

Table 1S. The list of EURO-CORDEX simulation

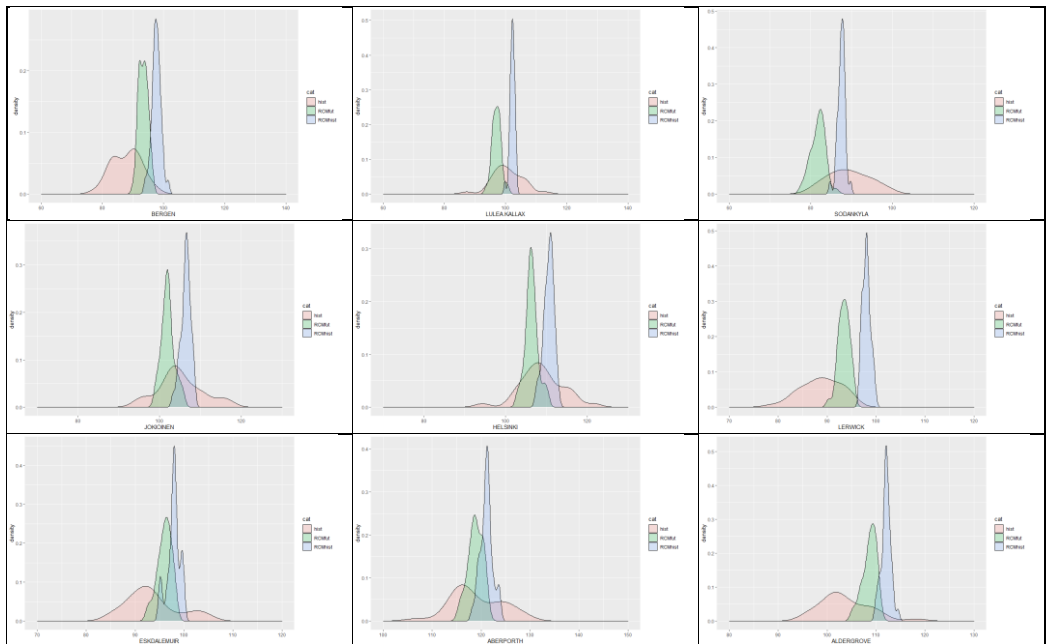
	Name of driving GCM	Variant	Name of RCM
1	CNRM-CERFACS-CNRM-CM5	r1i1p1	CLMcom-CCLM4-8-17
2	CNRM-CERFACS-CNRM-CM5	r1i1p1	CNRM-ALADIN53
3	CNRM-CERFACS-CNRM-CM5	r1i1p1	CNRM-ALADIN63
4	CNRM-CERFACS-CNRM-CM5	r1i1p1	DMI-HIRHAM5
5	CNRM-CERFACS-CNRM-CM5	r1i1p1	GERICS-REMO2015
6	CNRM-CERFACS-CNRM-CM5	r1i1p1	KNMI-RACMO22E
7	CNRM-CERFACS-CNRM-CM5	r1i1p1	MOHC-HadREM3-GA7-05
8	CNRM-CERFACS-CNRM-CM5	r1i1p1	SMHI-RCA4
9	ICHEC-EC-EARTH	r12i1p1	CLMcom-CCLM4-8-17
10	ICHEC-EC-EARTH	r12i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
11	ICHEC-EC-EARTH	r12i1p1	DMI-HIRHAM5
12	ICHEC-EC-EARTH	r12i1p1	ICTP-RegCM4-6
13	ICHEC-EC-EARTH	r12i1p1	KNMI-RACMO22E
14	ICHEC-EC-EARTH	r12i1p1	MOHC-HadREM3-GA7-05
15	ICHEC-EC-EARTH	r12i1p1	SMHI-RCA4
16	ICHEC-EC-EARTH	r1i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
17	ICHEC-EC-EARTH	r1i1p1	DMI-HIRHAM5
18	ICHEC-EC-EARTH	r1i1p1	KNMI-RACMO22E
19	ICHEC-EC-EARTH	r1i1p1	SMHI-RCA4
20	ICHEC-EC-EARTH	r3i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
21	ICHEC-EC-EARTH	r3i1p1	DMI-HIRHAM5
22	ICHEC-EC-EARTH	r3i1p1	KNMI-RACMO22E
23	ICHEC-EC-EARTH	r3i1p1	SMHI-RCA4
24	IPSL-IPSL-CM5A-MR	r1i1p1	DMI-HIRHAM5
25	IPSL-IPSL-CM5A-MR	r1i1p1	GERICS-REMO2015

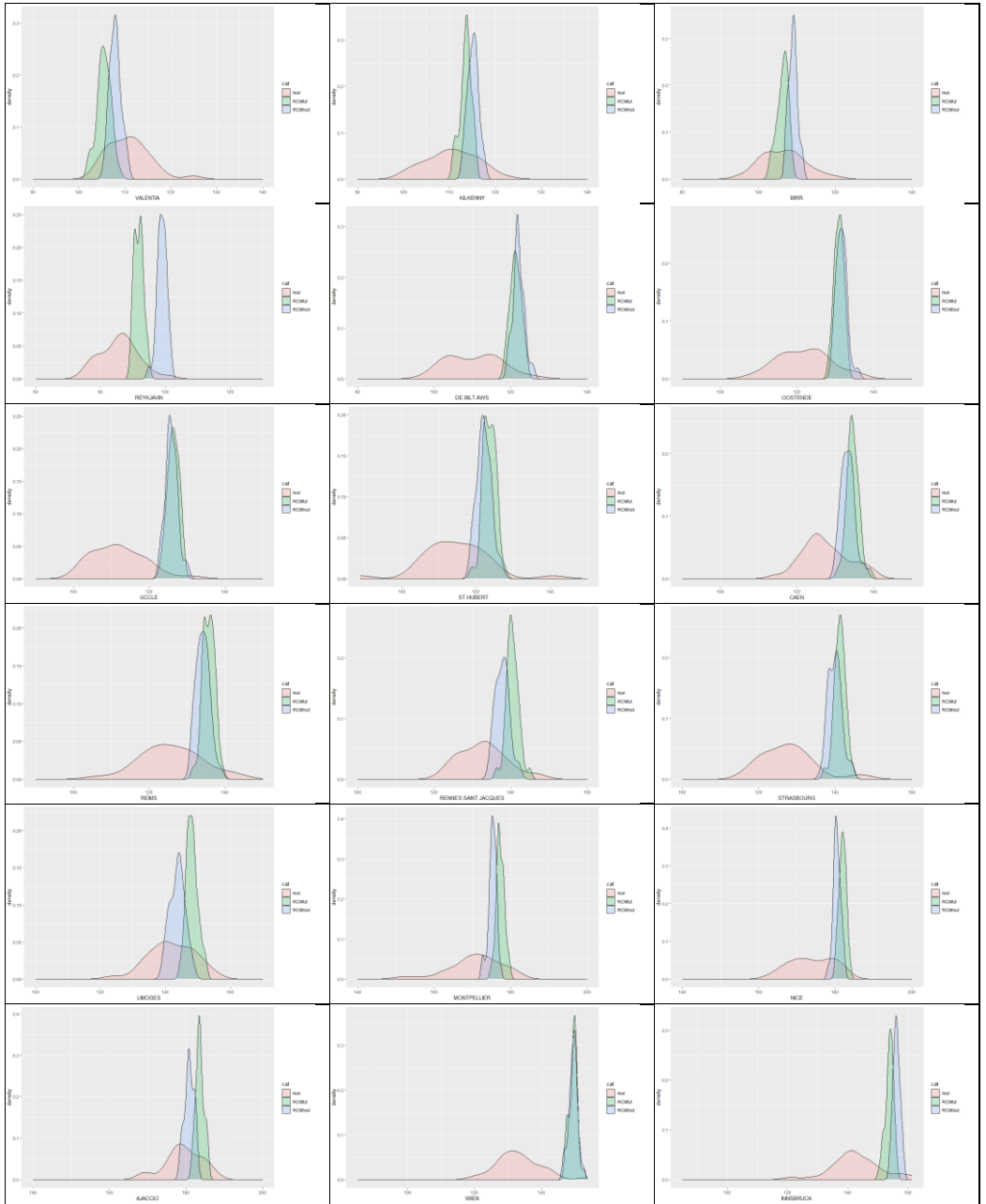
26	IPSL-IPSL-CM5A-MR	r1i1p1	KNMI-RACMO22E
27	IPSL-IPSL-CM5A-MR	r1i1p1	SMHI-RCA4
28	MOHC-HadGEM2-ES	r1i1p1	CLMcom-CCLM4-8-17
29	MOHC-HadGEM2-ES	r1i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
30	MOHC-HadGEM2-ES	r1i1p1	CNRM-ALADIN63
31	MOHC-HadGEM2-ES	r1i1p1	DMI-HIRHAM5
32	MOHC-HadGEM2-ES	r1i1p1	ICTP-RegCM4-6
33	MOHC-HadGEM2-ES	r1i1p1	KNMI-RACMO22E
34	MOHC-HadGEM2-ES	r1i1p1	MOHC-HadREM3-GA7-05
35	MOHC-HadGEM2-ES	r1i1p1	SMHI-RCA4
36	MPI-M-MPI-ESM-LR	r1i1p1	CLMcom-CCLM4-8-17
37	MPI-M-MPI-ESM-LR	r1i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
38	MPI-M-MPI-ESM-LR	r1i1p1	DMI-HIRHAM5
39	MPI-M-MPI-ESM-LR	r1i1p1	ICTP-RegCM4-6
40	MPI-M-MPI-ESM-LR	r1i1p1	KNMI-RACMO22E
41	MPI-M-MPI-ESM-LR	r1i1p1	MOHC-HadREM3-GA7-05
42	MPI-M-MPI-ESM-LR	r1i1p1	MPI-CSC-REMO2009
43	MPI-M-MPI-ESM-LR	r1i1p1	SMHI-RCA4
44	MPI-M-MPI-ESM-LR	r2i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
45	MPI-M-MPI-ESM-LR	r2i1p1	MPI-CSC-REMO2009
46	MPI-M-MPI-ESM-LR	r2i1p1	SMHI-RCA4
47	MPI-M-MPI-ESM-LR	r3i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
48	MPI-M-MPI-ESM-LR	r3i1p1	GERICS-REMO2015
49	MPI-M-MPI-ESM-LR	r3i1p1	SMHI-RCA4
50	NCC-NorESM1-M	r1i1p1	CLMcom-ETH-COSMO-crCLIM-v1-1
51	NCC-NorESM1-M	r1i1p1	CNRM-ALADIN63
52	NCC-NorESM1-M	r1i1p1	DMI-HIRHAM5
53	NCC-NorESM1-M	r1i1p1	GERICS-REMO2015
54	NCC-NorESM1-M	r1i1p1	KNMI-RACMO22E
55	NCC-NorESM1-M	r1i1p1	MOHC-HadREM3-GA7-05
56	NCC-NorESM1-M	r1i1p1	SMHI-RCA4

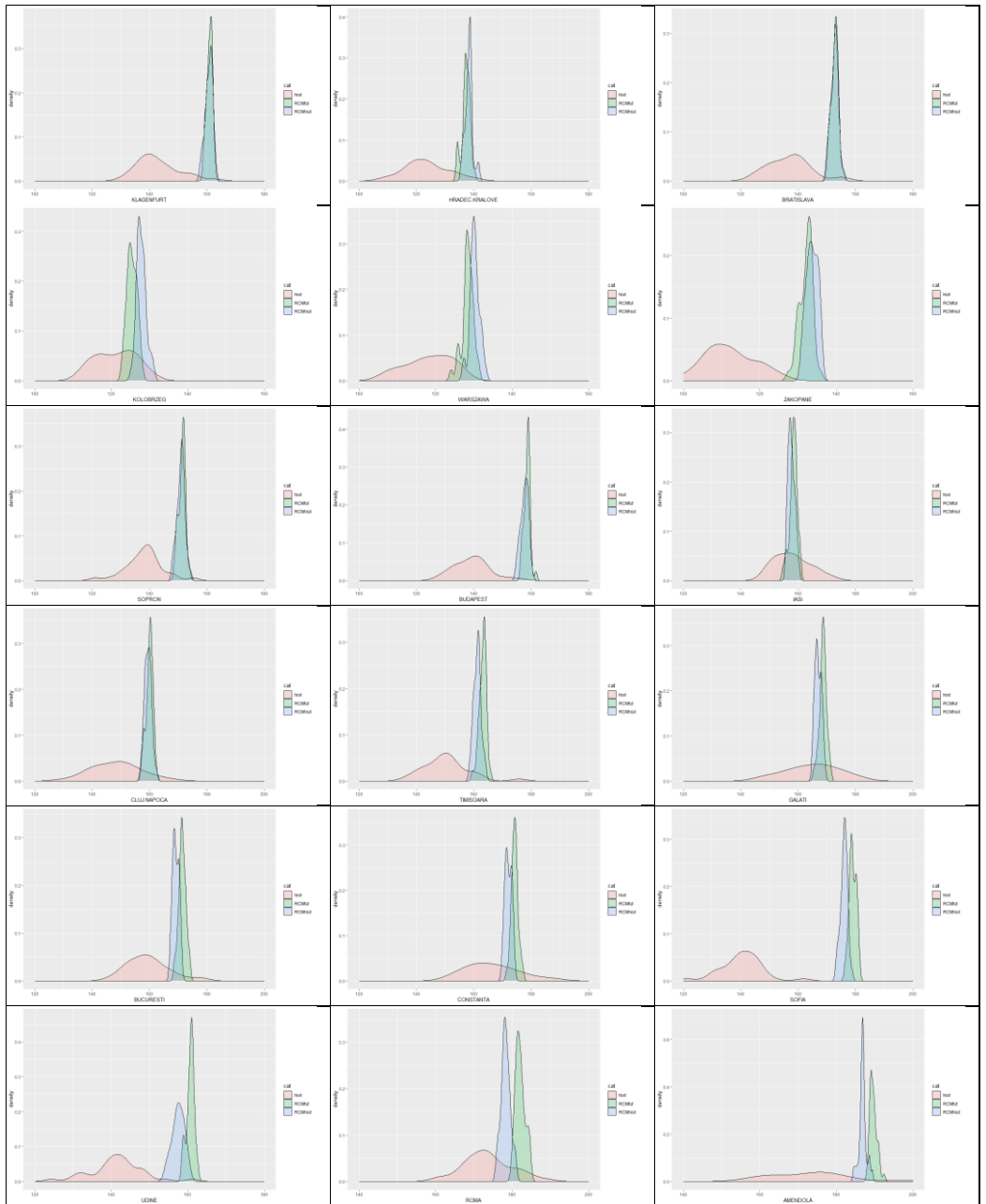
Table 2S. The list of WRDC radiation stations

WMO_ID	Lat.	Long.	Alt.	Name	Country
1317	60.22	5.2	41	BERGEN/FLORIDA	NO
2186	65.32	22.07	17	LULEA-KALLAX	SE
2836	67.22	26.38	179	SODANKYLA	FI
2963	60.49	23.3	104	JOKIOINEN	FI
2974	60.19	24.58	53	HELSINKI-VANTAA	FI
3005	60.08	1.11	63	LERWICK	UK
3162	55.18	3.12	242	ESKDALEMUIR	UK
3502	52.08	4.34	134	ABERPORTH	UK
3917	54.39	6.13	68	ALDERGROVE	UK
3953	51.56	10.14	30	VALENTIA OBSERVATORY	IE
3960	52.4	7.16	64	KILKENNY	IE
3965	53.05	7.53	72	BIRR	IE
4030	64.08	21.54	52	REYKJAVIK	IS
6260	52.05	5.1	2	DE BILT AWS	NL
6407	51.12	2.52	5	OOSTENDE (AIRPORT)	BE
6447	50.48	4.21	100	UCCLE	BE
6476	50.02	5.24	563	ST-HUBERT	BE
7027	49.1	0.27	78	CAEN-CARPIQUET	FR
7070	49.18	4.02	95	REIMS	FR
7130	48.04	1.44	37	RENNES-SAINT JACQUES	FR
7190	48.32	7.38	153	STRASBOURG-ENTZHEIM	FR
7434	45.51	1.1	396	LIMOGES-BELLEGARDE	FR
7643	43.34	3.57	5	MONTPELLIER	FR
7690	43.38	7.12	4	NICE	FR
7761	41.55	8.47	6	AJACCIO	FR
11035	48.14	16.21	203	WIEN/HOHE WARTE	AT
11120	47.15	11.21	579	INNSBRUCK-FLUGHAFEN	AT
11231	46.38	14.19	447	KLAGENFURT-FLUGHAFEN	AT
11648	50.11	15.5	278	HRADEC KRALOVE	CZ
11816	48.12	17.12	304	BRATISLAVA-LETISKO	SK
12100	54.1	15.34	3	KOLOBRZEG	PL
12375	52.09	20.57	98	WARSZAWA-OKECIE	PL
12625	49.17	19.57	857	ZAKOPANE	PL
12805	47.41	16.36	233	SOPRON	HU
12843	47.26	19.11	138	BUDAPEST/PESTSZENTLORINC	HU

15090	47.1	27.37	90	IASI	RO
15120	46.46	23.34	410	CLUJ-NAPOCA	RO
15247	45.46	21.15	90	TIMISOARA	RO
15310	45.28	28.01	72	GALATI	RO
15420	44.3	26.04	91	BUCURESTI BANEASA	RO
15480	44.12	28.38	12	CONSTANTA	RO
15614	42.39	23.23	586	SOFIA (OBSERV.)	BG
16045	45.58	13.02	51	UDINE/RIVOLTO	IT
16242	41.48	12.14	3	ROMA/FIUMICINO	IT
16261	41.32	15.42	57	AMENDOLA	IT
16310	40.01	15.16	184	CAPO PALINURO	IT
16320	40.39	17.57	15	BRINDISI	IT
16420	38.11	15.32	59	MESSINA	IT
33345	50.24	30.34	179	KIEV	UK
33837	46.26	30.46	64	ODESA	UK







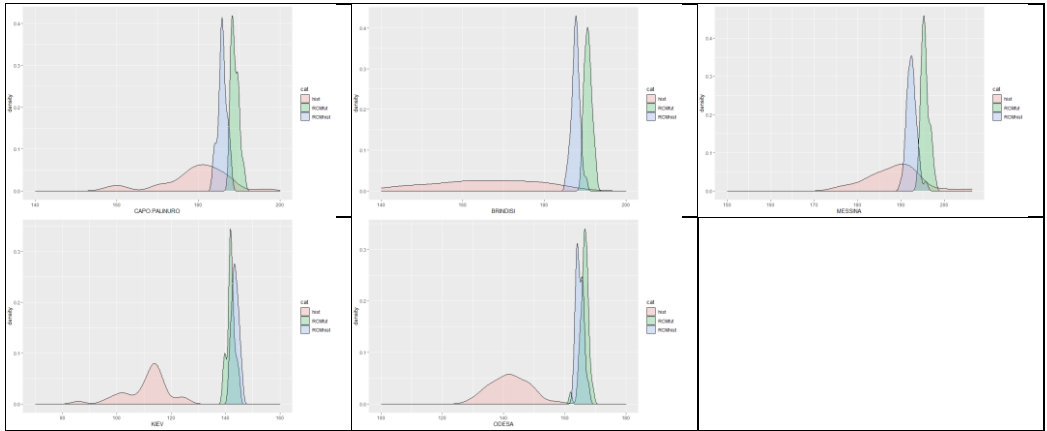


Fig. 1S Frequency distributions of EURO-CORDEX historical simulations 1971-2005 (blue colour), future projection 2065-2100 based on RCP8.5 (green colour), and in WRDC observations 1975-2006 (pink colour) at different stations over Europe.