OTC Data Plots

Kara Dobson

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TITLE: OTC data plots
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COLLABORATORS: Phoebe Zarnetske, Mark Hammond, Pat Bills, Moriah Young
DATA INPUT: CSV files are located in the HOBO_data folder in the shared Google drive
DATA OUTPUT: Plots of each graph are in the HOBO_plot.pdf in Github
note: plots are saved for each station and merged into a final figure at the bottom of the script
PROJECT: warmXtrophic
DATE: July 2020

Guide

Page 2: Yearly average air temperatures between KBS and UMBS
Page 3: Monthly average air temperatures between KBS and UMBS for all years
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Page 8: UMBS linear regression between warmed temp and PAR & KBS soil temperature over time
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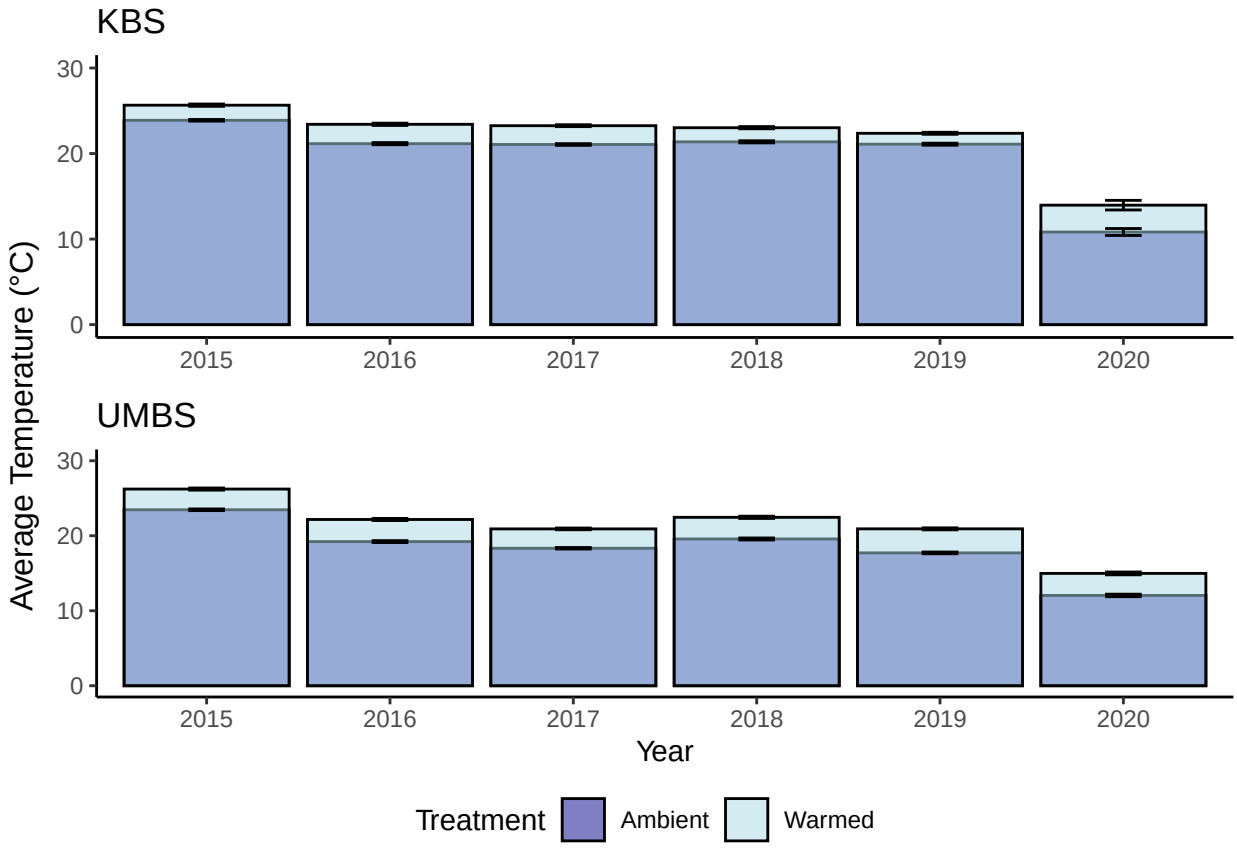
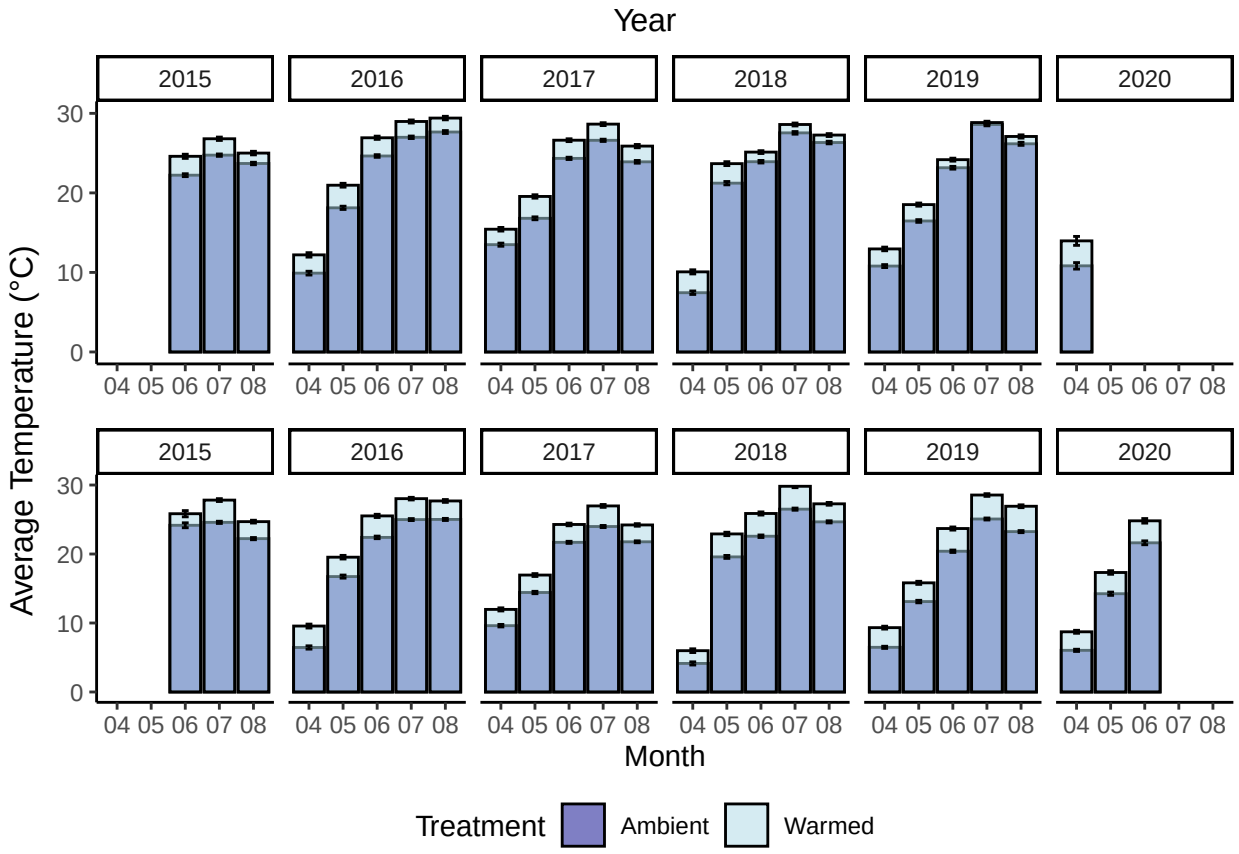
Page 12: 3H sensor average air temperature by month over all years

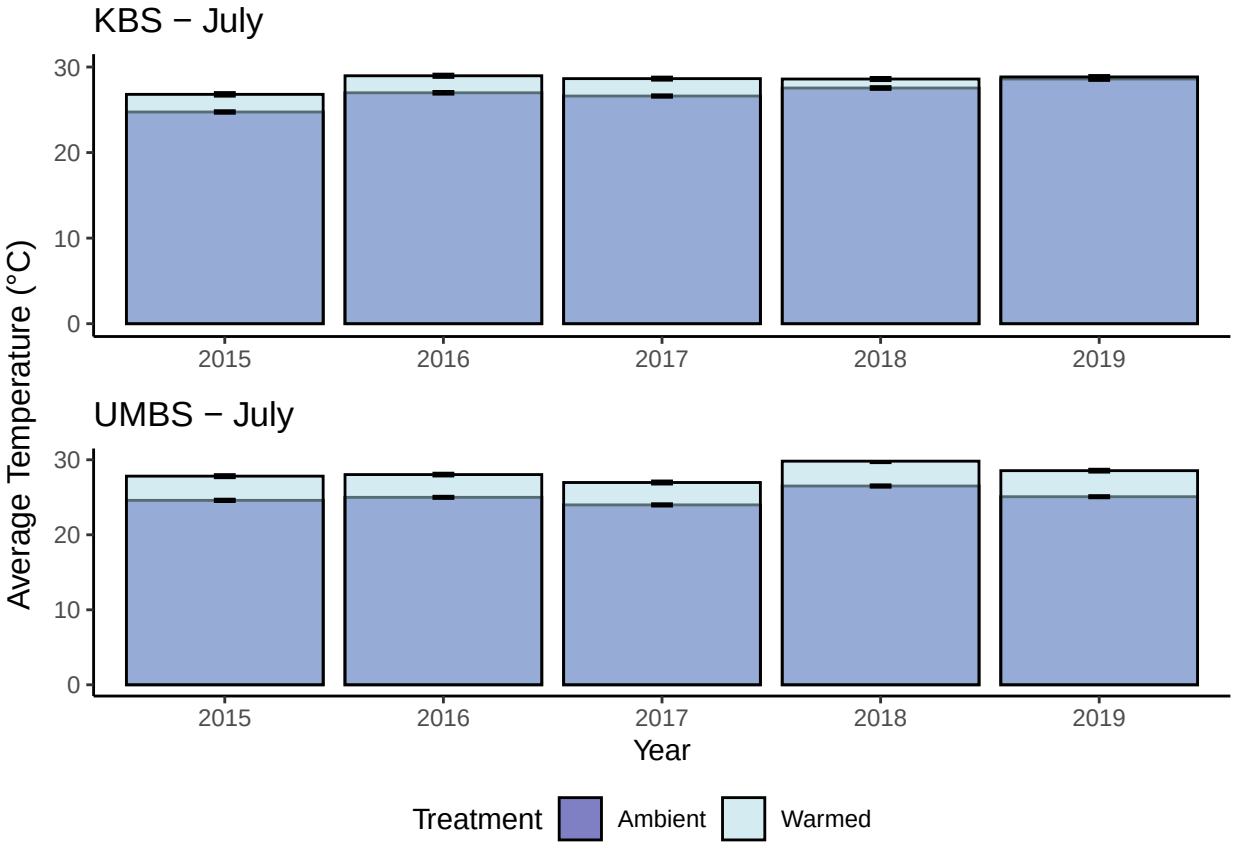
Yearly average chamber temperatures during the day for the growing season (I defined this as April-August from 7 AM - 7 PM, but this could easily be changed)



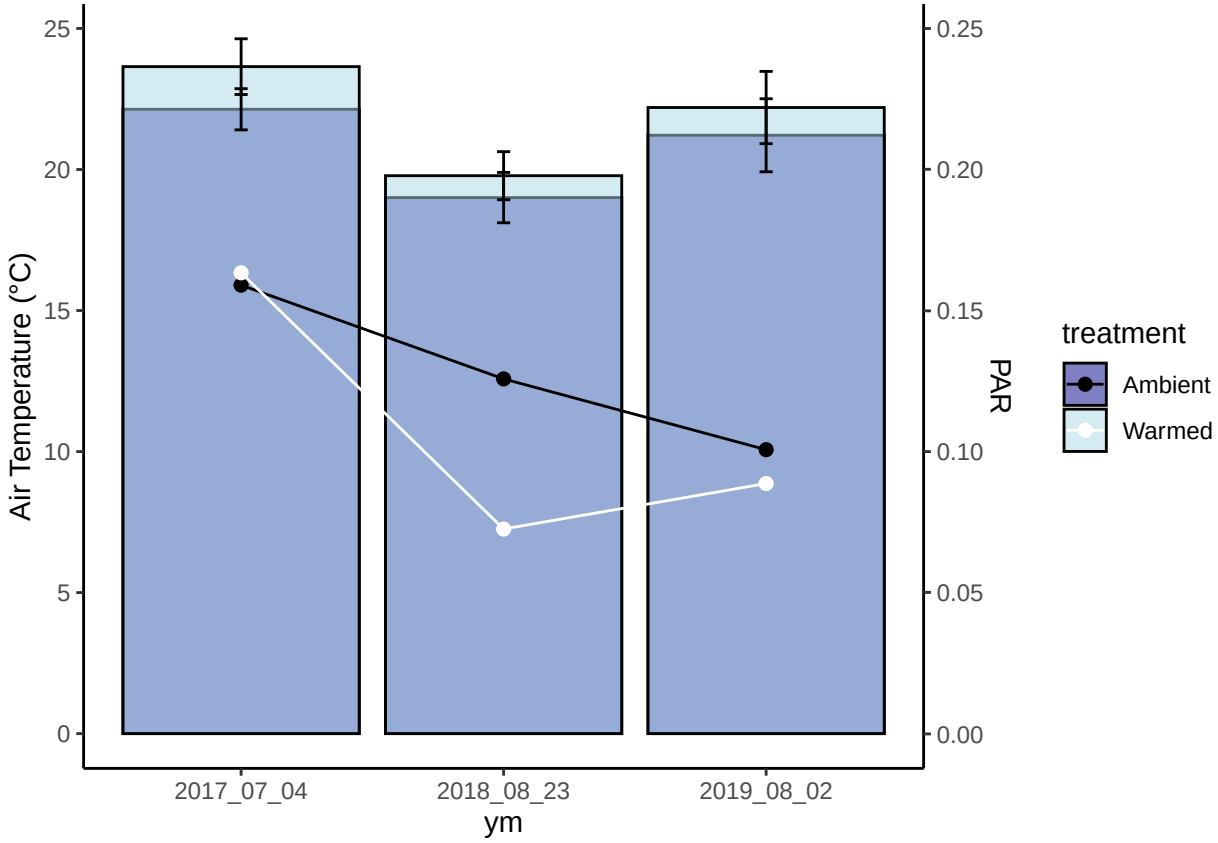
Monthly averages during the growing season, over time (KBS on top and UMBS on bottom) — these could be separated to see individual months over time (i.e. July temps over each year, as shown on the next page)



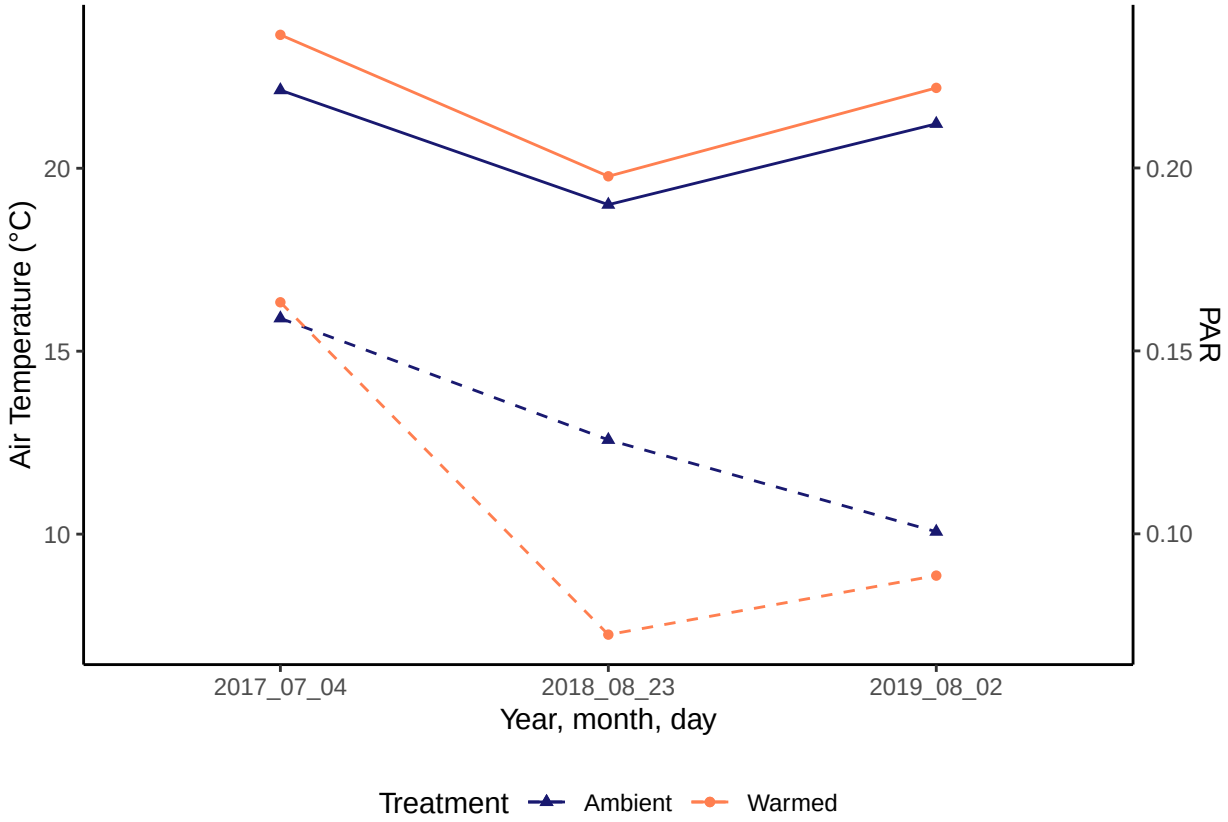
Average July temperatures during the daytime - KBS shows a smaller difference between warmed + ambient in later years than UMBS



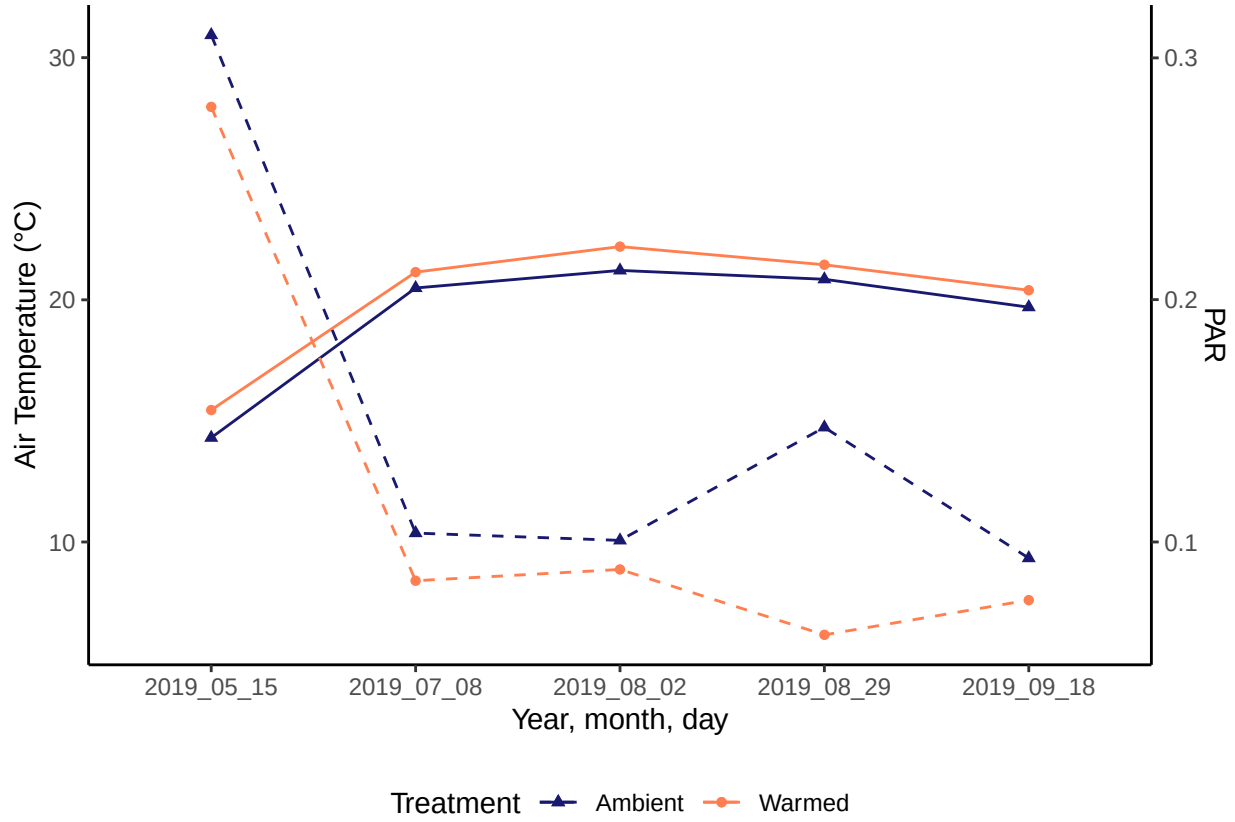
KBS - Comparing PAR to HOBO from 2017-2019; only one day is shown for each year because PAR measurements were only taken on one day at KBS for 2017 and 2018



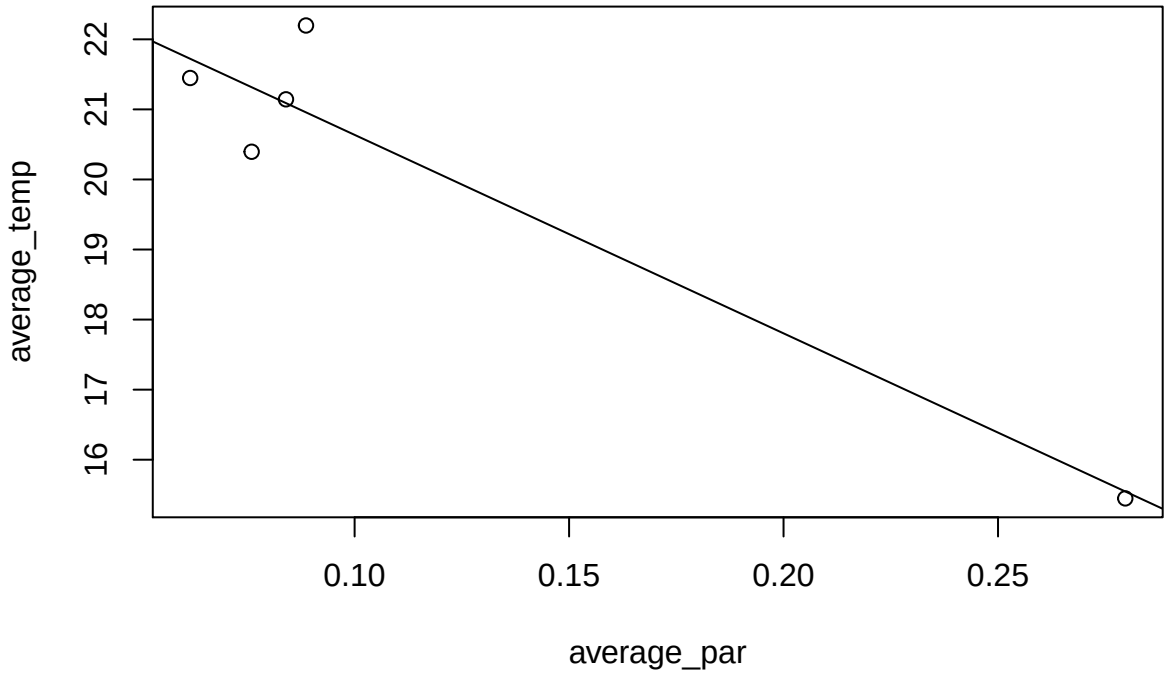
KBS - Again, comparing PAR to HOBO, this time in line format - PAR in dashed lines



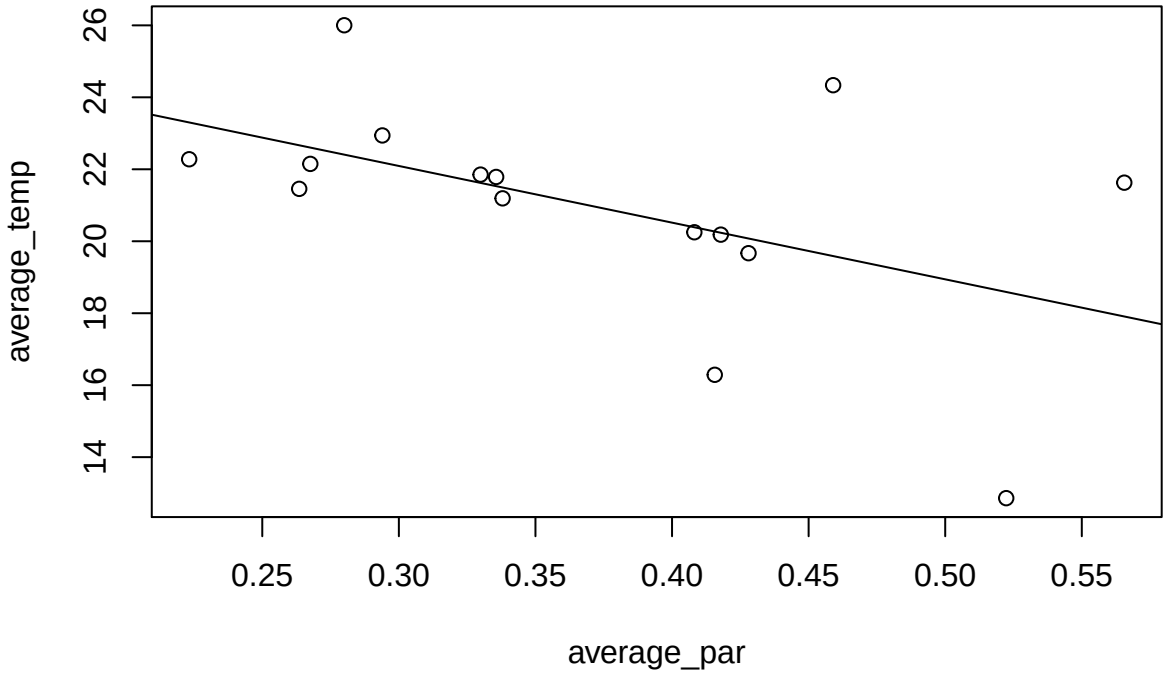
KBS- Comparing PAR to HOBO for only 2019 because multiple PAR measurements were taken that year - PAR in dashed lines



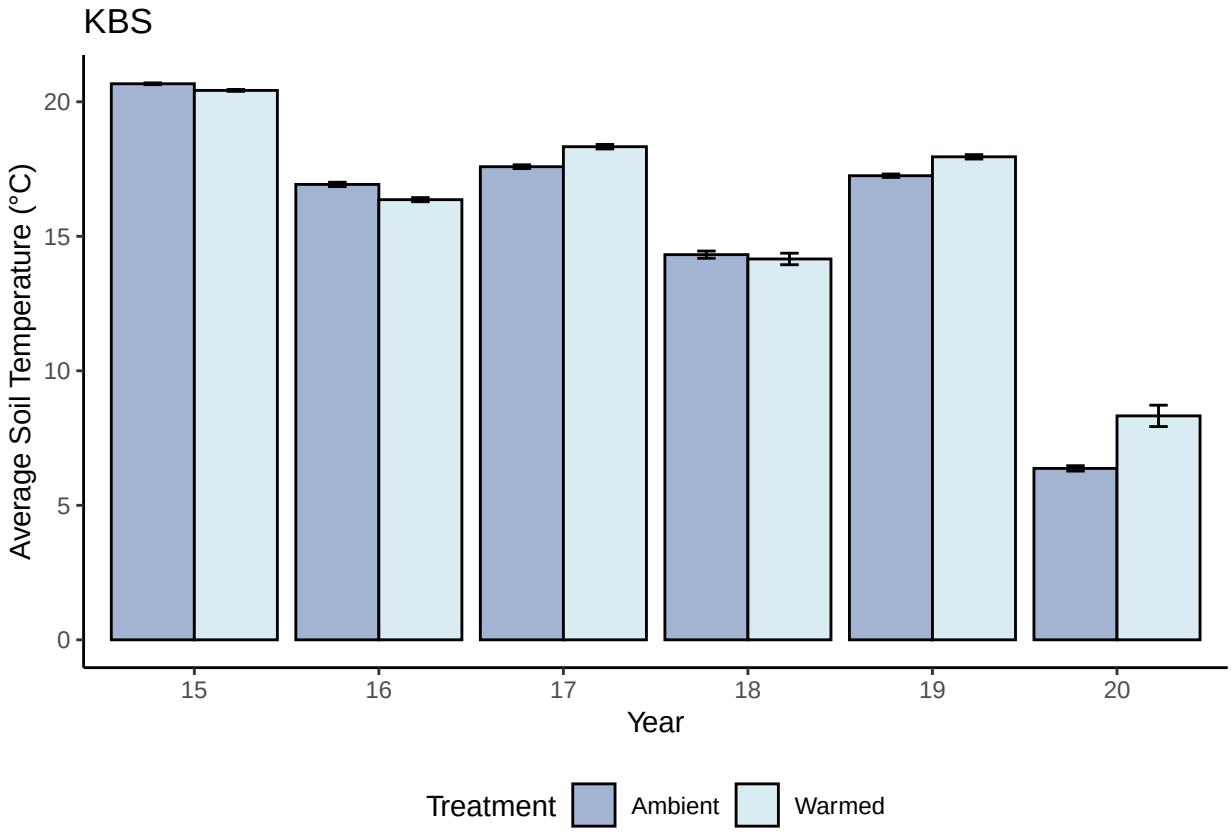
KBS - Simple linear regression between temp and par: $F(1,3) = 32.21$, p-value $= 0.011$



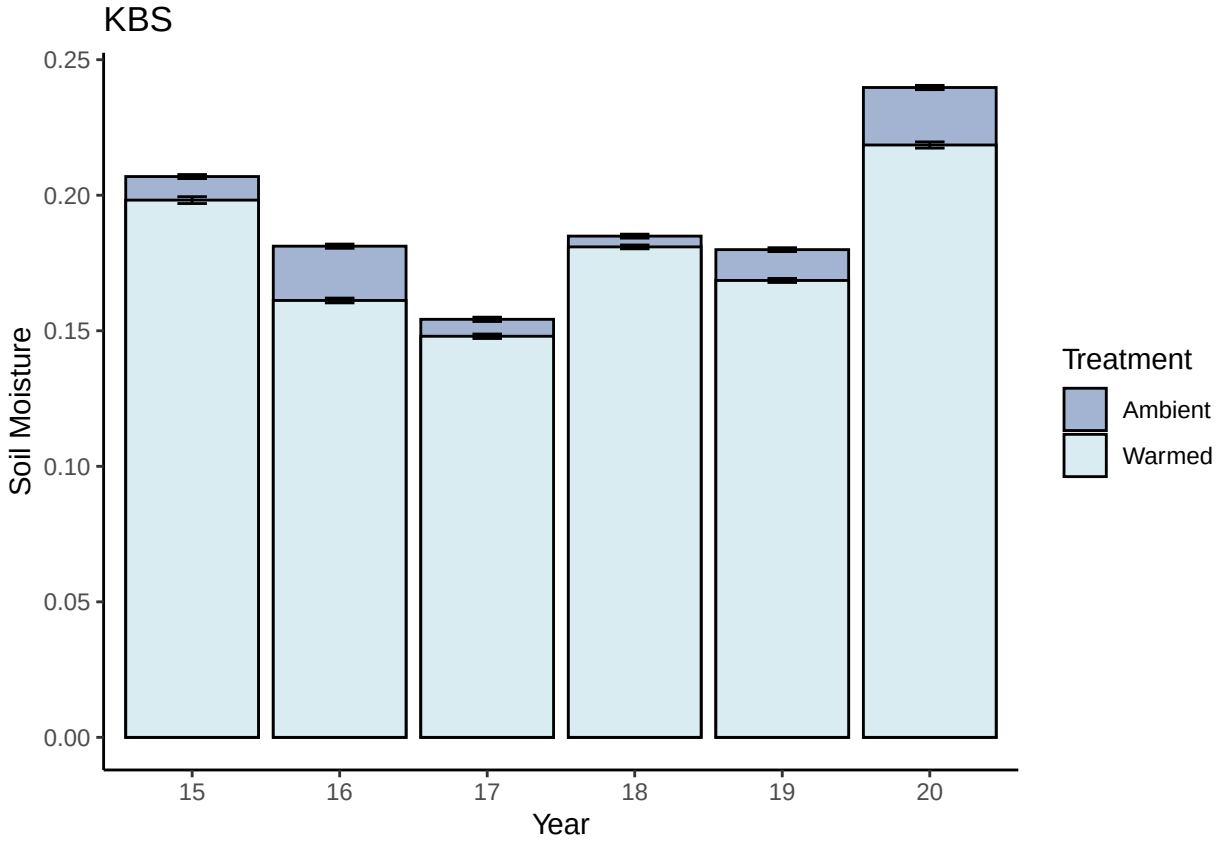
UMBS - Simple linear regression between temp and par: $F(1,13) = 1.45$, p-value $= 0.25$



Soil temperature over time - doesn't seem to be a difference between treatments

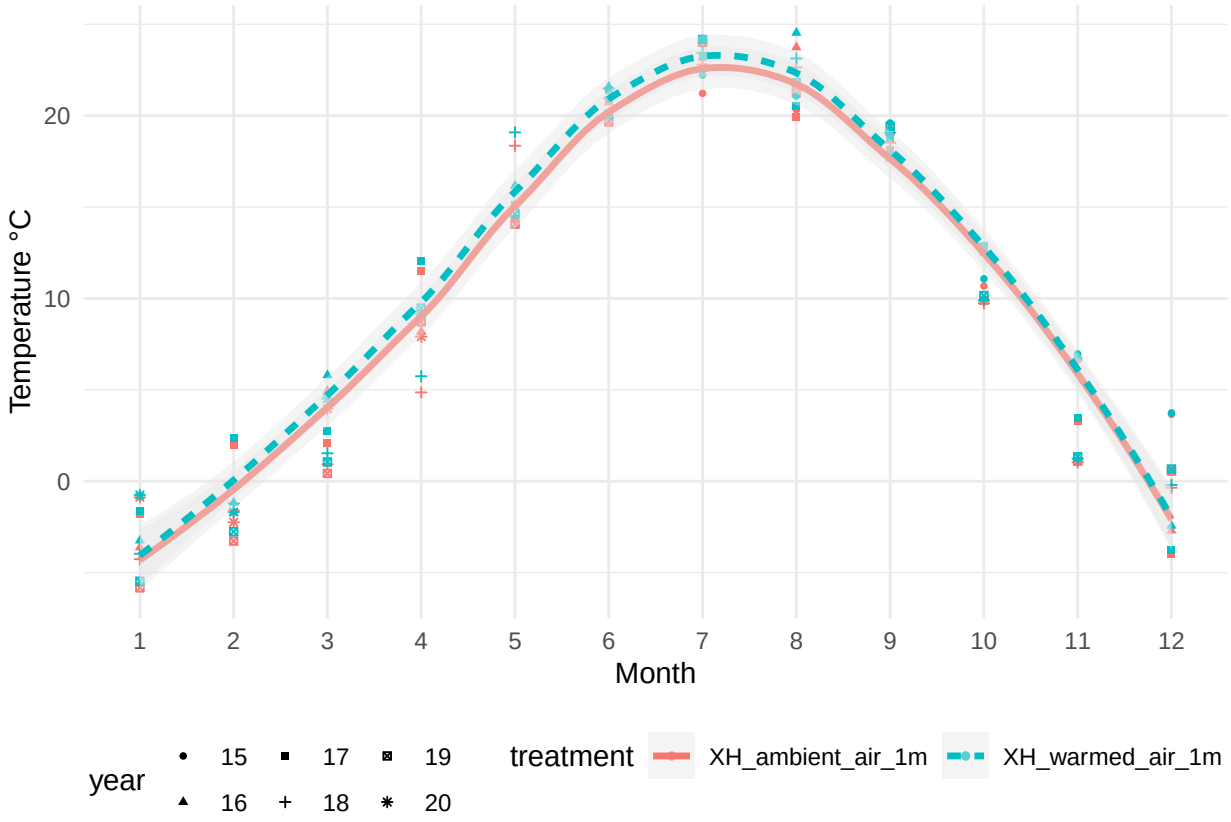


Soil moisture over time - ambient retains more moisture

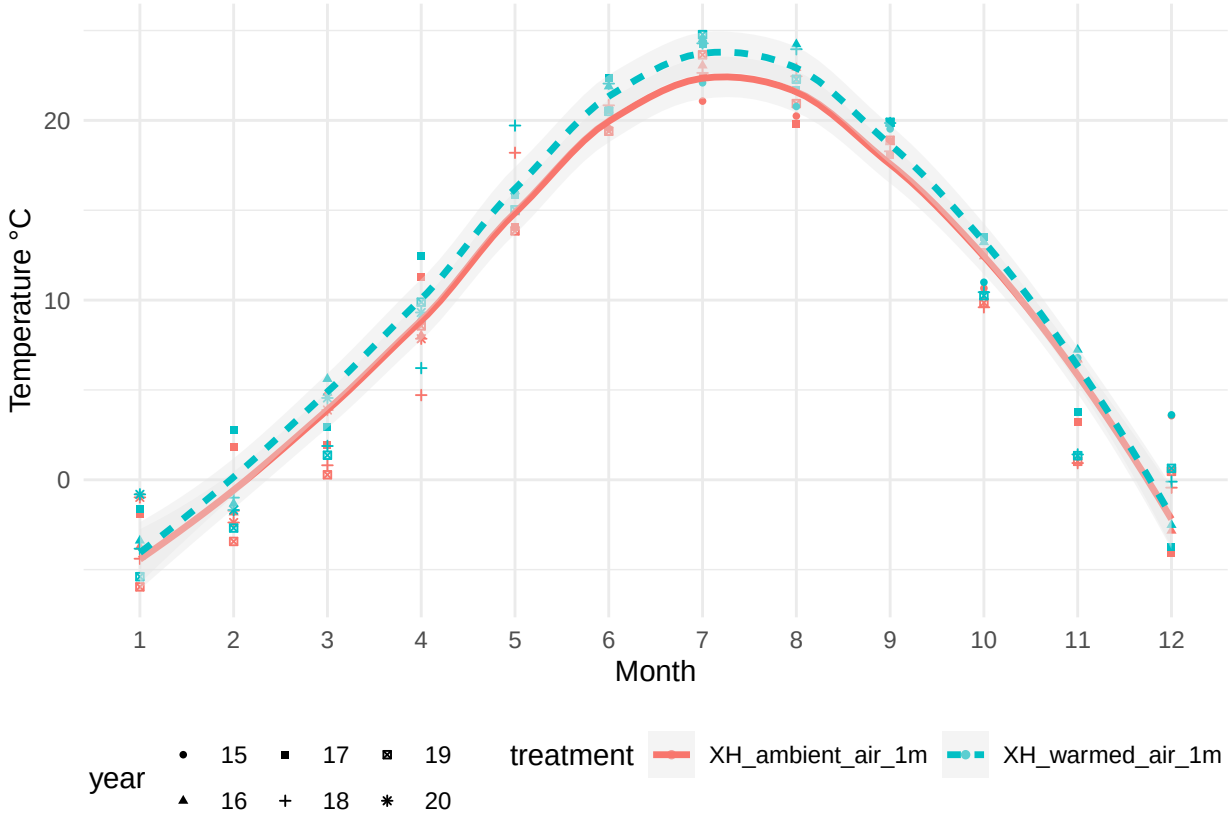


These plots average the chamber temperatures for each month over all years for each treatment

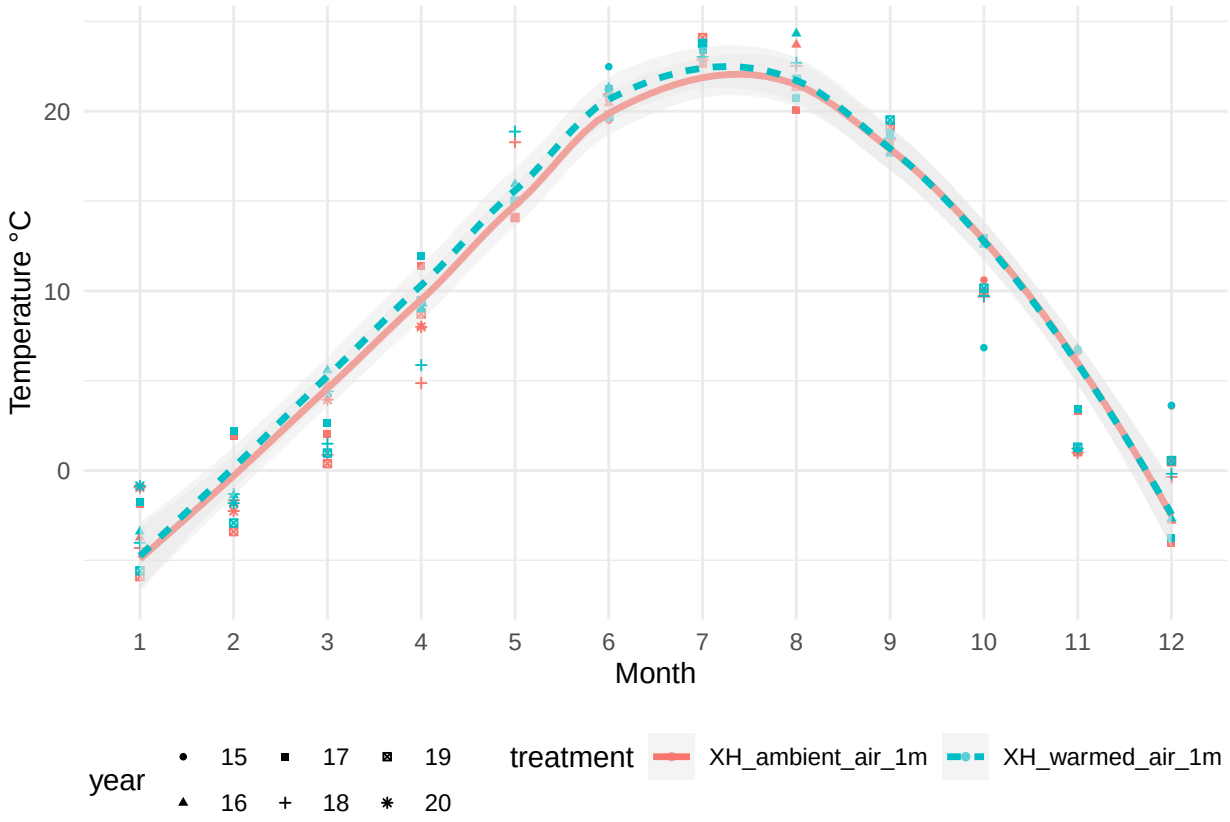
1H sensor



2H sensor


Temperature °C
20
10
0
1
2
3
4
5
6
7
8
9
10
11
12
Month
year
15
17
19
16
18
20
treatment
XH_ambient_air_1m
XH_warmed_air_1m

3H sensor


Temperature °C
20
10
0
1
2
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5
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8
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11
12
Month
year
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17
18
19
20
treatment
XH_ambient_air_1m
XH_warmed_air_1m