

Supplementary data

TABLE S1.

Climate influence	Cultivar	Wine-growing Regions	<i>BUD-MAT</i> [day]	<i>BUD-MAT35</i> [day]	<i>BUD-FLO</i> [day]	<i>FLO-VER</i> [day]	<i>FLO-MAT</i> [day]	<i>FLO-MAT35</i> [day]	<i>VER-MAT</i> [day]	
Semi-Continental and Oceanic	Riesling	Alsace	-8,9	-8	-1,6	-6,4	-7,3	-6,4	-0,9	
	Chardonnay	Champagne	-11,9	-9,5	-1,5	-8	-10,5	-8	-2,5	
	Pinot noir	Bourgogne		-9,2	-6,2	-1,6	-4,7	-7,7	-4,7	-3
		Beaujolais		-14,2	-8,9	-1,9	-6,9	-12,2	-6,9	-5,3
		Jura		-7,2	-5,3	-1,9	-3,4	-5,3	-3,4	-1,9
		Bugey-Savoie		-9,1	-7,8	-1,1	-6,7	-8,1	-6,7	-1,4
	Cher		-9,3	-6,4	-1,1	-5,3	-8,2	-5,3	-2,9	
Oceanic	Cabernet franc	Val de Loire	-5,1	-3,6	1,5	-5,1	-6,6	-5,1	-1,5	
	Ugni blanc	Charentes	-5,3	-4,9	-1,6	-3,3	-3,8	-3,3	-0,4	
	Cabernet-Sauvignon	Bordelais		-6,5	-4,7	-1,7	-3	-4,8	-3	-1,7
		Dordogne		-5,6	-4,5	-1,8	-2,7	-3,8	-2,7	-1,1
		Lot-et-Garonne		-5,7	-3,5	-0,3	-3,2	-5,4	-3,2	-2,2
		Cahors		-9	-6,3	-2,1	-4,2	-6,8	-4,2	-2,6
		Gers		-6,2	-3,7	-0,3	-3,4	-5,8	-3,4	-2,4
	Gaillac		-7,2	-5,1	-2,6	-2,5	-4,6	-2,5	-2,1	
Mediterranean	Syrah	Côtes-du-rhône Nord	-7,8	-6,5	-1,7	-4,8	-6,1	-4,8	-1,4	
	Grenache	Côtes-du-rhône Sud	-6,7	-5,6	-1,4	-4,2	-5,4	-4,2	-1,2	
		Bouches-du-Rhône		-7,7	-5,6	-2,4	-3,3	-5,3	-3,3	-2,1

SUPPLEMENTARY DATA

ZITO, S., PERGAUD, J., RICHARD, Y., CASTEL, T., LEROUX, R., GARCIA DE CORTAZAR-ATAURI, I., QUENOL, H., & BOIS, B. (2023). Projected impacts of climate change on viticulture over French wine regions using downscaled CMIP6 multi-model data: This article is published in cooperation with the 22nd GIESCO International Meeting, hosted by Cornell University in Ithaca, NY, July 17-21, 2023. *OENO One*, 57(2). <https://doi.org/10.20870/oeno-one.2023.57.2.7441>

		Provence	-7,9	-5,6	-2,6	-3	-5,3	-3	-2,3
		Languedoc	-6,6	-5,2	-2	-3,2	-4,6	-3,2	-1,5
		Pyrénées-Orientales	-5,3	-4,4	-2	-2,5	-3,3	-2,5	-0,9
All regions average			-7	-5	-1	-4	-6	-4	-2

SUPPLEMENTARY DATA

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TABLE S2.

Climate influence	Cultivar	Wine-growing Regions	mGSP [mm]		CR.BB.MAT [mm]		CR.BB.MAT35 [mm]		CR.BB.FLO15 [mm]		CR.FLO.VER [mm]		CR.VER.MAT [mm]		CR.VER.MAT35 [mm]	
			SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5
Semi-Continental and Oceanic	Riesling	Alsace	5 ± 33	-21 ± 33	-27 ± 32	-58 ± 32	-12 ± 32	-39 ± 32	10 ± 17	5 ± 25	-15 ± 17	-31 ± 16	-17 ± 14	-27 ± 13	0 ± 9	-4 ± 10
	Chardonnay	Champagne	0 ± 25	-26 ± 32	-32 ± 24	-55 ± 30	-29 ± 25	-45 ± 32	3 ± 14	-2 ± 19	-20 ± 15	-41 ± 18	-6 ± 9	-15 ± 8	1 ± 8	1 ± 7
	Pinot noir	Bourgogne	-4 ± 31	-38 ± 31	-40 ± 30	-70 ± 27	-26 ± 31	-58 ± 27	7 ± 16	-4 ± 19	-21 ± 14	-34 ± 14	-19 ± 14	-34 ± 9	1 ± 11	-4 ± 8
		Beaujolais	-7 ± 35	-34 ± 35	-49 ± 34	-78 ± 29	-33 ± 35	-70 ± 29	5 ± 19	-6 ± 21	-20 ± 16	-35 ± 17	-20 ± 15	-36 ± 9	-1 ± 12	-2 ± 9
		Jura	-5 ± 48	-51 ± 49	-52 ± 45	-102 ± 43	-38 ± 45	-84 ± 43	18 ± 24	2 ± 31	-29 ± 19	-53 ± 22	-35 ± 20	-54 ± 15	3 ± 16	0 ± 14
		Bugey-Savoie	-24 ± 45	-75 ± 52	-67 ± 48	-114 ± 46	-61 ± 37	-111 ± 38	5 ± 26	-16 ± 28	-38 ± 26	-60 ± 26	-39 ± 20	-53 ± 15	-1 ± 16	-5 ± 14
Cher	-14 ± 23	-40 ± 28	-36 ± 24	-70 ± 26	-27 ± 24	-61 ± 27	0 ± 13	-7 ± 15	-23 ± 14	-30 ± 18	-16 ± 11	-28 ± 9	-3 ± 8	-3 ± 7		
Oceanic	Cabernet franc	Val de Loire	-23 ± 19	-42 ± 29	-30 ± 24	-48 ± 28	-25 ± 23	-43 ± 28	8 ± 14	9 ± 15	-20 ± 13	-31 ± 17	-20 ± 8	-29 ± 8	2 ± 7	1 ± 6
	Ugni blanc	Charentes	-23 ± 23	-58 ± 28	-47 ± 25	-84 ± 27	-40 ± 24	-78 ± 28	-3 ± 15	-14 ± 18	-24 ± 15	-33 ± 16	-24 ± 10	-37 ± 9	-4 ± 10	-3 ± 10
	Cabernet-Sauvignon	Bordelais	-26 ± 28	-60 ± 31	-38 ± 25	-69 ± 28	-32 ± 26	-63 ± 29	0 ± 18	-10 ± 18	-17 ± 16	-31 ± 18	-23 ± 14	-35 ± 10	-4 ± 9	-1 ± 10
		Dordogne	-31 ± 31	-63 ± 34	-38 ± 29	-68 ± 33	-31 ± 30	-62 ± 33	3 ± 20	-13 ± 21	-17 ± 17	-31 ± 19	-20 ± 15	-36 ± 11	-5 ± 10	-2 ± 11
		Lot-et-Garonne	-30 ± 34	-69 ± 36	-37 ± 31	-70 ± 32	-32 ± 33	-64 ± 34	0 ± 20	-10 ± 19	-16 ± 18	-31 ± 21	-17 ± 14	-30 ± 10	-1 ± 11	-9 ± 11
		Cahors	-33 ± 33	-74 ± 41	-44 ± 34	-74 ± 40	-34 ± 35	-69 ± 41	8 ± 21	-17 ± 23	-21 ± 21	-31 ± 26	-20 ± 14	-36 ± 11	-3 ± 12	-5 ± 13
		Gers	-33 ± 34	-72 ± 38	-37 ± 32	-81 ± 35	-32 ± 33	-75 ± 37	1 ± 23	-14 ± 21	-16 ± 16	-31 ± 21	-16 ± 14	-29 ± 10	-1 ± 12	-10 ± 13
Gaillac	-33 ± 31	-53 ± 35	-34 ± 31	-55 ± 36	-28 ± 32	-50 ± 37	-4 ± 19	-19 ± 18	-15 ± 17	-20 ± 23	-16 ± 15	-27 ± 12	-9 ± 11	-12 ± 11		
Mediterranean	Syrah	Côtes-du-rhône Nord	-12 ± 40	-40 ± 40	-58 ± 38	-98 ± 35	-53 ± 34	-87 ± 34	3 ± 19	-7 ± 23	-23 ± 15	-36 ± 18	-35 ± 20	-48 ± 13	-1 ± 13	-3 ± 10
	Grenache	Côtes-du-rhône Sud	-39 ± 39	-60 ± 40	-54 ± 34	-75 ± 35	-76 ± 32	-89 ± 40	-6 ± 21	-22 ± 20	-16 ± 19	-25 ± 19	-32 ± 14	-39 ± 12	-1 ± 13	-8 ± 12
		Bouches-du-Rhône	-32 ± 36	-47 ± 33	-35 ± 25	-51 ± 27	-42 ± 27	-53 ± 29	-8 ± 20	-20 ± 16	0 ± 14	-8 ± 14	-23 ± 9	-27 ± 10	1 ± 13	-8 ± 10
		Provence	-40 ± 40	-52 ± 41	-38 ± 29	-59 ± 32	-45 ± 30	-64 ± 34	-13 ± 24	-35 ± 20	3 ± 18	-10 ± 20	-22 ± 8	-24 ± 10	-1 ± 15	-14 ± 12
		Languedoc	-27 ± 33	-51 ± 37	-37 ± 24	-60 ± 30	-46 ± 26	-64 ± 32	-11 ± 18	-22 ± 19	-5 ± 15	-17 ± 18	-18 ± 10	-25 ± 10	1 ± 13	-7 ± 11
		Pyrénées-Orientales	-24 ± 34	-47 ± 40	-37 ± 25	-58 ± 36	-40 ± 27	-56 ± 37	-13 ± 19	-25 ± 24	-5 ± 13	-15 ± 18	-14 ± 8	-20 ± 7	-2 ± 16	-7 ± 17
All regions average			-27 ± 26	-49 ± 29	-37 ± 23	-70 ± 25	-36 ± 18	-70 ± 25	-2 ± 12	-14 ± 14	-17 ± 14	-29 ± 15	-24 ± 10	-32 ± 6	-2 ± 8	-4 ± 7

TABLE S3.

Climate influence	Cultivar	Wine-growing Regions	HydricSI [unitless]		HydricSI.MAT35 [unitless]		HydricSI.5FLO5 [unitless]		
			SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5	SSP2-4.5	SSP5-8.5	
Semi-Continental and Oceanic	Riesling	Alsace	-0.047 ± 0.033	-0.061 ± 0.044	-0.048 ± 0.033	-0.07 ± 0.047	0 ± 0.003	-0.002 ± 0.004	
	Chardonnay	Champagne	-0.055 ± 0.041	-0.099 ± 0.055	-0.069 ± 0.042	-0.112 ± 0.059	-0.002 ± 0.007	-0.006 ± 0.01	
	Pinot noir	Bourgogne		-0.062 ± 0.038	-0.105 ± 0.041	-0.067 ± 0.039	-0.113 ± 0.043	0.001 ± 0.006	-0.003 ± 0.007
		Beaujolais		-0.048 ± 0.035	-0.075 ± 0.036	-0.059 ± 0.036	-0.09 ± 0.038	0 ± 0.003	-0.002 ± 0.003
		Jura		-0.04 ± 0.024	-0.068 ± 0.034	-0.042 ± 0.026	-0.074 ± 0.038	-0.001 ± 0.002	-0.002 ± 0.002
		Bugey-Savoie		-0.048 ± 0.024	-0.072 ± 0.035	-0.054 ± 0.024	-0.082 ± 0.038	-0.001 ± 0.002	-0.001 ± 0.002
Cher		-0.06 ± 0.043	-0.103 ± 0.051	-0.062 ± 0.044	-0.115 ± 0.051	-0.001 ± 0.009	-0.004 ± 0.011		
Oceanic	Cabernet franc	Val de Loire	-0.061 ± 0.044	-0.109 ± 0.051	-0.071 ± 0.043	-0.126 ± 0.053	-0.002 ± 0.004	-0.002 ± 0.005	
	Ugni blanc	Charentes	-0.066 ± 0.044	-0.118 ± 0.049	-0.072 ± 0.045	-0.137 ± 0.05	-0.001 ± 0.005	-0.002 ± 0.005	
	Cabernet-Sauvignon	Bordelais		-0.066 ± 0.044	-0.112 ± 0.05	-0.068 ± 0.045	-0.118 ± 0.051	-0.003 ± 0.005	-0.004 ± 0.005
		Dordogne		-0.061 ± 0.048	-0.108 ± 0.052	-0.063 ± 0.05	-0.115 ± 0.053	-0.002 ± 0.005	-0.004 ± 0.005
		Lot-et-Garonne		-0.069 ± 0.048	-0.101 ± 0.051	-0.075 ± 0.05	-0.117 ± 0.05	-0.003 ± 0.005	-0.005 ± 0.005
		Cahors		-0.075 ± 0.051	-0.114 ± 0.055	-0.079 ± 0.054	-0.131 ± 0.059	-0.002 ± 0.003	-0.005 ± 0.004
Gers		-0.073 ± 0.044	-0.117 ± 0.049	-0.08 ± 0.046	-0.13 ± 0.049	-0.003 ± 0.004	-0.004 ± 0.005		
Gaillac		-0.063 ± 0.045	-0.067 ± 0.051	-0.07 ± 0.048	-0.098 ± 0.053	-0.003 ± 0.003	-0.005 ± 0.004		
Mediterranean	Syrah	Côtes-du-rhône Nord	-0.063 ± 0.036	-0.099 ± 0.04	-0.077 ± 0.037	-0.117 ± 0.04	0 ± 0.003	-0.002 ± 0.004	
	Grenache	Côtes-du-rhône Sud		-0.036 ± 0.036	-0.051 ± 0.041	-0.081 ± 0.033	-0.104 ± 0.048	-0.003 ± 0.003	-0.003 ± 0.005
		Bouches-du-Rhône		-0.024 ± 0.029	-0.022 ± 0.038	-0.04 ± 0.031	-0.048 ± 0.038	-0.002 ± 0.003	-0.002 ± 0.003
		Provence		-0.022 ± 0.033	-0.022 ± 0.04	-0.038 ± 0.034	-0.043 ± 0.039	-0.002 ± 0.004	-0.002 ± 0.003
		Languedoc		-0.034 ± 0.03	-0.052 ± 0.042	-0.051 ± 0.033	-0.076 ± 0.042	-0.002 ± 0.002	-0.004 ± 0.004
		Pyrénées-Orientales		-0.028 ± 0.033	-0.042 ± 0.049	-0.044 ± 0.035	-0.07 ± 0.049	-0.001 ± 0.003	-0.002 ± 0.003
All regions average			-0.051 ± 0.032	-0.092 ± 0.038	-0.065 ± 0.029	-0.112 ± 0.035	-0.001 ± 0.003	-0.004 ± 0.004	