

one_mobile_noisy_true Turtlebot 1 Report

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July 13, 2016

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

The runtime of this experiment was 1 hours, 8 minutes, and 18.7 seconds.

The total number of external pose measurements received 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. 
## -6.955e-02 -8.225e-03 -3.921e-05  3.127e-04  8.747e-03  6.261e-02
```

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

```
##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max. 
## -0.0624100 -0.0092530 -0.0001994 -0.0003033  0.0082320  0.0634300
```

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

```
##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max. 
## -6.283000 -0.159400  0.014080  0.001853  0.085140  6.274000
```

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

```
##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max. 
## 1.599e-05 6.670e-03 1.935e-02 2.130e-02 3.514e-02 7.053e-02
```

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

```
##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max. 
## -0.4167000 -0.0029860  0.0000005  0.0017600  0.0028650  0.3879000
```

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

```
##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max. 
## -0.3878000 -0.0035010  0.0000011 -0.0010120  0.0026590  0.4416000
```

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

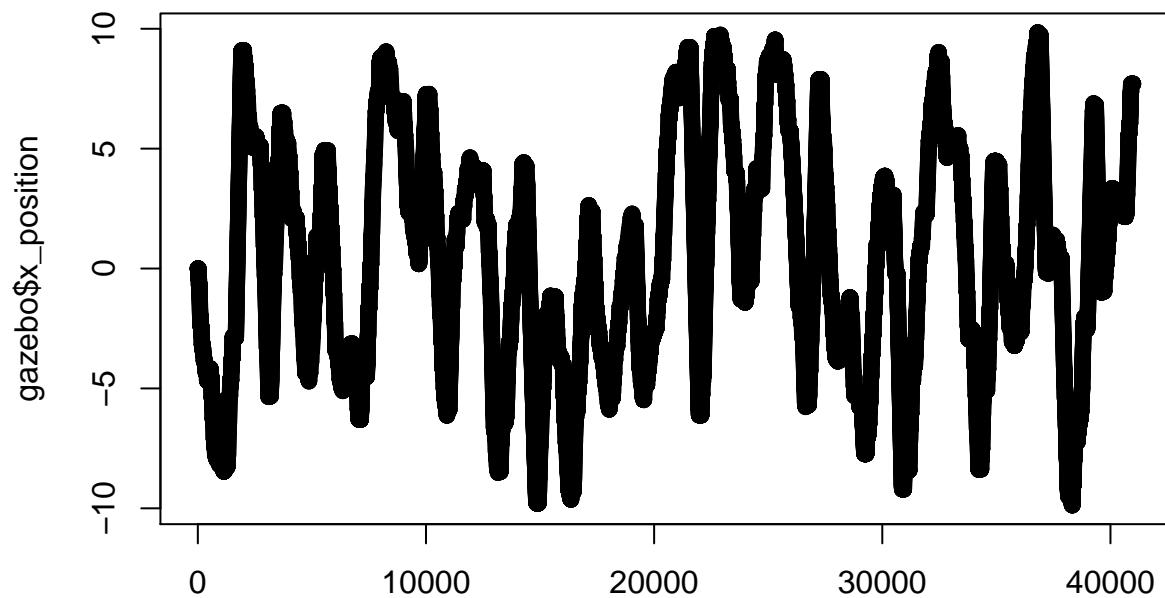
```
##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max. 
## -6.272000 -0.403300 -0.035560  0.009053  0.000165  6.276000
```

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

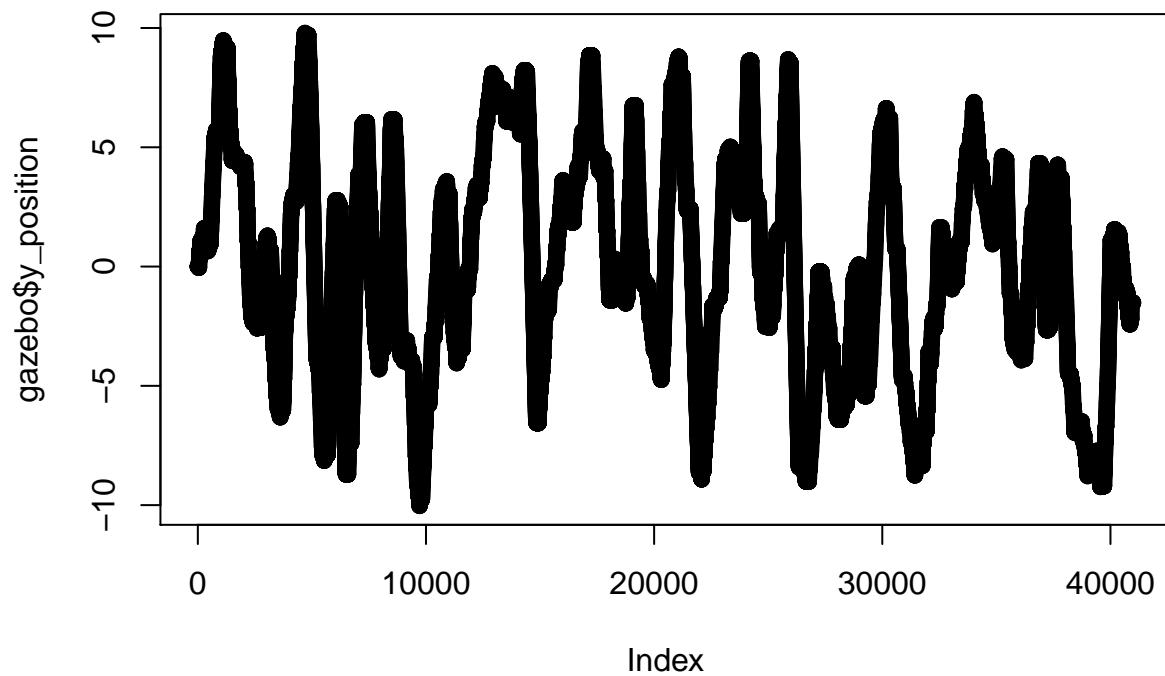
```
##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max. 
## 0.0000000 0.0008857 0.0060000 0.0260100 0.0222400 0.4668000
```

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

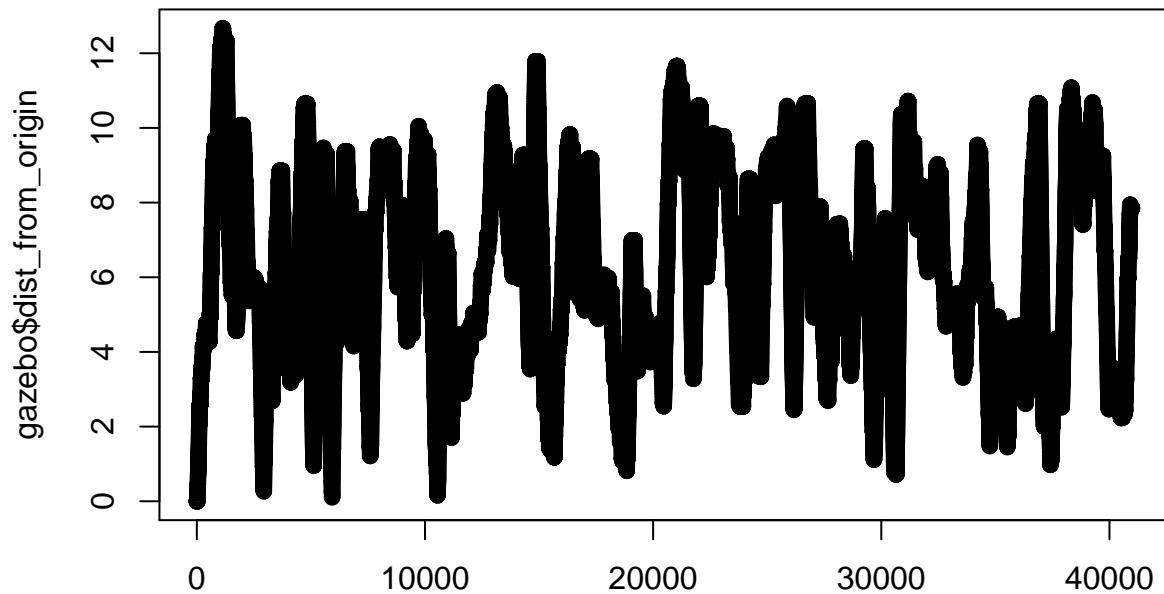
X coordinate of robot over time



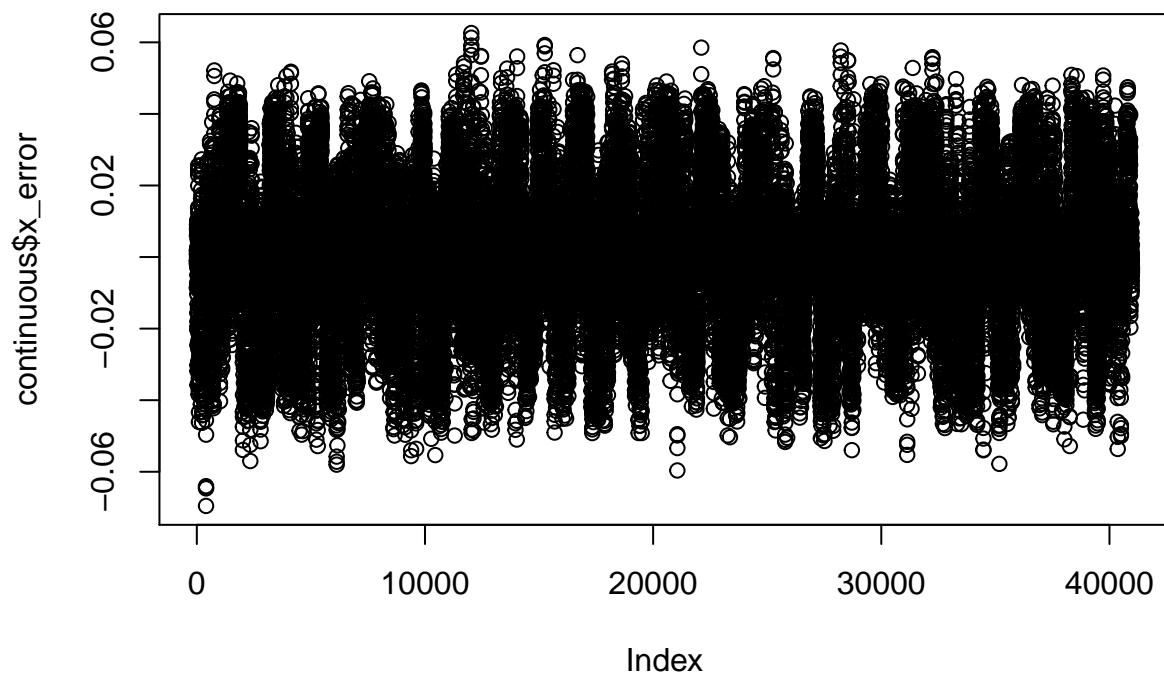
Y coordinate of robot over time



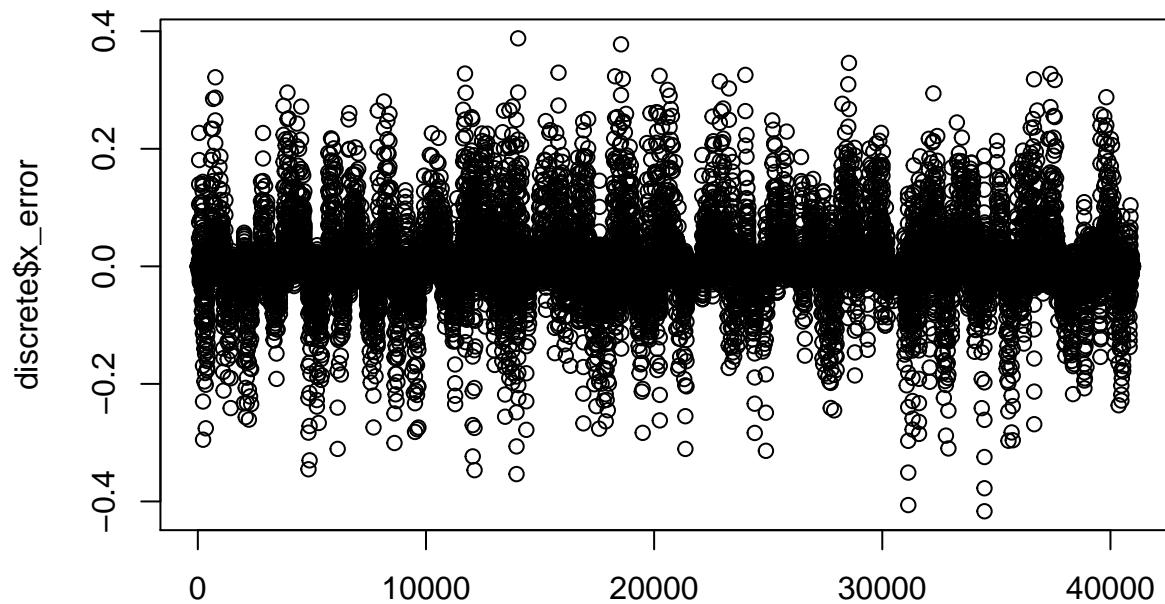
Distance from origin vs. time



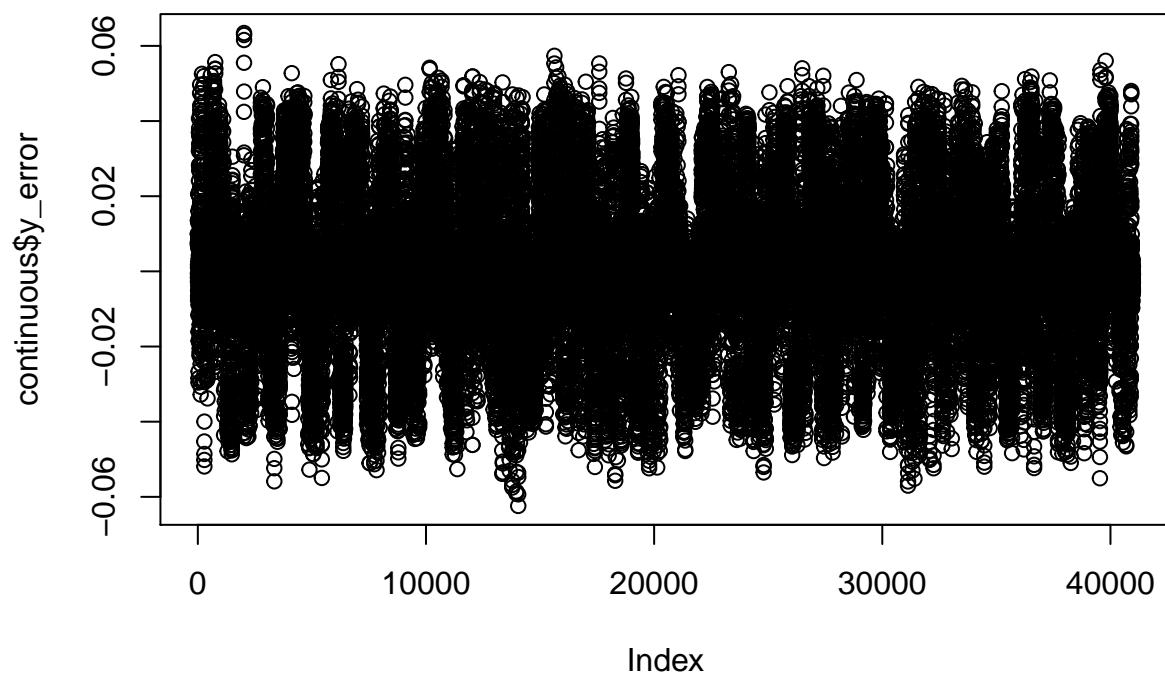
Continuous x_error over time



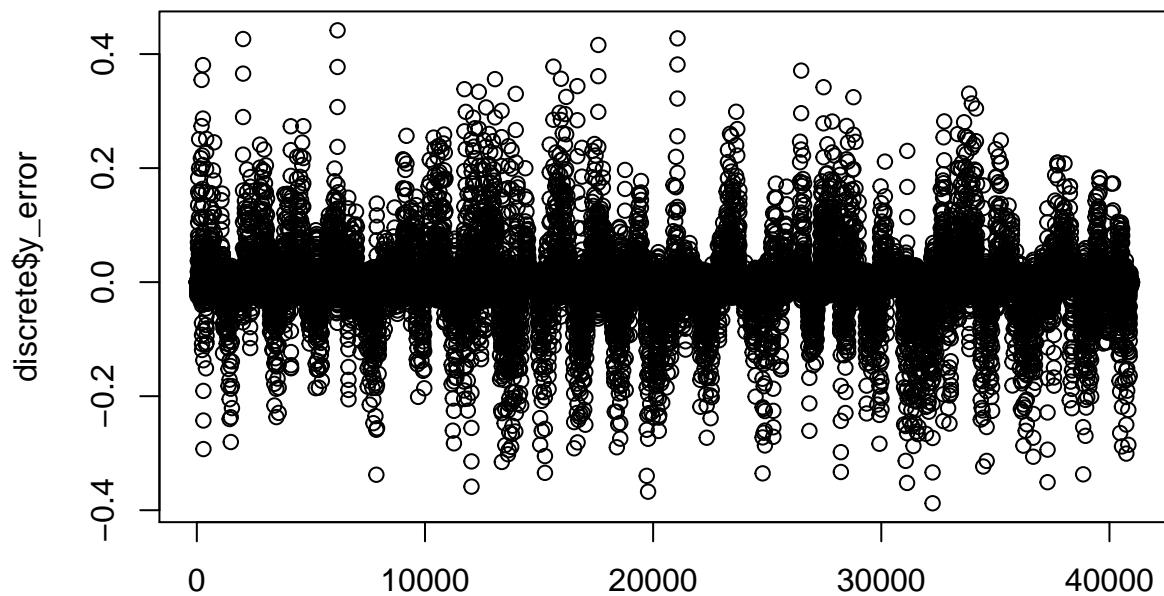
Discrete x_error over time



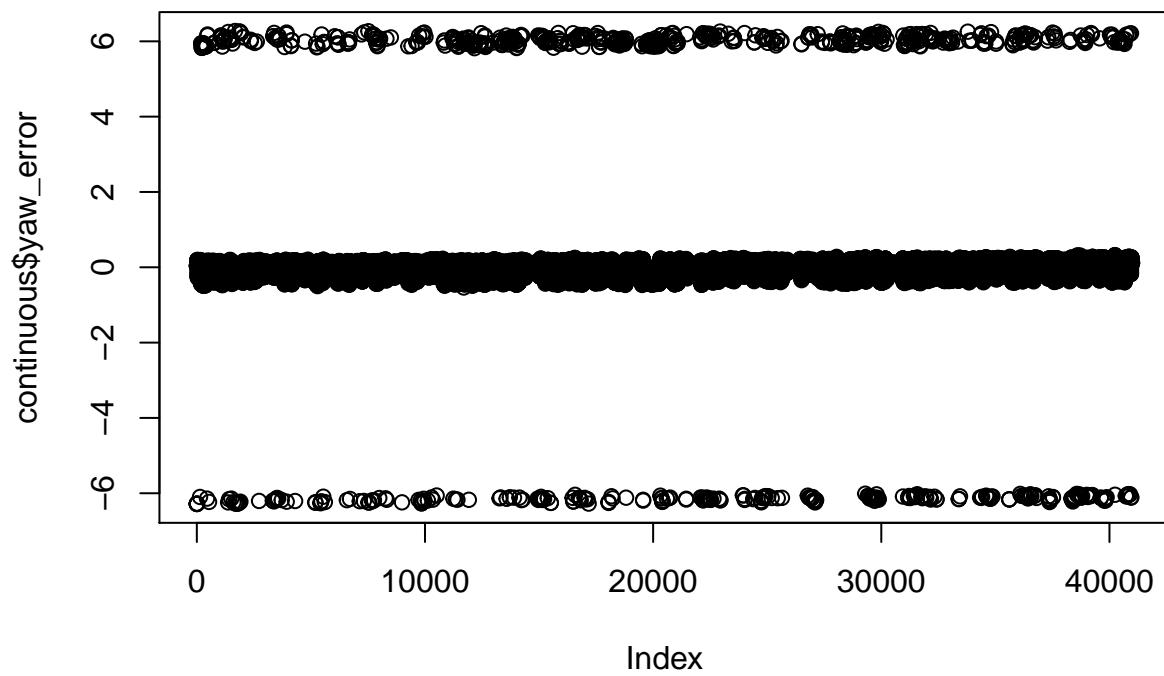
Continuous y_error over time



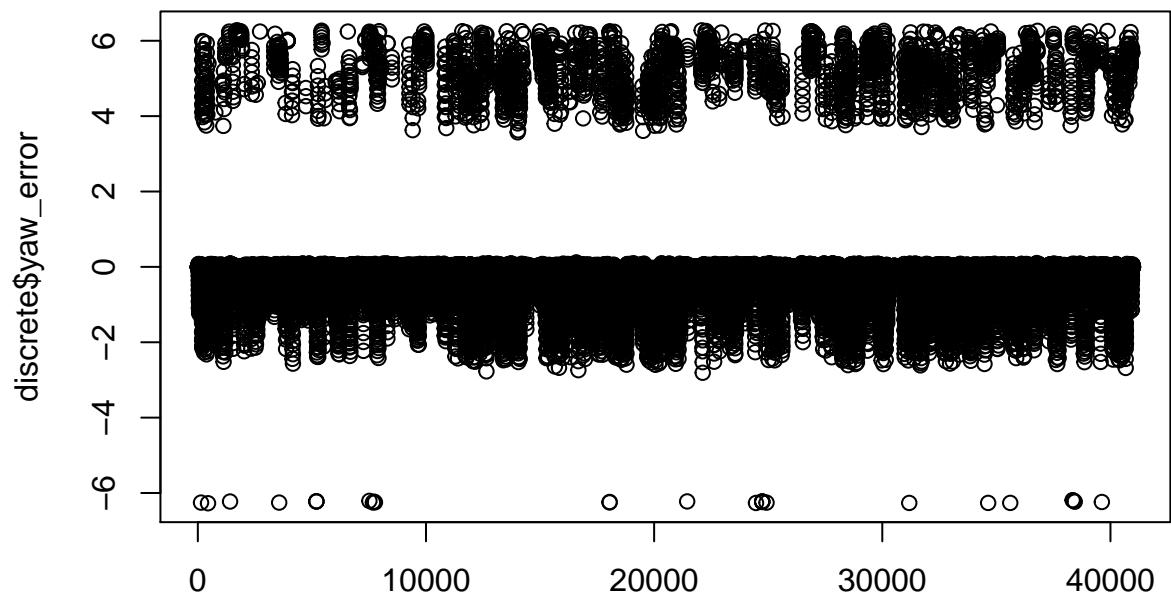
Discrete y_error over time



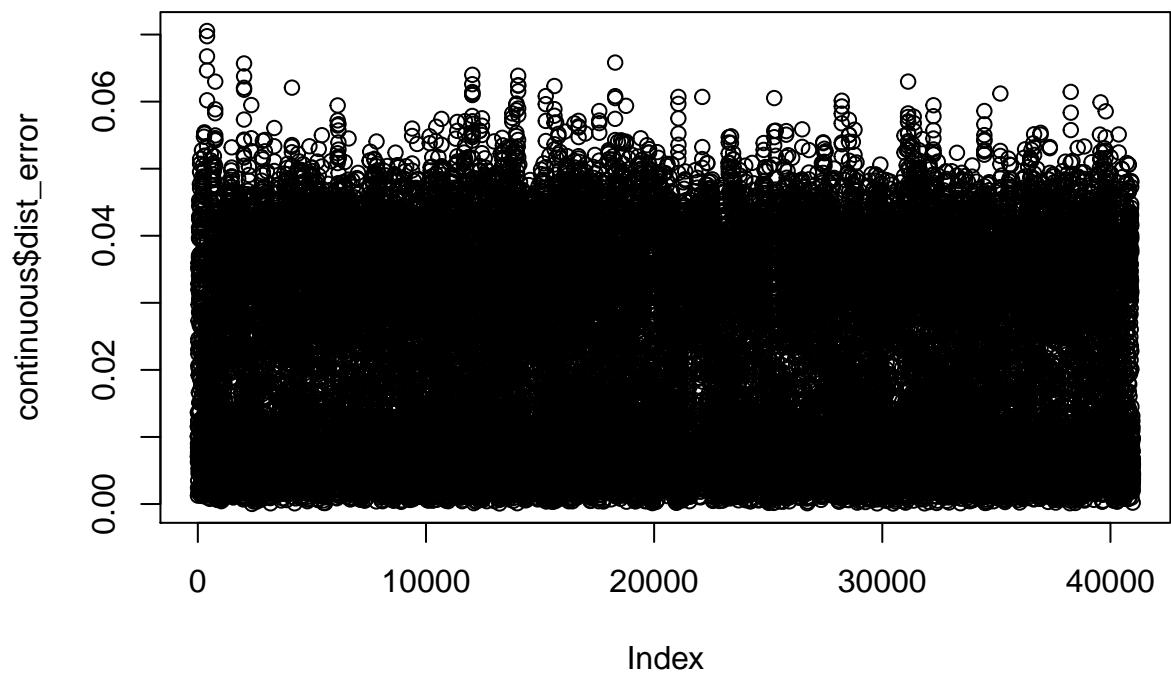
Continuous yaw error over time



Discrete yaw error over time



Continuous total distance error over time



Discrete total distance error over time

