



Figure S 1: Investigation area. CCLM is simulated with 0.0625° resolution within blue area; ERA-Interim data is used with 0.7° resolution for the statistical downscaling within red area, and for MI calculation within green area.

Table S 1: 100 Days with highest *MI* between 1989 and 2010 in chronological order. *MI* is computed using daily maximum of ERA-Interim surface wind speeds for each grid point. The cubic exceedances of the local 98th percentile are aggregated over land within green area in Figure 1a (-9.8438°E to 34.4531°E, 35.4385°N to 64.912°N).

Date	MI	Rank	Date	MI	Rank	Date	MI	Rank
19890115	284.1512	43	19931220	220.5499	82	20010605	207.2603	99
19890129	224.8765	74	19940128	411.3488	17	20011115	458.3886	11
19890215	222.4623	79	19940314	383.7234	19	20020129	293.8830	40
19890225	414.3149	16	19940324	272.2186	47	20020222	266.8806	49
19890226	533.8120	5	19940401	258.6016	52	20020223	216.4567	88
19891217	226.6007	70	19950122	209.8251	94	20020307	251.2844	54
19900125	400.3774	18	19950123	488.5009	9	20021027	342.3214	29
19900208	352.1099	24	19950127	227.7750	69	20021028	450.3947	12
19900212	219.3445	87	19950328	302.8398	38	20040321	348.7310	25
19900214	231.6447	65	19950513	226.0232	72	20041114	219.5183	85
19900226	647.7467	2	19970225	271.1239	48	20041119	214.6404	90
19900227	812.5004	1	19970327	246.0028	57	20041222	229.9375	68
19900228	468.9158	10	19970407	216.0787	89	20050108	220.9854	80
19900301	426.4633	15	19970411	514.6126	6	20050109	250.7358	55
19900306	224.2552	75	19981024	223.8985	76	20050213	231.2205	67
19900310	264.1957	51	19981028	366.3806	22	20070111	329.6783	35
19920101	331.9634	34	19990204	233.9155	63	20070112	219.4360	86
19920117	343.8363	27	19990205	448.1312	13	20070118	584.8074	3
19920224	256.1630	53	19991201	293.4250	41	20070119	491.8994	8
19920313	292.8794	42	19991203	233.2323	64	20070129	344.4809	26
19920906	326.7523	36	19991204	298.1472	39	20070320	231.6341	66
19921126	208.9968	95	19991225	282.9562	45	20070405	235.7918	61
19921202	211.3982	92	19991226	376.3548	20	20080127	207.3255	98
19921219	241.9720	59	19991227	249.6054	56	20080128	222.4852	78
19930114	310.9885	37	19991228	339.1889	31	20080131	206.7533	100
19930117	234.2697	62	20000118	219.5960	84	20080223	211.5456	91
19930118	226.3903	71	20000121	225.3398	73	20080301	574.3024	4
19930122	369.4093	21	20000129	220.7681	81	20080302	332.8554	33
19930123	363.7773	23	20000130	427.6680	14	20080305	208.3307	96
19930124	506.1410	7	20000131	222.6852	77	20081123	219.6692	83
19930125	283.4320	44	20000303	279.1825	46	20090124	343.3560	28
19930319	242.7713	58	20000406	238.1307	60	20091013	207.9343	97
19931209	339.8903	30	20001030	335.1147	32	20100228	264.3112	50
			20001106	211.2333	93			

Table S 2: 39 test sites in Germany providing three gust observations for all events (day of the highest MI plus one day before and after).

WMO No.	Name	Longitude	Latitude	Height
102910	Angermünde	13.9931	53.0331	54
104600	Artern	11.2931	51.3756	164
103820	Berlin Tegel	13.3108	52.5656	36
103840	Berlin Tempelhof	13.4039	52.4686	48
103480	Braunschweig	10.4486	52.2928	81
101290	Bremerhaven	8.5772	53.5347	7
106150	Deuselbach	7.0556	49.7631	481
103210	Diepholz	8.3431	52.5897	39
104100	Essen	6.9686	51.4056	150
106370	Frankfurt/Main	8.5986	50.0464	112
108030	Freiburg	7.8353	48.0242	236
106280	Geisenheim	7.9547	49.985	110
104440	Göttingen	9.9528	51.5017	167
101470	Hamburg Fuhlsbüttel	9.99	53.635	11
103380	Hannover	9.6797	52.4658	55
106850	Hof	11.8775	50.3133	565
100380	Hohn	9.5394	54.3128	10
104270	Kahler Asten	8.49	51.1817	839
104380	Kassel	9.4436	51.2978	231
109460	Kempten	10.3364	47.7244	705
108180	Klippeneck	8.7558	48.1064	973
109290	Konstanz	9.1911	47.6783	443
103050	Lingen	7.3089	52.5194	22
102530	Lüchow	11.1392	52.9739	17
105260	Bad Marienberg	7.9597	50.6633	547
101130	Norderney	7.1525	53.7139	11
107630	Nürnberg	11.0569	49.5044	314
109480	Oberstdorf	10.2769	47.3989	806
104800	Oschatz	13.0947	51.2972	150
103170	Osnabrück	8.0544	52.2572	95
107080	Saarbrücken Ensheim	7.1083	49.2142	320
103250	Bad Salzuflen	8.7531	52.1056	135
100265	Schleswig	9.5494	54.5289	43
102350	Soltau	9.7942	52.9619	76
107390	Stuttgart Schnarrenberg	9.2011	48.8292	314
107380	Stuttgart Echterdingen	9.2253	48.6892	371
106090	Trier Petrisberg	6.6592	49.7492	265
108380	Ulm	9.9539	48.3847	567
107610	Weißenburg	10.9617	49.0203	422