Rainfall	241	129	139	850

Tropical rainfall rhythms: 4 > 1 > 3 > 2

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 28.9
 Average coldest month [T].....(Tmin): 24.2
 Maximum temp. warmest month [M].....(Tmmax): 33.3
 Minimum temp. coldest month [m].....(Tmmin): 20.6
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.4
 Absolute Min.temp. coldest month [m'].....(Tamin): 12.2
 First warmest contrasted month [M].....(Tcmax): 33.3 (6)
 First coldest contrasted month [m].....(Tcmin): 24.4 (6)
 Dry station temperature.....(Td): 781
 Positive temperature dryest 3 months.....(Tpd): 781
 Positive temperature dryest 2 months.....(Tpd2): 506
 Positive temperature dryest 1 month.....(Tpd1): 247
 Positive temperature warmest 3 months.....(Tps): 861
 Positive temperature warmest 2 months.....(Tps2): 575
 Positive temperature warmest 1 month.....(Tps1): 289
 Positive temperature coldest 3 months.....(Tpw): 736
 Positive temperature coldest 2 months.....(Tpw2): 489
 Positive temperature coldest 1 month.....(Tpw1): 242

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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): 1.19
 Mediterranean index of July.[PE/P].....(Im1): No
 Mediterranean index of July & August.....(Im2): No
 Mediterranean index of June, July & August....(Im3): No

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1778	457	178	305	381	610	457	406	533	1651	3226	3632
Tp	247	242	247	258	275	286	289	286	286	278	267	256
Io (Iom)	7.19	1.89	0.72	1.18	1.39	2.13	1.58	1.42	1.86	5.94	12.1	14.2
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	2413 / 736			1296 / 820			1396 / 861			8509 / 800		
Io (Iot)	3.277			1.581			1.621			10.63		
Semesters	December-May						June-November					
Pp(x10)/Tp	3709 / 1556						9905 / 1661					
Io (Iosm)	2.384						5.963					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 13614/3217=4.23 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1778	457	178	305	381	610	457	406	533	1651	3226	3632
Tp [T*10]	247	242	247	258	275	286	289	286	286	278	267	256
Iom [Pp/Tp]	719	189	72	118	139	213	158	142	186	594	\$\$\$	\$\$\$
Avm [200-Iom]	***	11	128	82	61	***	42	58	14	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	2413 / 736			1296 / 820			1396 / 861			8509 / 800		
Iot [Pp/Tp]	328			158			162			1063		
Avs E[Avm<200]	***			***			114			***		
Strong upper arid [1]							Strong lower semiarid [1]					
Weak lower semiarid [2]							Strong upper semiarid [2]					
Weak upper semiarid [2]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 4.72
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 17.52
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 7.22
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 0.93
 + Oceanic (0.6<CI<1.1)
 Rainfall Index of Lang (1925) [R=P/T]: 50.78
 + Semiarid (60>R>40)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 36.99
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmmax²-Tmmin²)]: 197.83
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.97
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 0.84
 + Humid (I>0.65)
 Potencial Erosion I of Fournier (1960) [K=Pi²/P].....: 96.90
 + Moderate (90<K<120)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 5. Bixeric (Bixeric)
 + Thermic type: 1. Megathermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.16	0.05	0.10	0.12	0.20	0.14	0.13	0.17	0.61	1.31	1.53	0.70
T-E ratio	10.88	11.13	11.63	12.38	12.87	13.00	12.87	12.87	12.50	12.00	11.50	11.13
Precipitation-effectiveness: 52.02						Temperature-efficiency: 144.77						
Moisture Index [MI=100*(P-PE)/PE]: -15.92 + C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE]: 42.50 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]: 26.57 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 1619.21 + Megathermic (PE>1440)												

