GPCW_Example

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[1] Simulate data from the proposed model:

```r
#####################
#Reproducability Seed
#####################
set.seed(78453)

###############
#Packages
###############
library(GPCW)
library(mnormt)
library(boot)

###############################################
#Data Settings
###############################################
n<-10000
m<-36
x<-matrix(1,
          nrow=n,
          ncol=1)
z<-matrix(rnorm(n=(n*m)),
          nrow=n,
          ncol=m)

#Standardizing the Exposures at Each Time Period
for(j in 1:m){
   z[,j]<-(z[,j] - median(z[,j]))/IQR(z[,j])
   }

###############################################
#True Parameter Values
###############################################
beta_true<- -0.30
phi0_true<-0.50
phi1_true<-0.10
Sigma<-phi0_true*temporal_corr_fun(m,
                                   phi1_true)[[1]]
theta_true<-c(rmnorm(n=1,
                     mean=rep(0, times=m),
                     varcov=Sigma))
logit_p<-x%*%beta_true +
         z%*%theta_true
probs<-inv.logit(logit_p)
```

```
#####################
#Simulated Response
#####################
y<-rbinom(n=n,
          size=1,
          prob=probs)
```

[2] Fit GPCW to Estimate Critical Windows of Susceptibility:

[3] Analyzing Output:

```
plot(rowMeans(results$theta), pch=16)
points(theta_true, pch=16, col="blue")
```