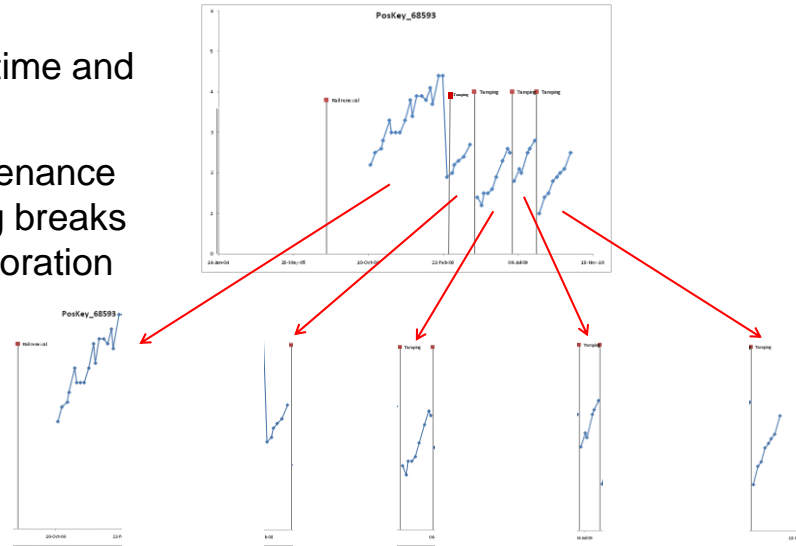


# Track Degradation Modelling

## Background

Track geometry deteriorates with time and use.

Its state is controlled by the maintenance activity such as Tamping. Tamping breaks the ballast and changes the deterioration process.



## Objective

To establish a distribution of times to degrade to any track quality accounting for the maintenance history.

## Weibull Distribution

$$F(t) = 1 - e^{-\left(\frac{t}{\eta}\right)^\beta}$$

$$f(t) = \frac{\beta}{\eta} \left(\frac{t}{\eta}\right)^{\beta-1} e^{-\left(\frac{t}{\eta}\right)^\beta}$$

