

Supplementary figures

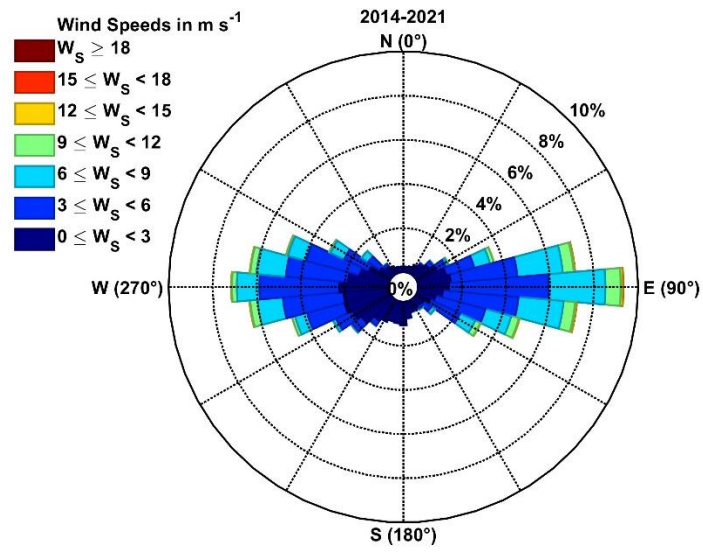


Fig S1. Wind rose for the Se-STO for years 2014-2021

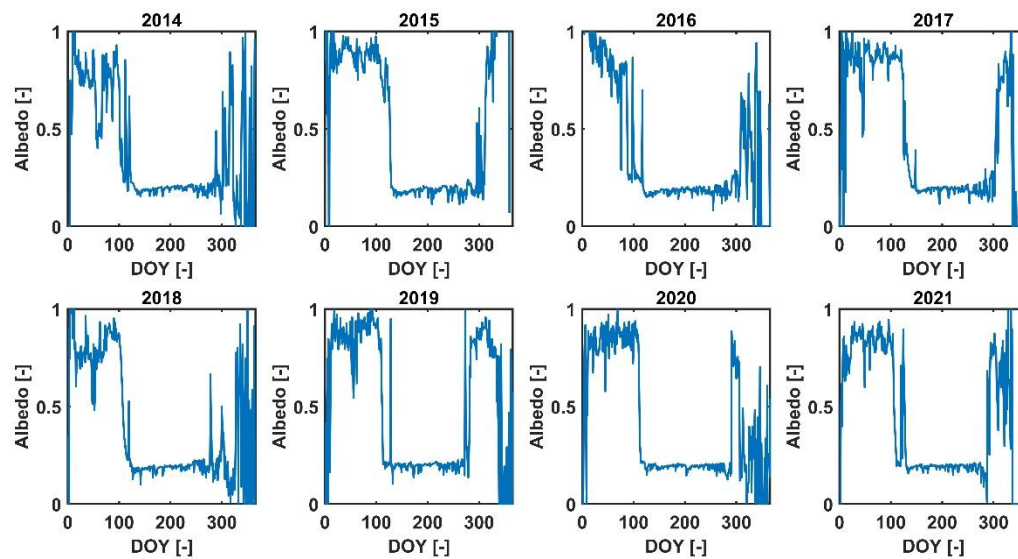


Fig S2. Albedo for the years 2014-2021

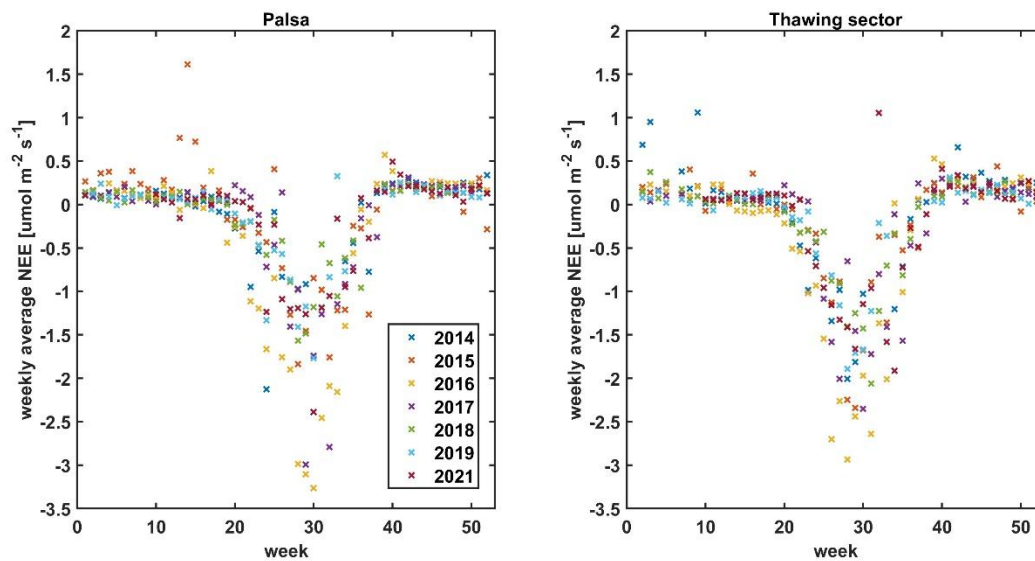
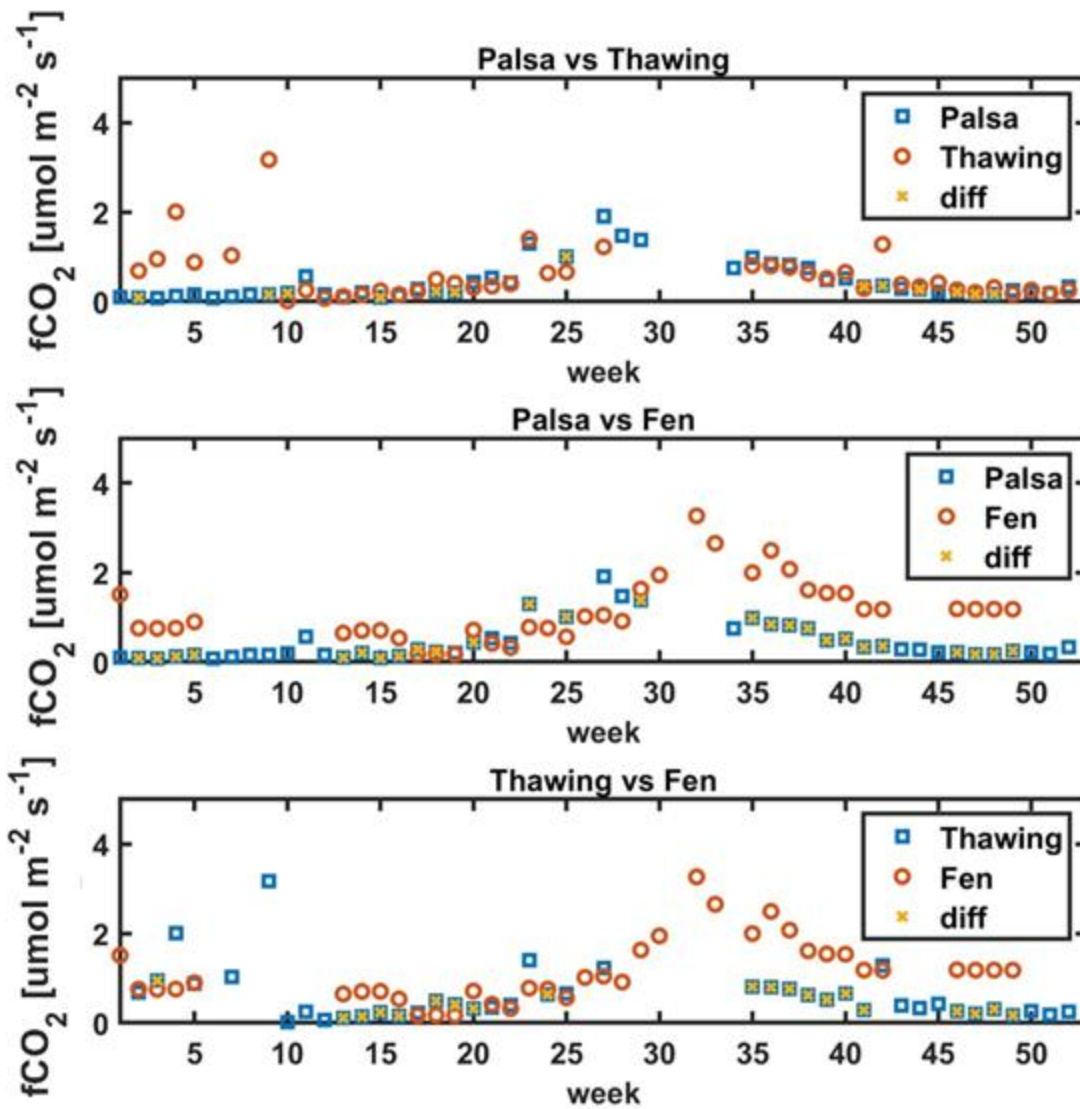


Figure S3. Weekly average NEE for the palsa and thawing sector for years 2014-2021



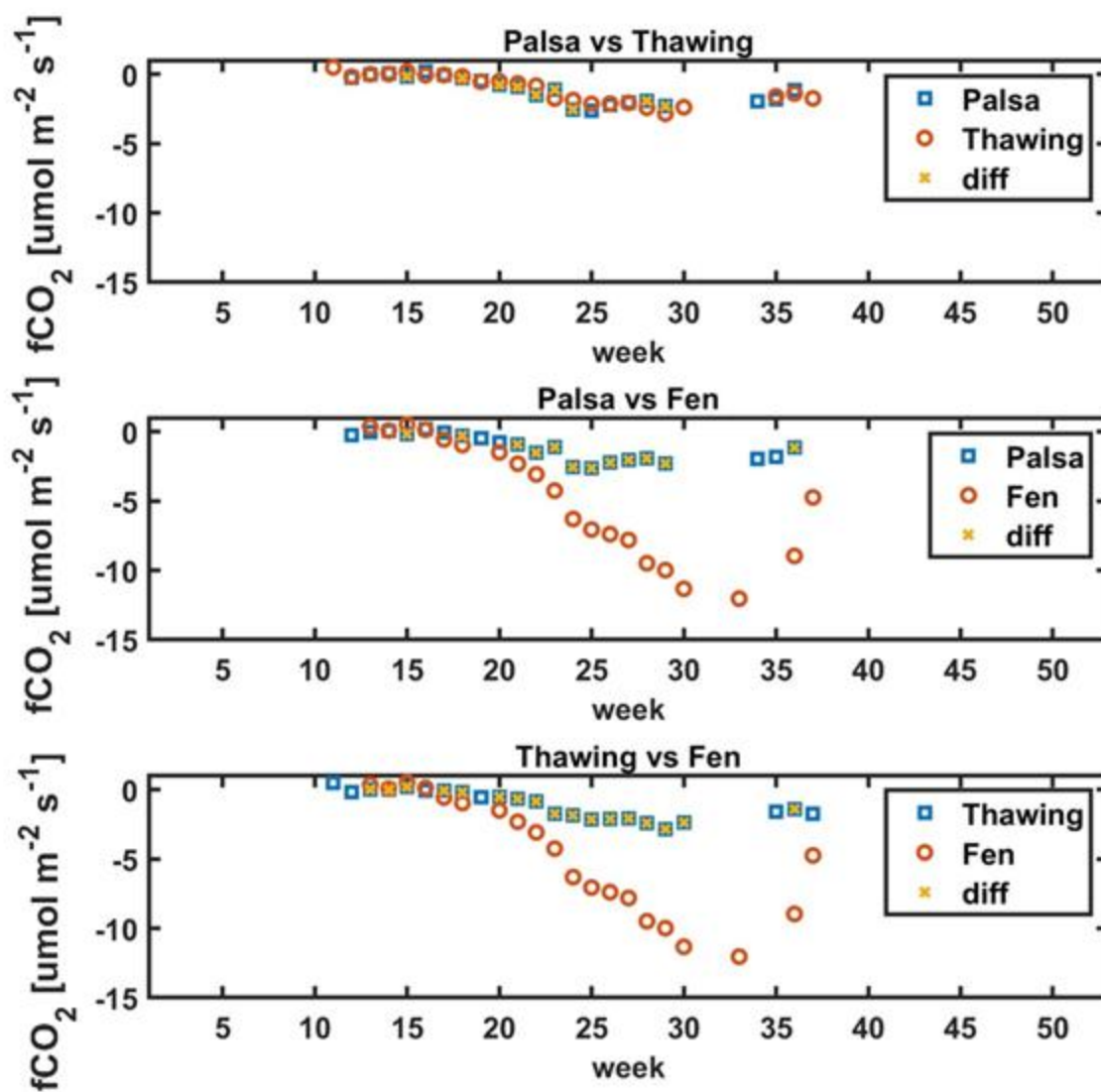


Figure S4. Weekly averaged fluxes for the three sectors for the year 2014 with markers where average was significantly different.

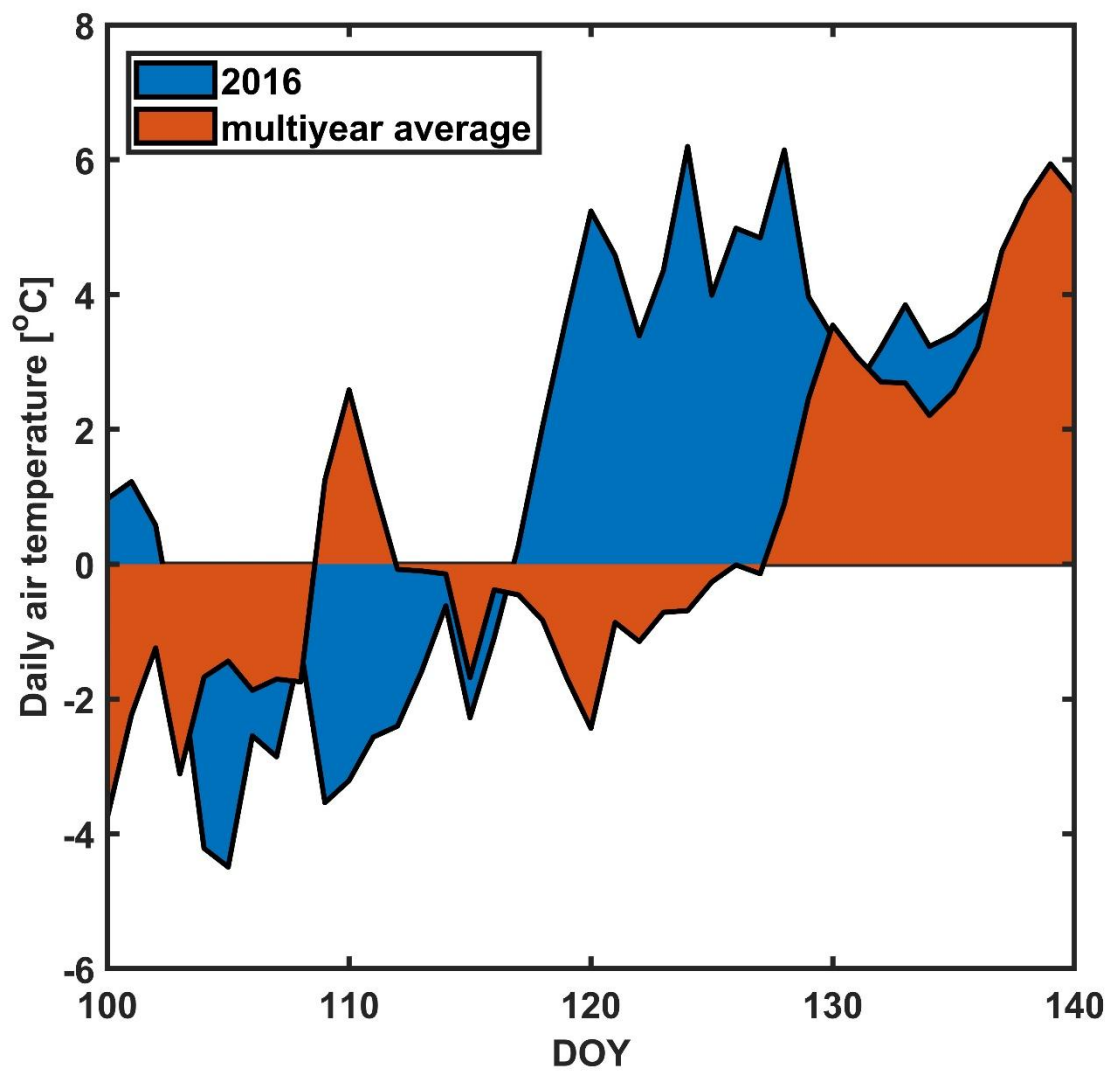


Figure S5. Daily mean air temperature for the year 2016 and multiyear (2014-2021 without 2016)

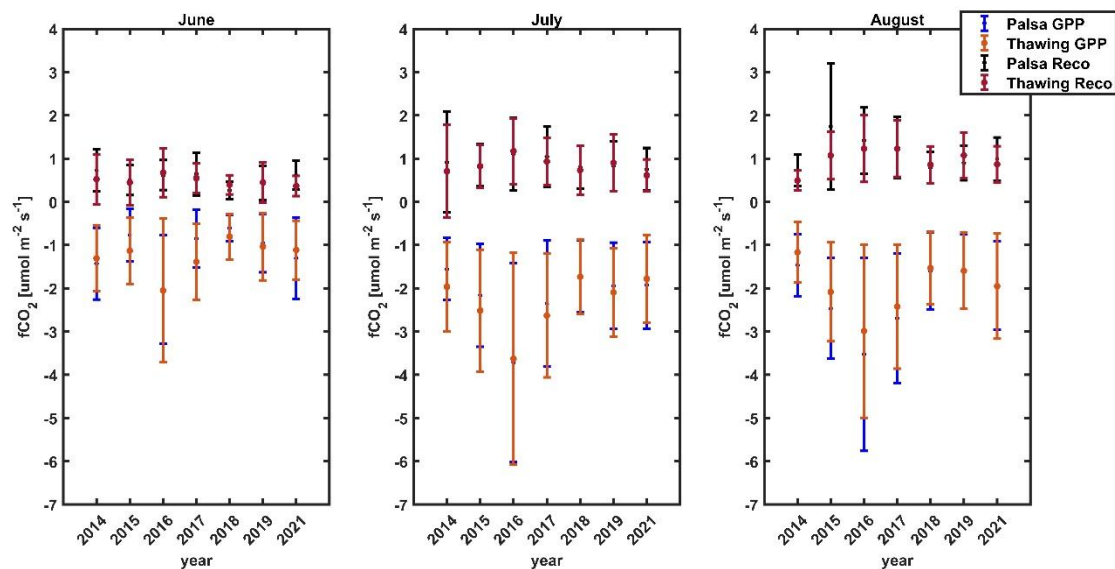


Figure S6. Average GPP and Reco for the palsa and the thawing sector for the June, July and August

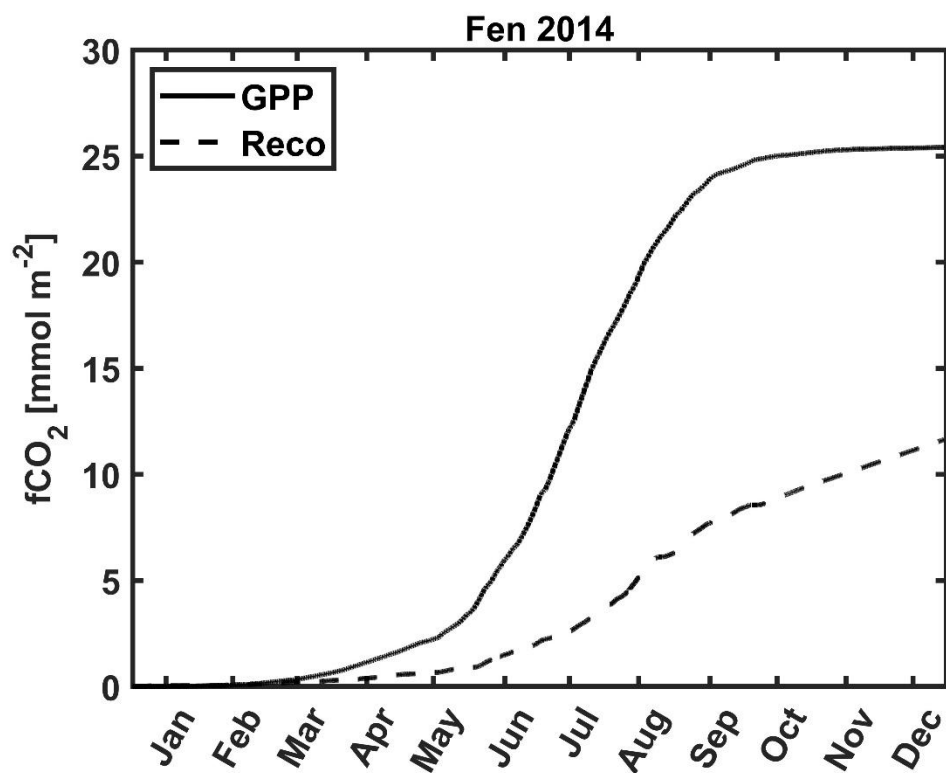


Figure S7. Cumulative sum of the ANN gapfilled CO_2 fluxes partitioned for the GPP and Reco for the years 2014 for fen. Solid lines present GPP and dashed lines present Reco.

Table S1. Variable used for the ANN gapfilling

incoming shortwave radiation
net shortwave radiation
net longwave radiation
net radiation
outgoing shortwave radiation
incoming long-wave radiation,
outgoing long-wave radiation
air pressure
incoming photosynthetic active radiation
outgoing photosynthetic active radiation
incoming photosynthetic active radiation
diffuse incoming photosynthetic active
radiation,
sunshine duration
target surface temperature
air temperature

Table S2. Variables used for the GLM gapfilling

incoming photosynthetic active
radiation
outgoing photosynthetic active
radiation
sunshine duration
air temperature

Table S2. Annual NEE for the palsa and thawing sectors by different gap-filling methods for years 2014-2021 and for the Fen for 2014.

Year	2014	2015	2016	2017	2018	2019	2021
Unit	[g C m ⁻² y ⁻¹]						
Palsa ANN	-19	-17	-123	-50	-30	-36	-43
Palsa GLM	-12	-32	-100	-50	-37	-35	-14
Palsa JENA	-19	-16	-112	-41	-29	-31	-39
Thawing ANN	6	-22	-103	-50	-36	-37	-50
Thawing GLM	0	-29	-114	-41	-35	-38	-61
Thawing JENA	17	-36	-135	-36	-22	-37	-54
Fen ANN	-159	N.A.					

Fen GLM	-189
Fen JENA	-154