

# 1 Residual Plot

The residual data of the simple linear regression model is the difference between the observed data of the dependent variable  $y$  and the fitted values  $\hat{y}$ .

Plot the residual of the simple linear regression model of the data set faithful against the independent variable waiting.

We apply the `lm` function to a formula that describes the variable eruptions by the variable waiting, and save the linear regression model in a new variable `eruption.lm`. Then we compute the residual with the `resid` function.

```
> eruption.lm = lm(eruptions ~ waiting, data=faithful)
> eruption.res = resid(eruption.lm)
```

We now plot the residual against the observed values of the variable waiting.

```
> plot(faithful$waiting, eruption.res,
+      ylab="Residuals", xlab="Waiting Time",
+      main="Old Faithful Eruptions")
> abline(0, 0) # the horizon
```

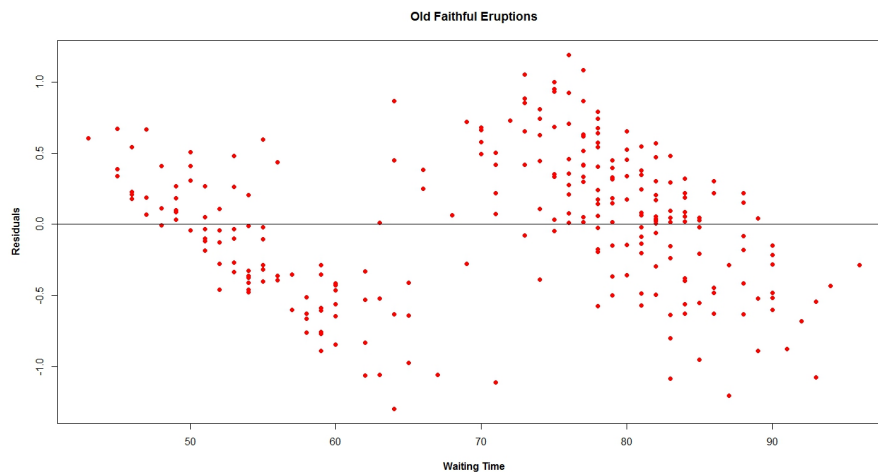


Figure 1: