Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

LODWAR (KENYA) Altitude: 506 m.

Latitude: 3°7'N Longitude: 35°37'E
Temperature observation period.: 1986-1994 (9)
Rainfall observation period....: 1964-1994 (31)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPi
Jan.	28.89	36.11	21.67	38.33	17.22	2.0	159.27
Feb.	29.73	36.67	22.78	39.44	17.22	5.1	151.67
Mar.	30.56	36.67	24.44	39.44	18.89	16.3	173.04
Apr.	29.45	35.00	23.89	40.00	17.22	41.1	160.70
May.	29.72	35.00	24.44	37.78	20.56	25.1	169.34
Jun.	29.17	34.44	23.89	37.22	21.11	8.6	160.01
Jul.	28.33	33.33	23.33	35.00	20.00	12.7	157.66
Aug.	27.50	33.33	21.67	37.78	19.44	8.1	149.25
Sep.	29.17	35.00	23.33	37.22	20.00	3.6	158.44
Oct.	29.73	35.56	23.89	38.33	19.44	6.9	167.81
Nov.	29.17	35.00	23.33	37.22	16.11	6.6	156.87
Dec.	28.89	35.00	22.78	37.22	16.11	8.6	159.27
Year	29.19	35.09	23.29	37.92	18.61	145	1923.3

BIOCLIMATIC INDICES AND DIAGNOSIS

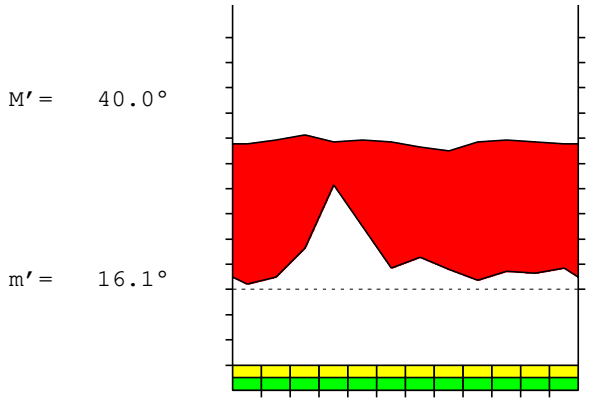
Thermicity index.....(It): 842
Compensated thermicity index.....(Itc): 842
Simple continentality index.....(Ic): 3.1
Diurnality index.....(Id): 14.4
Annual ombrothermic index.....(Io): 0.41
Monthly dry ombrothermic index.....(Iod1): 0.07
Bimonthly dry ombrothermic index.....(Iod2): 0.12
Threemonthly dry ombrothermic index.....(Iod3): 0.18
Fourmonthly dry ombrothermic index.....(Iod4): 0.19
Annual ombro-evaporation index.....(Ioe): 2.11
Annual positive temperature.....(Tp): 3503
Annual negative temperature.....(Tn): 0
Dry station temperature.....(Td): 875
Positive precipitation.....(Pp): 145

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	0	1	11	0

Latitudinal Belt...: Ecuatorial
Continentality.....: Hyperoceanic - Low Ultrahyperoceanic
Bioclimate(Variant): TROPICAL DESERTIC (ARID)
Bioclimatic Belt...: UPPER INFRATROPICAL LOW ARID

LODWAR (KENYA) 506 m

P=	145	3° 7'N		35° 37'E		9/31 y.	
T=	29.2°	Ic=	3.1	Tp=	3503	Tn=	0
m=	21.7°	M=	33.3°	Itc=	842	Io=	0.4



TROPICAL DESERTIC (ARID)
UPPER INFRATROPICAL LOW ARID

WATER INDEX CARD LODWAR (KENYA)
Altitude: 506 m. Latitude: 3° 7'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	28.9	159	2	0	0	2	157	0	0	-0.9
Feb.	29.7	152	5	0	0	5	147	0	0	-0.9
Mar.	30.6	173	16	0	0	16	157	0	0	-0.9
Apr.	29.5	161	41	0	0	41	120	0	0	-0.7
May.	29.7	169	25	0	0	25	144	0	0	-0.8
Jun.	29.2	160	9	0	0	9	151	0	0	-0.9
Jul.	28.3	158	13	0	0	13	145	0	0	-0.9
Aug.	27.5	149	8	0	0	8	141	0	0	-0.9
Sep.	29.2	158	4	0	0	4	155	0	0	-0.9
Oct.	29.7	168	7	0	0	7	161	0	0	-0.9
Nov.	29.2	157	7	0	0	7	150	0	0	-0.9
Dec.	28.9	159	9	0	0	9	151	0	0	-0.9
Year	29.2	1923	145	*	*	145	1779	0	0	*

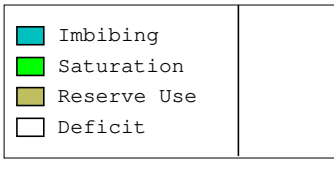
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
DR = Drainage HC = Humidity coeficient DF = Deficit SP = Superavit

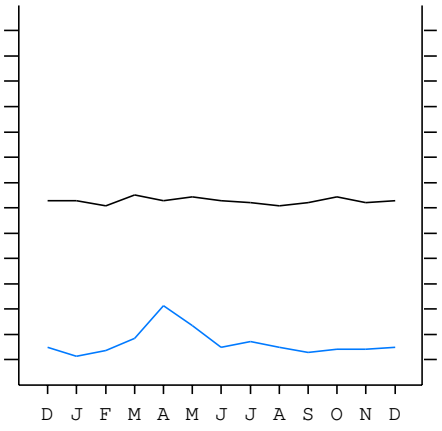
LODWAR (KENYA)

3°7'N 35°37'E 506 m 9/31 y.

T=	29.2	Ic=	3.1
m=	21.7	Tp=	3503
M=	33.3	Tn=	0
M'=	40.0	Itc=	842
m'=	16.1	Io=	0.4
P=	145	mm	
PE=	1923	mm	

TROPICAL DESERTIC (ARID)
UPPER INFRATROPICAL
LOW ARID





All over the year,
there is hydric deficit

LODWAR (KENYA)

Latitude: 3°7'N Longitude: 35°37'E Altitude: 506 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [A1b]
- + Type .....: A. Hyperoceanic
- + Subtype .....: 1. Ultrahyperoceanic
- + Variant .....: b. Low

Thermic types [A1.A1]
- + Latitudinal zone ....: A. Warm
- + Latitudinal belt ....: 1. Ecuatorial
- + Thermic type .....: A. Warm
- + Thermic subtype .....: 1. Torrid

Bioclimatic types [A2.1a.3b]
- + Macrobioclimate .....: A. TROPICAL
- + Bioclimate .....: 2. DESERTIC
- + Bioclimatic variant .:
- + Thermic type.....: 1. INFRATROPICAL
- + Thermic subtype.....: a. UPPER
- + Ombrothermic type ...: 3. ARID
- + Ombrothermic subtype : b. LOW

Bioclimatic Classification .....: Trps.Itr.Ari

LODWAR (KENYA)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 98
Coldest semester of the year.....(Psw): 47
Warmest four months period of the year.....(Pcm1): 88
Following warmest four months period.....(Pcm2): 33
Positive precipitation dryest 3 months.....(Ppd): 16
Positive precipitation dryest 2 months.....(Ppd2): 7
Positive precipitation dryest 1 month.....(Ppd1): 2
Positive precipitation warmest 3 months.....(Pps): 62
Positive precipitation warmest 2 months.....(Pps2): 21
Positive precipitation warmest 1 month.....(Pps1): 16
Positive precipitation coldest 3 months.....(Ppw): 29
Positive precipitation coldest 2 months.....(Ppw2): 21
Positive precipitation coldest 1 month.....(Ppw1): 8

Seasons	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4
Rainfall	15	82	29	17

Tropical rainfall rhythms: 2 > 3 > 4 > 1

LODWAR (KENYA)

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 30.6
Average coldest month [T].....(Tmin): 27.5
Maximum temp. warmest month [M].....(Tmmax): 36.7
Minimum temp. coldest month [m].....(Tmmin): 21.7
Absolute Max.temp. warmest month [M'].....(Tamax): 40.0
Absolute Min.temp. coldest month [m'].....(Tamin): 16.1
First warmest contrasted month [M].....(Tcmax): 36.1 (1)
First coldest contrasted month [m].....(Tcmin): 21.7 (1)
Dry station temperature.....(Td): 875
Positive temperature dryest 3 months.....(Tpd): 875
Positive temperature dryest 2 months.....(Tpd2): 586
Positive temperature dryest 1 month.....(Tpd1): 289
Positive temperature warmest 3 months.....(Tps): 897
Positive temperature warmest 2 months.....(Tps2): 603
Positive temperature warmest 1 month.....(Tps1): 306
Positive temperature coldest 3 months.....(Tpw): 850
Positive temperature coldest 2 months.....(Tpw2): 558
Positive temperature coldest 1 month.....(Tpw1): 275

LODWAR (KENYA)

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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

LODWAR (KENYA)

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 13.29
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)	86	20	51	163	411	251	86	127	81	36	69	66
Tp	289	289	297	306	295	297	292	283	275	292	297	292
Io (Iom)	0.30	0.07	0.17	0.53	1.40	0.84	0.29	0.45	0.29	0.12	0.23	0.23
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	157 / 875			825 / 897			294 / 850			171 / 881		
Io (Iot)	0.179			0.919			0.346			0.194		
Semesters	December-May						June-November					
Pp(x10)/Tp	982 / 1772						465 / 1731					
Io (Iosm)	0.554						0.269					

LODWAR (KENYA)

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 1447/3503=0.41 Strong lower arid (5) [1907]

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	86	20	51	163	411	251	86	127	81	36	69	66
Tp [T*10]	289	289	297	306	295	297	292	283	275	292	297	292
Iom [Pp/Tp]	30	7	17	53	140	84	29	45	29	12	23	23
Avm [200-Iom]	170	193	183	147	60	116	171	155	171	188	177	177
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	157 / 875			825 / 897			294 / 850			171 / 881		
Iot [Pp/Tp]	18			92			35			19		
Avs E[Avm<200]	546			323			496			542		

Lower ultrahyperarid [1]	Upper ultrahyperarid [4]
Lower hyperarid [5]	Upper hyperarid [1]
Strong lower arid [1]	Weak lower arid [1]
Weak upper arid [2]	Weak lower semiarid [1]

LODWAR (KENYA)

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 3.06
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....: 75.28
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....: 8.92
  + Hyperoceanic (-20<CI<20)
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 1.50
  + Subcontinental (1.1<CI<1.7)
Rainfall Index of Lang (1925) [R=P/T] .....: 4.96
  + Steppic (40>R>0)
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 3.69
  + Extremely arid -desert- (5>Ia>0)
I of Emberger (1930) [Q=100*P/(Tmmax²-Tmmin²)] .....: 16.54
  + Arid (30>Q>0)
I of Dantin & Revenga (1940) [DR=100*T/P] .....: 20.17
  + Extremely arid (DR>6)
Aridity Index of UNEP [I=P/PE] .....: 0.08
  + Arid (0.2>Im>0.05)
Potencial Erosion I of Fournier (1960) [K=Pi²/P].....: 11.67
  + Very low (K<60)

LODWAR (KENYA)

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BIOCLIMATIC INDICES II

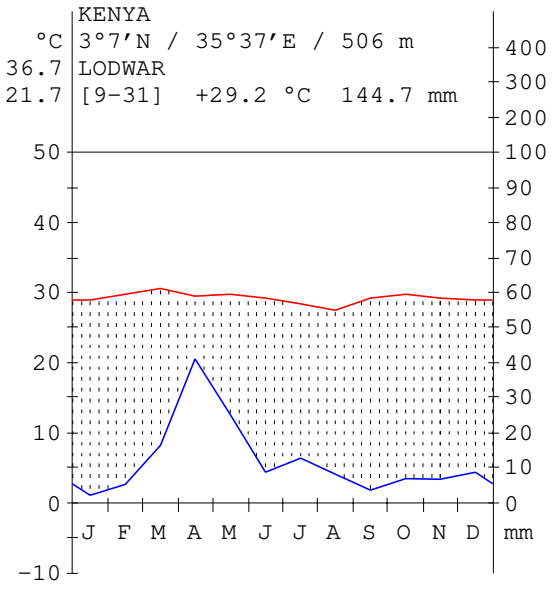
Bioclimatic classification of Gaussen & Bagnouls (1957)
  + Climate ....: A. Warm and temperate warm
  + Region .....: 1. Termoeremic (Desertic warm)
  + Thermic type: 1. Megathermic

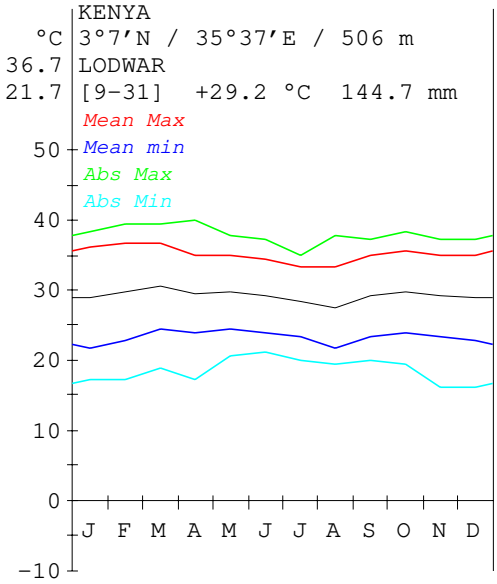
Thornthwaite (1948)

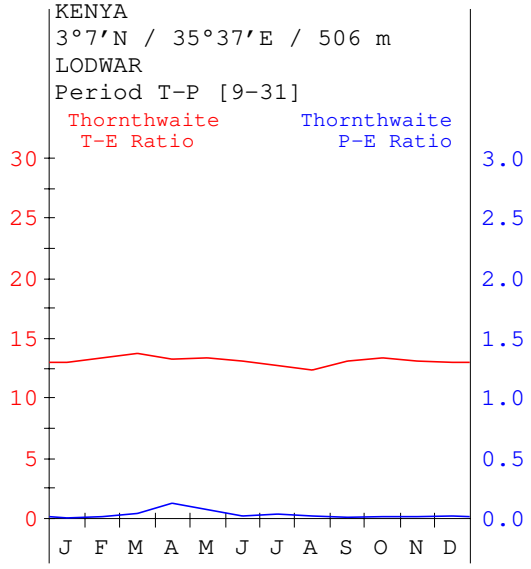
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.00	0.01	0.04	0.12	0.07	0.02	0.03	0.02	0.01	0.02	0.02	0.02
T-E ratio	13.00	13.38	13.75	13.25	13.37	13.13	12.75	12.38	13.13	13.38	13.13	13.00

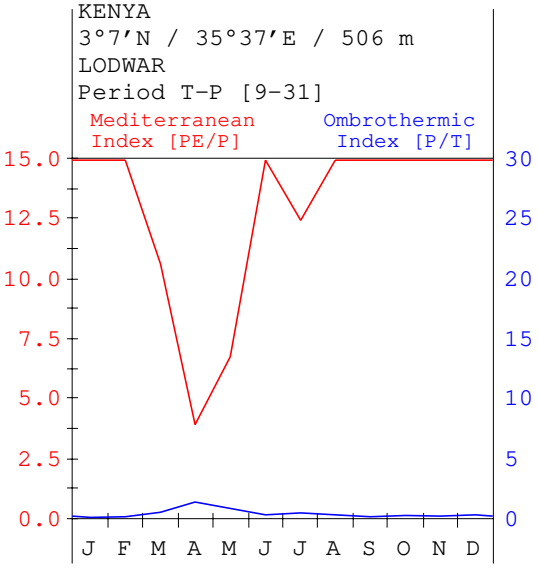
Precipitation-effectiveness: 3.98 Temperature-efficiency ....: 157.64

Moisture Index [MI=100*(P-PE)/PE] .....: -92.48
  + E.Dry (-110<MI<-66.7)
Index of dryness [DI=100*d/PE] .....: 92.48
  + Strong deficit (33.3<DI)
Index of humidity [HI=100*s/PE] .....: 0.00
  + No surplus (0<HI<10)
Potential Evapotranspiration PE .....: 1923.31
  + Megathermic (PE>1440)




KENYA
°C 3°7'N / 35°37'E / 506 m
36.7 LODWAR
21.7 [9-31] +29.2 °C 144.7 mm
Mean Max
Mean min
Abs Max
Abs Min
50
40
30
20
10
0
-10
J F M A M J J A S O N D


KENYA
3°7'N / 35°37'E / 506 m
LODWAR
Period T-P [9-31]
Thornthwaite T-E Ratio
Thornthwaite P-E Ratio
30
25
20
15
10
5
0
3.0
2.5
2.0
1.5
1.0
0.5
0.0
J F M A M J J A S O N D


KENYA
3°7'N / 35°37'E / 506 m
LODWAR
Period T-P [9-31]
Mediterranean Index [PE/P]
Ombrothermic Index [P/T]
15.0
12.5
10.0
7.5
5.0
2.5
0.0
30
25
20
15
10
5
0
J F M A M J J A S O N D