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Rockfall triggering and meteorological variables in the Dolomites (Italian Eastern Alps)

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Supplementary materials

S1 Climate Analysis

S1.1 Rainfall

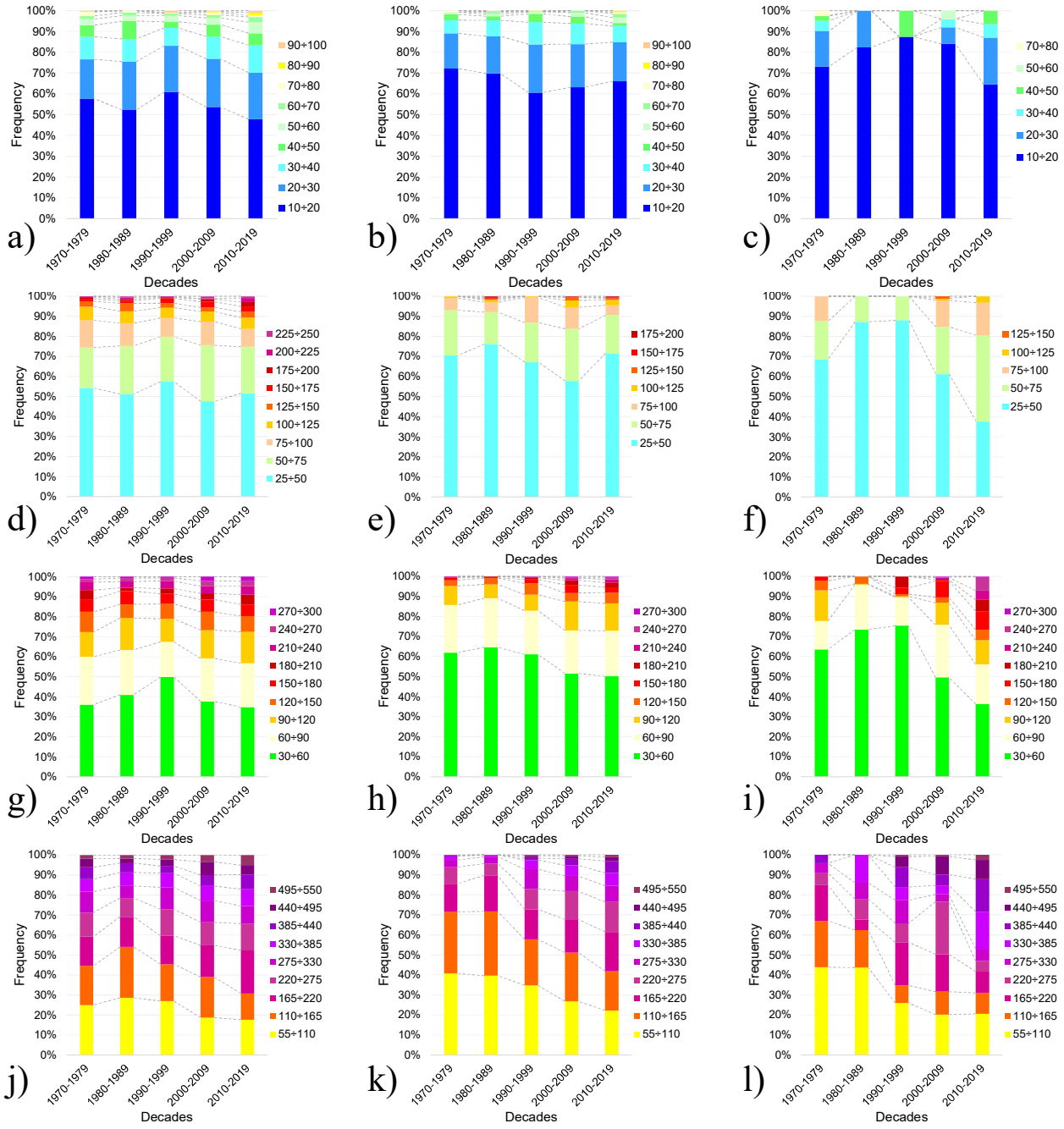


Fig. S1 Frequency of rainfall during winter season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

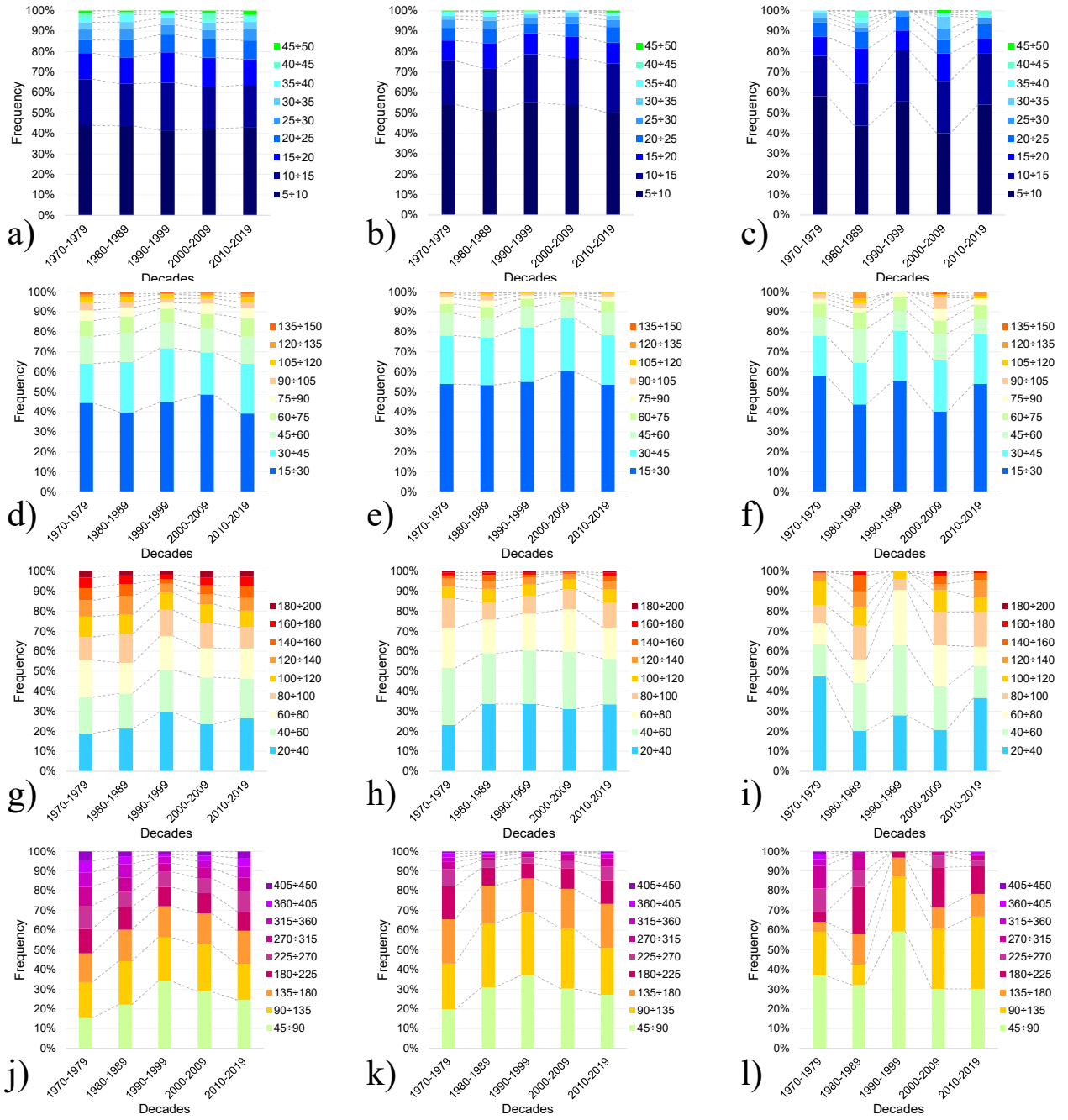
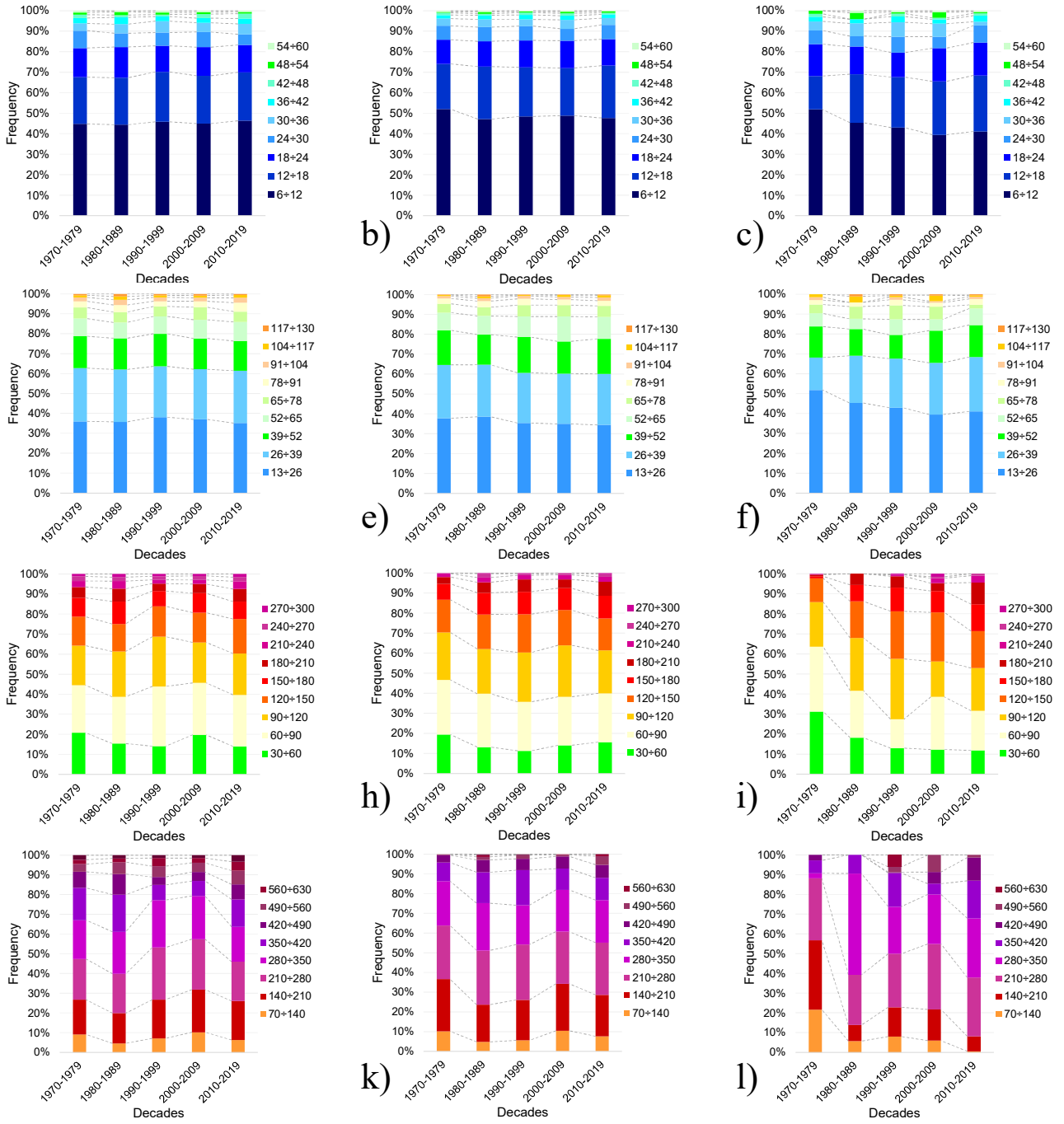
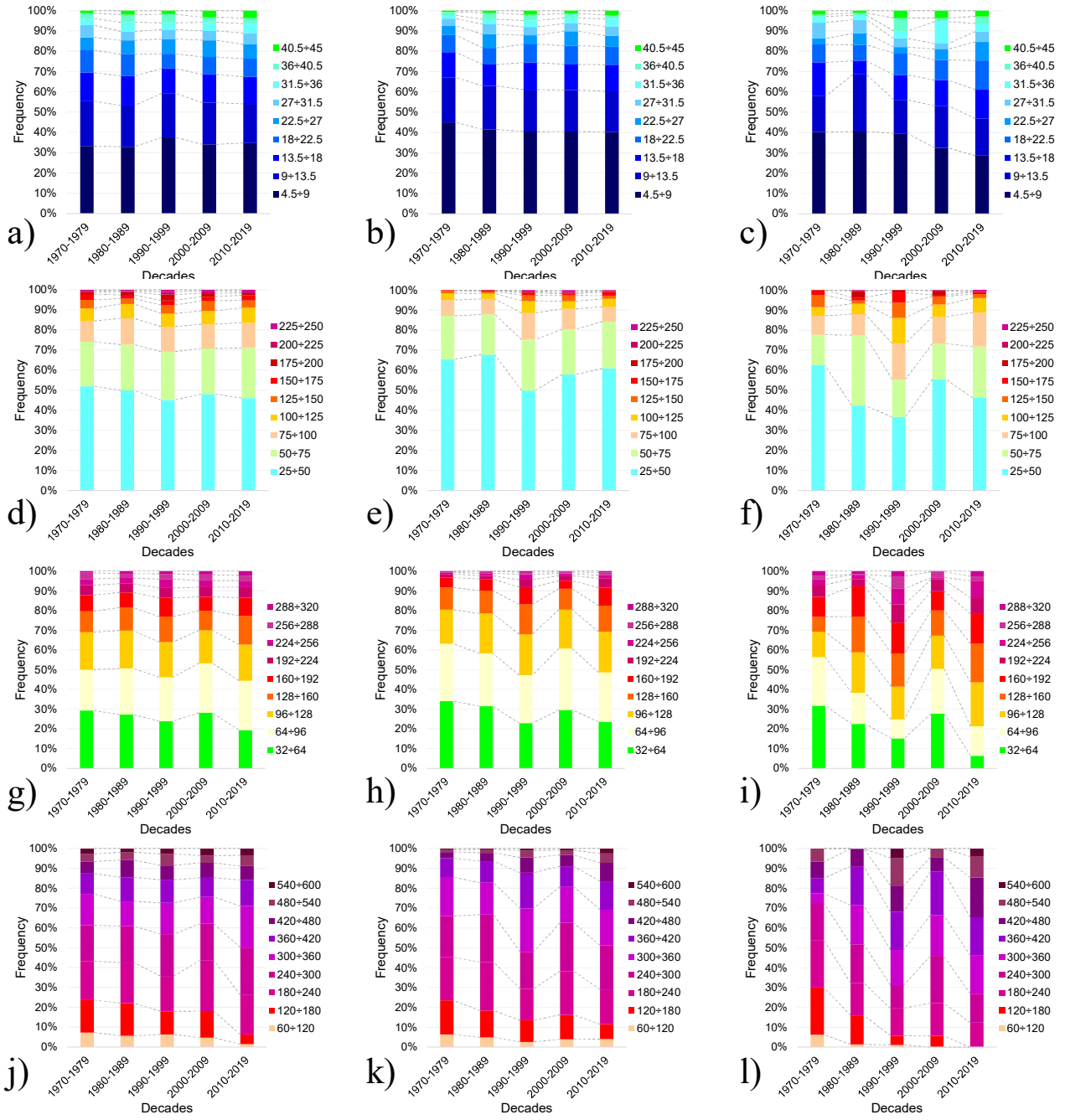


Fig. S2 Frequency of rainfall during spring season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.



15 **Fig. S3 Frequency of rainfall during summer season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.**



20 **Fig. S4 Frequency of rainfall during autumn season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.**

S1.2 Air mean temperature

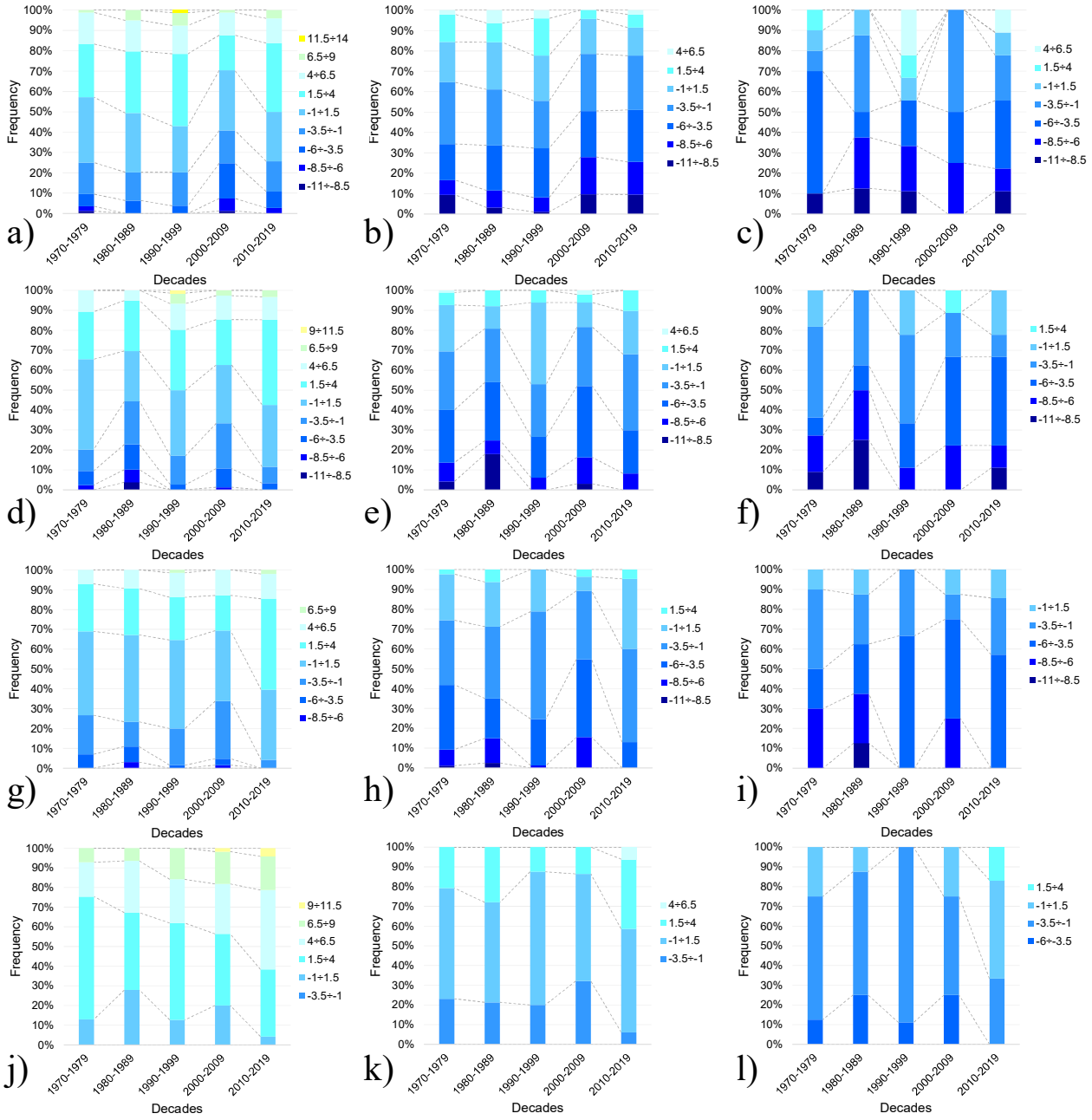


Fig. S5 Frequency of air mean temperature during winter season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

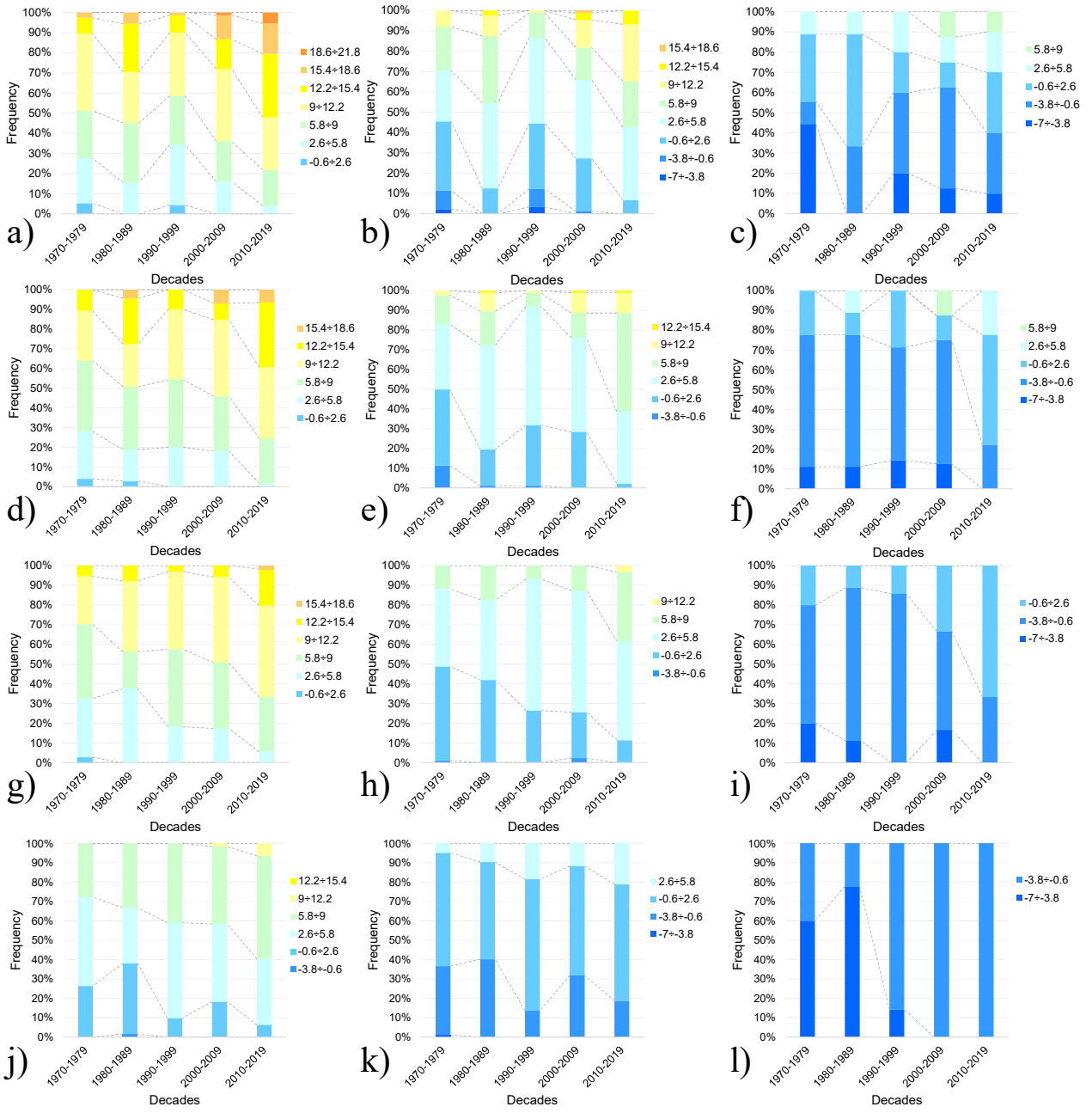


Fig. S6 Frequency of air mean temperature during spring season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

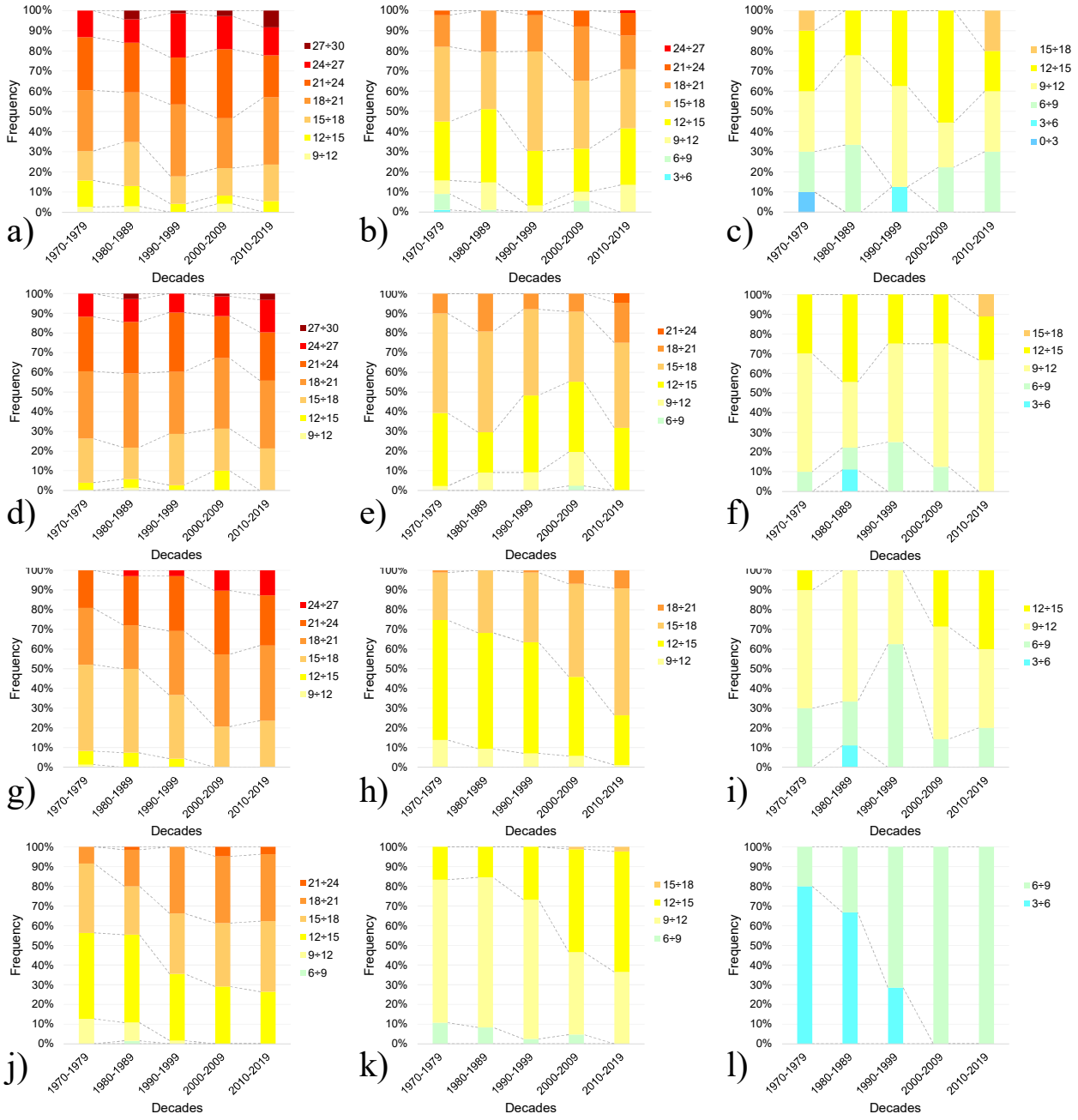


Fig. S7 Frequency of air mean temperature during summer season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

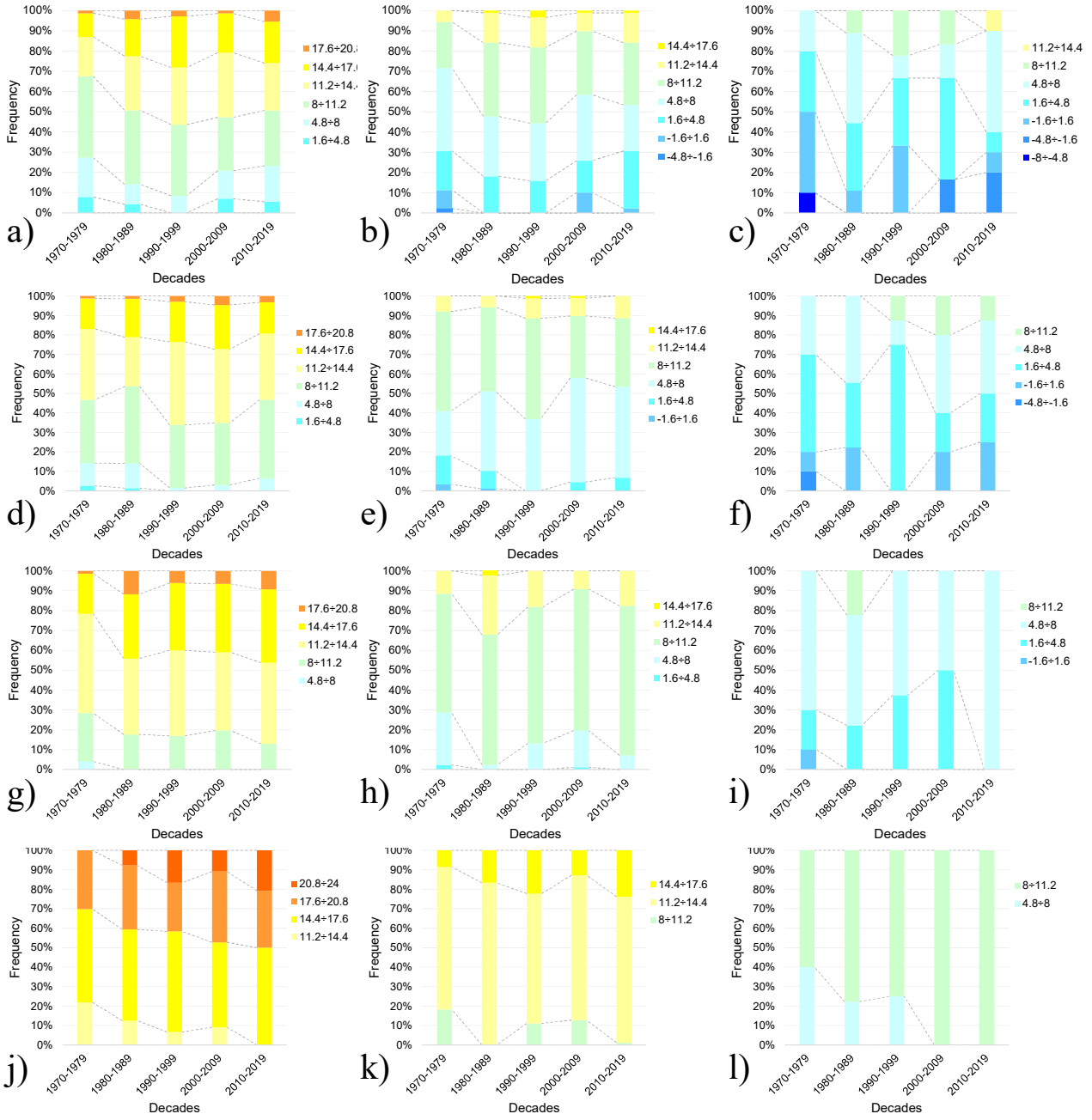


Fig. S8 Frequency of air mean temperature during autumn season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

S1.3 Temperature variation

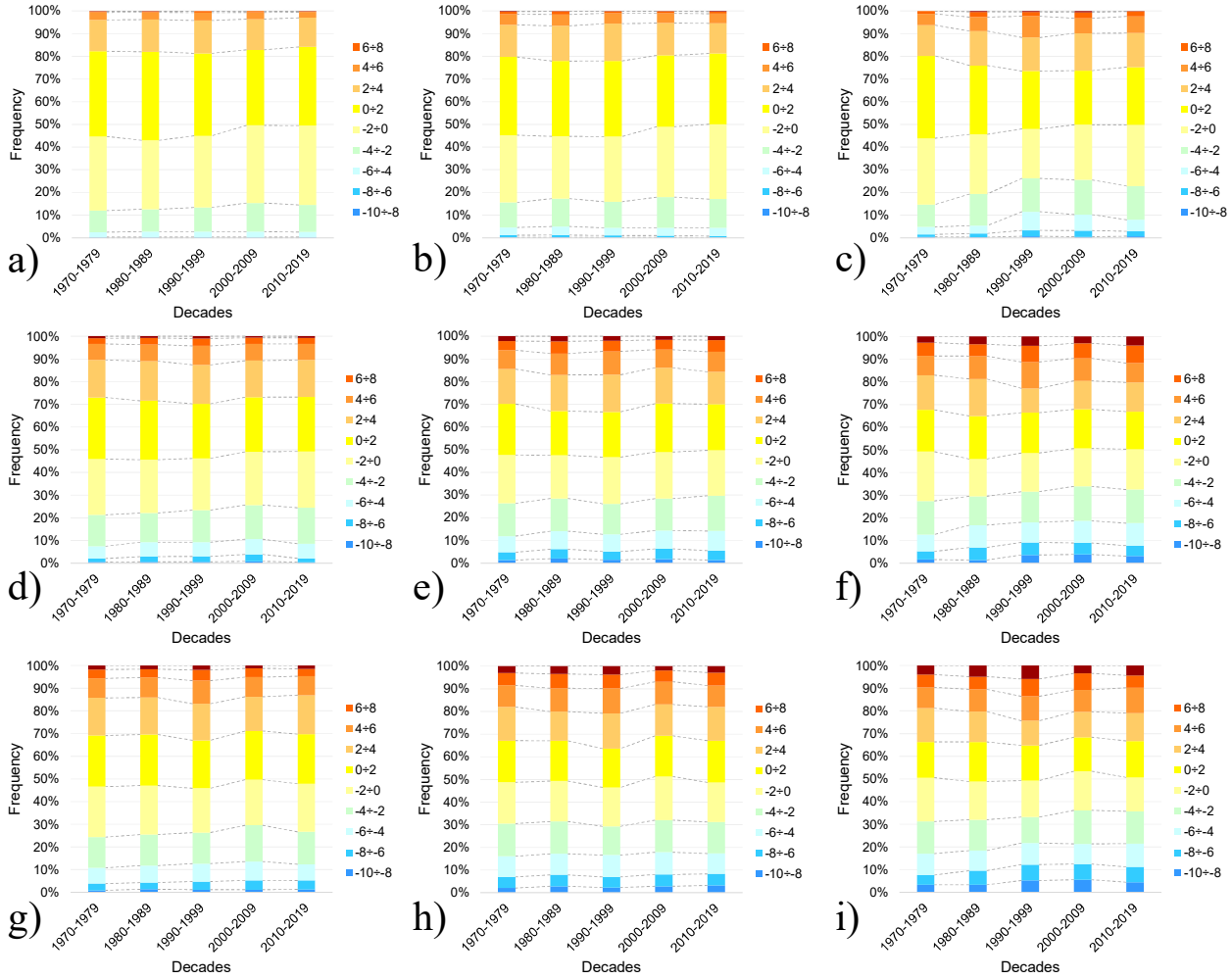
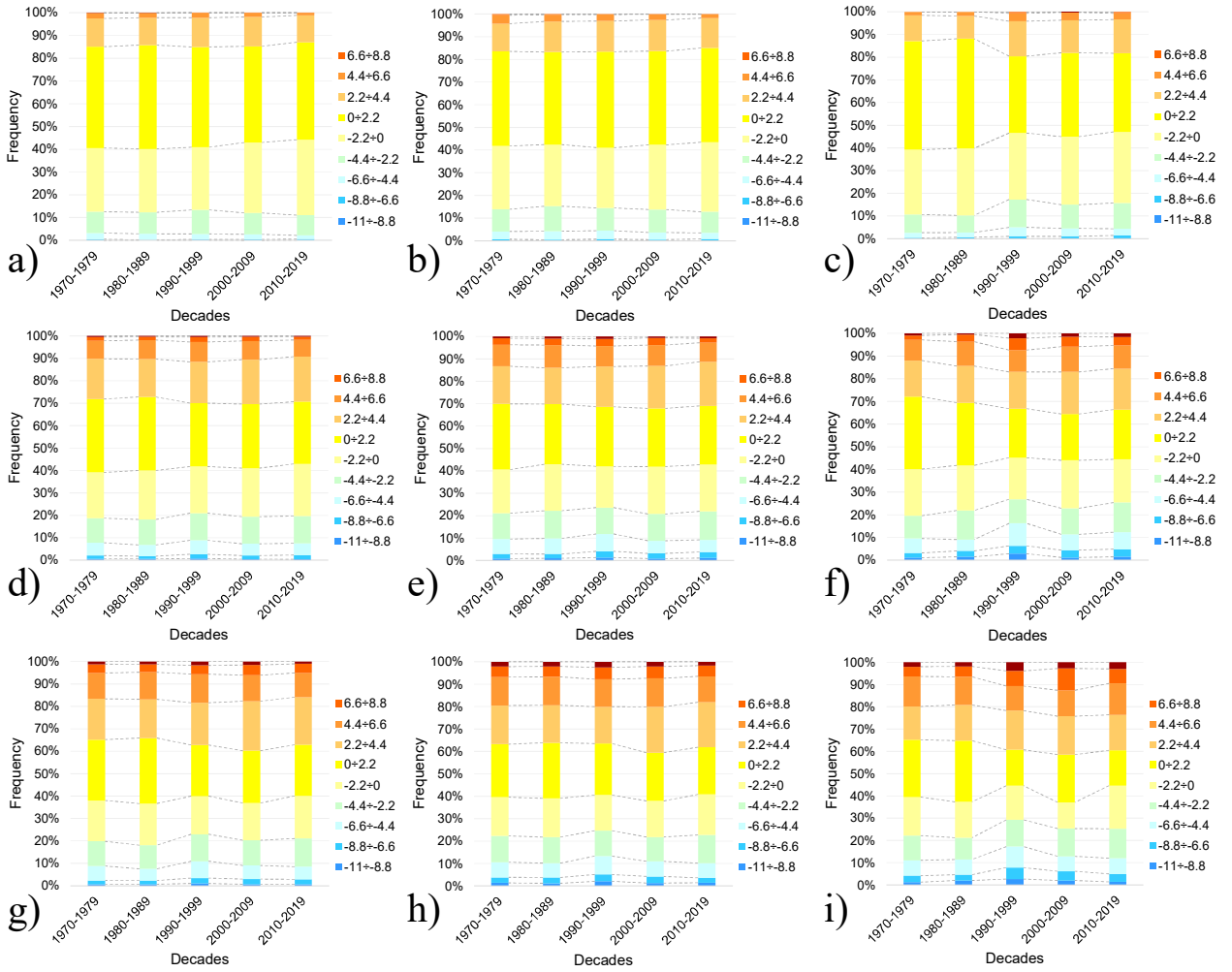


Fig. S9 Frequency of temperature variation during winter season with different aggregation scale and for different altitude. (a) below 1000m and Sa=1, (b) between 1000m-2000m and Sa=1, (c) above 2000m and Sa=1, (d) below 1000m and Sa=3, (e) between 1000m-2000m and Sa=3, (f) above 2000m and Sa=3, (g) below 1000m and Sa=6, (h) between 1000m-2000m and Sa=6, (i) above 2000m and Sa=6.



55 **Fig. S10 Frequency of temperature variation during spring season with different aggregation scale and for different altitude. (a) below 1000m and Sa=1, (b) between 1000m-2000m and Sa=1, (c) above 2000m and Sa=1, (d) below 1000m and Sa=3, (e) between 1000m-2000m and Sa=3, (f) above 2000m and Sa=3, (g) below 1000m and Sa=6, (h) between 1000m-2000m and Sa=6, (i) above 2000m and Sa=6.**

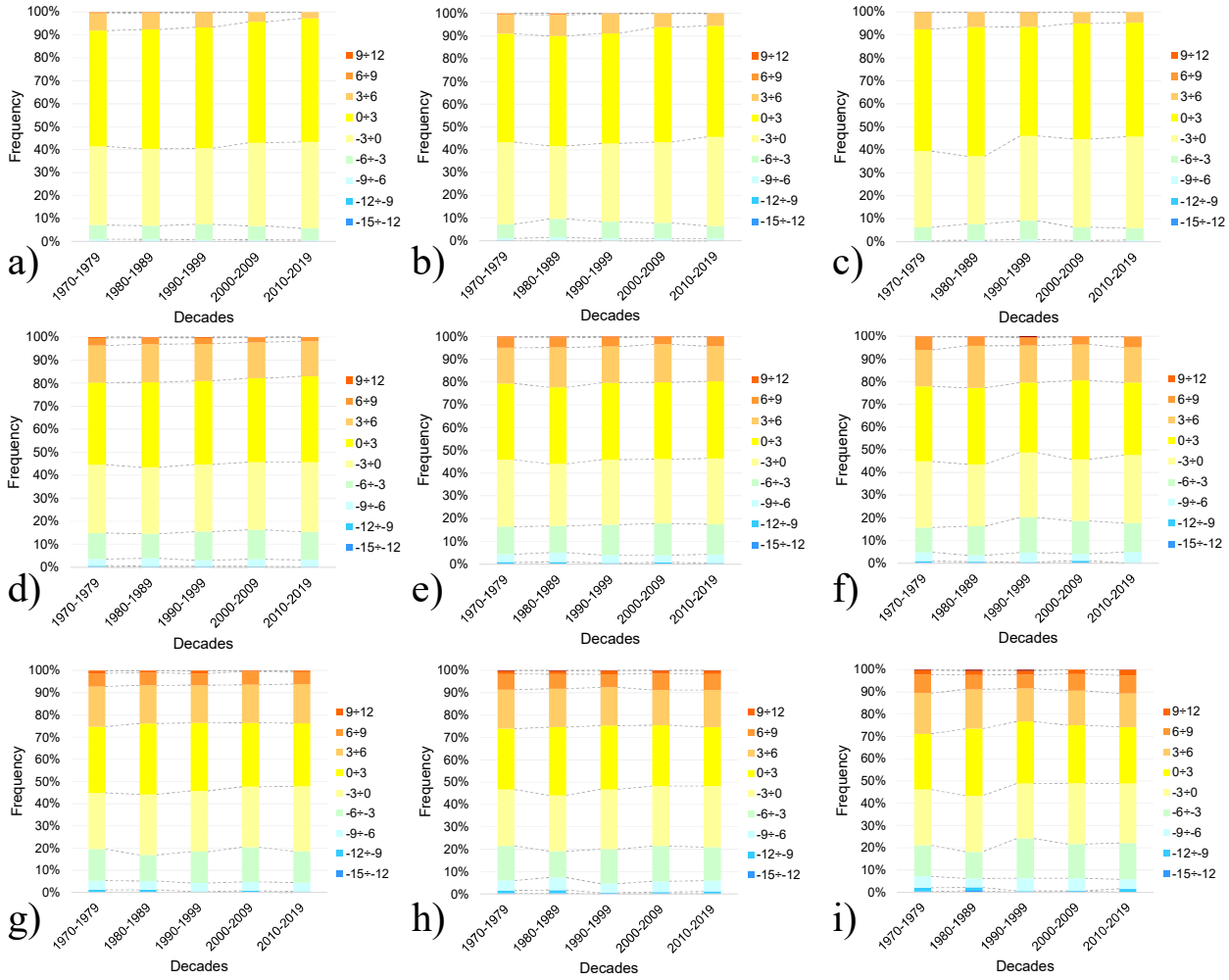
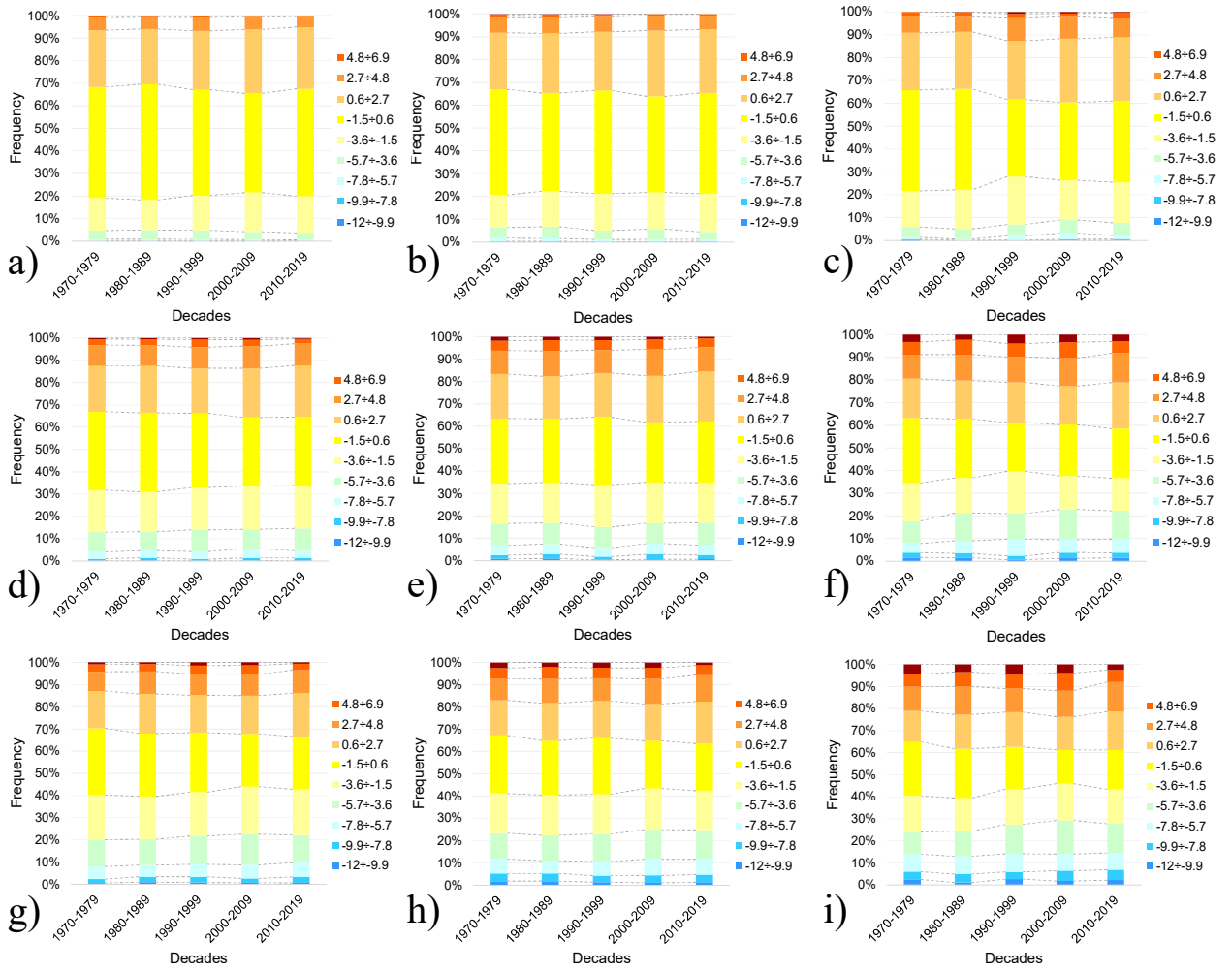


Fig. S11 Frequency of temperature variation during summer season with different aggregation scale and for different altitude. (a) below 1000m and Sa=1, (b) between 1000m-2000m and Sa=1, (c) above 2000m and Sa=1, (d) below 1000m and Sa=3, (e) between 1000m-2000m and Sa=3, (f) above 2000m and Sa=3, (g) below 1000m and Sa=6, (h) between 1000m-2000m and Sa=6, (i) above 2000m and Sa=6.



65 **Fig. S12 Frequency of temperature variation during autumn season with different aggregation scale and for different altitude. (a) below 1000m and Sa=1, (b) between 1000m-2000m and Sa=1, (c) above 2000m and Sa=1, (d) below 1000m and Sa=3, (e) between 1000m-2000m and Sa=3, (f) above 2000m and Sa=3, (g) below 1000m and Sa=6, (h) between 1000m-2000m and Sa=6, (i) above 2000m and Sa=6.**

S1.4 Temperature amplitude

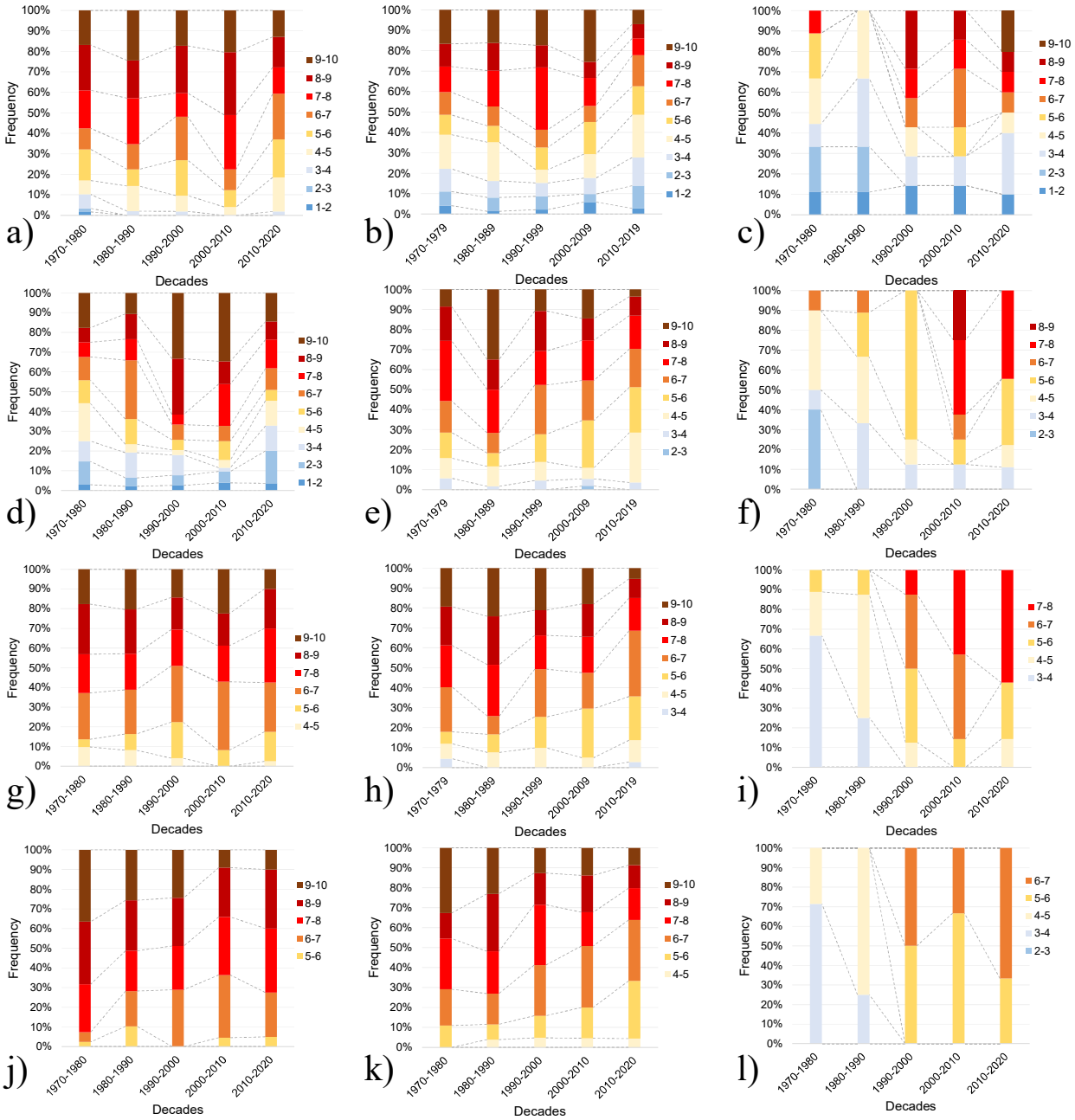


Fig. S13 Frequency of temperature amplitude during winter season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

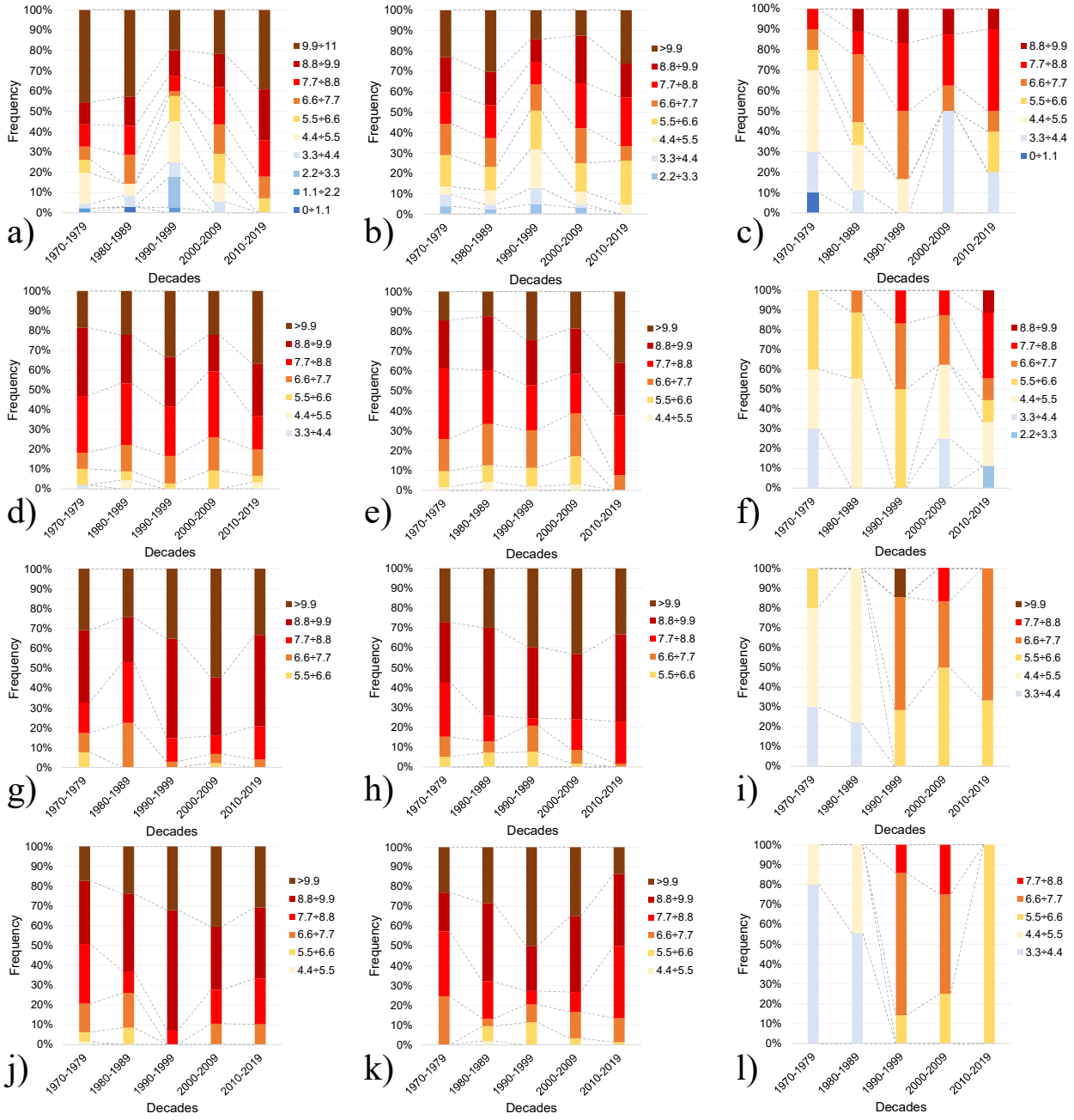


Fig. S14 Frequency of temperature amplitude during spring season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

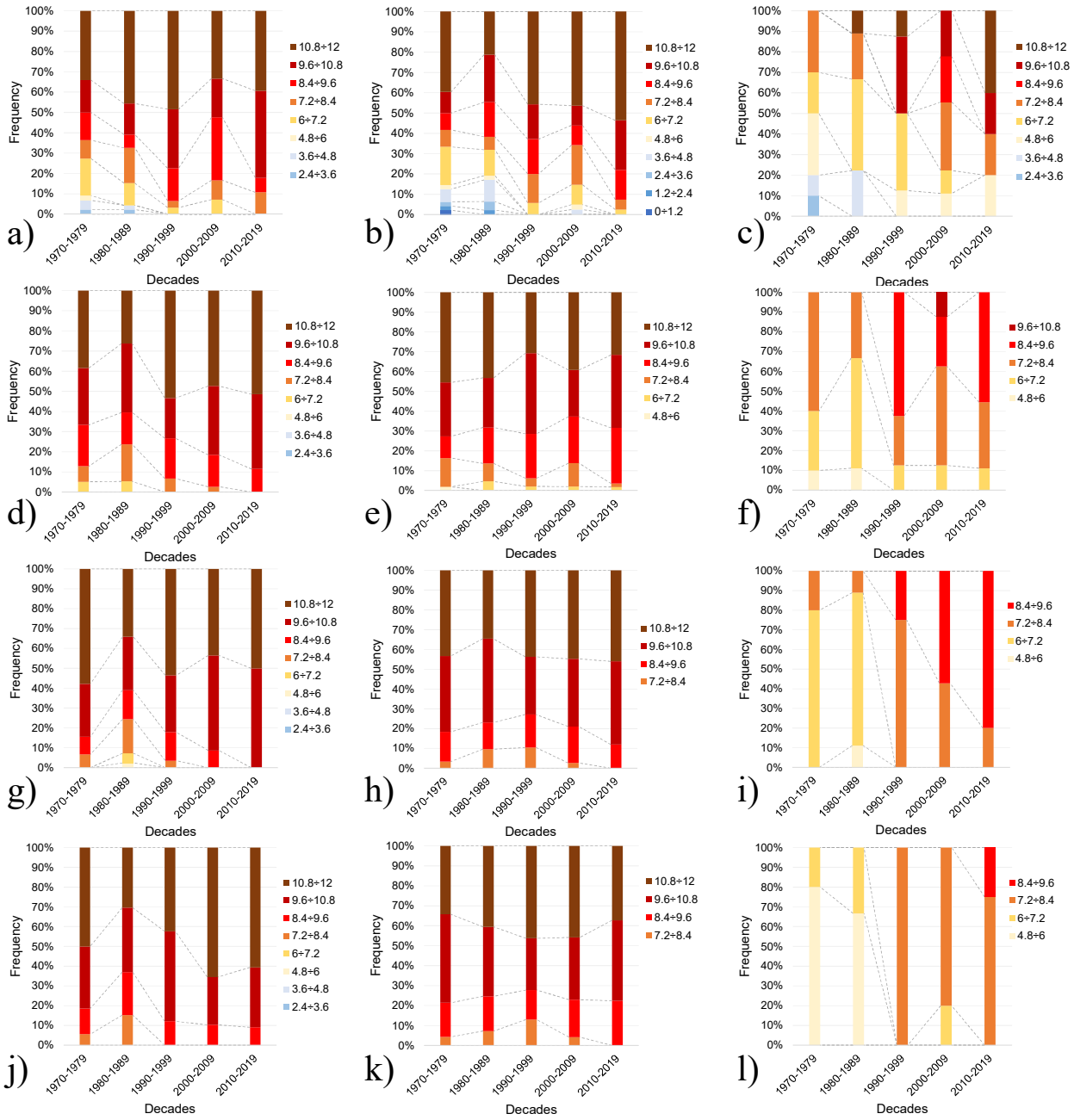


Fig. S15 Frequency of temperature amplitude during summer season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

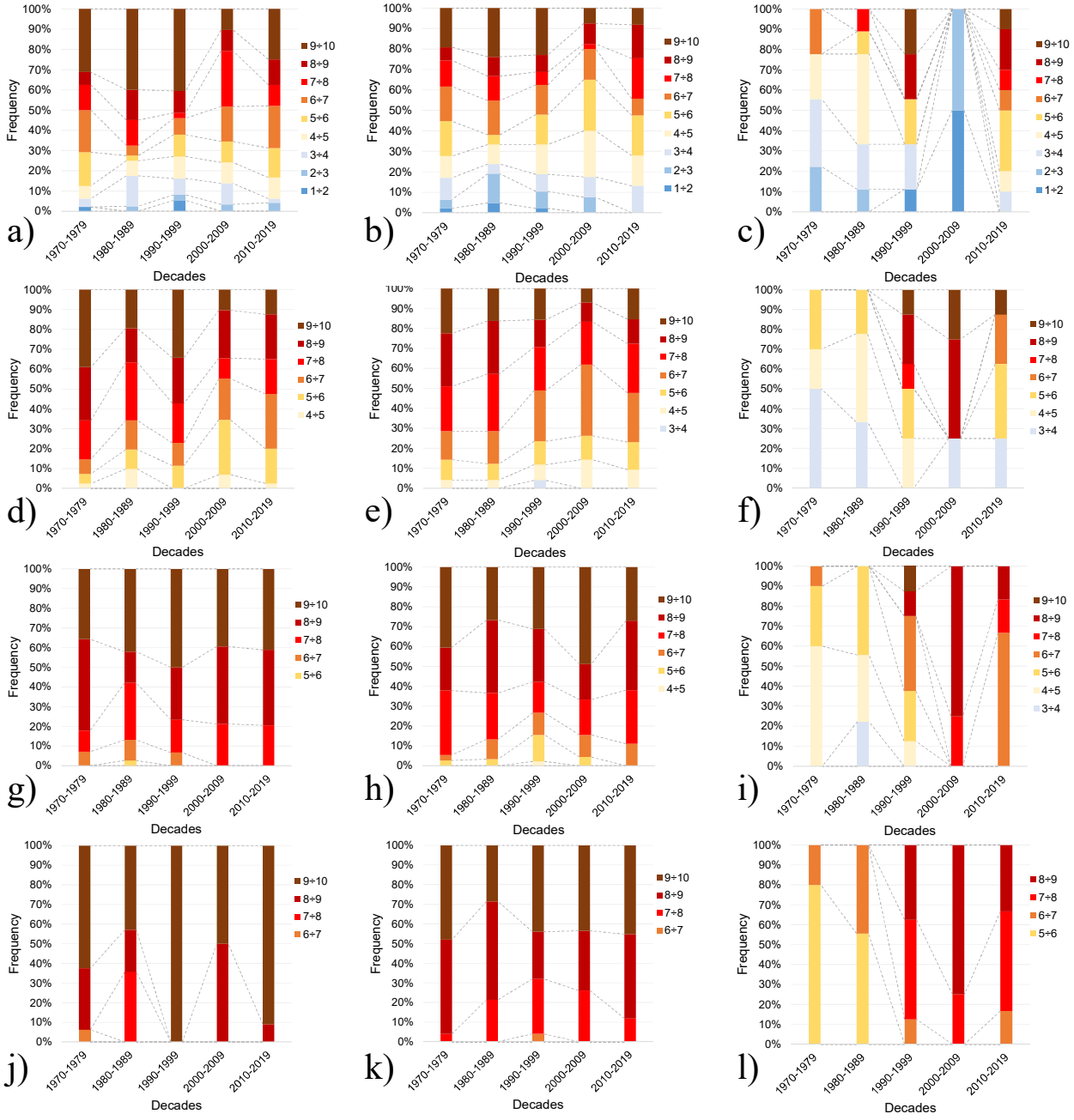


Fig. S16 Frequency of temperature amplitude during autumn season with different aggregation scale and for different altitude. (a) below 1000m and Sa=0, (b) between 1000m-2000m and Sa=0, (c) above 2000m and Sa=0, (d) below 1000m and Sa=7, (e) between 1000m-2000m and Sa=7, (f) above 2000m and Sa=7, (g) below 1000m and Sa=30, (h) between 1000m-2000m and Sa=30, (i) above 2000m and Sa=30, (j) below 1000m and Sa=90, (k) between 1000m-2000m and Sa=90, (l) above 2000m and Sa=90.

S1.5 Freeze-thaw

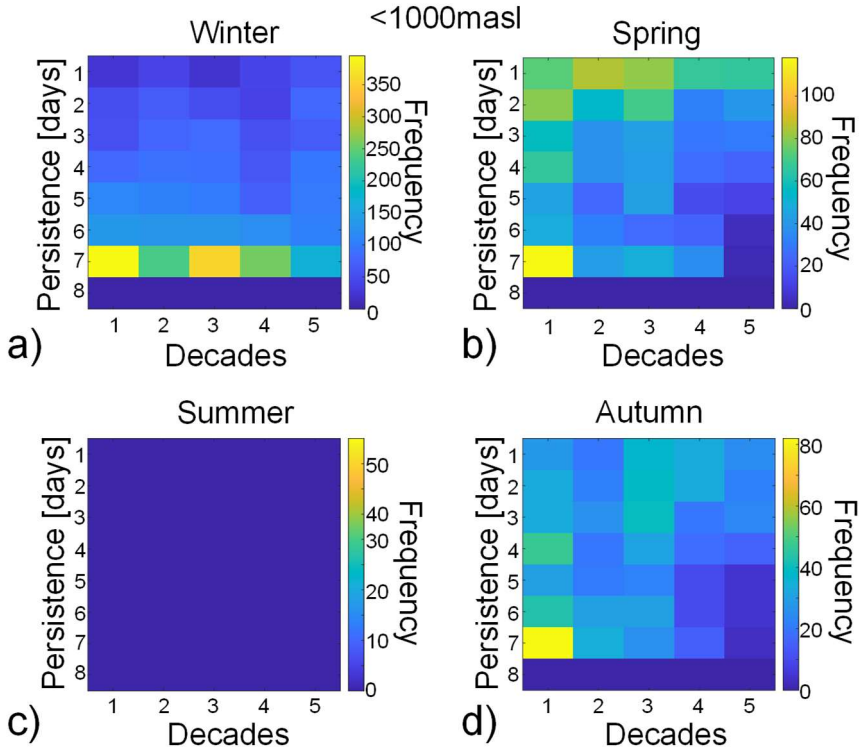
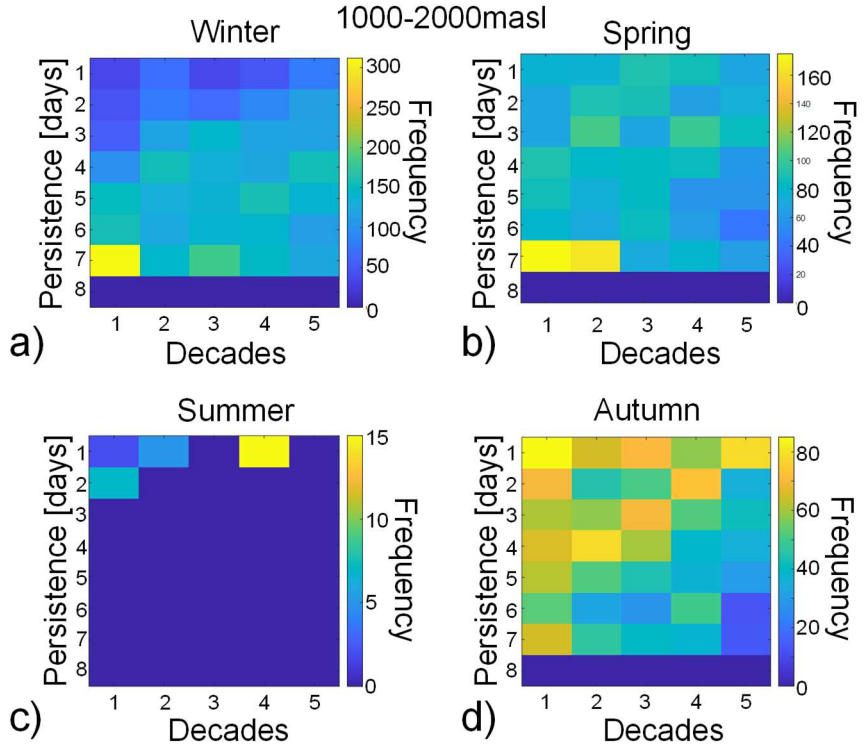


Fig. S17 Heatmaps of freeze-thaw frequency below 1000m: (a) winter; (b) spring; (c) summer and (d) autumn.



95 **Fig. S18 Heatmaps of freeze-thaw frequency between 1000-2000m: (a) winter; (b) spring; (c) summer and (d) autumn.**

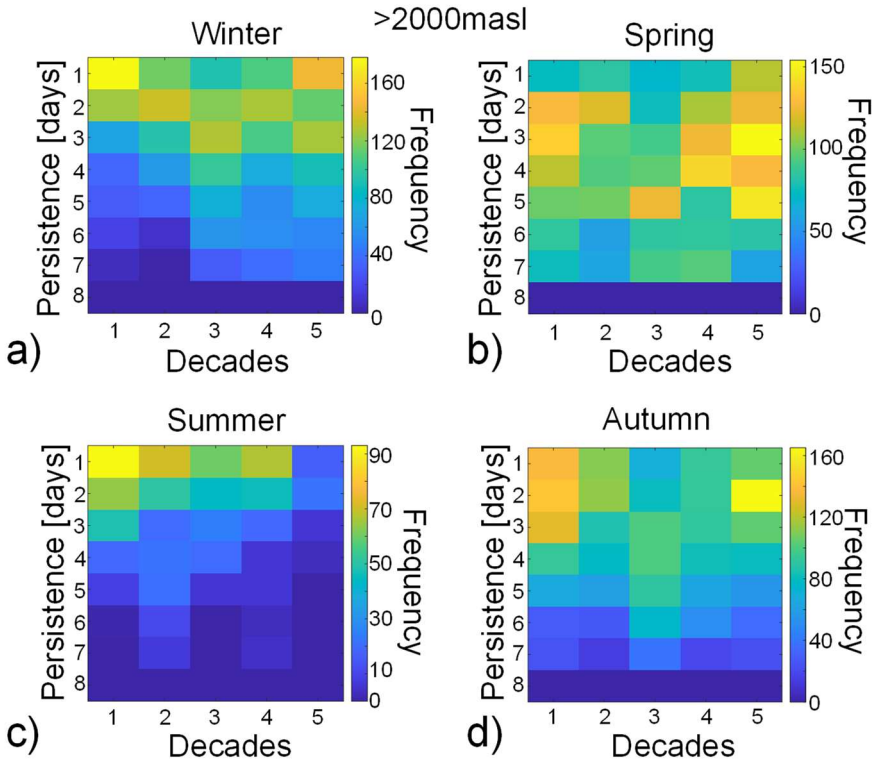


Fig. S19 Heatmaps of freeze-thaw frequency above 2000m: (a) winter; (b) spring; (c) summer and (d) autumn.

S1.6 Icing

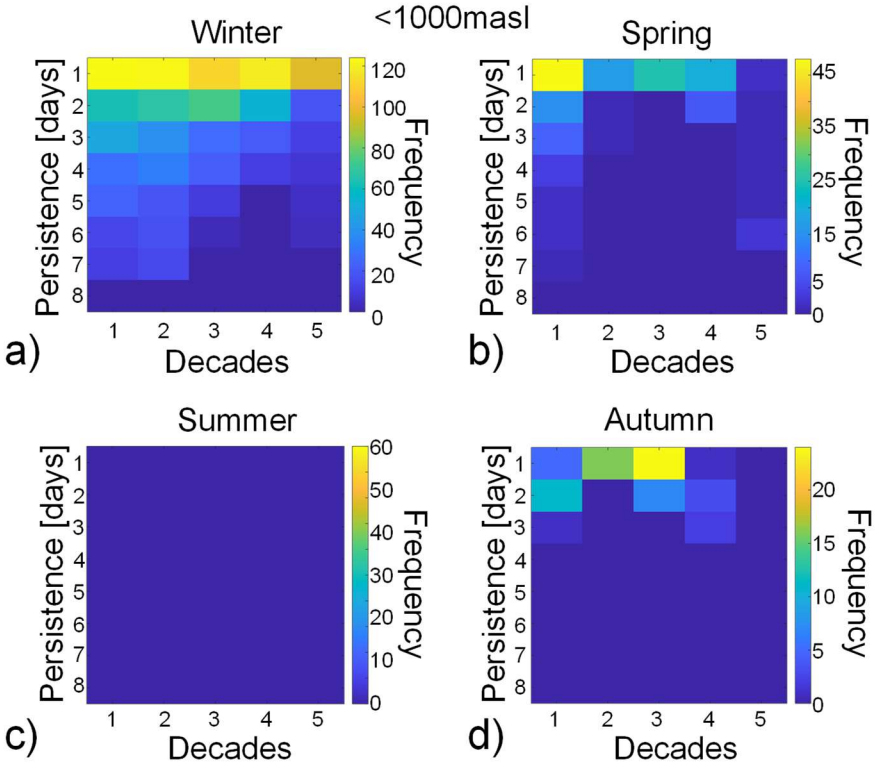


Fig. S20 Heatmaps of icing frequency below 1000m: (a) winter; (b) spring; (c) summer and (d) autumn.

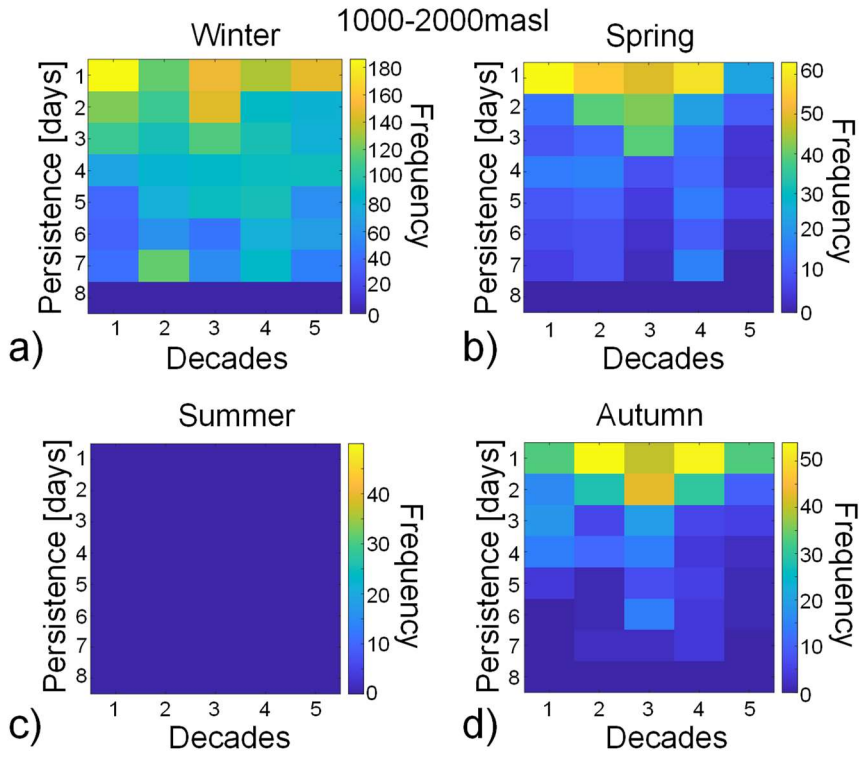
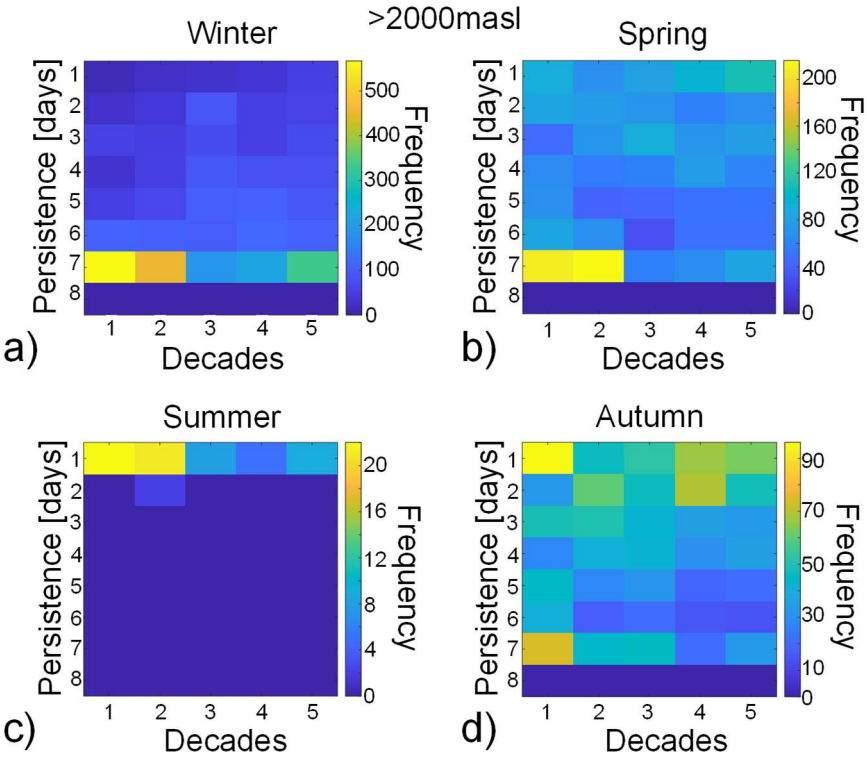


Fig. S21 Heatmaps of icing frequency between 1000-2000m: (a) winter; (b) spring; (c) summer and (d) autumn.

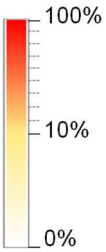


105 **Fig. S22 Heatmaps of icing frequency above 2000m: (a) winter; (b) spring; (c) summer and (d) autumn.**

S2 Rockfalls and climate variables

S2.1 Rainfall

	Rain [mm]	<1000m					1000-2000m					>2000m				
	0÷10	0.0%	0.6%	0.9%	4.5%	4.2%	-	0.1%	0.1%	1.3%	1.0%	-	-	0.0%	-	0.1%
	10÷20	0.0%	1.0%	1.0%	3.3%	5.5%	-	0.5%	0.0%	0.5%	1.6%	-	-	0.0%	-	0.0%
	20÷30	0.0%	0.0%	0.0%	6.7%	3.8%	-	0.0%	0.0%	4.4%	3.8%	-	-	0.0%	-	0.0%
	30÷40	0.0%	0.0%	0.0%	7.3%	5.7%	-	0.0%	0.0%	0.0%	2.9%	-	-	0.0%	-	0.0%
Sa=0	40÷50	0.0%	27.3%	0.0%	5.3%	7.1%	-	0.0%	0.0%	10.5%	0.0%	-	-	0.0%	-	0.0%
	50÷60	0.0%	0.0%	0.0%	9.1%	25.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	60÷70	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	70÷80	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	80÷90	-	0.0%	-	-	0.0%	-	0.0%	-	-	0.0%	-	-	-	-	0.0%
	90÷100	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%
	0÷25	0.0%	0.7%	1.1%	4.6%	4.0%	-	0.1%	0.2%	1.2%	0.9%	-	-	0.0%	-	0.2%
	25÷50	0.0%	0.1%	0.4%	2.4%	3.0%	-	0.2%	0.0%	0.8%	1.0%	-	-	0.0%	-	0.1%
	50÷75	0.3%	1.8%	0.0%	2.5%	5.6%	-	0.0%	0.0%	0.8%	1.3%	-	-	0.0%	-	0.0%
	75÷100	0.0%	1.5%	2.3%	13.4%	9.8%	-	0.0%	0.0%	2.8%	2.1%	-	-	0.0%	-	0.0%
Sa=7	100÷125	0.0%	0.0%	0.0%	11.2%	4.5%	-	0.0%	0.0%	8.2%	3.0%	-	-	0.0%	-	0.0%
	125÷150	0.0%	4.8%	0.0%	16.7%	7.4%	-	4.8%	0.0%	6.7%	3.7%	-	-	0.0%	-	0.0%
	150÷175	0.0%	0.0%	0.0%	13.3%	26.7%	-	0.0%	0.0%	0.0%	13.3%	-	-	0.0%	-	0.0%
	175÷200	0.0%	0.0%	0.0%	7.7%	11.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	200÷225	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	225÷250	-	-	-	0.0%	0.0%	-	-	-	0.0%	0.0%	-	-	-	-	0.0%
	0÷30	0.0%	1.2%	1.0%	9.8%	4.4%	-	0.2%	0.2%	1.4%	0.6%	-	-	0.2%	-	0.6%
	30÷60	0.0%	0.9%	2.3%	5.1%	7.2%	-	0.2%	0.3%	0.7%	1.7%	-	-	0.0%	-	0.4%
	60÷90	0.0%	0.5%	0.7%	3.3%	3.0%	-	0.0%	0.2%	0.9%	0.9%	-	-	0.0%	-	0.0%
	90÷120	0.0%	0.7%	0.4%	3.0%	2.2%	-	0.2%	0.0%	0.9%	1.0%	-	-	0.0%	-	0.0%
Sa=30	120÷150	0.0%	0.6%	0.4%	4.3%	1.5%	-	0.3%	0.0%	2.1%	0.0%	-	-	0.0%	-	0.0%
	150÷180	0.0%	0.9%	0.0%	1.1%	3.7%	-	0.0%	0.0%	1.4%	1.7%	-	-	0.0%	-	0.0%
	180÷210	0.0%	0.0%	0.6%	1.7%	3.5%	-	0.0%	0.0%	0.8%	0.5%	-	-	0.0%	-	0.0%
	210÷240	1.6%	0.0%	0.0%	5.6%	4.7%	-	0.0%	0.0%	3.3%	0.8%	-	-	0.0%	-	0.0%
	240÷270	0.0%	0.0%	1.3%	7.9%	7.8%	-	0.0%	0.0%	3.2%	2.0%	-	-	0.0%	-	0.0%
	270÷300	0.0%	0.0%	0.0%	11.4%	27.6%	-	0.0%	0.0%	0.0%	3.4%	-	-	0.0%	-	0.0%
	0÷55	-	2.2%	0.0%	10.8%	0.0%	-	0.0%	0.0%	2.7%	10.0%	-	-	0.0%	-	0.0%
	55÷110	0.0%	1.4%	4.1%	2.6%	3.9%	-	0.0%	0.4%	0.0%	0.8%	-	-	0.0%	-	0.8%
	110÷165	0.0%	0.8%	0.8%	5.4%	2.6%	-	0.0%	0.2%	0.5%	1.5%	-	-	0.2%	-	0.0%
	165÷220	0.0%	1.1%	0.5%	6.3%	2.7%	-	0.2%	0.2%	0.7%	0.0%	-	-	0.0%	-	0.4%
Sa=90	220÷275	0.0%	0.9%	0.2%	3.7%	2.3%	-	0.0%	0.0%	2.4%	0.8%	-	-	0.0%	-	0.0%
	275÷330	0.0%	0.6%	0.9%	1.9%	3.1%	-	0.2%	0.0%	0.7%	0.5%	-	-	0.0%	-	0.2%
	330÷385	0.0%	0.1%	0.5%	0.9%	0.8%	-	0.1%	0.2%	0.5%	0.6%	-	-	0.0%	-	0.0%
	385÷440	0.3%	0.2%	0.6%	3.8%	3.4%	-	0.0%	0.0%	1.1%	0.6%	-	-	0.0%	-	0.2%
	440÷495	0.0%	0.5%	0.7%	1.5%	4.7%	-	0.0%	0.0%	0.0%	1.5%	-	-	0.0%	-	0.0%
	495÷550	0.0%	0.0%	0.8%	2.6%	6.2%	-	6.7%	0.0%	4.3%	0.6%	-	-	0.0%	-	0.0%
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

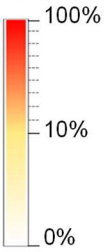


	Rain [mm]	<1000m					1000-2000m					>2000m				
	0÷5	0.1%	0.5%	0.8%	3.4%	4.3%	0.1%	0.2%	0.5%	2.3%	2.7%	-	-	0.0%	0.2%	0.2%
	5÷10	0.0%	0.3%	1.6%	5.9%	6.9%	0.0%	0.0%	0.3%	3.4%	8.0%	-	-	0.0%	0.0%	1.1%
	10÷15	0.0%	0.0%	1.5%	9.2%	3.8%	0.0%	0.0%	1.5%	2.3%	1.3%	-	-	0.0%	0.0%	0.0%
	15÷20	0.0%	0.0%	3.3%	4.9%	6.3%	1.4%	1.5%	0.0%	3.7%	2.1%	-	-	0.0%	0.0%	0.0%
Sa=0	20÷25	1.8%	0.0%	5.6%	0.0%	4.3%	0.0%	0.0%	2.8%	1.9%	4.3%	-	-	0.0%	0.0%	0.0%
	25÷30	0.0%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	5.6%	6.1%	-	-	0.0%	0.0%	0.0%
	30÷35	0.0%	0.0%	0.0%	3.6%	4.2%	0.0%	0.0%	0.0%	0.0%	4.2%	-	-	0.0%	0.0%	0.0%
	35÷40	0.0%	0.0%	0.0%	7.7%	9.1%	0.0%	0.0%	0.0%	0.0%	27.3%	-	-	0.0%	0.0%	0.0%
	40÷45	0.0%	0.0%	0.0%	8.3%	14.3%	0.0%	14.3%	0.0%	0.0%	14.3%	-	-	0.0%	0.0%	14.3%
	45÷50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	-	-	0.0%	0.0%	0.0%
	0÷15	0.2%	0.2%	0.6%	2.6%	3.7%	0.1%	0.1%	0.6%	1.4%	2.4%	-	-	0.0%	0.1%	0.1%
	15÷30	0.0%	0.7%	0.9%	4.4%	4.3%	0.1%	0.0%	0.2%	3.0%	2.5%	-	-	0.1%	0.1%	0.8%
	30÷45	0.0%	0.2%	2.2%	5.1%	4.6%	0.2%	0.4%	0.7%	2.7%	3.8%	-	-	0.0%	0.2%	0.2%
	45÷60	0.0%	0.4%	0.8%	4.4%	8.5%	0.0%	0.7%	0.4%	4.8%	6.0%	-	-	0.0%	0.0%	0.3%
Sa=7	60÷75	0.0%	2.1%	2.1%	6.0%	2.5%	0.0%	0.7%	0.7%	2.2%	2.0%	-	-	0.0%	0.0%	0.5%
	75÷90	1.0%	1.2%	3.0%	6.0%	5.3%	0.0%	0.0%	1.0%	2.0%	4.3%	-	-	0.0%	1.0%	1.1%
	90÷105	0.0%	1.5%	0.0%	7.8%	5.4%	0.0%	1.5%	0.0%	9.4%	8.1%	-	-	0.0%	0.0%	0.0%
	105÷120	0.0%	0.0%	0.0%	6.7%	7.9%	0.0%	0.0%	0.0%	5.0%	10.5%	-	-	0.0%	0.0%	2.6%
	120÷135	0.0%	0.0%	6.7%	0.0%	17.6%	0.0%	0.0%	6.7%	0.0%	23.5%	-	-	0.0%	0.0%	0.0%
	135÷150	0.0%	0.0%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	7.1%	-	-	0.0%	0.0%	0.0%
	0÷20	0.0%	0.0%	0.6%	2.2%	2.1%	0.0%	0.0%	1.5%	3.0%	0.5%	-	-	0.0%	0.0%	0.0%
	20÷40	0.4%	0.9%	0.3%	4.4%	3.7%	0.0%	0.0%	0.0%	1.2%	4.0%	-	-	0.0%	0.0%	0.3%
	40÷60	0.0%	0.2%	0.8%	5.3%	9.3%	0.2%	0.5%	0.0%	2.8%	3.4%	-	-	0.0%	0.0%	0.3%
	60÷80	0.0%	0.2%	1.8%	4.4%	5.4%	0.0%	0.0%	0.5%	1.9%	3.5%	-	-	0.0%	0.3%	0.3%
Sa=30	80÷100	0.4%	0.0%	1.4%	4.6%	4.6%	0.2%	0.0%	0.5%	2.7%	3.3%	-	-	0.0%	0.4%	0.2%
	100÷120	0.2%	0.5%	0.9%	4.0%	3.4%	0.0%	0.2%	0.5%	3.2%	4.1%	-	-	0.0%	0.0%	0.6%
	120÷140	0.0%	1.1%	0.9%	3.4%	6.2%	0.0%	0.4%	0.3%	1.8%	4.8%	-	-	0.0%	0.0%	0.2%
	140÷160	0.0%	0.3%	1.7%	3.8%	4.8%	0.3%	0.3%	0.4%	2.4%	3.1%	-	-	0.4%	0.3%	0.3%
	160÷180	0.0%	0.0%	2.5%	5.5%	3.0%	0.0%	0.0%	2.5%	4.1%	3.0%	-	-	0.0%	0.0%	0.4%
	180÷200	0.0%	0.0%	0.8%	3.3%	3.8%	0.0%	0.0%	0.8%	3.3%	1.5%	-	-	0.0%	0.0%	0.0%
	0÷45	-	-	0.0%	25.0%	-	-	-	1.9%	12.5%	-	-	-	0.0%	0.0%	-
	45÷90	0.0%	0.7%	1.6%	3.9%	7.8%	0.0%	0.0%	0.5%	2.4%	7.8%	-	-	0.0%	0.0%	0.0%
	90÷135	0.0%	0.7%	2.1%	11.7%	6.3%	0.0%	0.0%	2.5%	7.4%	3.8%	-	-	0.0%	0.0%	0.6%
	135÷180	0.4%	0.7%	2.6%	10.0%	12.2%	0.0%	0.2%	0.4%	5.0%	5.5%	-	-	0.0%	0.4%	0.6%
Sa=90	180÷225	0.3%	0.4%	2.0%	9.8%	11.0%	0.0%	0.2%	1.4%	6.3%	7.9%	-	-	0.0%	0.4%	0.8%
	225÷270	0.0%	0.6%	1.4%	5.3%	10.6%	0.4%	0.2%	0.6%	3.6%	7.3%	-	-	0.0%	0.0%	1.3%
	270÷315	0.2%	0.7%	0.7%	2.5%	4.7%	0.0%	0.5%	0.7%	1.7%	3.4%	-	-	0.0%	0.4%	0.2%
	315÷360	0.2%	0.5%	0.2%	3.1%	1.8%	0.0%	0.0%	0.0%	1.6%	2.8%	-	-	0.0%	0.0%	0.0%
	360÷405	0.0%	0.2%	0.0%	0.7%	1.6%	0.0%	0.3%	0.0%	1.0%	0.6%	-	-	0.2%	0.0%	0.2%
	405÷450	0.0%	0.0%	0.0%	2.8%	1.1%	0.0%	0.3%	0.0%	1.9%	1.4%	-	-	0.0%	0.3%	0.3%
b)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)
100%
10%
0%

	Rain [mm]	<1000m					1000-2000m					>2000m				
	0÷6	0.1%	0.4%	0.9%	2.7%	2.7%	0.0%	0.2%	0.5%	2.0%	2.3%	-	0.1%	0.2%	0.6%	1.0%
	6÷12	0.0%	1.5%	0.7%	7.2%	6.3%	0.0%	0.4%	0.7%	4.1%	4.3%	-	0.0%	0.0%	0.7%	1.4%
	12÷18	0.0%	0.0%	2.0%	7.3%	7.7%	0.0%	0.0%	1.0%	4.8%	4.2%	-	0.0%	0.0%	2.4%	1.4%
	18÷24	0.0%	2.9%	1.7%	6.3%	1.5%	0.0%	0.0%	0.0%	3.8%	7.4%	-	0.0%	0.0%	0.0%	1.5%
Sa=0	24÷30	0.0%	2.6%	0.0%	6.7%	4.8%	0.0%	0.0%	3.1%	11.1%	2.4%	-	0.0%	3.1%	0.0%	2.4%
	30÷36	0.0%	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	5.3%	0.0%	7.7%	-	0.0%	0.0%	0.0%	0.0%
	36÷42	0.0%	0.0%	16.7%	11.8%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	42÷48	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	48÷54	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	54÷60	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	0÷13	0.1%	0.1%	0.1%	0.8%	0.6%	0.0%	0.1%	0.2%	0.6%	0.7%	-	0.0%	0.0%	0.3%	0.4%
	13÷26	0.0%	0.3%	0.4%	2.8%	3.0%	0.0%	0.7%	0.7%	2.8%	4.1%	-	0.1%	0.1%	1.0%	2.2%
	26÷39	0.0%	1.0%	1.7%	5.0%	7.1%	0.0%	0.0%	0.6%	2.7%	2.9%	-	0.2%	0.0%	0.7%	1.7%
	39÷52	0.0%	1.5%	3.4%	7.3%	5.1%	0.0%	0.0%	0.8%	4.2%	4.0%	-	0.0%	0.8%	1.2%	1.2%
Sa=7	52÷65	0.5%	0.5%	2.9%	9.9%	4.0%	0.0%	0.0%	0.6%	9.4%	3.6%	-	0.0%	0.6%	1.5%	1.1%
	65÷78	0.8%	1.9%	3.5%	11.1%	6.1%	0.8%	0.9%	1.7%	8.3%	7.6%	-	0.0%	0.0%	0.7%	0.8%
	78÷91	0.0%	0.0%	0.0%	2.5%	7.5%	0.0%	1.6%	3.8%	1.3%	5.0%	-	0.0%	1.3%	1.3%	1.3%
	91÷104	0.0%	3.4%	3.3%	1.9%	4.7%	0.0%	1.7%	0.0%	0.0%	3.1%	-	0.0%	3.3%	0.0%	1.6%
	104÷117	0.0%	2.9%	10.0%	5.4%	5.6%	0.0%	0.0%	0.0%	0.0%	5.6%	-	0.0%	0.0%	0.0%	0.0%
	117÷130	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	0÷30	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	30÷60	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.5%	1.3%	0.2%	-	0.0%	0.0%	0.0%	0.0%
	60÷90	0.0%	0.3%	0.2%	2.8%	2.1%	0.0%	0.0%	1.0%	2.1%	2.1%	-	0.2%	0.2%	0.9%	1.1%
	90÷120	0.4%	0.7%	1.6%	3.6%	3.8%	0.0%	0.0%	0.4%	1.8%	3.7%	-	0.0%	0.3%	0.4%	1.8%
Sa=30	120÷150	0.0%	0.9%	1.6%	3.9%	6.3%	0.1%	0.9%	1.2%	2.8%	4.9%	-	0.0%	0.4%	1.3%	1.8%
	150÷180	0.0%	1.9%	2.9%	9.5%	5.7%	0.0%	0.9%	0.5%	5.7%	2.5%	-	0.3%	0.0%	1.1%	1.5%
	180÷210	0.0%	0.7%	3.7%	5.8%	3.0%	0.0%	0.0%	0.0%	7.5%	3.5%	-	0.0%	0.6%	0.8%	2.5%
	210÷240	0.0%	0.0%	1.0%	7.8%	9.4%	0.0%	0.0%	1.0%	5.6%	8.7%	-	0.0%	0.0%	1.1%	0.0%
	240÷270	0.0%	0.0%	1.3%	1.6%	0.0%	0.0%	0.0%	0.0%	3.2%	3.9%	-	0.0%	0.0%	0.0%	0.0%
	270÷300	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	0÷70	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	70÷140	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	140÷210	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	210÷280	0.1%	0.1%	0.2%	2.7%	1.7%	0.0%	0.0%	0.6%	1.9%	1.2%	-	0.1%	0.4%	0.8%	0.7%
Sa=90	280÷350	0.0%	0.7%	1.6%	5.2%	5.8%	0.1%	0.2%	0.5%	3.9%	4.0%	-	0.0%	0.3%	0.9%	2.1%
	350÷420	0.0%	0.9%	2.8%	5.0%	5.5%	0.0%	0.3%	1.5%	3.3%	5.1%	-	0.0%	0.3%	0.8%	1.5%
	420÷490	0.3%	1.9%	0.8%	2.3%	4.1%	0.0%	1.6%	0.4%	3.5%	4.1%	-	0.3%	0.0%	1.2%	1.0%
	490÷560	0.0%	0.0%	0.0%	10.6%	0.5%	0.0%	0.0%	0.0%	5.6%	1.0%	-	0.0%	0.0%	0.6%	2.1%
	560÷630	0.0%	-	0.0%	2.7%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	630÷700	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
c)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)



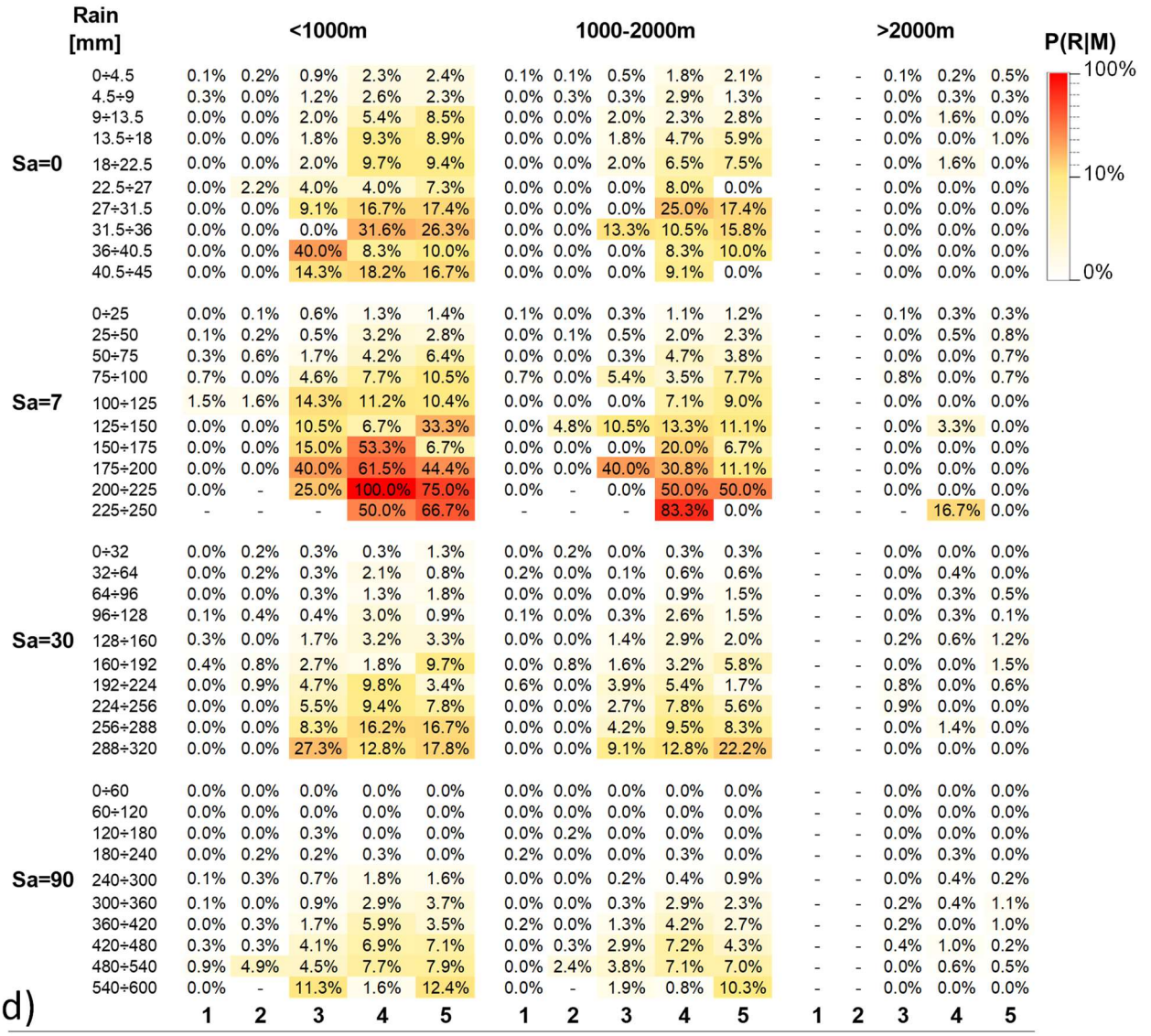
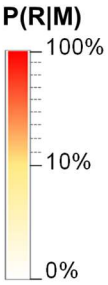


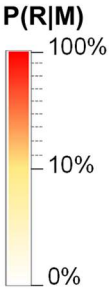
Fig. S23 Conditional probability, P(R|M), calculated with Bayesian's method of rainfalls with different aggregation scales Sa (0, 7, 30, 90) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.2 Air mean temperature

	T [°C]	<1000m					1000-2000m					>2000m				
	-11÷-8.5	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-8.5÷-6	0.0%	4.8%	0.0%	0.0%	4.2%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-6÷-3.5	0.0%	0.0%	2.9%	17.0%	6.7%	-	0.0%	0.0%	4.3%	0.0%	-	-	0.0%	-	1.3%
	-3.5÷-1	0.4%	2.7%	2.0%	11.0%	16.0%	-	0.7%	0.4%	2.6%	2.3%	-	-	0.0%	-	0.0%
Sa=0	-1÷1.5	0.0%	2.2%	1.6%	14.5%	12.5%	-	0.2%	0.5%	3.3%	3.6%	-	-	0.0%	-	0.3%
	1.5÷4	0.0%	0.9%	3.3%	13.4%	14.0%	-	0.4%	0.0%	4.2%	3.6%	-	-	0.0%	-	0.2%
	4÷6.5	0.0%	1.0%	0.6%	3.6%	3.3%	-	0.0%	0.3%	2.5%	1.9%	-	-	0.3%	-	0.3%
	6.5÷9	0.0%	0.0%	0.3%	0.3%	0.0%	-	0.0%	0.0%	0.3%	0.0%	-	-	0.0%	-	0.0%
	9÷11.5	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.2%	-	-	0.0%	-	0.0%
	11.5÷14	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-11÷-8.5	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	-8.5÷-6	0.0%	0.0%	0.0%	0.0%	11.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-6÷-3.5	0.0%	3.6%	3.1%	9.8%	7.0%	-	1.2%	0.0%	0.0%	1.8%	-	-	0.0%	-	0.0%
	-3.5÷-1	0.0%	1.7%	3.3%	11.7%	13.6%	-	0.0%	0.0%	2.3%	1.4%	-	-	0.0%	-	0.0%
Sa=7	-1÷1.5	0.2%	2.1%	2.9%	19.6%	17.3%	-	0.6%	0.4%	5.3%	3.6%	-	-	0.0%	-	0.3%
	1.5÷4	0.0%	1.6%	1.5%	11.0%	11.9%	-	0.2%	0.3%	4.1%	4.6%	-	-	0.0%	-	0.7%
	4÷6.5	0.0%	0.0%	0.3%	2.0%	1.8%	-	0.0%	0.0%	1.5%	0.9%	-	-	0.0%	-	0.0%
	6.5÷9	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.3%	0.0%	0.0%	-	-	0.3%	-	0.0%
	9÷11.5	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	11.5÷14	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-11÷-8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-8.5÷-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-6÷-3.5	0.0%	11.1%	10.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	7.7%	-	-	0.0%	-	0.0%
	-3.5÷-1	0.4%	2.9%	5.7%	17.5%	19.6%	-	0.4%	0.9%	0.5%	2.8%	-	-	0.0%	-	0.0%
Sa=30	-1÷1.5	0.0%	1.3%	3.1%	18.9%	16.9%	-	0.3%	0.3%	5.9%	4.7%	-	-	0.2%	-	0.2%
	1.5÷4	0.0%	1.5%	0.0%	6.7%	7.6%	-	0.6%	0.0%	3.4%	2.2%	-	-	0.0%	-	0.7%
	4÷6.5	0.0%	0.0%	0.0%	2.9%	1.0%	-	0.0%	0.0%	1.7%	0.7%	-	-	0.0%	-	0.0%
	6.5÷9	0.0%	0.0%	0.0%	0.0%	0.5%	-	0.0%	0.0%	0.0%	0.2%	-	-	0.0%	-	0.0%
	9÷11.5	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	11.5÷14	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-11÷-8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-8.5÷-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-6÷-3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-3.5÷-1	0.0%	2.3%	10.5%	14.3%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
Sa=90	-1÷1.5	0.2%	1.8%	2.2%	12.9%	9.6%	-	0.2%	0.5%	3.8%	3.1%	-	-	0.2%	-	0.2%
	1.5÷4	0.0%	1.1%	1.2%	8.8%	9.5%	-	0.0%	0.2%	1.7%	2.7%	-	-	0.0%	-	0.0%
	4÷6.5	0.0%	0.5%	1.3%	6.6%	6.9%	-	0.5%	0.0%	2.0%	1.7%	-	-	0.0%	-	0.2%
	6.5÷9	0.0%	0.6%	0.5%	5.1%	3.9%	-	0.3%	0.0%	3.3%	0.6%	-	-	0.0%	-	0.6%
	9÷11.5	0.0%	0.0%	0.0%	1.7%	1.1%	-	0.0%	0.0%	1.2%	0.9%	-	-	0.0%	-	0.0%
	11.5÷14	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5



	T [°C]	<1000m					1000-2000m					>2000m				
	-7÷-3.8	1.3%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	-3.8÷-0.6	0.3%	0.5%	0.0%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	-0.6÷2.6	0.0%	0.2%	0.4%	1.9%	3.6%	0.0%	0.2%	0.5%	0.8%	0.4%	-	-	0.0%	0.0%	0.2%
	2.6÷5.8	0.2%	0.8%	2.1%	7.9%	7.2%	0.4%	0.2%	0.4%	4.1%	4.3%	-	-	0.0%	0.0%	0.2%
Sa=0	5.8÷9	0.0%	1.6%	2.4%	11.5%	8.8%	0.0%	0.9%	1.5%	7.0%	9.5%	-	-	0.0%	0.0%	0.5%
	9÷12.2	0.0%	0.0%	2.4%	6.3%	7.5%	0.0%	0.5%	1.2%	3.6%	6.7%	-	-	0.0%	0.7%	0.8%
	12.2÷15.4	0.0%	0.4%	0.2%	1.6%	5.7%	0.2%	0.0%	0.2%	2.3%	3.3%	-	-	0.2%	0.0%	0.6%
	15.4÷18.6	0.2%	0.0%	0.0%	0.4%	1.5%	0.0%	0.0%	0.2%	1.1%	1.3%	-	-	0.0%	0.4%	0.2%
	18.6÷21.8	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	-	-	0.0%	0.0%	0.0%
	21.8÷25	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	-7÷-3.8	1.7%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	-3.8÷-0.6	0.3%	0.3%	0.0%	0.9%	0.0%	0.0%	0.3%	0.0%	0.6%	0.0%	-	-	0.0%	0.0%	0.0%
	-0.6÷2.6	0.1%	0.3%	0.3%	2.0%	3.7%	0.3%	0.0%	0.0%	0.4%	0.4%	-	-	0.0%	0.0%	0.0%
	2.6÷5.8	0.0%	0.5%	2.4%	6.1%	8.9%	0.0%	0.2%	1.3%	3.7%	4.2%	-	-	0.0%	0.0%	0.2%
Sa=7	5.8÷9	0.0%	2.0%	3.0%	14.7%	8.5%	0.2%	1.4%	1.4%	8.3%	9.6%	-	-	0.0%	0.0%	0.9%
	9÷12.2	0.2%	0.2%	1.6%	5.1%	8.3%	0.0%	0.0%	1.2%	4.1%	7.9%	-	-	0.0%	0.7%	0.6%
	12.2÷15.4	0.0%	0.2%	0.4%	2.3%	5.0%	0.0%	0.0%	0.4%	2.3%	3.2%	-	-	0.2%	0.4%	0.8%
	15.4÷18.6	0.0%	0.0%	0.0%	0.2%	0.6%	0.0%	0.0%	0.0%	0.2%	0.6%	-	-	0.0%	0.0%	0.0%
	18.6÷21.8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	21.8÷25	-	0.0%	-	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	-	-	-	0.0%	0.0%
	-7÷-3.8	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	-	0.0%	-	0.0%
	-3.8÷-0.6	0.6%	0.0%	0.0%	1.6%	3.0%	0.3%	0.3%	0.0%	1.3%	0.0%	-	-	0.0%	0.0%	0.0%
	-0.6÷2.6	0.1%	0.7%	0.6%	4.4%	5.8%	0.1%	0.1%	0.2%	1.8%	2.1%	-	-	0.0%	0.0%	0.0%
	2.6÷5.8	0.0%	0.7%	2.4%	10.0%	7.7%	0.0%	0.7%	1.8%	6.8%	6.3%	-	-	0.0%	0.0%	1.3%
Sa=30	5.8÷9	0.2%	1.4%	3.1%	11.0%	8.1%	0.2%	0.7%	1.5%	4.9%	7.9%	-	-	0.0%	0.2%	0.2%
	9÷12.2	0.0%	0.3%	1.4%	2.6%	8.9%	0.0%	0.0%	0.9%	3.7%	7.5%	-	-	0.0%	0.5%	1.2%
	12.2÷15.4	0.0%	0.2%	0.0%	0.8%	1.7%	0.0%	0.0%	0.0%	0.8%	1.4%	-	-	0.0%	0.4%	0.0%
	15.4÷18.6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.2%	0.0%	0.0%
	18.6÷21.8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	21.8÷25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-7÷-3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-3.8÷-0.6	3.3%	1.1%	0.9%	13.0%	17.2%	1.1%	0.4%	0.0%	5.2%	0.0%	-	-	0.0%	0.0%	0.0%
	-0.6÷2.6	0.0%	0.8%	2.2%	10.1%	9.4%	0.1%	0.5%	1.0%	6.3%	6.1%	-	-	0.0%	0.2%	0.7%
	2.6÷5.8	0.2%	1.4%	2.5%	7.9%	9.4%	0.2%	0.8%	1.5%	4.2%	7.3%	-	-	0.0%	0.0%	0.6%
Sa=90	5.8÷9	0.0%	0.2%	1.1%	3.2%	8.3%	0.0%	0.0%	0.6%	3.7%	7.5%	-	-	0.0%	0.9%	0.8%
	9÷12.2	0.0%	0.0%	0.0%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.4%	-	-	0.0%	0.0%	0.0%
	12.2÷15.4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	15.4÷18.6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.2%	0.0%	0.0%
	18.6÷21.8	-	-	-	0.0%	0.0%	-	-	-	0.0%	0.0%	-	-	-	0.0%	0.0%
	21.8÷25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**



	T [°C]	<1000m					1000-2000m					>2000m				
	0÷3	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3÷6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6÷9	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.2%	0.0%	0.0%	0.0%
	9÷12	0.0%	0.5%	0.6%	1.7%	1.0%	0.2%	0.3%	0.4%	0.7%	0.6%	-	0.0%	0.2%	0.2%	0.2%
Sa=0	12÷15	0.0%	1.1%	1.4%	5.8%	7.0%	0.0%	0.6%	1.4%	4.5%	4.5%	-	0.0%	0.5%	0.6%	0.9%
	15÷18	0.2%	1.4%	3.0%	9.8%	9.0%	0.0%	0.4%	1.5%	6.7%	6.3%	-	0.0%	0.4%	1.3%	2.1%
	18÷21	0.0%	1.1%	3.1%	9.0%	8.2%	0.0%	1.1%	1.4%	7.4%	9.8%	-	0.4%	0.3%	3.2%	5.6%
	21÷24	0.0%	0.0%	4.7%	8.9%	7.8%	0.0%	0.0%	2.3%	5.0%	8.7%	-	0.0%	0.0%	1.0%	4.3%
	24÷27	-	0.0%	-	16.7%	0.0%	-	0.0%	-	0.0%	0.0%	-	0.0%	-	0.0%	0.0%
	27÷30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0÷3	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3÷6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.3%	0.0%	0.0%	0.0%
	6÷9	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9÷12	0.2%	0.3%	0.2%	0.0%	0.2%	0.0%	0.5%	0.0%	0.0%	0.4%	-	0.0%	0.2%	0.3%	0.0%
Sa=7	12÷15	0.0%	1.4%	1.8%	3.7%	5.6%	0.2%	0.0%	1.4%	2.6%	2.6%	-	0.0%	0.4%	0.2%	0.9%
	15÷18	0.0%	0.7%	3.7%	10.1%	9.0%	0.0%	0.5%	1.5%	8.1%	7.8%	-	0.0%	0.7%	2.0%	2.6%
	18÷21	0.0%	2.5%	2.5%	12.3%	10.1%	0.0%	1.6%	1.8%	8.7%	9.9%	-	0.4%	0.0%	2.0%	5.5%
	21÷24	0.0%	0.0%	0.0%	7.9%	11.3%	0.0%	0.0%	5.9%	0.0%	12.7%	-	0.0%	0.0%	4.8%	4.2%
	24÷27	-	-	-	100.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-
	27÷30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0÷3	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3÷6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.3%	0.0%	0.0%	0.0%
	6÷9	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9÷12	0.0%	0.9%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.9%	-	0.0%	0.3%	0.0%	0.2%
Sa=30	12÷15	0.0%	1.8%	3.1%	6.1%	5.8%	0.0%	0.6%	1.7%	4.7%	3.3%	-	0.0%	0.4%	0.9%	1.3%
	15÷18	0.0%	0.9%	3.0%	7.9%	6.0%	0.2%	0.6%	0.9%	6.4%	7.1%	-	0.2%	0.6%	1.4%	2.8%
	18÷21	0.0%	0.6%	0.9%	11.7%	13.1%	0.0%	1.1%	2.7%	7.4%	10.1%	-	0.0%	0.0%	2.9%	4.5%
	21÷24	-	-	-	26.1%	-	-	-	-	4.3%	-	-	-	-	0.0%	-
	24÷27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27÷30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0÷3	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.2%	0.0%	0.0%	0.0%
	3÷6	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6÷9	0.2%	1.5%	0.4%	0.7%	1.6%	0.0%	0.0%	0.7%	1.2%	0.9%	-	0.0%	0.2%	0.5%	0.2%
	9÷12	0.0%	1.4%	2.5%	7.0%	7.3%	0.0%	0.9%	1.3%	5.3%	5.9%	-	0.0%	0.2%	1.0%	1.4%
Sa=90	12÷15	0.0%	1.0%	1.8%	6.0%	5.2%	0.0%	0.6%	1.0%	5.0%	4.8%	-	0.0%	0.2%	0.8%	2.2%
	15÷18	0.0%	0.1%	1.7%	6.8%	5.5%	0.2%	0.3%	0.8%	4.3%	5.0%	-	0.1%	0.4%	1.6%	2.5%
	18÷21	-	-	0.0%	5.8%	7.9%	-	-	0.0%	1.0%	5.0%	-	-	0.0%	0.0%	2.2%
	21÷24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24÷27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27÷30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
c)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)
100%
10%
0%

120

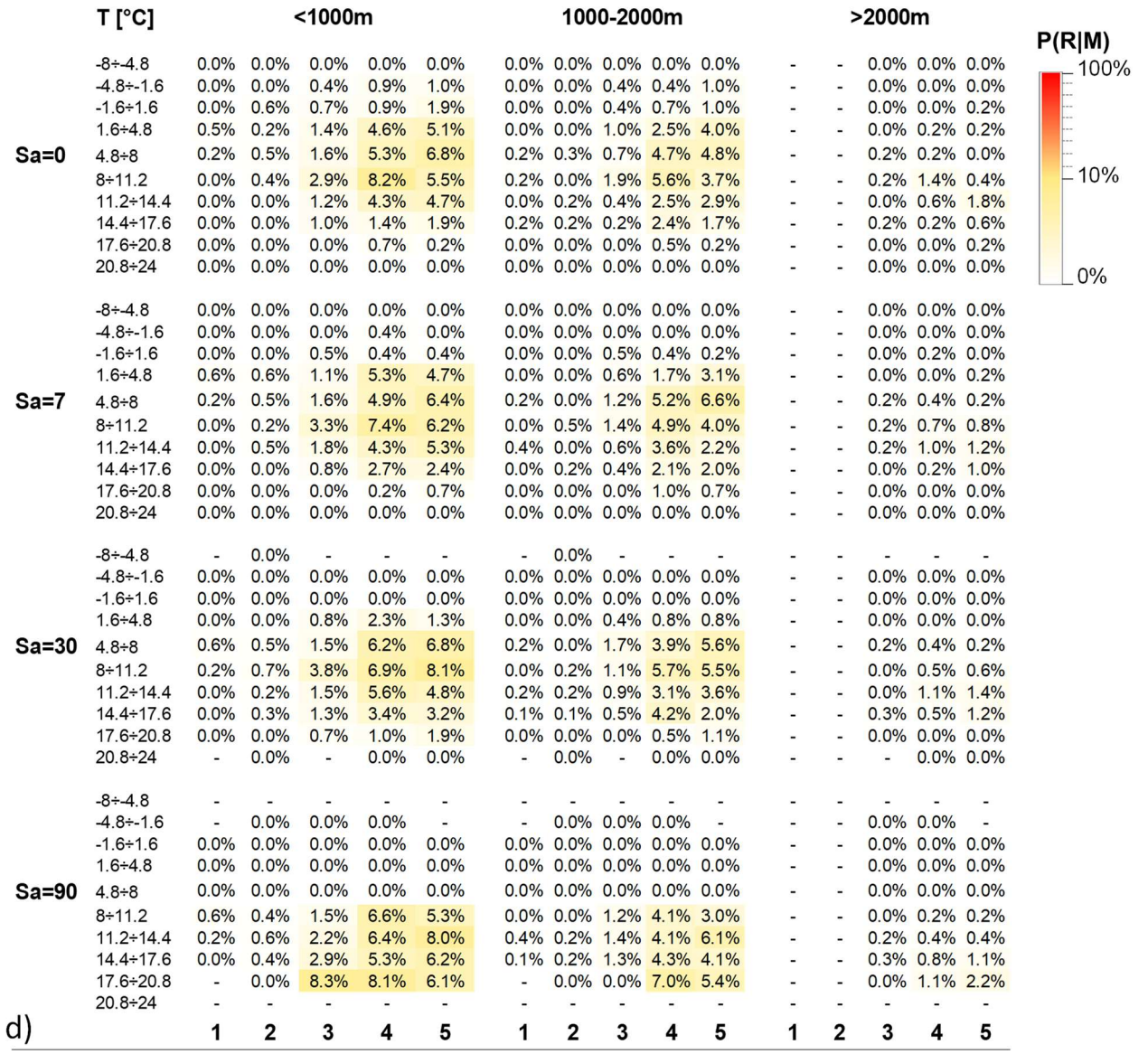
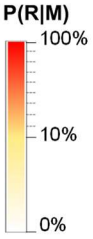


Fig. S24 Conditional probability, P(R|M), calculated with Bayesian's method of mean temperatures with different aggregation scales Sa (0, 7, 30, 90) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.3 Temperature variation

	ΔT (°C)	<1000m					1000-2000m					>2000m				
	-10÷-8	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%
	-8÷-6	0.0%	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%
	-6÷-4	0.0%	0.0%	0.0%	4.2%	2.2%	-	0.0%	0.0%	4.2%	0.0%	-	-	0.0%	-	0.0%
	-4÷-2	0.0%	0.9%	0.0%	5.3%	6.2%	-	0.0%	0.0%	1.4%	0.7%	-	-	0.0%	-	0.4%
Sa=1	-2÷0	0.1%	0.7%	1.0%	5.4%	4.9%	-	0.3%	0.2%	1.3%	1.4%	-	-	0.1%	-	0.1%
	0÷2	0.0%	0.6%	0.9%	3.6%	3.6%	-	0.0%	0.1%	1.2%	0.9%	-	-	0.0%	-	0.1%
	2÷4	0.0%	1.4%	1.2%	4.7%	3.5%	-	0.7%	0.0%	2.1%	1.5%	-	-	0.0%	-	0.0%
	4÷6	0.0%	0.0%	0.0%	0.0%	5.3%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	6÷8	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%
	8÷10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-10÷-8	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-8÷-6	0.0%	0.0%	0.0%	3.0%	2.4%	-	0.0%	0.0%	1.5%	0.0%	-	-	0.0%	-	0.0%
	-6÷-4	0.0%	1.1%	0.5%	5.6%	3.6%	-	0.0%	0.0%	2.8%	0.9%	-	-	0.0%	-	0.9%
	-4÷-2	0.0%	0.6%	0.4%	4.8%	4.5%	-	0.4%	0.2%	1.5%	1.3%	-	-	0.2%	-	0.0%
Sa=3	-2÷0	0.1%	0.5%	0.8%	4.5%	5.0%	-	0.1%	0.3%	1.0%	1.5%	-	-	0.0%	-	0.1%
	0÷2	0.0%	0.5%	1.1%	4.8%	4.1%	-	0.1%	0.0%	1.2%	1.1%	-	-	0.0%	-	0.1%
	2÷4	0.0%	1.2%	1.2%	3.6%	3.6%	-	0.2%	0.0%	1.5%	0.3%	-	-	0.0%	-	0.0%
	4÷6	0.0%	1.3%	1.0%	3.3%	4.8%	-	0.0%	0.0%	1.4%	1.0%	-	-	0.0%	-	0.0%
	6÷8	0.0%	0.0%	0.0%	14.8%	6.3%	-	0.0%	0.0%	0.0%	6.3%	-	-	0.0%	-	0.0%
	8÷10	0.0%	0.0%	0.0%	20.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-10÷-8	0.0%	0.0%	0.0%	3.3%	1.9%	-	0.0%	0.0%	6.7%	0.0%	-	-	0.0%	-	0.0%
	-8÷-6	0.0%	0.0%	0.9%	4.3%	0.9%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	-6÷-4	0.0%	1.4%	1.0%	4.6%	3.4%	-	0.5%	0.0%	1.6%	0.7%	-	-	0.0%	-	0.3%
	-4÷-2	0.2%	0.6%	0.7%	4.8%	3.6%	-	0.0%	0.2%	0.9%	0.9%	-	-	0.0%	-	0.2%
Sa=6	-2÷0	0.0%	0.4%	0.5%	3.7%	4.3%	-	0.1%	0.4%	1.0%	1.3%	-	-	0.1%	-	0.0%
	0÷2	0.0%	0.5%	0.8%	4.6%	4.1%	-	0.1%	0.0%	2.0%	1.3%	-	-	0.0%	-	0.3%
	2÷4	0.0%	0.7%	0.7%	4.5%	6.5%	-	0.2%	0.0%	1.4%	1.0%	-	-	0.0%	-	0.0%
	4÷6	0.0%	1.8%	1.8%	5.1%	3.5%	-	0.4%	0.0%	1.0%	1.9%	-	-	0.0%	-	0.0%
	6÷8	0.0%	1.1%	2.9%	3.5%	4.5%	-	0.0%	0.0%	0.9%	0.9%	-	-	0.0%	-	0.0%
	8÷10	0.0%	5.9%	2.4%	4.2%	9.7%	-	0.0%	0.0%	4.2%	3.2%	-	-	0.0%	-	0.0%
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5



	ΔT (°C)	<1000m					1000-2000m					>2000m				
	-11÷-8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-8.8÷-6.6	0.0%	-	-	-	0.0%	0.0%	-	-	-	0.0%	-	-	-	-	0.0%
	-6.6÷-4.4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	-	-	0.0%	0.0%	0.0%
	-4.4÷-2.2	0.0%	0.0%	0.5%	4.4%	4.6%	0.0%	0.0%	1.8%	1.7%	5.5%	-	-	0.0%	0.0%	0.0%
Sa=1	-2.2÷0	0.0%	0.4%	1.1%	3.9%	3.6%	0.1%	0.1%	0.8%	2.2%	2.8%	-	-	0.0%	0.1%	0.3%
	0÷2.2	0.2%	0.5%	1.0%	3.7%	5.0%	0.1%	0.3%	0.2%	2.7%	3.6%	-	-	0.1%	0.2%	0.4%
	2.2÷4.4	0.0%	0.0%	0.6%	4.1%	8.9%	0.0%	1.1%	0.6%	2.3%	2.8%	-	-	0.0%	0.0%	0.5%
	4.4÷6.6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	6.6÷8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8.8÷11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-11÷-8.8	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	-8.8÷-6.6	0.0%	0.0%	0.0%	2.2%	6.4%	0.0%	0.0%	2.3%	2.2%	6.4%	-	-	0.0%	0.0%	0.0%
	-6.6÷-4.4	0.0%	0.0%	0.6%	2.8%	5.9%	0.0%	0.0%	0.6%	1.7%	2.2%	-	-	0.0%	0.0%	0.5%
	-4.4÷-2.2	0.0%	0.2%	1.5%	5.3%	4.3%	0.0%	0.0%	1.3%	3.0%	3.6%	-	-	0.0%	0.2%	0.4%
Sa=3	-2.2÷0	0.0%	0.7%	0.9%	3.7%	4.2%	0.0%	0.2%	0.2%	1.4%	3.8%	-	-	0.1%	0.1%	0.2%
	0÷2.2	0.1%	0.4%	0.7%	3.4%	3.7%	0.1%	0.3%	0.3%	2.6%	3.2%	-	-	0.0%	0.1%	0.5%
	2.2÷4.4	0.6%	0.4%	1.6%	4.2%	6.3%	0.4%	0.4%	0.9%	3.3%	3.3%	-	-	0.0%	0.0%	0.2%
	4.4÷6.6	0.0%	0.0%	0.6%	3.7%	4.8%	0.0%	0.0%	0.6%	3.7%	1.8%	-	-	0.0%	1.2%	0.6%
	6.6÷8.8	0.0%	0.0%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	8.8÷11	0.0%	0.0%	0.0%	-	20.0%	0.0%	0.0%	0.0%	-	0.0%	-	-	0.0%	-	0.0%
	-11÷-8.8	0.0%	0.0%	0.0%	10.0%	4.2%	0.0%	0.0%	0.0%	5.0%	4.2%	-	-	0.0%	0.0%	0.0%
	-8.8÷-6.6	0.0%	0.0%	0.0%	2.4%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	-6.6÷-4.4	0.0%	1.6%	0.4%	4.1%	3.9%	0.0%	0.0%	1.5%	3.3%	2.7%	-	-	0.0%	0.4%	0.0%
	-4.4÷-2.2	0.0%	0.2%	1.6%	2.2%	3.8%	0.0%	0.2%	0.7%	1.7%	4.0%	-	-	0.2%	0.0%	0.3%
Sa=6	-2.2÷0	0.0%	0.4%	1.2%	3.7%	3.8%	0.0%	0.0%	0.4%	1.3%	3.1%	-	-	0.0%	0.0%	0.1%
	0÷2.2	0.2%	0.4%	0.6%	4.3%	5.0%	0.2%	0.3%	0.2%	2.1%	3.3%	-	-	0.0%	0.2%	0.4%
	2.2÷4.4	0.2%	0.5%	1.2%	4.2%	5.3%	0.0%	0.5%	0.8%	4.3%	3.8%	-	-	0.0%	0.3%	1.0%
	4.4÷6.6	0.0%	0.4%	0.8%	4.7%	6.5%	0.0%	0.4%	0.8%	3.1%	3.9%	-	-	0.0%	0.0%	0.0%
	6.6÷8.8	0.0%	0.0%	1.2%	6.9%	4.6%	1.4%	0.0%	0.0%	0.0%	2.3%	-	-	0.0%	0.0%	0.0%
	8.8÷11	11.1%	0.0%	4.8%	4.5%	0.0%	0.0%	0.0%	0.0%	13.6%	0.0%	-	-	0.0%	0.0%	0.0%
b)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**

P(R|M)
100%
10%
0%

	ΔT (°C)	<1000m					1000-2000m					>2000m				
	-15÷-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-12÷-9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-9÷-6	0.0%	-	-	-	0.0%	0.0%	-	-	-	14.3%	-	-	-	-	0.0%
	-6÷-3	0.0%	0.0%	0.0%	4.1%	0.9%	0.0%	0.0%	1.1%	0.0%	6.0%	-	0.0%	0.0%	0.0%	0.9%
Sa=1	-3÷0	0.1%	0.6%	0.7%	3.8%	3.6%	0.1%	0.2%	0.6%	2.4%	2.4%	-	0.1%	0.2%	0.6%	1.2%
	0÷3	0.1%	0.5%	1.2%	3.0%	3.1%	0.0%	0.3%	0.5%	2.6%	2.8%	-	0.1%	0.2%	0.7%	1.1%
	3÷6	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6÷9	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%
	9÷12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12÷15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-15÷-12	0.0%	-	-	-	0.0%	0.0%	-	-	-	0.0%	-	-	-	-	0.0%
	-12÷-9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	-	0.0%	0.0%	0.0%	0.0%
	-9÷-6	0.0%	3.6%	0.0%	6.6%	8.0%	0.0%	0.0%	1.4%	2.6%	0.0%	-	0.0%	1.4%	1.3%	2.3%
	-6÷-3	0.3%	0.3%	1.2%	5.9%	3.6%	0.3%	0.5%	0.7%	3.6%	2.9%	-	0.0%	0.2%	0.5%	0.5%
Sa=3	-3÷0	0.1%	0.7%	0.9%	3.1%	3.2%	0.0%	0.2%	0.6%	2.4%	3.0%	-	0.1%	0.2%	0.7%	1.0%
	0÷3	0.0%	0.3%	1.1%	3.1%	3.1%	0.0%	0.3%	0.4%	1.8%	2.4%	-	0.1%	0.1%	0.6%	1.4%
	3÷6	0.3%	0.5%	0.7%	2.0%	2.8%	0.0%	0.0%	0.4%	2.9%	3.2%	-	0.0%	0.0%	0.9%	1.1%
	6÷9	0.0%	0.0%	0.0%	3.1%	0.0%	0.0%	0.0%	0.0%	6.3%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9÷12	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	-	0.0%
	12÷15	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-
	-15÷-12	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	-12÷-9	0.0%	0.0%	0.0%	0.0%	9.5%	0.0%	0.0%	4.3%	5.9%	9.5%	-	0.0%	0.0%	0.0%	4.8%
	-9÷-6	0.0%	0.7%	0.0%	4.3%	3.9%	0.0%	0.0%	0.7%	0.7%	3.9%	-	0.0%	0.7%	0.0%	0.7%
	-6÷-3	0.0%	1.1%	1.3%	5.3%	4.2%	0.0%	0.4%	0.6%	3.1%	3.1%	-	0.0%	0.2%	0.7%	0.9%
Sa=6	-3÷0	0.0%	0.4%	0.8%	2.7%	3.0%	0.1%	0.3%	0.6%	2.5%	2.9%	-	0.1%	0.1%	0.5%	0.9%
	0÷3	0.2%	0.6%	1.0%	3.6%	2.9%	0.0%	0.2%	0.4%	2.6%	2.2%	-	0.1%	0.2%	1.1%	0.9%
	3÷6	0.0%	0.2%	1.2%	2.7%	2.7%	0.0%	0.4%	0.2%	1.1%	2.6%	-	0.0%	0.2%	0.4%	1.7%
	6÷9	0.0%	0.0%	0.0%	1.6%	3.8%	0.0%	0.0%	1.5%	4.8%	2.3%	-	0.0%	0.0%	0.0%	2.3%
	9÷12	12.5%	0.0%	0.0%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	12÷15	-	0.0%	-	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	-	0.0%	-	0.0%	0.0%
c)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**

P(R|M)
100%
10%
0%

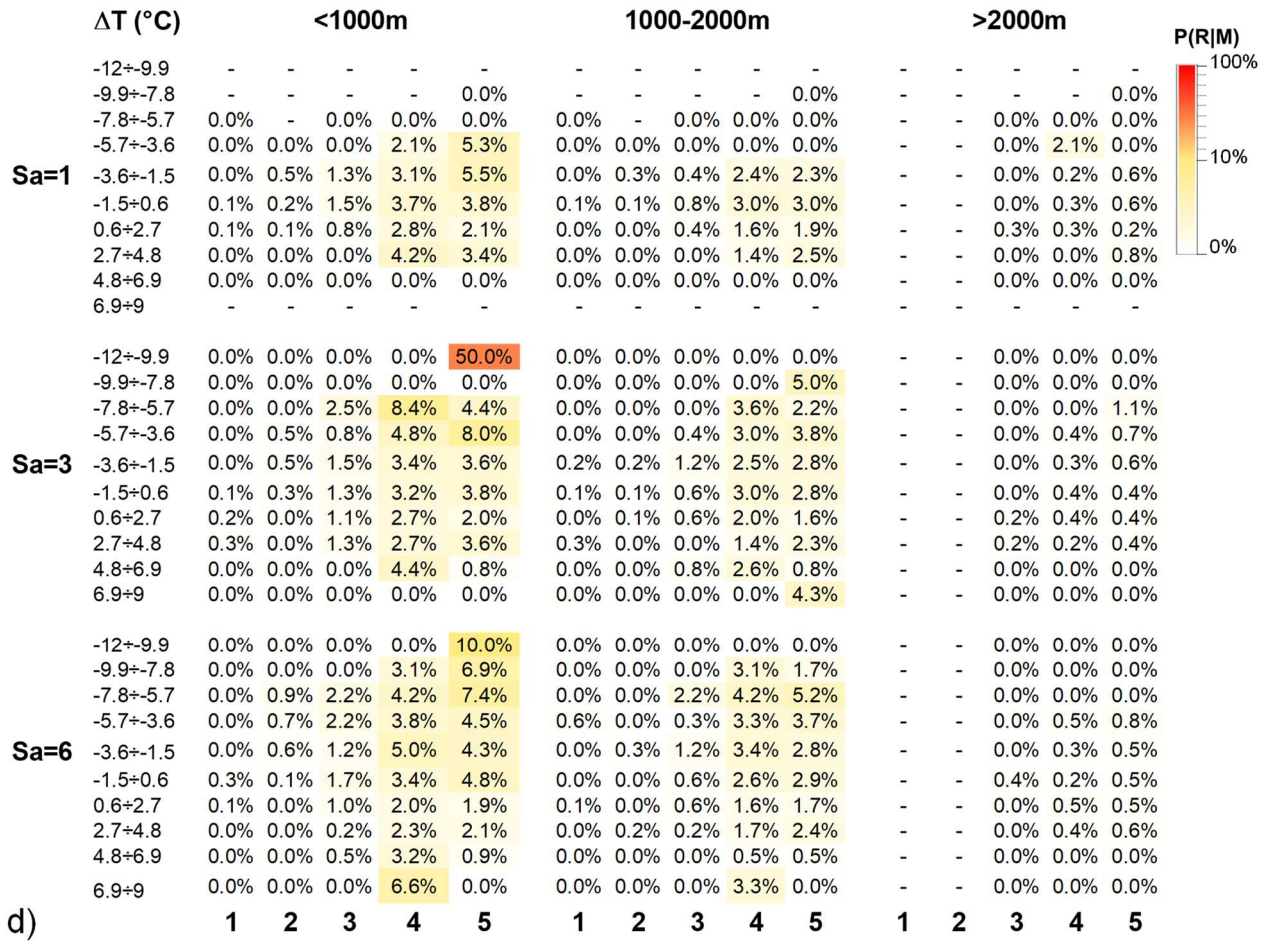
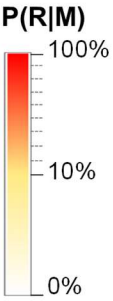


Fig. S25 Conditional probability, P(R|M), calculated with Bayesian's method of temperature variations with different aggregation scales Sa (1, 3, 6) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.4 Temperature amplitude

	T [°C]	<1000m					1000-2000m					>2000m				
Sa=0	0÷1	0.0%	0.7%	0.9%	4.5%	4.3%	-	0.1%	0.1%	1.4%	1.1%	-	-	0.0%	-	0.1%
	1÷2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2÷3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3÷4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4÷5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5÷6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6÷7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7÷8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8÷9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9÷10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=7	0÷1	0.0%	0.2%	0.4%	3.1%	4.5%	-	0.2%	0.0%	1.1%	1.5%	-	-	0.0%	-	0.0%
	1÷2	0.0%	0.4%	0.6%	4.6%	3.8%	-	0.2%	0.0%	2.0%	1.0%	-	-	0.0%	-	0.0%
	2÷3	0.0%	0.0%	1.0%	6.6%	4.7%	-	0.0%	0.0%	2.3%	0.9%	-	-	0.0%	-	0.0%
	3÷4	0.4%	0.4%	1.8%	5.8%	6.3%	-	0.0%	0.0%	2.4%	0.8%	-	-	0.0%	-	0.4%
	4÷5	0.0%	0.7%	2.2%	5.8%	3.2%	-	0.0%	0.0%	0.5%	0.6%	-	-	0.0%	-	0.0%
	5÷6	0.0%	0.0%	1.5%	5.7%	4.9%	-	1.1%	0.0%	3.3%	2.4%	-	-	0.0%	-	0.0%
	6÷7	0.0%	0.0%	2.4%	2.6%	4.5%	-	0.0%	0.0%	0.0%	2.3%	-	-	0.0%	-	0.0%
	7÷8	0.0%	0.0%	0.0%	4.9%	6.4%	-	0.0%	0.0%	2.4%	0.0%	-	-	0.0%	-	0.0%
	8÷9	0.0%	0.0%	3.4%	0.0%	0.0%	-	0.0%	0.0%	3.6%	0.0%	-	-	0.0%	-	0.0%
	9÷10	0.0%	0.0%	0.0%	6.7%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
Sa=30	0÷1	0.0%	0.7%	1.0%	5.1%	4.8%	-	0.2%	0.0%	1.5%	2.1%	-	-	0.0%	-	0.0%
	1÷2	0.0%	0.0%	0.9%	4.9%	5.0%	-	0.0%	0.0%	2.2%	1.4%	-	-	0.0%	-	0.3%
	2÷3	0.0%	0.9%	1.6%	4.3%	2.4%	-	0.6%	0.0%	1.8%	0.3%	-	-	0.0%	-	0.0%
	3÷4	0.0%	0.8%	1.6%	8.0%	7.9%	-	0.0%	0.0%	1.3%	0.8%	-	-	0.0%	-	0.0%
	4÷5	0.6%	1.1%	0.5%	3.3%	2.7%	-	0.0%	0.0%	2.3%	1.6%	-	-	0.0%	-	0.0%
	5÷6	0.0%	0.0%	1.5%	4.4%	1.5%	-	0.0%	0.0%	1.8%	0.0%	-	-	0.0%	-	0.0%
	6÷7	0.0%	1.3%	2.6%	4.6%	4.6%	-	0.0%	1.3%	0.0%	1.1%	-	-	1.3%	-	0.0%
	7÷8	0.0%	0.0%	0.0%	2.0%	0.0%	-	0.0%	0.0%	0.0%	1.8%	-	-	0.0%	-	0.0%
	8÷9	0.0%	0.0%	0.0%	0.0%	7.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	9÷10	0.0%	0.0%	0.0%	15.4%	0.0%	-	0.0%	0.0%	0.0%	5.9%	-	-	0.0%	-	0.0%
Sa=90	0÷1	0.0%	1.1%	0.7%	5.2%	2.7%	-	0.3%	0.0%	1.2%	1.3%	-	-	0.0%	-	0.3%
	1÷2	0.0%	0.3%	1.4%	4.3%	1.6%	-	0.0%	0.0%	1.0%	1.9%	-	-	0.0%	-	0.0%
	2÷3	0.0%	0.6%	0.4%	2.1%	3.0%	-	0.0%	0.0%	0.4%	0.4%	-	-	0.0%	-	0.0%
	3÷4	0.0%	1.2%	0.9%	4.5%	5.9%	-	0.0%	0.0%	1.6%	1.4%	-	-	0.0%	-	0.5%
	4÷5	0.6%	0.5%	1.0%	4.8%	3.3%	-	0.0%	0.5%	1.6%	0.0%	-	-	0.5%	-	0.0%
	5÷6	0.0%	0.0%	0.6%	2.4%	1.2%	-	0.0%	0.0%	1.6%	1.2%	-	-	0.0%	-	0.0%
	6÷7	0.0%	1.2%	0.0%	4.3%	3.0%	-	0.0%	0.0%	0.9%	0.0%	-	-	0.0%	-	0.0%
	7÷8	0.0%	0.0%	0.0%	4.0%	0.0%	-	0.0%	0.0%	1.3%	1.2%	-	-	0.0%	-	0.0%
	8÷9	0.0%	0.0%	4.0%	0.0%	1.5%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	9÷10	0.0%	0.0%	0.0%	4.0%	3.7%	-	0.0%	0.0%	4.0%	0.0%	-	-	0.0%	-	0.0%
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5



135

	T [°C]	<1000m					1000-2000m					>2000m				
	0÷1.1	0.1%	0.4%	1.0%	3.8%	4.6%	0.1%	0.2%	0.5%	2.4%	3.3%	-	-	0.0%	0.1%	0.3%
	1.1÷2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2.2÷3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.3÷4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=0	4.4÷5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.5÷6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6.6÷7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7.7÷8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8.8÷9.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9.9÷11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0÷1.1	0.0%	0.8%	0.2%	2.9%	3.3%	0.0%	0.0%	0.4%	3.1%	4.2%	-	-	0.2%	0.2%	0.2%
	1.1÷2.2	0.0%	0.4%	0.8%	2.1%	4.9%	0.2%	0.0%	0.8%	2.9%	1.5%	-	-	0.0%	0.5%	0.5%
	2.2÷3.3	0.3%	0.3%	1.3%	3.0%	3.1%	0.3%	0.6%	0.3%	1.4%	2.3%	-	-	0.0%	0.3%	0.6%
	3.3÷4.4	0.0%	0.5%	0.4%	5.0%	6.4%	0.0%	0.5%	0.4%	4.6%	2.3%	-	-	0.0%	0.0%	0.0%
Sa=7	4.4÷5.5	0.7%	0.0%	1.2%	4.3%	10.4%	0.0%	0.0%	1.2%	1.9%	3.9%	-	-	0.0%	0.0%	0.0%
	5.5÷6.6	0.0%	0.0%	0.9%	5.5%	4.1%	0.0%	0.0%	0.9%	5.5%	4.1%	-	-	0.0%	0.0%	0.8%
	6.6÷7.7	0.0%	0.0%	0.0%	5.3%	10.8%	0.0%	3.1%	0.0%	1.8%	6.2%	-	-	0.0%	0.0%	1.5%
	7.7÷8.8	0.0%	0.0%	0.0%	11.4%	16.1%	0.0%	0.0%	0.0%	5.7%	9.7%	-	-	0.0%	0.0%	3.2%
	8.8÷9.9	0.0%	0.0%	0.0%	11.8%	23.1%	0.0%	0.0%	0.0%	0.0%	7.7%	-	-	0.0%	0.0%	0.0%
	9.9÷11	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	0÷1.1	0.0%	0.4%	1.2%	5.1%	4.6%	0.2%	0.0%	0.5%	2.0%	3.6%	-	-	0.0%	0.0%	0.0%
	1.1÷2.2	0.0%	0.0%	0.3%	3.2%	3.0%	0.2%	0.5%	0.0%	1.7%	3.3%	-	-	0.0%	0.7%	0.5%
	2.2÷3.3	0.0%	0.9%	0.3%	5.6%	2.3%	0.0%	0.0%	0.3%	2.9%	2.0%	-	-	0.0%	0.3%	0.3%
	3.3÷4.4	0.0%	0.0%	0.0%	3.2%	4.4%	0.0%	0.0%	0.9%	2.0%	2.7%	-	-	0.0%	0.4%	0.9%
Sa=30	4.4÷5.5	0.0%	0.0%	0.5%	3.3%	6.1%	0.6%	1.3%	0.5%	2.7%	3.9%	-	-	0.0%	0.0%	0.0%
	5.5÷6.6	1.3%	1.0%	0.8%	5.4%	9.1%	0.0%	0.0%	1.7%	3.2%	1.8%	-	-	0.0%	0.0%	0.9%
	6.6÷7.7	0.0%	0.0%	1.6%	5.1%	11.7%	0.0%	0.0%	0.0%	5.1%	1.3%	-	-	0.0%	0.0%	0.0%
	7.7÷8.8	0.0%	0.0%	3.5%	6.9%	6.1%	0.0%	0.0%	0.0%	20.7%	6.1%	-	-	0.0%	0.0%	0.0%
	8.8÷9.9	0.0%	0.0%	0.0%	4.8%	28.6%	0.0%	0.0%	0.0%	4.8%	0.0%	-	-	0.0%	0.0%	0.0%
	9.9÷11	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	0÷1.1	0.0%	0.0%	0.9%	5.9%	2.8%	0.0%	0.5%	0.0%	1.4%	2.8%	-	-	-	-	-
	1.1÷2.2	0.0%	0.5%	0.6%	4.2%	5.6%	0.0%	0.0%	0.3%	3.0%	5.3%	-	-	0.0%	0.0%	0.0%
	2.2÷3.3	0.0%	0.9%	1.9%	4.0%	6.8%	0.0%	0.3%	0.4%	4.0%	0.4%	-	-	0.0%	0.6%	0.0%
	3.3÷4.4	0.0%	0.8%	0.0%	4.9%	6.7%	0.0%	0.0%	1.7%	4.1%	7.1%	-	-	0.0%	0.0%	1.4%
Sa=90	4.4÷5.5	0.6%	0.5%	2.0%	6.2%	7.9%	0.0%	0.0%	0.5%	1.7%	6.4%	-	-	0.0%	0.8%	0.0%
	5.5÷6.6	0.8%	0.0%	0.0%	5.5%	6.9%	0.0%	0.9%	0.0%	3.9%	3.1%	-	-	0.0%	0.0%	1.5%
	6.6÷7.7	0.0%	1.4%	0.9%	9.9%	12.6%	1.1%	0.0%	0.0%	11.9%	8.4%	-	-	0.0%	0.0%	1.5%
	7.7÷8.8	0.0%	0.0%	0.0%	3.8%	5.8%	0.0%	2.5%	0.0%	3.8%	2.3%	-	-	0.0%	0.0%	0.0%
	8.8÷9.9	0.0%	0.0%	5.6%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	13.3%	-	-	0.0%	1.9%	0.0%
	9.9÷11	0.0%	0.0%	0.0%	11.1%	11.8%	0.0%	0.0%	5.3%	11.1%	11.8%	-	-	0.0%	0.0%	0.0%
b)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)

100%

10%

0%

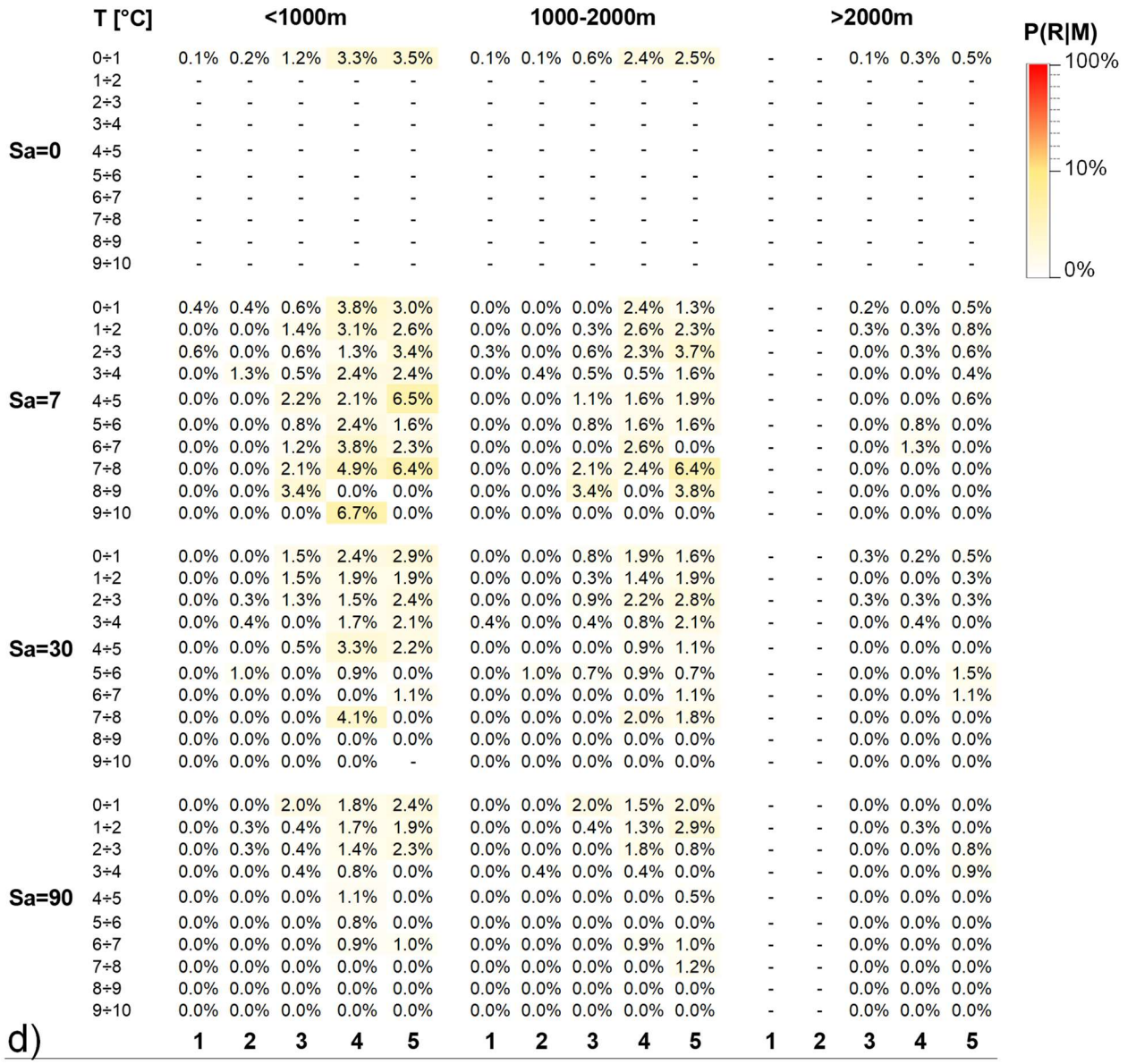
	0÷1.2	0.1%	0.5%	0.9%	3.4%	3.2%	0.0%	0.2%	0.5%	2.4%	2.7%	-	0.1%	0.2%	0.6%	1.1%
	1.2÷2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2.4÷3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.6÷4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=0	4.8÷6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6÷7.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7.2÷8.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8.4÷9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9.6÷10.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10.8÷12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0÷1.2	0.2%	0.3%	1.1%	4.4%	3.0%	0.0%	0.2%	0.9%	2.1%	2.2%	-	0.0%	0.2%	1.0%	0.8%
	1.2÷2.4	0.2%	0.2%	0.9%	4.0%	2.7%	0.0%	0.2%	0.7%	2.9%	2.3%	-	0.0%	0.0%	0.9%	1.6%
	2.4÷3.6	0.0%	0.6%	1.0%	3.4%	2.4%	0.0%	0.0%	0.0%	2.7%	2.7%	-	0.0%	0.0%	0.3%	1.2%
	3.6÷4.8	0.0%	0.0%	0.8%	2.4%	3.8%	0.0%	0.5%	0.4%	1.2%	2.4%	-	0.0%	0.0%	1.2%	1.4%
Sa=7	4.8÷6	0.8%	0.0%	0.6%	1.3%	4.3%	0.0%	0.0%	0.0%	0.6%	0.0%	-	0.0%	0.0%	0.0%	1.8%
	6÷7.2	0.0%	0.0%	0.0%	4.5%	2.0%	0.0%	1.6%	0.0%	2.2%	2.0%	-	0.0%	1.0%	0.0%	0.0%
	7.2÷8.4	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	4.3%	-	0.0%	0.0%	0.0%	0.0%
	8.4÷9.6	0.0%	0.0%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	3.6%	4.5%
	9.6÷10.8	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	10.8÷12	-	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	0÷1.2	0.2%	0.6%	1.1%	4.1%	3.9%	0.0%	0.2%	0.4%	2.0%	2.0%	-	0.0%	0.6%	0.8%	1.5%
	1.2÷2.4	0.0%	0.4%	0.2%	5.5%	2.8%	0.0%	0.0%	1.2%	3.7%	1.2%	-	0.0%	0.0%	0.7%	1.4%
	2.4÷3.6	0.0%	0.6%	1.6%	3.6%	1.5%	0.0%	0.6%	0.3%	1.8%	2.6%	-	0.0%	0.3%	0.3%	0.3%
	3.6÷4.8	0.0%	0.4%	0.4%	2.3%	2.6%	0.0%	0.4%	0.0%	1.1%	3.5%	-	0.0%	0.0%	1.5%	1.8%
Sa=30	4.8÷6	0.7%	0.7%	1.2%	1.3%	3.0%	0.0%	0.7%	0.6%	3.3%	2.4%	-	0.0%	0.0%	0.0%	1.2%
	6÷7.2	0.0%	0.0%	1.2%	0.0%	0.9%	0.0%	0.0%	2.4%	0.0%	0.9%	-	0.0%	0.0%	0.0%	0.0%
	7.2÷8.4	0.0%	0.0%	0.0%	3.9%	7.8%	0.0%	0.0%	0.0%	2.0%	0.0%	-	0.0%	0.0%	3.9%	0.0%
	8.4÷9.6	0.0%	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9.6÷10.8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	10.8÷12	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	0÷1.2	0.2%	0.0%	0.8%	3.8%	3.2%	0.0%	0.2%	1.1%	2.3%	3.0%	-	0.2%	0.3%	1.3%	2.4%
	1.2÷2.4	0.0%	0.8%	1.2%	4.5%	3.1%	0.0%	0.3%	0.9%	3.6%	3.4%	-	0.0%	0.0%	0.8%	1.7%
	2.4÷3.6	0.0%	0.3%	1.4%	2.2%	3.1%	0.0%	0.6%	0.4%	3.2%	1.7%	-	0.0%	0.4%	0.6%	1.0%
	3.6÷4.8	0.0%	0.8%	0.4%	4.8%	5.7%	0.0%	0.0%	0.8%	2.4%	5.3%	-	0.0%	0.4%	0.8%	0.4%
Sa=90	4.8÷6	0.7%	1.1%	1.4%	2.5%	3.6%	0.0%	0.5%	0.5%	1.9%	4.6%	-	0.0%	0.5%	1.3%	2.0%
	6÷7.2	0.0%	0.0%	1.5%	4.4%	4.2%	0.0%	0.0%	0.0%	0.7%	5.0%	-	0.0%	0.0%	0.0%	1.7%
	7.2÷8.4	0.0%	0.0%	0.0%	5.6%	1.0%	0.0%	0.0%	1.0%	2.8%	2.0%	-	0.0%	0.0%	2.8%	4.0%
	8.4÷9.6	0.0%	0.0%	0.0%	0.0%	6.4%	0.0%	0.0%	0.0%	0.0%	2.1%	-	0.0%	0.0%	0.0%	2.1%
	9.6÷10.8	0.0%	0.0%	0.0%	0.0%	4.2%	0.0%	0.0%	4.5%	3.2%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	10.8÷12	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
C)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**

P(R|M)

100%

10%

0%



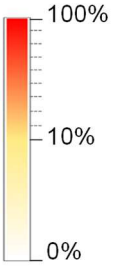
	T [°C]	<1000m					1000-2000m					>2000m				
Sa=0	0÷1	0.1%	0.2%	1.2%	3.3%	3.5%	0.1%	0.1%	0.6%	2.4%	2.5%	-	-	0.1%	0.3%	0.5%
	1÷2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2÷3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3÷4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4÷5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5÷6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6÷7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7÷8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8÷9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9÷10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=7	0÷1	0.4%	0.4%	0.6%	3.8%	3.0%	0.0%	0.0%	0.0%	2.4%	1.3%	-	-	0.2%	0.0%	0.5%
	1÷2	0.0%	0.0%	1.4%	3.1%	2.6%	0.0%	0.0%	0.3%	2.6%	2.3%	-	-	0.3%	0.3%	0.8%
	2÷3	0.6%	0.0%	0.6%	1.3%	3.4%	0.3%	0.0%	0.6%	2.3%	3.7%	-	-	0.0%	0.3%	0.6%
	3÷4	0.0%	1.3%	0.5%	2.4%	2.4%	0.0%	0.4%	0.5%	0.5%	1.6%	-	-	0.0%	0.0%	0.4%
	4÷5	0.0%	0.0%	2.2%	2.1%	6.5%	0.0%	0.0%	1.1%	1.6%	1.9%	-	-	0.0%	0.0%	0.6%
	5÷6	0.0%	0.0%	0.8%	2.4%	1.6%	0.0%	0.0%	0.8%	1.6%	1.6%	-	-	0.0%	0.8%	0.0%
	6÷7	0.0%	0.0%	1.2%	3.8%	2.3%	0.0%	0.0%	0.0%	2.6%	0.0%	-	-	0.0%	1.3%	0.0%
	7÷8	0.0%	0.0%	2.1%	4.9%	6.4%	0.0%	0.0%	2.1%	2.4%	6.4%	-	-	0.0%	0.0%	0.0%
	8÷9	0.0%	0.0%	3.4%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	3.8%	-	-	0.0%	0.0%	0.0%
	9÷10	0.0%	0.0%	0.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
Sa=30	0÷1	0.0%	0.0%	1.5%	2.4%	2.9%	0.0%	0.0%	0.8%	1.9%	1.6%	-	-	0.3%	0.2%	0.5%
	1÷2	0.0%	0.0%	1.5%	1.9%	1.9%	0.0%	0.0%	0.3%	1.4%	1.9%	-	-	0.0%	0.0%	0.3%
	2÷3	0.0%	0.3%	1.3%	1.5%	2.4%	0.0%	0.0%	0.9%	2.2%	2.8%	-	-	0.3%	0.3%	0.3%
	3÷4	0.0%	0.4%	0.0%	1.7%	2.1%	0.4%	0.0%	0.4%	0.8%	2.1%	-	-	0.0%	0.4%	0.0%
	4÷5	0.0%	0.0%	0.5%	3.3%	2.2%	0.0%	0.0%	0.0%	0.9%	1.1%	-	-	0.0%	0.0%	0.0%
	5÷6	0.0%	1.0%	0.0%	0.9%	0.0%	0.0%	1.0%	0.7%	0.9%	0.7%	-	-	0.0%	0.0%	1.5%
	6÷7	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	1.1%	-	-	0.0%	0.0%	1.1%
	7÷8	0.0%	0.0%	0.0%	4.1%	0.0%	0.0%	0.0%	0.0%	2.0%	1.8%	-	-	0.0%	0.0%	0.0%
	8÷9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	9÷10	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
Sa=90	0÷1	0.0%	0.0%	2.0%	1.8%	2.4%	0.0%	0.0%	2.0%	1.5%	2.0%	-	-	0.0%	0.0%	0.0%
	1÷2	0.0%	0.3%	0.4%	1.7%	1.9%	0.0%	0.0%	0.4%	1.3%	2.9%	-	-	0.0%	0.3%	0.0%
	2÷3	0.0%	0.3%	0.4%	1.4%	2.3%	0.0%	0.0%	0.0%	1.8%	0.8%	-	-	0.0%	0.0%	0.8%
	3÷4	0.0%	0.0%	0.4%	0.8%	0.0%	0.0%	0.4%	0.0%	0.4%	0.0%	-	-	0.0%	0.0%	0.9%
	4÷5	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	-	-	0.0%	0.0%	0.0%
	5÷6	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	6÷7	0.0%	0.0%	0.0%	0.9%	1.0%	0.0%	0.0%	0.0%	0.9%	1.0%	-	-	0.0%	0.0%	0.0%
	7÷8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	-	-	0.0%	0.0%	0.0%
	8÷9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	9÷10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
d)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Fig. S26 Conditional probability, P(R|M), calculated with Bayesian's method of temperature amplitudes with different aggregation scales Sa (0, 7, 30, 90) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.5 Freeze-Thaw cycle

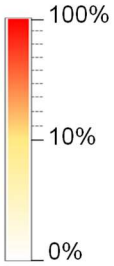
S2.5.1 Maximum

	FT [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.0%	0.7%	0.8%	4.0%	4.2%	-	0.1%	0.1%	1.2%	1.1%	-	-	0.0%	-	0.1%
	1	0.0%	0.7%	2.5%	11.3%	8.9%	-	0.7%	0.0%	4.2%	0.0%	-	-	0.0%	-	0.0%
Sa=7	0	0.0%	0.5%	0.7%	3.4%	3.9%	-	0.1%	0.1%	1.2%	1.1%	-	-	0.0%	-	0.1%
	1	0.0%	2.5%	2.8%	12.1%	18.5%	-	1.6%	0.0%	3.4%	3.1%	-	-	0.0%	-	0.0%
	2	0.0%	2.4%	4.7%	11.9%	6.3%	-	0.0%	0.0%	5.0%	0.0%	-	-	0.0%	-	0.0%
	3	0.0%	5.9%	3.5%	18.5%	14.3%	-	0.0%	0.0%	0.0%	14.3%	-	-	0.0%	-	0.0%
	4	0.0%	0.0%	0.0%	17.6%	9.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	5	0.0%	5.9%	2.8%	20.6%	7.1%	-	0.0%	0.0%	2.9%	0.0%	-	-	0.0%	-	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	7	0.0%	0.0%	0.0%	0.0%	8.3%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
Sa=30	0	0.0%	0.3%	0.1%	1.6%	3.2%	-	0.1%	0.0%	0.9%	0.9%	-	-	0.0%	-	0.1%
	1	0.0%	3.7%	3.5%	12.9%	8.8%	-	0.7%	0.0%	3.8%	2.6%	-	-	0.0%	-	0.9%
	2	0.5%	0.0%	1.3%	7.1%	11.1%	-	0.0%	0.0%	1.2%	2.5%	-	-	0.0%	-	0.0%
	3	0.0%	2.2%	4.6%	23.7%	11.1%	-	0.0%	0.0%	1.3%	11.1%	-	-	0.0%	-	0.0%
	4	0.0%	2.5%	6.1%	14.7%	26.7%	-	1.3%	1.2%	4.4%	6.7%	-	-	0.0%	-	0.0%
	5	0.0%	0.0%	3.9%	24.1%	18.8%	-	0.0%	1.6%	8.6%	1.4%	-	-	0.0%	-	0.0%
	6	0.0%	0.0%	5.0%	26.7%	41.2%	-	0.0%	0.0%	0.0%	11.8%	-	-	0.0%	-	0.0%
	7	0.0%	0.0%	0.0%	27.7%	5.6%	-	0.0%	0.0%	8.5%	0.0%	-	-	0.0%	-	0.0%
	8	0.0%	0.0%	0.0%	11.1%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	9	0.0%	3.3%	0.0%	12.5%	25.0%	-	0.0%	3.4%	0.0%	0.0%	-	-	3.4%	-	0.0%
	10	0.0%	12.5%	0.0%	13.5%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	11	0.0%	0.0%	0.0%	22.7%	0.0%	-	0.0%	0.0%	4.5%	0.0%	-	-	0.0%	-	0.0%
	12	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	13	0.0%	0.0%	0.0%	5.3%	7.1%	-	0.0%	0.0%	0.0%	7.1%	-	-	0.0%	-	0.0%
	14	0.0%	15.4%	12.5%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	15	0.0%	-	20.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	16	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	17	-	-	50.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	18	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	19	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5



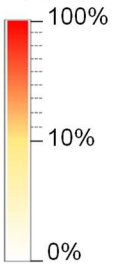
	FT [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.5%	1.0%	3.9%	4.7%	0.1%	0.2%	0.6%	2.5%	3.4%	-	-	0.0%	0.1%	0.3%
	1	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	-	-	0.0%	0.0%	0.0%
Sa=7	0	0.1%	0.5%	1.1%	4.1%	4.8%	0.1%	0.2%	0.6%	2.7%	3.5%	-	-	0.0%	0.2%	0.3%
	1	0.0%	0.0%	0.0%	2.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	2	0.0%	0.0%	0.0%	3.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	-	-	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
Sa=30	0	0.1%	0.4%	1.1%	3.7%	4.6%	0.1%	0.3%	0.6%	2.5%	3.4%	-	-	0.0%	0.2%	0.4%
	1	0.0%	0.0%	0.0%	2.9%	6.1%	0.0%	0.0%	0.5%	2.4%	6.1%	-	-	0.0%	0.0%	0.0%
	2	0.0%	1.8%	0.0%	10.7%	0.0%	0.0%	0.0%	0.0%	4.1%	0.0%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	11.1%	0.0%	0.0%	0.8%	0.0%	11.1%	-	-	0.0%	0.0%	0.0%
	4	0.0%	0.0%	3.7%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	5	0.0%	5.4%	0.8%	1.7%	10.1%	0.0%	0.0%	0.0%	0.0%	2.9%	-	-	0.0%	0.0%	0.0%
	6	0.0%	0.0%	2.5%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	-	-	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.0%	6.4%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	-	-	0.0%	0.0%	0.0%
	8	0.0%	0.0%	0.0%	7.4%	0.0%	0.0%	0.0%	0.0%	7.4%	0.0%	-	-	0.0%	0.0%	0.0%
	9	11.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	10	3.6%	0.0%	0.0%	8.1%	0.0%	3.6%	0.0%	0.0%	5.4%	0.0%	-	-	0.0%	0.0%	0.0%
	11	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	12	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.1%	0.0%	-	-	0.0%	0.0%	0.0%
	13	0.0%	0.0%	0.0%	5.3%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	15	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	16	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	17	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	18	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	19	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)



145

	FT [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.5%	1.0%	3.6%	3.3%	0.0%	0.3%	0.6%	2.6%	2.7%	-	0.1%	0.2%	0.7%	1.1%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
Sa=7	0	0.1%	0.6%	1.0%	3.8%	3.4%	0.0%	0.3%	0.6%	2.7%	2.8%	-	0.1%	0.2%	0.7%	1.1%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	2	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	4	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
Sa=30	0	0.1%	0.6%	1.2%	4.4%	3.6%	0.0%	0.3%	0.7%	3.1%	3.0%	-	0.1%	0.2%	0.8%	1.2%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	11	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	12	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	13	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	15	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	16	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	17	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	18	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	19	-	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5



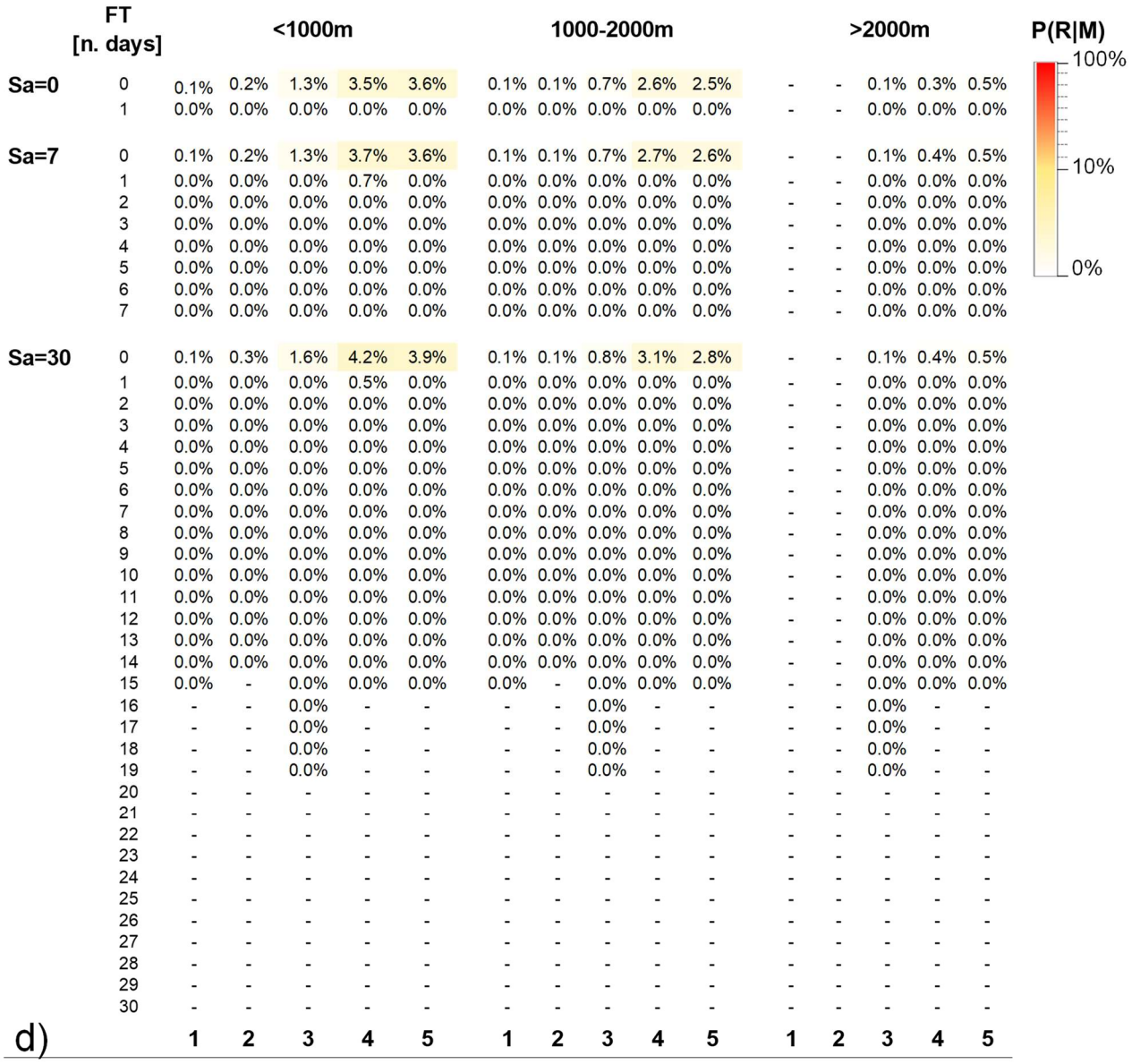
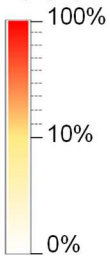


Fig. S27 Conditional probability, P(R|M), calculated with Bayesian's method of freeze-thaw cycle maximum case with different aggregation scales Sa (0, 7, 30) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.5.2 Medium calculated time-series

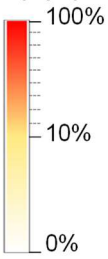
	FT [n. days]	1000m					1000-2000m					>2000m				
Sa=0	0	0.0%	0.1%	0.0%	0.3%	0.7%	-	0.0%	0.0%	0.1%	0.2%	-	-	0.0%	-	0.0%
	1	0.0%	1.6%	1.0%	10.3%	9.8%	-	0.2%	0.2%	3.2%	2.9%	-	-	0.2%	-	0.4%
Sa=7	0	0.0%	0.0%	0.0%	0.0%	0.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	1	0.0%	0.8%	0.0%	0.9%	0.9%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	2	0.0%	0.9%	0.0%	0.7%	1.6%	-	0.0%	0.0%	2.2%	0.0%	-	-	0.0%	-	0.0%
	3	0.0%	0.9%	0.0%	5.4%	7.1%	-	0.0%	0.0%	1.4%	4.0%	-	-	0.0%	-	0.0%
	4	0.0%	1.7%	0.7%	11.6%	8.0%	-	0.9%	0.7%	1.4%	1.8%	-	-	0.7%	-	0.0%
	5	0.0%	1.5%	2.6%	6.7%	12.3%	-	0.0%	0.0%	2.5%	4.9%	-	-	0.0%	-	0.0%
	6	0.0%	1.4%	0.0%	11.1%	10.0%	-	0.7%	0.0%	1.3%	3.8%	-	-	0.0%	-	0.0%
	7	0.0%	1.2%	1.9%	13.2%	13.4%	-	0.0%	0.0%	5.0%	2.6%	-	-	0.0%	-	1.0%
Sa=30	0	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	2	0.0%	0.0%	0.0%	0.0%	1.7%	-	0.0%	0.0%	0.0%	0.6%	-	-	0.0%	-	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	5	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	6	0.0%	0.0%	0.0%	2.6%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	7	0.0%	0.0%	0.0%	0.0%	3.0%	-	0.0%	0.0%	1.4%	0.0%	-	-	0.0%	-	0.0%
	8	0.0%	0.0%	0.0%	2.9%	2.3%	-	0.0%	0.0%	5.7%	0.0%	-	-	0.0%	-	0.0%
	9	0.0%	2.0%	0.0%	1.0%	0.0%	-	0.0%	0.0%	3.1%	0.0%	-	-	0.0%	-	0.0%
	10	0.0%	2.4%	0.0%	10.5%	5.4%	-	0.0%	0.0%	2.6%	2.7%	-	-	0.0%	-	0.0%
	11	0.0%	0.0%	0.0%	3.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	12	0.0%	0.0%	0.0%	1.8%	3.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	13	0.0%	0.0%	0.0%	4.5%	9.1%	-	0.0%	0.0%	0.0%	6.1%	-	-	0.0%	-	0.0%
	14	0.0%	0.0%	0.0%	0.0%	10.5%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	15	0.0%	0.0%	0.0%	3.7%	2.9%	-	0.0%	0.0%	0.0%	2.9%	-	-	0.0%	-	0.0%
	16	0.0%	2.9%	2.4%	7.9%	8.3%	-	2.9%	0.0%	2.6%	2.8%	-	-	0.0%	-	0.0%
	17	0.0%	3.9%	0.0%	7.1%	12.5%	-	0.0%	0.0%	0.0%	5.0%	-	-	0.0%	-	0.0%
	18	0.0%	0.0%	0.0%	3.1%	6.0%	-	0.0%	0.0%	3.1%	0.0%	-	-	0.0%	-	0.0%
	19	0.0%	0.0%	2.0%	3.4%	4.4%	-	0.0%	0.0%	3.4%	1.5%	-	-	0.0%	-	0.0%
	20	0.0%	0.0%	2.8%	6.1%	9.2%	-	2.4%	0.0%	6.1%	6.2%	-	-	0.0%	-	0.0%
	21	0.0%	1.9%	2.0%	5.1%	18.5%	-	0.0%	0.0%	2.6%	9.3%	-	-	0.0%	-	0.0%
	22	0.0%	0.0%	4.0%	2.2%	15.4%	-	0.0%	0.0%	6.7%	3.8%	-	-	0.0%	-	0.0%
	23	0.0%	5.1%	4.6%	14.8%	19.5%	-	0.0%	1.5%	2.5%	1.2%	-	-	0.0%	-	0.0%
	24	0.0%	2.2%	0.0%	20.9%	13.3%	-	2.2%	0.0%	7.5%	4.8%	-	-	0.0%	-	0.0%
	25	0.0%	1.7%	1.7%	19.0%	12.9%	-	0.0%	0.0%	3.6%	4.7%	-	-	0.0%	-	0.0%
	26	0.0%	0.8%	5.2%	17.5%	15.7%	-	0.0%	0.0%	6.7%	5.9%	-	-	0.0%	-	1.0%
	27	0.0%	2.8%	0.9%	22.2%	8.5%	-	0.0%	0.9%	4.2%	0.0%	-	-	0.9%	-	0.8%
	28	1.4%	1.0%	2.0%	14.8%	14.3%	-	0.0%	0.0%	5.6%	3.6%	-	-	0.0%	-	1.2%
	29	0.0%	0.9%	0.0%	9.6%	21.4%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	30	0.0%	0.8%	3.8%	11.2%	9.6%	-	0.4%	0.8%	1.7%	1.0%	-	-	0.0%	-	1.0%
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)



	FT [n. days]	1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.5%	1.2%	3.8%	4.5%	0.0%	0.2%	0.6%	2.7%	4.3%	-	-	0.0%	0.2%	0.5%
	1	0.2%	0.5%	1.2%	6.9%	6.7%	0.2%	0.5%	1.0%	3.8%	2.5%	-	-	0.0%	0.0%	0.0%
Sa=7	0	0.0%	0.4%	0.8%	2.6%	3.8%	0.0%	0.2%	0.5%	2.0%	3.5%	-	-	0.1%	0.3%	0.4%
	1	0.0%	0.8%	1.9%	12.1%	14.7%	0.0%	1.5%	0.6%	8.6%	11.0%	-	-	0.0%	0.0%	0.9%
	2	2.0%	2.7%	1.2%	11.9%	8.1%	0.0%	0.9%	0.0%	8.2%	6.5%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	2.7%	8.1%	6.3%	1.0%	0.9%	2.7%	3.4%	5.6%	-	-	0.0%	0.0%	0.8%
	4	0.0%	0.0%	3.7%	11.6%	9.7%	0.0%	0.0%	1.5%	4.3%	8.0%	-	-	0.0%	0.0%	0.9%
	5	0.0%	0.7%	2.0%	7.6%	4.9%	0.0%	0.0%	0.0%	6.7%	2.5%	-	-	0.0%	0.0%	0.6%
	6	0.7%	0.0%	1.8%	2.6%	3.1%	0.0%	0.0%	0.6%	2.6%	2.5%	-	-	0.0%	0.0%	0.0%
	7	0.0%	0.3%	0.7%	2.4%	4.5%	0.6%	0.0%	0.7%	0.8%	0.7%	-	-	0.0%	0.0%	0.0%
Sa=30	0	0.0%	0.1%	0.1%	0.8%	1.4%	0.0%	0.0%	0.1%	0.9%	1.4%	-	-	0.1%	0.2%	0.1%
	1	0.0%	0.0%	2.7%	2.4%	14.1%	0.0%	0.8%	0.0%	3.6%	9.4%	-	-	0.0%	0.0%	0.0%
	2	0.0%	3.7%	0.0%	7.3%	8.4%	0.0%	1.9%	0.0%	12.2%	9.0%	-	-	0.0%	0.0%	1.1%
	3	0.0%	1.5%	0.0%	7.8%	11.4%	0.0%	0.0%	0.0%	4.7%	5.7%	-	-	0.0%	0.0%	2.9%
	4	0.0%	2.7%	0.0%	10.2%	9.9%	0.0%	2.7%	4.8%	6.1%	6.2%	-	-	0.0%	0.0%	1.2%
	5	0.0%	0.0%	6.1%	9.5%	9.4%	0.0%	0.0%	2.4%	2.4%	7.1%	-	-	0.0%	0.0%	0.0%
	6	1.5%	3.1%	2.4%	7.7%	11.4%	1.5%	0.0%	0.0%	10.3%	10.2%	-	-	0.0%	0.0%	0.0%
	7	0.0%	1.7%	6.3%	17.6%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	-	-	0.0%	1.4%	0.0%
	8	0.0%	0.0%	0.0%	5.7%	7.0%	0.0%	0.0%	0.0%	2.9%	7.0%	-	-	0.0%	0.0%	0.0%
	9	0.0%	0.0%	3.9%	6.2%	7.1%	0.0%	0.0%	2.6%	7.2%	7.1%	-	-	0.0%	0.0%	0.0%
	10	0.0%	0.0%	4.3%	7.9%	0.0%	0.0%	0.0%	0.0%	2.6%	5.4%	-	-	0.0%	0.0%	0.0%
	11	0.0%	0.0%	4.7%	12.1%	0.0%	0.0%	0.0%	2.3%	0.0%	2.7%	-	-	0.0%	0.0%	2.7%
	12	0.0%	0.0%	11.1%	1.8%	12.1%	0.0%	0.0%	0.0%	3.5%	9.1%	-	-	0.0%	0.0%	3.0%
	13	0.0%	0.0%	0.0%	2.3%	9.1%	0.0%	0.0%	0.0%	2.3%	6.1%	-	-	0.0%	0.0%	0.0%
	14	0.0%	0.0%	0.0%	20.4%	10.5%	0.0%	0.0%	0.0%	8.2%	10.5%	-	-	0.0%	0.0%	0.0%
	15	0.0%	0.0%	2.1%	9.3%	14.7%	0.0%	2.3%	2.1%	3.7%	2.9%	-	-	0.0%	0.0%	0.0%
	16	0.0%	0.0%	0.0%	10.5%	8.3%	0.0%	0.0%	2.4%	10.5%	8.3%	-	-	0.0%	0.0%	0.0%
	17	0.0%	2.0%	0.0%	7.1%	5.0%	0.0%	2.0%	1.8%	3.6%	7.5%	-	-	0.0%	0.0%	2.5%
	18	0.0%	0.0%	2.0%	3.1%	8.0%	0.0%	2.3%	2.0%	6.3%	8.0%	-	-	0.0%	0.0%	0.0%
	19	0.0%	0.0%	2.0%	13.8%	17.6%	0.0%	0.0%	0.0%	10.3%	13.2%	-	-	0.0%	0.0%	0.0%
	20	0.0%	0.0%	1.4%	12.1%	4.6%	0.0%	0.0%	1.4%	9.1%	1.5%	-	-	0.0%	0.0%	0.0%
	21	0.0%	3.7%	2.0%	12.8%	7.4%	0.0%	0.0%	0.0%	5.1%	3.7%	-	-	0.0%	0.0%	0.0%
	22	1.2%	0.0%	6.0%	8.9%	11.5%	0.0%	1.9%	4.0%	8.9%	1.9%	-	-	0.0%	0.0%	0.0%
	23	0.0%	0.0%	0.0%	1.2%	6.1%	0.0%	0.0%	1.5%	0.0%	3.7%	-	-	0.0%	0.0%	1.2%
	24	0.0%	0.0%	2.5%	9.0%	4.8%	1.2%	0.0%	0.0%	4.5%	4.8%	-	-	0.0%	0.0%	1.2%
	25	1.3%	1.7%	1.7%	3.6%	4.7%	1.3%	0.0%	1.7%	6.0%	2.4%	-	-	0.0%	0.0%	0.0%
	26	0.0%	0.8%	0.0%	5.0%	6.9%	0.0%	0.0%	0.0%	1.7%	0.0%	-	-	0.0%	0.0%	0.0%
	27	0.0%	0.0%	1.8%	2.1%	2.5%	0.0%	0.0%	0.9%	0.7%	0.0%	-	-	0.0%	0.0%	0.0%
	28	0.0%	1.0%	0.0%	2.8%	4.8%	0.0%	0.0%	0.0%	2.8%	0.0%	-	-	0.0%	0.0%	0.0%
	29	0.8%	0.0%	0.0%	4.1%	2.4%	0.0%	0.0%	0.0%	1.4%	0.0%	-	-	0.0%	0.0%	0.0%
	30	0.0%	0.4%	0.0%	2.6%	1.9%	0.0%	0.4%	0.0%	0.9%	1.0%	-	-	0.0%	0.0%	0.0%
b)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)



	FT [n. days]	1000m					1000-2000m					>2000m				
Sa=0	0	0.0%	0.9%	1.6%	5.3%	4.9%	0.0%	0.4%	0.9%	3.8%	4.1%	-	0.1%	0.3%	1.0%	1.7%
	1	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
Sa=7	0	0.0%	1.0%	1.9%	6.2%	5.6%	0.1%	0.5%	1.1%	4.4%	4.7%	-	0.1%	0.3%	1.2%	1.9%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	2	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.9%	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	7	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
Sa=30	0	0.0%	1.2%	2.3%	7.3%	7.0%	0.1%	0.6%	1.3%	5.2%	5.9%	-	0.1%	0.4%	1.4%	2.4%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	2	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	11	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	12	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	13	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	15	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	16	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	17	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	18	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	2.3%	0.0%	0.0%	0.0%
	19	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	20	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	21	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	22	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	23	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	24	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	25	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	26	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	27	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	29	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	30	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
C)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)
100%
10%
0%

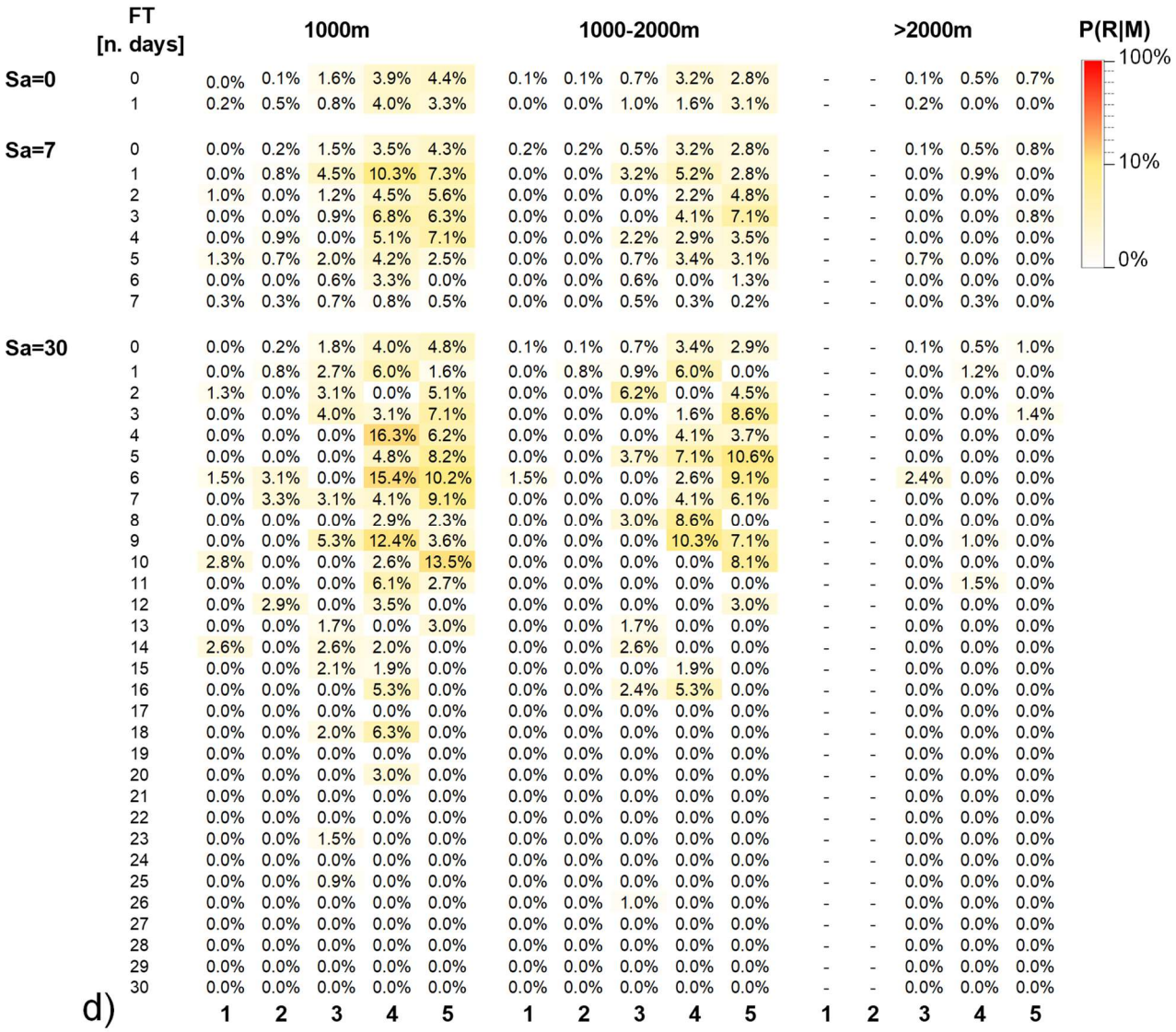


Fig. S28 Conditional probability, P(R|M), calculated with Bayesian's method of freeze-thaw cycle medium case with different aggregation scales Sa (0, 7, 30) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.5.3 Minimum calculated time-series

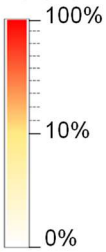
	FT [n. days]	1000m					1000-2000m					>2000m					P(R|M)
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Sa=0	0	0.0%	0.9%	1.3%	6.9%	6.5%	-	0.2%	0.2%	1.7%	1.4%	-	-	0.0%	-	0.1%	100%
	1	0.0%	0.3%	0.5%	1.4%	1.5%	-	0.0%	0.0%	1.3%	0.8%	-	-	0.0%	-	0.1%	
Sa=7	0	0.1%	1.0%	1.7%	8.9%	8.7%	-	0.3%	0.2%	2.0%	1.5%	-	-	0.0%	-	0.1%	
	1	0.0%	1.0%	1.0%	4.4%	1.4%	-	0.0%	0.3%	2.7%	0.6%	-	-	0.0%	-	0.0%	10%
	2	0.0%	0.5%	0.3%	3.4%	2.0%	-	0.0%	0.0%	1.3%	2.0%	-	-	0.0%	-	0.3%	
	3	0.0%	0.0%	0.9%	1.6%	3.2%	-	0.0%	0.0%	0.6%	1.6%	-	-	0.0%	-	0.0%	
	4	0.0%	0.5%	0.7%	0.0%	0.4%	-	0.0%	0.0%	0.4%	0.4%	-	-	0.0%	-	0.4%	
	5	0.0%	0.0%	0.0%	0.5%	2.0%	-	0.0%	0.0%	1.0%	1.2%	-	-	0.0%	-	0.0%	
	6	0.0%	0.0%	0.0%	0.0%	0.5%	-	0.0%	0.0%	0.0%	0.5%	-	-	0.0%	-	0.0%	
	7	0.0%	0.0%	0.0%	0.0%	0.6%	-	0.0%	0.3%	0.0%	0.3%	-	-	0.3%	-	0.0%	0%
Sa=30	0	0.1%	1.9%	2.7%	13.4%	14.5%	-	0.5%	0.3%	2.0%	2.6%	-	-	0.0%	-	0.0%	
	1	0.0%	0.0%	3.0%	9.1%	1.3%	-	0.0%	0.6%	2.4%	0.3%	-	-	0.0%	-	0.0%	
	2	0.0%	1.4%	2.5%	10.0%	7.5%	-	0.0%	0.0%	2.9%	1.5%	-	-	0.0%	-	0.0%	
	3	0.0%	0.0%	2.1%	8.8%	5.4%	-	0.0%	0.0%	2.1%	1.4%	-	-	0.0%	-	0.0%	
	4	0.0%	0.0%	2.6%	2.7%	4.7%	-	0.0%	0.0%	1.1%	0.7%	-	-	0.0%	-	0.7%	
	5	0.0%	0.7%	1.1%	1.6%	10.2%	-	0.0%	0.0%	0.8%	4.0%	-	-	0.0%	-	0.6%	
	6	0.0%	0.0%	0.0%	4.7%	2.1%	-	0.0%	0.0%	4.1%	1.4%	-	-	0.0%	-	0.7%	
	7	0.0%	0.7%	0.0%	0.9%	3.7%	-	0.0%	0.9%	0.0%	2.2%	-	-	0.9%	-	0.0%	
	8	0.0%	0.0%	0.0%	1.7%	5.8%	-	0.6%	0.0%	0.8%	0.8%	-	-	0.0%	-	0.8%	
	9	0.0%	2.3%	0.0%	1.6%	1.1%	-	0.0%	0.0%	0.8%	0.0%	-	-	0.0%	-	0.0%	
	10	0.0%	0.0%	0.0%	0.0%	1.0%	-	0.0%	0.0%	0.9%	0.0%	-	-	0.0%	-	0.0%	
	11	0.0%	0.0%	0.0%	1.0%	0.0%	-	0.0%	0.0%	1.0%	2.4%	-	-	0.0%	-	0.0%	
	12	0.0%	0.0%	0.0%	0.0%	1.0%	-	0.0%	0.0%	0.0%	1.0%	-	-	0.0%	-	0.0%	
	13	0.0%	0.0%	0.0%	1.6%	1.0%	-	0.0%	0.0%	1.6%	0.0%	-	-	0.0%	-	0.0%	
	14	0.0%	0.0%	0.0%	0.9%	0.0%	-	0.0%	0.0%	1.9%	0.0%	-	-	0.0%	-	0.0%	
	15	0.0%	0.0%	0.0%	1.1%	0.0%	-	0.0%	0.0%	1.1%	1.2%	-	-	0.0%	-	0.0%	
	16	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	17	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	18	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	19	0.0%	0.0%	0.0%	1.2%	2.1%	-	0.0%	0.0%	0.0%	1.1%	-	-	0.0%	-	0.0%	
	20	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	1.1%	1.1%	-	-	0.0%	-	0.0%	
	21	0.0%	0.0%	0.0%	1.9%	1.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	22	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	1.0%	0.0%	-	-	0.0%	-	0.0%	
	23	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	24	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	25	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	26	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	27	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	28	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	29	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	
	30	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	

a)

160

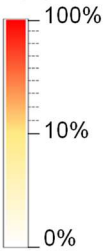
	FT [n. days]	1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.5%	0.7%	2.5%	2.9%	0.1%	0.2%	0.3%	1.4%	1.6%	-	-	0.0%	0.0%	0.1%
	1	0.1%	0.5%	0.9%	5.8%	6.9%	0.0%	0.2%	0.8%	3.8%	4.5%	-	-	0.0%	0.1%	0.4%
Sa=7	0	0.2%	0.3%	0.3%	1.7%	2.6%	0.1%	0.2%	0.2%	0.6%	0.8%	-	-	0.0%	0.0%	0.0%
	1	0.0%	0.5%	0.0%	4.4%	3.3%	0.0%	0.8%	0.3%	3.2%	3.0%	-	-	0.0%	0.2%	0.3%
	2	0.0%	0.3%	1.4%	4.7%	6.8%	0.0%	0.0%	0.3%	3.7%	4.1%	-	-	0.0%	0.0%	0.0%
	3	0.4%	1.1%	0.6%	5.8%	3.9%	0.0%	0.4%	0.3%	2.9%	2.3%	-	-	0.0%	0.0%	0.0%
	4	0.0%	0.5%	2.0%	8.1%	4.4%	0.4%	0.5%	1.0%	3.3%	5.2%	-	-	0.0%	0.0%	0.8%
	5	0.0%	1.0%	3.2%	3.3%	7.7%	0.0%	0.0%	1.4%	1.4%	4.9%	-	-	0.0%	0.0%	0.4%
	6	0.0%	0.6%	0.8%	4.0%	7.0%	0.0%	0.0%	0.4%	6.2%	7.0%	-	-	0.4%	0.6%	2.5%
	7	0.0%	0.0%	1.3%	6.1%	7.5%	0.0%	0.0%	1.5%	4.8%	6.1%	-	-	0.0%	0.6%	0.3%
Sa=30	0	0.3%	0.4%	0.0%	2.2%	2.0%	0.1%	0.1%	0.0%	0.9%	0.2%	-	-	0.0%	0.0%	0.0%
	1	0.0%	0.4%	0.0%	1.0%	2.3%	0.2%	1.2%	0.0%	1.0%	1.6%	-	-	0.0%	0.5%	0.0%
	2	0.0%	0.3%	0.0%	4.1%	3.0%	0.0%	0.0%	0.0%	2.5%	3.5%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.7%	3.1%	3.2%	0.0%	0.0%	0.0%	2.6%	1.4%	-	-	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.6%	4.9%	16.1%	0.0%	0.6%	0.6%	2.2%	6.0%	-	-	0.0%	0.0%	0.0%
	5	0.0%	0.0%	1.1%	4.8%	1.1%	0.0%	0.0%	0.0%	2.4%	0.6%	-	-	0.0%	0.0%	0.0%
	6	0.0%	1.3%	0.9%	3.6%	1.4%	0.6%	0.0%	0.0%	1.8%	2.1%	-	-	0.0%	0.0%	0.7%
	7	0.0%	0.0%	0.9%	6.8%	5.1%	0.0%	0.0%	0.0%	3.4%	2.2%	-	-	0.0%	0.0%	0.0%
	8	0.0%	0.0%	0.0%	2.5%	0.8%	0.0%	0.0%	0.0%	3.3%	0.8%	-	-	0.0%	0.0%	0.8%
	9	0.0%	0.8%	1.6%	5.5%	2.2%	0.0%	0.8%	0.8%	1.6%	2.2%	-	-	0.0%	0.0%	1.1%
	10	0.0%	1.9%	2.0%	4.7%	1.0%	0.0%	0.6%	2.0%	2.8%	1.0%	-	-	0.0%	0.0%	0.0%
	11	0.0%	0.8%	0.7%	4.0%	0.0%	0.0%	0.0%	0.7%	2.0%	1.2%	-	-	0.0%	0.0%	0.0%
	12	0.9%	0.0%	1.7%	4.0%	0.0%	0.0%	0.0%	0.8%	4.0%	0.0%	-	-	0.0%	0.0%	0.0%
	13	0.0%	1.1%	1.0%	3.3%	2.0%	0.0%	0.0%	2.0%	2.4%	2.0%	-	-	0.0%	0.0%	0.0%
	14	0.0%	0.0%	2.2%	8.5%	2.4%	0.0%	0.0%	0.7%	3.8%	4.0%	-	-	0.0%	0.0%	0.0%
	15	0.0%	0.0%	1.9%	6.8%	4.8%	0.0%	0.0%	0.0%	1.1%	3.6%	-	-	0.0%	0.0%	1.2%
	16	0.0%	0.0%	4.9%	6.5%	8.2%	0.0%	0.0%	0.7%	2.2%	7.1%	-	-	0.0%	0.0%	0.0%
	17	0.0%	1.1%	1.5%	3.7%	7.5%	0.0%	0.0%	0.0%	2.5%	4.7%	-	-	0.0%	0.0%	0.9%
	18	0.0%	1.6%	0.8%	4.8%	5.0%	0.0%	1.6%	0.0%	1.2%	4.2%	-	-	0.0%	1.2%	0.0%
	19	0.0%	1.6%	1.9%	1.2%	8.5%	0.0%	0.0%	4.8%	1.2%	5.3%	-	-	0.0%	1.2%	0.0%
	20	0.0%	0.0%	0.9%	4.3%	5.6%	0.0%	0.0%	0.0%	6.4%	7.9%	-	-	0.9%	0.0%	1.1%
	21	0.0%	0.0%	1.3%	1.9%	9.2%	0.0%	0.0%	2.6%	3.8%	6.9%	-	-	0.0%	0.0%	2.3%
	22	0.0%	0.0%	0.0%	2.1%	8.7%	0.0%	0.0%	0.0%	4.2%	13.0%	-	-	0.0%	1.0%	0.0%
	23	0.0%	0.0%	0.0%	6.1%	7.0%	0.0%	0.0%	0.0%	0.0%	14.1%	-	-	0.0%	0.0%	0.0%
	24	0.0%	0.0%	2.5%	2.7%	14.6%	0.0%	0.0%	2.5%	2.7%	12.4%	-	-	0.0%	0.0%	1.1%
	25	0.0%	0.0%	2.3%	2.9%	11.8%	0.0%	0.0%	0.0%	5.9%	7.9%	-	-	0.0%	0.0%	1.3%
	26	0.0%	0.0%	0.0%	7.7%	27.0%	0.0%	0.0%	0.0%	7.7%	8.1%	-	-	0.0%	0.0%	5.4%
	27	0.0%	0.0%	0.0%	0.0%	15.8%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	28	0.0%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	4.3%	8.3%	0.0%	-	-	0.0%	0.0%	0.0%
	29	0.0%	-	0.0%	5.3%	0.0%	0.0%	-	0.0%	21.1%	0.0%	-	-	0.0%	5.3%	0.0%
	30	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	6.3%	0.0%	-	-	0.0%	0.0%	0.0%
b)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**

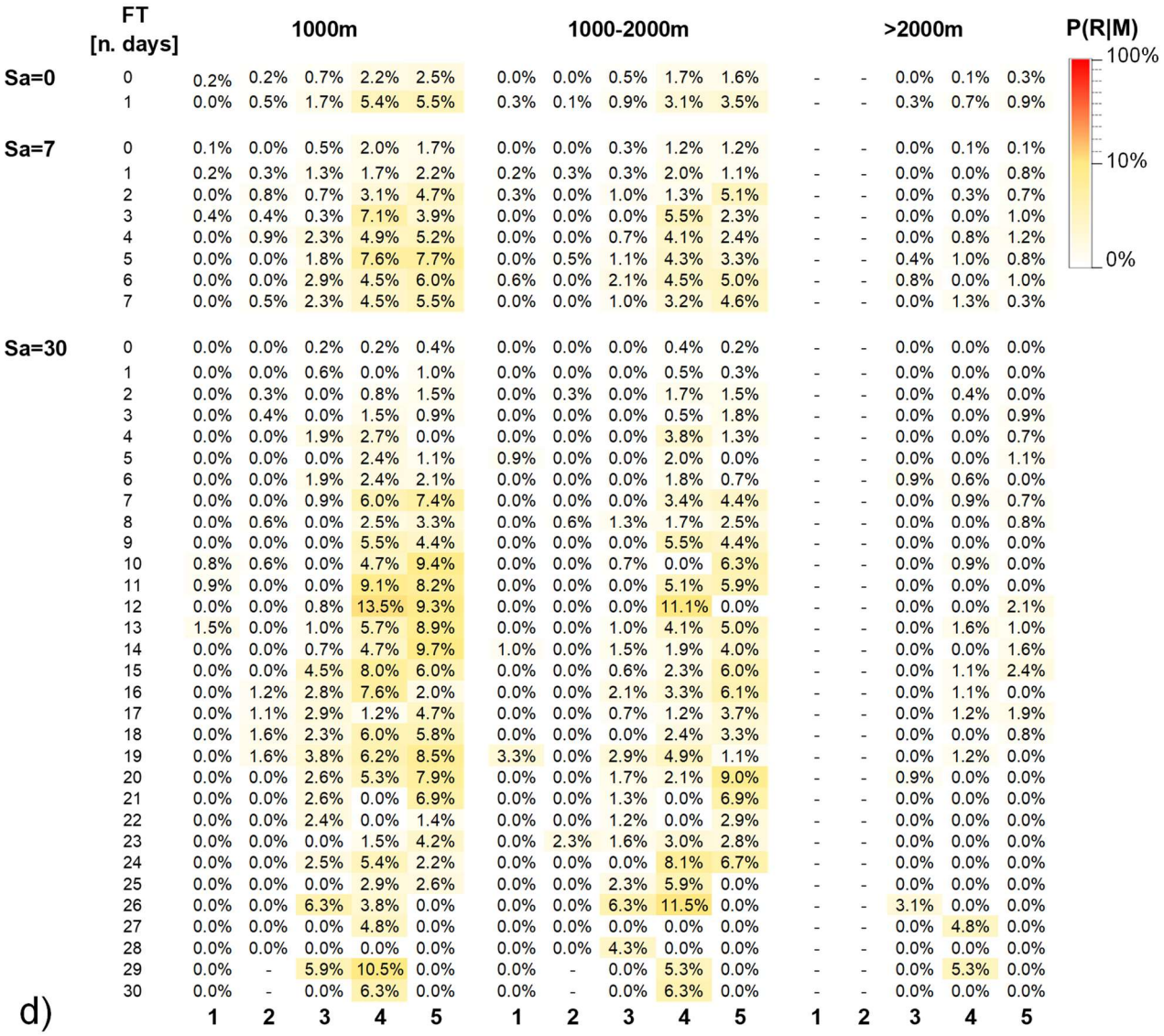
P(R|M)



	FT [n. days]	1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.4%	0.9%	3.5%	4.1%	0.0%	0.2%	0.7%	2.6%	3.4%	-	0.1%	0.0%	0.7%	1.5%
	1	0.1%	0.8%	1.0%	4.7%	2.9%	0.1%	0.5%	0.5%	3.1%	1.9%	-	0.0%	0.4%	0.7%	0.7%
Sa=7	0	0.1%	0.5%	1.0%	3.4%	4.5%	0.0%	0.2%	0.8%	2.2%	4.0%	-	0.1%	0.0%	0.8%	1.5%
	1	0.0%	0.8%	0.6%	4.2%	5.0%	0.0%	0.3%	0.6%	4.0%	2.8%	-	0.0%	0.3%	1.0%	1.9%
	2	0.0%	0.0%	1.0%	6.3%	3.7%	0.3%	0.5%	0.7%	3.9%	3.1%	-	0.0%	0.3%	0.5%	0.7%
	3	0.4%	0.0%	0.9%	3.6%	3.2%	0.0%	0.4%	0.3%	2.6%	1.9%	-	0.0%	0.0%	0.0%	1.6%
	4	0.0%	1.8%	0.7%	4.9%	2.0%	0.0%	0.0%	1.0%	3.7%	2.8%	-	0.0%	0.3%	1.2%	1.2%
	5	0.0%	0.5%	1.8%	2.4%	0.4%	0.0%	0.5%	0.4%	2.4%	0.4%	-	0.0%	0.4%	0.0%	0.4%
	6	0.0%	0.0%	1.3%	2.3%	2.0%	0.0%	0.0%	0.4%	1.7%	2.5%	-	0.0%	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.8%	0.3%	0.9%	0.0%	0.0%	0.0%	0.3%	0.9%	-	0.0%	0.5%	0.6%	0.0%
Sa=30	0	0.1%	0.2%	0.2%	2.0%	5.2%	0.0%	0.0%	0.7%	0.4%	4.2%	-	0.1%	0.0%	0.2%	1.6%
	1	0.0%	0.0%	0.6%	3.4%	9.4%	0.0%	0.0%	1.2%	1.0%	7.1%	-	0.0%	0.0%	0.5%	2.3%
	2	0.0%	0.0%	0.0%	4.6%	3.5%	0.0%	0.3%	0.0%	1.2%	2.0%	-	0.0%	0.0%	1.7%	1.5%
	3	0.0%	0.9%	2.8%	4.6%	3.6%	0.7%	0.9%	0.7%	1.0%	2.7%	-	0.0%	0.0%	0.5%	2.7%
	4	0.0%	0.0%	0.0%	5.4%	1.3%	0.0%	1.1%	0.0%	5.4%	1.3%	-	0.0%	0.0%	1.1%	0.7%
	5	0.9%	0.7%	2.2%	6.3%	1.7%	0.0%	0.0%	0.0%	6.0%	0.6%	-	0.0%	2.2%	1.6%	0.0%
	6	0.0%	0.0%	1.9%	4.1%	1.4%	0.0%	0.0%	0.0%	2.4%	2.1%	-	0.6%	0.0%	0.0%	1.4%
	7	0.0%	0.7%	0.9%	5.1%	0.7%	0.0%	0.0%	0.9%	6.8%	1.5%	-	0.0%	0.0%	1.7%	0.0%
	8	0.0%	0.6%	0.6%	6.6%	0.8%	0.0%	0.6%	0.6%	4.1%	0.0%	-	0.0%	0.6%	0.8%	0.0%
	9	0.0%	0.8%	3.1%	1.6%	1.1%	0.0%	0.0%	2.3%	4.7%	1.1%	-	0.0%	1.6%	0.0%	0.0%
	10	0.0%	0.6%	1.3%	4.7%	0.0%	0.0%	0.6%	0.0%	2.8%	5.2%	-	0.0%	0.0%	0.9%	1.0%
	11	0.0%	1.6%	3.5%	3.0%	1.2%	0.0%	0.0%	0.0%	4.0%	3.5%	-	0.0%	0.0%	2.0%	0.0%
	12	0.9%	1.0%	0.0%	2.4%	4.1%	0.0%	0.0%	0.0%	0.8%	4.1%	-	0.0%	0.0%	0.0%	0.0%
	13	0.0%	0.0%	1.0%	4.9%	5.9%	0.0%	0.0%	0.0%	3.3%	4.0%	-	0.0%	0.0%	0.0%	0.0%
	14	0.0%	0.0%	0.0%	2.8%	4.0%	0.0%	0.0%	1.5%	0.9%	1.6%	-	0.0%	0.0%	0.0%	0.8%
	15	0.0%	0.0%	1.3%	0.0%	3.6%	0.0%	0.0%	0.6%	1.1%	2.4%	-	0.0%	0.0%	0.0%	0.0%
	16	0.0%	2.3%	0.0%	2.2%	3.1%	0.0%	0.0%	0.7%	4.3%	0.0%	-	0.0%	0.0%	0.0%	3.1%
	17	0.0%	2.3%	0.7%	3.7%	2.8%	0.0%	0.0%	0.0%	3.7%	0.0%	-	0.0%	0.0%	0.0%	0.9%
	18	0.0%	0.0%	1.6%	1.2%	2.5%	0.0%	0.0%	0.8%	2.4%	4.2%	-	0.0%	0.0%	0.0%	1.7%
	19	0.0%	1.6%	1.0%	4.9%	1.1%	0.0%	1.6%	1.0%	1.2%	5.3%	-	0.0%	0.0%	1.2%	0.0%
	20	0.0%	0.0%	1.7%	3.2%	0.0%	0.0%	1.9%	0.0%	1.1%	3.4%	-	0.0%	0.0%	1.1%	3.4%
	21	0.0%	4.1%	1.3%	0.0%	3.4%	0.0%	0.0%	1.3%	1.9%	1.1%	-	0.0%	0.0%	0.0%	1.1%
	22	0.0%	0.0%	1.2%	0.0%	2.9%	0.0%	0.0%	1.2%	3.1%	1.4%	-	0.0%	0.0%	1.0%	0.0%
	23	0.0%	0.0%	0.0%	1.5%	2.8%	0.0%	0.0%	0.0%	1.5%	1.4%	-	0.0%	1.6%	1.5%	0.0%
	24	0.0%	0.0%	0.0%	2.7%	1.1%	0.0%	0.0%	0.0%	2.7%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	25	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	1.3%
	26	0.0%	0.0%	0.0%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	27	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	29	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	30	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
C)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**

P(R\|M)





	FT [n. days]	1000m					1000-2000m					>2000m				
Sa=0	0	0.2%	0.2%	0.7%	2.2%	2.5%	0.0%	0.0%	0.5%	1.7%	1.6%	-	-	0.0%	0.1%	0.3%
	1	0.0%	0.5%	1.7%	5.4%	5.5%	0.3%	0.1%	0.9%	3.1%	3.5%	-	-	0.3%	0.7%	0.9%
Sa=7	0	0.1%	0.0%	0.5%	2.0%	1.7%	0.0%	0.0%	0.3%	1.2%	1.2%	-	-	0.0%	0.1%	0.1%
	1	0.2%	0.3%	1.3%	1.7%	2.2%	0.2%	0.3%	0.3%	2.0%	1.1%	-	-	0.0%	0.0%	0.8%
	2	0.0%	0.8%	0.7%	3.1%	4.7%	0.3%	0.0%	1.0%	1.3%	5.1%	-	-	0.0%	0.3%	0.7%
	3	0.4%	0.4%	0.3%	7.1%	3.9%	0.0%	0.0%	0.0%	5.5%	2.3%	-	-	0.0%	0.0%	1.0%
	4	0.0%	0.9%	2.3%	4.9%	5.2%	0.0%	0.0%	0.7%	4.1%	2.4%	-	-	0.0%	0.8%	1.2%
	5	0.0%	0.0%	1.8%	7.6%	7.7%	0.0%	0.5%	1.1%	4.3%	3.3%	-	-	0.4%	1.0%	0.8%
	6	0.0%	0.0%	2.9%	4.5%	6.0%	0.6%	0.0%	2.1%	4.5%	5.0%	-	-	0.8%	0.0%	1.0%
	7	0.0%	0.5%	2.3%	4.5%	5.5%	0.0%	0.0%	1.0%	3.2%	4.6%	-	-	0.0%	1.3%	0.3%
Sa=30	0	0.0%	0.0%	0.2%	0.2%	0.4%	0.0%	0.0%	0.0%	0.4%	0.2%	-	-	0.0%	0.0%	0.0%
	1	0.0%	0.0%	0.6%	0.0%	1.0%	0.0%	0.0%	0.0%	0.5%	0.3%	-	-	0.0%	0.0%	0.0%
	2	0.0%	0.3%	0.0%	0.8%	1.5%	0.0%	0.3%	0.0%	1.7%	1.5%	-	-	0.0%	0.4%	0.0%
	3	0.0%	0.4%	0.0%	1.5%	0.9%	0.0%	0.0%	0.0%	0.5%	1.8%	-	-	0.0%	0.0%	0.9%
	4	0.0%	0.0%	1.9%	2.7%	0.0%	0.0%	0.0%	0.0%	3.8%	1.3%	-	-	0.0%	0.0%	0.7%
	5	0.0%	0.0%	0.0%	2.4%	1.1%	0.9%	0.0%	0.0%	2.0%	0.0%	-	-	0.0%	0.0%	1.1%
	6	0.0%	0.0%	1.9%	2.4%	2.1%	0.0%	0.0%	0.0%	1.8%	0.7%	-	-	0.9%	0.6%	0.0%
	7	0.0%	0.0%	0.9%	6.0%	7.4%	0.0%	0.0%	0.0%	3.4%	4.4%	-	-	0.0%	0.9%	0.7%
	8	0.0%	0.6%	0.0%	2.5%	3.3%	0.0%	0.6%	1.3%	1.7%	2.5%	-	-	0.0%	0.0%	0.8%
	9	0.0%	0.0%	0.0%	5.5%	4.4%	0.0%	0.0%	0.0%	5.5%	4.4%	-	-	0.0%	0.0%	0.0%
	10	0.8%	0.6%	0.0%	4.7%	9.4%	0.0%	0.0%	0.7%	0.0%	6.3%	-	-	0.0%	0.9%	0.0%
	11	0.9%	0.0%	0.0%	9.1%	8.2%	0.0%	0.0%	0.0%	5.1%	5.9%	-	-	0.0%	0.0%	0.0%
	12	0.0%	0.0%	0.8%	13.5%	9.3%	0.0%	0.0%	0.0%	11.1%	0.0%	-	-	0.0%	0.0%	2.1%
	13	1.5%	0.0%	1.0%	5.7%	8.9%	0.0%	0.0%	1.0%	4.1%	5.0%	-	-	0.0%	1.6%	1.0%
	14	0.0%	0.0%	0.7%	4.7%	9.7%	1.0%	0.0%	1.5%	1.9%	4.0%	-	-	0.0%	0.0%	1.6%
	15	0.0%	0.0%	4.5%	8.0%	6.0%	0.0%	0.0%	0.6%	2.3%	6.0%	-	-	0.0%	1.1%	2.4%
	16	0.0%	1.2%	2.8%	7.6%	2.0%	0.0%	0.0%	2.1%	3.3%	6.1%	-	-	0.0%	1.1%	0.0%
	17	0.0%	1.1%	2.9%	1.2%	4.7%	0.0%	0.0%	0.7%	1.2%	3.7%	-	-	0.0%	1.2%	1.9%
	18	0.0%	1.6%	2.3%	6.0%	5.8%	0.0%	0.0%	0.0%	2.4%	3.3%	-	-	0.0%	0.0%	0.8%
	19	0.0%	1.6%	3.8%	6.2%	8.5%	3.3%	0.0%	2.9%	4.9%	1.1%	-	-	0.0%	1.2%	0.0%
	20	0.0%	0.0%	2.6%	5.3%	7.9%	0.0%	0.0%	1.7%	2.1%	9.0%	-	-	0.9%	0.0%	0.0%
	21	0.0%	0.0%	2.6%	0.0%	6.9%	0.0%	0.0%	1.3%	0.0%	6.9%	-	-	0.0%	0.0%	0.0%
	22	0.0%	0.0%	2.4%	0.0%	1.4%	0.0%	0.0%	1.2%	0.0%	2.9%	-	-	0.0%	0.0%	0.0%
	23	0.0%	0.0%	0.0%	1.5%	4.2%	0.0%	2.3%	1.6%	3.0%	2.8%	-	-	0.0%	0.0%	0.0%
	24	0.0%	0.0%	2.5%	5.4%	2.2%	0.0%	0.0%	0.0%	8.1%	6.7%	-	-	0.0%	0.0%	0.0%
	25	0.0%	0.0%	0.0%	2.9%	2.6%	0.0%	0.0%	2.3%	5.9%	0.0%	-	-	0.0%	0.0%	0.0%
	26	0.0%	0.0%	6.3%	3.8%	0.0%	0.0%	0.0%	6.3%	11.5%	0.0%	-	-	3.1%	0.0%	0.0%
	27	0.0%	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	4.8%	0.0%
	28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	29	0.0%	-	5.9%	10.5%	0.0%	0.0%	-	0.0%	5.3%	0.0%	-	-	0.0%	5.3%	0.0%
	30	0.0%	-	0.0%	6.3%	0.0%	0.0%	-	0.0%	6.3%	0.0%	-	-	0.0%	0.0%	0.0%
d)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

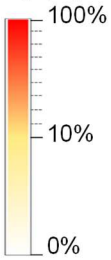
Fig. S29 Conditional probability, P(R|M), calculated with Bayesian's method of freeze-thaw cycle minimum case with different aggregation scales Sa (0, 7, 30) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

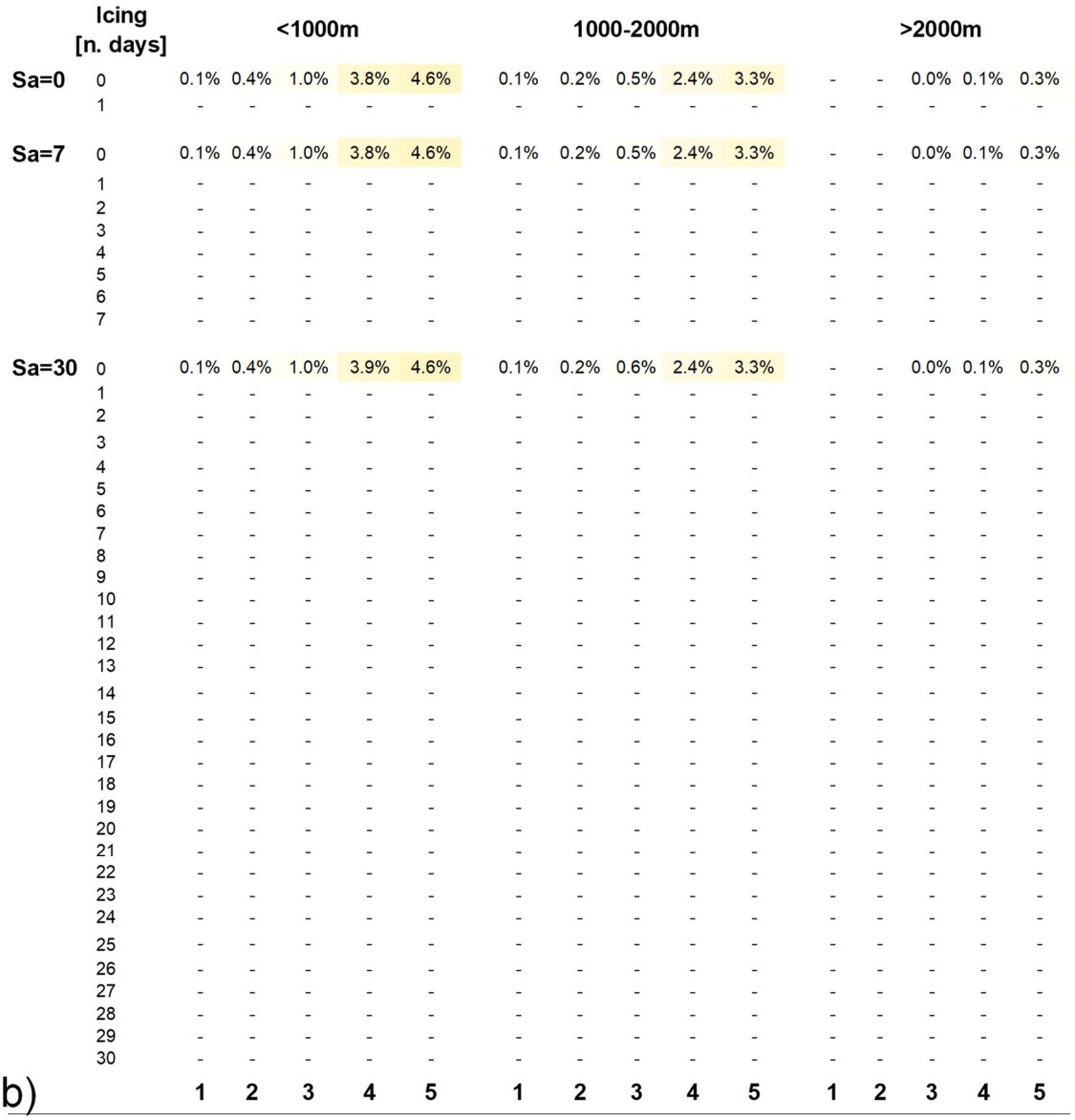
S2.6 Icing

S2.6.1 Maximum calculated time-series

	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.0%	0.7%	0.9%	4.5%	4.3%	-	0.1%	0.1%	1.3%	1.1%	-	-	0.0%	-	0.1%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=7	0	0.0%	0.7%	0.9%	4.5%	4.3%	-	0.1%	0.1%	1.3%	1.1%	-	-	0.0%	-	0.1%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=30	0	0.0%	0.7%	0.9%	4.5%	4.2%	-	0.1%	0.1%	1.4%	1.1%	-	-	0.0%	-	0.1%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)



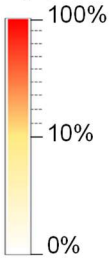


	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.4%	1.0%	3.8%	4.6%	0.1%	0.2%	0.5%	2.4%	3.3%	-	-	0.0%	0.1%	0.3%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=7	0	0.1%	0.4%	1.0%	3.8%	4.6%	0.1%	0.2%	0.5%	2.4%	3.3%	-	-	0.0%	0.1%	0.3%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=30	0	0.1%	0.4%	1.0%	3.9%	4.6%	0.1%	0.2%	0.6%	2.4%	3.3%	-	-	0.0%	0.1%	0.3%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**

170

	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.5%	0.9%	3.4%	3.2%	0.0%	0.2%	0.5%	2.4%	2.7%	-	0.1%	0.2%	0.6%	1.1%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=7	0	0.1%	0.5%	0.9%	3.4%	3.2%	0.0%	0.2%	0.5%	2.4%	2.7%	-	0.1%	0.2%	0.6%	1.1%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sa=30	0	0.1%	0.5%	0.9%	3.4%	3.2%	0.0%	0.2%	0.6%	2.4%	2.7%	-	0.1%	0.2%	0.6%	1.1%
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**

P(R|M)



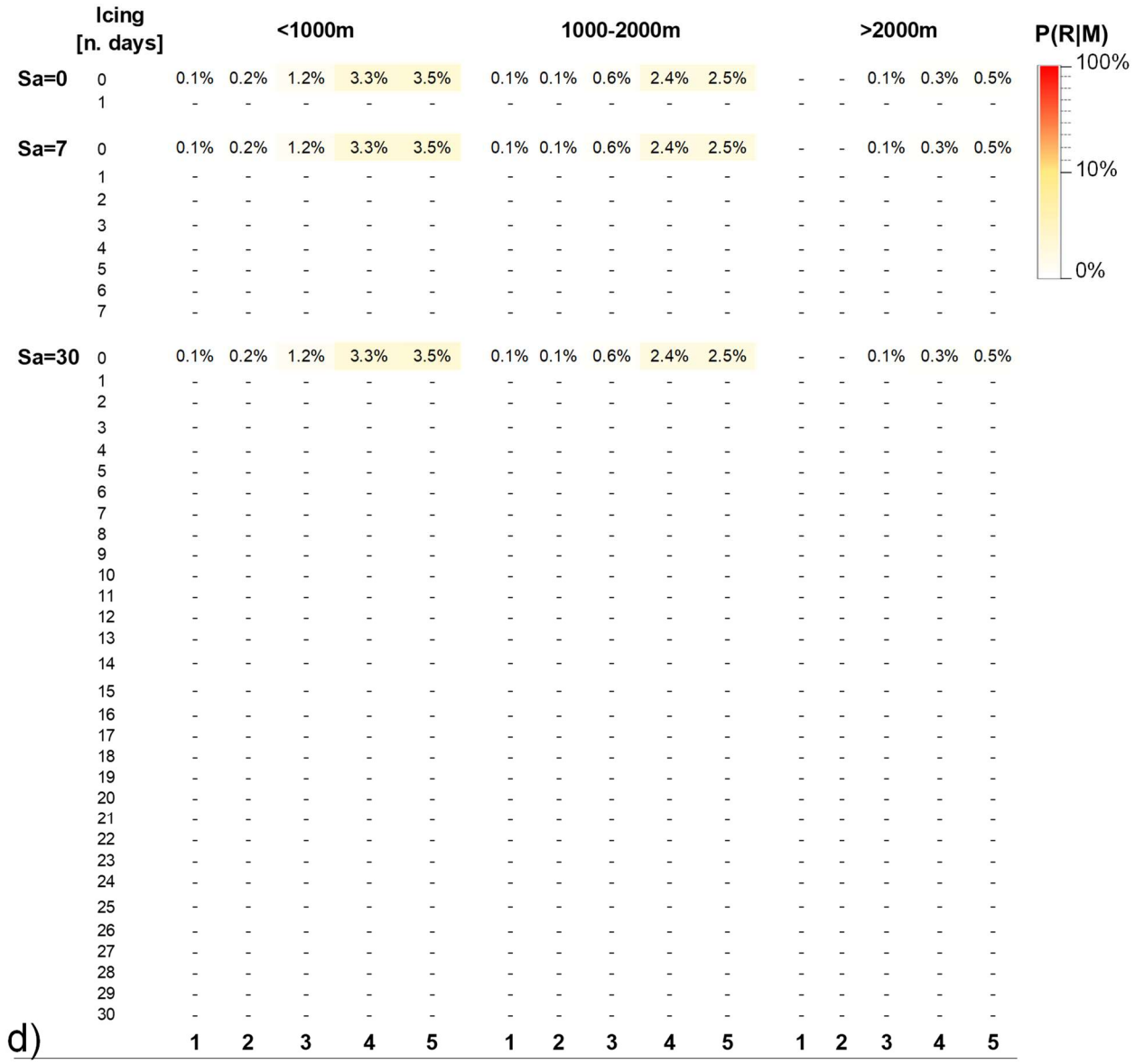
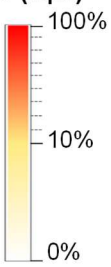


Fig. S30 Conditional probability, P(R|M), calculated with Bayesian's method of icing maximum case with different aggregation scales Sa (0, 7, 30) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.6.2 Medium calculated time-series

	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.0%	0.6%	0.9%	4.2%	4.2%	-	0.1%	0.1%	1.3%	1.1%	-	-	0.0%	-	0.1%
	1	0.0%	3.2%	1.8%	13.9%	6.5%	-	1.1%	0.0%	1.7%	0.8%	-	-	0.0%	-	0.0%
Sa=7	0	0.0%	0.5%	0.7%	3.6%	3.5%	-	0.1%	0.1%	1.2%	1.0%	-	-	0.0%	-	0.1%
	1	0.0%	1.3%	3.2%	9.5%	12.9%	-	0.0%	0.0%	3.8%	2.6%	-	-	0.0%	-	0.0%
	2	0.0%	4.9%	3.7%	19.0%	16.9%	-	0.0%	0.0%	3.8%	1.5%	-	-	0.0%	-	0.0%
	3	0.0%	2.7%	2.2%	15.7%	13.2%	-	0.0%	0.0%	0.0%	3.8%	-	-	0.0%	-	0.0%
	4	0.0%	0.0%	6.9%	17.4%	5.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	5	0.0%	0.0%	0.0%	30.8%	12.5%	-	4.5%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	6	0.0%	6.3%	0.0%	11.1%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	7	0.0%	11.1%	0.0%	0.0%	12.5%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
Sa=30	0	0.0%	0.4%	0.2%	1.8%	2.2%	-	0.1%	0.0%	0.8%	0.7%	-	-	0.0%	-	0.1%
	1	0.0%	0.8%	3.9%	10.9%	9.9%	-	0.8%	0.8%	3.3%	1.0%	-	-	0.0%	-	0.0%
	2	0.0%	0.0%	3.9%	21.1%	15.1%	-	0.0%	0.5%	8.4%	1.6%	-	-	0.0%	-	0.0%
	3	0.0%	1.6%	0.0%	16.5%	18.7%	-	0.0%	0.0%	4.5%	3.3%	-	-	0.0%	-	0.0%
	4	3.6%	0.0%	3.4%	18.2%	13.6%	-	0.0%	0.0%	2.3%	3.2%	-	-	0.0%	-	0.0%
	5	0.0%	2.3%	1.5%	24.7%	7.0%	-	0.0%	0.0%	5.4%	0.0%	-	-	0.0%	-	0.0%
	6	0.0%	2.3%	9.3%	15.4%	21.6%	-	0.0%	1.3%	0.0%	2.7%	-	-	0.0%	-	0.0%
	7	0.0%	0.0%	0.0%	18.5%	0.0%	-	0.0%	0.0%	0.0%	7.1%	-	-	0.0%	-	0.0%
	8	0.0%	8.7%	8.3%	0.0%	9.7%	-	4.3%	0.0%	0.0%	6.5%	-	-	0.0%	-	0.0%
	9	0.0%	6.1%	0.0%	40.0%	16.7%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	10	0.0%	0.0%	0.0%	0.0%	20.0%	-	0.0%	0.0%	0.0%	20.0%	-	-	0.0%	-	0.0%
	11	0.0%	20.0%	0.0%	0.0%	41.7%	-	0.0%	0.0%	0.0%	8.3%	-	-	0.0%	-	0.0%
	12	0.0%	0.0%	16.7%	-	6.3%	-	0.0%	0.0%	-	6.3%	-	-	0.0%	-	0.0%
	13	0.0%	0.0%	-	-	0.0%	-	0.0%	-	-	0.0%	-	-	-	-	0.0%
	14	0.0%	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	15	-	22.2%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	16	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	17	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	18	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	19	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	20	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	21	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	22	-	18.2%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

P(R|M)



	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.5%	1.0%	4.0%	4.8%	0.1%	0.2%	0.6%	2.5%	3.5%	-	-	0.0%	0.1%	0.3%
	1	1.4%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
Sa=7	0	0.1%	0.5%	1.1%	4.0%	4.9%	0.1%	0.2%	0.6%	2.6%	3.6%	-	-	0.0%	0.1%	0.4%
	1	0.0%	0.0%	0.0%	2.9%	0.9%	0.0%	0.0%	0.0%	1.9%	0.0%	-	-	0.0%	0.0%	0.0%
	2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	2.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	7	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
Sa=30	0	0.1%	0.5%	1.1%	3.9%	4.5%	0.1%	0.3%	0.7%	2.4%	3.6%	-	-	0.0%	0.2%	0.4%
	1	0.0%	0.0%	0.8%	9.8%	4.0%	0.0%	0.0%	0.0%	7.7%	1.0%	-	-	0.0%	0.0%	0.0%
	2	0.0%	1.7%	0.5%	1.1%	8.7%	0.0%	0.0%	0.0%	0.0%	5.6%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	-	-	0.0%	0.0%	0.0%
	4	0.0%	0.0%	1.7%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.8%	-	-	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	0.0%	14.0%	0.0%	0.0%	0.0%	0.0%	5.3%	-	-	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	-	-	0.0%	0.0%	0.0%
	7	4.1%	0.0%	5.6%	0.0%	21.4%	2.0%	0.0%	0.0%	0.0%	3.6%	-	-	0.0%	0.0%	0.0%
	8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	11	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%
	12	0.0%	0.0%	0.0%	-	6.3%	0.0%	0.0%	0.0%	-	0.0%	-	-	0.0%	-	0.0%
	13	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	-	-	-	-	0.0%
	14	0.0%	0.0%	-	-	-	0.0%	0.0%	-	-	-	-	-	-	-	-
	15	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	16	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	17	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	18	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	19	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	20	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	21	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	22	-	0.0%	-	-	-	-	0.0%	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

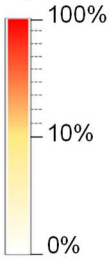
P(R|M)

100%

10%

0%

	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.1%	0.5%	1.0%	3.5%	3.3%	0.0%	0.3%	0.6%	2.5%	2.8%	-	0.1%	0.2%	0.7%	1.1%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
Sa=7	0	0.1%	0.6%	1.0%	3.7%	3.5%	0.0%	0.3%	0.6%	2.6%	2.9%	-	0.1%	0.2%	0.7%	1.2%
	1	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
Sa=30	0	0.1%	0.6%	1.2%	4.1%	3.9%	0.0%	0.3%	0.7%	3.0%	3.3%	-	0.1%	0.2%	0.8%	1.3%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	7	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	11	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	12	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	-	0.0%
	13	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	-	-	0.0%
	14	0.0%	0.0%	-	-	-	0.0%	0.0%	-	-	-	-	0.0%	-	-	-
	15	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	16	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	17	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	18	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	19	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	20	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	21	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	22	-	0.0%	-	-	-	-	0.0%	-	-	-	-	0.0%	-	-	-
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C)		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**



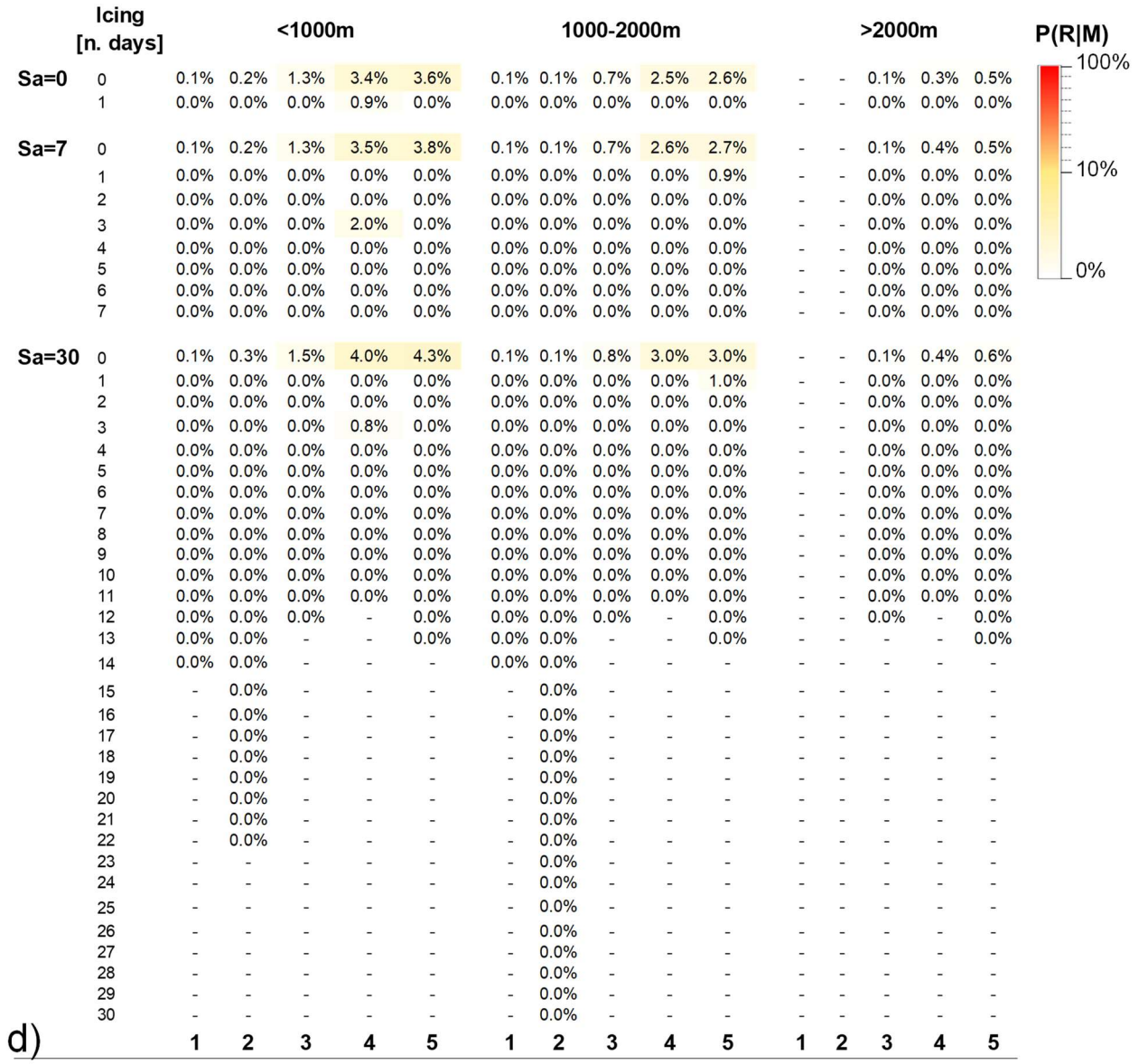
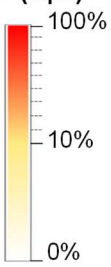


Fig. S31 Conditional probability, P(R|M), calculated with Bayesian's method of icing medium case with different aggregation scales Sa (0, 7, 30) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S2.6.3 Minimum calculated time-series

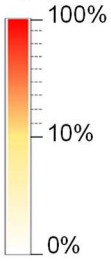
	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.0%	0.1%	0.1%	0.1%	0.3%	-	0.0%	0.1%	0.1%	0.2%	-	-	0.1%	-	0.0%
	1	0.0%	0.4%	1.1%	3.5%	2.8%	-	0.2%	0.0%	2.3%	1.6%	-	-	0.0%	-	0.2%
Sa=7	0	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	1	0.0%	0.0%	0.0%	0.0%	0.6%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	2	0.0%	0.0%	0.0%	0.0%	1.3%	-	0.0%	0.9%	0.8%	0.6%	-	-	0.9%	-	0.0%
	3	0.0%	0.0%	0.0%	0.9%	0.8%	-	0.0%	0.0%	0.0%	0.8%	-	-	0.0%	-	0.0%
	4	0.0%	0.0%	0.0%	1.9%	4.6%	-	0.0%	0.0%	2.8%	4.6%	-	-	0.0%	-	0.0%
	5	0.0%	0.9%	1.3%	0.7%	3.6%	-	0.0%	0.0%	0.7%	0.7%	-	-	0.0%	-	0.7%
	6	0.0%	0.7%	2.8%	4.5%	3.2%	-	0.0%	0.0%	1.3%	2.6%	-	-	0.0%	-	0.0%
	7	0.0%	1.4%	1.4%	8.5%	5.7%	-	0.6%	0.3%	3.9%	2.2%	-	-	0.0%	-	0.3%
Sa=30	0	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	1	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	2	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	4	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	5	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	2.8%	0.0%	-	-	0.0%	-	0.0%
	7	0.0%	0.0%	0.0%	1.9%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	8	0.0%	0.0%	0.0%	0.0%	1.4%	-	0.0%	0.0%	1.3%	0.0%	-	-	0.0%	-	0.0%
	9	0.0%	0.0%	0.0%	1.8%	0.0%	-	0.0%	0.0%	0.0%	1.6%	-	-	0.0%	-	0.0%
	10	0.0%	0.0%	0.0%	0.0%	4.1%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	11	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	12	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	1.9%	-	-	0.0%	-	0.0%
	13	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	14	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	15	0.0%	0.0%	0.0%	2.9%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%
	16	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	1.9%	-	-	0.0%	-	0.0%
	17	0.0%	0.0%	0.0%	4.0%	0.0%	-	0.0%	0.0%	2.0%	0.0%	-	-	0.0%	-	0.0%
	18	0.0%	0.0%	0.0%	2.7%	2.9%	-	0.0%	0.0%	4.0%	0.0%	-	-	0.0%	-	0.0%
	19	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	1.8%	0.0%	-	-	0.0%	-	0.0%
	20	0.0%	0.0%	0.0%	1.5%	5.3%	-	0.0%	0.0%	1.5%	7.9%	-	-	0.0%	-	0.0%
	21	0.0%	4.6%	0.0%	0.0%	0.0%	-	0.0%	0.0%	4.1%	0.0%	-	-	0.0%	-	0.0%
	22	0.0%	0.0%	0.0%	5.9%	4.8%	-	2.3%	0.0%	1.5%	2.4%	-	-	0.0%	-	0.0%
	23	0.0%	2.3%	0.0%	2.9%	6.3%	-	0.0%	0.0%	1.4%	0.0%	-	-	0.0%	-	1.6%
	24	0.0%	1.4%	0.0%	2.0%	12.8%	-	0.0%	0.0%	2.0%	4.3%	-	-	0.0%	-	0.0%
	25	0.0%	0.0%	1.3%	6.8%	10.7%	-	0.0%	1.3%	5.7%	4.8%	-	-	1.3%	-	1.2%
	26	0.0%	2.0%	1.8%	5.7%	4.5%	-	0.0%	0.0%	3.8%	1.8%	-	-	0.0%	-	0.0%
	27	0.0%	0.0%	1.8%	9.6%	11.1%	-	0.0%	0.0%	2.1%	6.2%	-	-	0.0%	-	2.5%
	28	0.0%	0.0%	4.8%	13.6%	11.6%	-	0.0%	0.0%	4.5%	1.8%	-	-	0.0%	-	0.0%
	29	0.0%	2.5%	2.5%	15.6%	6.3%	-	0.0%	0.0%	1.8%	1.3%	-	-	0.0%	-	0.0%
	30	0.0%	0.9%	4.2%	15.5%	19.7%	-	0.9%	0.5%	4.9%	4.2%	-	-	0.0%	-	0.0%
a)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5



185

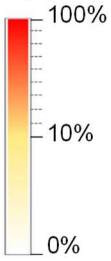
	Icing [n. days]	<1000m					1000-2000m					>2000m				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Sa=0	0	0.1%	0.2%	0.9%	2.1%	3.4%	0.1%	0.1%	0.5%	1.9%	3.4%	-	-	0.1%	0.2%	0.4%
	1	0.0%	0.6%	1.1%	9.8%	8.7%	0.0%	0.2%	1.1%	4.9%	5.3%	-	-	0.0%	0.0%	0.4%
Sa=7	0	0.0%	0.1%	0.6%	1.1%	2.7%	0.0%	0.0%	0.3%	1.2%	2.6%	-	-	0.1%	0.3%	0.3%
	1	0.0%	0.0%	0.4%	4.4%	9.9%	0.0%	0.0%	1.2%	5.5%	6.4%	-	-	0.0%	0.0%	0.6%
	2	0.7%	0.0%	0.9%	7.5%	5.8%	0.0%	0.0%	0.9%	3.0%	6.5%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	1.4%	6.9%	8.3%	0.0%	0.8%	1.4%	3.4%	5.8%	-	-	0.0%	0.0%	2.5%
	4	0.0%	0.9%	5.8%	8.4%	8.3%	0.0%	0.9%	2.2%	4.7%	7.4%	-	-	0.0%	0.0%	0.0%
	5	0.0%	2.7%	2.6%	15.4%	5.0%	1.1%	0.0%	0.6%	6.6%	5.0%	-	-	0.0%	0.0%	0.7%
	6	0.0%	2.1%	1.4%	7.6%	7.7%	0.0%	1.4%	0.7%	6.4%	3.9%	-	-	0.0%	0.0%	0.0%
	7	0.0%	0.8%	1.1%	8.5%	8.3%	0.0%	0.6%	0.6%	5.5%	5.1%	-	-	0.0%	0.3%	0.3%
Sa=30	0	0.0%	0.1%	0.0%	0.2%	0.7%	0.0%	0.0%	0.1%	0.2%	0.7%	-	-	0.1%	0.1%	0.1%
	1	0.0%	0.0%	0.0%	1.2%	5.8%	0.0%	0.0%	0.0%	4.1%	5.3%	-	-	0.0%	0.6%	0.5%
	2	0.0%	0.0%	0.9%	2.5%	2.5%	0.0%	0.0%	0.0%	0.8%	2.5%	-	-	0.0%	0.0%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	4.0%	-	-	0.0%	0.0%	2.0%
	4	0.0%	0.0%	2.4%	1.4%	6.4%	0.0%	0.0%	0.0%	1.4%	2.1%	-	-	0.0%	0.0%	0.0%
	5	0.0%	0.0%	1.2%	0.0%	10.7%	0.0%	0.0%	0.0%	4.3%	1.3%	-	-	0.0%	0.0%	1.3%
	6	0.0%	0.0%	2.0%	5.6%	8.7%	0.0%	0.0%	4.1%	2.8%	3.5%	-	-	0.0%	0.0%	1.7%
	7	0.0%	0.0%	0.0%	1.9%	9.1%	0.0%	0.0%	2.0%	5.6%	12.7%	-	-	0.0%	1.9%	1.8%
	8	0.0%	0.0%	2.8%	1.3%	8.6%	0.0%	1.9%	0.0%	0.0%	8.6%	-	-	0.0%	0.0%	0.0%
	9	0.0%	0.0%	3.3%	1.8%	8.1%	0.0%	0.0%	0.0%	1.8%	19.4%	-	-	0.0%	0.0%	0.0%
	10	0.0%	1.6%	0.0%	3.7%	14.3%	0.0%	0.0%	0.0%	3.7%	4.1%	-	-	0.0%	0.0%	0.0%
	11	0.0%	1.9%	4.3%	6.1%	0.0%	0.0%	0.0%	4.3%	12.1%	5.7%	-	-	0.0%	0.0%	0.0%
	12	0.0%	0.0%	1.7%	6.3%	5.6%	0.0%	0.0%	5.2%	4.8%	13.0%	-	-	0.0%	0.0%	0.0%
	13	0.0%	0.0%	0.0%	10.8%	13.9%	0.0%	0.0%	1.7%	0.0%	5.6%	-	-	0.0%	2.7%	0.0%
	14	0.0%	0.0%	1.3%	5.4%	8.6%	0.0%	0.0%	0.0%	2.7%	5.7%	-	-	0.0%	0.0%	0.0%
	15	2.6%	0.0%	6.9%	8.8%	16.3%	0.0%	0.0%	0.0%	0.0%	14.3%	-	-	0.0%	0.0%	2.0%
	16	0.0%	0.0%	7.4%	12.2%	13.2%	0.0%	0.0%	0.0%	4.1%	3.8%	-	-	0.0%	0.0%	1.9%
	17	0.0%	5.3%	5.6%	12.0%	6.1%	0.0%	0.0%	3.7%	2.0%	12.1%	-	-	0.0%	0.0%	0.0%
	18	0.0%	3.4%	1.9%	12.0%	0.0%	0.0%	0.0%	1.9%	6.7%	0.0%	-	-	0.0%	0.0%	0.0%
	19	0.0%	0.0%	0.0%	3.6%	2.6%	0.0%	2.0%	1.5%	3.6%	2.6%	-	-	0.0%	0.0%	0.0%
	20	0.0%	2.1%	3.2%	7.7%	0.0%	0.0%	0.0%	0.0%	6.2%	2.6%	-	-	0.0%	0.0%	0.0%
	21	0.0%	1.5%	4.2%	12.2%	2.9%	0.0%	1.5%	2.8%	6.1%	2.9%	-	-	0.0%	0.0%	0.0%
	22	0.0%	0.0%	3.1%	13.2%	2.4%	0.0%	0.0%	4.6%	8.8%	0.0%	-	-	0.0%	0.0%	0.0%
	23	0.0%	0.0%	1.4%	15.9%	1.6%	0.0%	0.0%	0.0%	11.6%	3.1%	-	-	0.0%	0.0%	1.6%
	24	0.0%	1.4%	0.0%	14.0%	4.3%	1.5%	0.0%	0.0%	8.0%	4.3%	-	-	0.0%	0.0%	2.1%
	25	0.0%	1.0%	2.6%	5.7%	14.3%	0.0%	1.0%	0.0%	3.4%	3.6%	-	-	0.0%	0.0%	0.0%
	26	0.0%	0.0%	0.0%	5.7%	8.2%	0.0%	0.0%	0.0%	1.9%	4.5%	-	-	0.0%	0.0%	0.9%
	27	0.0%	0.0%	3.6%	8.5%	6.2%	0.0%	0.0%	1.8%	4.3%	2.5%	-	-	0.0%	0.0%	0.0%
	28	0.0%	1.6%	0.0%	6.8%	10.7%	0.0%	2.4%	0.0%	2.3%	7.1%	-	-	0.0%	0.0%	0.0%
	29	0.0%	0.0%	1.3%	2.8%	8.9%	0.0%	0.0%	0.0%	2.8%	3.8%	-	-	0.0%	0.0%	0.0%
	30	0.3%	0.4%	0.0%	5.8%	4.2%	0.3%	0.0%	0.0%	3.4%	4.2%	-	-	0.0%	0.5%	0.0%

P(R|M)



b)

	Icing [n. days]	<1000m					1000-2000m					>2000m				
Sa=0	0	0.7%	1.0%	1.7%	6.3%	5.7%	0.1%	0.4%	1.0%	4.6%	4.7%	-	0.1%	0.3%	1.2%	1.9%
	1	0.2%	0.2%	0.0%	0.6%	0.0%	0.0%	0.2%	0.2%	0.2%	0.2%	-	0.0%	0.0%	0.2%	0.0%
Sa=7	0	0.8%	1.2%	2.0%	7.4%	6.6%	0.1%	0.5%	1.1%	5.6%	5.5%	-	0.1%	0.4%	1.4%	2.3%
	1	0.0%	0.0%	0.8%	1.6%	1.2%	0.0%	1.0%	0.8%	0.0%	1.2%	-	0.0%	0.0%	0.0%	0.0%
	2	0.6%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	-	0.0%	0.0%	1.5%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	4	0.0%	0.9%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	0.7%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	7	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	-	0.0%	0.0%	0.0%	0.0%
Sa=30	0	0.8%	1.0%	2.3%	9.8%	8.1%	0.1%	0.7%	1.3%	7.0%	6.7%	-	0.1%	0.4%	1.8%	2.9%
	1	0.5%	1.5%	2.8%	4.1%	4.7%	0.0%	1.0%	1.2%	3.6%	4.7%	-	0.0%	0.8%	1.2%	2.1%
	2	3.3%	1.4%	0.9%	1.7%	4.1%	0.0%	0.0%	0.9%	3.3%	3.3%	-	0.0%	0.0%	0.8%	0.0%
	3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	1.2%	0.0%
	4	0.0%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	5	0.0%	0.0%	0.0%	2.1%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	6	0.9%	0.0%	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	-	0.0%	0.0%	0.0%	0.0%
	7	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	1.9%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	11	0.0%	5.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	12	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	13	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	15	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	16	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	17	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	18	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	19	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	20	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	21	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	22	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	23	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	24	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	25	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	26	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	27	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	28	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	29	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%
	30	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.4%	0.0%	0.0%	0.0%
C)		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5



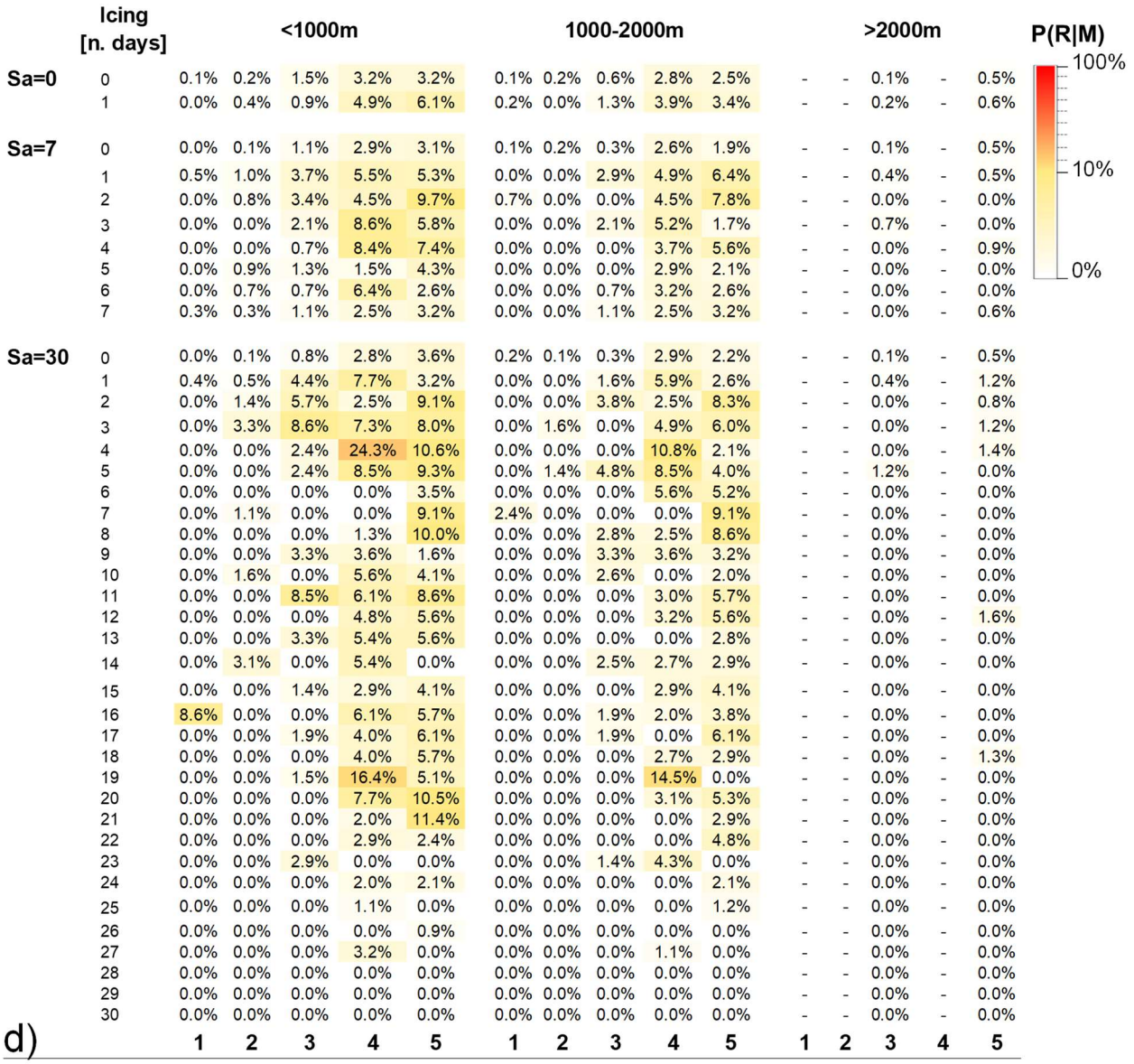


Fig. S32 Conditional probability, P(R|M), calculated with Bayesian's method of icing minimum case with different aggregation scales Sa (0, 7, 30) and for different altitudes (<1000m, 1000m-2000m, >2000m) for 5 decades (1=1970-1979; 2=1980-1989; 3=1990-1999; 4=2000-2009; 5=2010-2019). (a) winter; (b) spring; (c) summer (d) autumn.

S3 Rockfalls and climate variables (with triangular interpolation method)

This section presents selected results for the conditional probability of rockfall, computed using the triangular interpolation method. This method utilizes data from the three meteorological stations nearest to and encompassing each rockfall event. These results are provided for comparison with the primary findings reported in the main paper, which were derived using data from all available meteorological stations.

S3.1 Rainfall

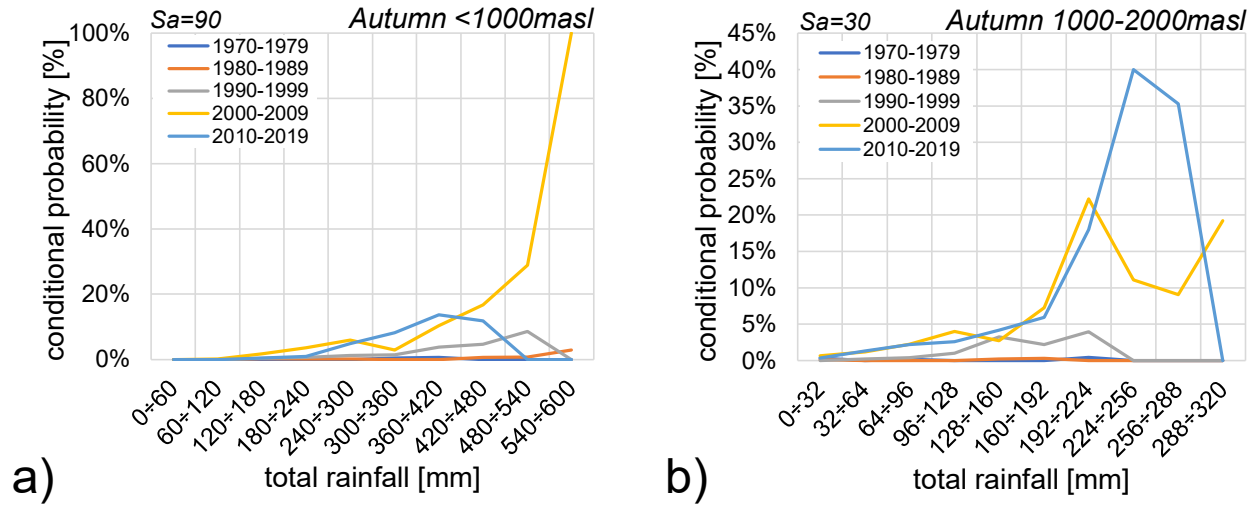


Fig. S33 Conditional probabilities of rockfalls triggered by rainfall during the autumn season (1970–2019). (a) Below 1000 m a.s.l., considering an aggregation scale of $S_a = 90$ $days$. (b) Between 1000 and 2000 m a.s.l., considering an aggregation scale of $S_a = 30$ $days$.

S3.2 Mean air temperature

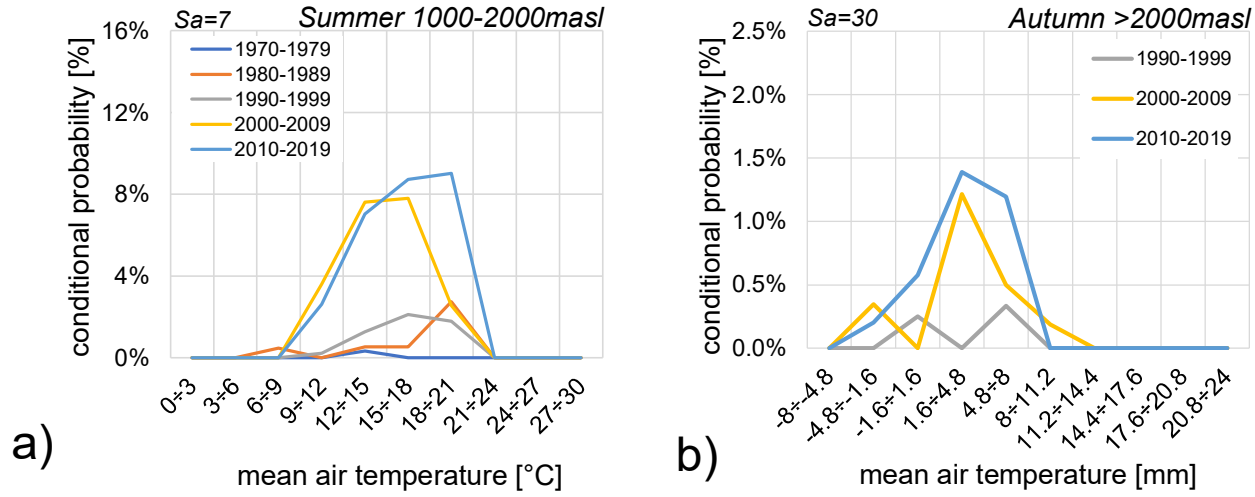


Fig. S34 Conditional probabilities of rockfalls conditioned by mean temperature values (1970-2019) for two scenarios: (a) Summer season at 1000-2000 m a.s.l. with an aggregation scale $S_a = 7$ $days$. (b) Autumn season above 2000 m a.s.l. with an aggregation scale $S_a = 30$ $days$.

S3.3 Temperature amplitude

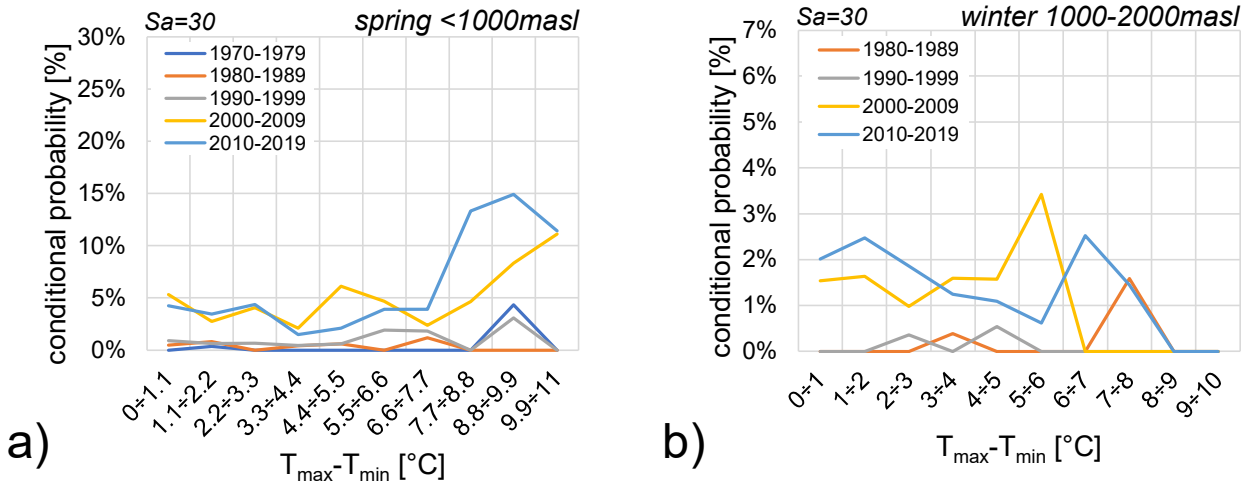


Fig. S35 Conditional probabilities of rockfalls conditioned by ranges of temperature amplitude (1970-2019) at the same aggregation scale $S_a = 30\ days$. (a) during spring season below 1000 m a.s.l; (b) during winter season between 1000 m-2000 m a.s.l..

S3.4 Air mean Temperature variation

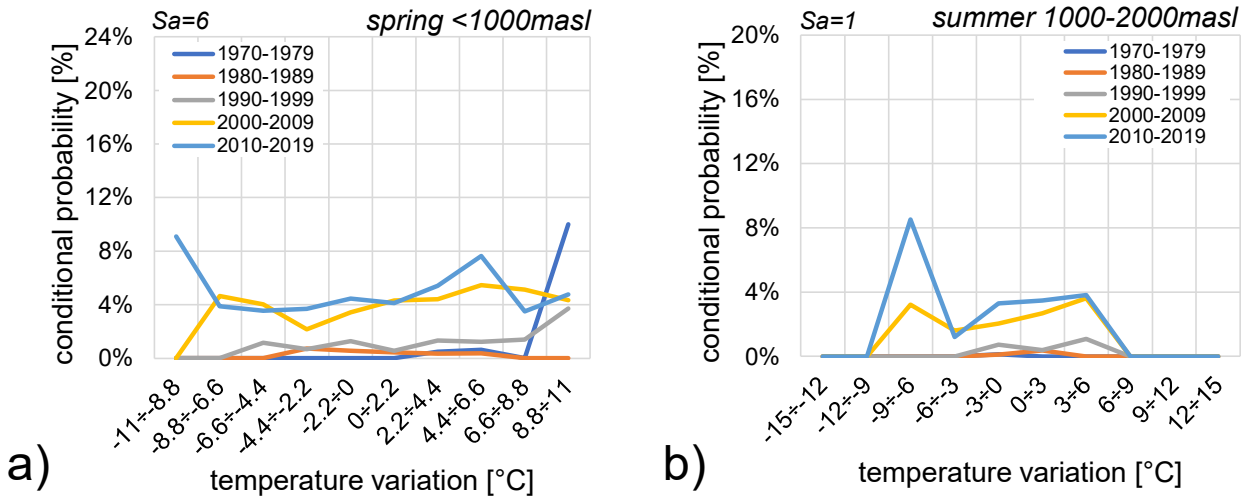


Fig. S36 Conditional probabilities of rockfalls conditioned by air mean temperature variation (1970-2019) during: (a) spring season below 1000 m a.s.l., with an aggregation scale $S_a = 6\ days$ and (b) during summer season between 1000-2000 m a.s.l., with an aggregation scale $S_a = 1\ day$.

S3.5 Freeze-Thaw cycle and icing

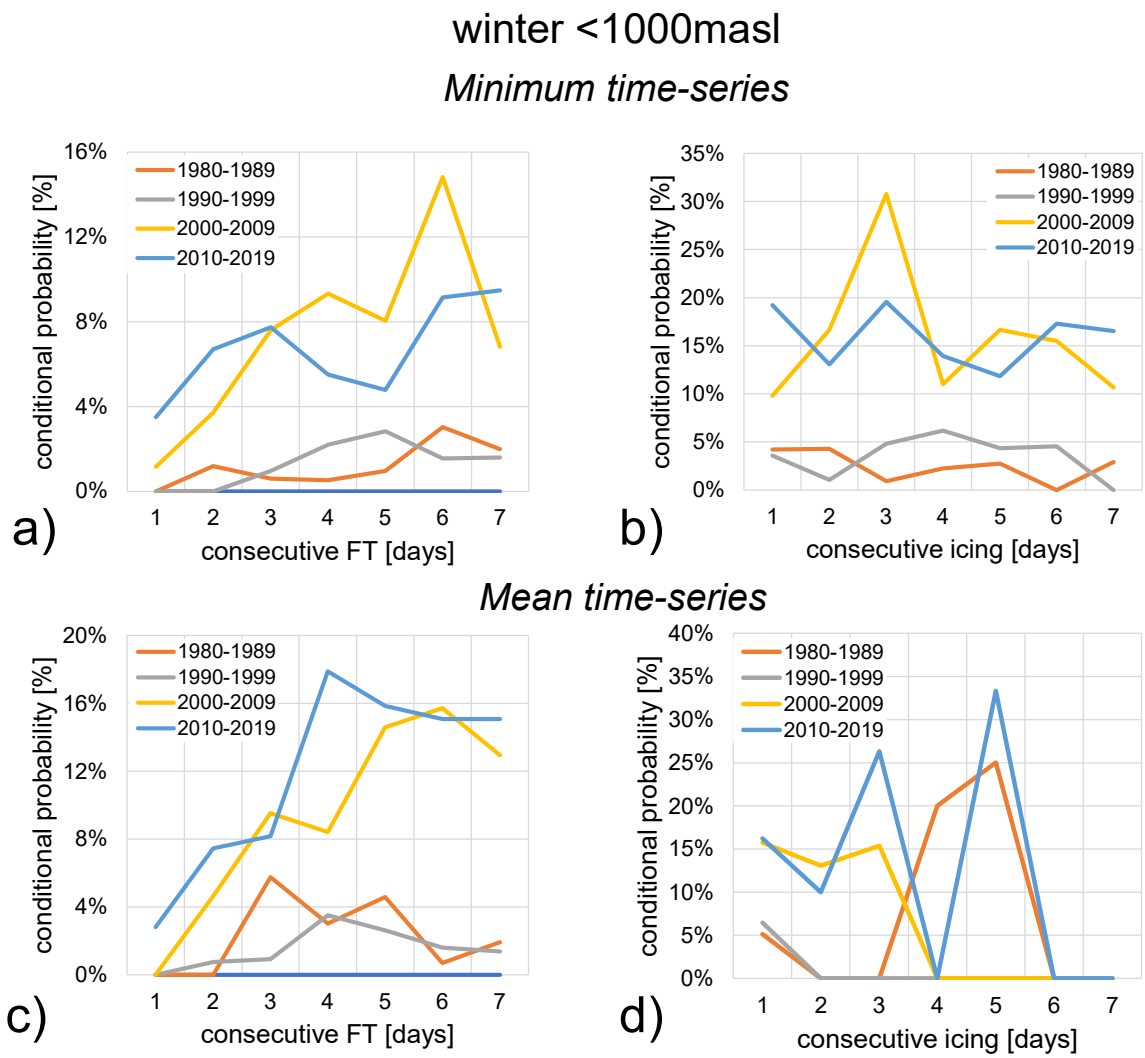


Fig. S37 Conditional probabilities of rockfalls conditioned by various meteorological parameters during the winter season below 1000 m a.s.l. (1970-2019). All scenarios use an aggregation scale $S_a = 7\ days$. The conditioning parameters and time series are: (a and c) freeze-thaw cycles, using the minimum and mean times-series, respectively; (b and d) icing, using the minimum and maximum time-series, respectively.

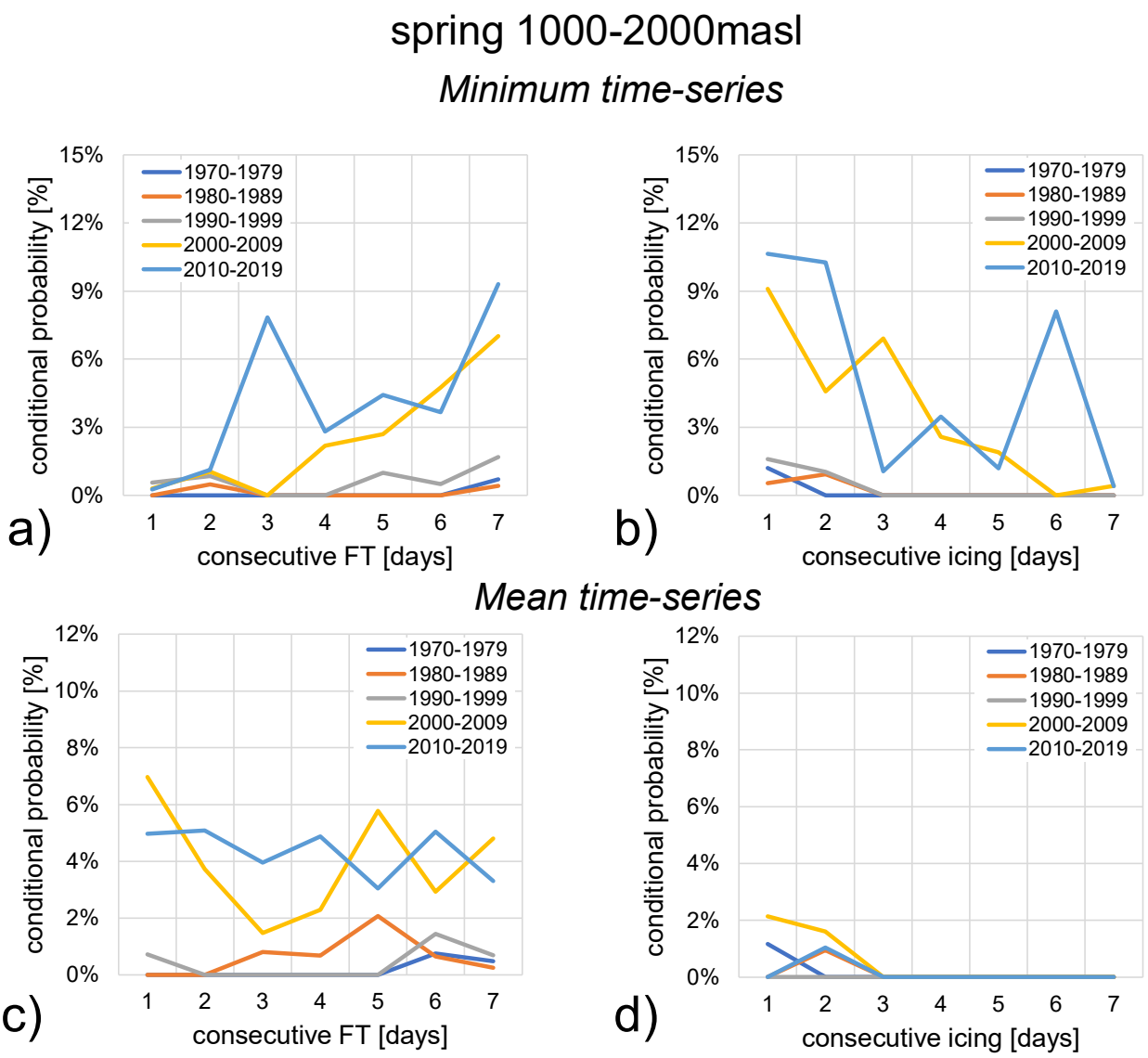


Fig. S38 Conditional probabilities of rockfalls conditioned by various meteorological parameters during the spring season below 1000 m a.s.l. (1970-2019). The conditioning parameters and time series are: (a and c) consecutive freeze-thaw days (or consecutive cycles), using the minimum and mean times-series, respectively; (b and d) consecutive icing days, using the minimum and mean time-series, respectively.