#Power Transformation

power=powerTransform(so2)

so2t<-bcPower(so2,.1320518)

#untransformed data

plot(so2)

#power transformed data

plot(so2t)

acf2(so2t)

#differencing data

x=diff(so2t)

plot(x)

acf(x)

pacf(x)

```{r}

#using auto arima function to determine paramters

auto.arima(so2t)

#plotting diagostics

#diagonistics look normal

m1=sarima(so2t,2,1,1, no.constant=TRUE);m1

pacf(resid(m1$fit))

#Forecast for the next 4 weeks

results<-sarima.for(so2t,4,2,1,1)

#95% Prediction Intervals

results$pred+(1.96\*results$se)

```

**The 95% prediction intervals are 1.283436, 1.300106, 1.353382, 1.360790.**

**It is calculated in the r code above.**

**By plotting the diagnostics, the ARIMA model seems to fit. The qqplot, p values and residual plot look seem to be normal**







