

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

ADRAR (ALGERIA)

Altitude: 258 m.

Latitude: 27°52'N Longitude: 0°20'E

Temperature observation period.: 1965-1980 (16)

Rainfall observation period....: 1960-1980 (21)

| (C/mm) | Ti | Mi | mi | M'i | m'i | Pi | Epi |
|--------|-------|-------|-------|-------|-------|-----|--------|
| Jan. | 11.80 | 20.60 | 3.90 | 30.60 | -3.90 | 0.0 | 8.53 |
| Feb. | 14.70 | 23.30 | 6.70 | 35.00 | -1.70 | 1.0 | 17.03 |
| Mar. | 19.80 | 27.80 | 10.60 | 38.90 | 0.60 | 2.0 | 53.23 |
| Apr. | 23.80 | 33.30 | 15.60 | 43.90 | 7.20 | 0.0 | 101.45 |
| May. | 28.40 | 37.20 | 19.40 | 50.00 | 10.60 | 1.0 | 176.33 |
| Jun. | 33.60 | 43.30 | 25.60 | 48.90 | 18.30 | 0.0 | 223.10 |
| Jul. | 36.70 | 46.10 | 27.80 | 51.10 | 20.00 | 1.0 | 256.22 |
| Aug. | 35.40 | 44.40 | 26.70 | 50.00 | 18.30 | 1.0 | 233.61 |
| Sep. | 32.00 | 40.60 | 23.90 | 46.70 | 16.10 | 1.0 | 184.91 |
| Oct. | 25.20 | 33.30 | 17.20 | 43.30 | 16.10 | 5.0 | 112.19 |
| Nov. | 18.60 | 25.60 | 10.60 | 35.00 | 1.70 | 5.0 | 37.85 |
| Dec. | 13.00 | 20.60 | 5.60 | 30.60 | -2.80 | 1.0 | 11.62 |
| Year | 24.42 | 33.01 | 16.13 | 42.00 | 8.37 | 18 | 1416.1 |

BIOCLIMATIC INDICES AND DIAGNOSIS

| | |
|--------------------------------------------------|------|
| Thermicity index.....(It): | 489 |
| Compensated thermicity index.....(Itc): | 563 |
| Simple continentality index.....(Ic): | 24.9 |
| Diurnality index.....(Id): | 18.3 |
| Annual ombrothermic index.....(Io): | 0.06 |
| Monthly dry ombrothermic index.....(Iod1): | No |
| Bimonthly dry ombrothermic index.....(Iod2): | 0.02 |
| Three monthly dry ombrothermic index.....(Iod3): | 0.01 |
| Four monthly dry ombrothermic index.....(Iod4): | 0.03 |
| Annual ombro-evaporation index.....(Ioe): | 1.00 |
| Annual positive temperature.....(Tp): | 2930 |
| Annual negative temperature.....(Tn): | 0 |
| Dry station temperature.....(Td): | 858 |
| Positive precipitation.....(Pp): | 18 |

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

Latitudinal Belt...: Subtropical

Continentality.....: Continental - High Subcontinental

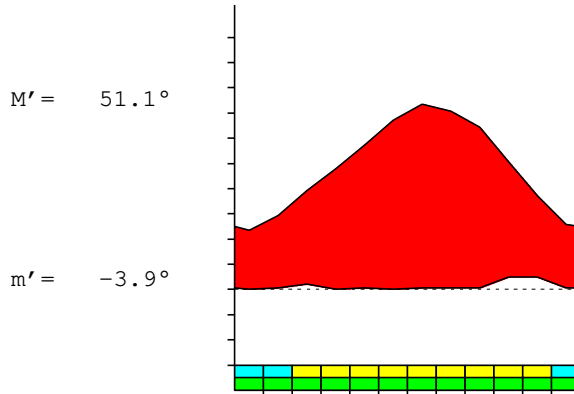
Bioclimate(Variant): TROPICAL HYPERDESERTIC (SEMITROPICAL)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW ULTRAHYPERARID

ADRAR (ALGERIA)

258 m

P= 18 27° 52'N 0° 20'E 16/21 y.
 T= 24.4° Ic= 24.9 Tp= 2930 Tn= 0
 m= 3.9° M= 20.6° Itc= 563 Io= 0.1



TROPICAL HYPERDESERTIC (SEMITROPICAL)
 UPPER INFRATROPICAL LOW ULTRAHYPERARID

WATER INDEX CARD ADRAR (ALGERIA)
 Altitude: 258 m. Latitude: 27° 52'N

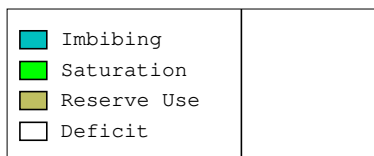
| (C/mm) | T | PE | P | VR | R | RE | DF | SP | DR | HC |
|--------|------|------|----|----|---|----|------|----|----|------|
| Jan. | 11.8 | 9 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | -1.0 |
| Feb. | 14.7 | 17 | 1 | 0 | 0 | 1 | 16 | 0 | 0 | -0.9 |
| Mar. | 19.8 | 53 | 2 | 0 | 0 | 2 | 51 | 0 | 0 | -0.9 |
| Apr. | 23.8 | 101 | 0 | 0 | 0 | 0 | 101 | 0 | 0 | -1.0 |
| May. | 28.4 | 176 | 1 | 0 | 0 | 1 | 175 | 0 | 0 | -0.9 |
| Jun. | 33.6 | 223 | 0 | 0 | 0 | 0 | 223 | 0 | 0 | -1.0 |
| Jul. | 36.7 | 256 | 1 | 0 | 0 | 1 | 255 | 0 | 0 | -0.9 |
| Aug. | 35.4 | 234 | 1 | 0 | 0 | 1 | 233 | 0 | 0 | -0.9 |
| Sep. | 32.0 | 185 | 1 | 0 | 0 | 1 | 184 | 0 | 0 | -0.9 |
| Oct. | 25.2 | 112 | 5 | 0 | 0 | 5 | 107 | 0 | 0 | -0.9 |
| Nov. | 18.6 | 38 | 5 | 0 | 0 | 5 | 33 | 0 | 0 | -0.8 |
| Dec. | 13.0 | 12 | 1 | 0 | 0 | 1 | 11 | 0 | 0 | -0.9 |
| Year | 24.4 | 1416 | 18 | * | * | 18 | 1398 | 0 | 0 | * |

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

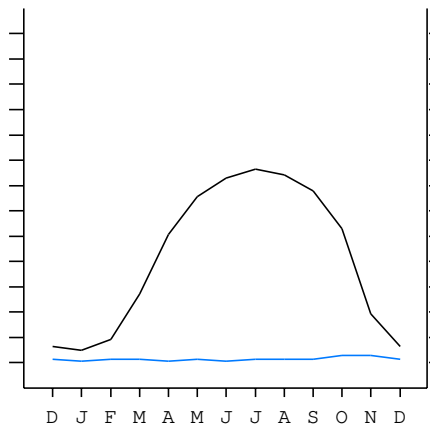
ADRAR (ALGERIA)

27°52'N 0°20'E 258 m 16/21 y.

T= 24.4 Ic= 24.9 TROPICAL HYPERDESERTIC (SEMITROPICAL)
 m= 3.9 Tp= 2930 UPPER INFRATROPICAL
 M= 20.6 Tn= 0 LOW ULTRAHYPERARID
 M' = 51.1 Itc= 563
 m' = -3.9 Io= 0.1
 P= 18 mm ———
 PE= 1416 mm ———



All over the year,
 there is hydric deficit



ADRAR (ALGERIA)

Latitude: 27°52'N Longitude: 0°20'E Altitude: 258 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [C2b]
 + Type: C. Continental
 + Subtype: 2. Subcontinental
 + 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 [A1.1a.1b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 1. HYPERDESERTIC
 + Bioclimatic variant .:
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 1. ULTRAHYPERARID
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification: Trpl.Itr.Uha

ADRAR (ALGERIA)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 9
 Coldest semester of the year.....(Psw): 9
 Warmest four months period of the year.....(Pcm1): 3
 Following warmest four months period.....(Pcm2): 11
 Positive precipitation dryest 3 months.....(Ppd): 1
 Positive precipitation dryest 2 months.....(Ppd2): 1
 Positive precipitation dryest 1 month.....(Ppd1): 0
 Positive precipitation warmest 3 months.....(Pps): 2
 Positive precipitation warmest 2 months.....(Pps2): 2
 Positive precipitation warmest 1 month.....(Pps1): 1
 Positive precipitation coldest 3 months.....(Ppw): 2
 Positive precipitation coldest 2 months.....(Ppw2): 1
 Positive precipitation coldest 1 month.....(Ppw1): 0

| Seasons | Winter Tr1-W | Spring Tr2-P | Summer Tr3-S | Automn Tr4-F |
|----------|-----------------|-----------------|-----------------|-----------------|
| Rainfall | 2 | 3 | 2 | 11 |

Seasonal rainfall rhythms: F > P > S > W

ADRAR (ALGERIA)

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 36.7
 Average coldest month [T].....(Tmin): 11.8
 Maximum temp. warmest month [M].....(Tmmax): 46.1
 Minimum temp. coldest month [m].....(Tmmin): 3.9
 Absolute Max.temp. warmest month [M'].....(Tamax): 51.1
 Absolute Min.temp. coldest month [m'].....(Tamin): -3.9
 First warmest contrasted month [M].....(Tcmax): 46.1 (7)
 First coldest contrasted month [m].....(Tcmin): 27.8 (7)
 Dry station temperature.....(Td): 858
 Positive temperature dryest 3 months.....(Tpd): 858
 Positive temperature dryest 2 months.....(Tpd2): 265
 Positive temperature dryest 1 month.....(Tpd1): 118
 Positive temperature warmest 3 months.....(Tps): 1057
 Positive temperature warmest 2 months.....(Tps2): 721
 Positive temperature warmest 1 month.....(Tps1): 367
 Positive temperature coldest 3 months.....(Tpw): 395
 Positive temperature coldest 2 months.....(Tpw2): 248
 Positive temperature coldest 1 month.....(Tpw1): 118

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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 | | | | | | | | | | 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 | |

ADRAR (ALGERIA)

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 78.67
 Mediterranean index of July.[PE/P].....(Im1): 256.22
 Mediterranean index of July & August.....(Im2): 244.92
 Mediterranean index of June, July & August....(Im3): 356.47

| Months | Dec. | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. |
|------------|--------------|------|------|----------|------|------|---------------|------|------|-----------|------|------|
| Pp(x10) | 10 | 0 | 10 | 20 | 0 | 10 | 0 | 10 | 10 | 10 | 50 | 50 |
| Tp | 130 | 118 | 147 | 198 | 238 | 284 | 336 | 367 | 354 | 320 | 252 | 186 |
| Io (Iom) | 0.08 | 0.00 | 0.07 | 0.10 | 0.00 | 0.04 | 0.00 | 0.03 | 0.03 | 0.03 | 0.20 | 0.27 |
| Seasons | Winter | | | Spring | | | Summer | | | Autumn | | |
| Pp(x10)/Tp | 20 / 395 | | | 30 / 720 | | | 20 / 1057 | | | 110 / 758 | | |
| Io (Iot) | 0.051 | | | 0.042 | | | 0.019 | | | 0.145 | | |
| Semesters | December-May | | | | | | June-November | | | | | |
| Pp(x10)/Tp | 50 / 1115 | | | | | | 130 / 1815 | | | | | |
| Io (Iosm) | 0.045 | | | | | | 0.072 | | | | | |

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 180/2930=0.06 Lower ultrahyperarid (1) [2316]

| Months | Dec. | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. |
|---------------------------|----------|------|------|----------|------|------|--------------------------|------|------|-----------|------|------|
| Pp [P*10] | 10 | 0 | 10 | 20 | 0 | 10 | 0 | 10 | 10 | 10 | 50 | 50 |
| Tp [T*10] | 130 | 118 | 147 | 198 | 238 | 284 | 336 | 367 | 354 | 320 | 252 | 186 |
| Iom [Pp/Tp] | 8 | 0 | 7 | 10 | 0 | 4 | 0 | 3 | 3 | 3 | 20 | 27 |
| Avm [200-Iom] | 192 | 200 | 193 | 190 | 200 | 196 | 200 | 197 | 197 | 197 | 180 | 173 |
| Seasons | Winter | | | Spring | | | Summer | | | Autumn | | |
| Pp / Tp | 20 / 395 | | | 30 / 720 | | | 20 / 1057 | | | 110 / 758 | | |
| Iot [Pp/Tp] | 5 | | | 4 | | | 2 | | | 15 | | |
| Avs E[Avm<200] | 586 | | | 586 | | | 594 | | | 550 | | |
| Lower ultrahyperarid [12] | | | | | | | Upper ultrahyperarid [3] | | | | | |
| Lower hyperarid [1] | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 24.90
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 70.16
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 54.96
 + Subcontinental (40<CI<60)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 2.42
 + Hypercontinental (2.3<CI<5)
 Rainfall Index of Lang (1925) [R=P/T]: 0.74
 + Steppic (40>R>0)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 0.52
 + Extremely arid -desert- (5>Ia>0)
 I of Emberger (1930) [Q=100*P/(Tmmax²-Tmmin²)]: 0.85
 + Arid (30>Q>0)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 135.65
 + Extremely arid (DR>6)
 Aridity Index of UNEP [I=P/PE]: 0.01
 + Hyperarid (0.05>Im)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 1.39
 + Very low (K<60)

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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 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.00 |
| T-E ratio | 5.31 | 6.61 | 8.91 | 10.71 | 12.78 | 15.12 | 16.52 | 15.93 | 14.40 | 11.34 | 8.37 | 5.85 |
| Precipitation-effectiveness: 0.47 | | | | | | Temperature-efficiency: 131.85 | | | | | | |
| Moisture Index [MI=100*(P-PE)/PE]: -98.73 + E.Dry (-110<MI<-66.7) | | | | | | | | | | | | |
| Index of dryness [DI=100*d/PE]: 98.72 + Strong deficit (33.3<DI) | | | | | | | | | | | | |
| Index of humidity [HI=100*s/PE]: 0.00 + No surplus (0<HI<10) | | | | | | | | | | | | |
| Potential Evapotranspiration PE: 1416.07 + Forth mesothermic (997<PE<1440) | | | | | | | | | | | | |

