Greenhouse gas monitoring update in Latvia

LIFE21-CCM-LV-LIFE PeatCarbon

Peatland restoration for greenhouse gas emission reduction and carbon sequestration in the Baltic Sea region

Project Scientific Group Meeting Programme

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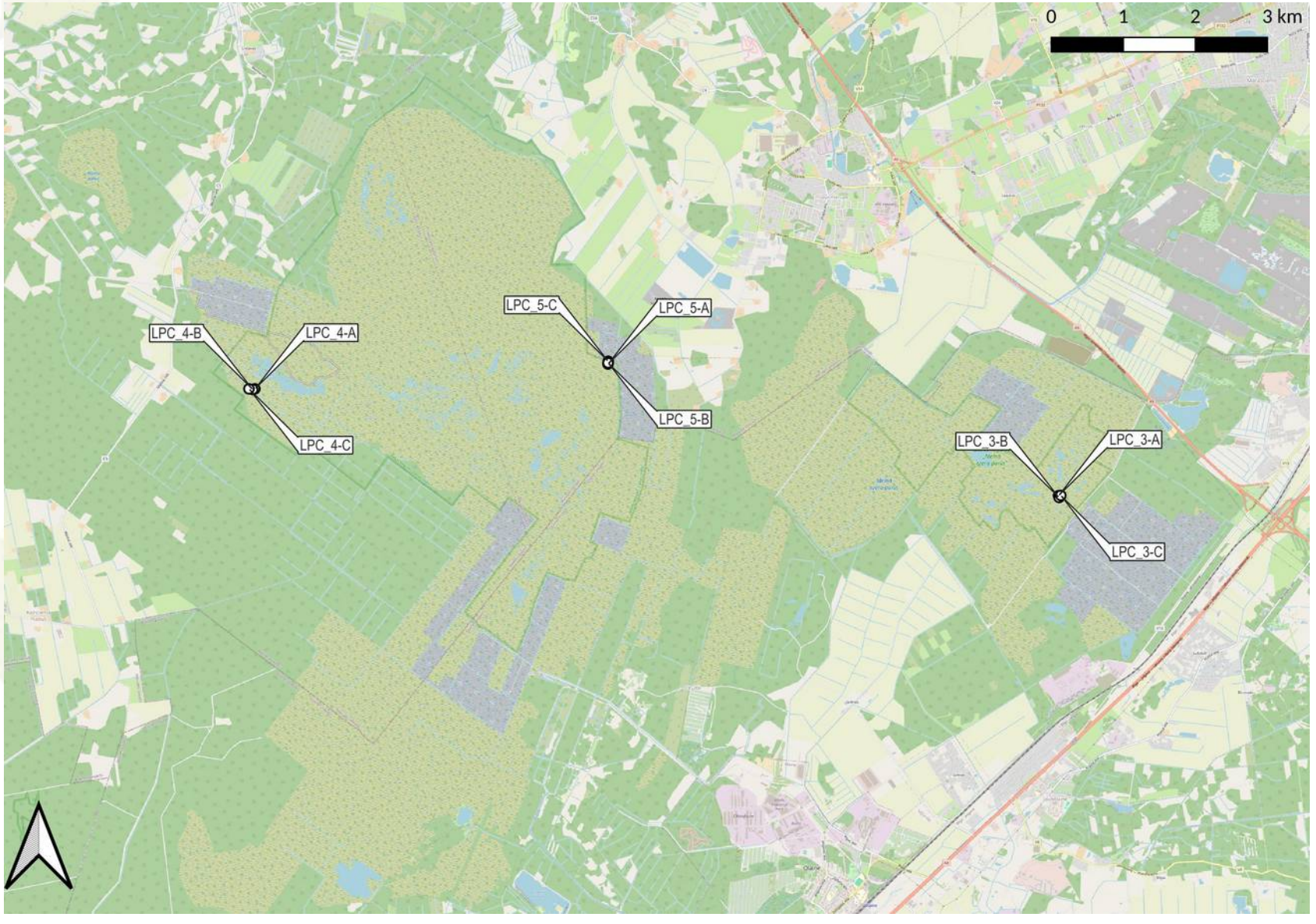
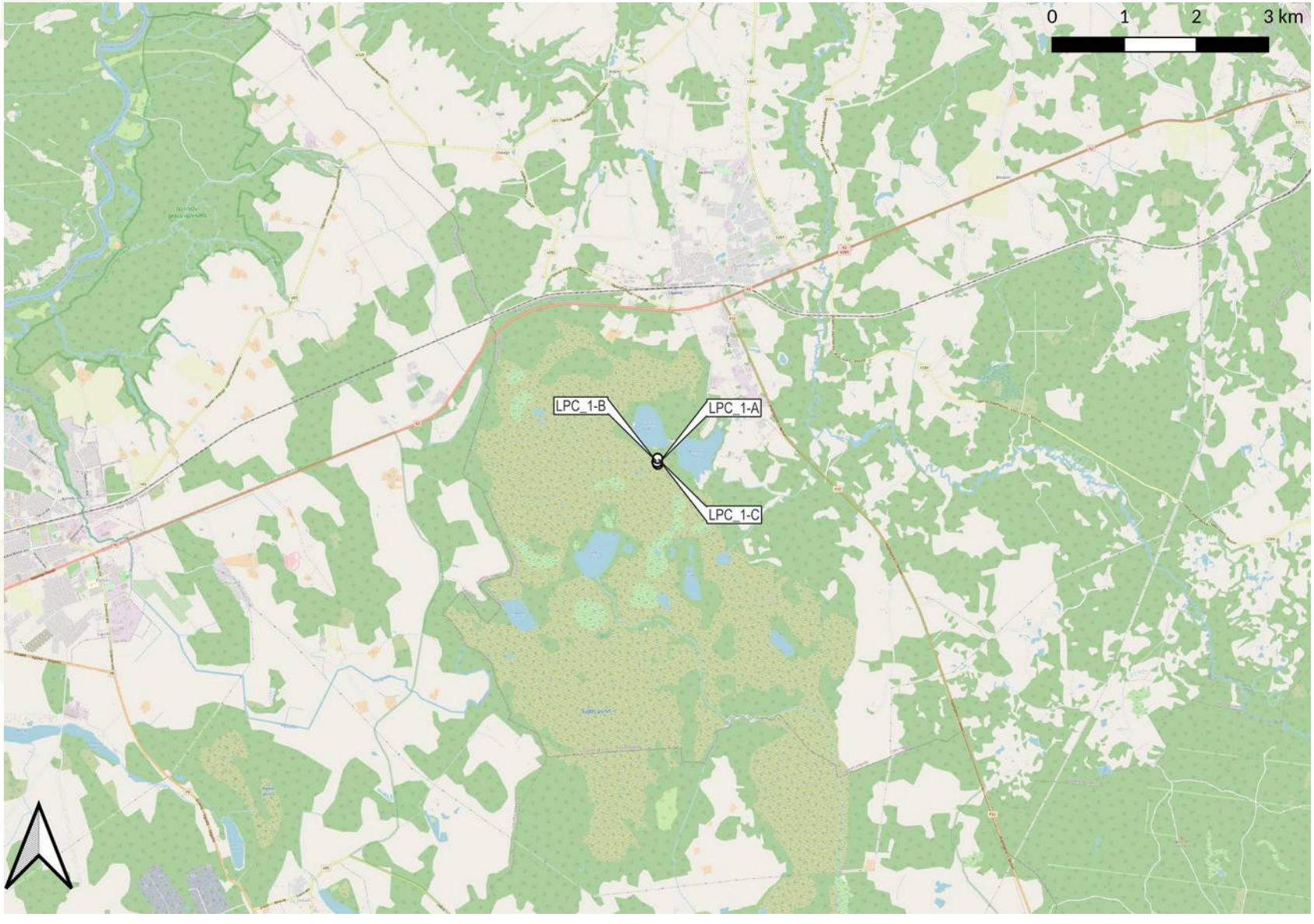
Measurement sites

- LPC_1 Sudas-Zviedru purvs.
- LPC_2 Lielais Pelečāres purvs.
- LPC_3 Melnā ezera purvs.
- LPC_4 Cenas tīrelis (Cena – vecais).
- LPC_5 Cenas tīrelis (Cena – jaunais).
- LPC_6 Lielais Pelečāres (R).
- LPC_7 Lielais Pelečāres purvs (A).

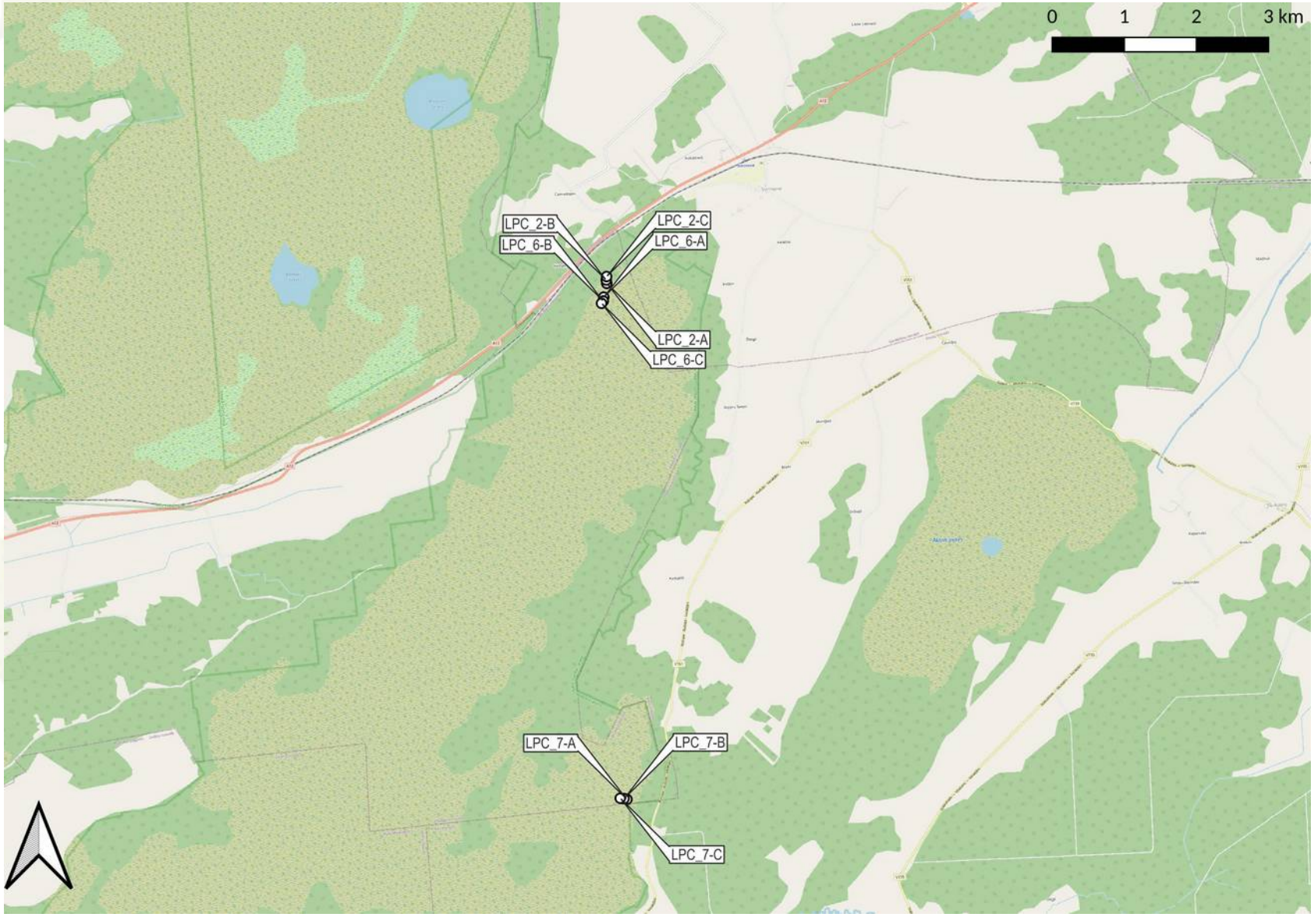
Measurement sites in Riga region, Cenas and Melnā ezera mires



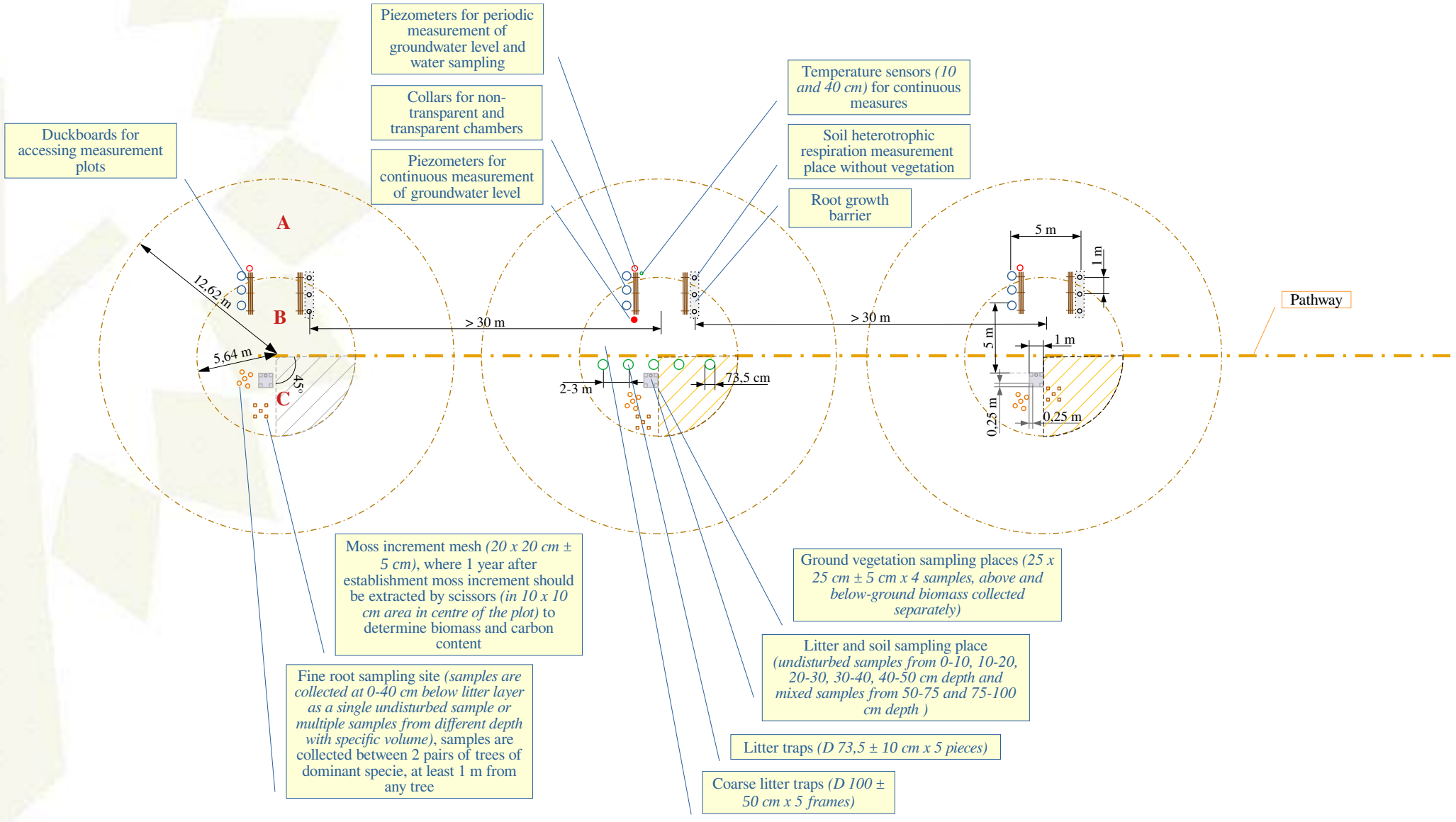
Measurement sites in Sudas – Zviedru mire



Measurement sites in Lielais Pelēčāres mire



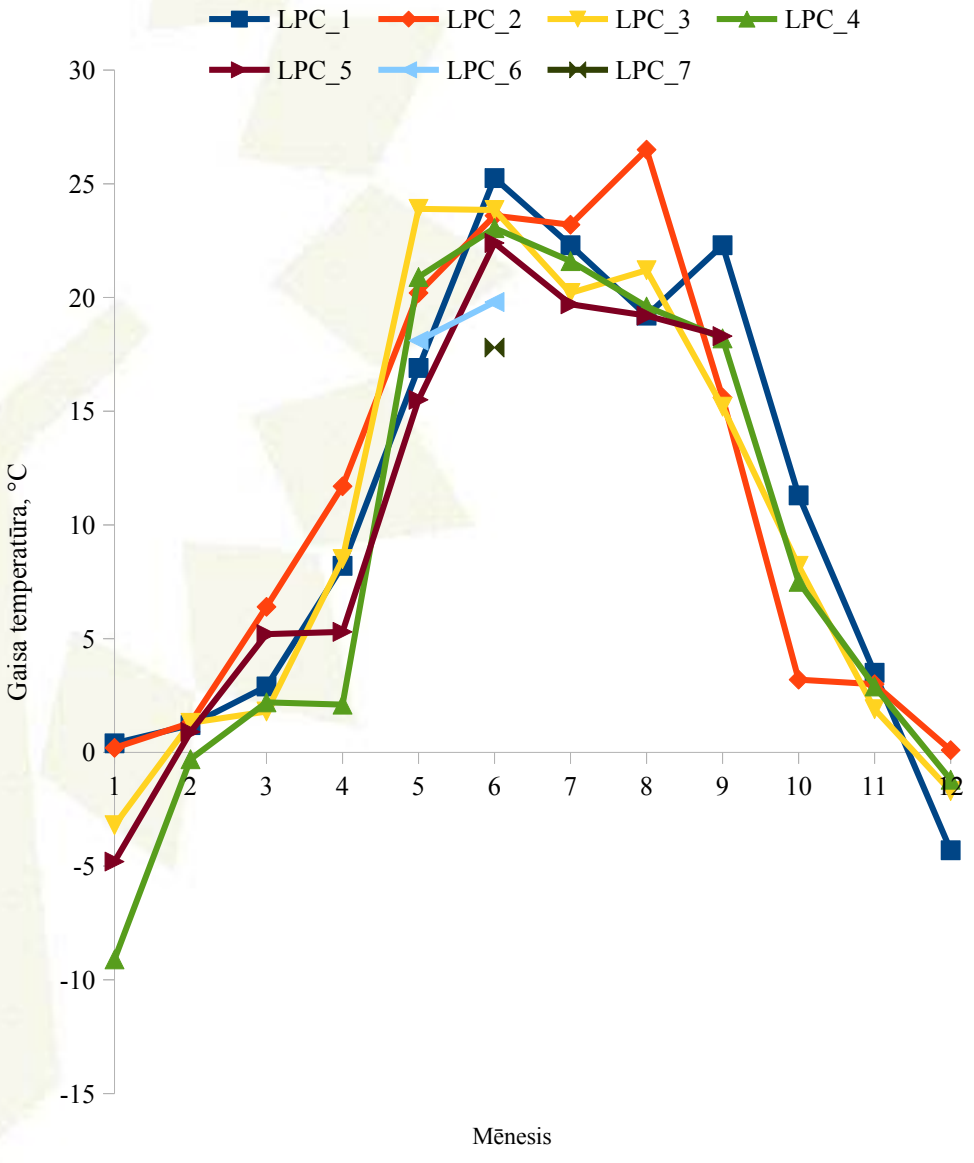
Measurement site design

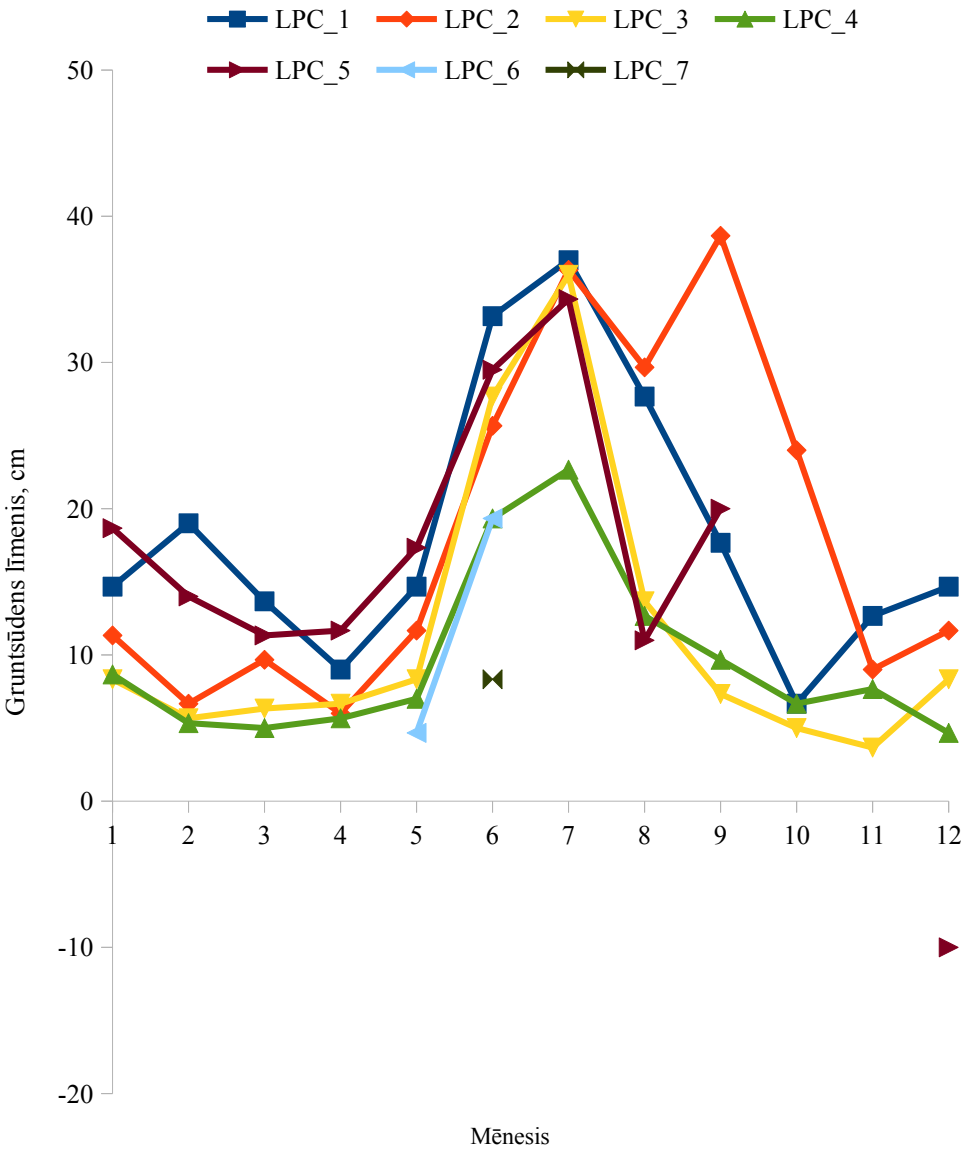


Implemented measurement programs

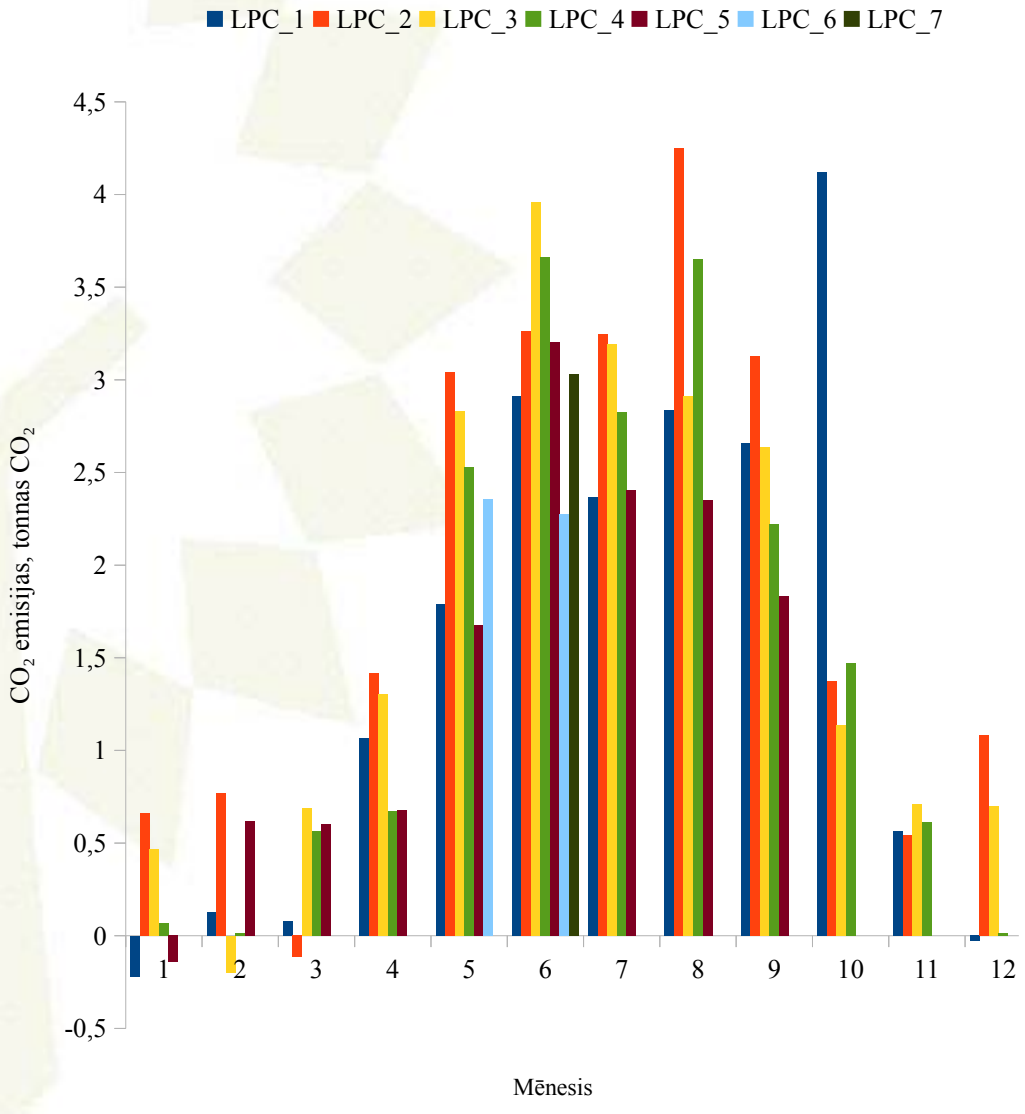
- Heterotrophic respiration from disturbed soil.
- CH_4 and N_2O emissions from non-disturbed site.
- Periodic air temperature measurement.
- Periodic soil temperature measurement at 10, 20, 30 and 40 cm depth.
- Continuous (interval 60 min.) measurement of soil temperature at 10 cm depth.
- Periodic measurement of topsoil moisture.
- Periodic measurement of groundwater level.
- Continuous measurement of groundwater level in one of the piezometers.
- Periodic water sampling from piezometers.
- Periodic measurements of dissolved oxygen, conductivity, redox potential and pH during field visits.
- Moss increment samplers installed.
- Soil sampling (0-50 cm, 10 cm layers based sampling).

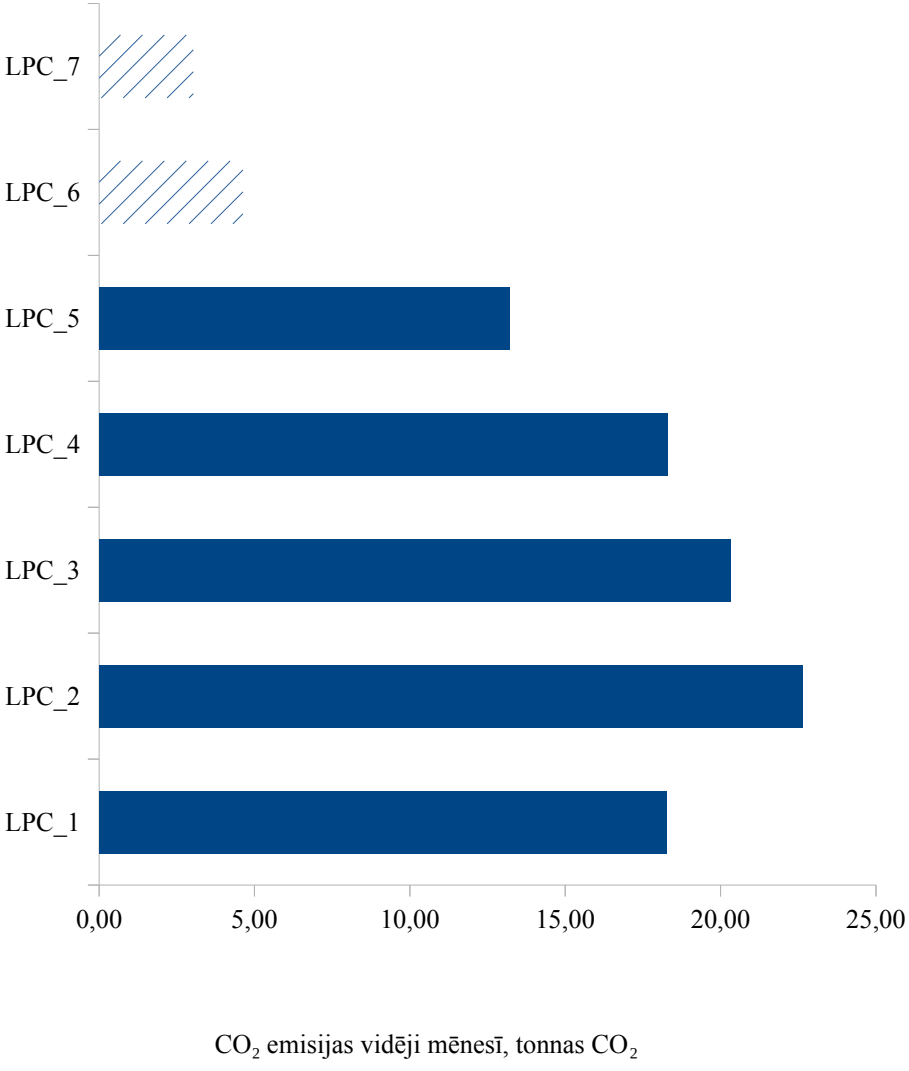
Groundwater level and temperature



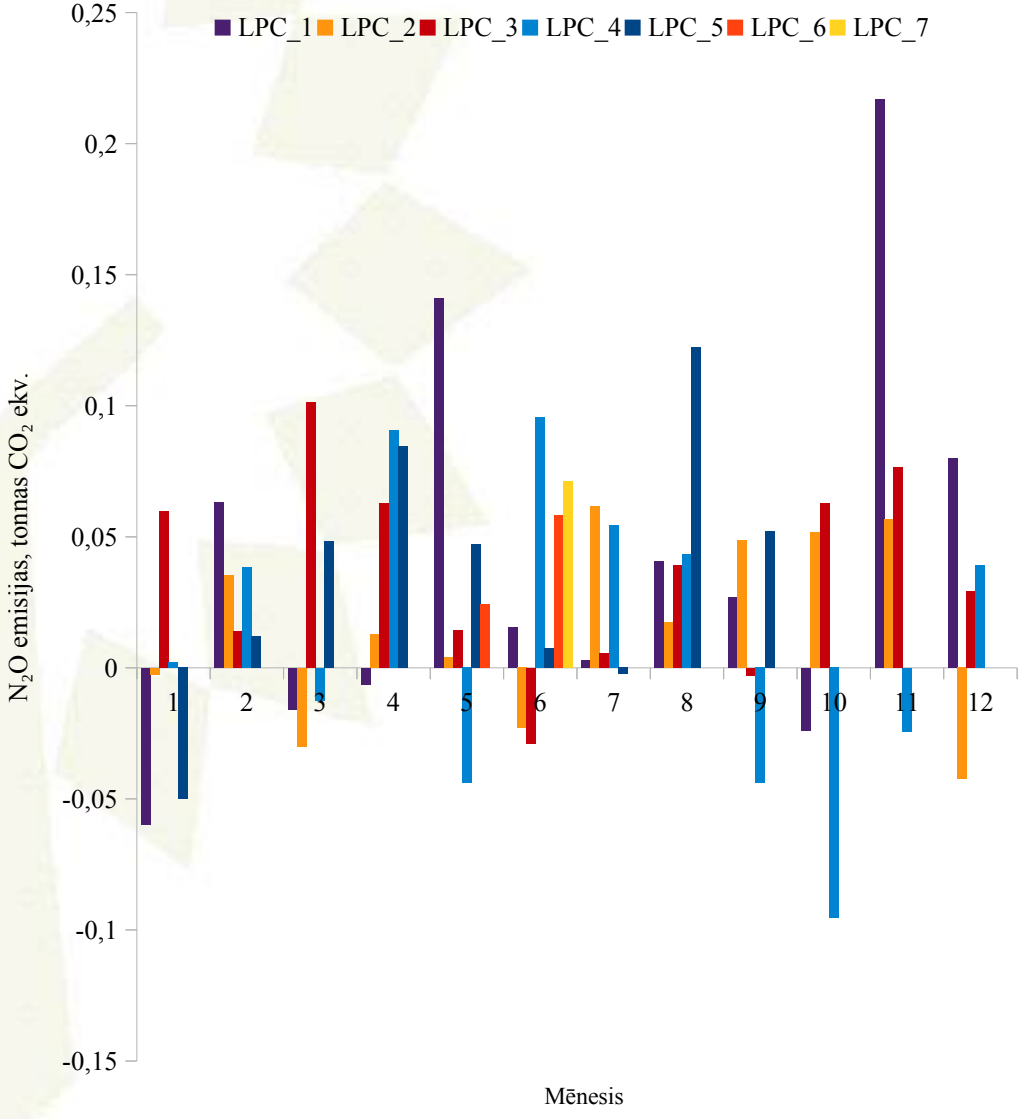


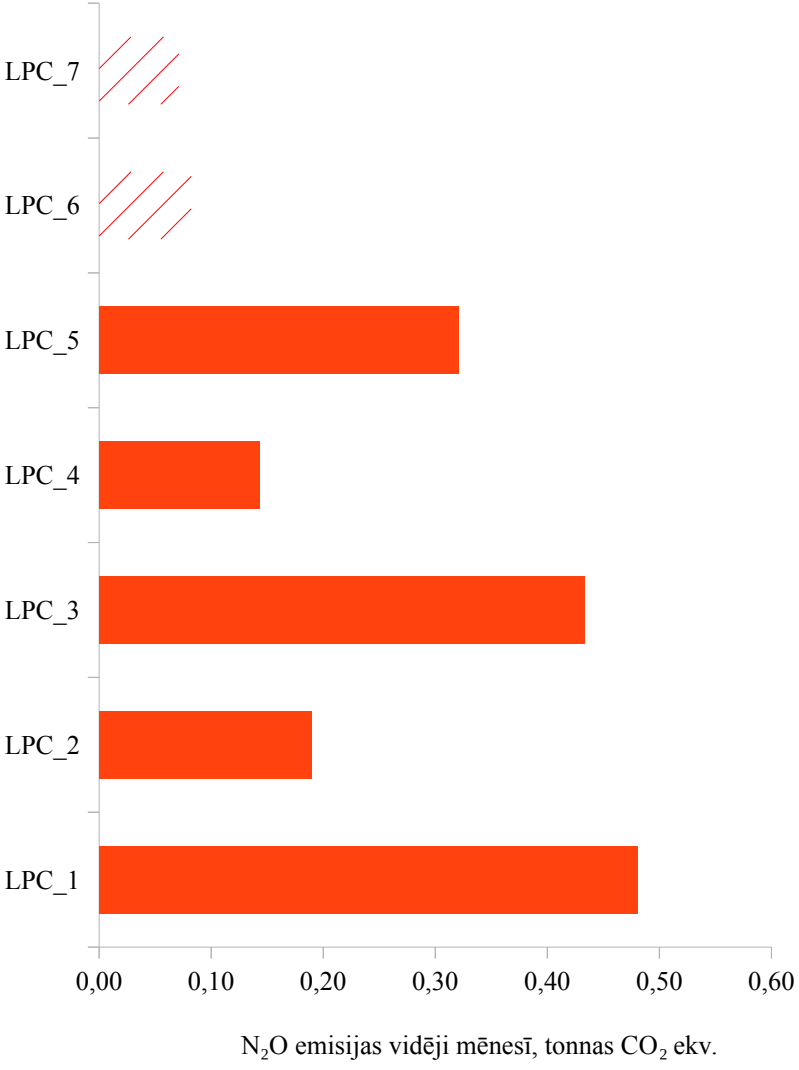
Summary of soil heterotrophic respiration measurement results



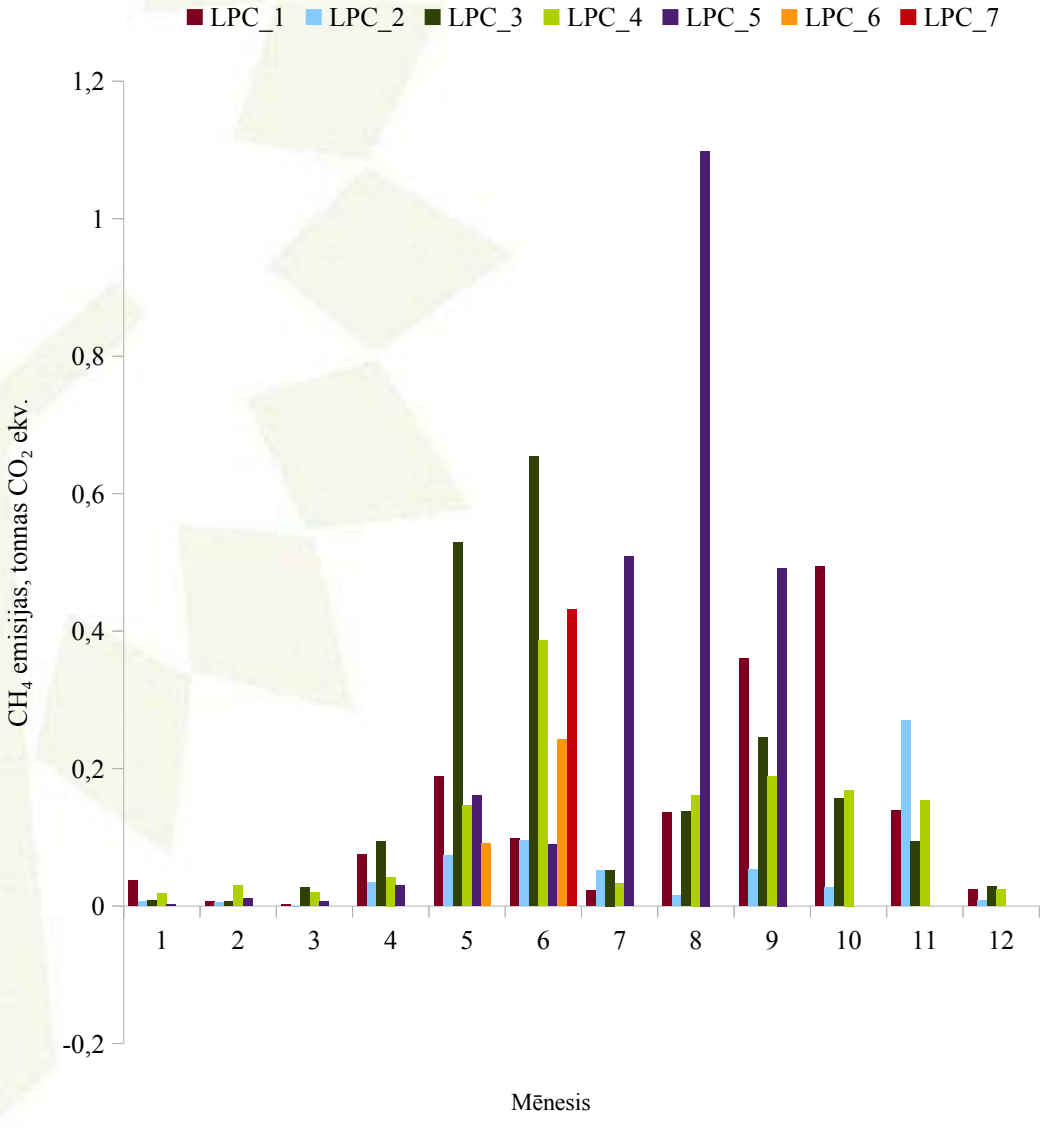


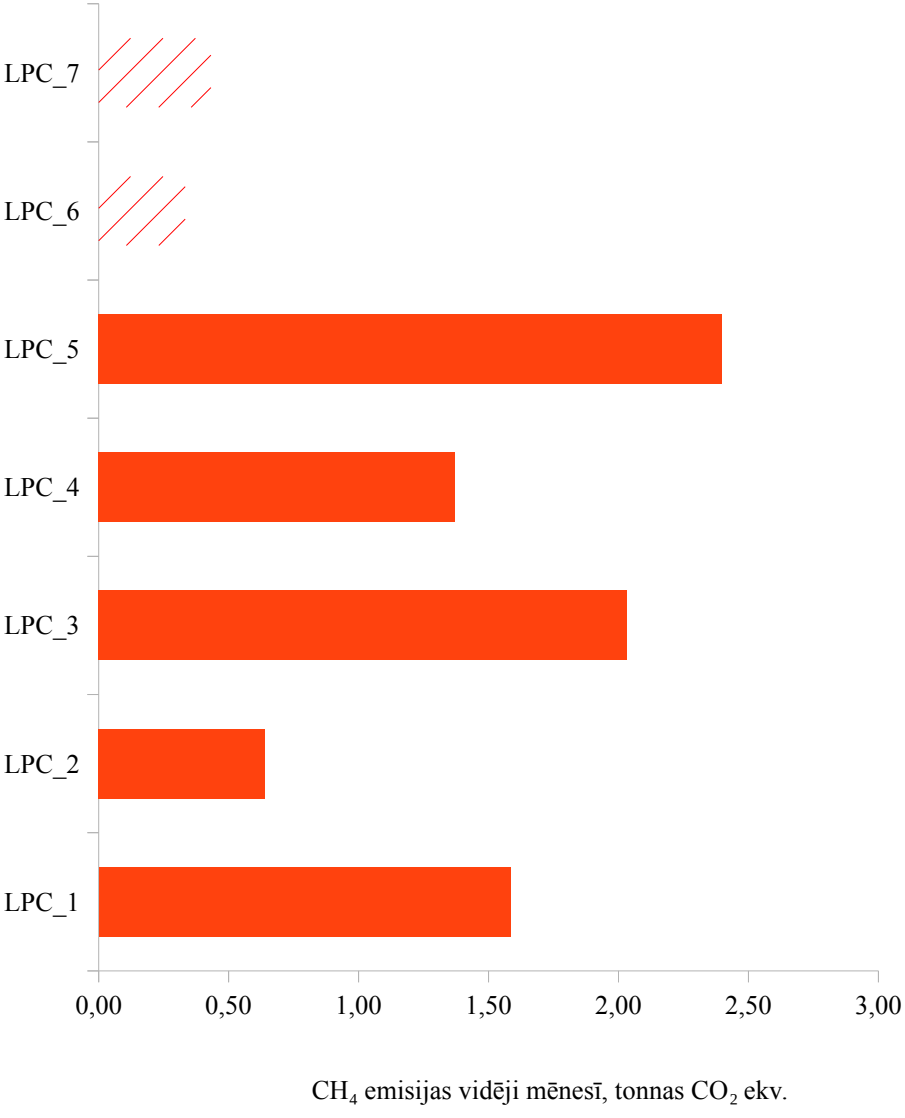
Summary of N_2O emissions measurement results



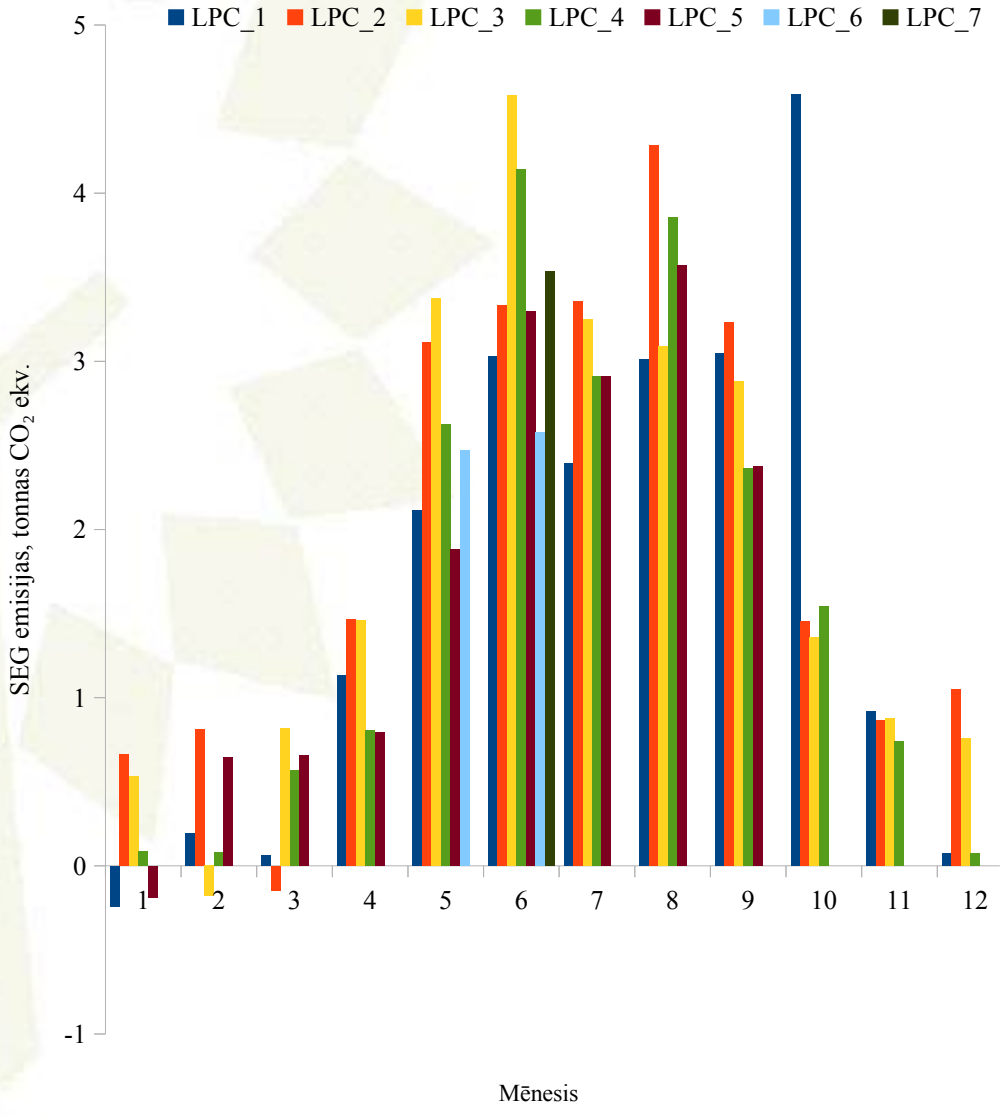


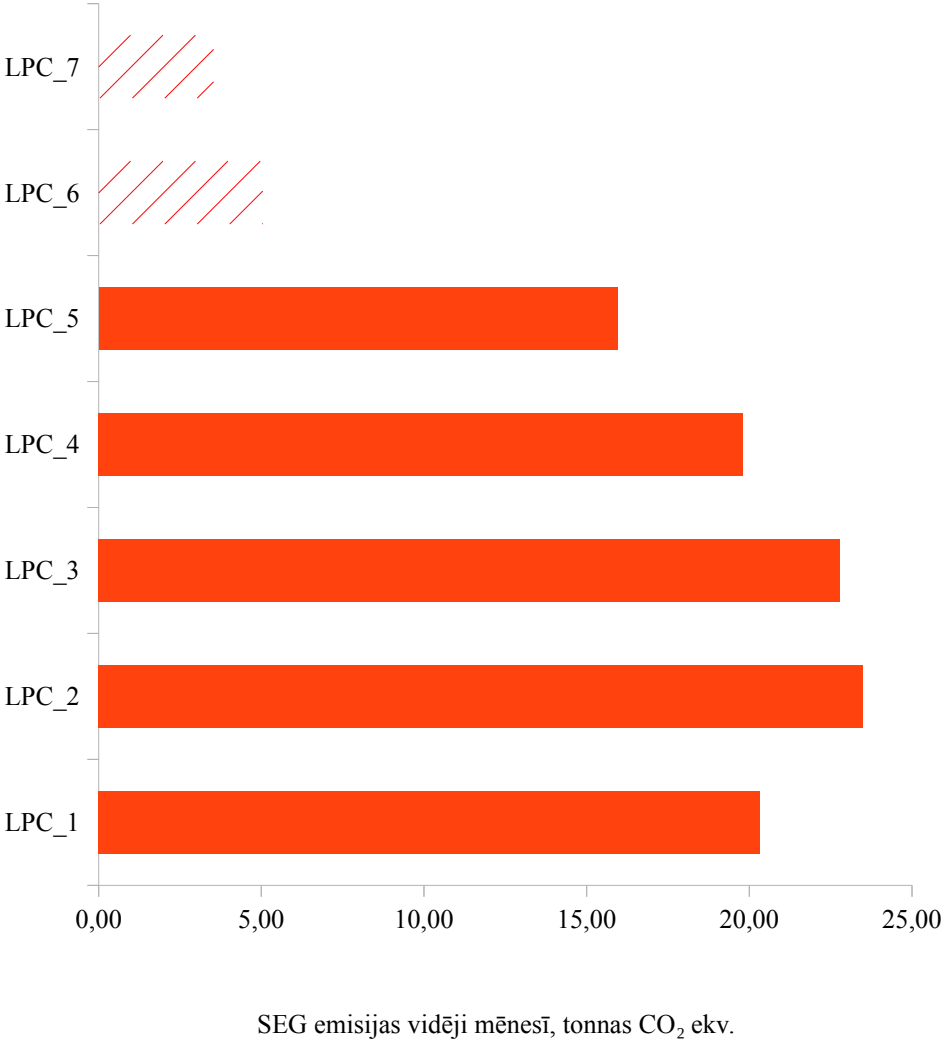
Summary of CH_4 emissions measurement results



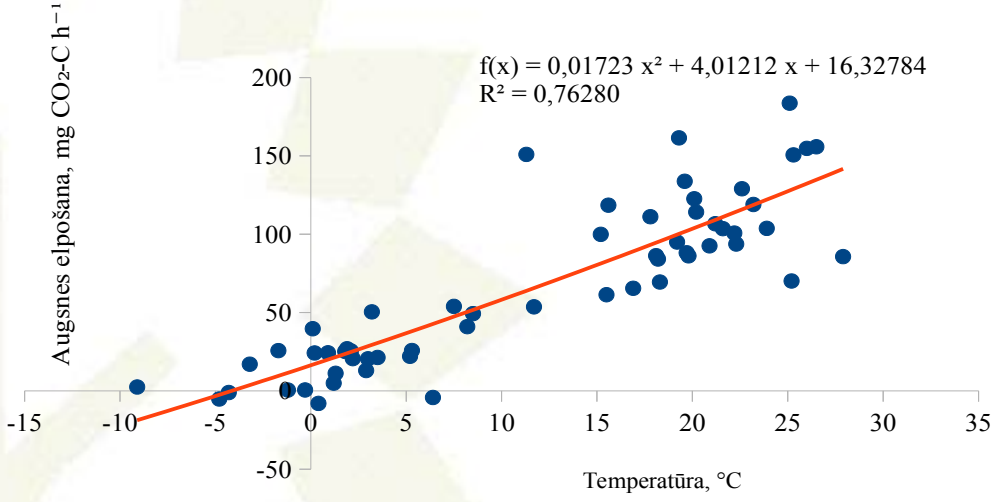


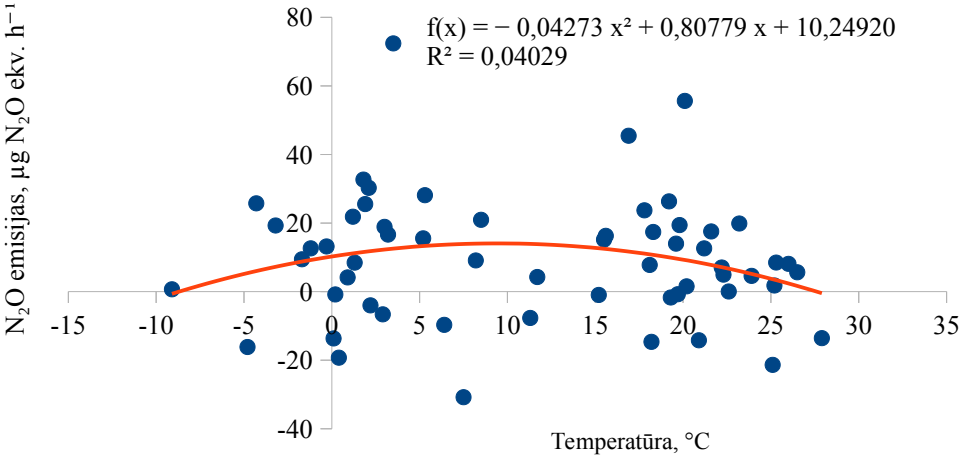
Total GHG emissions from soil

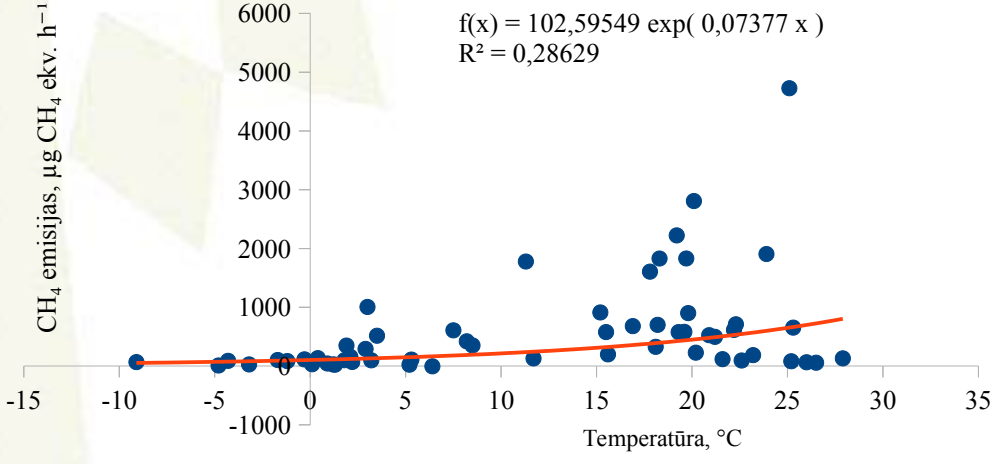


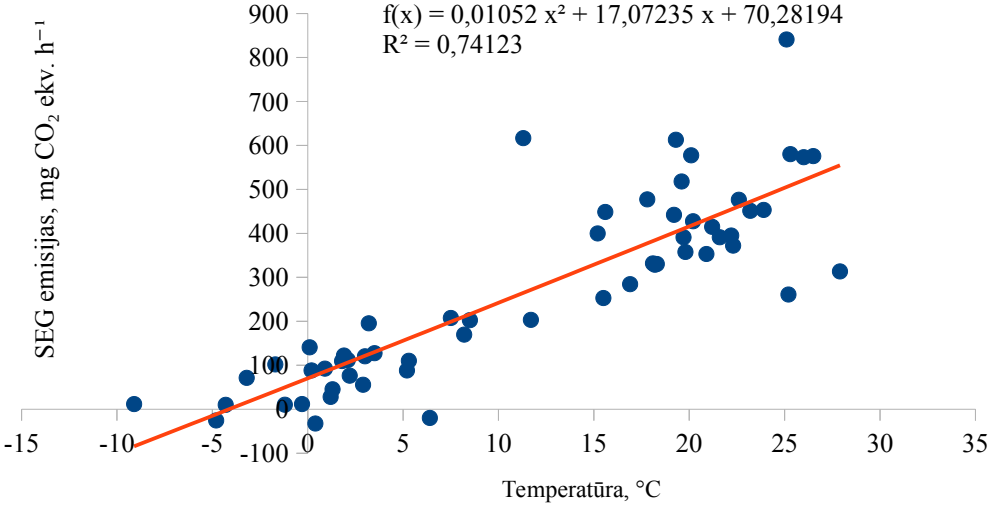


Relationship between air temperature and GHG fluxes

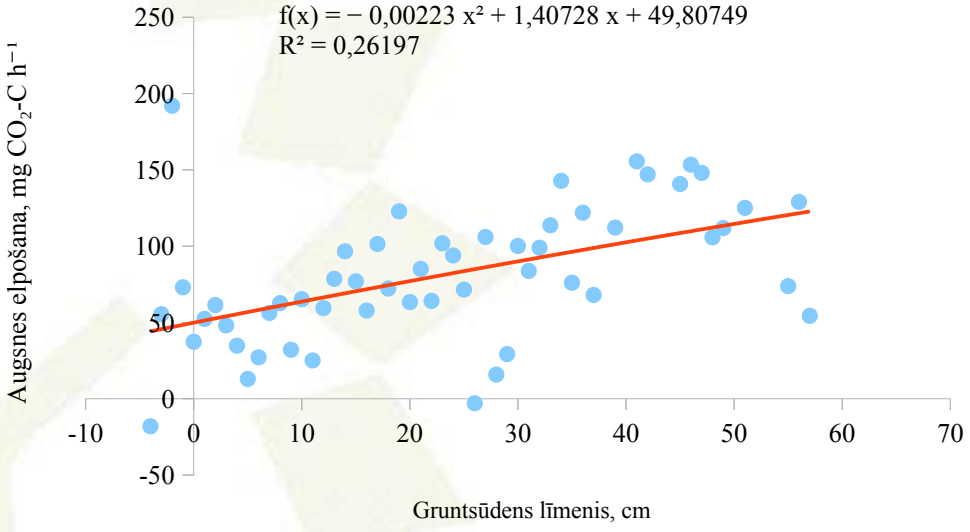


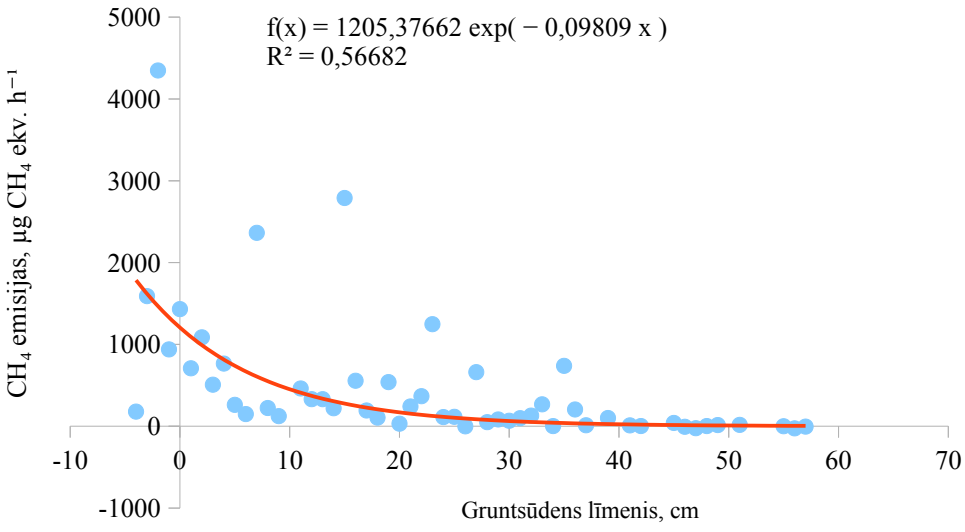


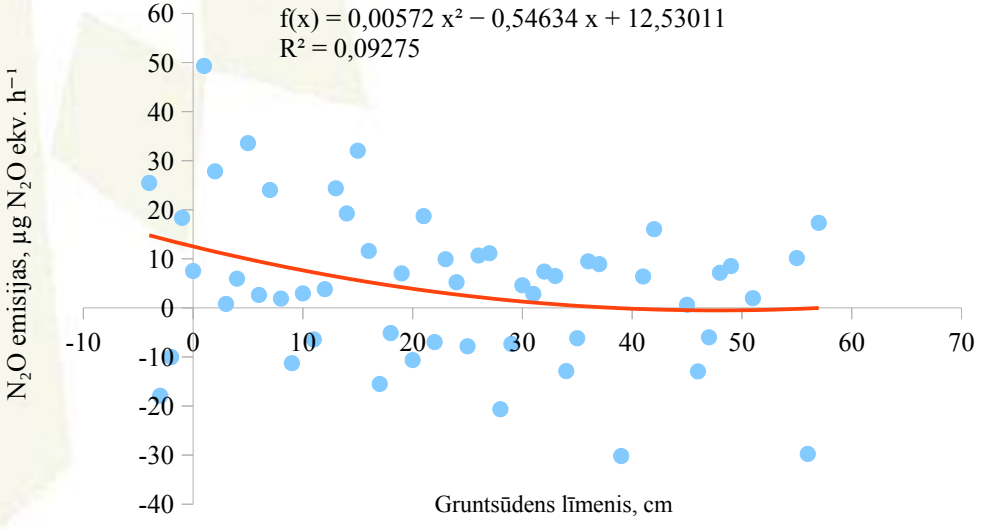


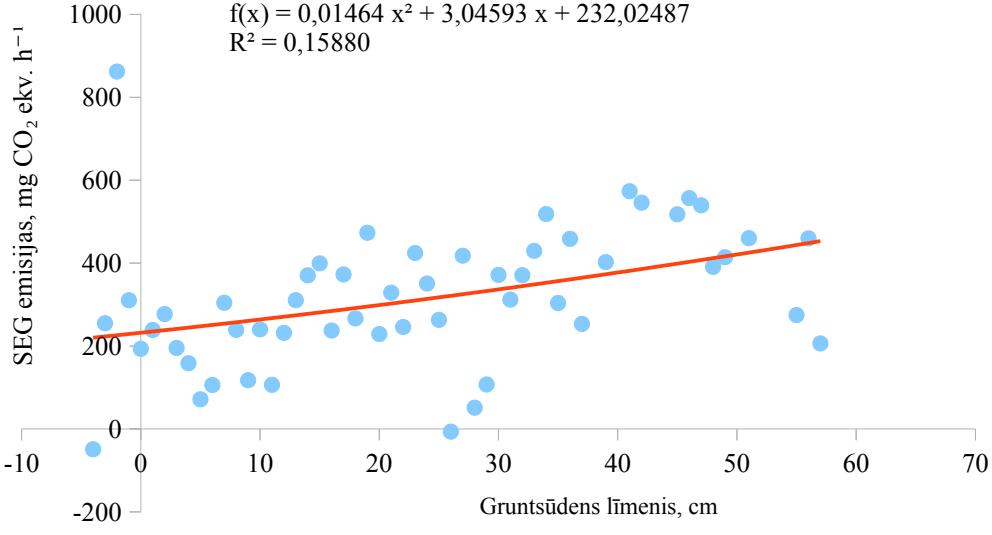


Relationship between groundwater level and GHG fluxes





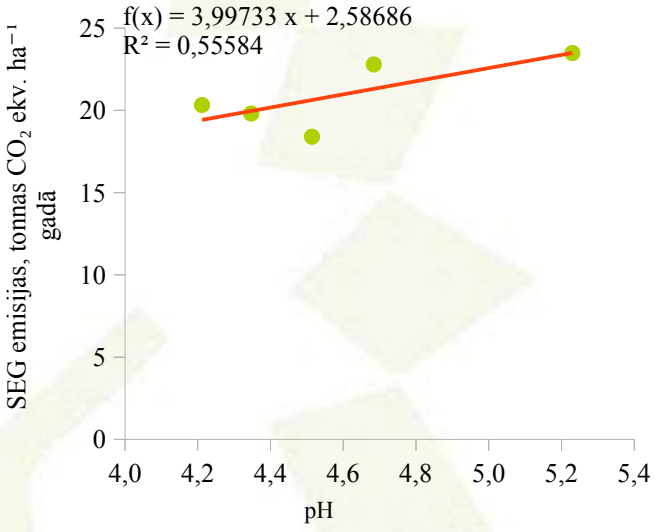


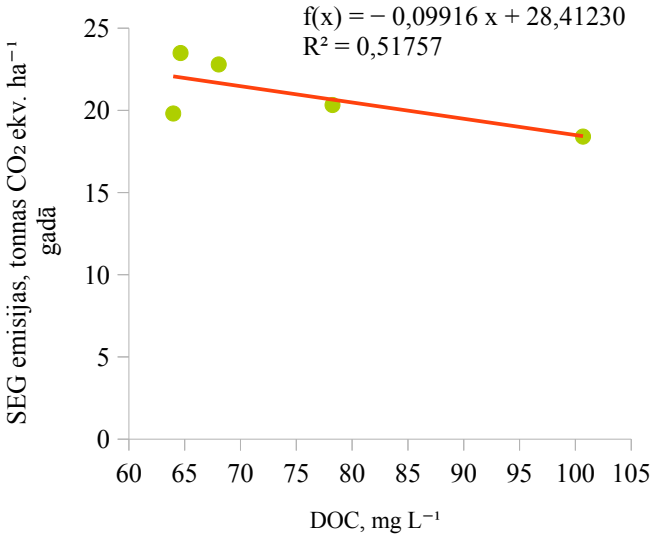


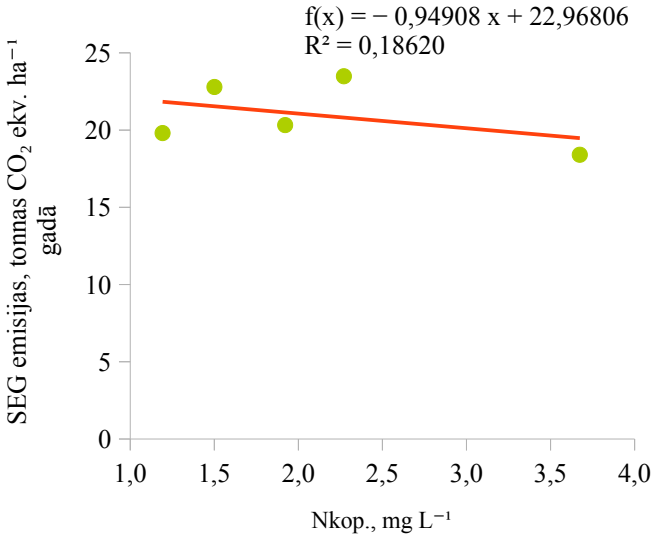
Soil water properties

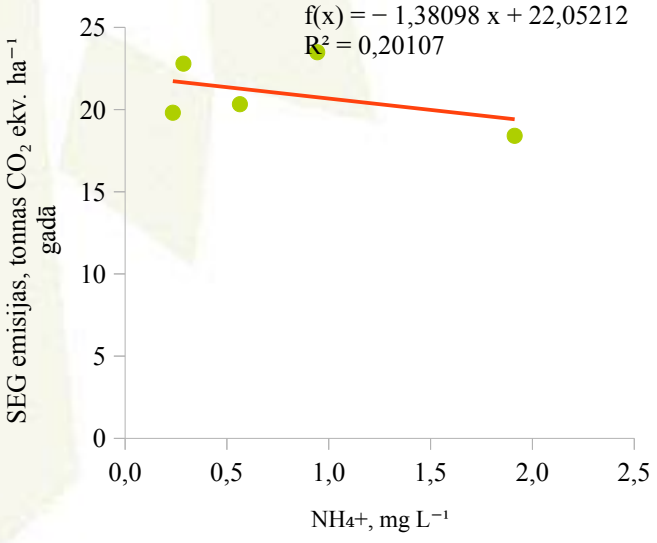
Site	pH	DOC, mg L^{-1}	$N_{kop.}$, mg L^{-1}	$N\text{-}NH^{+}_{4}$, mg L^{-1}	$N\text{-}NO^{-}_{3}$, mg L^{-1}	K, mg L^{-1}	Ca, mg L^{-1}	Mg, mg L^{-1}	$P\text{-}PO_{3}^{-4}$, mg L^{-1}
LPC_1	4,21 ± 0,09	78,25 ± 3,41	1,92 ± 0,09	0,56 ± 0,04	0,03 ± 0,01	0,68 ± 0,03	5,92 ± 0,33	0,54 ± 0,03	0,22 ± 0,02
LPC_2	5,23 ± 0,15	64,63 ± 4,12	2,27 ± 0,21	0,94 ± 0,14	0,03 ± 0,01	0,63 ± 0,17	6,37 ± 0,79	0,95 ± 0,17	0,95 ± 0,36
LPC_3	4,68 ± 0,22	68,05 ± 4,86	1,5 ± 0,09	0,29 ± 0,06	0,02 ± 0,01	0,44 ± 0,06	7,06 ± 0,64	0,7 ± 0,05	0,07 ± 0,02
LPC_4	4,35 ± 0,13	63,98 ± 3,6	1,19 ± 0,11	0,23 ± 0,09	0,02 ± 0,01	0,59 ± 0,04	4,53 ± 0,48	0,99 ± 0,1	0,09 ± 0,04
LPC_5	4,51 ± 0,12	100,69 ± 7,56	3,67 ± 0,24	1,91 ± 0,1	0,03 ± 0,01	0,9 ± 0,05	10,08 ± 2,81	0,76 ± 0,08	0,04 ± 0,01
LPC_6	5,47 ± 0,46	57,53 ± 1,55	2,05 ± 0,02	0,72 ± 0,09	0,02 ± 0,02	0,59 ± 0,44	16,87 ± 12,65	1,23 ± 0,92	0,01 ± 0,01
LPC_7	4,65 ± 0,21	54,67 ± 41	1,48 ± 1,11	0,12 ± 0,11					

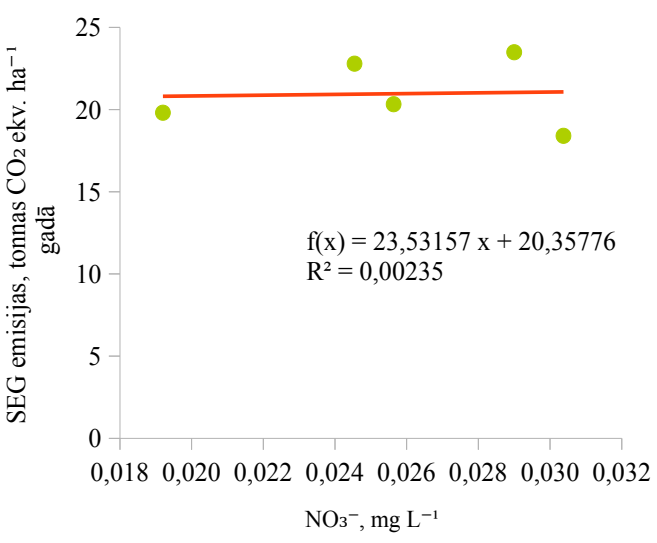
Annual GHG emissions from soil and water chemistry

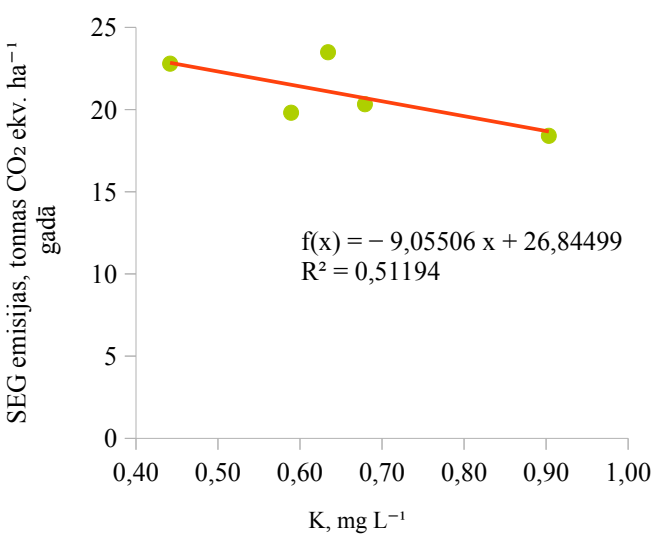




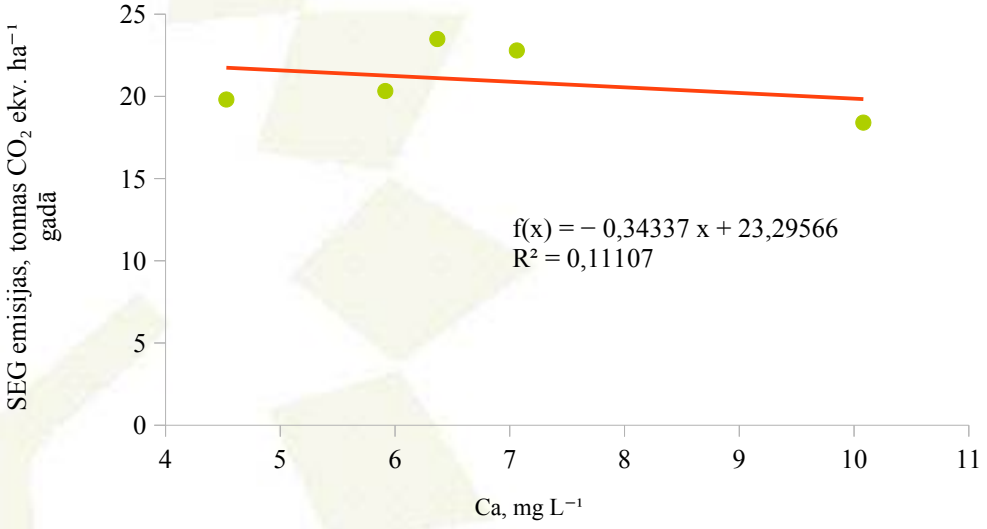


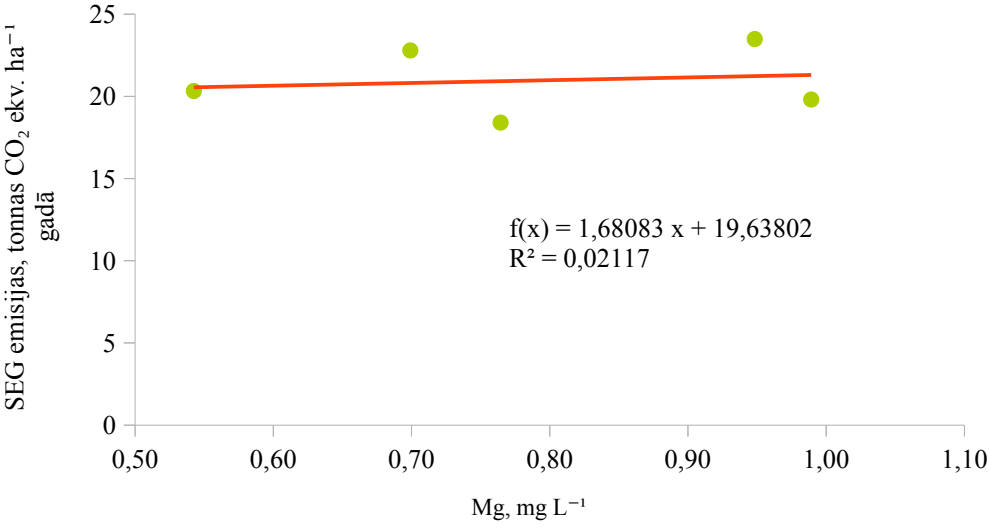


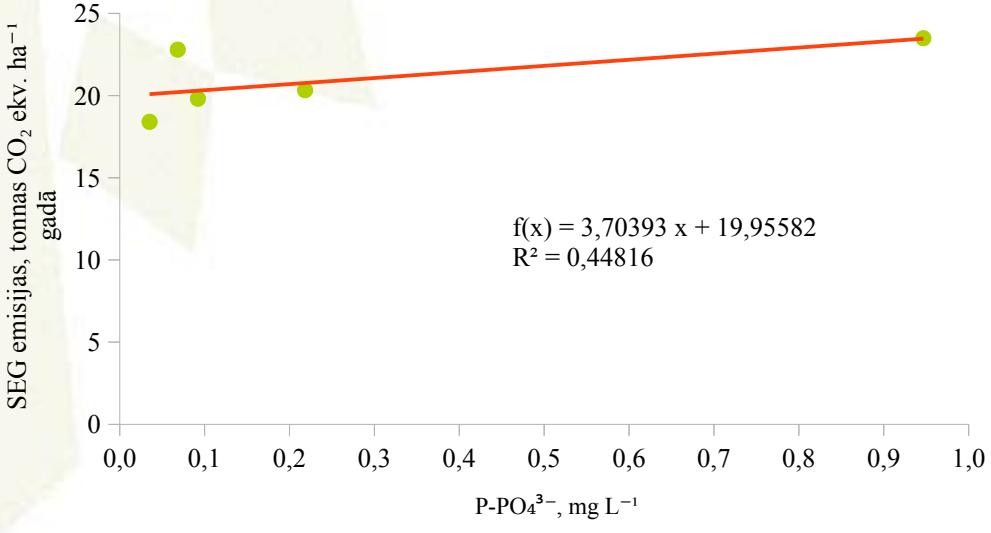




Annual GHG emissions from soil and water chemistry







Gas measurement plots

Water and litter sampling

Other challenges

Thank you for attention!