```r
library(ggplot2)

pgm_name="precip_gamma"

read_site<-function(sname="amherst"){
  tempdf<-read.csv(paste(sname,"PRECIP.csv",sep=''))
  tempdf$site<-as.factor(rep(sname,nrow(tempdf)))
  names(tempdf)<-c("n","year","month","day","rain_mm","X01","site")
  return(tempdf)
}
rainfall=read.csv("amherstPRECIP.csv")
rainfall$site<-as.factor(rep("amherst",nrow(rainfall)))
names(rainfall)<-c("n","year","month","day","rain_mm","X01","site")

rainfall<-rbind(rainfall,read_site(sname="bedford"))
rainfall<-rbind(rainfall,read_site(sname="bluehill"))
rainfall<-rbind(rainfall,read_site(sname="gb"))
rainfall<-rbind(rainfall,read_site(sname="lawrence"))
rainfall<-rbind(rainfall,read_site(sname="nb"))
rainfall<-rbind(rainfall,read_site(sname="pk"))
rainfall<-rbind(rainfall,read_site(sname="ptown"))
rainfall<-rbind(rainfall,read_site(sname="reading"))
rainfall<-rbind(rainfall,read_site(sname="taunton"))
rainfall<-rbind(rainfall,read_site(sname="walpole"))
rainfall<-rbind(rainfall,read_site(sname="wm"))

str(rainfall)

## 'data.frame': 349544 obs. of  7 variables:
##  $ n      : int  2 3 4 5 6 7 8 9 10 11 ...
##  $ year   : int  1893 1893 1893 1893 1893 1893 1893 1893 1893 1893 ...
##  $ month  : int  1 1 1 1 1 1 1 1 1 1 1 ...
##  $ day    : int  2 3 4 5 6 7 8 9 10 11 ...
##  $ rain_mm: num  215 0 0 0 4 0 0 NaN 6 NaN ...
##  $ X01    : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ site   : Factor w/ 12 levels "amherst","bedford",..: 1 1 1 1 1 1 1 1 1 1 ...
```

Select the desired subset and build the data STAN will read

```r
rainfall2<-subset(rainfall,!is.na(rain_mm) & year>=1990 & year <= 1999 & rain_mm>0)

log_rain_mm<-log(rainfall2$rain_mm)
rain_mm<-rainfall2$rain_mm
site<-rainfall2$site

plotdf<-data.frame(rain_mm,log_rain_mm,site)
```
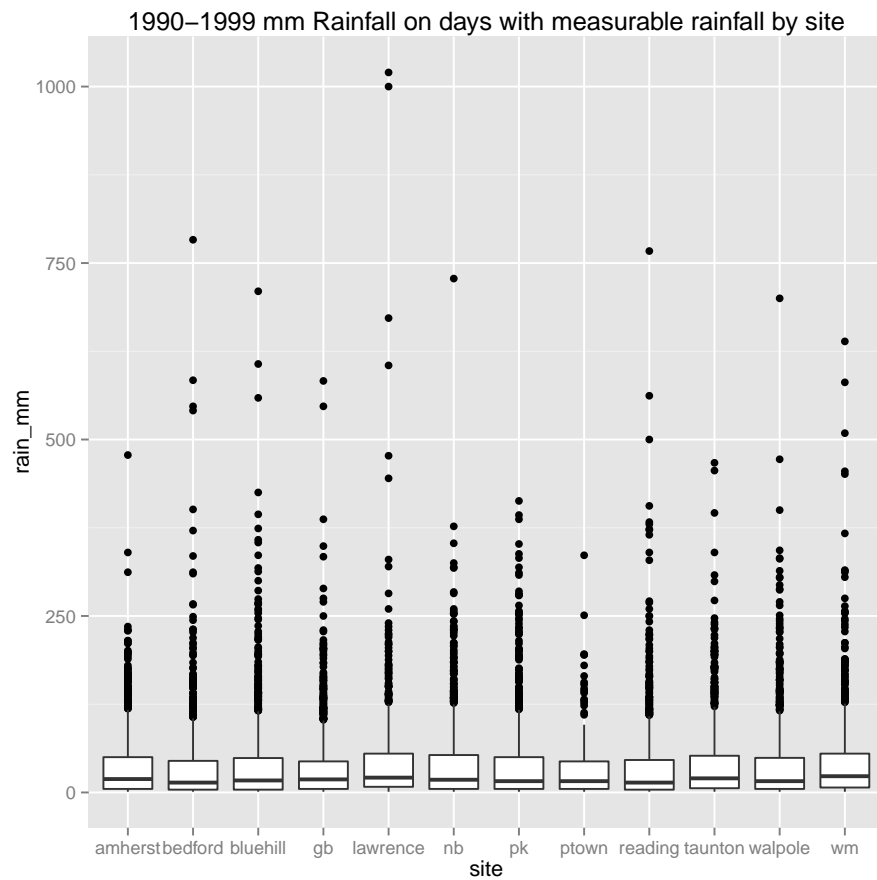
```
box<-ggplot(plotdf,aes(site,rain_mm))
box+geom_boxplot()+ggtitle("1990-1999 mm Rainfall on days with measurable rainfall by site")
```


1990–1999 mm Rainfall on days with measurable rainfall by site

```
box<-ggplot(plotdf,aes(site,log_rain_mm))
box+geom_boxplot()+ggtitle("1990-1999 log scale mm Rainfall on days with measurable rainfall
```

1990−1999 log scale mm Rainfall on days with measurable rainfall by site