

# 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: 443 m.

Latitude: 27°42'N Longitude: 8°10'W

Temperature observation period.: 1984-1994 (11)

Rainfall observation period....: 1979-1994 (16)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	13.34	21.67	5.00	29.44	-3.89	1.3	16.45
Feb.	16.11	25.56	6.67	32.22	-1.11	1.3	27.68
Mar.	20.00	28.33	11.67	38.89	2.78	5.1	61.17
Apr.	22.50	32.22	12.78	40.56	7.22	1.3	89.82
May.	25.00	34.44	15.56	42.78	7.78	1.3	133.86
Jun.	27.78	38.33	17.22	51.11	7.22	1.3	169.07
Jul.	35.00	45.00	25.00	57.22	16.11	1.3	240.17
Aug.	34.73	43.89	25.56	49.44	12.78	10.2	227.55
Sep.	30.28	38.33	22.22	46.67	13.33	7.6	170.73
Oct.	22.78	31.11	14.44	42.22	8.33	2.5	85.31
Nov.	18.61	26.11	11.11	36.11	1.67	1.3	43.26
Dec.	13.62	21.67	5.56	28.33	0.56	2.5	17.29
Year	23.31	32.22	14.40	41.25	6.07	37	1282.4

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	500
Compensated thermicity index.....(Itc):	525
Simple continentality index.....(Ic):	21.7
Diurnality index.....(Id):	21.1
Annual ombrothermic index.....(Io):	0.13
Monthly dry ombrothermic index.....(Iod1):	0.06
Bimonthly dry ombrothermic index.....(Iod2):	0.05
Three monthly dry ombrothermic index.....(Iod3):	0.05
Four monthly dry ombrothermic index.....(Iod4):	0.09
Annual ombro-evaporation index.....(Ioe):	1.89
Annual positive temperature.....(Tp):	2798
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	753
Positive precipitation.....(Pp):	37

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

Latitudinal Belt...: Subtropical

Continentalty.....: Continental - Low Subcontinental

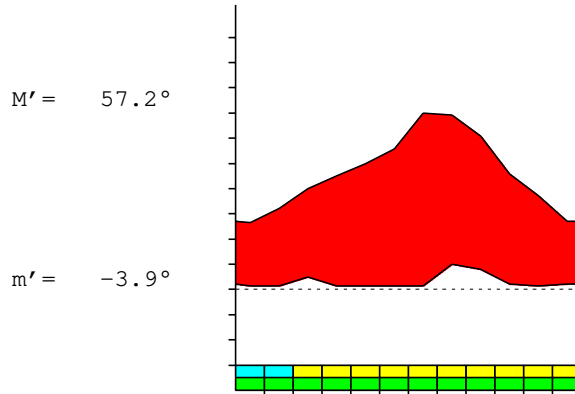
Bioclimate(Variant): TROPICAL HYPERDESERTIC (MODERATE)

Bioclimatic Belt...: LOW THERMOTROPICAL UPPER ULTRAHYPERARID

TINDOUF (ALGERIA)

443 m

P= 37 27° 42'N 8° 10'W 11/16 y.  
 T= 23.3° Ic= 21.7 Tp= 2798 Tn= 0  
 m= 5.0° M= 21.7° Itc= 525 Io= 0.1



TROPICAL HYPERDESERTIC (MODERATE)  
 LOW THERMOTROPICAL UPPER ULTRAHYPERARID

WATER INDEX CARD TINDOUF (ALGERIA)  
 Altitude: 443 m. Latitude: 27° 42'N

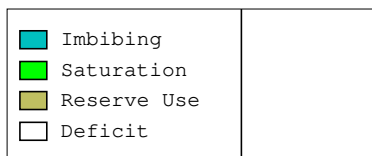
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	13.3	16	1	0	0	1	15	0	0	-0.9
Feb.	16.1	28	1	0	0	1	26	0	0	-0.9
Mar.	20.0	61	5	0	0	5	56	0	0	-0.9
Apr.	22.5	90	1	0	0	1	89	0	0	-0.9
May.	25.0	134	1	0	0	1	133	0	0	-0.9
Jun.	27.8	169	1	0	0	1	168	0	0	-0.9
Jul.	35.0	240	1	0	0	1	239	0	0	-0.9
Aug.	34.7	228	10	0	0	10	217	0	0	-0.9
Sep.	30.3	171	8	0	0	8	163	0	0	-0.9
Oct.	22.8	85	3	0	0	3	83	0	0	-0.9
Nov.	18.6	43	1	0	0	1	42	0	0	-0.9
Dec.	13.6	17	3	0	0	3	15	0	0	-0.8
Year	23.3	1282	37	*	*	37	1245	0	0	*

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

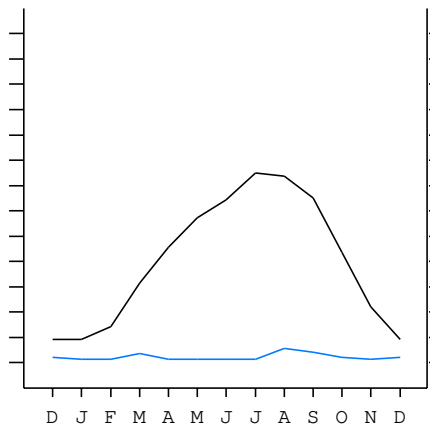
TINDOUF (ALGERIA)

27°42'N 8°10'W 443 m 11/16 y.

T= 23.3 Ic= 21.7 TROPICAL HYPERDESERTIC (MODERATE)  
 m= 5.0 Tp= 2798 LOW THERMOTROPICAL  
 M= 21.7 Tn= 0 UPPER ULTRAHYPERARID  
 M' = 57.2 Itc= 525  
 m' = -3.9 Io= 0.1  
 P= 37 mm  
 PE= 1282 mm



All over the year,  
 there is hydric deficit



TINDOUF (ALGERIA)

Latitude: 27°42'N Longitude: 8°10'W Altitude: 443 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

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

Thermic types [A3.A2]  
 + Latitudinal zone .....: A. Warm  
 + Latitudinal belt .....: 3. Subtropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 2. Warm

Bioclimatic types [A1.2b.1a]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 1. HYPERDESERTIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 2. THERMOTROPICAL  
 + Thermic subtype.....: b. LOW  
 + 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): 24  
 Coldest semester of the year.....(Psw): 13  
 Warmest four months period of the year.....(Pcm1): 20  
 Following warmest four months period.....(Pcm2): 8  
 Positive precipitation dryest 3 months.....(Ppd): 4  
 Positive precipitation dryest 2 months.....(Ppd2): 3  
 Positive precipitation dryest 1 month.....(Ppd1): 1  
 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): 5  
 Positive precipitation coldest 2 months.....(Ppw2): 4  
 Positive precipitation coldest 1 month.....(Ppw1): 1

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	5	7	12	11

Seasonal rainfall rhythms: S > F > P > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 35.0  
 Average coldest month [T].....(Tmin): 13.3  
 Maximum temp. warmest month [M].....(Tmmax): 45.0  
 Minimum temp. coldest month [m].....(Tmmin): 5.0  
 Absolute Max.temp. warmest month [M'].....(Tamax): 57.2  
 Absolute Min.temp. coldest month [m'].....(Tamin): -3.9  
 First warmest contrasted month [M].....(Tcmax): 38.3 (6)  
 First coldest contrasted month [m].....(Tcmin): 17.2 (6)  
 Dry station temperature.....(Td): 753  
 Positive temperature dryest 3 months.....(Tpd): 753  
 Positive temperature dryest 2 months.....(Tpd2): 295  
 Positive temperature dryest 1 month.....(Tpd1): 133  
 Positive temperature warmest 3 months.....(Tps): 1000  
 Positive temperature warmest 2 months.....(Tps2): 697  
 Positive temperature warmest 1 month.....(Tps1): 350  
 Positive temperature coldest 3 months.....(Tpw): 431  
 Positive temperature coldest 2 months.....(Tpw2): 270  
 Positive temperature coldest 1 month.....(Tpw1): 133

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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										
Agelid.....[m' > 0] (Pf)			o	o	o	o	o	o	o	o	o	o
HiperAgelid..[all>0] (Pf)			o	o	o	o	o	o	o	o	o	o

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 34.66  
 Mediterranean index of July.[PE/P].....(Im1): 184.74  
 Mediterranean index of July & August.....(Im2): 40.67  
 Mediterranean index of June, July & August....(Im3): 49.75

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	25	13	13	51	13	13	13	13	102	76	25	13
Tp	136	133	161	200	225	250	278	350	347	303	228	186
Io (Iom)	0.18	0.10	0.08	0.26	0.06	0.05	0.05	0.04	0.29	0.25	0.11	0.07
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	51 / 431			77 / 675			128 / 975			114 / 717		
Io (Iot)	0.118			0.114			0.131			0.159		
Semesters	December-May						June-November					
Pp(x10)/Tp	128 / 1106						242 / 1692					
Io (Iosm)	0.116						0.143					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 370/2798=0.13 [Upper ultrahyperarid \(2\) \[2247\]](#)

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	25	13	13	51	13	13	13	13	102	76	25	13
Tp [T*10]	136	133	161	200	225	250	278	350	347	303	228	186
Iom [Pp/Tp]	18	10	8	26	6	5	5	4	29	25	11	7
Avm [200-Iom]	182	190	192	175	194	195	195	196	171	175	189	193
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	51 / 431			77 / 675			128 / 975			114 / 717		
Iot [Pp/Tp]	12			11			13			16		
Avs E[Avm<200]	564			564			562			557		
Lower ultrahyperarid [7]							Upper ultrahyperarid [6]					
Lower hyperarid [3]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp):	21.66
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....		58.81
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....		46.21
+ Subcontinental (40<CI<60)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....		2.12
+ Continental (1.7<CI<2.3)		
Rainfall Index of Lang (1925) [R=P/T] .....		1.59
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....		1.11
+ Extremely arid -desert- (5>Ia>0)		
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....		1.85
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P] .....		63.01
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE] .....		0.03
+ Hyperarid (0.05>Im)		
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....		2.81
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)

- + Climate .....
- + Region .....
- + Thermic type: 2. Macrothermic

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	0.02	0.02	0.01	0.00	0.01	
T-E ratio	6.00	7.25	9.00	10.13	11.25	12.50	15.75	15.63	13.63	10.25	8.37	6.13	
Precipitation-effectiveness:	0.95						Temperature-efficiency .....						125.89
Moisture Index [MI=100*(P-PE)/PE] .....	-97.11												
+ E.Dry (-110<MI<-66.7)													
Index of dryness [DI=100*d/PE] .....	97.11												
+ Strong deficit (33.3<DI)													
Index of humidity [HI=100*s/PE] .....	0.00												
+ No surplus (0<HI<10)													
Potential Evapotranspiration PE .....	1282.35												
+ Forth mesothermic (997<PE<1440)													

