Mapping Extended

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Data Cleaning

prepare FEMA funds data

```
## Warning: `summarise_each_()` is deprecated as of dplyr 0.7.0.
## Please use `across()` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_warnings()` to see where this warning was generated.
```

```
## Warning: `funs()` is deprecated as of dplyr 0.8.0.
## Please use a list of either functions or lambdas:
##
##   # Simple named list:
##   list(mean = mean, median = median)
##
##   # Auto named with `tibble::lst()`:
##   tibble::lst(mean, median)
##
##   # Using lambdas
##   list(~ mean(., trim = .2), ~ median(., na.rm = TRUE))
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_warnings()` to see where this warning was generated.
```

```
kable(head(countyFund)) %>% kableExtra::kable_classic()
```

disaster	region	subregion	date	projectAmount	federalShare
1866	alabama	baldwin	2009-12-22	3066594.49	2299945.88
1866	alabama	mobile	2009-12-22	1184470.36	888352.78
1931	texas	calhoun	2010-08-03	334817.02	251112.77
1931	texas	cameron	2010-08-03	2256055.79	1692042.00
1931	texas	cottle	2010-08-03	95463.76	71597.84
1931	texas	dawson	2010-08-03	705461.25	529095.98

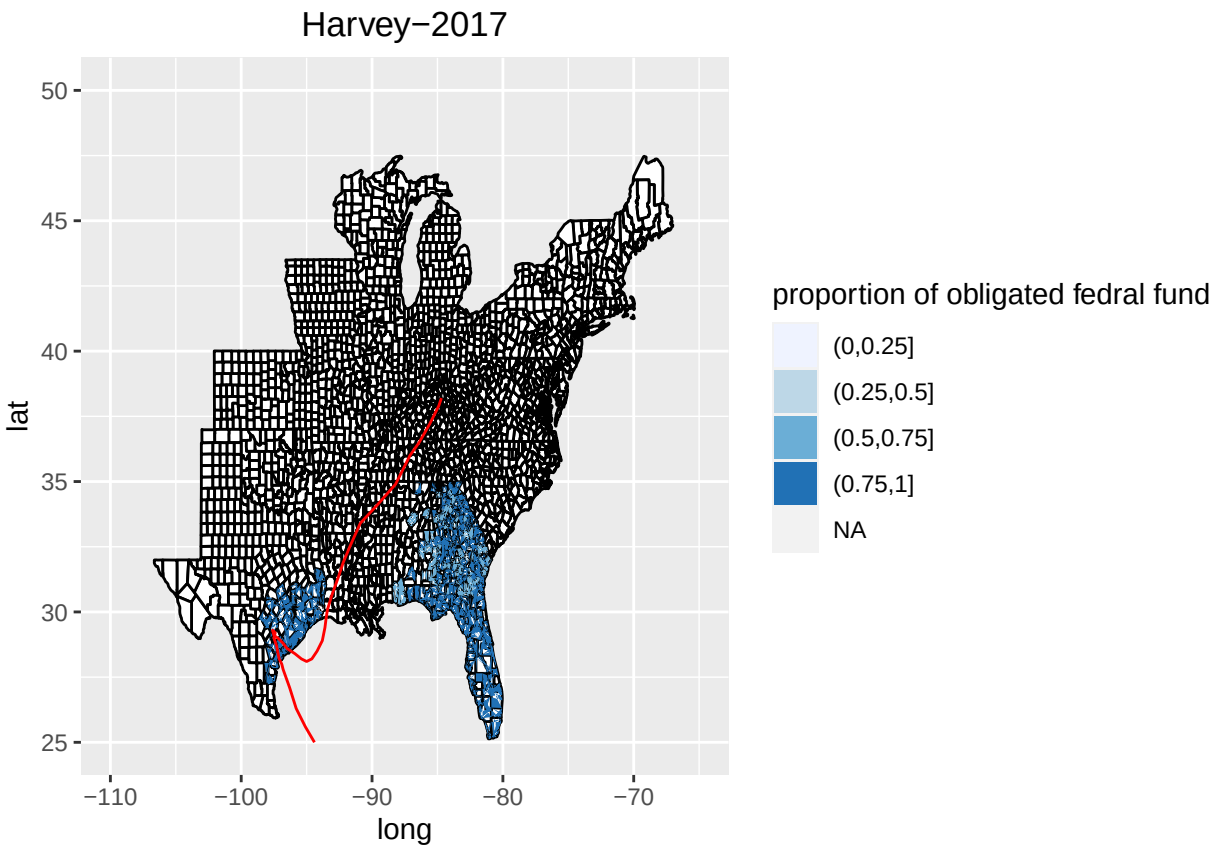
prepare location

prepare map data

```
# add locations on fund dataframe
harvey <- merge(MainStates,harvey,by=c("region","subregion"))
sandy <- merge(MainStates,sandy,by=c("region","subregion"))
```

Make map plots of Hurricane Harvey's received federal funds by county.

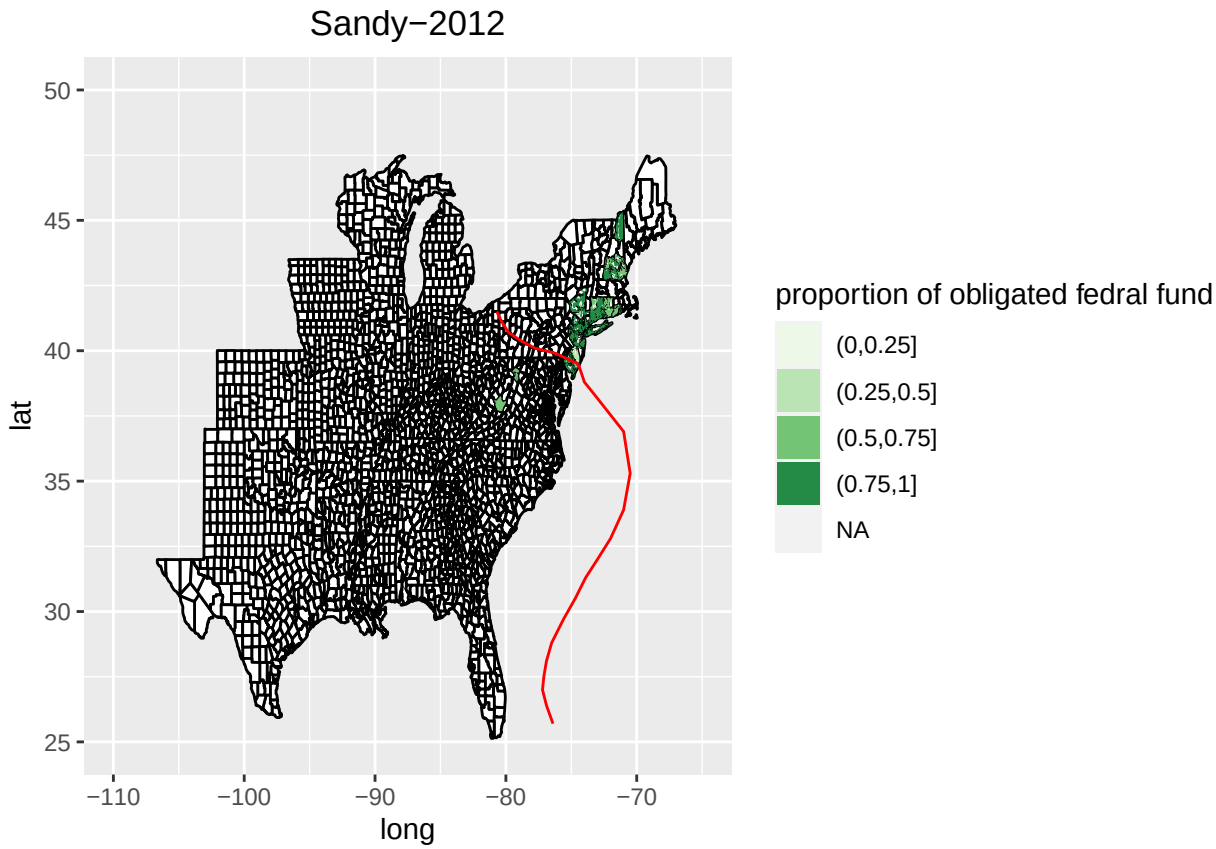
```
harveyPlot <- ggplot() +
  geom_polygon(data=MainStates, aes(x=long, y=lat, group=group),colour="black",fill="white") +
  geom_polygon(data=harvey, aes(x = long, y = lat, group = group, fill = cut)) +
  scale_fill_brewer(palette="Blues") +
  labs(fill="proportion of obligated fedral fund") +
  geom_path(data=Track_Harvey,aes(longitude, latitude),color="red") +
  ggtitle("Harvey-2017") +
  xlim(c(-110, -65)) +
  ylim(c(25, 50)) +
  theme(plot.title = element_text(hjust = 0.5))
harveyPlot
```



Make map plots of Hurricane Sandy's received federal funds by county

```
sandyPlot <- ggplot() +
  geom_polygon(data=MainStates, aes(x=long, y=lat, group=group),colour="black",fill="white")+
  geom_polygon(data=sandy, aes(x = long, y = lat, group = group, fill = cut))+
  scale_fill_brewer(palette="greens")+
  geom_path(data=Track_Sandy, aes(longitude, latitude),color="red")+
  labs(fill="proportion of obligated fedral fund") +
  ggtitle("Sandy-2012") +
  xlim(c(-110, -65)) +
  ylim(c(25, 50)) +
  theme(plot.title = element_text(hjust = 0.5))
```

```
sandyPlot
```

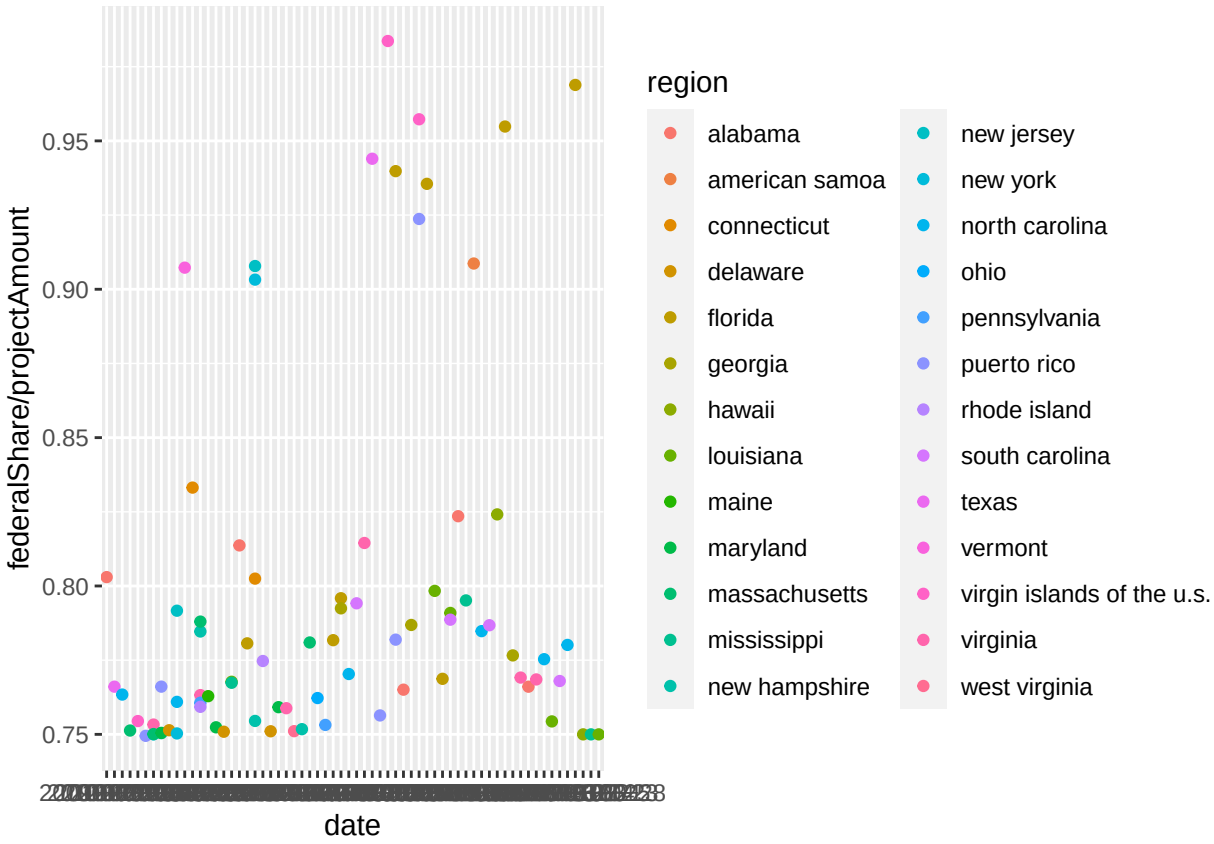


Plot total funds

```
kable(head(stateFund)) %>% kable_classic()
```

disaster	region	date	projectAmount	federalShare
1866	alabama	2009-12-22	1295952.5	1040641.4
1931	texas	2010-08-03	10946932.8	8386169.9
1939	virgin islands of the u.s.	2010-09-28	4035930.3	3045021.4
3314	north carolina	2010-09-01	311721.4	237971.6
3315	massachusetts	2010-09-02	311462.5	234000.4
3326	puerto rico	2011-08-22	895780.3	671393.5

```
ggplot(data = stateFund) +
  geom_point(aes(x = date, y = federalShare/projectAmount, color = region))
```


federalShare/projectAmount
0.95
0.90
0.85
0.80
0.75
date
region
alabama
american samoa
connecticut
delaware
florida
georgia
hawaii
louisiana
maine
maryland
massachusetts
mississippi
new hampshire
new jersey
new york
north carolina
ohio
pennsylvania
puerto rico
rhode island
south carolina
texas
vermont
virgin islands of the u.s.
virginia
west virginia