# Time Series

```
library(tidyverse)
library(janitor)
library(lubridate)
library(astsa)
library(ggplottimeseries)
#  climate_data  <-  read_delim("data/Land_and_Ocean_summary.txt",  delim=",",
skip=56, trim_ws=TRUE) |>
#   janitor::clean_names() |>
#   drop()
# climate_data
#
# climate_data <- read_csv("data/annual.csv") |>
#   clean_names() |>
#   mutate(year = ymd(year, truncated=2L))
#
# climate_data$detrended <- astsa::detrend(climate_data$mean)
#
# tsplot(climate_data)


# data <- gtemp_both
# u <- ssm(gtemp_both, A = 1, phi = 1, alpha = .01, sigw = .01, sigv = .01,
fixphi = TRUE)
#
# tsplot(gtemp_both, col = 4, type = "o", pch = 20, ylab = "Temperature
Deviations")
# lines(u$Xs, col = 6, lwd = 2)
# xx <- c(time(u$Xs), rev(time(u$Xs)))
# yy <- c(u$Xs - 2 * sqrt(u$Ps), rev(u$Xs + 2 * sqrt(u$Ps)))
# polygon(xx, yy, border = 8, col = gray(.6, alpha = .25))

#
# climate_ts <- dts1(
#   climate_data$year,
#   climate_data$mean,
#   1
# )

# climate_ts <- dts1(sst$date, sst$sst, 365.25)
#
# climate_ts
```

```
# ggdecompose(climate_ts) +
#   xlab("Month") +
#   ylab("Temperature Anomaly (C)")
```

```
# library(gcookbook)
# library(ggplottimeseries)
#
# # Grab a subset of the climate data
# climate_mod <- climate %>%
#   filter(Source == "Berkeley") %>%
#   select(Year, Anomaly10y, Unc10y)
#
# # Shaded region
# ggplot(climate_mod, aes(x = Year, y = Anomaly10y)) +
#    geom_ribbon(aes(ymin = Anomaly10y - Unc10y, ymax = Anomaly10y + Unc10y),
alpha = 0.2) +
#   geom_line()
```

```
# x <- as.Date(climate_mod$Year)
# y <- climate_mod$Anomaly10y
# z <- 1
#
# ts_df <- dts1(x, y, z, type = "additive")
#
# head(ts_df)
```

# Bibliography