

# GSOC 2024: Tests for the glyph map project

```
library(tidyverse) # data manipulation
```

Warning: package 'ggplot2' was built under R version 4.3.1

Warning: package 'tidyr' was built under R version 4.3.1

Warning: package 'readr' was built under R version 4.3.1

Warning: package 'dplyr' was built under R version 4.3.1

Warning: package 'stringr' was built under R version 4.3.1

Warning: package 'lubridate' was built under R version 4.3.1

```
-- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
```

```
v dplyr      1.1.4      v readr      2.1.5
```

```
v forcats   1.0.0      v stringr    1.5.1
```

```
v ggplot2    3.4.4      v tibble     3.2.1
```

```
v lubridate  1.9.3      v tidyr      1.3.1
```

```
v purrr      1.0.2
```

```
-- Conflicts ----- tidyverse_conflicts() --
```

```
x dplyr::filter() masks stats::filter()
```

```
x dplyr::lag()     masks stats::lag()
```

```
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become
```

```
library(cubble) # glyph
```

Attaching package: 'cubble'

The following object is masked from 'package:stats':

filter

```
library(sf) # spatial
```

Warning: package 'sf' was built under R version 4.3.1

Linking to GEOS 3.11.0, GDAL 3.5.3, PROJ 9.1.0; sf\_use\_s2() is TRUE

## EASY

```
print_p <- GGally::print_if_interactive
```

Registered S3 method overwritten by 'GGally':

method from  
+.gg ggplot2

```
p <- ggplot(data = GGally::nasa,  
            aes(x_major = long, x_minor = day,  
                y_major = lat, y_minor = surftemp)) +  
  geom_glyph_box() +  
  geom_glyph_line() +  
  geom_glyph() +  
  theme_bw()  
print_p(p)
```

# rescale on each individual glyph -----

```
p <- ggplot(data = GGally::nasa,  
            aes(x_major = long, x_minor = day,  
                y_major = lat, y_minor = surftemp)) +  
  geom_glyph(global_rescale = FALSE)  
print_p(p)
```

# adjust width and height with relative & absolute value -----

```

p <- ggplot() +
  geom_glyph(data = GGally::nasa,
            aes(x_major = long, x_minor = day,
                y_major = lat, y_minor = surftemp),
            width = rel(0.8), height = 1) +
  theme_bw()
print_p(p)

# apply a re-scaling on Y and use polar coordinate
p <- GGally::nasa %>%
  ggplot(aes(x_major = long, x_minor = day,
            y_major = lat, y_minor = ozone)) +
  geom_glyph_box(fill=NA) +
  geom_glyph_line() +
  geom_glyph(y_scale = GGally::range01, polar = TRUE)
print_p(p)

```

## MEDIUM

I understood this test as creating an example with a glyph on a map strictly based on geoms in the ggplot2 package (i.e., not using the cubble package).

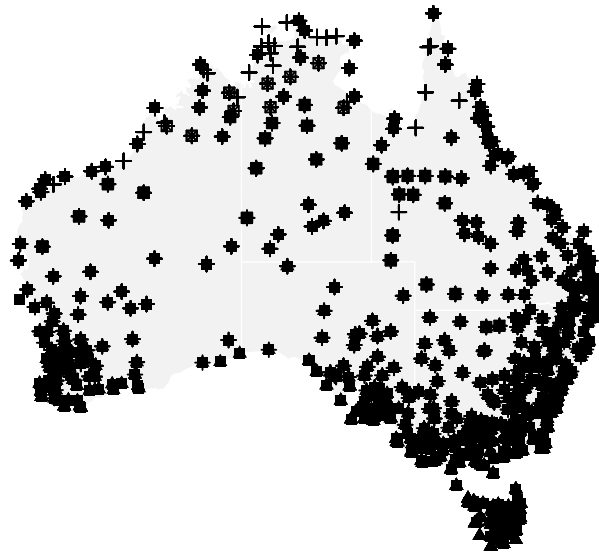
```

# modify the data prepped from https://huizezhang-sherry.github.io/cubble/articles/cb4glyph
tmax <- climate_aus %>%
  rowwise() %>%
  filter(nrow(ts) == 366) %>%
  face_temporal() %>%
  group_by(month = tsibble::yearmonth(date)) %>%
  summarise(tmax = mean(tmax, na.rm = TRUE)) %>%
  unfold(long, lat) %>%
  filter(!is.na(tmax)) %>%
  mutate(tmax_cat = cut(tmax, breaks=c(0,10,20,30,40,50)))

ggplot(data=tmax,
      aes(x_major = long, y_major = lat,
          x_minor = month, y_minor = tmax)) +
  geom_sf(data = ozmaps::abs_ste,
        fill = "grey95", color = "white",
        inherit.aes = FALSE) +

```

```
geom_point(data=tmax,aes(x=long,y=lat,shape=tmax_cat)) +
coord_sf(xlim = c(110, 155)) +
theme_void() +
theme(legend.position = "bottom") +
labs(x = "Longitude", y = "Latitude",shape="maximum temperature")
```



maximum temperature   •   (0,10]   ▲   (10,20]   ■   (20,30]   +   (30,40]   ☒   (40,50]

## HARD

Please see <https://github.com/huizezhang-sherry/cubble/pull/26>.