Table S1. Annual (CY) descriptive statistics for climate variables for two historical time windows [first row of each weather station corresponds to mean values and standard deviation in parenthesis while *slope b* (trends yr^{-1}) of the linear equation (Y = a + bX) for each variable are presented in the second row respectively] for 11 principal winegrape areas in Greece.

Weather stations (winegrape areas)	TX mean (°C)		TN mean (°C)		PRCP (mm)	
	1980-1999	2000-2019	1980-1999	2000-2019	1980-1999	2000-2019
Alexandroupoli (Maronia)	19.1 (0.6)	20.3 (0.6)	9.0 (0.5)	10.4 (0.7)	488 (115)	554 (167)
	0.03	0.06	0.03	0.08	2.99	8.36
Athens (Markopoulo)	22.0 (0.6)	22.9 (0.5)	14.1 (0.6)	14.7 (0.6)	368 (94)	386 (104)
	0.06	0.04	0.07	0.05	0.20	5.00
Crete (Peza)	21.8 (0.5)	22.5 (0.5)	14.9 (0.4)	15.6 (0.5)	456 (103)	476 (104)
	0.05	0.02	0.02	0.06	-5.02	-5.05
Ioannina (Ioannina)	19.6 (0.6)	20.1 (0.6)	7.4 (0.4)	8.0 (0.5)	981 (157)	1079 (249)
	0.00	0.07	0.05	0.02	0.36	9.21
Kephalonia (Valsamata)	21.3 (0.4)	22.3 (0.4)	14.2 (0.4)	14.3 (0.4)	805 (171)	841 (194)
	0.01	0.05	0.00	0.07	0.18	12.13
Limnos (Limnos)	19.3 (0.5)	20.3 (0.6)	11.5 (0.5)	12.6 (0.7)	454 (125)	562 (162)
	0.01	0.07	0.02	0.08	8.25	2.05
Larisa (Rapsani)	21.3 (0.7)	22.2 (0.6)	8.8 (0.6)	9.8 (0.5)	429 (82)	426 (97)
	0.05	0.04	0.07	0.04	-1.68	2.97
Rodos (Ebonas)	22.0 (0.4)	22.7 (0.5)	16.5 (0.5)	17.3 (0.4)	666 (187)	602 (163)
	0.01	0.05	0.05	0.04	3.33	1.30
Santorini (Santorini)	21.0 (0.5)	21.8 (0.6)	15.3 (0.6)	16.3 (0.5)	301 (155)	320 (101)
	0.02	0.07	0.09	0.04	-6.92	0.23
Thessaloniki (Epanomi)	20.3 (0.6)	21.0 (0.6)	10.3 (0.6)	11.5 (0.4)	423 (89)	431 (111)
	0.04	0.04	0.07	0.03	-2.17	5.39
Tripoli (Tripoli)	19.9 (0.7)	20.2 (0.7)	6.9 (0.5)	7.1 (1.2)	752 (152)	743 (223)
	0.03	0.07	-0.02	0.09	-8.09	12.74
Overall:	*20.7 (0.6)*	*21.5 (0.6)*	*11.7 (0.5)*	*12.5 (0.6)*	*557 (130)*	*584 (152)*
	0.03	*0.05*	*0.04*	*0.05*	*-0.8*	*4.9*
Island locations	*21.1 (0.5)*	*21.9 (0.5)*	*14.5 (0.5)*	*15.2 (0.5)*	*536 (148)*	*560 (145)*
	0.02	*0.05*	*0.04*	*0.06*	*0.0*	*2.1*
Mainland locations	*20.4 (0.6)*	*21.1 (0.6)*	*9.4 (0.5)*	*10.3 (0.7)*	*574 (115)*	*603 (159)*
	0.04	*0.05*	*0.05*	*0.05*	*-1.4*	*7.3*

Table S2. Ripening period (RP: 45 days before harvest) descriptive statistics for climate variables for two historical time windows [first row of each weather station corresponds to mean values and standard deviation in parenthesis while *slope b* (trends yr^{-1}) of the linear equation (Y = a + bX) for each variable are presented in the second row respectively] for 11 principal winegrape areas in Greece.

Weather stations (winegrape areas)	TX mean (°C)		TN mean (°C)		PRCP (mm)	
	1980-1999	2000-2019	1980-1999	2000-2019	1980-1999	2000-2019
Alexandroupoli (Maronia)	29.4 (1.1)	31.2 (1.2)	16.6 (1.2)	18.9 (1.0)	16 (13)	28 (36)
	0.03	0.14	0.06	0.11	1.03	-1.38
Athens (Markopoulo)	31.1 (1.1)	32.4 (1.0)	21.9 (0.9)	23.0 (0.8)	5 (8)	11 (20)
	0.11	0.03	0.11	0.06	-0.07	-0.24
Crete (Peza)	28.0 (0.8)	29.2 (0.8)	21.4 (0.6)	22.3 (0.6)	3 (8)	8 (17)
	0.09	0.03	0.07	0.05	-0.11	-0.55
Ioannina (Ioannina)	29.9 (1.4)	30.5 (1.7)	14.5 (1.1)	15.2 (0.9)	56 (35)	71 (72)
	-0.03	0.16	0.08	0.04	-0.81	-1.52
Kephalonia (Valsamata)	29.2 (1.0)	30.4 (0.9)	20.8 (1.0)	21.2 (0.8)	16 (21)	41 (48)
	0.02	0.10	0.08	0.08	0.87	-1.44
Limnos (Limnos)	27.9 (0.8)	29.5 (0.8)	19.4 (0.8)	21.0 (1.0)	11 (14)	22 (27)
	0.05	0.09	0.06	0.11	0.50	-0.41
Larisa (Rapsani)	31.5 (1.1)	32.5 (1.0)	16.6 (0.8)	18.1 (0.8)	26 (23)	37 (28)
	0.04	0.08	0.09	0.06	0.17	1.62
Rodos (Ebonas)	29.2 (0.6)	30.1 (0.8)	23.6 (0.6)	24.5 (0.4)	1 (2)	3 (7)
	0.01	0.06	0.06	0.04	0.13	0.31
Santorini (Santorini)	28.1 (0.8)	29.3 (0.8)	21.7 (1.1)	23.1 (0.6)	1 (1)	3 (9)
	0.04	0.08	0.15	0.03	0.03	0.29
Thessaloniki (Epanomi)	30.2 (1.0)	31.2 (0.9)	18.4 (1.0)	20.2 (0.7)	28 (16)	34 (33)
	0.06	0.07	0.12	0.02	0.71	1.47
Tripoli (Tripoli)	29.8 (1.4)	30.2 (1.5)	13.7 (0.9)	14.1 (1.6)	38 (36)	44 (40)
	0.05	0.13	0.01	0.15	2.14	0.35
Overall:	*29.5 (1.0)*	*30.6 (1.0)*	*19.0 (0.9)*	*20.1 (0.8)*	*18 (16)*	*27 (31)*
	0.04	*0.09*	*0.08*	*0.07*	*0.4*	*-0.1*
Island	*28.5 (0.8)*	*29.7 (0.8)*	*21.4 (0.8)*	*22.4 (0.7)*	*6 (9)*	*15 (22)*
	0.04	*0.07*	*0.08*	*0.06*	*0.3*	*-0.4*
Mainland	*30.3 (1.2)*	*31.3 (1.2)*	*17.0 (1.0)*	*18.3 (1.0)*	*28 (22)*	*38 (38)*
	0.04	*0.10*	*0.08*	*0.07*	*0.5*	*0.1*

Table S3. Descriptive statistics for dryness index (DI) for two historical time windows during the period of April to September [first row of each weather station corresponds to mean values and standard deviation in parenthesis while *slope b* (trends yr⁻¹) of the linear equation (Y = a + bX) for each variable are presented in the second row respectively] for 11 principal winegrape areas in Greece.

Weather stations (winegrape areas)	DI	
	1980-1999	2000-2019
Alexandroupoli (Maronia)	-109 (39.5)	-91 (65.2)
	1.21	-0.36
Athens (Markopoulo)	-98 (22.5)	-101 (37.5)
	-0.58	2.33
Crete (Peza)	-41 (21.2)	-41 (26.5)
	-1.64	1.06
Ioannina (Ioannina)	-116 (69.3)	-87 (98.4)
	1.00	-0.86
Kephalonia (Valsamata)	-29 (47.4)	-31 (60.0)
	1.38	1.90
Limnos (Limnos)	-52 (37.2)	-36 (54.4)
	1.55	-0.25
Larisa (Rapsani)	-166 (62.2)	-176 (43.5)
	4.13	0.91
Rodos (Ebonas)	-14 (30.2)	-9 (25.2)
	2.27	1.67
Santorini (Santorini)	-33 (28.6)	-30 (25.5)
	2.80	-1.74
Thessaloniki (Epanomi)	-103 (41.2)	-71 (47.6)
	1.11	1.64
Tripoli (Tripoli)	-183 (49.2)	-166 (62.2)
	-0.41	4.13
Overall:	-86 (40.8)	-76 (49.6)
	1.17	0.95
Island	-34 (32.9)	-29 (38.3)
	1.27	0.52
Mainland	-129 (47.3)	-115 (59.1)
	1.08	1.30

Table S4. Differences in the medians (Wilcoxon test) for climate variables for two historical time windows (1980-1999 and 2000-2019) during the growing season (GS: April-October) for 11 principal winegrape areas in Greece. Bold letters indicate statistically significant trends (p-value < 0.05), while italicized bold letters indicate lower statistical significance (p-value < 0.10).

Weather stations (winegrape areas)	TX mean (°C)		TN mean (°C)		PRCP (mm)		DI	
	1980-1999	2000-2019	1980-1999	2000-2019	1980-1999	2000-2019	1980-1999	2000-2019
Alexandroupoli (Maronia)	170	202	**24.9**	**26.3**	**13.2**	**14.9**	-120	-113
Athens (Markopoulo)	104	123	**26.8**	**28.1**	**18.1**	**19.0**	-101	-94
Crete (Peza)	98	74	**25.3**	**26.1**	**18.0**	**18.8**	-46	-47
Ioannina (Ioannina)	381	422	25.5	26.1	**11.3**	**12.0**	-141	-104
Kephalonia (Valsamata)	248	265	**25.5**	**26.4**	17.5	17.7	-24	-47
Limnos (Limnos)	**114**	**185**	**24.2**	**25.1**	**15.4**	**16.5**	-62	-56
Larisa (Rapsani)	197	242	**27.8**	**28.4**	**13.2**	**14.5**	-169	-178
Rodos (Ebonas)	77	84	**25.9**	**26.5**	**19.8**	**20.9**	-21	-17
Santorini (Santorini)	37	40	**25.0**	**25.7**	**18.6**	**19.8**	-28	-32
Thessaloniki (Epanomi)	*208*	*216*	**26.2**	**26.9**	**14.9**	**16.3**	*-107*	*-68*
Tripoli (Tripoli)	227	242	25.4	25.7	10.4	11.0	-184	-169
Overall:	***183***	***208***	*25.6*	*26.5*	*15.5*	*16.4*	*-93*	*-87*
Island locations	*117*	*128*	*25.2*	*26.0*	*17.8*	*18.7*	*-32*	*-28*
Mainland locations	**226**	**257**	*26.1*	*27.0*	**13.6**	**14.7**	*-146*	*-121*

Table S5. Results of mixed effect model analysis of Greek wine quality ratings with climate.

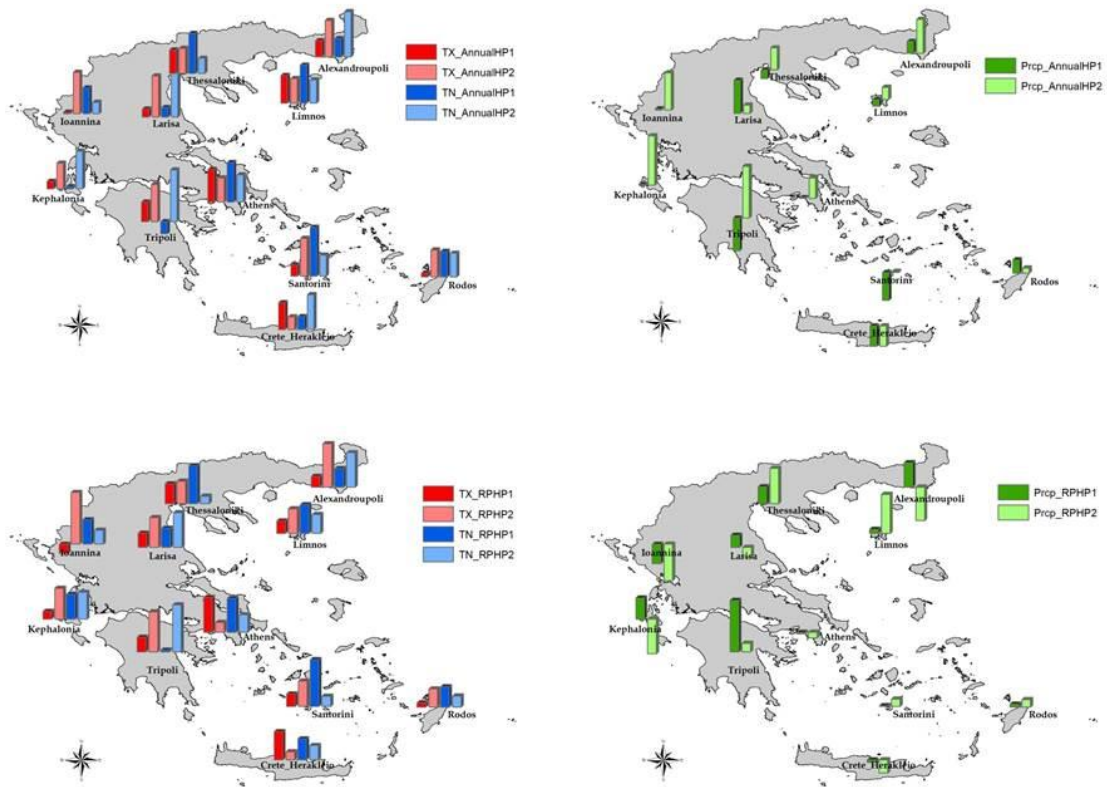| Model	Fixed components	Range of estimate	p-value
WQRS=TX_GS+TN_GS+DI+PRCP_GS	intercept	41.59 - 50.73	***
	TX_GS	1.83 - 2.22	***
	TN_GS	-0.61 - -0.84	***
	DI	0.03	***
	Prcp_GS	-0.01	**
Model summary ranges	*Number of varieties: 12 - 14*		
	Number of observations: 168 - 197		
	Marginal R^2 / Conditional R^2: 0.20 – 0.26/0.28 – 0.47		

Significant codes: *** <0.001, **<0.01.

Figure S1. Directions and magnitudes of trends of mean maximum (TX, red bars) and minimum (TN, blue bars) air temperature (°C) and precipitation (PRCP, mm, green bars) for two historical time windows. Top graphs referred to the calendar year (CY) while bottom graphs referred to ripening period (RP), respectively.