

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

LEKUNBERRI (ESP NAVARRA)

Altitude: 571 m.

Latitude: 43°0'N Longitude: 1°54'W

Temperature observation period.: 1938-1953 (16)

Rainfall observation period....: 1938-1953 (16)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	4.30	9.10	-0.40	17.40	-8.90	179.8	12.51
Feb.	5.20	10.10	0.20	18.80	-7.90	134.6	15.89
Mar.	8.70	14.50	2.80	22.60	-4.60	90.3	36.53
Apr.	10.50	16.50	4.60	25.30	-2.10	103.2	50.20
May.	12.60	18.30	6.90	28.60	-0.30	123.1	70.20
Jun.	15.90	22.00	9.80	30.90	3.50	78.6	94.14
Jul.	17.90	24.40	11.40	34.80	5.40	50.4	109.29
Aug.	18.20	24.50	11.90	33.70	6.10	60.2	103.70
Sep.	16.30	22.30	10.40	31.30	3.50	101.4	78.79
Oct.	12.70	18.20	7.20	25.70	-0.90	151.2	53.43
Nov.	8.30	13.20	3.50	20.30	-4.20	136.1	27.42
Dec.	5.10	9.10	1.00	15.90	-7.50	189.7	14.58
Year	11.31	16.85	5.78	25.44	-1.49	1399	666.69

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	200
Compensated thermicity index.....(Itc):	200
Simple continentality index.....(Ic):	13.9
Diurnality index.....(Id):	13.0
Annual ombrothermic index.....(Io):	10.31
Monthly estival ombrothermic index.....(Ios1):	2.82
Bimonthly estival ombrothermic index.....(Ios2):	3.06
Threemonthly estival ombrothermic index.....(Ios3):	3.64
Fourmonthly estival ombrothermic index.....(Ios4):	4.83
Annual ombro-evaporation index.....(Ioe):	0.68
Annual positive temperature.....(Tp):	1357
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	520
Positive precipitation.....(Pp):	1399

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	10	2	0	0	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Semihyperoceanic

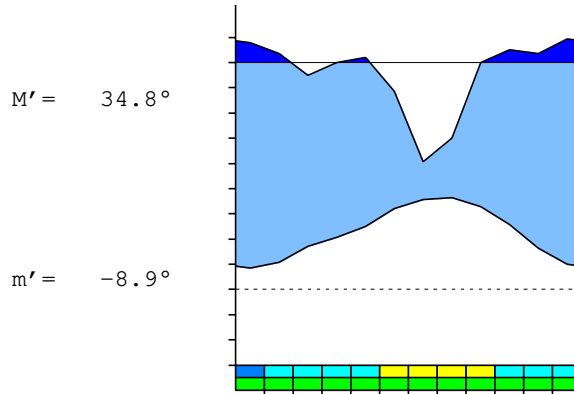
Bioclimate.....: TEMPERATE OCEANIC

Bioclimatic Belt...: UPPER MESOTEMPERATE UPPER HUMID

LEKUNBERRI (ESP NAVARRA)

571 m

P= 1399      43° 0'N      1° 54'W      16/16 y.  
 T= 11.3°      Ic= 13.9      Tp= 1357      Tn= 0  
 m= -0.4°      M= 9.1°      Itc= 200      Io= 10.3



TEMPERATE OCEANIC  
 UPPER MESOTEMPERATE UPPER HUMID

WATER INDEX CARD      LEKUNBERRI (ESP NAVARRA)

Altitude: 571 m.      Latitude: 43° 0'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	4.3	13	180	0	100	13	0	167	143	13.3
Feb.	5.2	16	135	0	100	16	0	119	131	7.4
Mar.	8.7	37	90	0	100	37	0	54	92	1.4
Apr.	10.5	50	103	0	100	50	0	53	73	1.0
May.	12.6	70	123	0	100	70	0	53	63	0.7
Jun.	15.9	94	79	-16	84	94	0	0	31	-0.1
Jul.	17.9	109	50	-59	26	109	0	0	16	-0.5
Aug.	18.2	104	60	-26	0	86	18	0	8	-0.4
Sep.	16.3	79	101	23	23	79	0	0	4	0.2
Oct.	12.7	53	151	77	100	53	0	20	12	1.8
Nov.	8.3	27	136	0	100	27	0	109	60	3.9
Dec.	5.1	15	190	0	100	15	0	175	118	12.0
Year	11.3	667	1399	*	*	649	18	750	750	*

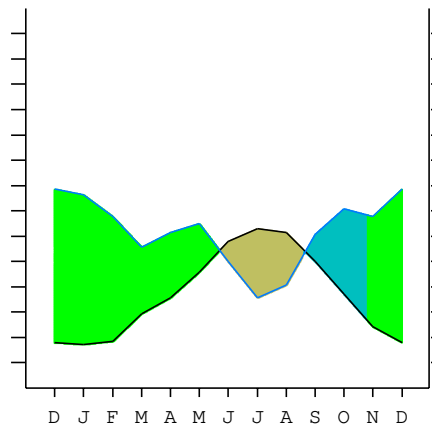
R = Reserve      VR = Variation of the reserve      RE = Real evapotranspiration  
 DR = Drainage      HC = Humidity coefficient      DF = Deficit      SP = Superavit

LEKUNBERRI (ESP NAVARRA)

43°0'N      1°54'W      571 m 16/16 y.

T= 11.3      Ic= 13.9      TEMPERATE OCEANIC  
 m= -0.4      Tp= 1357      UPPER MESOTEMPERATE  
 M= 9.1      Tn= 0      UPPER HUMID  
 M' = 34.8      Itc= 200  
 m' = -8.9      Io= 10.3  
 P= 1399      mm      ———  
 PE= 667      mm      ———

Imbibing	20 Aug.
Saturation	24 Oct.
Reserve Use	24 May.
Deficit	18 Aug.



LEKUNBERRI (ESP NAVARRA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [B1b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 1. Semihyperoceanic  
 + Variant .....: b. Low

Thermic types [B1.B4]  
 + Latitudinal zone ....: B. Temperate  
 + Latitudinal belt ....: 1. Low eutemperate  
 + Thermic type .....: B. Temperate  
 + Thermic subtype .....: 4. Temperate

Bioclimatic types [C3.3a.7a]  
 + Macrobioclimate .....: C. TEMPERATE  
 + Bioclimate .....: 3. OCEANIC  
 + Bioclimatic variant .:  
 + Thermic type.....: 3. MESOTEMPERATE  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 7. HUMID  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....: Teco.Mte.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 565  
 Coldest semester of the year.....(Psw): 834  
 Warmest four months period of the year.....(Pcm1): 291  
 Following warmest four months period.....(Pcm2): 657  
 Positive precipitation dryest 3 months.....(Ppd): 189  
 Positive precipitation dryest 2 months.....(Ppd2): 111  
 Positive precipitation dryest 1 month.....(Ppd1): 50  
 Positive precipitation warmest 3 months.....(Pps): 212  
 Positive precipitation warmest 2 months.....(Pps2): 111  
 Positive precipitation warmest 1 month.....(Pps1): 60  
 Positive precipitation coldest 3 months.....(Ppw): 504  
 Positive precipitation coldest 2 months.....(Ppw2): 370  
 Positive precipitation coldest 1 month.....(Ppw1): 180

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	504	316	189	388

Seasonal rainfall rhythms: W > F > P > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 18.2  
 Average coldest month [T].....(Tmin): 4.3  
 Maximum temp. warmest month [M].....(Tmmax): 24.5  
 Minimum temp. coldest month [m].....(Tmmin): -0.4  
 Absolute Max.temp. warmest month [M'].....(Tamax): 34.8  
 Absolute Min.temp. coldest month [m'].....(Tamin): -8.9  
 First warmest contrasted month [M].....(Tcmax): 24.4 (7)  
 First coldest contrasted month [m].....(Tcmin): 11.4 (7)  
 Estival temperature.....(Ts): 520  
 Positive temperature dryest 3 months.....(Tpd): 520  
 Positive temperature dryest 2 months.....(Tpd2): 361  
 Positive temperature dryest 1 month.....(Tpd1): 179  
 Positive temperature warmest 3 months.....(Tps): 524  
 Positive temperature warmest 2 months.....(Tps2): 361  
 Positive temperature warmest 1 month.....(Tps1): 182  
 Positive temperature coldest 3 months.....(Tpw): 146  
 Positive temperature coldest 2 months.....(Tpw2): 94  
 Positive temperature coldest 1 month.....(Tpw1): 43

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.48  
 Mediterranean index of July.[PE/P].....(Im1): 2.17  
 Mediterranean index of July & August.....(Im2): 1.93  
 Mediterranean index of June, July & August....(Im3): 1.62

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1897	1798	1346	903	1032	1231	786	504	602	1014	1512	1361
Tp	51	43	52	87	105	126	159	179	182	163	127	83
Io (Iom)	37.2	41.8	25.9	10.4	9.83	9.77	4.94	2.82	3.31	6.22	11.9	16.4
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	5041 / 146			3166 / 318			1892 / 520			3887 / 373		
Io (Iot)	34.53			9.956			3.638			10.42		
Semesters	December-May						June-November					
Pp(x10)/Tp	8207 / 464						5779 / 893					
Io (Iosm)	17.69						6.471					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 13986/1357=10.31 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1897	1798	1346	903	1032	1231	786	504	602	1014	1512	1361
Tp [T*10]	51	43	52	87	105	126	159	179	182	163	127	83
Iom [Pp/Tp]	\$\$	\$\$	\$\$	\$\$	983	977	494	282	331	622	\$\$	\$\$
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	5041 / 146			3166 / 318			1892 / 520			3887 / 373		
Iot [Pp/Tp]	\$\$			996			364			1042		
Avs E[Avm<200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp): 13.90
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....	14.25
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....	15.59
+ Hyperoceanic (-20<CI<20)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....	0.91
+ Oceanic (0.6<CI<1.1)	
Rainfall Index of Lang (1925) [R=P/T] .....	123.68
+ Temperate humid (160>R>100)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....	65.64
+ Perhumid (Ia>60)	
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....	233.07
+ Humid (Q>90)	
I of Dantin & Revenga (1940) [DR=100*T/P] .....	0.81
+ Humid (2>DR>0)	
Aridity Index of UNEP [I=P/PE] .....	2.10
+ Humid (I>0.65)	
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P].....	25.73
+ Very low (K<60)	

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....

- + Climate .....
- + Region .....
- + Thermic type: 4. Mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	1.32	0.92	0.52	0.57	0.65	0.36	0.21	0.25	0.47	0.81	0.83	1.36
T-E ratio	1.94	2.34	3.91	4.72	5.67	7.15	8.05	8.19	7.33	5.71	3.74	2.29
Precipitation-effectiveness: 82.48						Temperature-efficiency .....						61.06
Moisture Index [MI=100*(P-PE)/PE] .....												109.78
+ A.Extremely humid (MI>100)												
Index of dryness [DI=100*d/PE] .....												2.68
+ No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....												112.47
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE .....												666.69
+ First mesothermic (570<PE<712)												

