Animating plots using gganimate

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Figure 1: Artwork by @allisonhorst

```
library(tidyverse)
library(gganimate)
library(lubridate)
```

Storms Data

The storms dataset from the dplyr package. This dataset tracks tropical storms in the North Atlantic, including wind speed, pressure, and location over time — making it perfect for animation.

```
data("storms")
```

- `name`: storm name
- `year`, `month`, `day`, `hour`: timestamp info
- `lat`, `long`: geographic location
- `wind`: wind speed (in knots)
- `pressure`: atmospheric pressure (hPa)
- `status`: classification (tropical storm, hurricane, etc.)

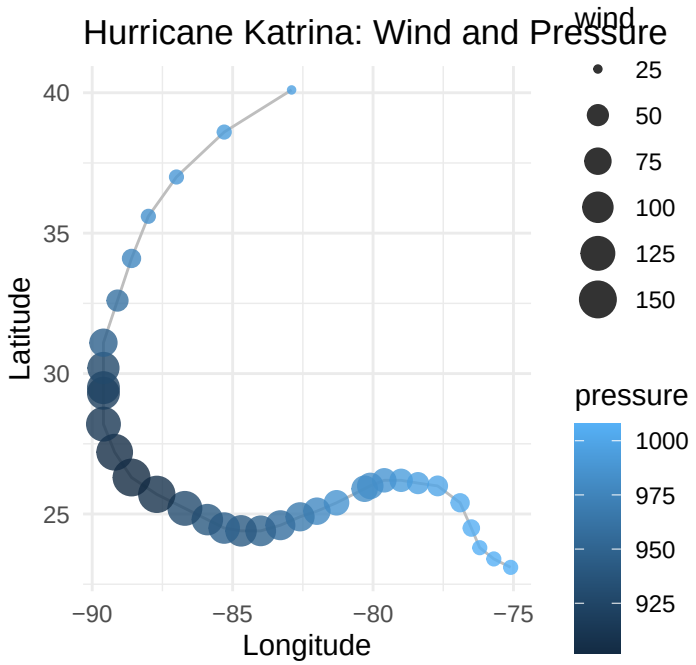
Let's animate the path of one specific storm – Katrina in 2005.

Let's get the data in an appropriate format.

```
katrina <- storms %>%
  filter(name == "Katrina", year == 2005) %>%
  mutate(time = make_datetime(year, month, day, hour))
```

It's usually useful to start with a static plot:

```
ggplot(katrina, aes(x = long, y = lat)) +
  geom_path(color = "gray") +
  geom_point(aes(size = wind, color = pressure), alpha = 0.8) +
  coord_fixed() +
  theme_minimal() +
  labs(title = "Hurricane Katrina: Wind and Pressure", x = "Longitude", y = "Latitude")
```



I also think it would be cool to add a map behind it. Let's pull one from the `rnaturalearth` package.

```
library(rnaturalearth)
library(rnaturalearthdata)
library(sf)

world <- ne_countries(scale = "medium", returnclass = "sf")
```

```
plot <- ggplot() +
  # World landmasses
  geom_sf(data = world, fill = "#f0f0f0", color="#8f8d8d", linewidth = 0.3) +

  # Map bounds
  coord_sf(xlim = c(-95, -75), ylim = c(20, 40), expand = FALSE) +

  # Storm path
  geom_path(data = katrina, aes(x = long, y = lat),
            color = "gray40", linewidth = 1, linetype = "solid") +

  # Storm points7
  geom_point(
```

```
    data = katrina,
    aes(x = long, y = lat, size = wind, color = pressure),
    alpha = 0.8
  ) +

  # Scales
  scale_color_gradient(low = "#fee08b", high = "#d73027", name = "Pressure (hPa)") +
  scale_size(range = c(2, 15), name = "Wind (knots)", breaks = c(35, 65, 100)) +

  # Labels
  labs(
    title = "Hurricane Katrina (2005)",
    x = "Longitude", y = "Latitude"
  ) +

  # Themes
  theme(
    legend.position = "right",
    panel.background = element_rect(fill = "#e6f2ff", color = NA)
  )

plot
```