

one_mobile Turtlebot 1 Report

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```
## Loading required package: data.table
```

This is a summary of the data from the one_mobile experiment, Turtlebot #1.

The runtime of this experiment was 0 hours, 3 minutes, and 58.2 seconds.

The total number of external pose measurements recieved by the robot during this time was 0 which means poses were received at an average of 0 poses per second.

Shown below is the summary of each filter's error for both x and y coordinates, and also the error in total distance.

```
summary(continuous$x_error)
```

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.000016  3.532000  6.629000  6.374000  9.321000 11.960000
```

```
summary(continuous$y_error)
```

```
##      Min. 1st Qu.  Median     Mean 3rd Qu.     Max.
## -7.1750 -4.7810 -2.5500 -2.8470 -0.6909  0.0000
```

```
summary(continuous$yaw_error)
```

```
##      Min. 1st Qu.  Median     Mean 3rd Qu.     Max.
##   2.250   2.275   2.353   2.460   2.607   3.000
```

```
summary(continuous$dist_error)
```

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.000016  3.599000  7.102000  7.028000 10.480000 13.950000
```

```
summary(discrete$x_error)
```

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## -0.0643400 0.0000050 0.0001593 0.0475200 0.0248100 0.3840000
```

```
summary(discrete$y_error)
```

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## -0.3316000 -0.0119000 -0.0001312 -0.0315000 -0.0000029 0.0735600
```

```
summary(discrete$yaw_error)
```

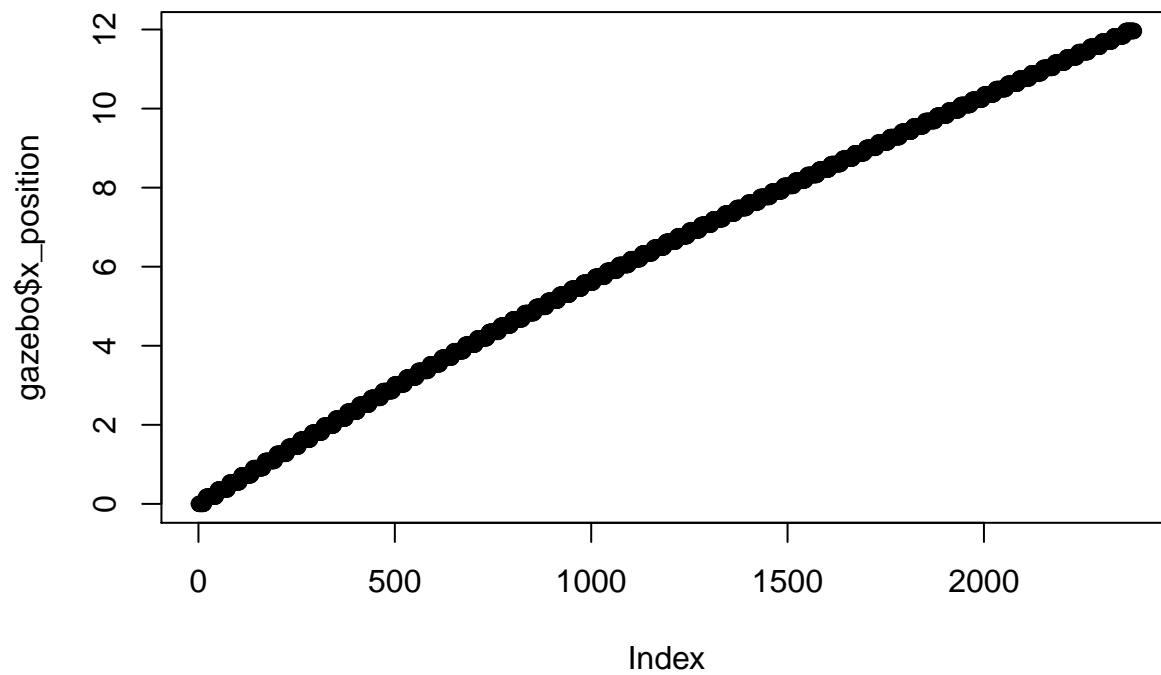
```
##      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
## -2.350e-02 -3.559e-04 -1.812e-05 -2.389e-03  4.575e-06  5.675e-03
```

```
summary(discrete$dist_error)
```

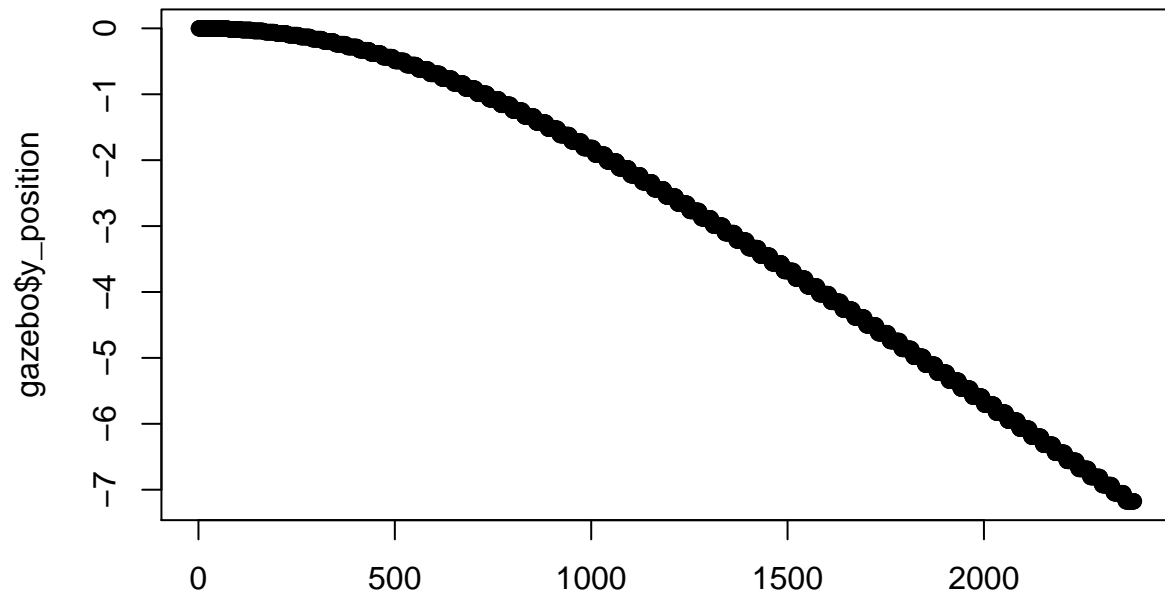
```
##      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
## 0.0000001 0.0000077 0.0002543 0.0591900 0.0364800 0.4488000
```

```
#sum(continuous$dist_error <= 0.25) / length(continuous$dist_error)
#sum(discrete$dist_error <= 0.25) / length(discrete$dist_error)
```

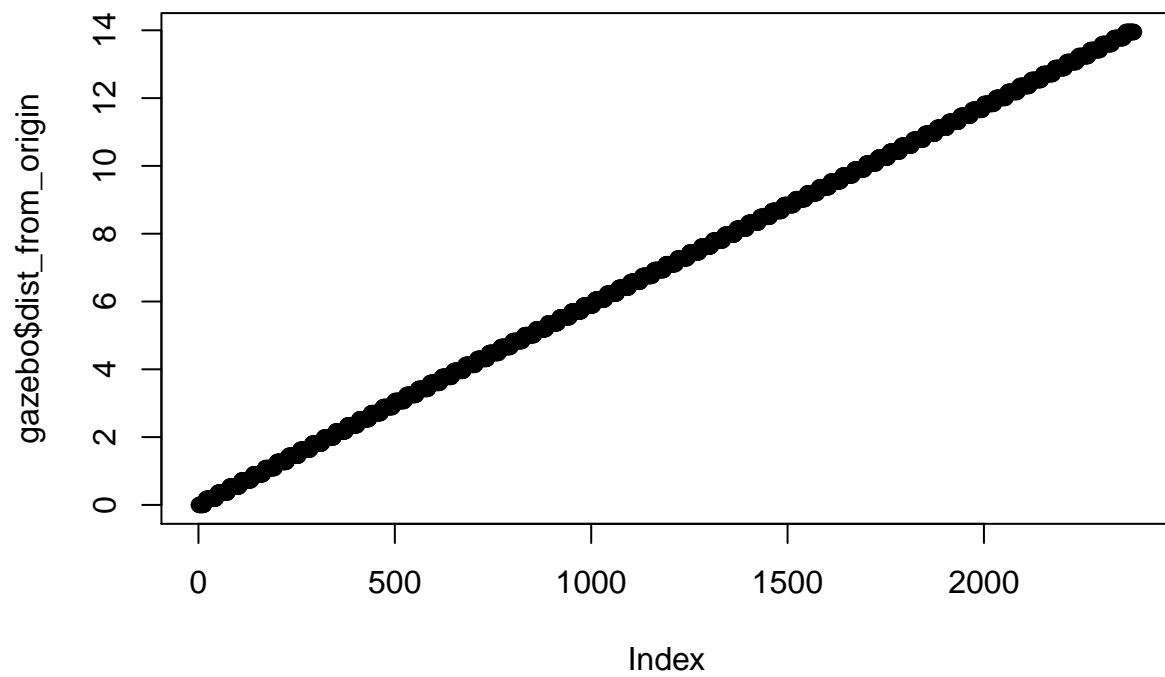
X coordinate of robot over time



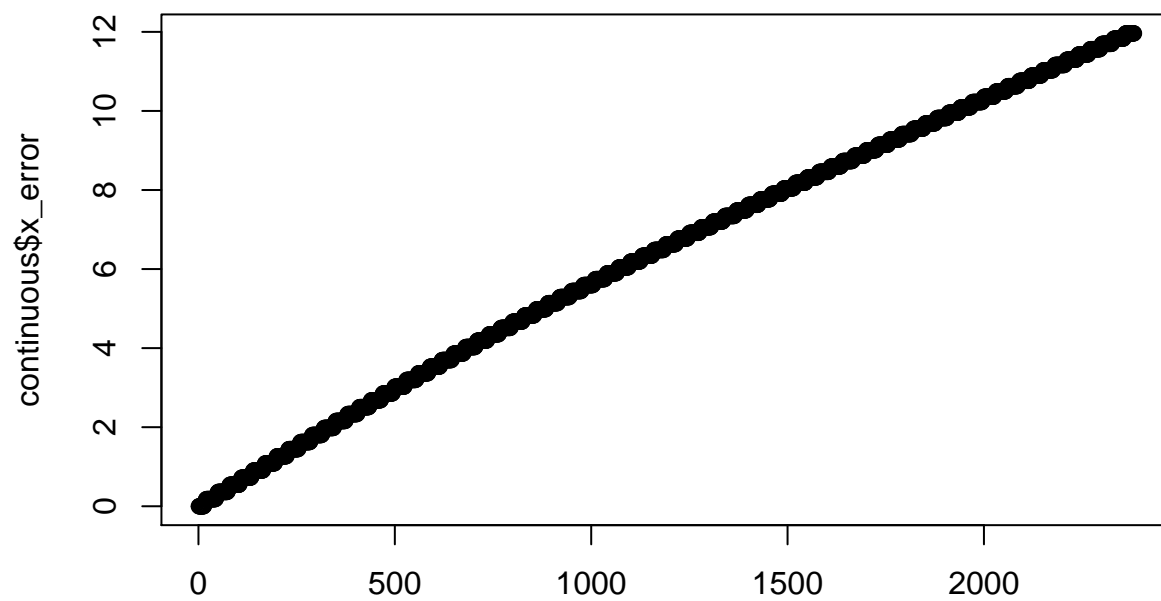
Y coordinate of robot over time



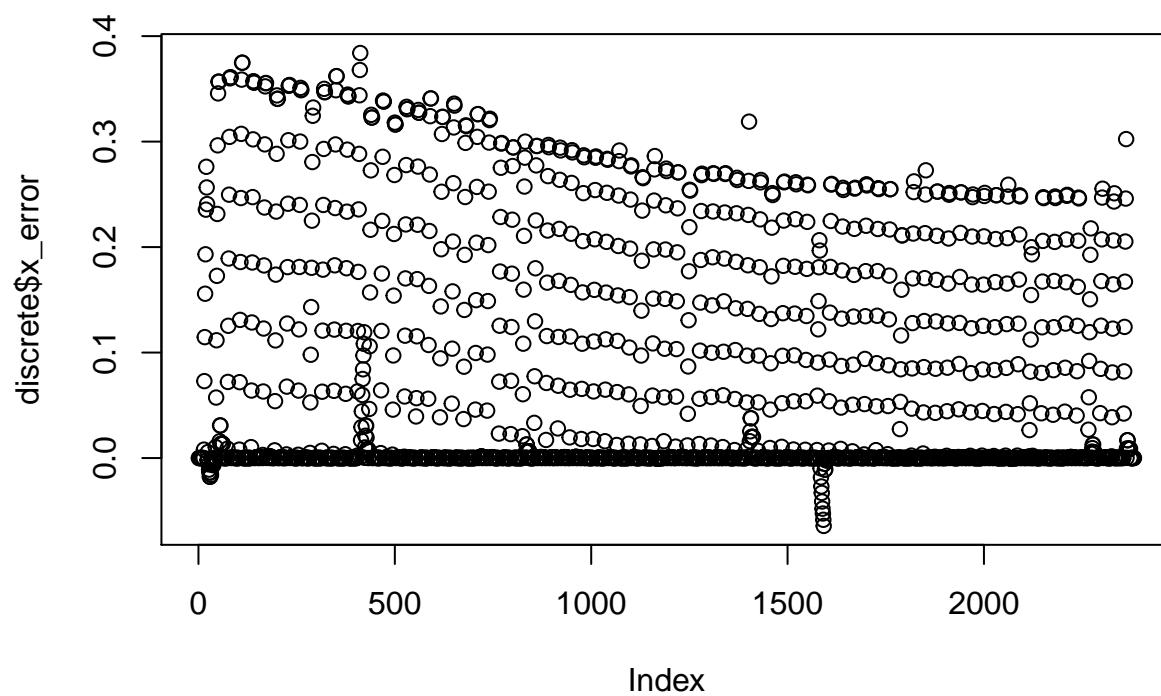
Distance from origin vs. time



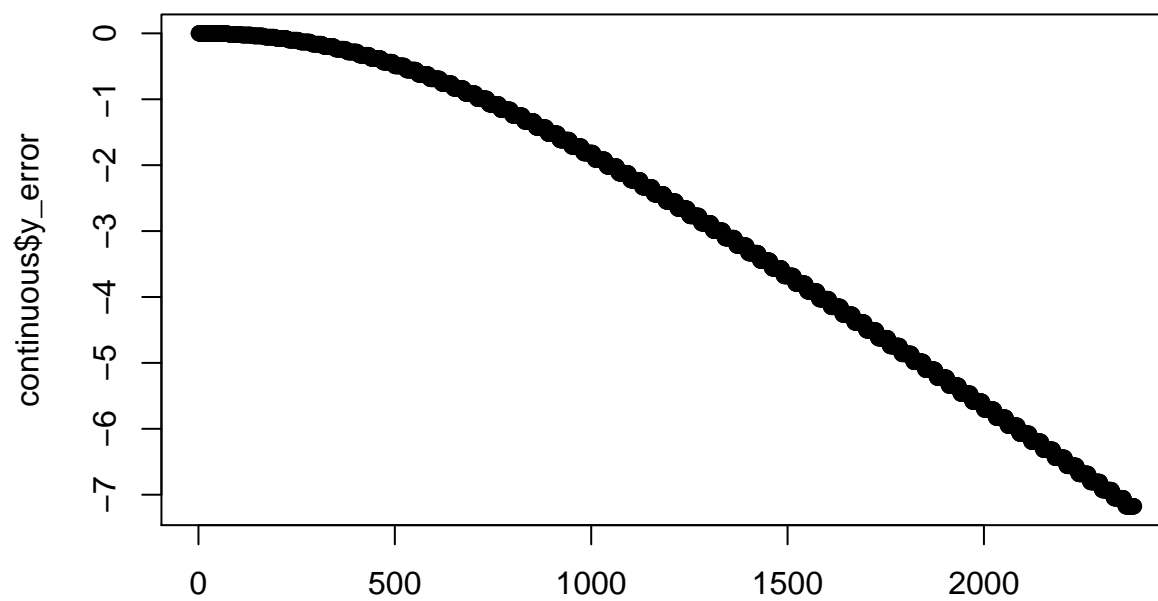
Continuous x_error over time



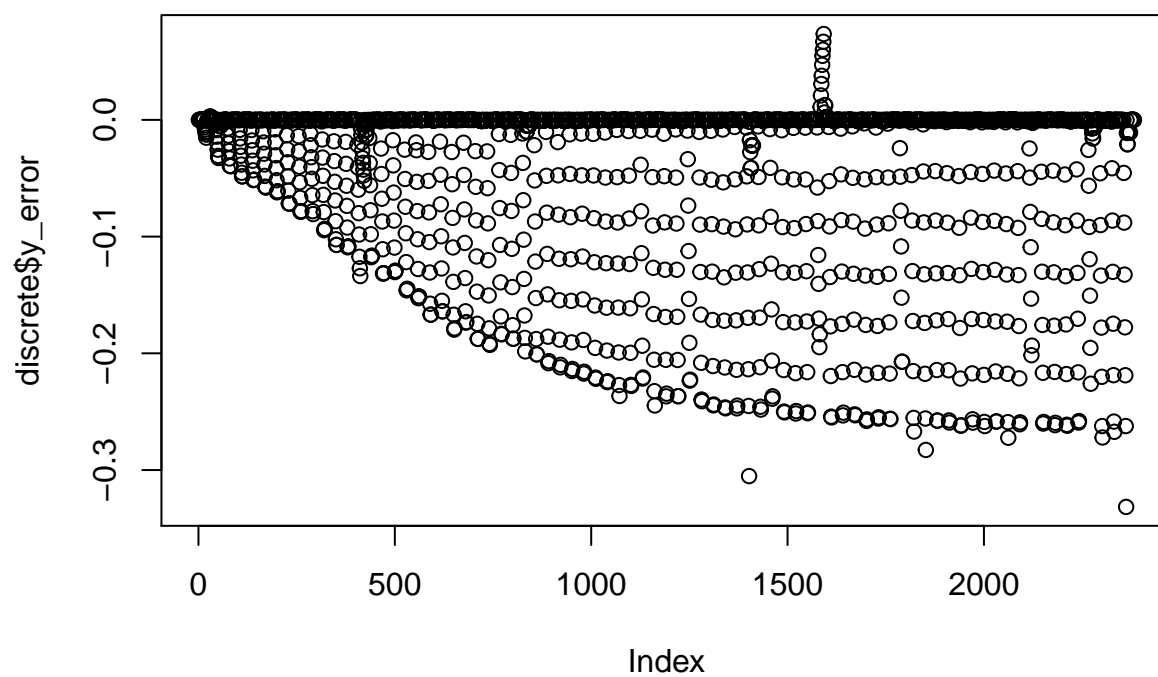
Discrete x_error over time



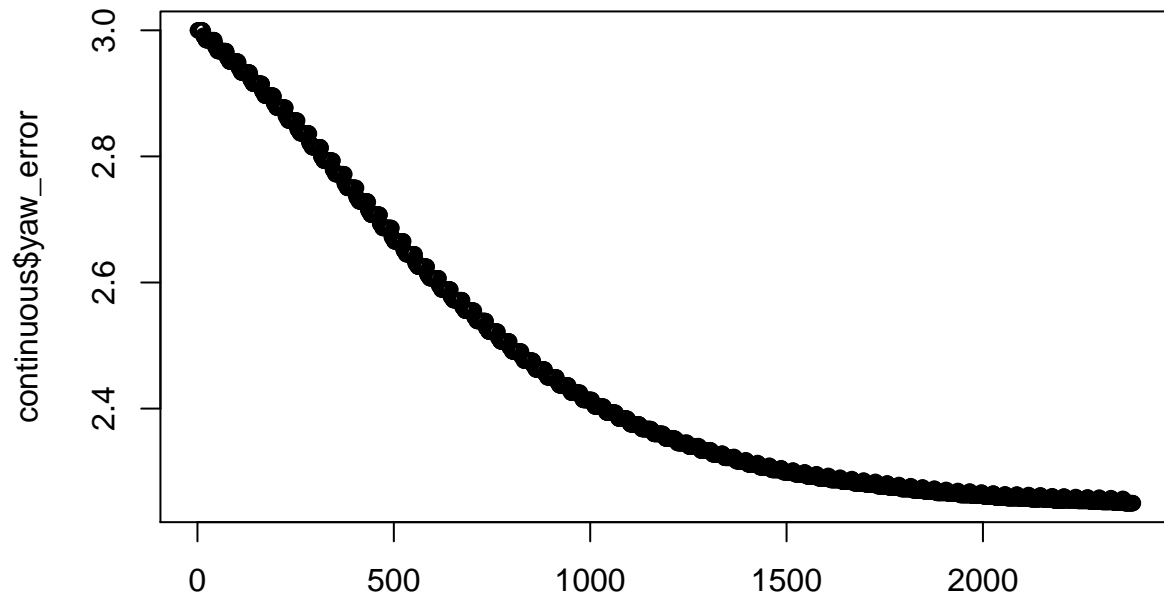
Continuous y_error over time



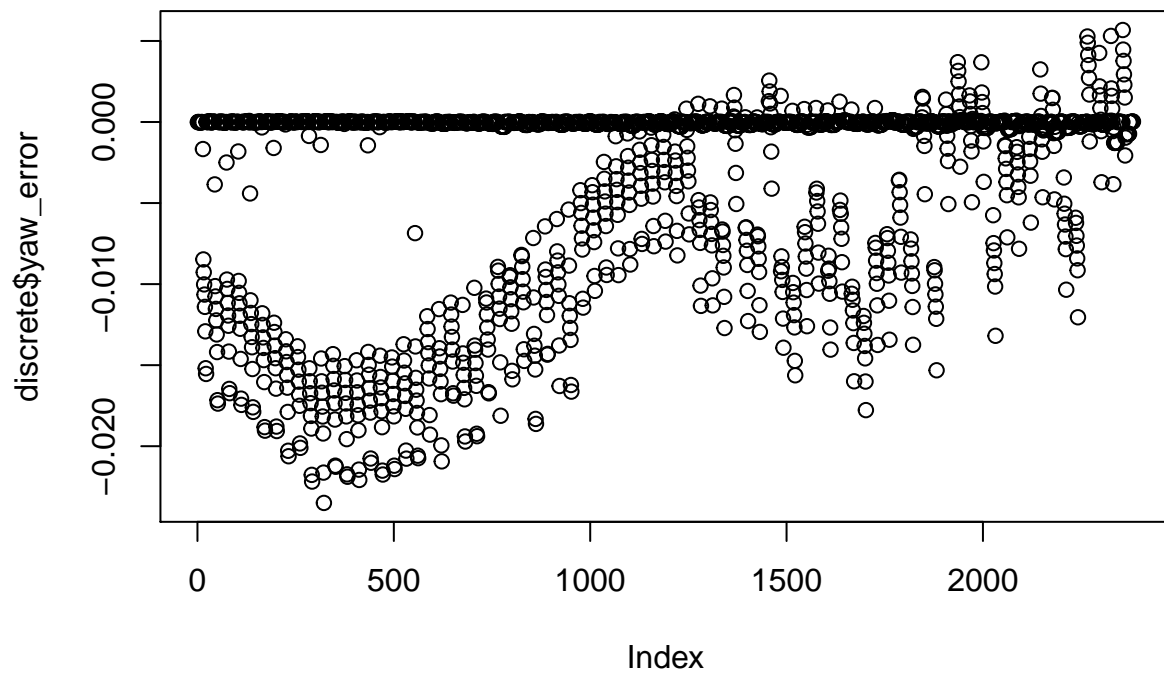
Discrete y_error over time



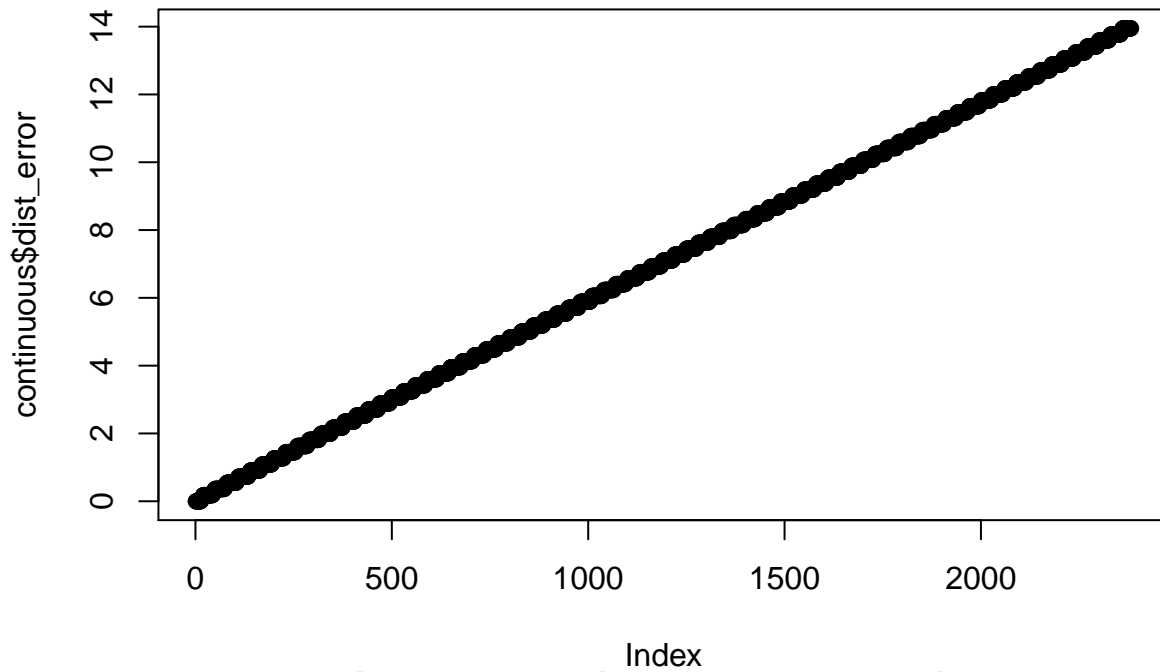
Continuous yaw error over time



Discrete yaw error over time



Continuous total distance error over time



Discrete total distance error over time

