

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

TINDOUF (ALGERIA)

Altitude: 600 m.

Latitude: 27°43'N Longitude: 8°8'E

Temperature observation period.: 1970-1980 (11)

Rainfall observation period....: 1948-1980 (33)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPi
Jan.	15.20	21.70	5.00	29.40	1.10	0.0	19.20
Feb.	17.00	25.60	6.70	31.70	1.70	0.0	26.98
Mar.	20.60	28.30	11.70	38.90	4.40	6.0	59.98
Apr.	24.10	32.20	12.80	40.60	8.90	0.0	105.21
May.	27.80	34.40	15.60	42.80	9.40	0.0	170.71
Jun.	29.70	38.30	17.20	47.80	12.20	0.0	186.89
Jul.	35.80	45.00	25.00	50.00	16.10	1.0	247.72
Aug.	35.70	43.90	25.60	49.40	12.80	11.0	236.32
Sep.	31.00	38.90	22.20	46.70	13.30	7.0	176.66
Oct.	25.80	31.10	14.40	42.20	10.00	4.0	120.99
Nov.	19.40	26.10	11.10	36.10	3.30	1.0	42.89
Dec.	15.60	21.70	5.60	28.30	1.70	3.0	20.71
Year	24.81	32.27	14.41	40.33	7.91	33	1414.3

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	515
Compensated thermicity index.....(Itc):	528
Simple continentality index.....(Ic):	20.6
Diurnality index.....(Id):	21.1
Annual ombrothermic index.....(Io):	0.11
Monthly dry ombrothermic index.....(Iod1):	No
Bimonthly dry ombrothermic index.....(Iod2):	No
Three monthly dry ombrothermic index.....(Iod3):	No
Four monthly dry ombrothermic index.....(Iod4):	0.06
Annual ombro-evaporation index.....(Ioe):	2.30
Annual positive temperature.....(Tp):	2977
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	816
Positive precipitation.....(Pp):	33

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

Latitudinal Belt...: Subtropical

Continentalty.....: Oceanic - High Semicontinental

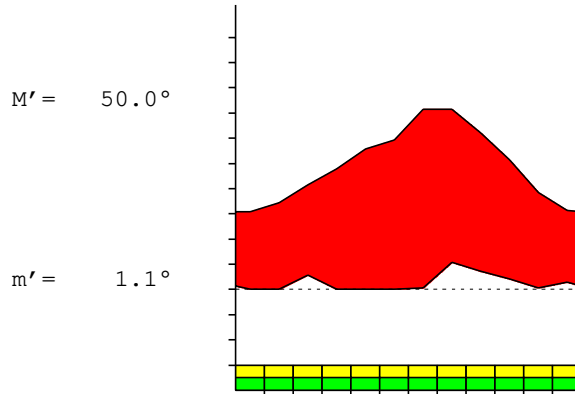
Bioclimate(Variant): TROPICAL HYPERDESERTIC (MODERATE)

Bioclimatic Belt...: UPPER THERMOTROPICAL UPPER ULTRAHYPERARID

TINDOUF (ALGERIA)

600 m

P= 33 27° 43'N 8° 8'E 11/33 y.  
 T= 24.8° Ic= 20.6 Tp= 2977 Tn= 0  
 m= 5.0° M= 21.7° Itc= 528 Io= 0.1



TROPICAL HYPERDESERTIC (MODERATE)  
 UPPER THERMOTROPICAL UPPER ULTRAHYPERARID

WATER INDEX CARD TINDOUF (ALGERIA)  
 Altitude: 600 m. Latitude: 27° 43'N

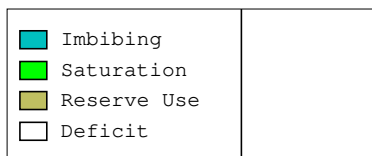
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	15.2	19	0	0	0	0	19	0	0	-1.0
Feb.	17.0	27	0	0	0	0	27	0	0	-1.0
Mar.	20.6	60	6	0	0	6	54	0	0	-0.8
Apr.	24.1	105	0	0	0	0	105	0	0	-1.0
May.	27.8	171	0	0	0	0	171	0	0	-1.0
Jun.	29.7	187	0	0	0	0	187	0	0	-1.0
Jul.	35.8	248	1	0	0	1	247	0	0	-0.9
Aug.	35.7	236	11	0	0	11	225	0	0	-0.9
Sep.	31.0	177	7	0	0	7	170	0	0	-0.9
Oct.	25.8	121	4	0	0	4	117	0	0	-0.9
Nov.	19.4	43	1	0	0	1	42	0	0	-0.9
Dec.	15.6	21	3	0	0	3	18	0	0	-0.8
Year	24.8	1414	33	*	*	33	1381	0	0	*

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

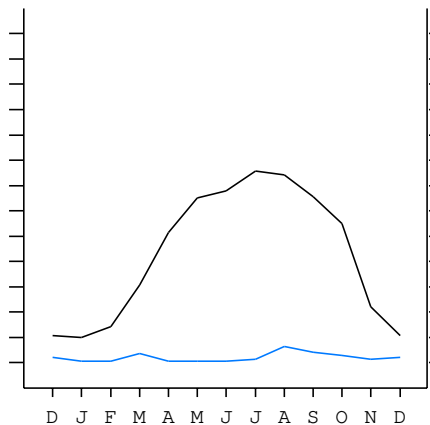
TINDOUF (ALGERIA)

27°43'N 8°8'E 600 m 11/33 y.

T= 24.8 Ic= 20.6 TROPICAL HYPERDESERTIC (MODERATE)  
 m= 5.0 Tp= 2977 UPPER THERMOTROPICAL  
 M= 21.7 Tn= 0 UPPER ULTRAHYPERARID  
 M' = 50.0 Itc= 528  
 m' = 1.1 Io= 0.1  
 P= 33 mm ———  
 PE= 1414 mm ———



All over the year,  
 there is hydric deficit



TINDOUF (ALGERIA)

Latitude: 27°43'N Longitude: 8°8'E Altitude: 600 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 1. Semicontinental  
 + Variant .....: b. High

Thermic types [A3.A1]  
 + Latitudinal zone .....: A. Warm  
 + Latitudinal belt .....: 3. Subtropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 1. Torrid

Bioclimatic types [A1.2a.1a]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 1. HYPERDESERTIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 2. THERMOTROPICAL  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 1. ULTRAHYPERARID  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....: Trpl.Ttr.Uha

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 23  
 Coldest semester of the year.....(Psw): 10  
 Warmest four months period of the year.....(Pcm1): 19  
 Following warmest four months period.....(Pcm2): 8  
 Positive precipitation dryest 3 months.....(Ppd): 0  
 Positive precipitation dryest 2 months.....(Ppd2): 0  
 Positive precipitation dryest 1 month.....(Ppd1): 0  
 Positive precipitation warmest 3 months.....(Pps): 19  
 Positive precipitation warmest 2 months.....(Pps2): 12  
 Positive precipitation warmest 1 month.....(Pps1): 1  
 Positive precipitation coldest 3 months.....(Ppw): 3  
 Positive precipitation coldest 2 months.....(Ppw2): 3  
 Positive precipitation coldest 1 month.....(Ppw1): 0

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	3	6	12	12

Seasonal rainfall rhythms: S > F > P > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 35.8  
 Average coldest month [T].....(Tmin): 15.2  
 Maximum temp. warmest month [M].....(Tmmax): 45.0  
 Minimum temp. coldest month [m].....(Tmmin): 5.0  
 Absolute Max.temp. warmest month [M'].....(Tamax): 50.0  
 Absolute Min.temp. coldest month [m'].....(Tamin): 1.1  
 First warmest contrasted month [M].....(Tcmax): 38.3 (6)  
 First coldest contrasted month [m].....(Tcmin): 17.2 (6)  
 Dry station temperature.....(Td): 816  
 Positive temperature dryest 3 months.....(Tpd): 816  
 Positive temperature dryest 2 months.....(Tpd2): 322  
 Positive temperature dryest 1 month.....(Tpd1): 152  
 Positive temperature warmest 3 months.....(Tps): 1025  
 Positive temperature warmest 2 months.....(Tps2): 715  
 Positive temperature warmest 1 month.....(Tps1): 358  
 Positive temperature coldest 3 months.....(Tpw): 478  
 Positive temperature coldest 2 months.....(Tpw2): 308  
 Positive temperature coldest 1 month.....(Tpw1): 152

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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): 42.86  
 Mediterranean index of July.[PE/P].....(Im1): 247.72  
 Mediterranean index of July & August.....(Im2): 40.34  
 Mediterranean index of June, July & August....(Im3): 55.91

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	30	0	0	60	0	0	0	10	110	70	40	10
Tp	156	152	170	206	241	278	297	358	357	310	258	194
Io (Iom)	0.19	0.00	0.00	0.29	0.00	0.00	0.00	0.03	0.31	0.23	0.16	0.05
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	30 / 478			60 / 725			120 / 1012			120 / 762		
Io (Iot)	0.063			0.083			0.119			0.157		
Semesters	December-May						June-November					
Pp(x10)/Tp	90 / 1203						240 / 1774					
Io (Iosm)	0.075						0.135					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 330/2977=0.11 [Upper ultrahyperarid \(2\) \[2275\]](#)

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	30	0	0	60	0	0	0	10	110	70	40	10
Tp [T*10]	156	152	170	206	241	278	297	358	357	310	258	194
Iom [Pp/Tp]	19	0	0	29	0	0	0	3	31	23	16	5
Avm [200-Iom]	181	200	200	171	200	200	200	197	169	177	184	195
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	30 / 478			60 / 725			120 / 1012			120 / 762		
Iot [Pp/Tp]	6			8			12			16		
Avs E[Avm<200]	581			571			566			557		
Lower ultrahyperarid [9]						Upper ultrahyperarid [4]						
Lower hyperarid [2]						Upper hyperarid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp):	20.60
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....		54.90
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....		43.24
+ Subcontinental (40<CI<60)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....		2.01
+ Continental (1.7<CI<2.3)		
Rainfall Index of Lang (1925) [R=P/T] .....		1.33
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....		0.95
+ Extremely arid -desert- (5>Ia>0)		
I of Emberger (1930) [Q=100*P/(Tmmax <sup>2</sup> -Tmmin <sup>2</sup> )] .....		1.65
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P] .....		75.18
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE] .....		0.02
+ Hyperarid (0.05>Im)		
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....		3.67
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)

- + Climate .....
- + Region .....
- + Thermic type: 1. Megathermic

Thornthwaite (1948)

	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
P-E ratio	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.00	0.01	
T-E ratio	6.84	7.65	9.27	10.85	12.51	13.37	16.11	16.07	13.95	11.61	8.73	7.02	
Precipitation-effectiveness:	0.84						Temperature-efficiency .....						133.96
Moisture Index [MI=100*(P-PE)/PE] .....	-97.67												
+ E.Dry (-110<MI<-66.7)													
Index of dryness [DI=100*d/PE] .....	97.66												
+ Strong deficit (33.3<DI)													
Index of humidity [HI=100*s/PE] .....	0.00												
+ No surplus (0<HI<10)													
Potential Evapotranspiration PE .....	1414.29												
+ Forth mesothermic (997<PE<1440)													

