

two_stationary_noisy_true Turtlebot 1 Report

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

The runtime of this experiment was 1 hours, 8 minutes, and 18.5 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.
## -1.800e-02 -2.950e-03  3.215e-05  3.061e-05  2.982e-03  2.015e-02
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## -1.726e-02 -2.923e-03  2.782e-05  4.138e-05  2.990e-03  1.736e-02
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## -6.283000  0.002195  0.003971 -0.013610  0.005604  0.007324
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## 0.0000107 0.0032810 0.0051350 0.0054880 0.0073180 0.0226800
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## -1.900e-11  1.905e-06  3.789e-06  4.044e-06  6.181e-06  8.070e-06
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## -3.600e-13  1.358e-08  3.921e-08  5.221e-08  8.065e-08  2.012e-07
```

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

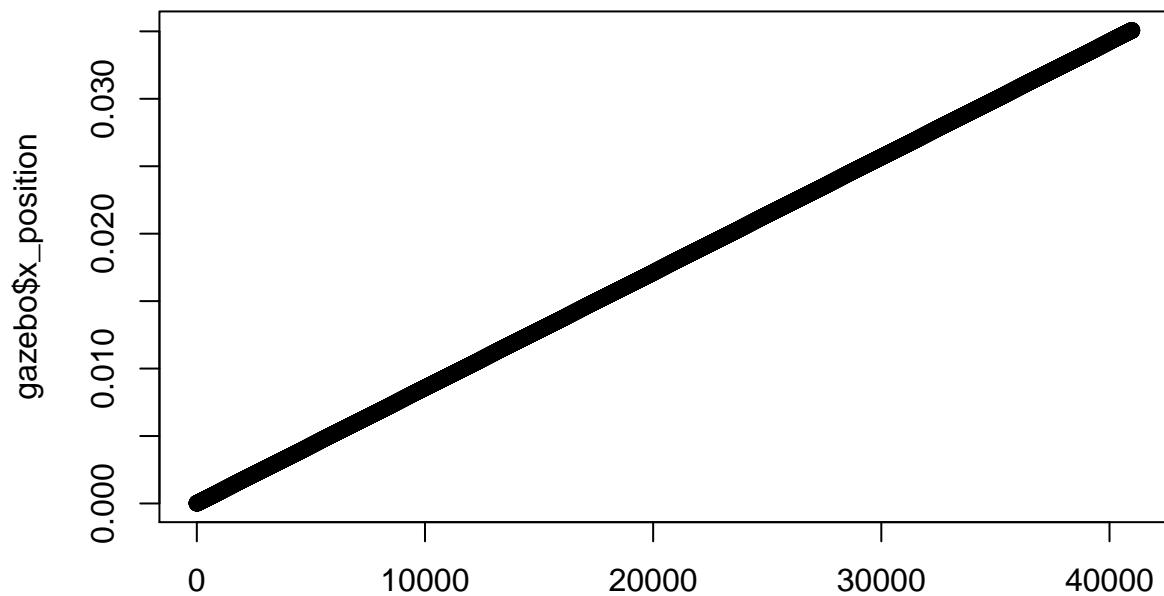
```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## -4.878e-03 -1.113e-03 -5.789e-04 -7.404e-04 -1.750e-04  4.948e-05
```

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

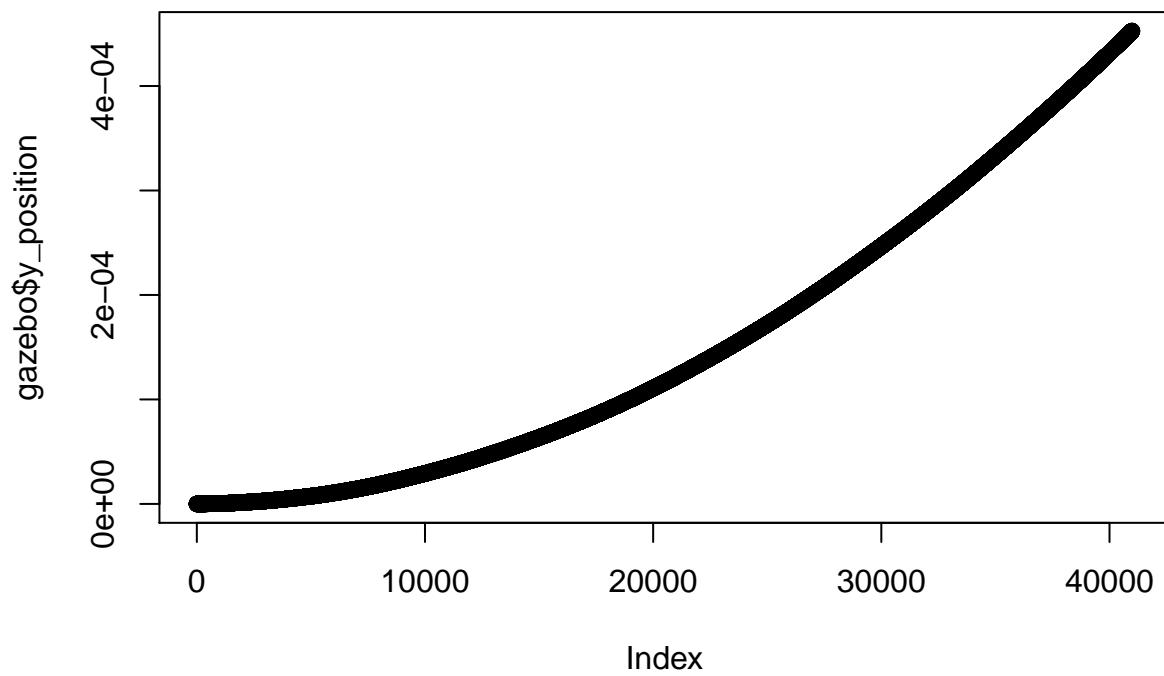
```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## 1.900e-11  1.905e-06  3.789e-06  4.044e-06  6.182e-06  8.070e-06
```

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

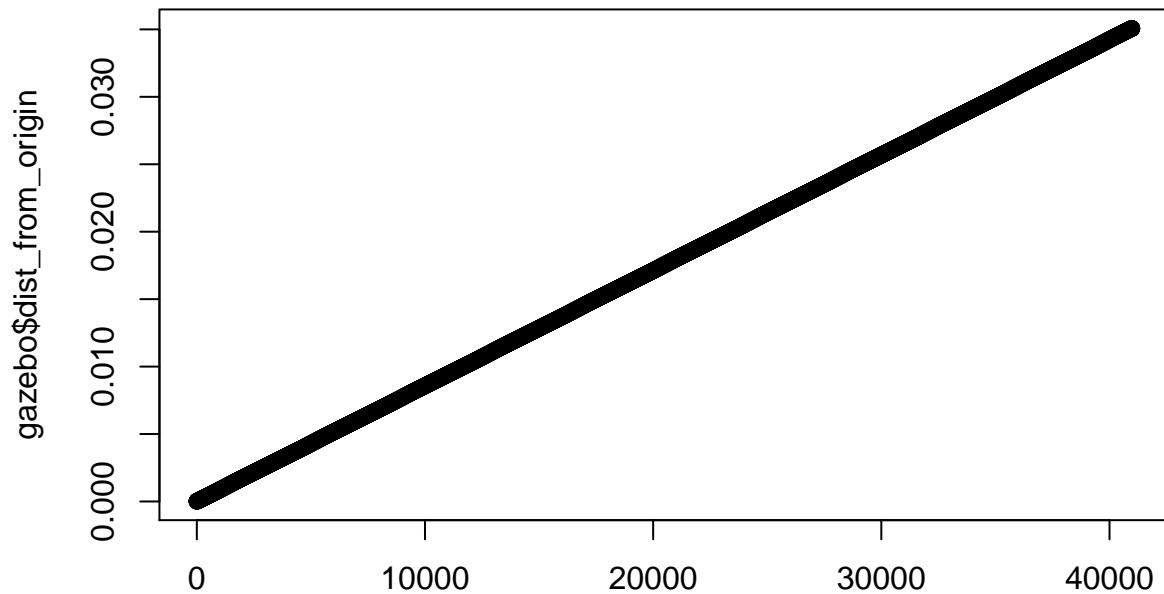
X coordinate of robot over time



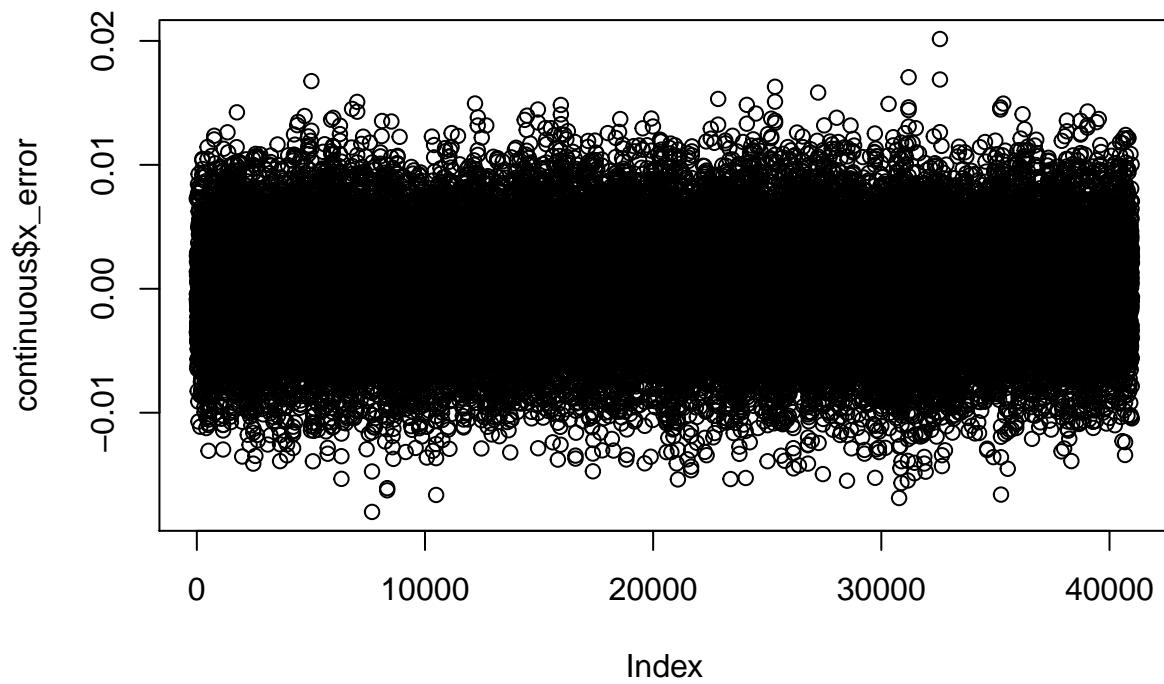
Y coordinate of robot over time



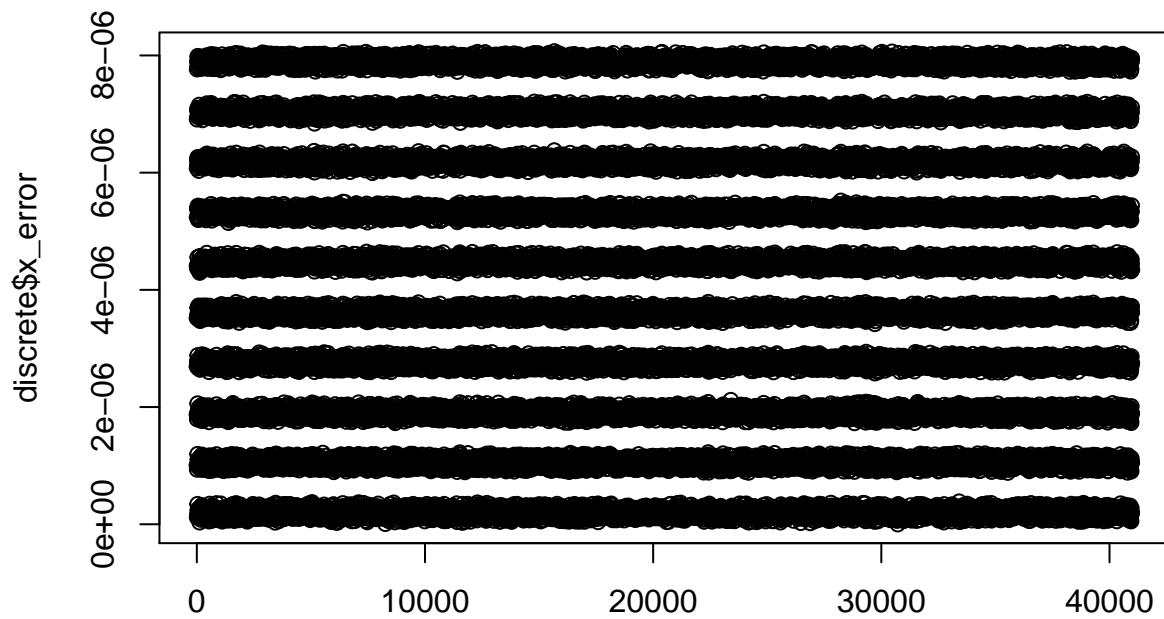
Distance from origin vs. time



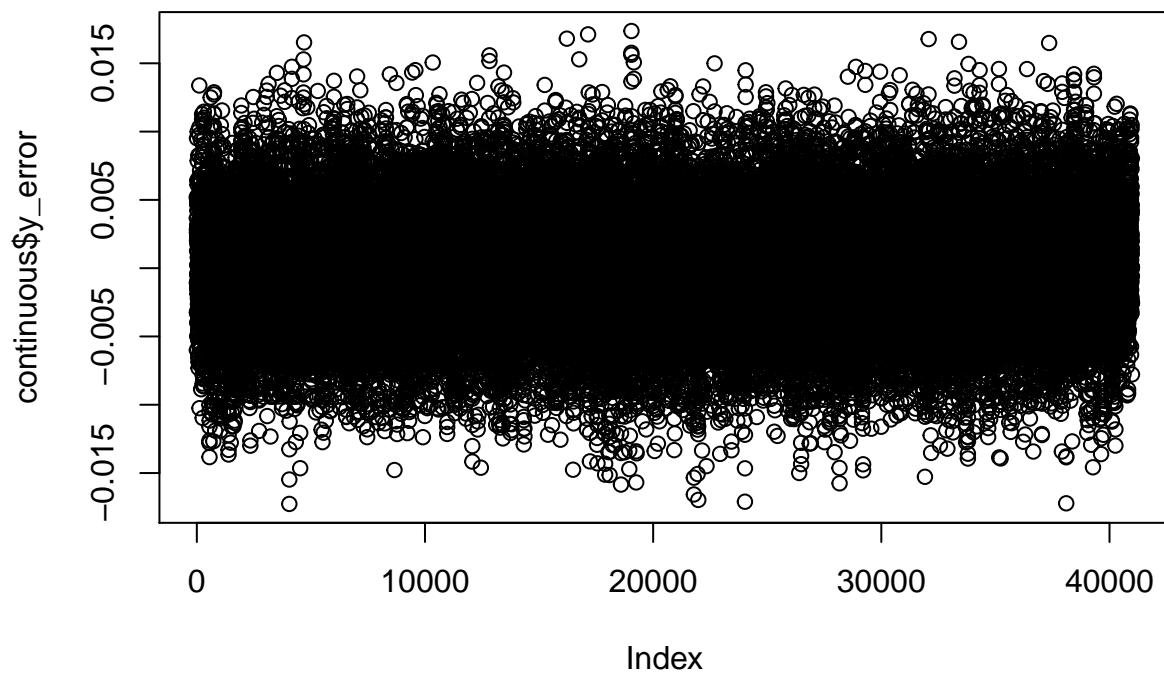
Continuous x_error over time



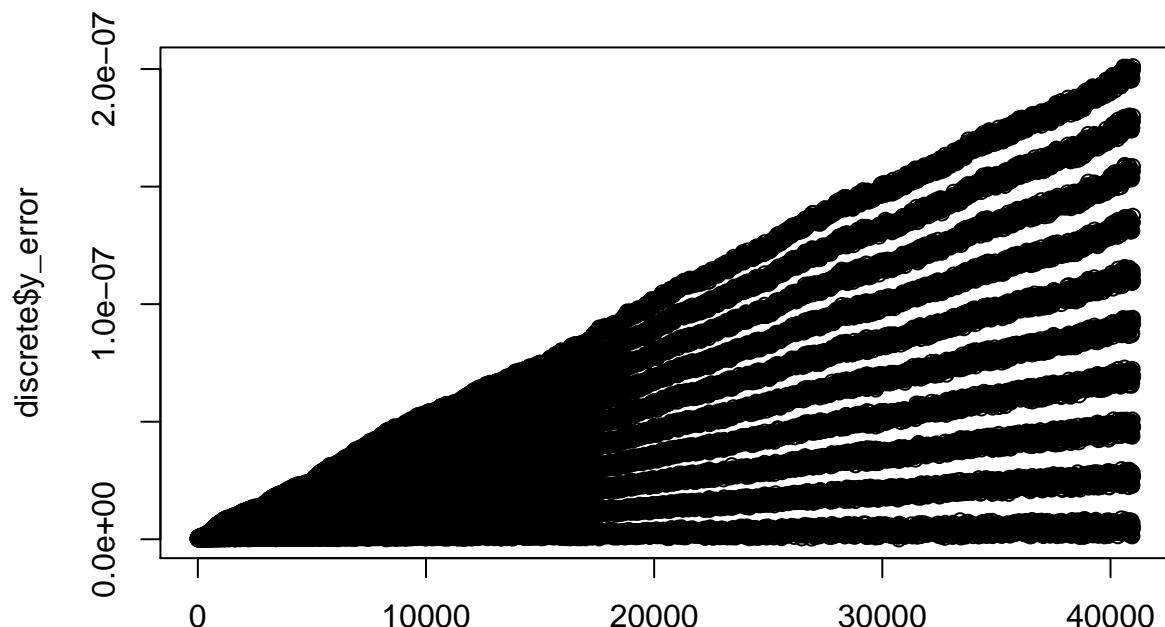
Discrete x_error over time



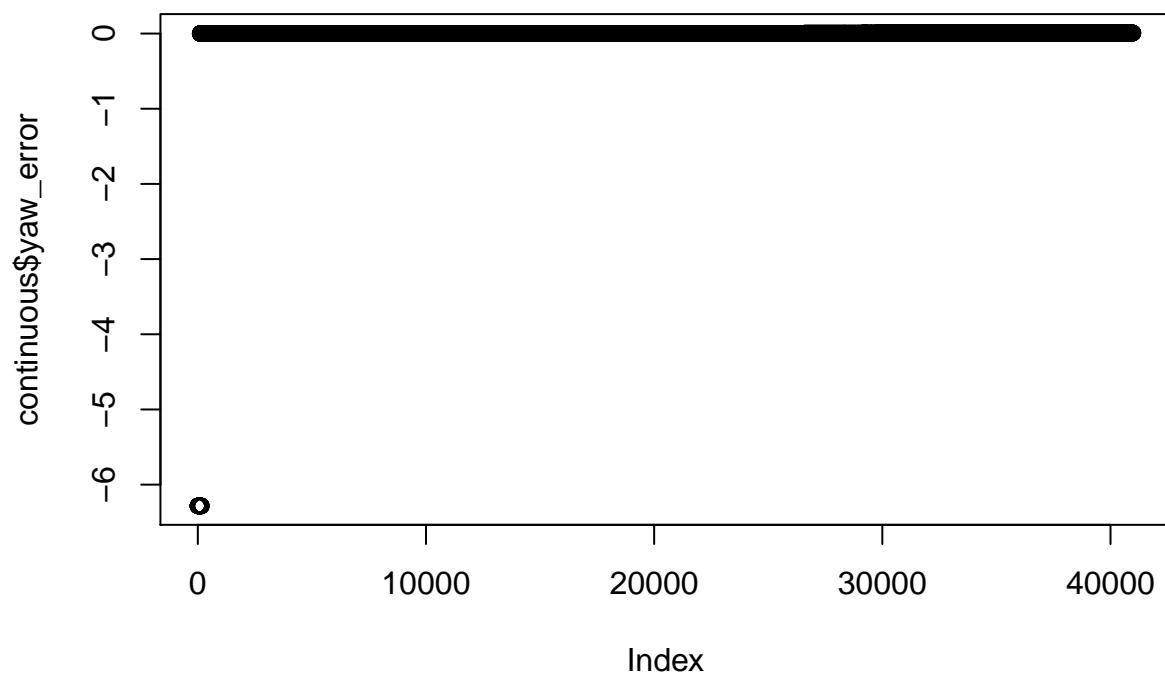
Continuous y_error over time



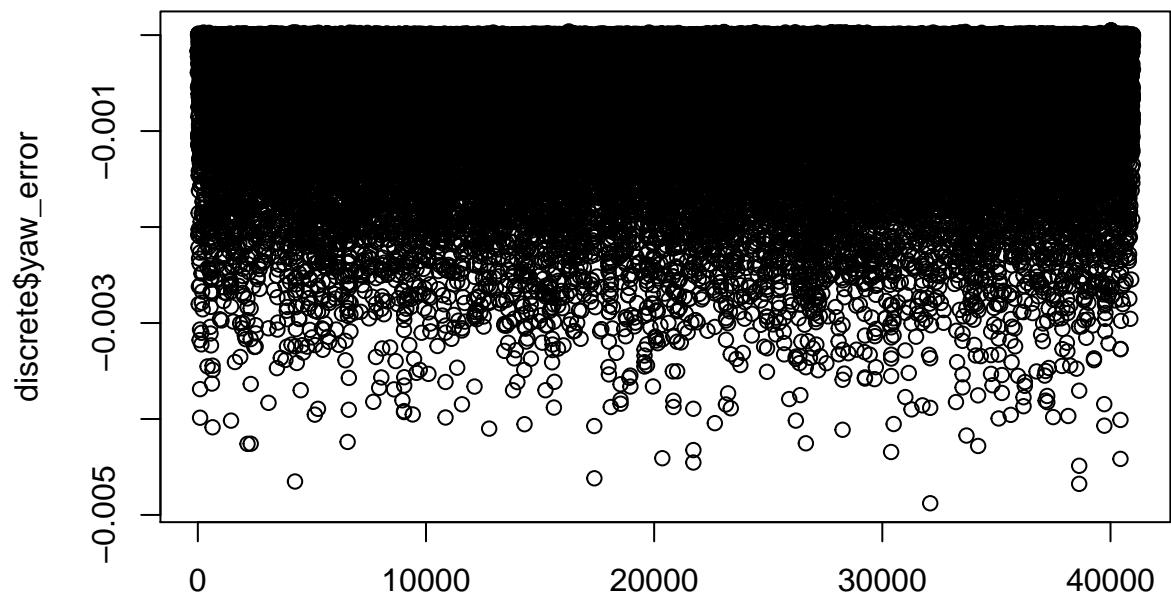
Discrete y_error over time



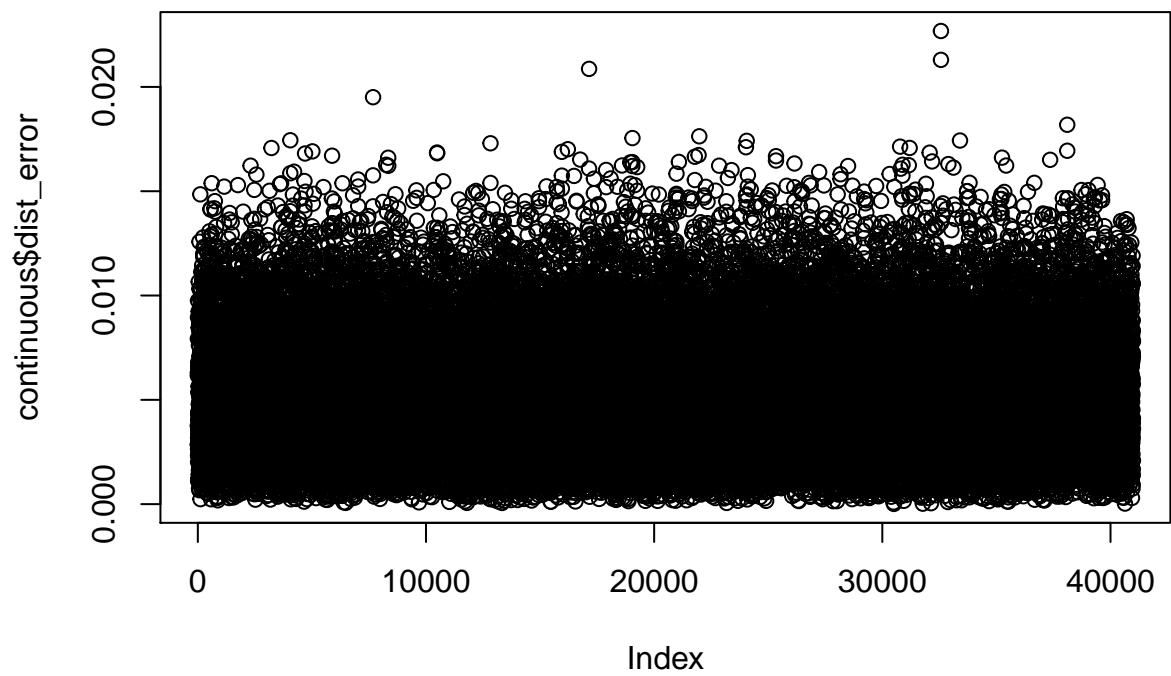
Continuous yaw error over time



Discrete yaw error over time



Continuous total distance error over time



Discrete total distance error over time

