

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

S.Rivas-Martinez(+) & S.Rivas-Saenz

(Adapted to Synoptical Table 14/02/2020)

KATMANDU (NEPAL)

Altitude: 1348 m.

Latitude: 27°42'N Longitude: 85°22'E

Temperature observation period.: 1967-1994 (28)

Rainfall observation period....: 1985-1994 (10)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	10.27	18.33	2.22	24.44	-2.78	15.2	18.39
Feb.	12.22	20.00	4.44	28.33	-1.11	40.6	25.19
Mar.	16.11	25.00	7.22	33.33	1.67	22.9	51.25
Apr.	20.28	28.89	11.67	35.00	4.44	58.4	84.40
May.	22.50	29.44	15.56	36.11	9.44	121.9	113.61
Jun.	24.44	29.44	19.44	37.22	13.89	246.4	132.92
Jul.	24.73	28.89	20.56	32.78	16.11	373.4	138.44
Aug.	24.17	28.33	20.00	33.33	16.11	345.5	126.63
Sep.	23.61	28.33	18.89	33.33	13.33	154.9	110.14
Oct.	20.00	26.67	13.33	33.33	5.56	38.1	75.18
Nov.	15.28	22.78	7.78	29.44	0.56	7.6	40.29
Dec.	11.11	18.89	3.33	28.33	-1.67	2.5	21.29
Year	18.73	25.42	12.04	32.08	6.30	1427	937.71

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	393
Compensated thermicity index.....(Itc):	393
Simple continentality index.....(Ic):	14.5
Diurnality index.....(Id):	17.8
Annual ombrothermic index.....(Io):	6.35
Monthly dry ombrothermic index.....(Iod1):	0.23
Bimonthly dry ombrothermic index.....(Iod2):	0.38
Threemonthly dry ombrothermic index.....(Iod3):	0.69
Fourmonthly dry ombrothermic index.....(Iod4):	1.12
Annual ombro-evaporation index.....(Ioe):	1.52
Annual positive temperature.....(Tp):	2247
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	367
Positive precipitation.....(Pp):	1427

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	5	2	3	2	0

Latitudinal Belt...: Subtropical

Continentality.....: Oceanic - High Euoceanic

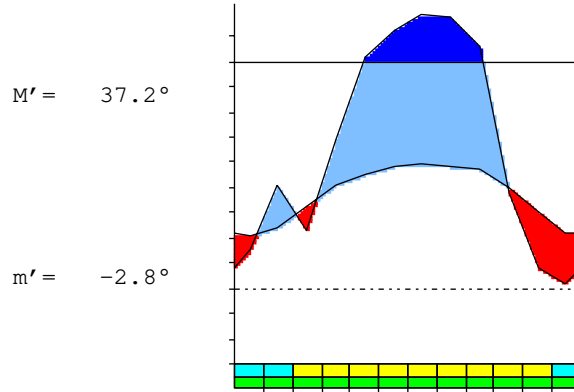
Bioclimate(Variant): TROPICAL PLUVISEASONAL (SUBMESOPHYTIC)

Bioclimatic Belt...: UPPER MESOTROPICAL LOW HUMID

KATMANDU (NEPAL)

1348 m

P= 1427 27° 42'N 85° 22'E 28/10 y.
 T= 18.7 ° Ic= 14.5 Tp= 2247 Tn= 0
 m= 2.2 ° M= 18.3 ° Itc= 393 Io= 6.4



TROPICAL PLUVISEASONAL (SUBMESOPHYTIC)
 UPPER MESOTROPICAL LOW HUMID

WATER INDEX CARD KATMANDU (NEPAL)

Altitude: 1348 m. Latitude: 27° 42'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	10.3	18	15	-3	8	18	0	0	7	-0.1
Feb.	12.2	25	41	15	24	25	0	0	3	0.6
Mar.	16.1	51	23	-24	0	47	5	0	2	-0.5
Apr.	20.3	84	58	0	0	58	26	0	1	-0.3
May.	22.5	114	122	8	8	114	0	0	0	0.0
Jun.	24.4	133	246	92	100	133	0	22	11	0.8
Jul.	24.7	138	373	0	100	138	0	235	123	1.6
Aug.	24.2	127	346	0	100	127	0	219	171	1.7
Sep.	23.6	110	155	0	100	110	0	45	108	0.4
Oct.	20.0	75	38	-37	63	75	0	0	54	-0.4
Nov.	15.3	40	8	-33	30	40	0	0	27	-0.8
Dec.	11.1	21	3	-19	11	21	0	0	13	-0.8
Year	18.7	938	1427	*	*	907	31	520	520	*

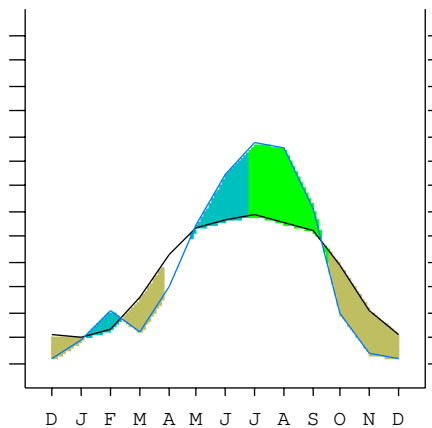
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

KATMANDU (NEPAL)

27°42'N 85°22'E 1348 m 28/10 y.

T= 18.7 Ic= 14.5 TROPICAL PLUVISEASONAL (SUBMESOPHYTIC)
 m= 2.2 Tp= 2247 UPPER MESOTROPICAL
 M= 18.3 Tn= 0 LOW HUMID
 M' = 37.2 Itc= 393
 m' = -2.8 Io= 6.4
 P= 1427 mm ———
 PE= 938 mm ———

Imbibing	23 Apr.
Saturation	25 Jun.
Reserve Use	17 Sep.
Deficit	26 Mar.



KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [B2a]
 + Type: B. Oceanic
 + Subtype: 2. Euoceanic
 + Variant: a. High

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

Bioclimatic types [A4.3a.7b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant .: SUBMESOPHYTIC
 + Thermic type.....: 3. MESOTROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW

Bioclimatic ClassificationTrps (Smf) .Mtr.Hum.Euo

KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 1301
 Coldest semester of the year.....(Psw): 127
 Warmest four months period of the year.....(Pcm1): 1120
 Following warmest four months period.....(Pcm2): 63
 Positive precipitation dryest 3 months.....(Ppd): 25
 Positive precipitation dryest 2 months.....(Ppd2): 10
 Positive precipitation dryest 1 month.....(Ppd1): 3
 Positive precipitation warmest 3 months.....(Pps): 965
 Positive precipitation warmest 2 months.....(Pps2): 620
 Positive precipitation warmest 1 month.....(Pps1): 373
 Positive precipitation coldest 3 months.....(Ppw): 58
 Positive precipitation coldest 2 months.....(Ppw2): 18
 Positive precipitation coldest 1 month.....(Ppw1): 15

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	58	203	965	200

Seasonal rainfall rhythms: S > P > F > W

KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 24.7
 Average coldest month [T].....(Tmin): 10.3
 Maximum temp. warmest month [M].....(Tmax): 29.4
 Minimum temp. coldest month [m].....(Tmin): 2.2
 Absolute Max.temp. warmest month [M'].....(Tamax): 37.2
 Absolute Min.temp. coldest month [m'].....(Tamin): -2.8
 First warmest contrasted month [M].....(Tcmax): 25.0 (3)
 First coldest contrasted month [m].....(Tcmin): 7.2 (3)
 Dry station temperature.....(Td): 367
 Positive temperature dryest 3 months.....(Tpd): 367
 Positive temperature dryest 2 months.....(Tpd2): 264
 Positive temperature dryest 1 month.....(Tpd1): 111
 Positive temperature warmest 3 months.....(Tps): 733
 Positive temperature warmest 2 months.....(Tps2): 492
 Positive temperature warmest 1 month.....(Tps1): 247
 Positive temperature coldest 3 months.....(Tpw): 336
 Positive temperature coldest 2 months.....(Tpw2): 214
 Positive temperature coldest 1 month.....(Tpw1): 103

KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

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	

KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.66
 Mediterranean index of July.[PE/P].....(Im1): 0.37
 Mediterranean index of July & August.....(Im2): 0.37
 Mediterranean index of June, July & August....(Im3): 0.41

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	25	152	406	229	584	1219	2464	3734	3455	1549	381	76
Tp	111	103	122	161	203	225	244	247	242	236	200	153
Io (Iom)	0.23	1.48	3.32	1.42	2.88	5.42	10.1	15.1	14.3	6.56	1.91	0.50
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	583 / 336			2032 / 589			9653 / 733			2006 / 589		
Io (Iot)	1.735			3.451			13.16			3.406		
Semesters	December-May						June-November					
Pp(x10)/Tp	2615 / 925						11659 / 1322					
Io (Iosm)	2.827						8.817					

KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 14274/2247=6.35 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	25	152	406	229	584	1219	2464	3734	3455	1549	381	76
TP [T*10]	111	103	122	161	203	225	244	247	242	236	200	153
Iom [Pp/TP]	23	148	332	142	288	542	\$\$	\$\$	\$\$	656	191	50
Avm [200-Iom]	177	52	***	58	***	***	***	***	***	***	10	150
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	583 / 336			2032 / 589			9653 / 733			2006 / 589		
Iot [Pp/TP]	174			345			1316			341		
Avs E[Avm<200]	***			***			***			***		
Lower hyperarid [1]							Strong lower arid [1]					
Weak lower semiarid [2]							Weak upper semiarid [1]					

KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 14.46
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 32.48
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 26.20
 + Oceanic (20<CI<40)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 1.41
 + Subcontinental (1.1<CI<1.7)
 Rainfall Index of Lang (1925) [R=P/T]: 76.22
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 49.69
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmmax²-Tmmin²)]: 165.63
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.31
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.52
 + Humid (I>0.65)
 Potencial Erosion I of Fournier (1960) [K=Pi²/P].....: 97.68
 + Moderate (90<K<120)

KATMANDU (NEPAL)

Latitude: 27°42'N Longitude: 85°22'E Altitude: 1348 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 5. Bixeric (Bixeric)
 + Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.07	0.19	0.09	0.23	0.49	1.02	1.60	1.49	0.62	0.14	0.03	0.01
T-E ratio	4.62	5.50	7.25	9.13	10.13	11.00	11.13	10.88	10.62	9.00	6.88	5.00
Precipitation-effectiveness: 59.76						Temperature-efficiency: 101.12						
Moisture Index [MI=100*(P-PE)/PE]: 52.22 + B2.Humid medium-humid (40<MI<60)												
Index of dryness [DI=100*d/PE]: 3.26 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]: 55.49 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 937.71 + Third mesothermic (855<PE<997)												

