

Appendix 1: Results of the principal components analysis summarizing the climatic variation throughout 12 months and 28 years (1991-2003) in the alpine area of the Sierra de Guadarrama (data from Navacerrada pass; 1890 m a.s.l.). The sample unit is the monthly value per year (n=336). Factor loadings that are highly significant ($p < 0.001$) are marked in bold type.

Monthly values or averages	PC1	PC2	PC3	PC4	PC5	PC6
Average cloudyness index	-0.47	-0.60	0.40	0.05	-0.36	-0.03
Number of sunny days	0.29	0.75	-0.18	-0.18	0.34	0.06
Number of cloudy days	-0.54	-0.47	0.50	-0.06	-0.35	-0.04
Average sun radiation index	0.69	0.46	-0.43	0.11	0.14	-0.03
Average relative humidity	-0.61	-0.54	0.43	-0.03	-0.25	-0.03
Average barometric pressure	0.43	0.21	-0.38	0.00	0.73	-0.02
Average temperature	0.91	0.27	-0.25	0.10	0.10	-0.02
Average maximum temperature	0.90	0.29	-0.28	0.10	0.10	0.00
Number of days with max. temperature >25°C	0.54	0.63	-0.08	-0.03	-0.01	-0.07
Average minimum temperature	0.93	0.24	-0.20	0.10	0.10	-0.04
Number of days with min. temperature <-5°C	-0.83	0.10	-0.03	-0.05	-0.07	-0.11
Precipitation	-0.21	-0.31	0.83	0.04	-0.25	0.05
Number of days with rainfall	0.50	-0.72	0.21	0.02	0.03	0.05
Number of days with snowfall	-0.78	-0.03	0.31	-0.01	-0.34	-0.07
Number of days with hail	0.12	-0.01	0.04	0.88	-0.08	0.11
Number of days with storms	0.50	-0.14	-0.12	0.68	0.03	-0.09
Number of days with mist	-0.21	-0.04	0.22	0.04	-0.03	0.77
Number of days with dew	0.40	-0.07	-0.21	0.05	0.00	0.67
Number of days with snow covering the ground	-0.87	0.11	0.07	-0.02	-0.08	-0.08
Average wind speed	-0.15	-0.15	0.36	-0.14	0.09	0.19
Eigenvalue	7.28	2.99	2.21	1.36	1.22	1.15
Percentage of explained variance	36.38	14.94	11.06	6.80	6.11	5.74