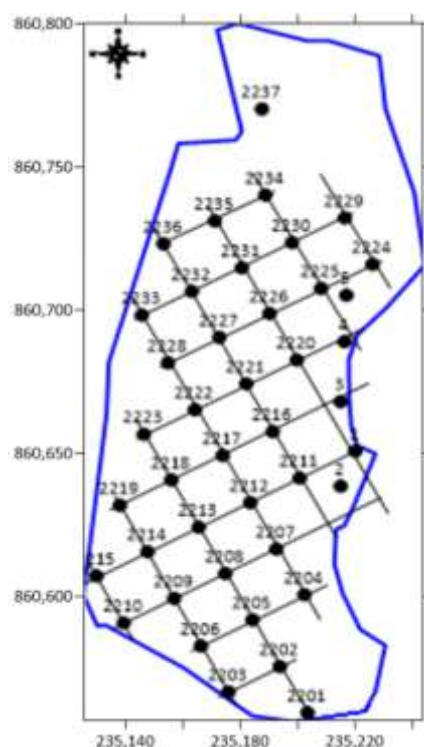




The measurement system comprised of 37 vertical wells (piezometers), each 2 meters deep. These wells were made using a manual drill set - the location of the piezometers in the test area is shown in Fig. S14. After drilling and pulling out the rod, each well was cased with use of a PVC pipe closed with a slit. Each pipe has been previously perforated at a distance of 1 m in its lower part which allows gases to migrate from soil into the pipe. Each piezometer was drilled in a distance of 20 m apart. Additional 5 new points were added in May to enhance the monitoring system. The January and May measurements were performed with the ECOPROBE 5.0 instrument, which measures CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>, PID and TP (Total Petroleum) gases. Due to breakdown, February, March and April measurements had to be carried out with a replacement equipment, namely KANE458s Flue Gas Analyser.



*Fig. S14 Localization of measurement points at the KD „Barbara” test site*

## 1.2. The results

Measurements of gas content in soil air were performed in a period between January and May, several times per month. In January 2021, four measurement series were performed, i.e. 08.01; 11.01; 15.01 and 23.01 (incomplete measurement due to breakdown of the apparatus). From February to April, two series of measurements on 08.02, 24.02, 15.03, 24.03, 07.04, 24.04. In May, five series of measurements were performed: 07.05; 10.05, 22.05, 13.05, 14.05. The results are shown in the tables S4-S15 below:

Table S4 The results of gas concentration measurements in the piezometers 08.01.2021

No.	CH4	CO2	PID	TP	O2	P	del P
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
2201	0.00	26,016	0.00	0.00	15.95	976.62	-0.33
2202	0.00	38,270	0.00	0.00	13.45	976.68	-6.43
2203	0.00	22,485	2.80	0.00	14.81	976.61	-2.41
2204	0.00	47,364	0.00	0.00	12.89	976.57	-0.70
2205	0.00	63,505	0.10	0.00	8.41	976.61	-0.79
2206	0.00	26,709	1.80	0.00	15.49	976.62	-0.73
2207	0.00	31,360	0.00	0.00	15.02	976.36	-0.20
2208	0.00	71,797	3.40	0.00	5.86	976.44	-24.60
2209	0.00	24,147	0.00	0.00	15.08	976.22	-0.18
2210	0.00	3,998	0.00	0.00	16.96	976.09	-8.05
2211	0.00	6,200	1.20	0.00	13.27	975.96	-28.71
2212	0.00	41,128	1.00	0.00	14.70	976.20	-0.32
2213	0.00	13,250	0.30	0.00	11.88	976.15	-17.79
2214	0.00	8,834	0.00	0.00	17.76	976.32	-0.55
2215	0.00	4,504	1.70	0.00	14.19	976.09	-25.67
2219	0.00	11,081	1.10	0.00	17.73	975.79	-0.18
2218	0.00	31,585	0.50	0.00	15.22	975.71	-0.32
2217	0.00	41,518	0.10	0.00	9.43	975.84	-0.25
2216	0.00	5,519	0.50	0.00	14.90	976.01	-19.31
2220	0.00	4,549	0.90	0.00	16.44	975.44	-8.63
2221	0.00	26,242	0.60	0.00	14.36	975.59	-13.16
2222	0.00	2,626	1.20	0.00	13.63	975.70	-26.72
2223	0.00	9,330	2.90	0.00	14.61	975.58	-14.65
2224	0.00	5,915	8.50	0.00	17.76	955.48	-0.21
2225	0.00	17,109	0.70	0.00	17.74	975.28	-2.03
2226	0.00	3,329	1.00	0.00	16.64	975.40	-17.52
2227	0.00	5,512	0.00	0.00	17.98	975.19	-0.28
2228	0.00	12,972	0.60	0.00	17.38	975.17	-0.22
2229	0.00	39,886	0.20	0.00	14.65	975.54	-0.21
2230	0.00	40,708	0.40	0.00	15.40	975.46	-0.38
2231	0.00	12,449	0.30	0.00	17.34	975.30	-0.38
2232	0.00	13,367	0.30	0.00	17.19	975.16	-0.23
2233	0.00	10,989	0.50	0.00	17.41	975.08	-0.23
2234	0.00	15,100	0.30	0.00	17.74	974.88	-0.27
2235	0.00	17,442	0.70	0.00	16.96	975.13	-0.24
2236	0.00	37,491	1.00	0.00	12.55	975.00	-0.40
2237	0.00	20,073	1.60	0.00	12.59	974.87	-30.35

Table S5 The results of gas concentration measurements in the piezometers 11.01.2021

No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
2201	0.00	24,105	0.00	0.00	16.09	976.89	-0.34
2202	0.00	39,001	0.00	0.00	13.29	976.61	-6.39
2203	0.00	22,517	2.40	0.00	14.86	976.68	-2.30
2204	0.00	46,051	0.00	0.00	13.19	976.58	-0.71
2205	0.00	64,388	0.20	0.00	10.65	976.67	-0.80
2206	0.00	26,430	1.50	0.00	15.58	976.56	-0.80
2207	0.00	21,436	0.00	0.00	17.12	976.49	-0.21
2208	0.00	35,792	3.10	0.00	8.65	976.40	-27.59
2209	0.00	20,783	0.00	0.00	16.49	976.36	-0.20
2210	0.00	1,131	0.00	0.00	17.13	976.24	-6.78
2211	0.00	2,652	0.50	0.00	15.41	976.06	-19.54
2212	0.00	38,830	0.70	0.00	15.57	976.18	-0.32
2213	0.00	7,506	0.50	0.00	12.52	976.20	-18.78
2214	0.00	5,421	0.00	0.00	18.16	976.15	-0.59
2215	0.00	1,129	1.10	0.00	13.77	976.08	-28.45
2219	0.00	9,583	0.40	0.00	17.97	975.69	-0.18
2218	0.00	24,526	0.00	0.00	17.55	975.82	-0.34
2217	0.00	40,269	0.00	0.00	12.80	975.90	-0.26
2216	0.00	1,200	0.60	0.00	14.96	975.94	-20.52
2220	0.00	6,694	1.20	0.00	16.45	975.31	-8.70
2221	0.00	17,202	0.50	0.00	15.18	975.77	-12.91
2222	0.00	1,398	1.80	0.00	12.73	975.69	-33.62
2223	0.00	11,633	1.90	0.00	15.36	975.66	-14.23
2224	0.00	17,103	0.00	0.00	17.81	975.71	-0.22
2225	0.00	11,134	0.90	0.00	17.81	975.31	-1.28
2226	0.00	1,509	0.10	0.00	16.90	975.57	-8.79
2227	0.00	5,087	0.00	0.00	18.02	975.33	-0.28
2228	0.00	10,886	0.40	0.00	17.81	975.23	-0.22
2229	0.00	39,542	0.10	0.00	14.72	975.46	-0.20
2230	0.00	36,290	0.20	0.00	16.50	975.25	-0.25
2231	0.00	10,653	0.40	0.00	17.47	975.26	-0.37
2232	0.00	13,571	0.50	0.00	17.12	975.08	-0.22
2233	0.00	8,843	0.30	0.00	17.95	975.03	-0.33
2234	0.00	12,951	0.30	0.00	17.98	974.89	-0.25
2235	0.00	17,410	0.20	0.00	17.02	974.86	-0.21
2236	0.00	27,305	0.80	0.00	17.12	974.98	-0.29
2237	10.20	2,673	1.40	0.00	13.00	974.79	-31.04

Table S6 The results of gas concentration measurements in the piezometers 15.01.2021

No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
2201	0.00	17,742.00	0.60	0.00	18.12	98.49	-0.30
2202	0.00	41.00	0.80	0.00	19.09	98.65	-1.77
2203	0.00	12,005.00	3.00	0.00	16.41	98.05	-5.67
2204	0.00	43,432.00	0.90	0.00	14.03	98.04	-0.44
2205	0.00	60,782.00	1.20	0.00	9.70	98.05	-0.79
2206	0.00	18,956.00	1.20	0.00	17.55	98.65	-0.35
2207	0.00	31.00	1.20	0.00	15.24	98.05	-0.22
2208	0.00	73.00	4.30	0.00	7.78	98.05	-27.22
2209	0.00	24.00	1.00	0.00	14.73	98.09	-0.23
2210	0.00	757.00	1.80	0.00	10.01	98.04	-14.33
2211	0.00	6,009.00	1.60	0.00	15.07	98.10	-20.12
2212	0.00	3,016.00	1.60	0.00	16.62	98.09	-0.26
2213	0.00	25,794.00	1.70	0.00	9.44	98.07	-17.35
2214	0.00	9,200.00	1.10	0.00	18.17	98.06	-0.20
2215	0.00	2,715.00	2.30	0.00	15.18	99.07	-19.58
2219	0.00	9,755.00	1.10	0.00	18.06	98.08	-24.14
2218	0.00	18.00	1.00	0.00	17.53	98.09	-0.25
2217	0.00	39.00	1.10	0.00	12.65	98.11	-0.20
2216	0.00	2,904.00	1.30	0.00	19.06	98.11	-0.18
2220	0.00	5,954.00	0.40	0.00	18.11	98.11	-0.21
2221	0.00	6,776.00	1.00	0.00	15.26	98.99	-19.23
2222	0.00	1,247.00	1.00	0.00	12.37	98.10	-36.21
2223	0.00	17,375.00	2.40	0.00	15.98	98.09	-13.30
2224	0.00	170.00	0.00	0.00	17.58	98.14	-0.18
2225	0.00	16,459.00	0.20	0.00	18.00	98.11	-0.18
2226	0.00	3,114.00	0.60	0.00	17.87	98.11	-4.93
2227	0.00	1,016.00	0.50	0.00	15.27	98.11	-0.26
2228	0.00	10,509.00	0.30	0.00	17.77	98.10	-0.19
2229	0.00	33,017.00	0.70	0.00	15.85	98.13	-0.19
2230	0.00	20,797.00	0.50	0.00	17.19	98.14	-0.14
2231	0.00	9,978.00	0.00	0.00	17.03	98.10	-0.11
2232	0.00	11,686.00	0.60	0.00	17.83	98.09	-0.22
2233	0.00	10,960.00	0.00	0.00	17.63	98.08	-0.22
2234	0.00	15,227.00	0.30	0.00	17.09	98.13	-0.24
2235	0.00	15,038.00	0.00	0.00	17.49	98.13	-0.19
2236	0.00	24,610.00	0.80	0.00	15.87	98.09	-0.23
2237	0.00	5,037.00	0.00	0.00	13.74	98.12	-20.30

Table S7 The results of gas concentration measurements in the piezometers 23.01.2021

No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
2201	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2202	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2203	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2204	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2205	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2206	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2207	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2208	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2209	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2210	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2211	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2212	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2213	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2214	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2215	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2219	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2218	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2217	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2216	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown	Breakdown
2220	0.00	5,172	0.00	0.00	17.62	962.38	-0.26
2221	0.00	4,446	0.50	0.00	15.52	962.28	-15.02
2222	0.00	480	2.30	0.00	11.04	962.34	-30.45
2223	0.00	9,620	1.30	0.00	14.75	962.19	-16.97
2224	0.00	17,058	0.20	0.00	17.23	962.54	-0.26
2225	0.00	4,088	0.00	0.00	17.36	962.03	-3.53
2226	0.00	1,090	0.60	0.00	16.12	962.07	-15.25
2227	0.00	3,735	0.00	0.00	17.69	961.95	-0.26
2228	0.00	8,689	0.00	0.00	17.33	96.18	-0.20
2229	0.00	35,457	0.00	0.00	15.58	962.38	-0.22
2230	0.00	16,324	0.00	0.00	17.30	962.47	-0.27
2231	0.00	7,168	0.00	0.00	17.68	961.83	-0.33
2232	0.00	9,574	0.00	0.00	17.25	961.68	-0.24
2233	0.00	9,230	0.00	0.00	17.14	961.76	-0.31
2234	0.00	13,180	0.00	0.00	17.52	962.20	-0.23
2235	0.00	13,235	0.00	0.00	17.32	961.46	-0.22
2236	0.00	25,505	0.00	0.00	15.34	961.66	-0.28
2237	0.00	32,793	1.70	0.00	11.60	961.99	-34.90



Table S8 The results of gas concentration measurements in the piezometers February.

No.	08.02.2021		24.02.2021	
	CO2	O2	CO2	O2
	[ppm]	[%]	[ppm]	[%]
2201	2,043.00	19.70	2,887.00	19.68
2202	20,820.00	19.94	16,741.00	15.08
2203	8,867.00	18.03	13,917.00	14.95
2204	10,715.00	18.65	15,389.00	16.48
2205	1,212.00	20.36	45,059.00	16.29
2206	22,338.00	19.47	12,156.00	16.03
2207	23,463.00	17.78	18,810.00	20.04
2208	15,250.00	17.86	28,047.00	15.21
2209	20,756.00	11.08	13,405.00	15.66
2210	1,247.00	20.27	88.00	20.37
2211	4,060.00	20.29	105.00	20.35
2212	12,035.00	15.37	29,520.00	18.45
2213	2,561.00	19.90	6,838.00	19.23
2214	6,469.00	18.70	493.00	20.28
2215	108.00	20.36	255.00	20.33
2219	9,325.00	19.43	5,926.00	19.09
2218	31,506.00	12.96	9,183.00	16.07
2217	12,242.00	16.80	10,128.00	19.06
2216	792.00	20.12	512.00	20.35
2220	2,773.00	19.45	6,066.00	18.32
2221	24,026.00	18.86	1,007.00	19.96
2222	724.00	20.08	1,370.00	20.22
2223	7,110.00	17.37	966.00	20.11
2224	5,425.00	20.21	10,562.00	15.44
2225	11,098.00	15.03	3,682.00	19.19
2226	3,013.00	20.33	1,077.00	19.96
2227	517.00	20.15	368.00	20.30
2228	7,445.00	17.53	8,444.00	18.48
2229	25,378.00	14.75	14,322.00	17.20
2230	39,471.00	17.33	23,180.00	18.48
2231	14,065.00	17.44	5,980.00	19.77
2232	7,088.00	19.14	8,031.00	19.25
2233	7,912.00	17.99	12,357.00	17.30
2234	8,522.00	19.60	1,177.00	20.02
2235	4,391.00	19.81	4,654.00	19.72
2236	27,060.00	17.01	20,156.00	19.95
2237	2,750.00	19.83	1,965.00	19.42

Table S9 The results of gas concentration measurements in the piezometers March

No.	15.03.2021		23.03.2021	
	CO2	O2	CO2	O2
	[ppm]	[%]	[ppm]	[%]
2201	247.00	20.35	2,128.00	19.98
2202	20,684.00	18.96	10,203.00	19.45
2203	6,632.00	17.96	6,876.00	18.49
2204	6,941.00	17.76	9,052.00	18.90
2205	192.00	20.38	5,818.00	19.76
2206	8,012.00	17.28	9,560.00	20.13
2207	11,965.00	18.77	7,155.00	18.39
2208	2,571.00	19.12	9,300.00	16.42
2209	4,297.00	19.83	9,417.00	17.45
2210	585.00	20.19	69.00	20.37
2211	423.00	20.38	36.00	20.39
2212	11,396.00	19.75	6,138.00	17.87
2213	644.00	20.30	1,405.00	20.10
2214	5,474.00	18.40	347.00	20.35
2215	31.00	20.39	194.00	20.31
2219	8,254.00	19.56	939.00	20.17
2218	23,932.00	19.86	8,342.00	19.14
2217	7,954.00	18.50	3,679.00	19.51
2216	169.00	20.36	228.00	20.33
2220	1,120.00	19.90	1,700.00	20.24
2221	3,723.00	19.76	5.00	20.40
2222	686.00	20.36	595.00	20.34
2223	6,109.00	18.12	376.00	20.29
2224	3,385.00	18.92	6,652.00	19.37
2225	1,441.00	19.91	863.00	20.01
2226	2,496.00	19.73	601.00	20.29
2227	512.00	20.22	335.00	20.29
2228	4,913.00	18.35	7,038.00	19.31
2229	3,076.00	19.89	10,387.00	20.34
2230	29,212.00	19.25	14,481.00	17.22
2231	20,819.00	18.89	9,814.00	18.73
2232	7,892.00	20.07	6,653.00	19.11
2233	5,007.00	18.48	8,040.00	17.57
2234	6,519.00	19.37	721.00	20.22
2235	3,361.00	19.86	2,810.00	20.13
2236	24,932.00	17.49	18,045.00	18.98
2237	2,750.00	19.83	1,965.00	19.42



Table S10 The results of gas concentration measurements in the piezometers April

No.	07.04.2021		23.04.2021	
	CO2	O2	CO2	O2
	[ppm]	[%]	[ppm]	[%]
2201	280.00	20.29	231.00	20.33
2202	318.00	20.26	293.00	20.38
2203	181.00	20.36	108.00	20.39
2204	211.00	20.31	355.00	20.30
2205	473.00	20.17	122.00	20.35
2206	265.00	20.31	223.00	20.32
2207	116.00	20.38	152.00	20.35
2208	115.00	20.37	158.00	20.38
2209	22.00	20.39	327.00	20.36
2210	401.00	20.30	456.00	20.37
2211	330.00	20.35	439.00	20.29
2212	586.00	20.31	449.00	20.22
2213	120.00	20.39	45.00	20.40
2214	3.00	20.40	337.00	20.26
2215	48.00	20.39	305.00	20.29
2219	309.00	20.40	111.00	20.36
2218	239.00	20.40	51.00	20.39
2217	298.00	20.26	375.00	20.28
2216	198.00	20.40	1,213.00	20.29
2220	1,423.00	20.09	1,500.00	20.29
2221	3,728.00	18.91	285.00	20.35
2222	619.00	20.35	331.00	20.30
2223	384.00	20.26	2,599.00	19.22
2224	9,457.00	17.18	14,447.00	14.43
2225	246.00	20.39	1,325.00	19.93
2226	51.00	20.38	684.00	20.15
2227	52.00	20.37	594.00	20.15
2228	258.00	20.29	4,220.00	19.00
2229	7,967.00	19.96	23,174.00	18.78
2230	13,596.00	14.01	7,025.00	17.21
2231	4,086.00	18.42	2,894.00	19.15
2232	8,901.00	16.40	5,117.00	17.92
2233	7,911.00	18.99	10,203.00	18.64
2234	13.00	20.40	1,173.00	19.98
2235	850.00	20.21	12,021.00	18.51
2236	310.00	20.25	20,374.00	12.18
2237	264.00	20.30	975.00	20.15

Table S11 The results of gas concentration measurements in the piezometers 07.05.2021

No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
1	0.00	5,257.00	2.00	0.00	15.48	968.47	-250.65
2	0.00	6,521.00	0.80	0.00	16.57	969.63	-179.26
3	0.00	16,026.00	0.60	0.00	17.61	968.84	-82.94
4	0.00	15,409.00	2.30	0.00	12.74	968.80	-294.00
5	0.00	21,630.00	3.10	0.00	11.70	968.49	-269.43
2201	0.00	415.00	0.00	0.00	20.13	969.45	-1.10
2202	0.00	35,883.00	1.90	0.00	11.18	970.01	-121.38
2203	0.00	2,122.00	2.90	0.00	15.39	969.44	-25.70
2204	0.00	39,820.00	3.90	0.00	16.11	969.86	-324.91
2205	0.00	40,996.00	4.30	0.00	10.14	969.76	-87.16
2206	0.00	4,949.00	2.60	0.00	15.98	969.41	-222.22
2207	0.00	13,119.00	3.20	0.00	15.14	969.69	-269.05
2208	0.00	20,042.00	4.30	0.00	10.90	969.63	-394.51
2209	0.00	1,448.00	1.10	0.00	16.99	969.21	-151.98
2210	0.00	2,696.00	2.80	0.00	15.16	969.10	-256.00
2211	0.00	1,113.00	2.40	0.00	13.93	969.09	-321.21
2212	0.00	221.00	2.70	0.00	15.80	969.57	-214.69
2213	0.00	1,384.00	3.00	0.00	14.47	969.45	-207.23
2214	0.00	-	-	-	-	-	-
2215	0.00	39,842.00	1.70	0.00	14.18	969.63	-320.55
2216	0.00	1,194.00	11.80	0.00	12.87	969.45	-401.04
2217	0.00	7,287.00	4.80	0.00	13.41	969.35	-332.00
2218	0.00	948.00	2.40	0.00	16.26	969.26	-212.86
2219	0.00	2,002.00	2.90	0.00	14.73	969.25	-294.71
2220	0.00	10,983.00	2.00	0.00	18.74	969.33	-26.90
2221	0.00	957.00	9.40	0.00	15.57	969.46	-233.64
2222	0.00	880.00	10.40	0.00	12.19	969.13	-443.07
2223	0.00	1,154.00	14.70	0.00	16.13	969.38	-197.16
2224	0.00	35,040.00	2.80	0.00	16.81	968.38	-40.42
2225	0.00	14,410.00	0.10	0.00	19.12	969.10	-24.50
2226	0.00	4,234.00	2.10	0.00	16.65	969.18	-23.49
2227	0.00	10,109.00	2.40	0.00	18.54	969.17	-69.71
2228	0.00	11,087.00	3.80	0.00	19.14	969.26	-6.58
2229	0.00	38,488.00	0.60	0.00	14.93	968.67	-3.45
2230	0.00	14,779.00	3.40	0.00	18.46	969.25	-26.72
2231	0.00	16,911.00	0.20	0.00	19.14	968.74	-8.90
2232	0.00	19,131.00	0.00	0.00	18.77	968.84	-6.04
2233	0.00	5,057.00	0.60	0.00	19.32	968.87	-24.50
2234	0.00	13,403.00	0.20	0.00	18.05	969.22	-26.19
2235	0.00	14,540.00	0.90	0.00	18.38	969.03	-25.60
2236	0.00	32,406.00	0.50	0.00	11.54	968.87	-7.00
2237	0.00	403.00	0.00	0.00	20.01	969.18	-1.49

Table S12 The results of gas concentration measurements in the piezometers 10.05.2021r

No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
1	0.00	447.00	0.00	0.00	19.73	977.08	-21.75
2	0.00	1,098.00	0.80	0.00	19.60	977.05	-27.36
3	0.00	1,340.00	0.00	0.00	19.56	976.56	-27.72
4	0.00	409.00	0.00	0.00	19.65	976.92	-25.37
5	0.00	525.00	2.80	0.00	19.60	976.82	-32.68
2201	0.00	398.00	0.00	0.00	18.83	976.01	-42.77
2202	0.00	384.00	0.00	0.00	19.04	975.76	-32.18
2203	0.00	521.00	0.00	0.00	19.29	975.85	-21.97
2204	0.00	367.00	0.00	0.00	19.41	975.75	-14.78
2205	0.00	708.00	0.00	0.00	19.04	975.81	-31.99
2206	0.00	3,325.00	0.00	0.00	19.11	975.78	-20.04
2207	0.00	367.00	0.00	0.00	19.35	975.80	-17.95
2208	0.00	580.00	0.00	0.00	18.49	975.89	-39.05
2209	0.00	674.00	0.00	0.00	19.00	975.98	-37.84
2210	0.00	468.00	0.00	0.00	19.25	976.01	-25.31
2211	0.00	397.00	0.00	0.00	19.74	976.16	-13.85
2212	0.00	709.00	0.00	0.00	19.69	976.06	-18.56
2213	0.00	572.00	0.00	0.00	19.64	975.96	-22.34
2214	0.00	415.00	0.00	0.00	19.58	975.92	-25.28
2215	0.00	368.00	0.00	0.00	19.23	975.95	-46.07
2216	0.00	561.00	0.00	0.00	19.57	975.88	-22.05
2217	0.00	397.00	0.00	0.00	19.27	975.98	-39.75
2218	0.00	454.00	0.00	0.00	19.29	975.95	-39.26
2219	0.00	420.00	0.00	0.00	19.25	975.86	-38.59
2220	0.00	3,087.00	0.00	0.00	19.23	975.94	-26.68
2221	0.00	3,791.00	0.00	0.00	19.12	975.95	-51.10
2222	0.00	1,093.00	0.00	0.00	19.06	975.86	-50.98
2223	0.00	759.00	0.00	0.00	19.02	975.91	-51.31
2224	0.00	11,543.00	8.50	0.00	19.38	976.84	-21.92
2225	0.00	712.00	0.00	0.00	19.68	975.83	-22.77
2226	0.00	648.00	0.00	0.00	19.55	975.61	-27.30
2227	0.00	727.00	0.00	0.00	19.44	976.17	-32.18
2228	0.00	412.00	0.00	0.00	19.92	976.32	-13.50
2229	0.00	9,826.00	0.00	0.00	18.72	976.44	-25.33
2230	0.00	2,885.00	29.60	0.00	19.73	976.68	-18.17
2231	0.00	422.00	2.80	0.00	18.68	976.01	-22.24
2232	0.00	418.00	0.00	0.00	19.74	976.26	-23.43
2233	0.00	453.00	0.00	0.00	19.89	976.17	-16.67
2234	0.00	904.00	26.40	0.00	19.90	976.49	-13.03
2235	0.00	1,314.00	122.70	0.00	19.74	976.48	-17.33
2236	0.00	402.00	0.00	0.00	19.93	976.32	-13.15
2237	0.00	1,142.00	111.40	0.00	19.25	976.40	-39.69

Table S13 The results of gas concentration measurements in the piezometers 11.05.2021r

No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
2201	0.00	346.00	0.00	0.00	19.46	973.65	-29.42
2202	0.00	455.00	0.00	0.00	19.22	973.42	-40.53
2203	0.00	369.00	0.00	0.00	19.29	973.28	-33.34
2204	0.00	361.00	0.00	0.00	19.55	973.36	-26.42
2205	0.00	346.00	0.00	0.00	19.65	973.39	-19.40
2206	0.00	42.00	0.00	0.00	19.55	973.51	-16.96
2207	0.00	572.00	0.00	0.00	19.62	973.55	-19.51
2208	0.00	362.00	0.00	0.00	19.62	973.50	-21.92
2209	0.00	661.00	0.00	0.00	19.34	973.43	-28.79
2210	0.00	519.00	0.00	0.00	19.74	973.37	-12.64
2211	0.00	587.00	0.00	0.00	19.58	973.63	-19.11
2212	0.00	465.00	0.00	0.00	19.40	973.72	-29.32
2213	0.00	350.00	0.00	0.00	19.51	973.75	-26.91
2214	0.00	375.00	0.00	0.00	19.16	973.81	-42.78
2215	0.00	438.00	0.00	0.00	18.64	973.83	-66.68
2219	0.00	401.00	0.00	0.00	18.64	973.80	-68.29
2218	0.00	494.00	0.00	0.00	19.10	973.85	-13.50
2217	0.00	486.00	0.00	0.00	18.69	973.91	-61.75
2216	0.00	1,640.00	0.00	0.00	18.36	973.86	-69.86
2220	0.00	2,068.00	0.00	0.00	19.49	973.79	-6.36
2221	0.00	429.00	0.00	0.00	19.49	973.84	-23.85
2222	0.00	512.00	0.00	0.00	19.50	973.89	-25.16
2223	0.00	8,558.00	0.00	0.00	19.23	973.88	-26.36
2224	0.00	20,829.00	1,644.20	0.00	17.83	974.32	-6.56
2225	0.00	13,729.00	214.10	0.00	19.29	974.24	-7.08
2226	0.00	3,428.00	24.00	0.00	19.21	973.93	-26.63
2227	0.00	868.00	10.20	0.00	19.32	973.80	-22.48
2228	0.00	8,631.00	0.00	0.00	19.08	973.65	-5.87
2229	0.00	30,511.00	154.00	0.00	16.52	973.82	-5.82
2230	0.00	18,758.00	1,886.40	0.00	19.13	974.35	-7.05
2231	0.00	12,803.00	235.90	0.00	18.90	973.97	-6.61
2232	0.00	21,677.00	57.50	0.00	18.39	973.96	-6.34
2233	0.00	13,460.00	15.20	0.00	19.35	973.80	-6.50
2234	0.00	8,077.00	268.50	0.00	19.60	974.09	-6.83
2235	0.00	14,491.00	2,245.70	0.00	19.34	974.06	-8.94
2236	0.00	24,173.00	180.90	0.00	13.36	973.87	-6.60
2237	0.00	6,943.00	298.20	0.00	19.34	974.14	-36.02
1	0.00	624.00	50.00	0.00	19.20	974.64	-39.09
2	0.00	609.00	62.80	0.00	19.24	974.56	-37.16
3	0.00	1,128.00	45.00	0.00	19.53	974.38	-25.69
4	0.00	845.00	60.80	0.00	19.38	974.41	-30.85
5	0.00	6,728.00	183.10	0.00	19.51	974.45	-25.32

Table S14 The results of gas concentration measurements in the piezometers 13.05.2021r

No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
1	0.00	5,284.00	0.00	0.00	16.50	962.74	-155.01
2	0.00	670.00	0.00	0.00	17.45	962.68	-113.84
3	0.00	693.00	0.00	0.00	18.41	962.63	-66.97
4	0.00	1,344.00	0.00	0.00	16.57	962.45	-149.48
5	0.00	1,461.00	0.00	0.00	16.55	962.49	-151.85
2201	0.00	18,740.00	0.00	0.00	16.08	962.61	-160.06
2202	0.00	16,279.00	0.00	0.00	13.78	962.63	-74.04
2203	0.00	1,275.00	0.00	0.00	16.64	962.61	-155.71
2204	0.00	1,714.00	0.00	0.00	16.51	962.73	-155.66
2205	0.00	22,414.00	0.00	0.00	11.40	962.80	-97.19
2206	0.00	26,370.00	0.00	0.00	16.23	962.75	-139.22
2207	0.00	951.00	0.00	0.00	16.93	962.65	-148.33
2208	0.00	1,054.00	0.00	0.00	16.99	962.71	-138.02
2209	0.00	651.00	0.00	0.00	17.96	962.78	-99.54
2210	0.00	1,264.00	0.00	0.00	17.20	962.94	-125.81
2211	0.00	364.00	0.00	0.00	16.87	962.15	-144.06
2212	0.00	703.00	0.00	0.00	16.94	962.36	-152.13
2213	0.00	1,535.00	0.00	0.00	17.01	962.52	-136.97
2214	0.00	1,547.00	0.00	0.00	16.98	962.54	-141.90
2215	0.00	909.00	0.00	0.00	17.01	962.72	-146.87
2216	0.00	341.00	0.00	0.00	16.58	962.20	-162.33
2217	0.00	699.00	0.00	0.00	16.89	962.14	-143.89
2218	0.00	882.00	0.00	0.00	16.95	962.11	-144.81
2219	0.00	952.00	0.00	0.00	16.54	962.18	-156.86
2220	0.00	75,414.00	0.00	0.00	19.15	962.18	-5.13
2221	0.00	3,201.00	0.00	0.00	16.86	962.17	-144.12
2222	0.00	1,353.00	0.00	0.00	16.50	962.11	-163.22
2223	0.00	1,119.00	0.00	0.00	17.11	962.12	-136.64
2224	0.00	24,367.00	0.00	0.00	16.68	962.23	-4.62
2225	0.00	-	-	-	-	-	-
2226	0.00	4,026.00	0.00	0.00	17.40	962.29	-12.72
2227	0.00	6,484.00	0.00	0.00	19.28	962.21	-11.52
2228	0.00	8,430.00	0.00	0.00	19.40	961.97	-6.10
2229	0.00	41,828.00	0.00	0.00	14.76	962.06	-4.34
2230	0.00	412,024.00	0.00	0.00	18.44	961.97	-4.32
2231	0.00	12,223.00	0.00	0.00	18.95	962.03	-6.15
2232	0.00	29,573.00	0.00	0.00	18.72	962.18	-5.81
2233	0.00	7,648.00	0.00	0.00	19.49	962.15	-6.01
2234	0.00	9,660.00	0.00	0.00	19.19	961.60	-4.39
2235	0.00	16,596.00	0.00	0.00	18.97	961.78	-4.36
2236	0.00	34,484.00	0.00	0.00	20.35	962.13	-6.19
2237	0.00	23,740.00	0.00	0.00	15.48	961.62	-151.54

Table S15 The results of gas concentration measurements in the piezometers 14.05.2021r

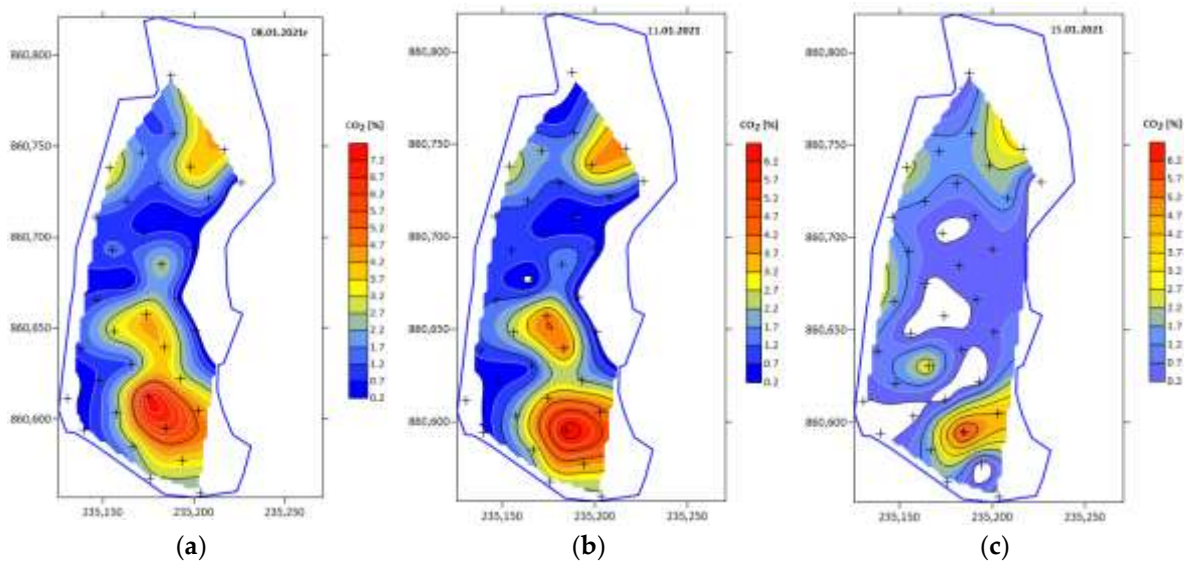
No.	CH4	CO2	PID	TP	O2	P	delP
	[ppm]	[ppm]	[ppm]	[ppm]	[%]	kPa	kPa
1	0.00	944.00	0.70	0.00	17.29	965.64	-133.03
2	0.00	844.00	0.50	0.00	18.04	965.77	-98.40
3	0.00	845.00	3.10	0.00	18.33	965.83	-83.51
4	0.00	858.00	1.20	0.00	17.61	965.74	-116.41
5	0.00	1,139.00	0.60	0.00	17.55	965.61	-118.58
2201	0.00	12,880.00	1.70	0.00	17.02	965.96	-127.75
2202	0.00	12,080.00	0.70	0.00	17.40	965.78	-118.58
2203	0.00	906.00	0.20	0.00	17.49	965.59	-120.48
2204	0.00	1,327.00	0.30	0.00	17.28	965.54	-130.33
2205	0.00	14,719.00	0.30	0.00	14.03	965.48	-91.48
2206	0.00	16,510.00	0.20	0.00	16.85	965.52	-124.82
2207	0.00	798.00	0.10	0.00	17.71	965.45	-113.17
2208	0.00	883.00	0.20	0.00	17.46	965.34	-123.84
2209	0.00	930.00	0.10	0.00	18.14	965.24	-98.64
2210	0.00	1,160.00	0.30	0.00	17.25	965.12	-124.58
2211	0.00	424.00	0.80	0.00	16.69	964.76	-163.66
2212	0.00	1,145.00	0.50	0.00	16.67	964.90	-156.30
2213	0.00	1,293.00	0.30	0.00	16.76	964.89	-147.17
2214	0.00	1,682.00	0.30	0.00	16.90	964.80	-145.27
2215	0.00	1,357.00	0.40	0.00	16.67	964.96	-152.80
2216	0.00	419.00	0.40	0.00	16.35	964.78	-192.73
2217	0.00	717.00	0.00	0.00	16.53	964.67	-171.33
2218	0.00	1,036.00	0.50	0.00	16.96	964.54	-164.63
2219	0.00	584.00	0.00	0.00	16.09	964.63	-155.70
2220	0.00	11,472.00	0.20	0.00	17.21	964.47	-127.13
2221	0.00	5,020.00	0.40	0.00	16.85	964.33	-168.65
2222	0.00	1,428.00	0.40	0.00	16.41	964.47	-178.25
2223	0.00	1,270.00	0.30	0.00	17.45	964.43	-137.35
2224	0.00	20,290.00	0.20	0.00	16.93	965.59	-25.53
2225	0.00	9,100.00	0.00	0.00	19.42	964.44	-27.93
2226	0.00	8,434.00	0.00	0.00	16.08	964.54	-193.03
2227	0.00	5,284.00	0.00	0.00	18.24	964.57	-79.88
2228	0.00	8,934.00	0.00	0.00	18.49	964.42	-4.88
2229	0.00	30,007.00	0.50	0.00	15.84	965.57	-26.28
2230	0.00	29,884.00	0.10	0.00	18.19	965.47	-27.58
2231	0.00	14,406.00	0.00	0.00	18.93	963.88	-6.27
2232	0.00	16,460.00	0.00	0.00	18.73	963.98	-5.23
2233	0.00	9,504.00	0.00	0.00	19.72	964.29	-5.38
2234	0.00	8,988.00	0.00	0.00	18.97	965.40	-28.05
2235	0.00	-	-	-	-	-	-
2236	0.00	21,159.00	0.00	0.00	14.99	963.99	-5.79
2237	0.00	9,288.00	0.30	0.00	16.06	965.32	-132.56

### 1.3. Discussion

In order to establish a background pattern for gas concentrations in the soil air, maps of CO<sub>2</sub> and O<sub>2</sub> concentration for months from January to May were developed based on gas measurements. Maps of gas concentrations were developed using Surfer 15 software.

Due to the differentiation of the measurement results on individual measurement series, maps of average content of gases were developed illustrating background pattern for CO<sub>2</sub> and O<sub>2</sub> concentrations in the soil air in individual measurement series and in particular months. The maps showing a background pattern for gas concentrations in the soil air will be treated as a reference points for investigating potential migration of injected CO<sub>2</sub> towards the surface.

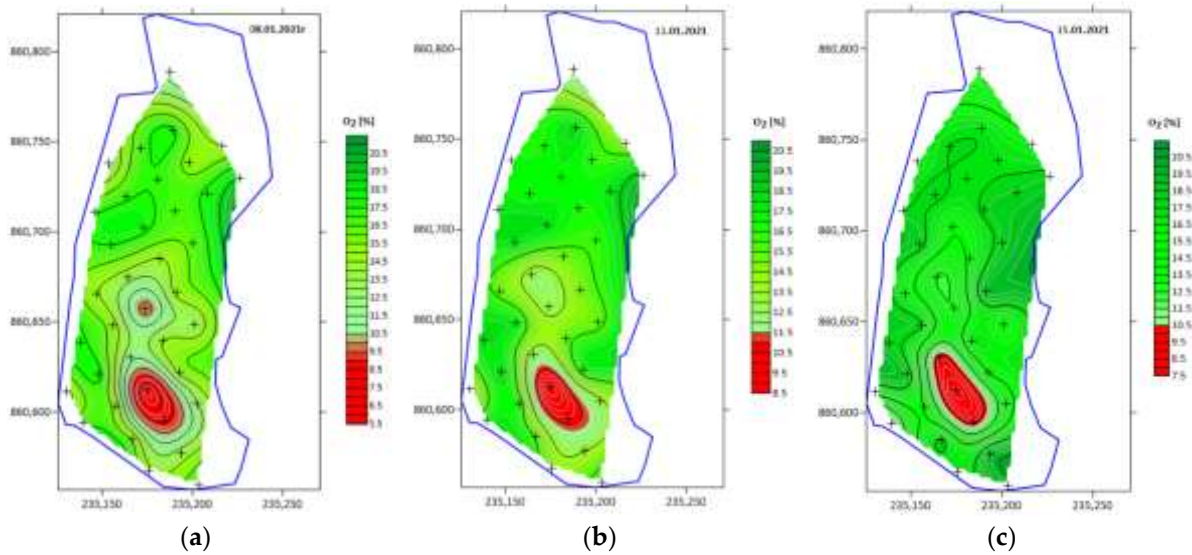
Four series of measurements were performed in January but last serie of measurement was incomplete due to damage of the equipment. Maps of CO<sub>2</sub> concentration in soil gas based on three measurement series are shown in Fig. S15, S16.



**Fig. S15** The graphical representation of results of CO<sub>2</sub> concentration measurements:

a) 08.01.2021, b) 11.01.2021, c) 15.01.2021





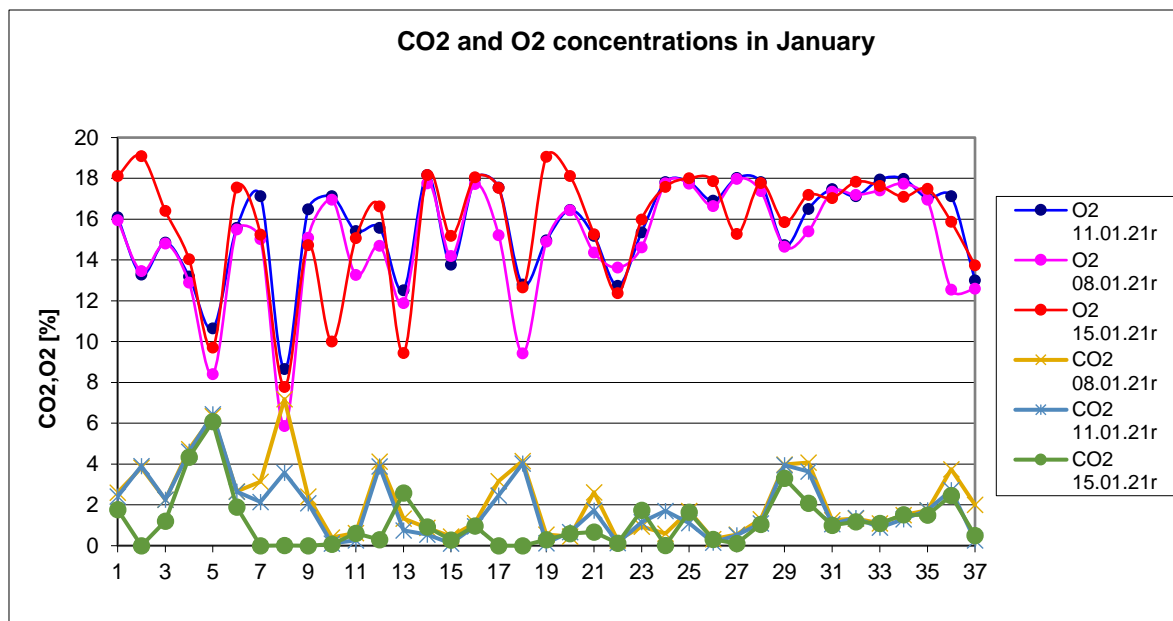
**Fig. S16** The graphical representation of results of O<sub>2</sub> concentration measurements:  
a) 08.01.2021, b) 11.01.2021, c) 15.01.2021

The results indicate that there are two large maxima located in the southern and northern parts of the studied area with values above 6% CO<sub>2</sub> (south) and 4% CO<sub>2</sub> (north). In majority of the area, the values didn't exceed 1.6% CO<sub>2</sub>.

The maps of oxygen concentration in the soil air, based on the measurements taken on 08.01, 11.01, 15.01.2021, are shown in Fig. 16. On the map of O<sub>2</sub> concentration on 08.01.2021 we can observe that the lowest concentration values are located in the southern and central parts of the studied area with values from 8% to 10% in part S with dimensions of 40x30 m and values to 9,5% in central part with dimensions of 10x10 m. The area with low oxygen values up to 9.5% in the central part is no longer visible on the maps of oxygen content in the soil air for measurements on 11.01.21 and 15.01.21. In the remaining area, the oxygen content in the soil air reaches the standard values of 19-20%.

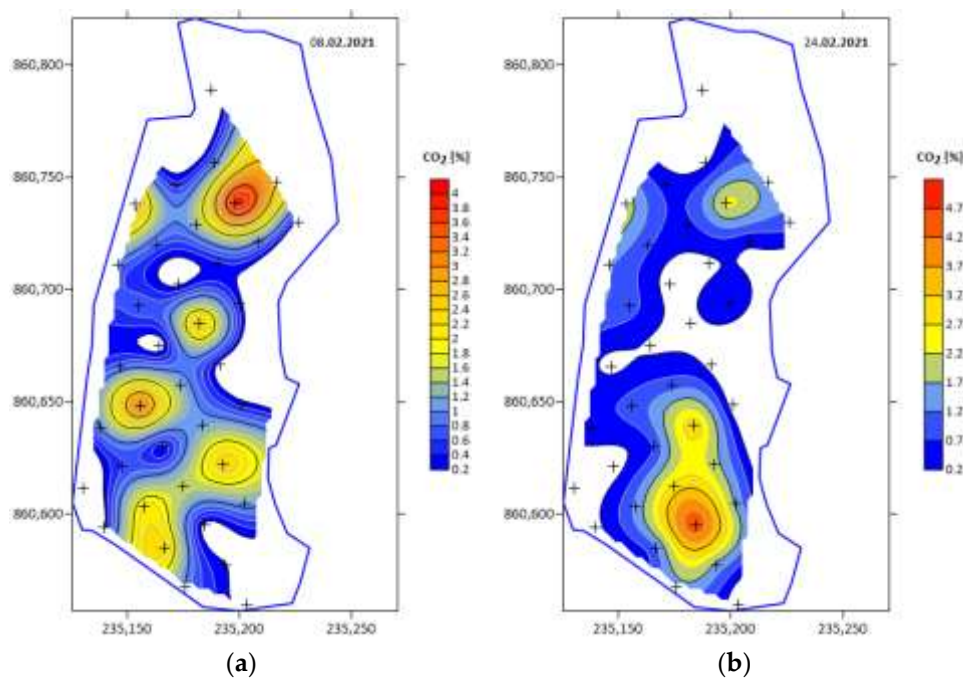
Minimum, maximum and average values of CO<sub>2</sub> and O<sub>2</sub> content measured for each day of January are presented below.

Date	O <sub>2</sub> content, %			CO <sub>2</sub> content, %		
	min	max	average	min	max	average
<b>08.01.2021</b>	5.86	17.98	14.91	0.26	6.35	2.2
<b>11.01.2021</b>	8.65	18.16	15.64	0.113	6.439	1.85
<b>15.01.2021</b>	9.44	19.09	15.74	0.26	6.35	2.2
<b>January</b>	5.86	19.09	15.43	0.113	6.35	1.73

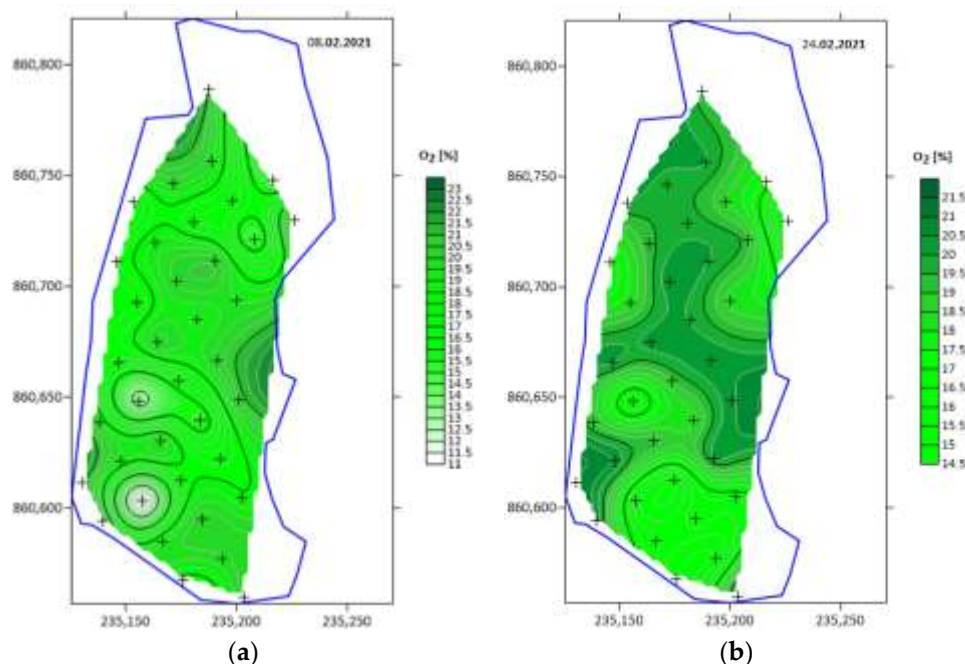


**Fig. S17** CO<sub>2</sub> and O<sub>2</sub> concentrations measured for each piezometer in January

The results of measurement carried out in February are presented in Fig. S18 and Fig. S19.



**Fig. S18** The graphical representation of results of CO<sub>2</sub> concentration measurements:  
a) 08.02.2021, b) 24.02.2021



**Fig. S19** The graphical representation of results of O<sub>2</sub> concentration measurements:

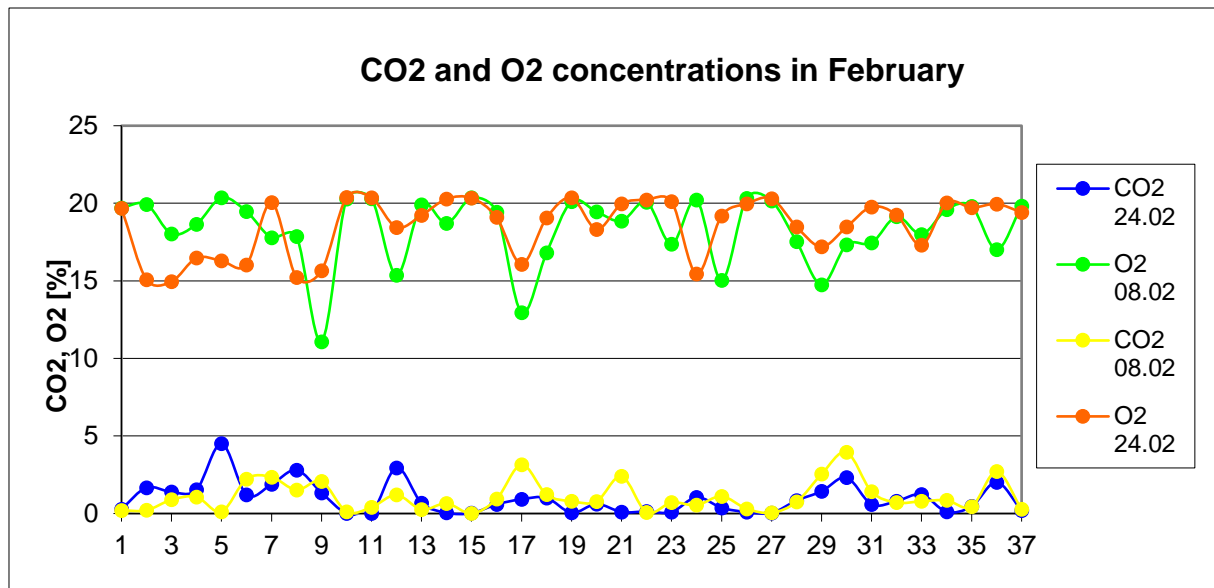
a) 08.02.2021, b) 24.02.2021

The CO<sub>2</sub> concentration has changed in relation to the previous month - the maximum values reached 6% in the northern region (02/08/21) and there were four smaller peaks of up to 4% in the central and southern regions. On February 24 a maximum of 5% was visible located in the southern part of the area. In the northern region the CO<sub>2</sub> value dropped to 2%. The remaining part of the area was characterized by values up to 1.7%.

The O<sub>2</sub> content also changed compared to January - the average O<sub>2</sub> content reached the value of 18%. At the beginning of the month, there was one minimum in the southwestern part of the area, with values reaching 11% O<sub>2</sub>. In the remaining areas, the O<sub>2</sub> value in the soil air shows standard results of 17-21%.

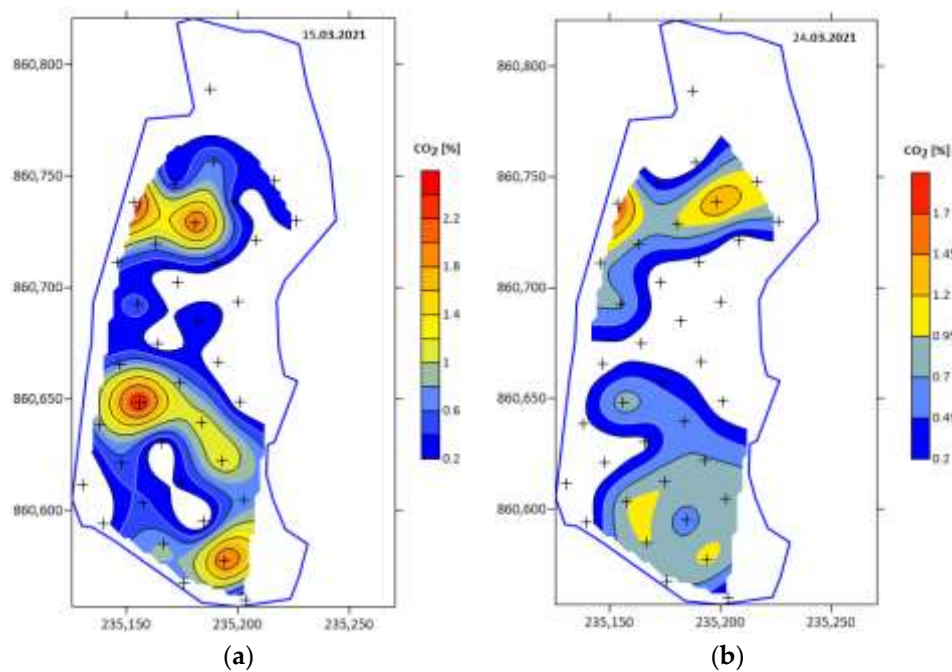
Minimum, maximum and average values of CO<sub>2</sub> and O<sub>2</sub> content measured for each day of February are presented below.

Date	O <sub>2</sub> content, %			CO <sub>2</sub> content, %		
	min	max	average	min	max	average
<b>08.02.2021</b>	14.75	20.29	18.35	0.01	3.95	1.08
<b>24.02.2021</b>	14.95	20.37	18.54	0.01	4.51	0.96
<b>February</b>	14.75	20.37	18.45	0.01	4.51	1.02



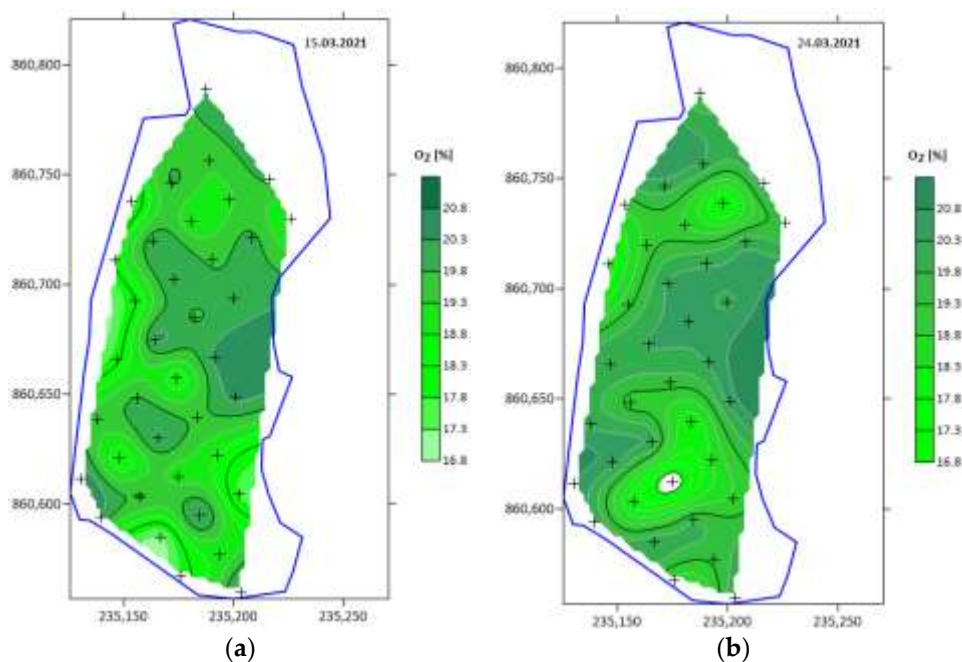
**Fig. S20** CO<sub>2</sub> and O<sub>2</sub> concentrations measured for each piezometer in February

The results of measurement carried out in March are presented in Fig. S21 and Fig. S22.



**Fig. S21** The graphical representation of results of CO<sub>2</sub> concentration measurements:

a) 15.03.2021, b) 24.03.2021



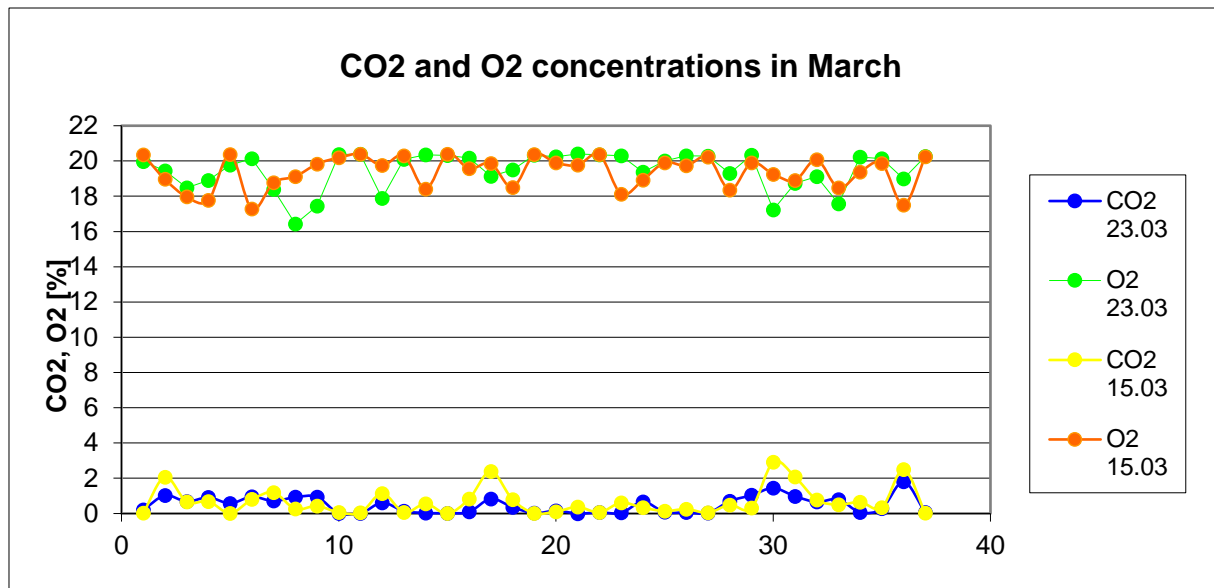
*Fig. S22 The graphical representation of results of O<sub>2</sub> concentration measurements:  
a) 15.03.2021, b) 24.03.2021*

In March the maximum values reached 2.3% in the northern, central and southern parts of the area (03/15/21). On March 24 one maximum up to 1.8%, was visible located in the southern part of the area. In general the overall CO<sub>2</sub> content in the soil air dropped to 1.5%.

Measured O<sub>2</sub> content in March was standard, ranging from 18% to 20.5%. The obtained results are shown in Fig. 23

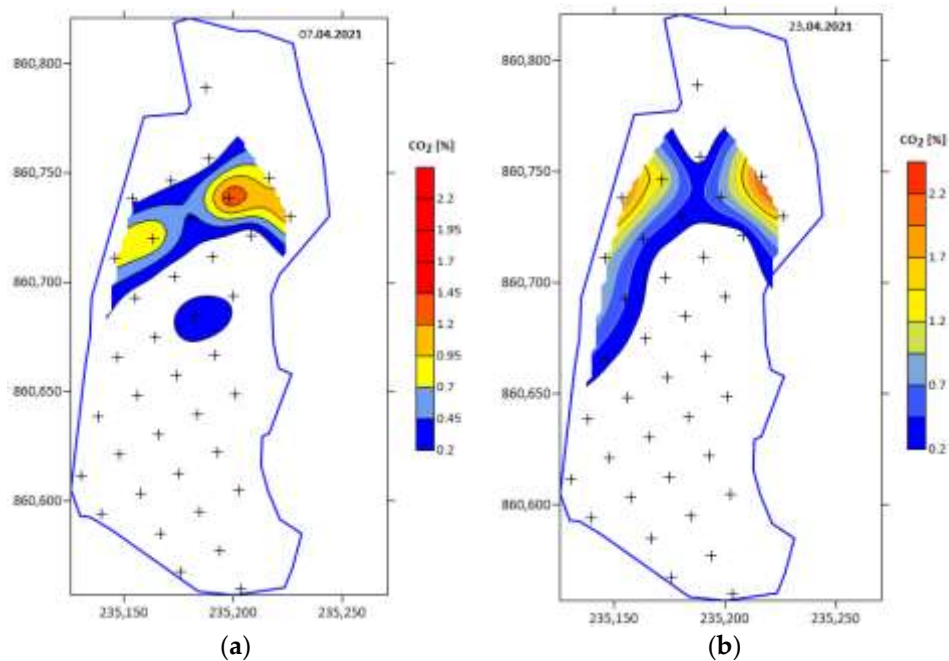
Minimum, maximum and average values of CO<sub>2</sub> and O<sub>2</sub> content measured for each day of March are presented below.

Date	O <sub>2</sub> content, %			CO <sub>2</sub> content, %		
	min	max	average	min	max	average
<b>15.03.2021</b>	17.28	20.38	19.38	0.02	2.92	0.66
<b>24.03.2021</b>	17.45	20.34	19.47	0.02	1.80	0.49
<b>March</b>	17.28	20.38	19.42	0.02	2.92	0.57



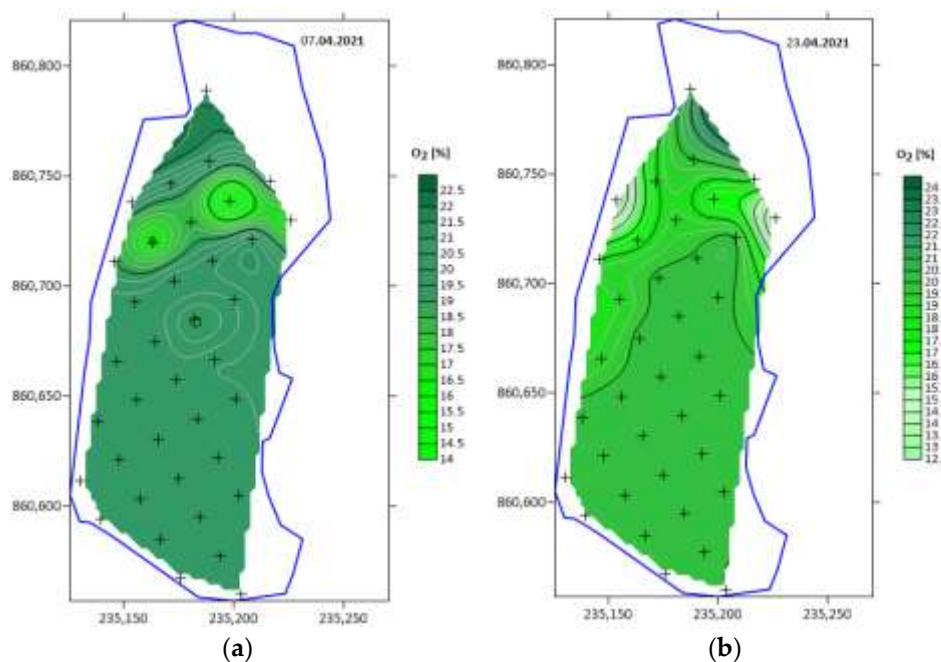
*Fig.S23 CO2 and O2 concentrations measured for each piezometer in March*

The results of measurement carried out in April are presented in Fig. S24 and Fig. S25.



*Fig. S24 The graphical representation of results of CO2 concentration measurements:  
a) 07.04.2021, b) 23.04.2021*





*Fig. S25 The graphical representation of results of O<sub>2</sub> concentration measurements:  
a) 07.04.2021, b) 23.04.2021*

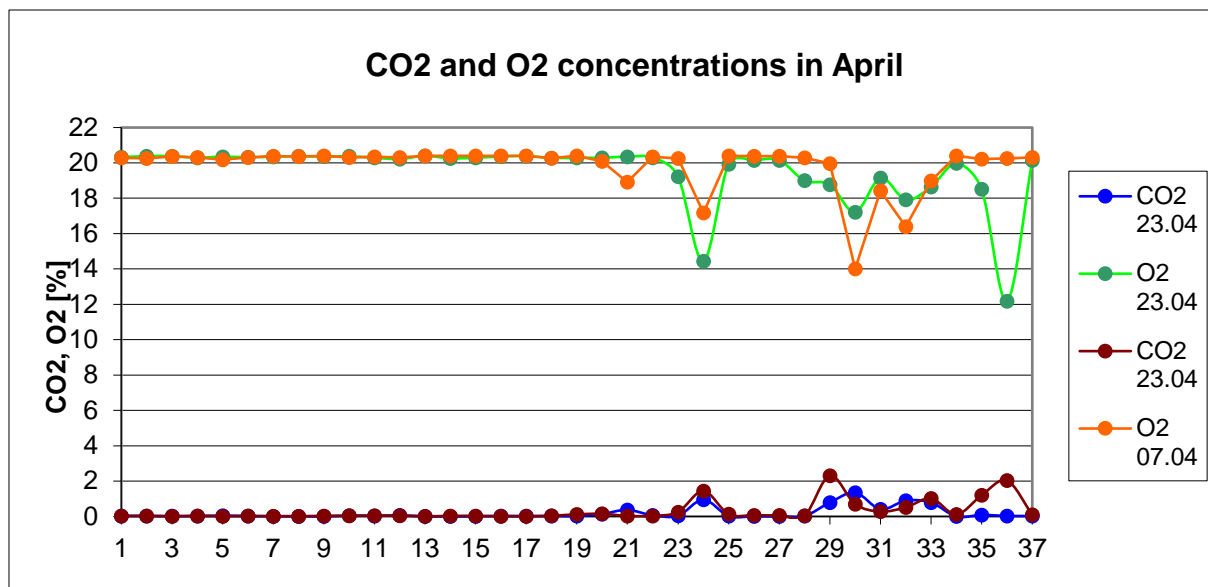
The CO<sub>2</sub> content has changed significantly in April with the maximum values of only 2.3% in the northern part. The majority of area is free of CO<sub>2</sub> content.

The O<sub>2</sub> concentration in the soil air in April is presented in Fig. S26. At the beginning of the month in the northern part of the study area, slight oxygen drops to the value of 14% were observed, and at the end of the month to 12.5%. In the majority of points the oxygen content remained at standard values.

Minimum, maximum and average values of CO<sub>2</sub> and O<sub>2</sub> content measured for each day of April are presented below.

Date	O <sub>2</sub> content, %			CO <sub>2</sub> content, %		
	min	max	average	min	max	average
<b>7.04.2021</b>	14.00	20.39	19.83	0.002	1.35	0.17
<b>23.04.2021</b>	12.18	20.39	19.53	0.05	2.31	0.29
<b>April</b>	12.18	20.39	19.68	0.002	2.31	0.23





*Fig. S26 CO2 and O2 concentrations measured for each piezometer in April*

The results of measurement carried out in May are presented in Fig. S27 and Fig. S28.

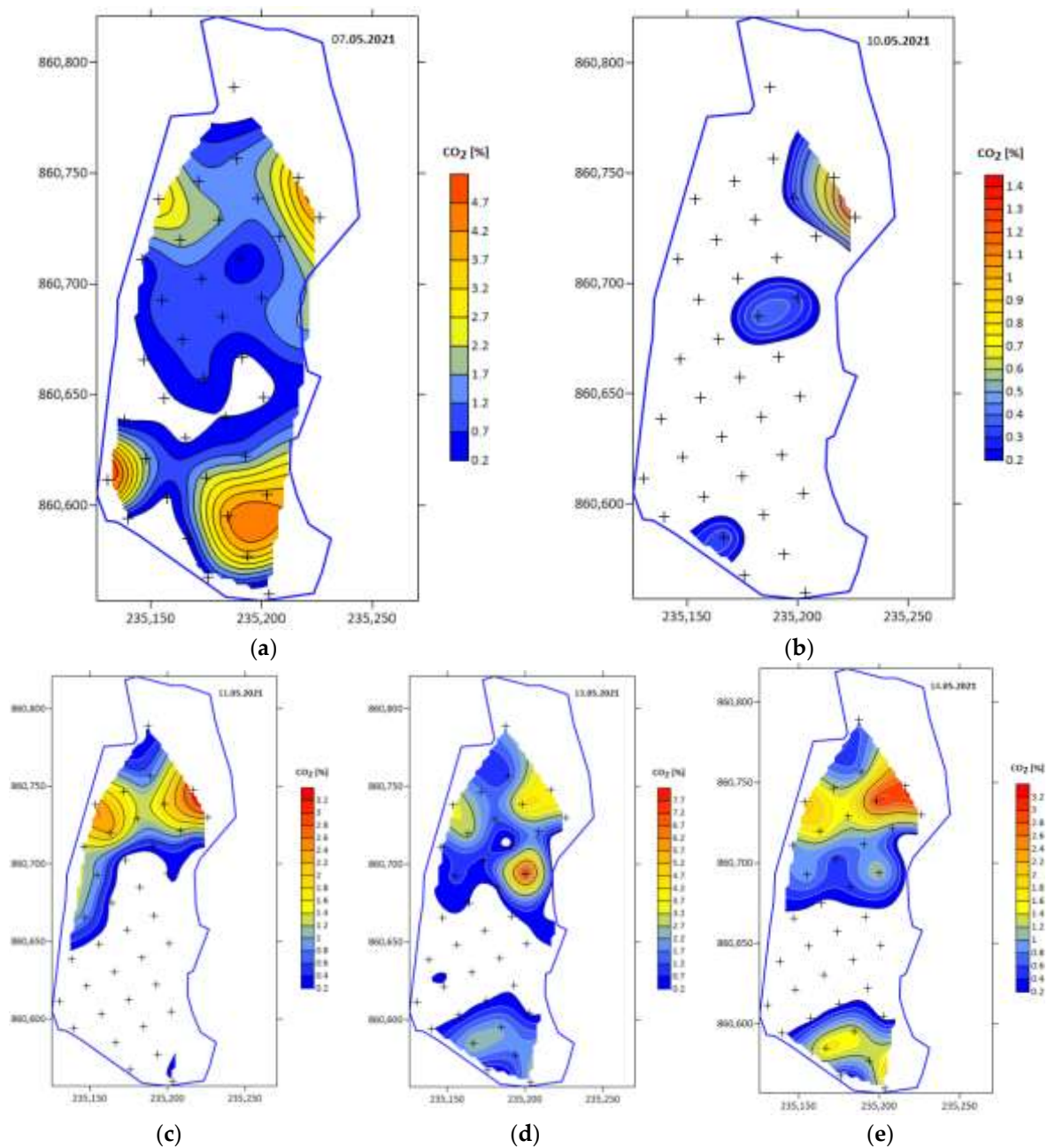
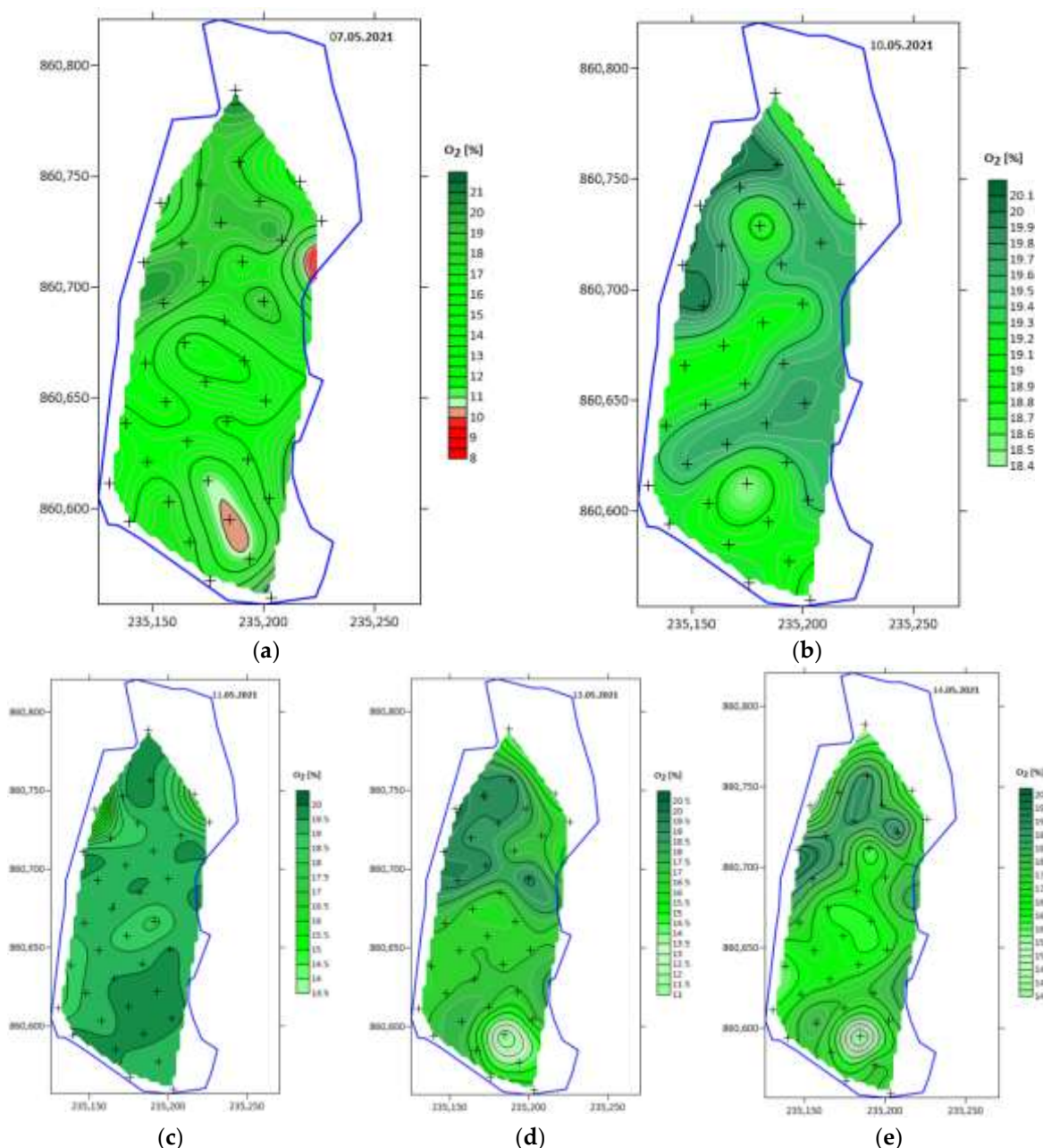


Fig. S27 The graphical representation of results of CO<sub>2</sub> concentration measurements:

a) 07.05.21, b) 10.05.21, c) 11.05.21, d) 13.05.21, e) 14.05.21



*Fig. S28 The graphical representation of results of CO<sub>2</sub> concentration measurements:*

*a) 07.05.21, b) 10.05.21, c) 11.05.21, d) 13.05.21, e) 14.05.21*

The measured CO<sub>2</sub> content in May is varied in terms of maximum values - on 07.05 two local maximums of 4.8% were observed in the southern part of the area and in the north-eastern part, while on 10.05 a significant decrease in CO<sub>2</sub> content to the maximum value of 1.5% is visible. In the north-eastern part, the entire remaining area is characterized by negligible values of maximum 0.3%. In the next days we could observe a renewed increase in CO<sub>2</sub> value with the visible maximum of 3.6% (May 11) and 7.7% (May 13) in the northern part and then a further decrease to 3.3% on May 14.

The O<sub>2</sub> content varied as well - a local anomaly in the southern part of the study area ranging from 8% to 12% was observed on May 7, May 13, and May 14. In the remaining monitored area O<sub>2</sub> values were in the standard range of 19-20% (Fig. S29).

Minimum, maximum and average values of CO<sub>2</sub> and O<sub>2</sub> content measured for each day of April are presented below.

Date	O <sub>2</sub> content, %			CO <sub>2</sub> content, %		
	min	max	average	min	max	average
<b>7.05.2021</b>	11.18	20.13	15.81	0.002	3.58	1.32
<b>10.05.2021</b>	18.68	19.93	19.39	0.04	1.15	0.13
<b>11.05.2021</b>	13.36	19.65	19.5	0.04	3.05	0.56
<b>13.05.2021</b>	11.40	20.35	17.16	0.03	4.18	1.09
<b>14.05.2021</b>	11.40	20.35	17.16	0.03	4.18	1.09
<b>May</b>	11.18	20.35	17.80	0.002	4.18	0.84

In order to establish a background pattern for gas concentrations in the soil air, maps of average CO<sub>2</sub> and O<sub>2</sub> concentration for months from January to May were developed based on gas measurements.. The figures below show the background of CO<sub>2</sub> and O<sub>2</sub> content in January (Fig. S30), February (Fig. S31), March (Fig. S32), April (Fig. S33) and May (Fig. S34).

The results of the research on the natural background pattern for gas concentrations in the soil air in the area of the planned CO<sub>2</sub> injection borehole constitute a reference level against which the results obtained in subsequent stages of the research can be compared.

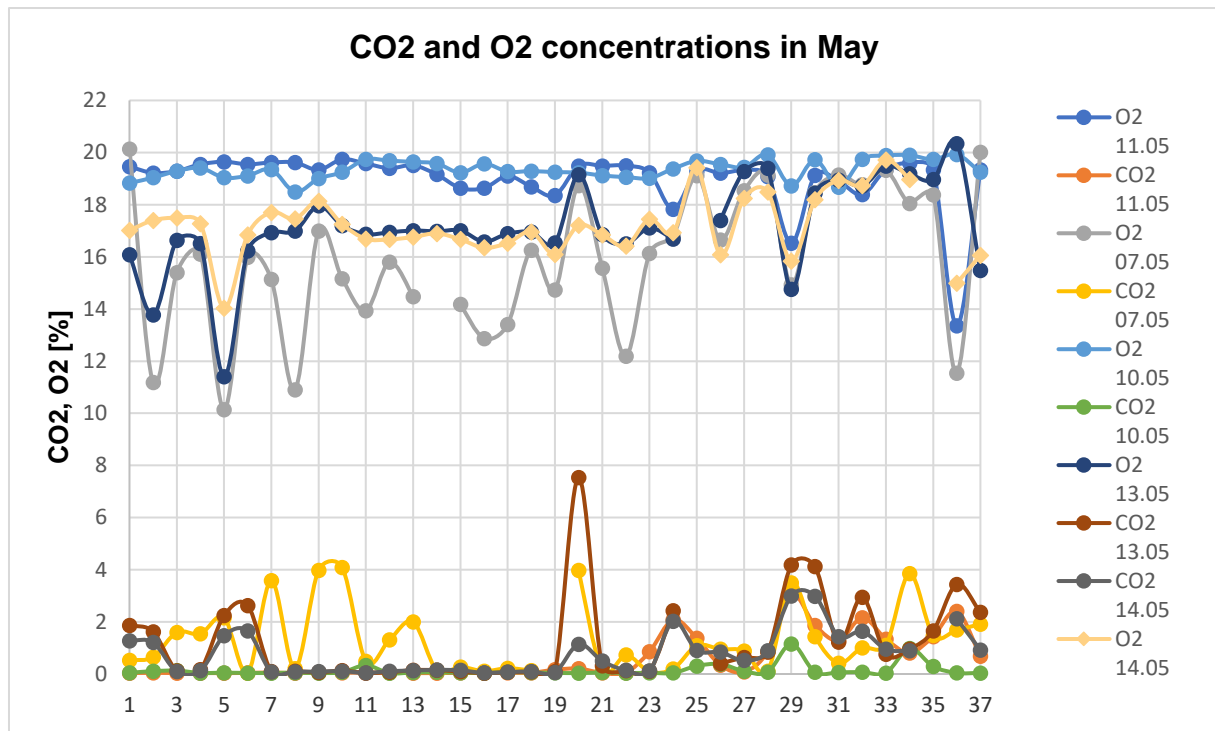


Fig. S29 CO2 and O2 concentrations measured for each piezometer in May

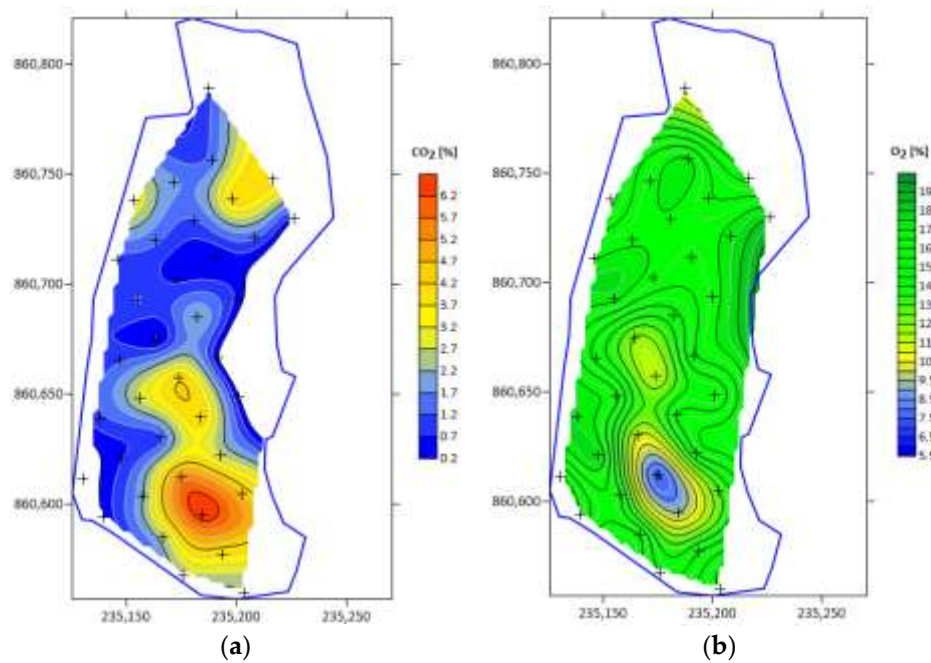
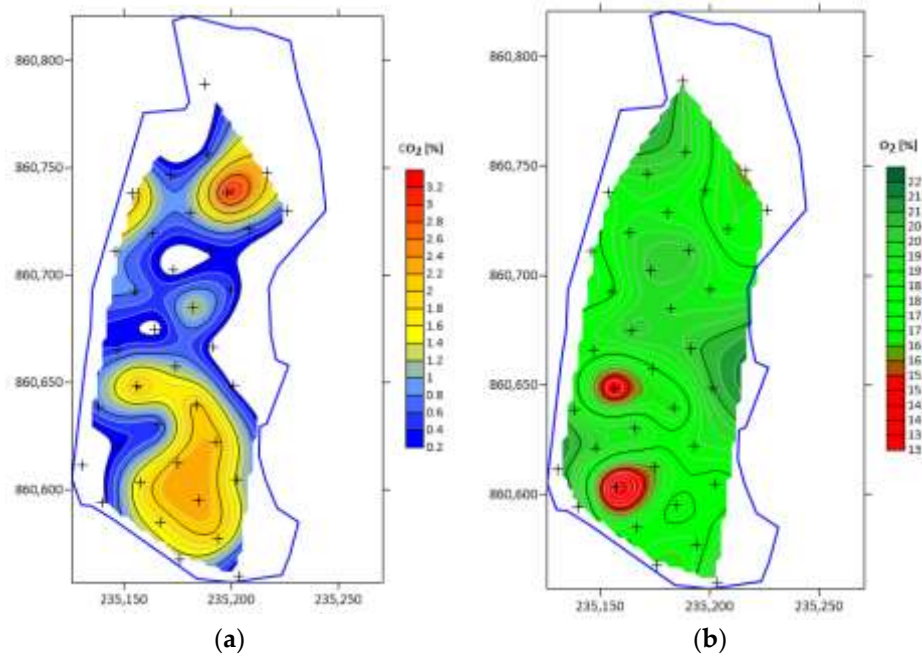
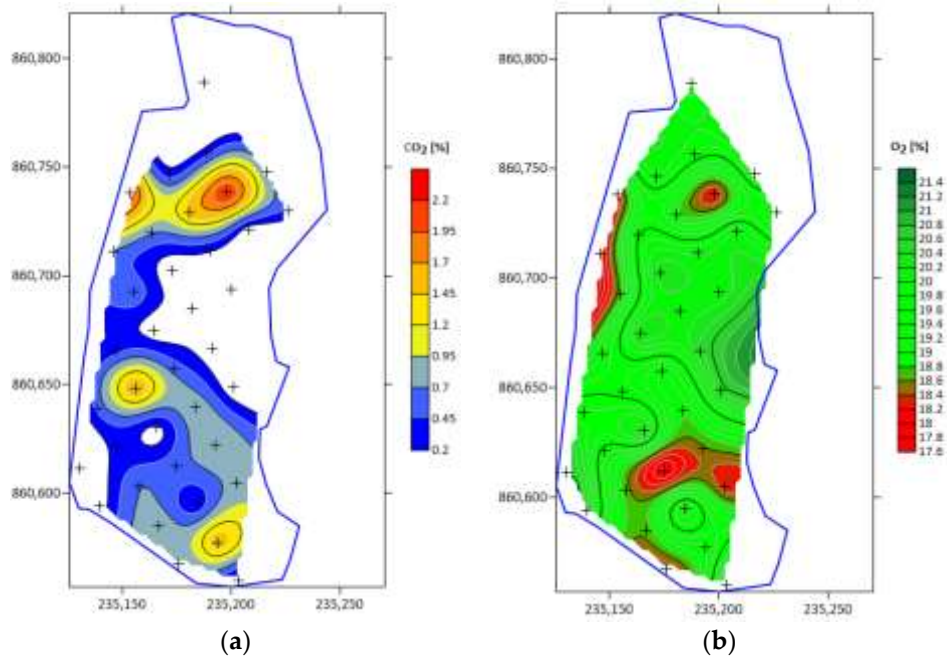


Fig. S30 Maps of average a) CO2 and b) O2 concentration in January 2021





*Fig. S31 Maps of average a) CO<sub>2</sub> and b) O<sub>2</sub> concentration in February 2021*



*Fig. S32 Maps of average a) CO<sub>2</sub> and b) O<sub>2</sub> concentration in March 2021*

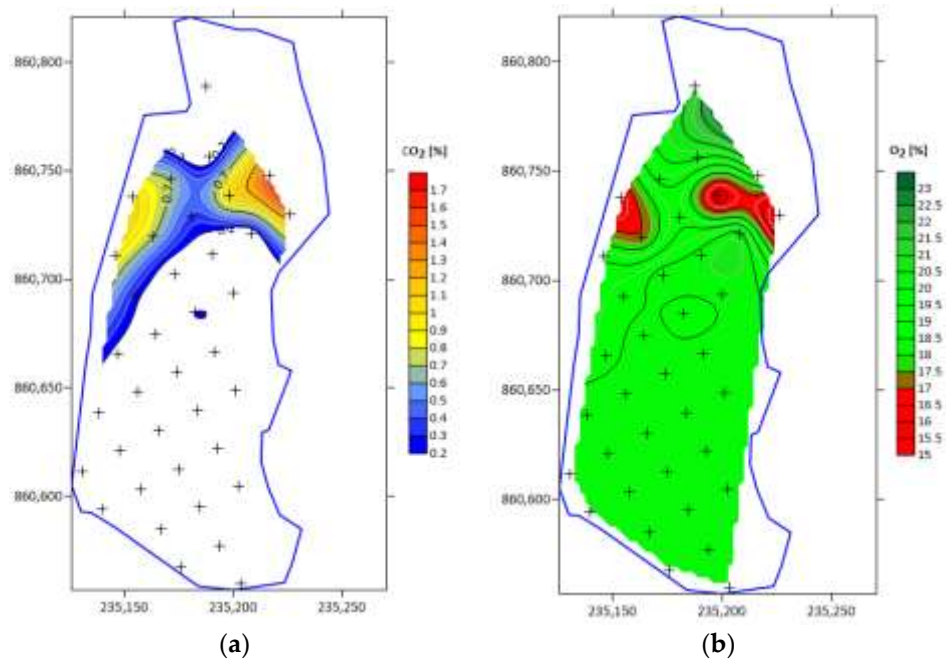


Fig. S33 Maps of average a) CO<sub>2</sub> and b) O<sub>2</sub> concentration in April 2021

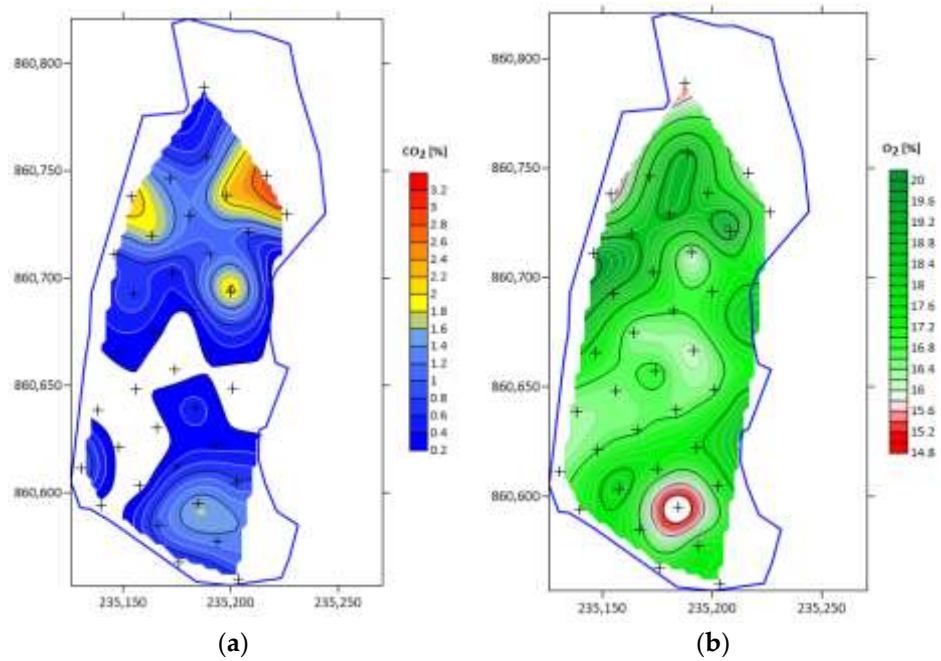


Fig. S34 Maps of average a) CO<sub>2</sub> and b) O<sub>2</sub> concentration in May 2021



#### 1.4. Conclusions

- The highest recorded measurement of CO<sub>2</sub> concentration in the soil air was 7.2% in January. High content of CO<sub>2</sub> corresponded with low O<sub>2</sub> values. It can be concluded that these values are related to biogenic processes as well as weather conditions. This statement is supported by the PID measurements of the organic substance where the results are also higher at the measurement points (with max CO<sub>2</sub> findings) reaching the values of 3.4-4.3 ppm,
- A similar results were observed in February, although with lower values - up to 4.7% CO<sub>2</sub>. The reason for the increased CO<sub>2</sub> content is most probably the same as in case of January,
- A trend of decreasing CO<sub>2</sub> values continued – during March to May the maximum measured values were in range of 2.2% to 3.8%. This significant decrease in CO<sub>2</sub> concentration was probably related to lower moisture content in the ground and thus lower intensity of biogenic processes.
- Based on all the information available it is highly improbable for carbon dioxide to originate from the mine workings. Therefore, the biogenic processes are the most probable source of CO<sub>2</sub> emission in the area,

The developed maps of the average concentration of CO<sub>2</sub> and O<sub>2</sub> in the soil air for individual months will constitute a basis for determining possible migration of CO<sub>2</sub> to the surface during in-situ CO<sub>2</sub> injection tests. Due to significant differences, the background emission in each month should be established separately.