Supplementary Material: Effects of vernal equinox solar eclipse on temperatures and wind directions in Switzerland

Werner Eugster[1], Carmen Emmel[1], Sebastian Wolf[2], Nina Buchmann[1], Joseph P. McFadden[3], and C. David Whiteman[4]

[1]ETH Zurich, Department of Environmental Systems Science, Institute of Agricultural Sciences, 8092 Zurich, Switzerland
[2]ETH Zurich, Department of Environmental Systems Science, Institute of Terrestrial Ecosystems, 8092 Zurich, Switzerland
[3]University of California, Santa Barbara, Department of Geography, Earth Research Institute, Santa Barbara, California, 93106–4060, USA
[4]University of Utah, Atmospheric Sciences Department, Salt Lake City, Utah, USA

Correspondence to: W. Eugster (eugsterw@ethz.ch)

List of Tables

List of Figures

Table S1. Swiss FluxNet sites with high-resolution (20 Hz) turbulent flux measurements and meteorological measurements at the temporal resolution specified in the last column.

CODE	Site Name	Ecosystem Type	Latitude	Longitude	Elevation	Met Interval[a]
CH-AWS	Alp Weissenstein	Alpine Pasture	46°34'59.5" N	9°47'25.5" E	1978 m	10 min
CH-CHA	Chamau	Valley Grassland	47°12'36.8" N	8°24'37.6" E	393 m	30 min
CH-DAV	Davos	Deciduous Forest	46°48'55.2" N	9°51'21.3" E	1639 m	1 min/10 min
CH-FRU	Früebüel	Montane Grassland	47°06'57.0" N	8°32'16.0" E	982 m	30 min
CH-LAE	Lägeren	Mixed Forest	47°28'42.0" N	8°21'51.8" E	682 m	30 min/10 min
CH-OE2	Oensingen	Cropland	47°17'11.1" N	7°44'01.5" E	452 m	1 min

[a] if two averaging intervals are given, then the first relates to all-wave radiation measurements and the second to temperature and other standard meteorological measurements during the 2015 eclipse

Table S2. MeteoSwiss standard weather stations used in this study with temperature drop ΔT and timing $t(\Delta T)$ (hour:minute CET). Measurement interval was 10 minutes.

CODE	Station Name	Elevation (m)	Longitude (E)	Latitude (N)	ΔT (K)	$t(\Delta T)$
ABO	Adelboden	1326	7°33′37.5″	46°29′32.1″	–1.56	09:50
AIG	Aigle	381	6°55′27.9″	46°19′35.9″	–1.05	10:00
ALT	Altdorf	438	8°37′18.5″	46°53′13.3″	–2.89	09:40
AND	Andeer	987	9°25′54.9″	46°36′36.4″	–0.49	10:20
ANT	Andermatt	1438	8°34′50.0″	46°37′51.3″	–1.32	09:30
ARD	Arosa	1840	9°40′28.3″	46°46′45.0″	–3.82	09:40
ARH	Altenrhein	398	9°34′00.5″	47°29′01.2″	–1.35	10:20
ATT	Les Attelas	2730	7°16′07.5″	46°05′56.8″	–0.46	10:30
BAS	Basel / Binningen	316	7°35′00.8″	47°32′27.7″	–0.32	09:30
BEH	Passo del Bernina	2260	10°01′10.5″	46°24′33.0″	–0.98	10:20
BER	Bern / Zollikofen	552	7°27′50.4″	46°59′26.7″	–1.46	09:50
BEZ	Beznau	325	8°13′59.8″	47°33′26.0″	–0.77	10:00
BIE	Bière	683	6°20′32.6″	46°31′29.5″	–1.90	09:40
BIN	Binn	1448	8°11′27.3″	46°21′55.7″	–2.57	09:50
BIZ	Bischofszell	470	9°14′05.0″	47°29′50.6″	–1.16	10:00
BLA	Blatten, Lötschental	1538	7°49′23.5″	46°25′13.6″	–0.87	10:10
BOL	Boltigen	820	7°23′03.1″	46°37′24.7″	–1.11	09:50
BOU	Bouveret	374	6°51′25.2″	46°23′36.4″	–1.63	09:10
BRL	La Brévine	1050	6°36′37.0″	46°59′01.8″	–2.71	09:20
BUF	Buffalora	1968	10°16′01.9″	46°38′53.3″	–1.85	09:40
BUS	Buchs / Aarau	386	8°04′46.0″	47°23′03.6″	–1.47	09:40
CDF	La Chaux–de–Fonds	1018	6°47′32.3″	47°04′58.6″	–2.71	09:40
CEV	Cevio	417	8°36′11.4″	46°19′13.8″	–0.20	10:20
CGI	Nyon / Changins	455	6°13′39.9″	46°24′03.7″	–1.41	09:20
CHA	Chasseral	1599	7°03′15.8″	47°07′54.4″	–0.92	09:40
CHB	Les Charbonnières	1045	6°18′44.7″	46°40′12.5″	–2.75	09:40
CHD	Château–d′Oex	1029	7°08′22.7″	46°28′47.3″	–1.25	10:00
CHM	Chaumont	1136	6°58′43.7″	47°02′57.0″	–1.71	09:40
CHU	Chur	556	9°31′50.1″	46°52′13.5″	–1.40	10:00
CHZ	Cham	442	8°27′52.7″	47°11′17.8″	–0.59	10:00
CIM	Cimetta	1661	8°47′29.9″	46°12′01.5″	–1.09	09:30
CMA	Crap Masegn	2480	9°10′48.0″	46°50′32.3″	–0.01	10:20
COM	Acquarossa / Comprovasco	575	8°56′08.4″	46°27′33.9″	–1.18	10:00
COV	Piz Corvatsch	3302	9°49′16.5″	46°25′04.8″	–0.85	09:50
COY	Courtelary	695	7°05′26.3″	47°10′50.9″	–1.72	10:00
CRM	Cressier	431	7°03′32.8″	47°02′51.4″	–0.54	09:40
DAV	Davos	1594	9°50′36.6″	46°48′46.6″	–2.30	09:40
DEM	Delémont	439	7°20′58.4″	47°21′06.1″	–1.48	10:40

Table S2. *(continued)*

CODE	Station Name	Elevation (m)	Longitude (E)	Latitude (N)	ΔT (K)	$t(\Delta T)$
DIA	Les Diablerets	2964	7°12′13.6″	46°19′36.3″	–0.95	09:40
DIS	Disentis / Sedrun	1197	8°51′12.4″	46°42′23.5″	–2.30	10:00
DOL	La Dôle	1669	6°05′58.1″	46°25′28.9″	–0.26	10:30
EBK	Ebnat–Kappel	623	9°06′30.5″	47°16′24.2″	–0.87	10:10
EGH	Eggishorn	2893	8°05′33.8″	46°25′35.5″	–2.19	09:30
EGO	Egolzwil	521	8°00′17.1″	47°10′45.9″	–1.27	09:50
EIN	Einsiedeln	910	8°45′23.6″	47°07′58.9″	–0.92	10:20
ELM	Elm	958	9°10′31.3″	46°55′25.5″	–1.84	10:00
ENG	Engelberg	1035	8°24′37.6″	46°49′18.8″	–3.08	09:50
EVI	Evionnaz	482	7°01′36.3″	46°10′58.6″	–0.10	09:50
EVO	Evolène / Villa	1825	7°30′31.2″	46°06′43.7″	–2.93	10:00
FAH	Fahy	596	6°56′27.9″	47°25′25.7″	–2.28	10:00
FLU	Flühli, LU	939	8°01′13.2″	46°53′22.0″	–1.24	10:00
FRE	Bullet / La Frétaz	1205	6°34′34.7″	46°50′26.2″	–1.82	09:40
GEN	Monte Generoso	1600	9°01′04.3″	45°55′39.3″	–0.85	09:40
GES	Gersau	519	8°31′24.4″	46°59′45.8″	–0.44	09:50
GIH	Giswil	471	8°11′24.7″	46°50′58.2″	–1.79	09:40
GLA	Glarus	516	9°04′00.9″	47°02′04.5″	–2.22	09:50
GOA	Göscheneralp	1745	8°29′59.9″	46°38′50.7″	–2.12	09:30
GOE	Gösgen	380	7°58′25.2″	47°21′46.9″	–0.94	09:40
GOR	Gornergrat	3129	7°47′08.7″	45°59′01.1″	–0.48	09:40
GRA	Fribourg / Posieux	646	7°06′49.3″	46°46′17.0″	–0.96	09:50
GRC	Grächen	1605	7°50′12.5″	46°11′43.1″	–0.48	09:50
GRE	Grenchen	430	7°24′54.4″	47°10′44.7″	–1.37	09:50
GRH	Grimsel Hospiz	1980	8°19′59.7″	46°34′18.1″	0.03	09:50
GRO	Grono	323	9°09′49.5″	46°15′18.3″	–0.34	10:00
GSB	Col du Grand St–Bernard	2472	7°10′14.9″	45°52′07.6″	–1.67	09:50
GUE	Gütsch ob Andermatt	2283	8°36′54.2″	46°39′08.8″	–0.37	10:00
GUT	Güttingen	440	9°16′45.8″	47°36′06.1″	–1.25	09:50
GVE	Genève–Cointrin	412	6°07′39.9″	46°14′51.0″	–0.81	09:30
HAI	Salen–Reutenen	718	9°01′26.1″	47°39′04.4″	–2.32	09:50
HLL	Hallau	419	8°28′13.7″	47°41′50.2″	–1.08	09:50
HOE	Hörnli	1144	8°56′29.9″	47°22′15.1″	–2.40	10:00
ILZ	Ilanz	698	9°12′55.2″	46°46′30.1″	–0.77	09:50
INT	Interlaken	577	7°52′12.5″	46°40′20.1″	–2.29	09:50
JUN	Jungfraujoch	3580	7°59′07.2″	46°32′50.8″	–0.68	10:00
KLO	Zürich / Kloten	426	8°32′09.9″	47°28′46.6″	–1.49	09:50
KOP	Koppigen	484	7°36′19.7″	47°07′07.9″	–2.20	09:40
LAE	Lägern	845	8°23′50.0″	47°28′55.0″	–0.21	10:10
LAG	Langnau i.E.	745	7°48′23.2″	46°56′22.7″	–1.33	10:00
LEI	Leibstadt	341	8°11′17.7″	47°35′50.2″	–1.03	09:50
LUG	Lugano	273	8°57′37.1″	46°00′15.2″	–0.14	09:40
LUZ	Luzern	454	8°18′03.5″	47°02′11.2″	–0.34	10:20
MAG	Magadino / Cadenazzo	203	8°56′01.2″	46°09′36.1″	–0.48	10:10
MAH	Mathod	437	6°34′04.7″	46°44′13.1″	–2.30	09:50
MAS	Marsens	714	7°04′10.8″	46°39′23.3″	–1.48	09:40
MER	Meiringen	588	8°10′09.3″	46°43′56.0″	–1.08	09:40
MLS	Le Moléson	1974	7°01′04.1″	46°32′46.2″	–1.09	09:30
MOA	Mosen	453	8°13′58.1″	47°14′37.8″	–0.72	09:50
MOE	Möhlin	344	7°52′40.5″	47°34′19.9″	–1.23	10:00
MRP	Monte Rosa–Plattje	2885	7°48′52.5″	45°57′23.9″	–1.61	10:10
MTR	Matro	2171	8°55′29.1″	46°24′36.4″	–0.03	09:50
MUB	Mühleberg	479	7°16′41.3″	46°58′23.7″	–0.60	09:40
MVE	Montana	1427	7°27′38.8″	46°17′55.5″	–1.58	10:00
NAP	Napf	1403	7°56′24.2″	47°00′16.8″	–0.58	08:50
NAS	Naluns / Schlivera	2400	10°15′41.0″	46°49′01.8″	–0.09	08:50
NEU	Neuchâtel	485	6°57′14.8″	47°00′01.6″	–1.75	10:20

Table S2. *(continued)*

CODE	Station Name	Elevation (m)	Longitude (E)	Latitude (N)	ΔT (K)	$t(\Delta T)$
ORO	Oron	827	6°51′29.6″	46°34′20.1″	–1.82	09:50
OTL	Locarno / Monti	366	8°47′14.7″	46°10′21.2″	–0.22	09:40
PAY	Payerne	490	6°56′32.7″	46°48′41.7″	–2.19	10:10
PIL	Pilatus	2106	8°15′08.4″	46°58′43.9″	–2.68	09:40
PIO	Piotta	990	8°41′17.3″	46°30′53.2″	–0.91	10:30
PLF	Plaffeien	1042	7°15′57.6″	46°44′51.6″	–2.21	09:50
PMA	Piz Martegnas	2670	9°31′46.4″	46°34′37.9″	–1.97	09:00
PSI	PSI Würenlingen	334	8°13′45.9″	47°32′18.4″	–1.87	10:00
PUY	Pully	455	6°40′02.7″	46°30′44.3″	–0.44	09:40
RAG	Bad Ragaz	496	9°30′09.3″	47°00′59.9″	–0.55	09:50
REH	Zürich / Affoltern	443	8°31′04.4″	47°25′39.6″	–0.08	10:40
ROB	Poschiavo / Robbia	1078	10°3′40.2″	46°20′47.9″	–0.70	10:40
ROE	Robièi	1896	8°30′48.2″	46°26′35.0″	–2.13	09:30
ROG	Rossberg	1119	8°32′51.4″	47°04′24.8″	0.23	09:50
RUE	Rünenberg	611	7°52′45.6″	47°26′04.4″	–1.67	09:40
SAE	Säntis	2502	9°20′37.1″	47°14′58.0″	–0.94	09:50
SAG	Sattel–Aegeri	790	8°38′13.1″	47°04′51.8″	–2.34	09:50
SAM	Samedan	1708	9°52′44.3″	46°31′35.0″	–1.02	09:50
SBE	S. Bernardino	1638	9°11′04.8″	46°27′48.8″	–1.23	09:50
SBO	Stabio	353	8°55′56.5″	45°50′36.2″	–1.74	09:40
SCU	Scuol	1303	10°16′59.6″	46°47′35.8″	–2.18	09:40
SHA	Schaffhausen	438	8°37′12.3″	47°41′23.2″	–0.62	09:50
SIA	Segl–Maria	1804	9°45′44.4″	46°25′56.4″	–1.93	09:30
SIO	Sion	482	7°19′48.6″	46°13′06.9″	–1.57	09:40
SMA	Zürich / Fluntern	555	8°33′56.7″	47°22′40.4″	–0.07	10:10
SMM	Sta. Maria, Val Müstair	1383	10°25′34.7″	46°36′08.1″	–1.61	10:00
SPF	Schüpfheim	742	8°00′44.8″	46°56′49.3″	–1.72	09:50
SRS	Schiers	626	9°40′05.0″	46°58′31.8″	–2.00	09:50
STG	St. Gallen	775	9°23′54.5″	47°25′31.6″	–1.49	10:10
STP	Stöckalp	1070	8°16′52.3″	46°48′00.0″	–1.62	10:00
TAE	Aadorf / Tänikon	539	8°54′17.6″	47°28′47.5″	–0.61	10:00
THU	Thun	570	7°35′06.8″	46°44′59.5″	–0.42	09:50
TIT	Titlis	3040	8°25′32.9″	46°46′13.8″	–1.57	10:20
TSG	Arosa / Tschuggen	1840	9°39′58.8″	46°46′51.4″	–5.44	09:40
ULR	Ulrichen	1345	8°18′29.3″	46°30′17.4″	0.25	08:40
VAB	Valbella	1569	9°33′15.9″	46°45′18.1″	–0.77	10:00
VAD	Vaduz	457	9°31′03.0″	47°07′38.8″	0.15	09:50
VIO	Vicosoprano	1089	9°37′40.1″	46°21′10.9″	–1.68	10:10
VIS	Visp	639	7°50′34.6″	46°18′10.3″	–0.76	09:50
VIT	Villars–Tiercelin	859	6°42′36.3″	46°37′18.4″	–1.46	09:50
VSBLI	Blinnen	1530	8°15′35.3″	46°27′25.2″	0.01	10:10
VSBRU	Bruchji	2300	7°58′19.9″	46°22′43.0″	–3.60	09:10
VSBSP	Bourg–St–Pierre	1826	7°11′53.6″	45°55′39.3″	–3.09	10:10
VSCHO	Choëx	896	6°57′40.9″	46°13′55.7″	–2.09	09:40
VSCOL	Les Collons	1787	7°23′14.5″	46°10′44.3″	–0.51	09:50
VSDER	Derborence	1380	7°13′57.0″	46°17′18.6″	–4.14	09:40
VSDUR	Durnand	2000	7°05′02.7″	46°03′06.4″	–2.38	09:50
VSERG	Ergisch	1133	7°42′58.7″	46°17′34.8″	–1.51	09:40
VSISE	Isérables	1237	7°14′55.5″	46°09′39.3″	–1.00	08:40
VSNEN	Nendaz	1938	7°18′41.1″	46°07′19.5″	–3.19	09:40
VSSIE	Sierre	535	7°33′23.0″	46°17′55.6″	–3.56	09:50
VSSOR	Sorniot–Lac Inférieur	2005	7°06′00.2″	46°10′01.0″	–5.78	09:50
VSTRI	Trient	1290	6°59′41.6″	46°3′30.2″0	–1.97	09:30
VSTSN	Tsanfleuron	2052	7°18′06.5″	46°19′14.5″	–5.43	10:00
VSVIS	Visperterminen	1360	7°54′15.1″	46°15′46.4″	–0.71	09:50
WAE	Wädenswil	485	8°40′39.8″	47°13′14.3″	–1.55	10:20
WFJ	Weissfluhjoch	2691	9°48′23.0″	46°49′60.0″	–1.22	10:00

Table S2. *(continued)*

CODE	Station Name	Elevation (m)	Longitude (E)	Latitude (N)	ΔT (K)	$t(\Delta T)$
WSLALB	Alptal Bestand	1168	8°42′47.6″	47°02′55.8″	–1.33	10:10
WSLBAB	Beatenberg Bestand	1522	7°45′48.6″	46°42′00.4″	–1.65	10:10
WSLBAF	Beatenberg Freiland	1560	7°46′18.2″	46°42′02.1″	–1.94	09:50
WSLBTB	Bettlachstock Bestand	1050	7°24′38.1″	47°13′20.2″	–3.10	10:00
WSLBTF	Bettlachstock Freiland	1100	7°25′02.8″	47°13′28.2″	–4.71	10:00
WSLCIB	Chironico Bestand	1460	8°49′06.1″	46°26′28.3″	–0.40	10:10
WSLCIF	Chironico Freiland	1380	8°48′46.9″	46°26′47.0″	–1.81	09:50
WSLCLB	Celerina Bestand	1760	9°52′33.1″	46°30′21.9″	–1.67	10:00
WSLCLF	Celerina Freiland	1865	9°53′18.2″	46°29′33.1″	–3.70	09:50
WSLISB	Isone Bestand	1194	9°00′28.8″	46°07′30.4″	–0.57	10:30
WSLISF	Isone Freiland	1149	9°00′25.1″	46°07′34.4″	–1.10	10:30
WSLJUB	Jussy Bestand	500	6°17′35.3″	46°13′52.7″	–2.33	10:00
WSLJUF	Jussy Freiland	497	6°17′12.6″	46°13′43.1″	–4.09	09:50
WSLLAB	Lausanne Bestand	806	6°39′29.1″	46°35′01.4″	–1.66	10:00
WSLLAF	Lausanne Freiland	790	6°38′56.4″	46°33′33.4″	–3.44	09:50
WSLLEB	Lens Bestand	1069	7°26′09.1″	46°16′06.9″	–0.82	10:10
WSLNAB	Nationalpark Bestand	1913	10°14′28.0″	46°39′33.1″	–2.21	10:00
WSLNAF	Nationalpark Freiland	1899	10°13′47.8″	46°39′44.5″	–1.55	10:00
WSLNEB	Neunkirch Bestand	561	8°32′05.1″	47°41′02.3″	–0.96	10:20
WSLNEF	Neunkrich Freiland	463	8°31′34.8″	47°41′23.3″	–3.57	10:00
WSLNOB	Novaggio Bestand	928	8°50′04.0″	46°01′19.5″	–0.99	09:40
WSLNOF	Novaggio Freiland	1055	8°50′04.7″	46°1′28.8″0	–0.97	09:30
WSLOTB	Othmarsingen Bestand	474	8°13′37.3″	47°23′55.2″	–2.79	10:00
WSLOTF	Othmarsingen Freiland	461	8°13′23.1″	47°24′00.8″	–3.41	10:00
WSLSCB	Schänis Bestand	709	9°04′00.3″	47°09′56.3″	–0.52	10:20
WSLSCF	Schänis Freiland	626	9°03′34.4″	47°09′04.4″	–2.15	10:10
WSLVOB	Vordemwald Bestand	482	7°53′13.4″	47°16′26.0″	–0.93	10:10
WSLVOF	Vordemwald Freiland	480	7°54′39.8″	47°16′08.4″	–2.02	09:50
WSLVSB	Visp Bestand	698	7°51′26.3″	46°17′48.9″	–2.46	10:00
WSLVSF	Visp Freiland	640	7°50′33.4″	46°18′09.7″	–1.43	09:50
WYN	Wynau	422	7°47′14.7″	47°15′18.1″	–1.07	09:50
ZER	Zermatt	1638	7°45′11.2″	46°01′44.9″	–2.55	09:10

Table S3. MeteoSwiss standard weather stations measured wind speed and wind direction and their classification according to topography. Where possible, the orientation of the valley and the slope angle are given.

Code	Location	Longitude	Latitude	Elevation (m)	Classification	Up-Valley Dir.	Slope Angle
ABO	Adelboden	7°33′37.5″ E	46°29′32.1″ N	1326	valley	225°	310°
AEG	Oberägeri	8°36′29.1″ E	47°08′00.9″ N	724	flat	315°	45°
AIG	Aigle	6°55′27.9″ E	46°19′35.9″ N	381	valley	315°	
ALP	Alpnach	8°17′08.6″ E	46°56′34.8″ N	436	valley	200°	
ALT	Altdorf	8°37′18.5″ E	46°53′13.3″ N	438	valley	150°	
AND	Andeer	9°25′54.9″ E	46°36′36.4″ N	987	valley	200°	110°
ANT	Andermatt	8°34′50.0″ E	46°37′51.3″ N	1438	valley	225°	
ARD	Arosa	9°40′28.3″ E	46°46′45.0″ N	1840	slope	255°	310°
ARH	Altenrhein	9°34′00.5″ E	47°29′01.2″ N	398	flat	120°	190°
ATT	Les Attelas	7°16′07.5″ E	46°05′56.8″ N	2730	mtohill	160°	
BAN	Bantiger	7°31′43.2″ E	46°58′40.1″ N	941	mtohill	135°	
BAS	Basel / Binningen	7°35′00.8″ E	47°32′27.7″ N	316	slope	110°	190°
BEH	Passo del Bernina	10°01′10.5″ E	46°24′33.0″ N	2260	slope	135°	45°
BER	Bern / Zollikofen	7°27′50.4″ E	46°59′26.7″ N	552	flat	0°	
BEZ	Beznau	8°13′59.8″ E	47°33′26.0″ N	325	valley	255°	
BHF	Oberrütti / Büelhof	7°16′58.7″ E	46°57′07.6″ N	775	mtohill	310°	
BIE	Bière	6°20′32.6″ E	46°31′29.5″ N	683	flat	225°	315°
BIN	Binn	8°11′27.3″ E	46°21′55.7″ N	1448	valley	75°	170°
BIZ	Bischofszell	9°14′05.0″ E	47°29′50.6″ N	470	flat	60°	
BLA	Blatten, Lötschental	7°49′23.5″ E	46°25′13.6″ N	1538	valley	50°	100°
BOL	Boltigen	7°23′03.1″ E	46°37′24.7″ N	820	valley	200°	
BOU	Bouveret	6°51′25.2″ E	46°23′36.4″ N	374	flat	135°	
BRL	La Brévine	6°36′37.0″ E	46°59′01.8″ N	1050	valley	270°	
BRZ	Brienz	8°03′39.1″ E	46°44′26.6″ N	567	valley	85°	
BUF	Buffalora	10°16′01.9″ E	46°38′53.3″ N	1968	slope	170°	45°
BUS	Buchs / Aarau	8°04′46.0″ E	47°23′03.6″ N	386	flat	170°	
CDF	La Chaux-de-Fonds	6°47′32.3″ E	47°04′58.6″ N	1018	valley	45°	315°
CEV	Cevio	8°36′11.4″ E	46°19′13.8″ N	417	valley	0°	
CGI	Nyon / Changins	6°13′39.9″ E	46°24′03.7″ N	455	mtohill	30°	
CHA	Chasseral	7°03′15.8″ E	47°07′54.4″ N	1599	mtohill	240°	
CHB	Les Charbonnières	6°18′44.7″ E	46°40′12.5″ N	1045	slope	225°	315°
CHD	Château-d'Oex	7°08′22.7″ E	46°28′47.3″ N	1029	slope	100°	0°
CHM	Chaumont	6°58′43.7″ E	47°02′57.0″ N	1136	mtohill	200°	
CHU	Chur	9°31′50.1″ E	46°52′13.5″ N	556	valley	200°	
CHZ	Cham	8°27′52.7″ E	47°11′17.8″ N	442	mtohill	170°	
CIM	Cimetta	8°47′29.9″ E	46°12′01.5″ N	1661	mtohill	345°	
CMA	Crap Masegn	9°10′48.0″ E	46°50′32.3″ N	2480	mtohill	320°	
COM	Acquarossa / Comprovasco	8°56′08.4″ E	46°27′33.9″ N	575	valley	350°	270°
COV	Piz Corvatsch	9°49′16.5″ E	46°25′04.8″ N	3302	mtohill	45°	
COY	Courtelary	7°05′26.3″ E	47°10′50.9″ N	695	slope	250°	170°
CRM	Cressier	7°03′32.8″ E	47°02′51.4″ N	431	flat	250°	
DAV	Davos	9°50′36.6″ E	46°48′46.6″ N	1594	slope	220°	310°
DEM	Delémont	7°20′58.4″ E	47°21′06.1″ N	439	slope		160°
DIA	Les Diablerets	7°12′13.6″ E	46°19′36.3″ N	2964	mtohill	325°	
DIS	Disentis / Sedrun	8°51′12.4″ E	46°42′23.5″ N	1197	slope	225°	315°
DOL	La Dôle	6°05′58.1″ E	46°25′28.9″ N	1669	mtohill	225°	
EBK	Ebnat-Kappel	9°06′30.5″ E	47°16′24.2″ N	623	valley	140°	
EGH	Eggishorn	8°05′33.8″ E	46°25′35.5″ N	2893	mtohill	20°	
EGO	Egolzwil	8°00′17.1″ E	47°10′45.9″ N	521	mtohill	20°	
EIN	Einsiedeln	8°45′23.6″ E	47°07′58.9″ N	910	slope	170°	313°
ELM	Elm	9°10′31.3″ E	46°55′25.5″ N	958	slope	190°	120°
EMM	Emmen	8°17′45.5″ E	47°05′03.5″ N	426	flat	225°	
ENG	Engelberg	8°24′37.6″ E	46°49′18.8″ N	1035	slope	30°	120°
EVI	Evionnaz	7°01′36.3″ E	46°10′58.6″ N	482	slope	280	0°
EVO	Evolène / Villa	7°30′31.2″ E	46°06′43.7″ N	1825	slope	40°	130°

Table S3. *(continued)*

Code	Location	Longitude	Latitude	Elevation (m)	Classification	Valley Dir.	Slope Angle
FAH	Fahy	6°56′27.9″ E	47°25′25.7″ N	596	mtohill	260°	170°
FRE	Bullet / La Frétaz	6°34′34.7″ E	46°50′26.2″ N	1205	mtohill	225°	315°
GEN	Monte Generoso	9°01′04.3″ E	45°55′39.3″ N	1600	mtohill	45°	
GES	Gersau	8°31′24.4″ E	46°59′45.8″ N	519	slope	60°	330°
GIH	Giswil	8°11′24.7″ E	46°50′58.2″ N	471	flat	200°	
GLA	Glarus	9°04′00.9″ E	47°02′04.5″ N	516	slope	135°	200°
GOE	Gösgen	7°58′25.2″ E	47°21′46.9″ N	380	flat	290°	
GOR	Gornergrat	7°47′08.7″ E	45°59′01.1″ N	3129	mtohill	270°	
GRA	Fribourg / Posieux	7°06′49.3″ E	46°46′17.0″ N	646	slope	225°	315°
GRE	Grenchen	7°24′54.4″ E	47°10′44.7″ N	430	flat	245°	
GRH	Grimsel Hospiz	8°19′59.7″ E	46°34′18.1″ N	1980	mtohill	225°	
GRO	Grono	9°09′49.5″ E	46°15′18.3″ N	323	valley	30°	
GSB	Col du Grand St-Bernard	7°10′14.9″ E	45°52′07.6″ N	2472	valley	270°	0°
GUB	Regensdorf / Gubrist	8°28′44.1″ E	47°29′59.5″ N	410	mtohill	270°	
GUE	Gütsch ob Andermatt	8°36′54.2″ E	46°39′08.8″ N	2283	mtohill	250°	0°
GUT	Güttingen	9°16′45.8″ E	47°36′06.1″ N	440	slope	11°0	200°
GVE	Genève-Cointrin	6°07′39.9″ E	46°14′51.0″ N	412	flat	45°	
HAI	Salen-Reutenen	9°01′26.1″ E	47°39′04.4″ N	718	flat	270°	
HLL	Hallau	8°28′13.7″ E	47°41′50.2″ N	419	valley	40°	310°
HOE	Hörnli	8°56′29.9″ E	47°22′15.1″ N	1144	mtohill	350°	
INT	Interlaken	7°52′12.5″ E	46°40′20.1″ N	577	valley	180°	
JUN	Jungfraujoch	7°59′07.2″ E	46°32′50.8″ N	3580	mtohill	40°	
KLO	Zürich / Kloten	8°32′09.9″ E	47°28′46.6″ N	426	flat	135°	
KOP	Koppigen	7°36′19.7″ E	47°07′07.9″ N	484	flat	135°	
LAE	Lägern	8°23′50.0″ E	47°28′55.0″ N	845	mtohill	270°	
LAG	Langnau i.E.	7°48′23.2″ E	46°56′22.7″ N	745	slope	110°	20°
LCK	Lucketen	7°31′43.2″ E	46°58′40.1″ N	941	slope		330°
LEI	Leibstadt	8°11′17.7″ E	47°35′50.2″ N	341	flat	250°	
LUG	Lugano	8°57′37.1″ E	46°00′15.2″ N	273	flat	30°	
LUZ	Luzern	8°18′03.5″ E	47°02′11.2″ N	454	flat	180°	
MAG	Magadino / Cadenazzo	8°56′01.2″ E	46°09′36.1″ N	203	flat	80°	
MAH	Mathod	6°34′04.7″ E	46°44′13.1″ N	437	flat	225°	
MAS	Marsens	7°04′10.8″ E	46°39′23.3″ N	714	flat	200°	290°
MER	Meiringen	8°10′09.3″ E	46°43′56.0″ N	588	flat	135°	
MLS	Le Moléson	7°01′04.1″ E	46°32′46.2″ N	1974	mtohill	0°	
MOA	Mosen	8°13′58.1″ E	47°14′37.8″ N	453	flat	135°	
MOE	Möhlin	7°52′40.5″ E	47°34′19.9″ N	344	flat	110°	
MRP	Monte Rosa-Plattje	7°48′52.5″ E	45°57′23.9″ N	2885	slope		135°
MSK	Mühleberg / Stockeren	8°38′57.1″ E	47°28′01.9″ N	592	mtohill	270°	
MTR	Matro	8°55′29.1″ E	46°24′36.4″ N	2171	mtohill	310°	
MUB	Mühleberg	7°16′41.3″ E	46°58′23.7″ N	479	valley	90°	180°
MVE	Montana	7°27′38.8″ E	46°17′55.5″ N	1427	slope		80°
NAP	Napf	7°56′24.2″ E	47°00′16.8″ N	1403	mtohill	270°	
NAS	Naluns / Schlivera	10°15′41.0″ E	46°49′01.8″ N	2400	mtohill	315°	
NEE	Neerach	8°38′57.1″ E	47°28′01.9″ N	592	flat	200°	290°
NEU	Neuchâtel	6°57′14.8″ E	47°00′01.6″ N	485	mtohill	45°	
ORO	Oron	6°51′29.6″ E	46°34′20.1″ N	827	flat	225°	
OTL	Locarno / Monti	8°47′14.7″ E	46°10′21.2″ N	366	slope		320°
PAY	Payerne	6°56′32.7″ E	46°48′41.7″ N	490	slope	220°	310°
PIL	Pilatus	8°15′08.4″ E	46°58′43.9″ N	2106	mtohill	225°	
PIO	Piotta	8°41′17.3″ E	46°30′53.2″ N	990	valley	270°	0°
PLF	Plaffeien	7°15′57.6″ E	46°44′51.6″ N	1042	mtohill	225°	
PMA	Piz Martegnas	9°31′46.4″ E	46°34′37.9″ N	2670	mtohill	225°	
PRE	St-Prex	6°26′34.8″ E	46°29′01.2″ N	425	mtohill	180°	
PSI	PSI Würenlingen	7°16′58.7″ E	46°57′07.6″ N	775	valley	225°	135°
PUY	Pully	6°40′02.7″ E	46°30′44.3″ N	455	slope	130°	40°
QUI	Quinten	9°12′57.8″ E	47°07′43.5″ N	419	flat	260°	350°
RAG	Bad Ragaz	9°30′09.3″ E	47°00′59.8″ N	496	valley	150°	

Table S3. *(continued)*

Code	Location	Longitude	Latitude	Elevation (m)	Classification	Valley Dir.	Slope Angle
REH	Zürich / Affoltern	8°31′04.4″ E	47°25′39.6″ N	443	flat	90°	
ROB	Poschiavo / Robbia	10°03′40.2″ E	46°20′47.9″ N	1078	slope	200°	
ROE	Robièi	8°30′48.2″ E	46°26′35.0″ N	1896	slope		315°
RUE	Rünenberg	7°52′45.6″ E	47°26′04.4″ N	611	mtohill	270°	
SAE	Säntis	9°20′37.1″ E	47°14′58.0″ N	2502	mtohill	330°	
SAG	Sattel-Aegeri	8°38′13.1″ E	47°04′51.8″ N	790	valley	45°	
SAM	Samedan	9°52′44.3″ E	46°31′35.0″ N	1708	flat	220°	
SBE	S. Bernardino	9°11′04.8″ E	46°27′48.8″ N	1638	slope	270°	0°
SBO	Stabio	8°55′56.5″ E	45°50′36.2″ N	353	valley	250°	
SCM	Schmerikon	8°56′24.9″ E	47°13′28.6″ N	408	flat	90°	0°
SCU	Scuol	10°16′59.6″ E	46°47′35.8″ N	1303	slope	330°	240°
SHA	Schaffhausen	8°37′12.3″ E	47°41′23.2″ N	438	valley	170°	280°
SIA	Segl-Maria	9°45′44.3″ E	46°25′56.4″ N	1804	flat	240°	
SIO	Sion	7°19′48.6″ E	46°13′06.9″ N	482	flat	250°	
SIR	Sion	7°20′19.9″ E	46°13′18.7″ N	483	flat	250°	
SLB	Stadlerberg	8°33′24.7″ E	47°28′59.5″ N	496	mtohill	170°	260°
SMA	Zürich / Fluntern	8°33′56.7″ E	47°22′40.4″ N	555	slope	135°	45°
SMM	Sta. Maria, Val Müstair	10°25′34.7″ E	46°36′08.1″ N	1383	slope	225°	135°
SPF	Schüpfheim	8°00′44.8″ E	46°56′49.3″ N	742	slope	200°	110°
SRS	Schiers	9°40′05.0″ E	46°58′31.8″ N	626	valley	110°	20°
STC	St. Chrischona	8°28′44.1″ E	47°29′59.5″ N	410	slope	270°	180°
STG	St. Gallen	9°23′54.5″ E	47°25′31.6″ N	775	slope		135°
STK	Steckborn	8°58′53.2″ E	47°40′07.1″ N	398	flat	45°	135°
TAE	Aadorf / Tänikon	8°54′17.6″ E	47°28′47.5″ N	539	valley	115°	
THU	Thun	7°35′06.8″ E	46°44′59.5″ N	570	flat	150°	
TIT	Titlis	8°25′32.9″ E	46°46′13.8″ N	3040	mtohill	270°	135°
TSG	Arosa / Tschuggen	9°39′58.8″ E	46°46′51.4″ N	1840	mtohill	270°	0°
UEB	Uetliberg	8°33′24.7″ E	47°28′59.5″ N	496	mtohill	0°	
ULR	Ulrichen	8°18′29.3″ E	46°30′17.4″ N	1345	valley	40°	130°
VAB	Valbella	9°33′15.9″ E	46°45′18.1″ N	1569	slope		225°
VAD	Vaduz	9°31′03.0″ E	47°07′38.8″ N	457	flat	80°	
VIO	Vicosoprano	9°37′40.1″ E	46°21′10.9″ N	1089	valley	250°	
VIS	Visp	7°50′34.6″ E	46°18′10.3″ N	639	flat	100°	
VIT	Villars-Tiercelin	6°42′36.3″ E	46°37′18.4″ N	859	slope	210°	300°
WAE	Wädenswil	8°40′39.8″ E	47°13′14.3″ N	485	slope	120°	210°
WFJ	Weissfluhjoch	9°48′23.0″ E	46°49′60.0″ N	2691	mtohill	230°	
WSLBAF	Beatenberg Freiland	7°46′18.2″ E	46°42′02.1″ N	1560	slope		0°
WSLBTF	Bettlachstock Freiland	7°25′02.8″ E	47°13′28.2″ N	1100	slope	225°	315°
WSLCIF	Chironico Freiland	8°48′46.9″ E	46°26′47.0″ N	1380	slope	270°	180°
WSLCLF	Celerina Freiland	9°53′18.2″ E	46°29′33.1″ N	1865	slope	135°	225°
WSLISF	Isone Freiland	9°00′25.1″ E	46°07′34.4″ N	1149	slope	120°	210°
WSLJUF	Jussy Freiland	6°17′12.6″ E	46°13′43.1″ N	497	slope	225°	135°
WSLLAF	Lausanne Freiland	6°38′56.4″ E	46°33′33.4″ N	790	mtohill	40°	
WSLNAF	Nationalpark Freiland	10°13′47.8″ E	46°39′44.5″ N	1899	slope	110°	315°
WSLNEF	Neunkrich Freiland	8°31′34.8″ E	47°41′23.3″ N	463	mtohill	60°	
WSLNOF	Novaggio Freiland	8°50′04.7″ E	46°01′28.8″ N	1055	slope		330°
WSLOTF	Othmarsingen Freiland	8°13′23.1″ E	47°24′00.8″ N	461	mtohill		90°
WSLSCF	Schänis Freiland	9°03′34.4″ E	47°09′04.4″ N	626	slope		45°
WSLVOF	Vordemwald Freiland	7°54′39.8″ E	47°16′08.4″ N	480	slope		250°
WSLVSF	Visp Freiland	7°50′33.4″ E	46°18′09.7″ N	640	flat	100°	
WYN	Wynau	7°47′14.6″ E	47°15′18.1″ N	422	valley	225°	135°
ZER	Zermatt	7°45′11.2″ E	46°01′44.9″ N	1638	slope	225°	315°

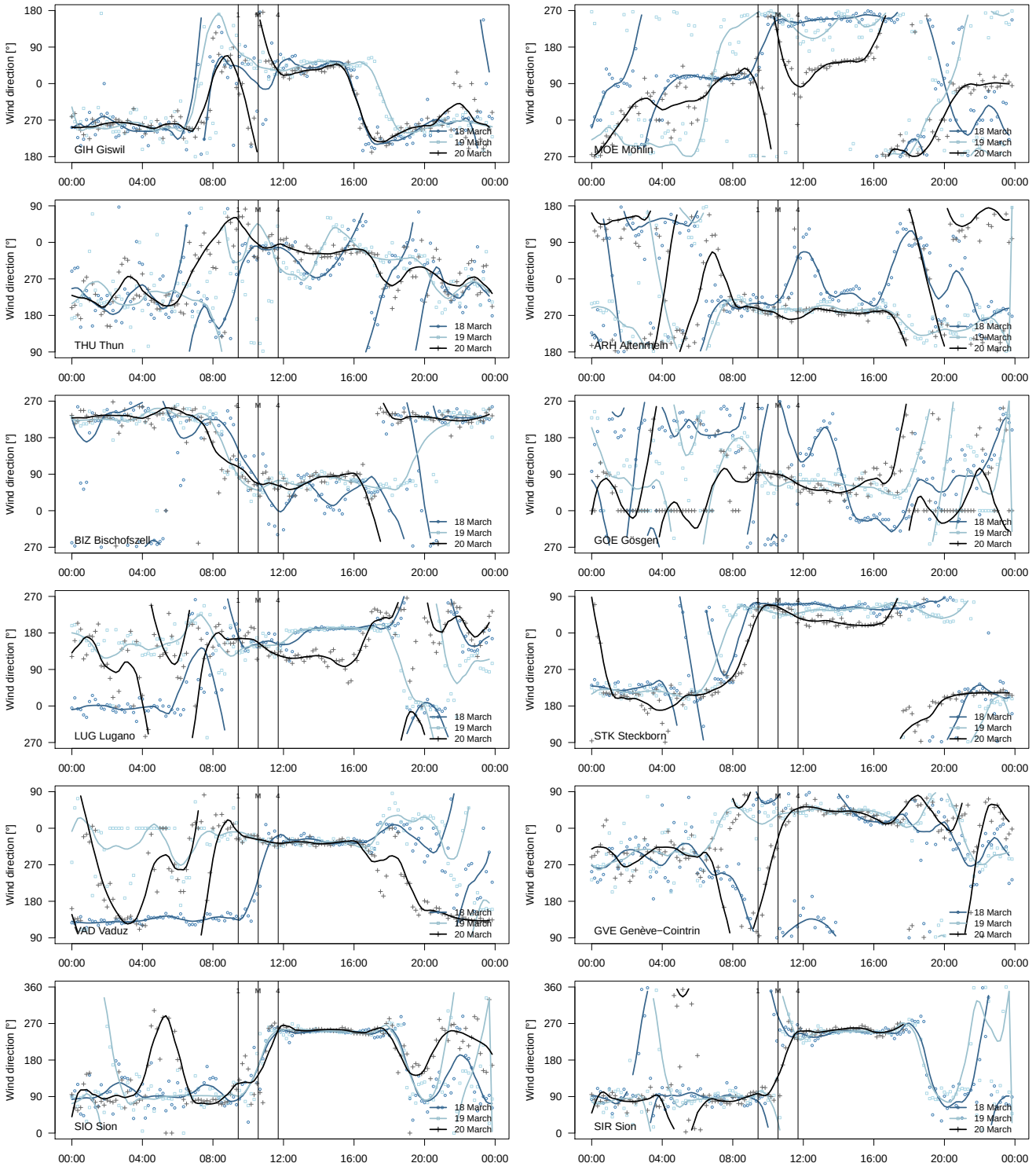

Figure S1. Wind direction evolution at MeteoSwiss sites classified as 'flat'. Black line and gray symbols: day of eclipse (20 March 2015). Light blue line and symbols (19 March 2015) and dark blue line and symbols (18 March 2015): conditions on the days before for comparison. The timing of the first (1) and last (4) contact and the eclipse maximum (M) are shown with vertical lines. Site names and codes correspond to those given in Table S3. The bold lines are local polynomial regression (loess) fits. Note that the y-axis was shifted by 0, 90, 180 or 270° depending on site.

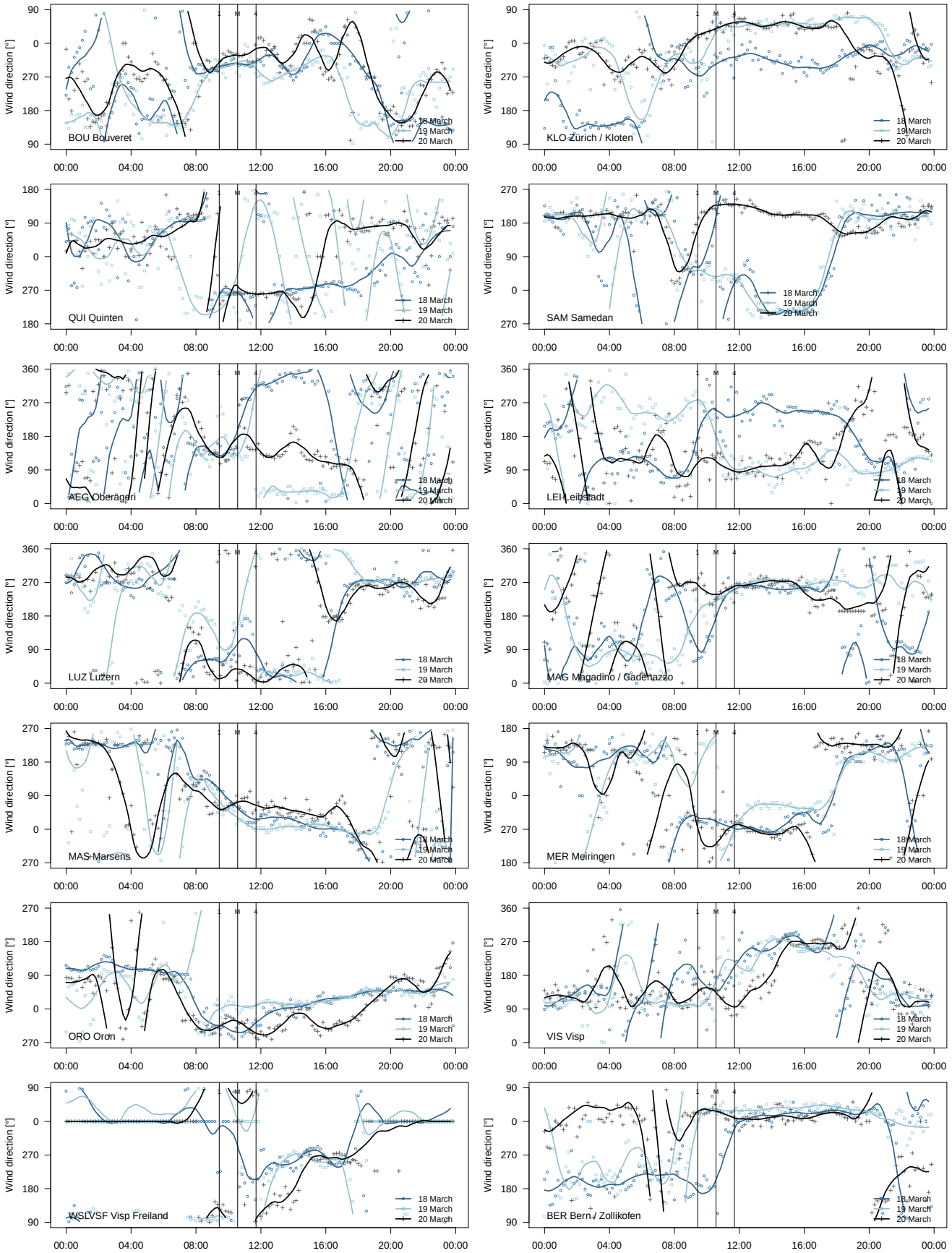

Figure S1. *(continued)*

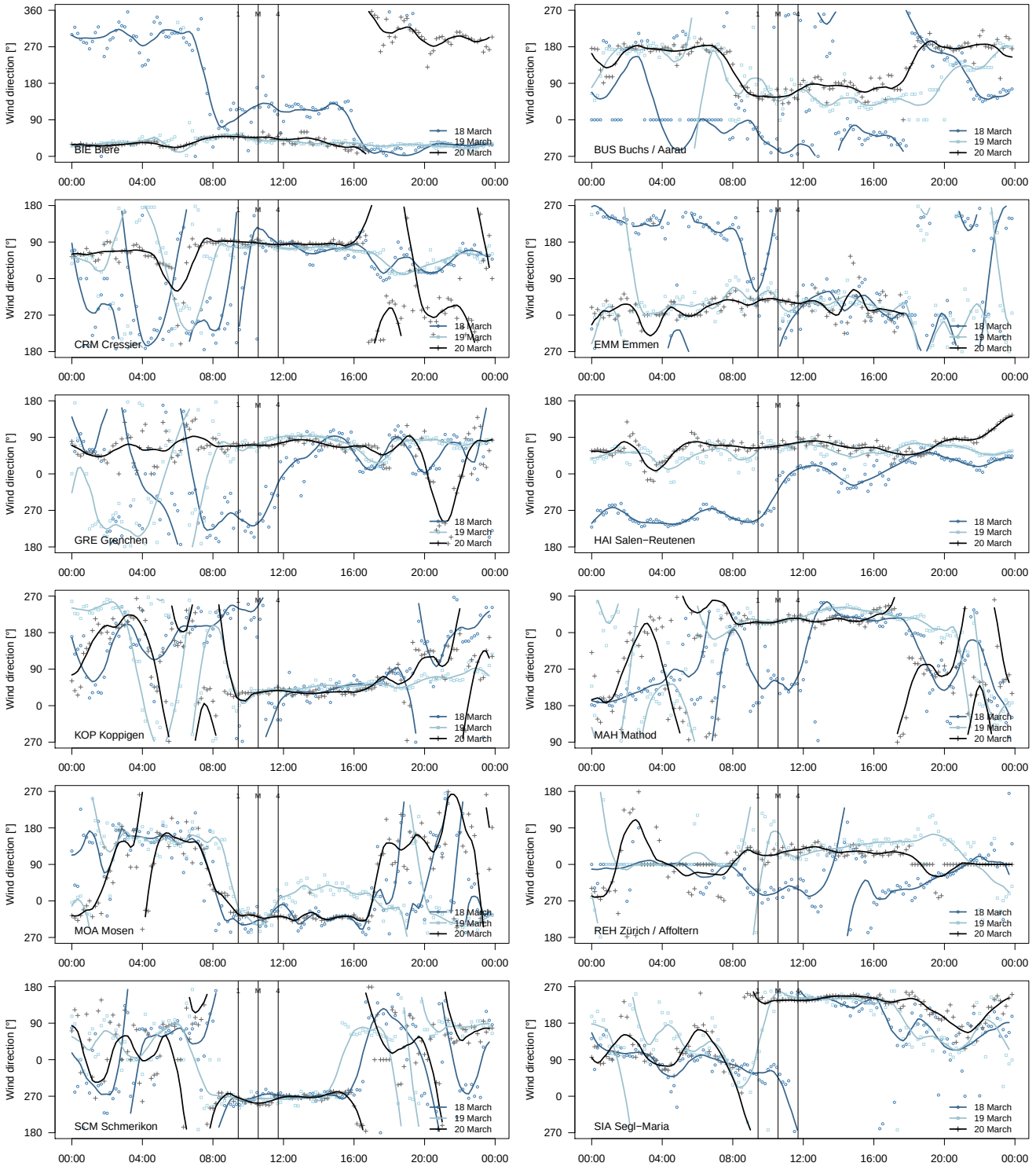

Figure S1. *(continued)*

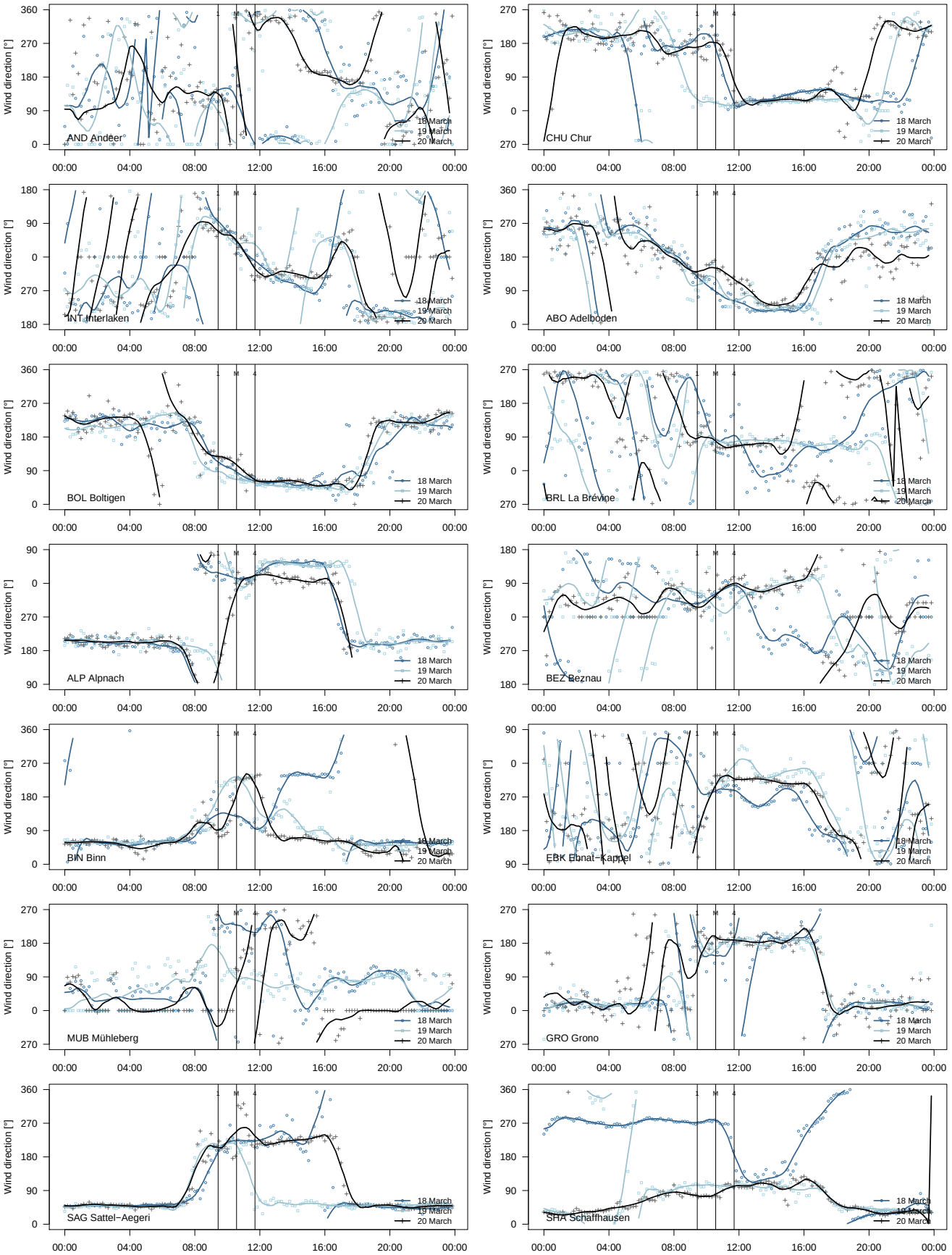

Figure S2. As Figure S1, but for sites classified as 'valley' sites in rather small valleys (otherwise a site was classified as 'flat').

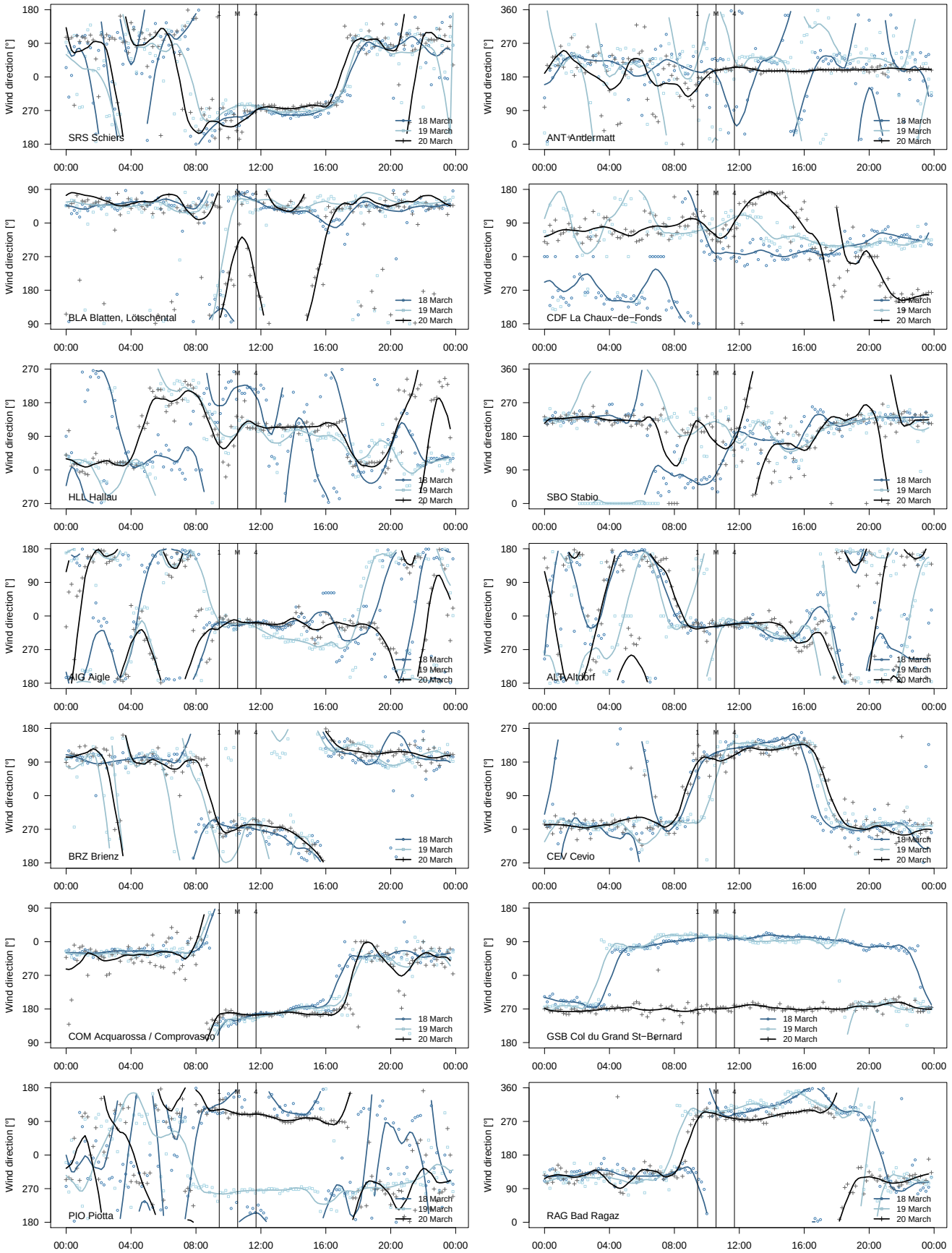

Figure S2. *(continued)*

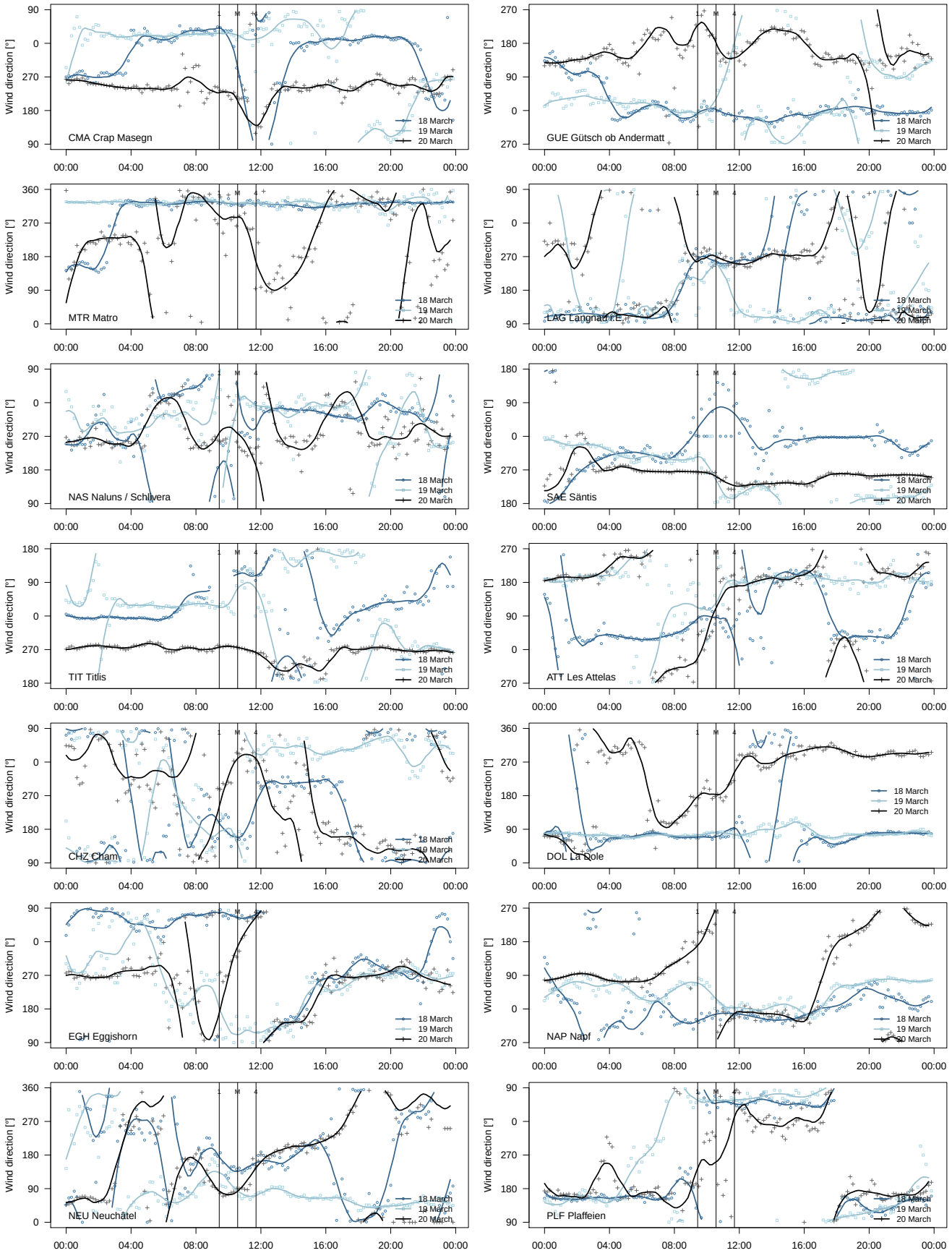

Figure S3. As Figure S1, but for sites classified as 'mountain or hilltop' sites.

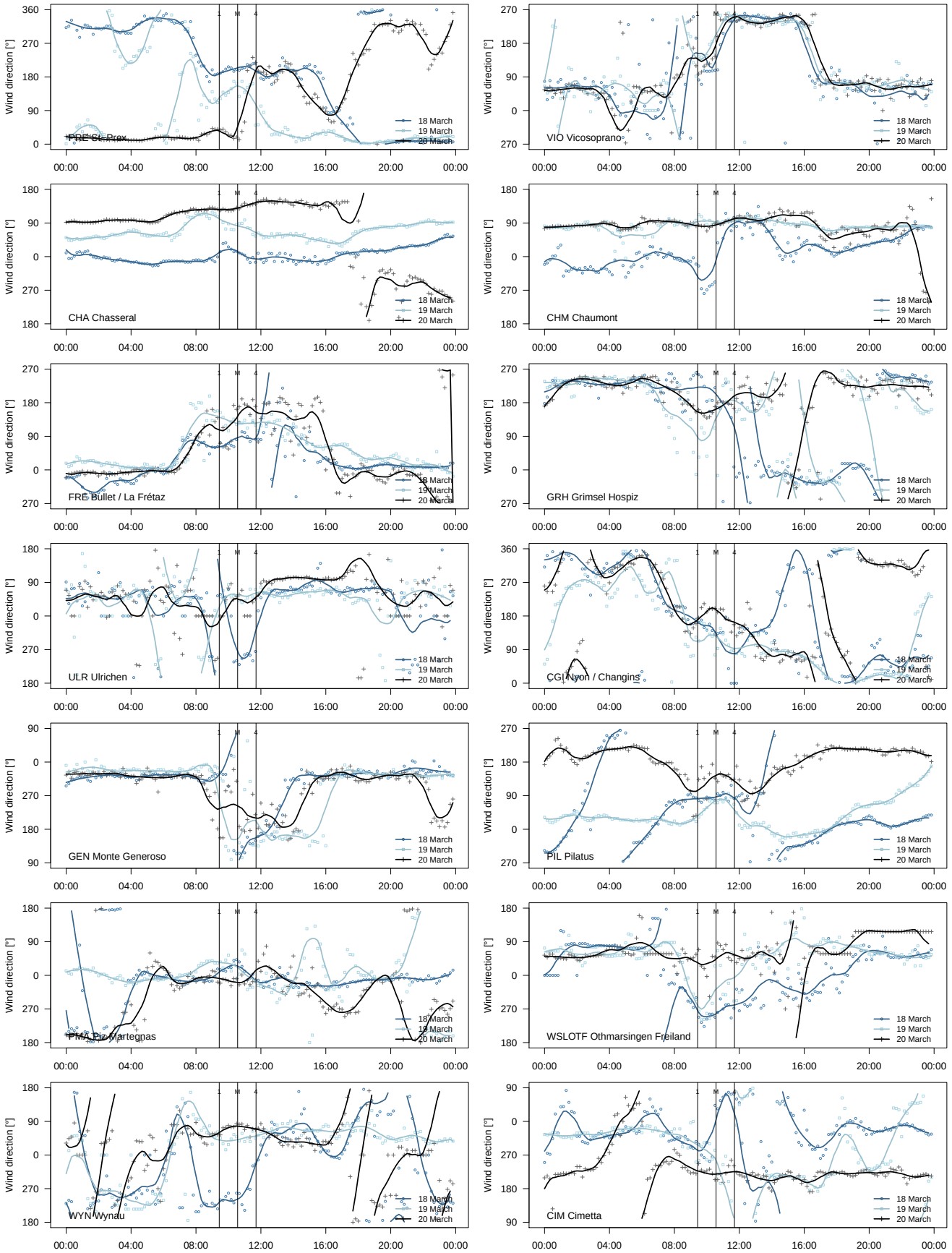

Figure S3. *(continued)*

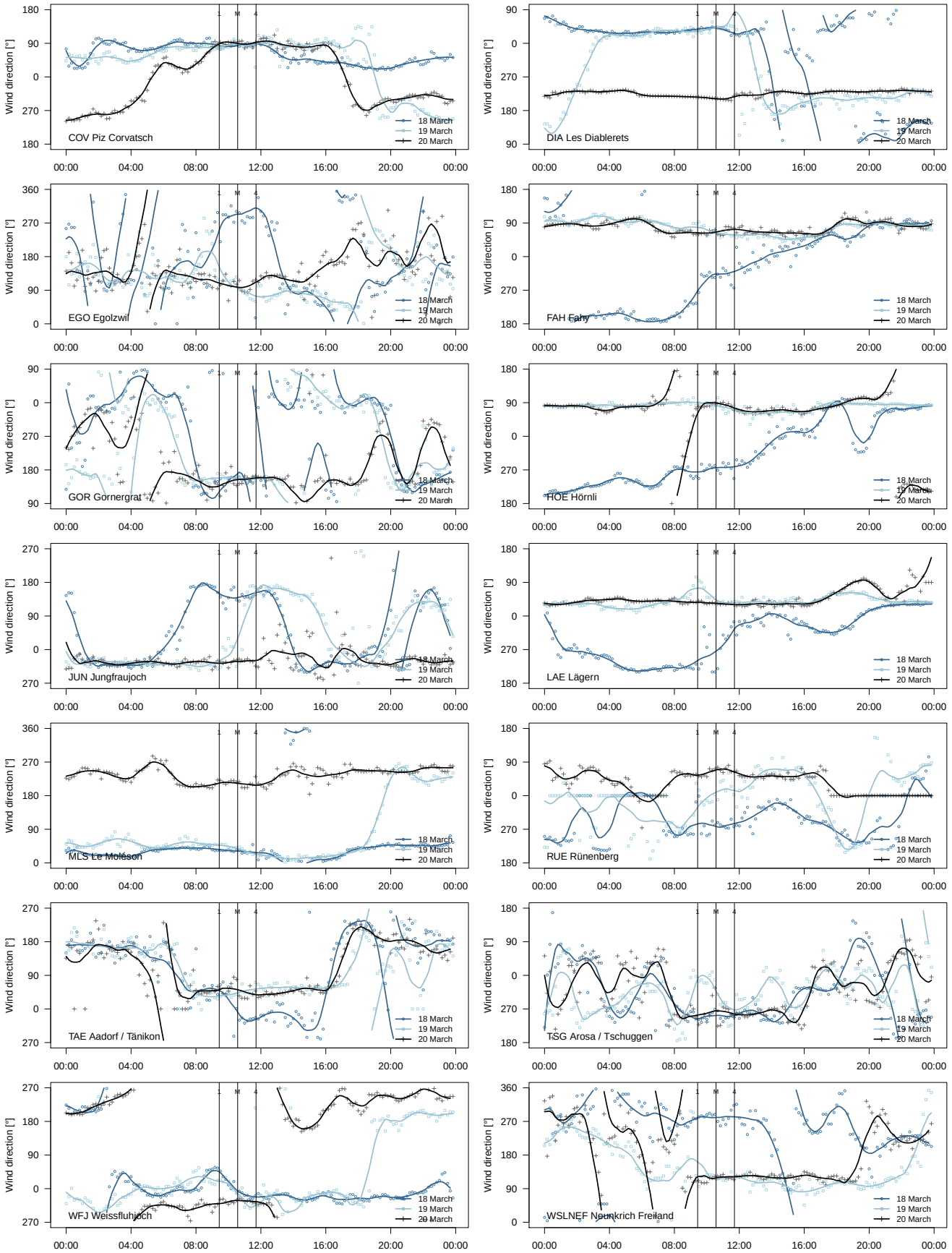

Figure S3. *(continued)*

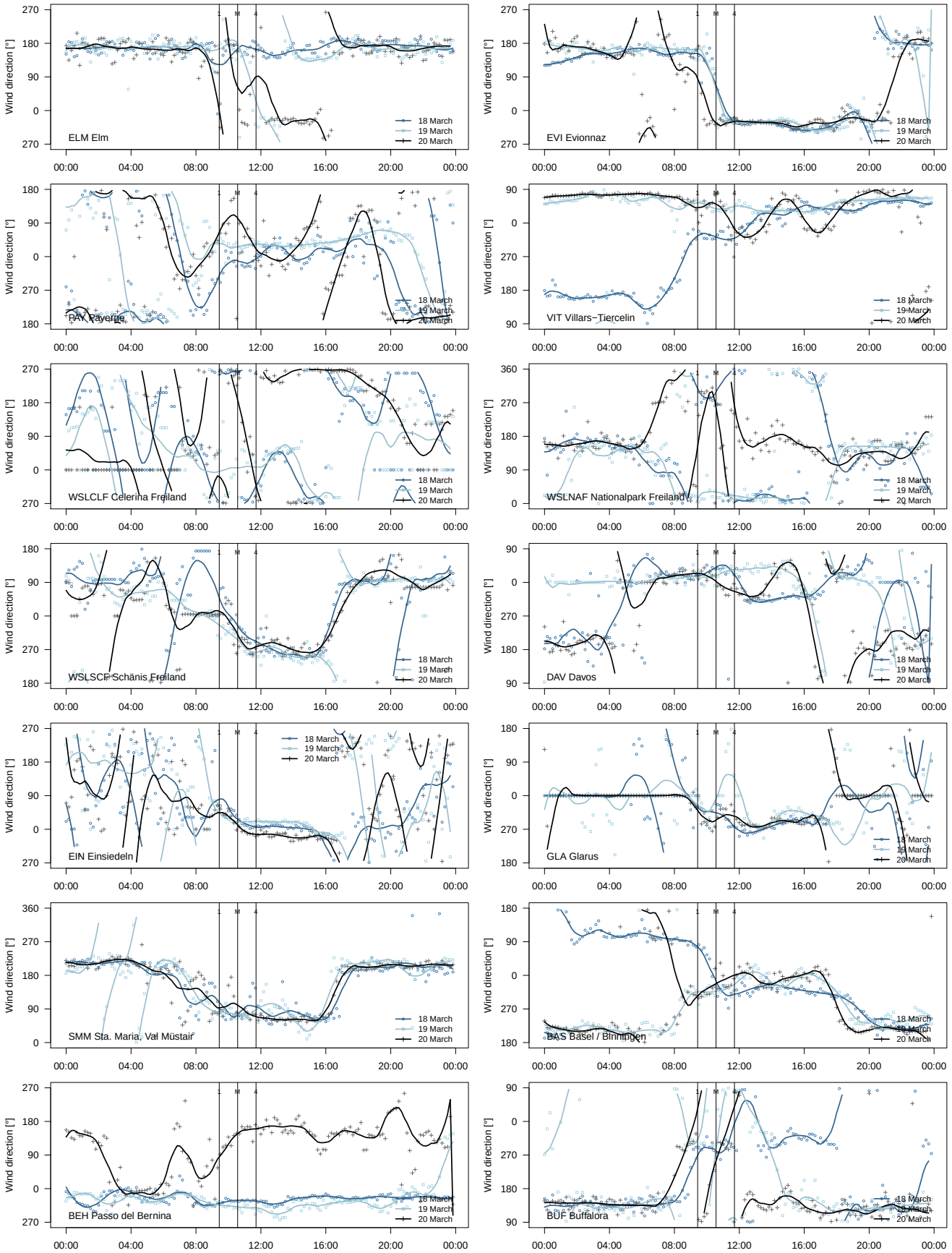

Figure S4. As Figure S1, but for sites classified as 'slope' sites.

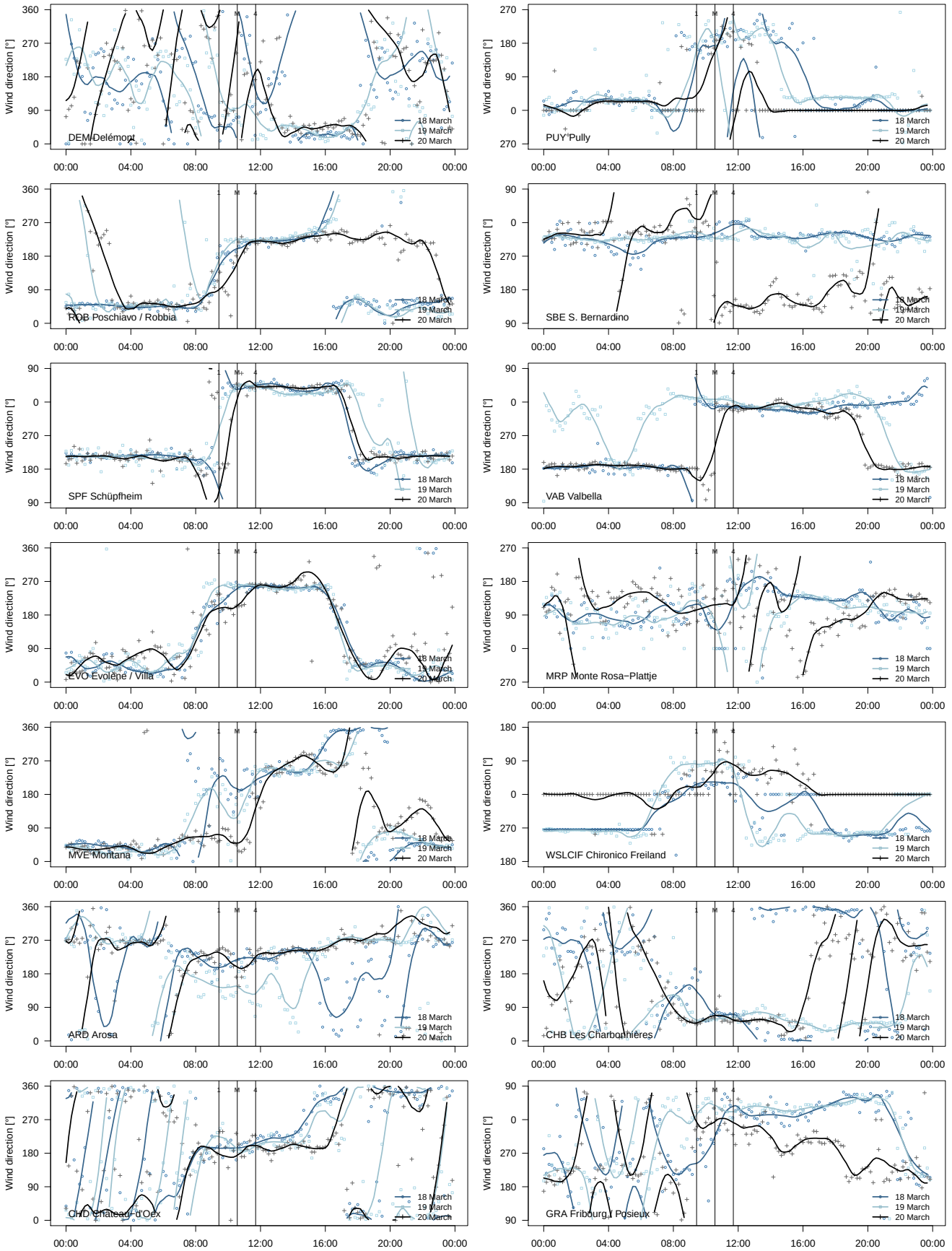

Figure S4. *(continued)*

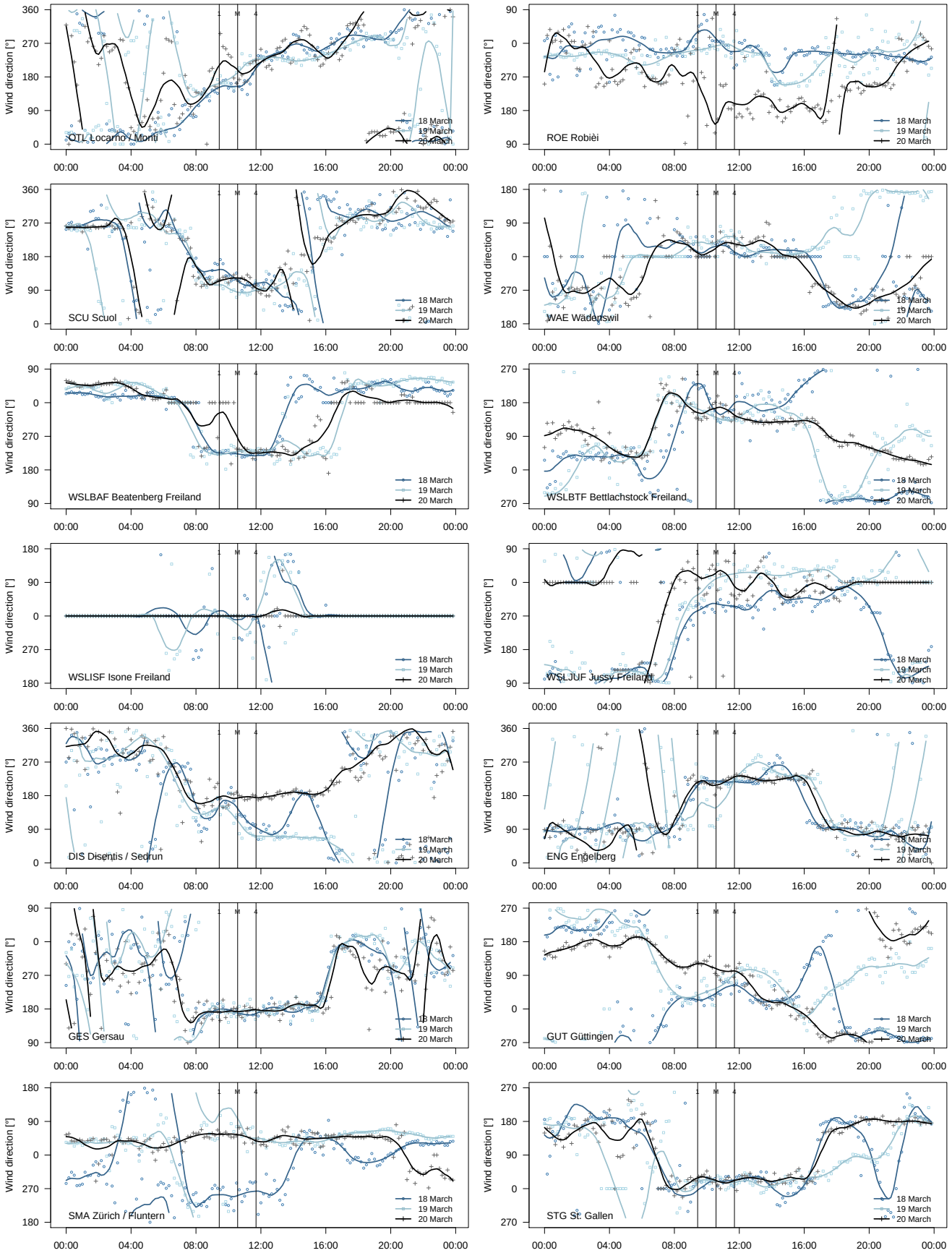

Figure S4. *(continued)*

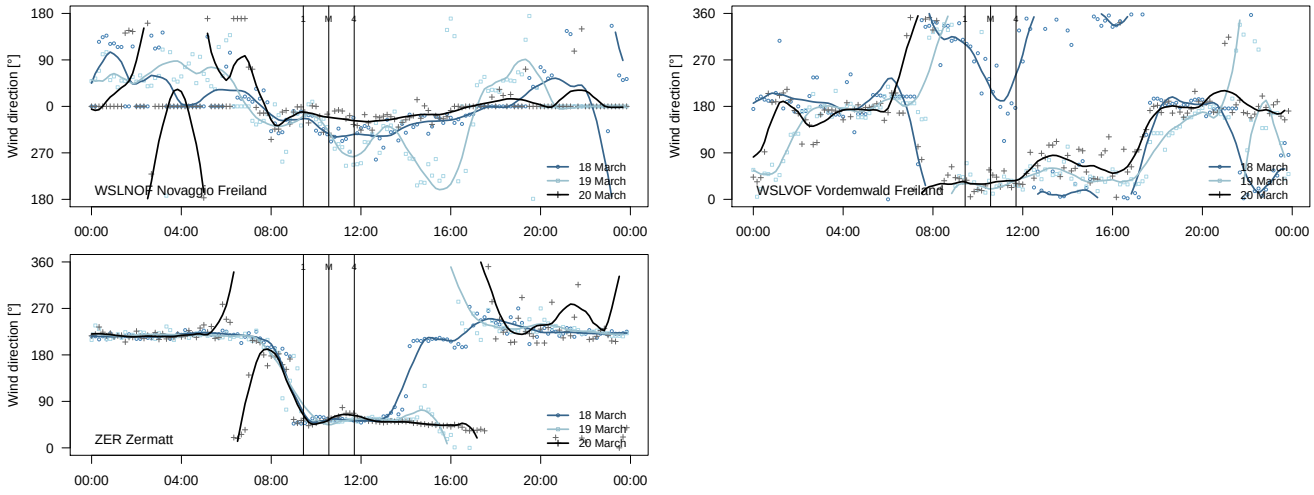

Figure S4. *(continued)*

Remarks

1. Some sites in Figures S1–S4 show a constant wind direction (0°, 270°) if the wind vane was blocked during low-wind or other blocking conditions, namely at night.

2. The span for the loess fits (bold lines in Figures S1–S4) was set to 4 hours

3. The decision where to interrupt the loess fit lines was made automatically: if the magnitude of directional change between two data points was 200° or more, then the line was interrupted. Lines were also interrupted when data were missing.