Mappeoppgave 1

Mohamad Ali Al-Mousawy

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Oppgave 1

Laster først inn nødvendige pakker for å laste inn datasettet.

```
library(readr)
library(zoo)
```

```
##
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.5     v dplyr   1.0.7
## v tibble  3.1.6     v stringr 1.4.0
## v tidyr   1.1.4     v forcats 0.5.1
## v purrr   0.3.4
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(ggplot2)
library(data.table)
```

```
##
## Attaching package: 'data.table'
```

```
## The following objects are masked from 'package:dplyr':
##
##     between, first, last
```

```
## The following object is masked from 'package:purrr':
##
##      transpose
```

Kopierer txt url for få lest den i fread funksjonen.

```r
Lower_temp <- fread("https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt")
```

```
## Warning in fread("https://www.nsstc.uah.edu/data/msu/v6.0/tlt/
## uahncdc_lt_6.0.txt"): Stopped early on line 520. Expected 29 fields but found
## 0. Consider fill=TRUE and comment.char=. First discarded non-empty line: <<Trend
## 0.14 0.18 0.12 0.16 0.19 0.14 0.11 0.16 0.10 0.12 0.16 0.11 0.18 0.21 0.17 0.10
## 0.15 0.09 0.25 0.23 0.27 0.01 0.09 -0.02 0.18 0.18 0.18>>
```

Fjerner informasjon som ikke skal brukes. Leser inn urlen med fread funksjonen, og endrer klassen på Globe
fra karakterisk til numerisk. Ved å bruk mutate funksjonen kan vi lage en gjennomsnitt. Bruker så rollmean
funksjonen der k = 13 månder.

```r
Lower_temp <- subset(Lower_temp, select = -c(Land:AUST)) %>%
  filter(Year != max(Year), Year != min(Year))


Lower_temp$Globe <- as.numeric((Lower_temp$Globe))

Lower_temp <- Lower_temp %>%
  mutate(gjennomsnittlig = rollmean(Globe, k = 13, fill = NA , align = 'right'),
         Year = as.yearmon(paste(Lower_temp$Year, Lower_temp$Mo), "%Y %m"))
```
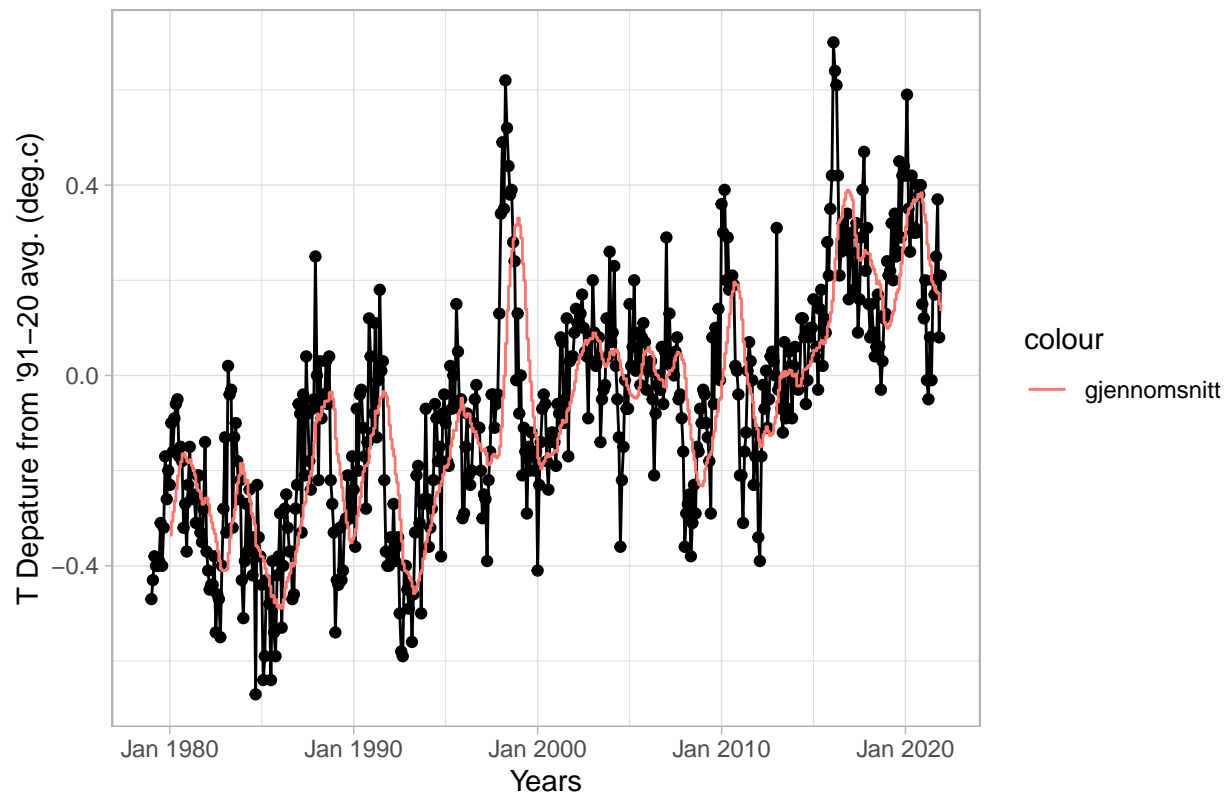
Plotter så inn informasjonen

```r
Lower_temp %>%
  ggplot(aes(x=Year, y=Globe,) ) +
  geom_point() +
  geom_line()+
  geom_step(aes(y=gjennomsnittlig, color="gjennomsnitt"))+
  labs(title="Nyeste global temperatur",
       x="Years",
       y="T Depature from '91-20 avg. (deg.c)") +
  theme_light()
```

```
## Warning: Removed 12 row(s) containing missing values (geom_path).
```

Nyeste global temperatur

Oppgave 2

Laster inn nødvendige pakker for

```r
library(data.table)
library(dplyr)
library(REAT)
```

```
##
## Attaching package: 'REAT'

## The following object is masked from 'package:data.table':
##
##     shift

## The following object is masked from 'package:readr':
##
##     spec
```

Laster inn de forskjellige datasettene.

```r
Lower_temp <- fread("https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt")
```

```
## Warning in fread("https://www.nsstc.uah.edu/data/msu/v6.0/tlt/
## uahncdc_lt_6.0.txt"): Stopped early on line 520. Expected 29 fields but found
## 0. Consider fill=TRUE and comment.char=. First discarded non-empty line: <<Trend
## 0.14 0.18 0.12 0.16 0.19 0.14 0.11 0.16 0.10 0.12 0.16 0.11 0.18 0.21 0.17 0.10
## 0.15 0.09 0.25 0.23 0.27 0.01 0.09 -0.02 0.18 0.18 0.18>>
```

```r
Lower_temp <- subset(Lower_temp, select = c(NoPol, Year, Mo)) %>%
  filter(Year != max(Year), Year != min(Year)) %>%
  mutate(Atmosphere = "Lower_temp")
```

```r
Mid_Tropos <- fread("https://www.nsstc.uah.edu/data/msu/v6.0/tmt/uahncdc_mt_6.0.txt")
```

```
## Warning in fread("https://www.nsstc.uah.edu/data/msu/v6.0/tmt/
## uahncdc_mt_6.0.txt"): Stopped early on line 520. Expected 29 fields but found
## 0. Consider fill=TRUE and comment.char=. First discarded non-empty line: <<Trend
## 0.10 0.13 0.08 0.12 0.14 0.10 0.07 0.10 0.07 0.09 0.12 0.09 0.13 0.15 0.12 0.06
## 0.09 0.06 0.17 0.16 0.19 -0.02 0.01 -0.03 0.14 0.14 0.13>>
```

```r
Mid_Tropos <- subset(Mid_Tropos, select = c(NoPol, Year, Mo)) %>%
  filter(Year != max(Year), Year != min(Year)) %>%
  mutate(Atmosphere = "Mid_Tropos")
```

```r
Tropopau <- fread("https://www.nsstc.uah.edu/data/msu/v6.0/ttp/uahncdc_tp_6.0.txt")
```

```
## Warning in fread("https://www.nsstc.uah.edu/data/msu/v6.0/ttp/
## uahncdc_tp_6.0.txt"): Stopped early on line 520. Expected 29 fields but found
## 0. Consider fill=TRUE and comment.char=. First discarded non-empty line: <<Trend
## 0.02 0.02 0.02 0.03 0.04 0.03 0.01 -0.00 0.01 0.03 0.04 0.03 0.03 0.04 0.03
## -0.01 -0.03 -0.00 0.02 0.02 0.03 -0.08 -0.13 -0.05 0.05 0.05 0.04>>
```

```r
Tropopau <- subset(Tropopau, select = c(NoPol, Year, Mo)) %>%
  filter(Year != max(Year), Year != min(Year)) %>%
  mutate(Atmosphere = "Tropopau")

Lower_Stratos<- fread("https://www.nsstc.uah.edu/data/msu/v6.0/tls/uahncdc_ls_6.0.txt")
```

```
## Warning in fread("https://www.nsstc.uah.edu/data/msu/v6.0/tls/
## uahncdc_ls_6.0.txt"): Stopped early on line 505. Expected 29 fields but found
## 28. Consider fill=TRUE and comment.char=. First discarded non-empty line: <<2020
## 11 -0.23 -0.96 0.05 0.05 -0.40 0.34 -0.52 -2.24 -0.16 1.29 1.26 1.31 -0.53 -0.78
## -0.30 -1.55 -5.03 -0.94 -1.85 -2.08 -1.58 -8.78-13.45 -6.57 -0.32 -1.04 0.53>>
```

```r
Lower_Stratos <- subset(Lower_Stratos, select = c(NoPol, Year, Mo)) %>%
  filter(Year != max(Year), Year != min(Year)) %>%
  mutate(Atmosphere = "Lower_Stratos")
```

Slår sammen de forskjellige datasettene for å få en hel datasett.

```
df1 = merge(Lower_temp, Mid_Tropos, all = TRUE)
df2 = merge(df1, Tropopau, all = TRUE)
kloden <- rbind(df2, Lower_Stratos, fill=TRUE)
```

Endrer NoPol, År og Måned fra karakterisk til numerisk.

```
kloden$NoPol <- as.numeric(kloden$NoPol)
kloden$Year <- as.numeric(kloden$Year)
kloden$Mo <- as.numeric(kloden$Mo)
```

Plotter så tilslutt med forskjellige atmosferer for forskjellige farger.

```
kloden %>%
  ggplot(aes(x = Year, y = NoPol, colour = Atmosphere)) +
  geom_point() +
  geom_line()+
  labs(title = "Atmosphere",
       x="År", y = "NoPol ") +
  theme_bw()
```