

# one\_stationary\_noisy\_false Turtlebot 1 Report

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This is a summary of the data from the one\_stationary\_noisy\_false experiment, Turtlebot #1.

The runtime of this experiment was 1 hours, 8 minutes, and 18.3 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.
## 2.442e-06 2.626e-06 2.671e-06 2.671e-06 2.716e-06 3.046e-06

summary(continuous$y_error)

##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## 2.233e-10 1.746e-08 3.520e-08 3.441e-08 5.180e-08 7.140e-08

summary(continuous$yaw_error)

##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## -6.283000  0.002022  0.004041 -0.010100  0.005781  0.007325

summary(continuous$dist_error)

##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## 2.443e-06 2.626e-06 2.671e-06 2.672e-06 2.717e-06 3.047e-06

summary(discrete$x_error)

##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## 1.044e-06 2.944e-06 5.323e-06 5.073e-06 7.208e-06 9.100e-06

summary(discrete$y_error)

##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## 1.110e-10 2.284e-08 5.159e-08 6.536e-08 9.798e-08 2.272e-07

summary(discrete$yaw_error)

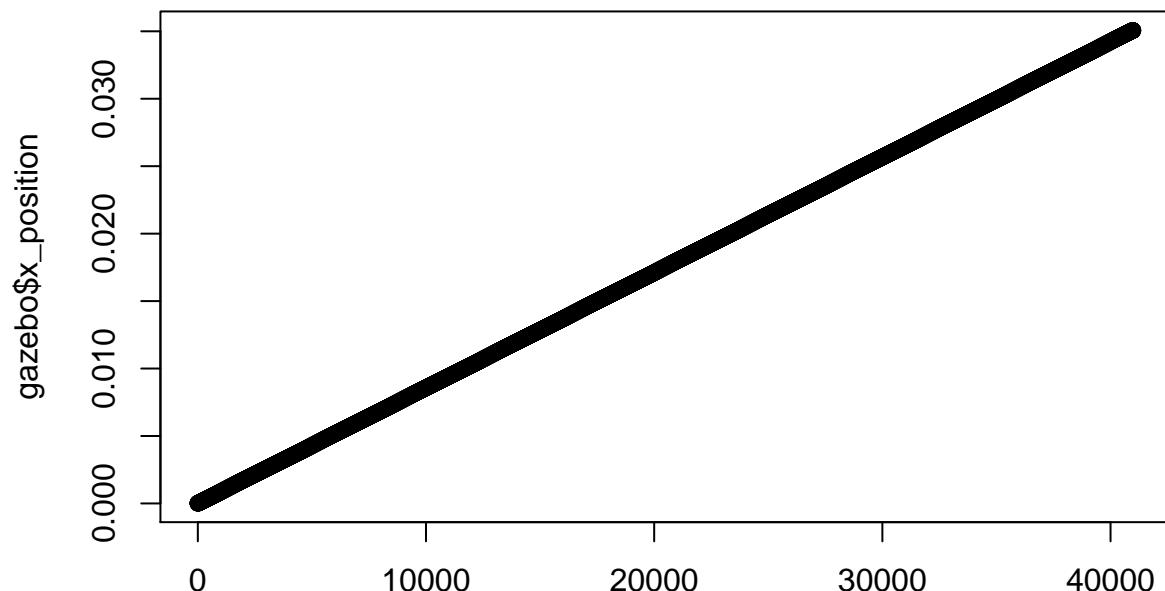
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## -5.361e-05 -3.955e-06  3.478e-06  3.613e-06  1.111e-05  5.501e-05

summary(discrete$dist_error)

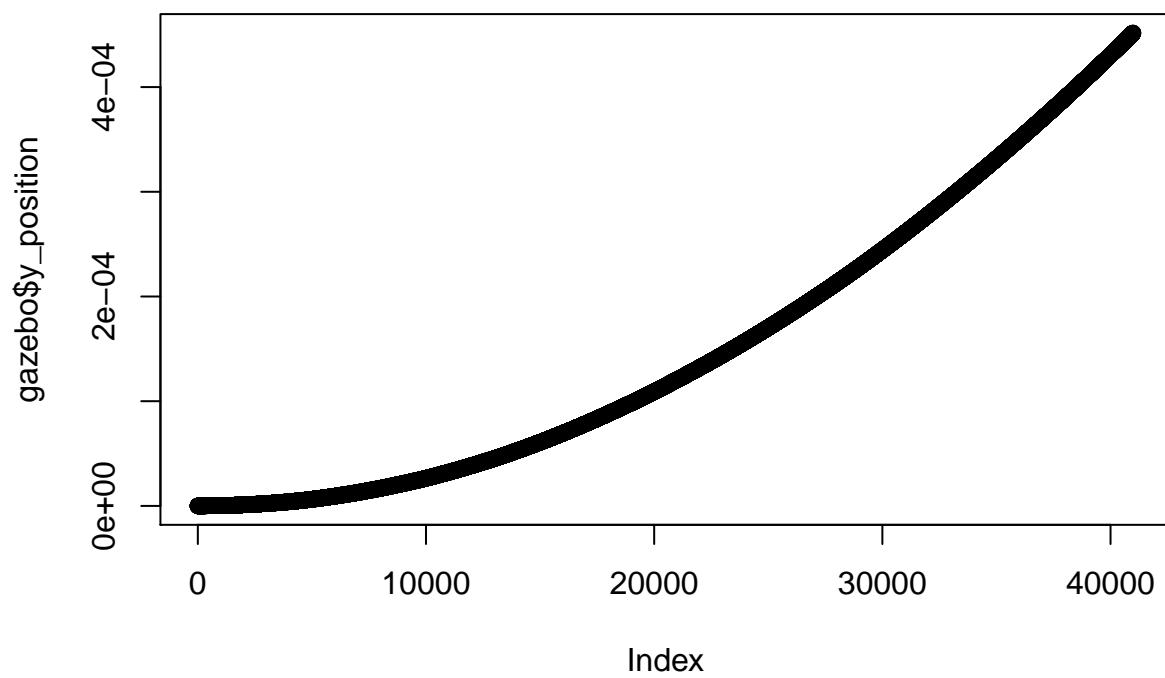
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max.
## 1.044e-06 2.944e-06 5.323e-06 5.074e-06 7.209e-06 9.100e-06

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

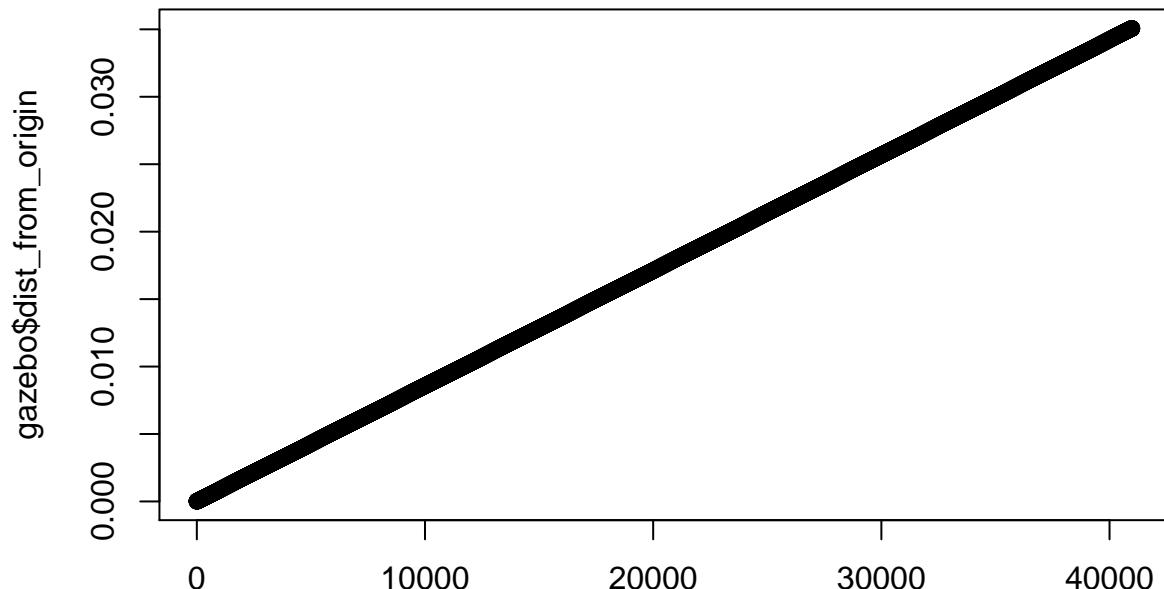
**X coordinate of robot over time**



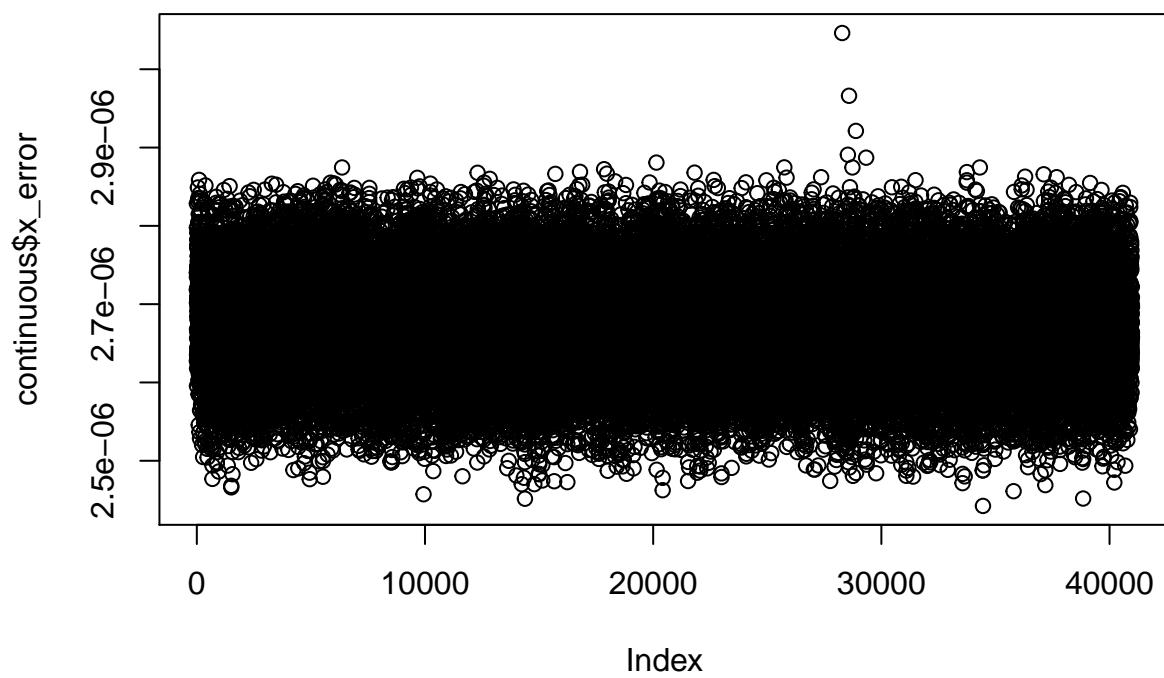
**Y coordinate of robot over time**



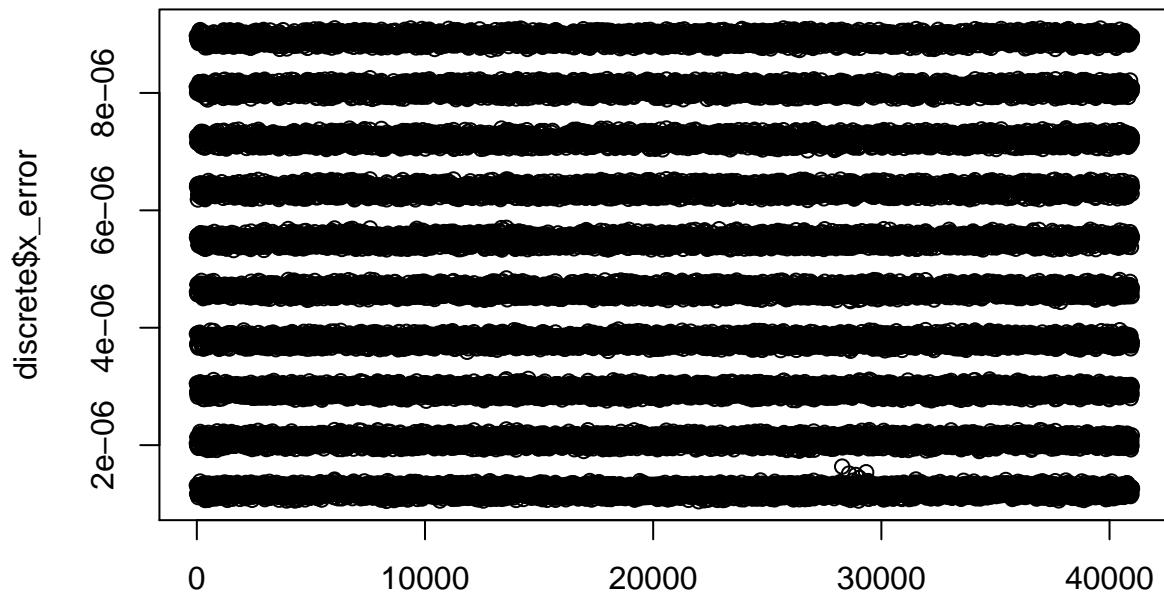
**Distance from origin vs. time**



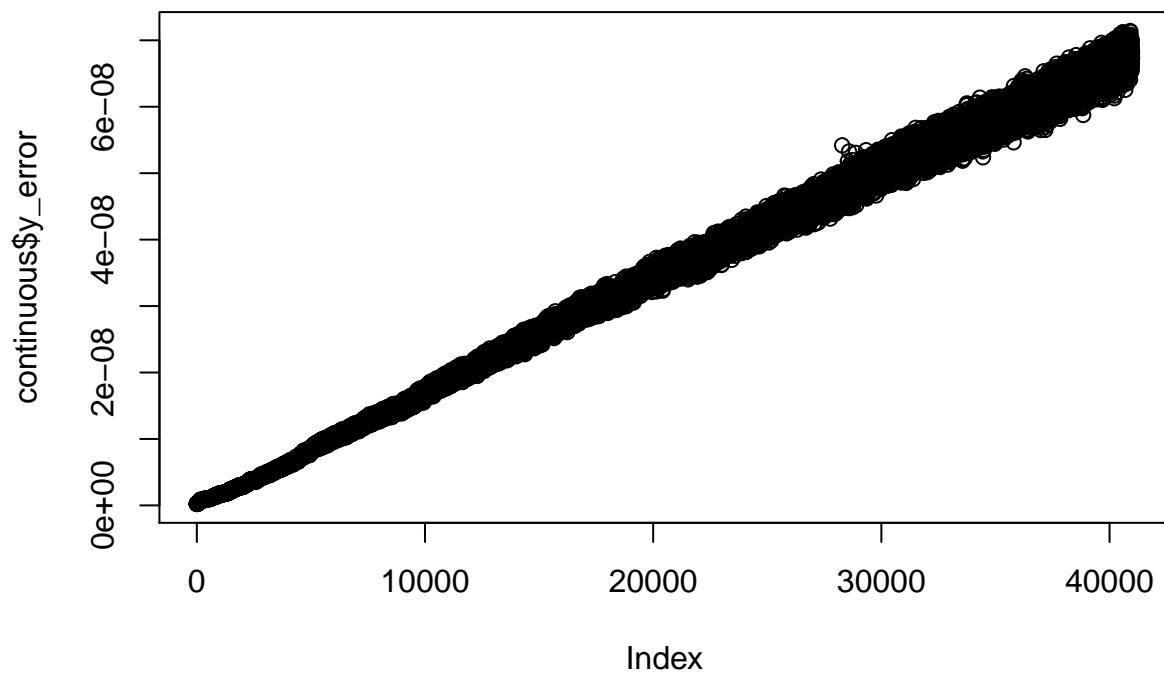
**Continuous x\_error over time**



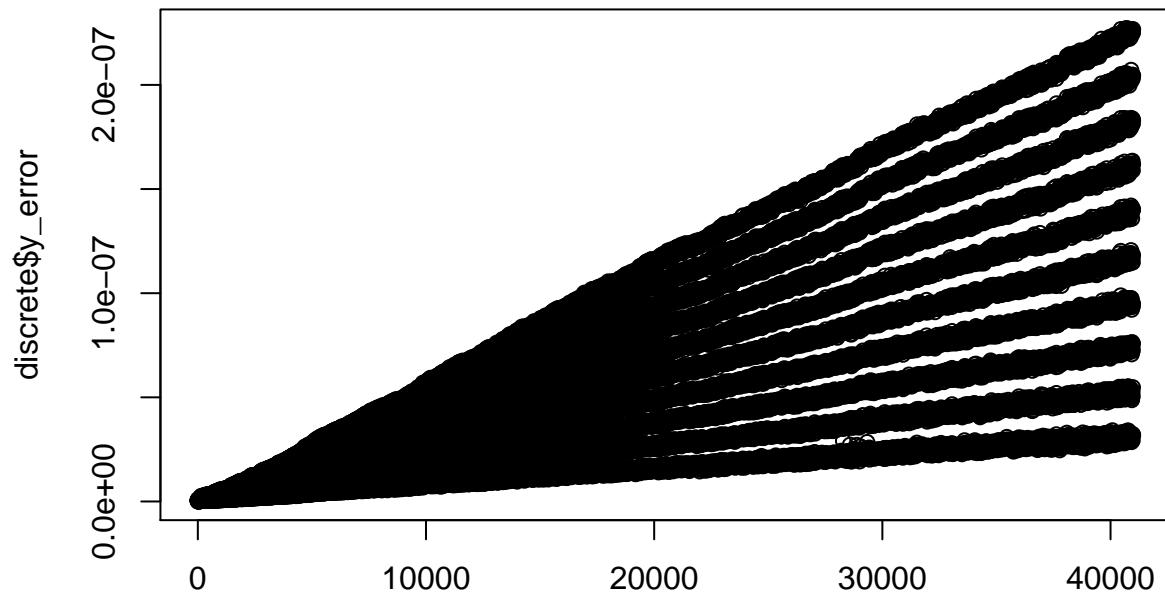
**Discrete x\_error over time**



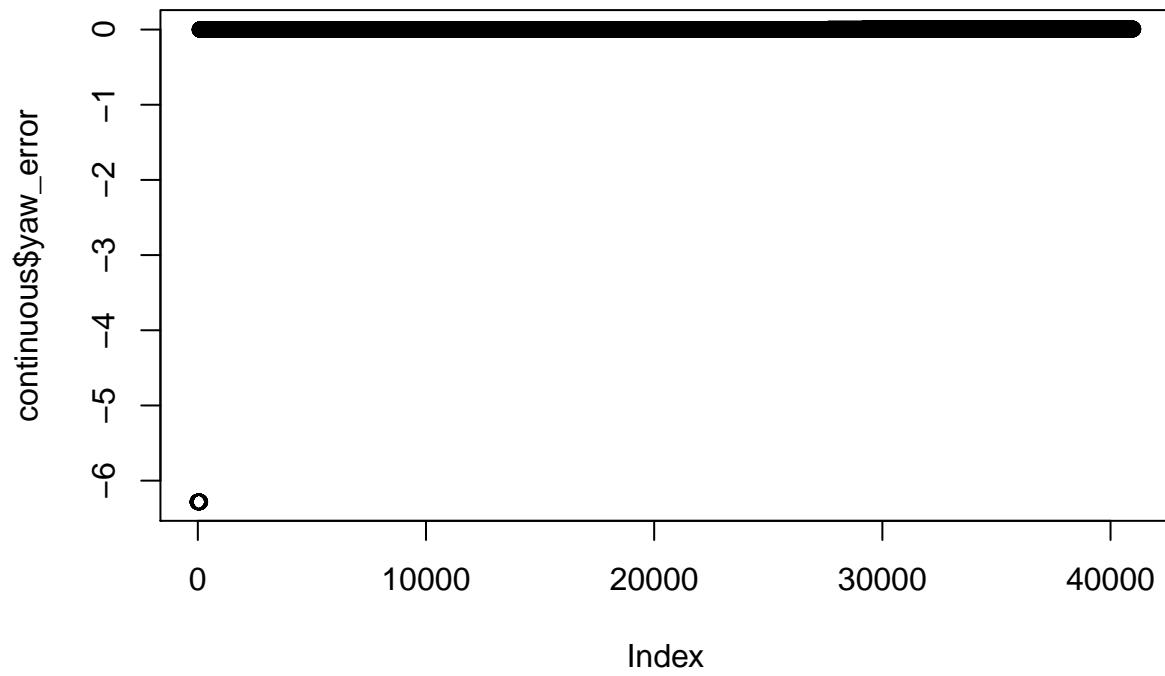
**Continuous y\_error over time**



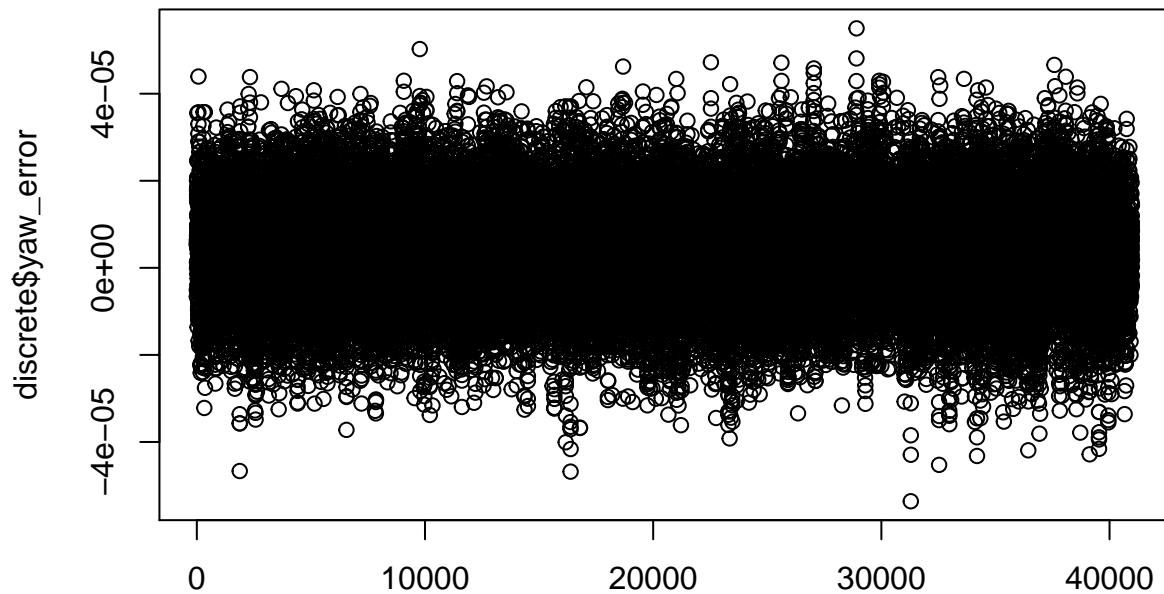
**Discrete y\_error over time**



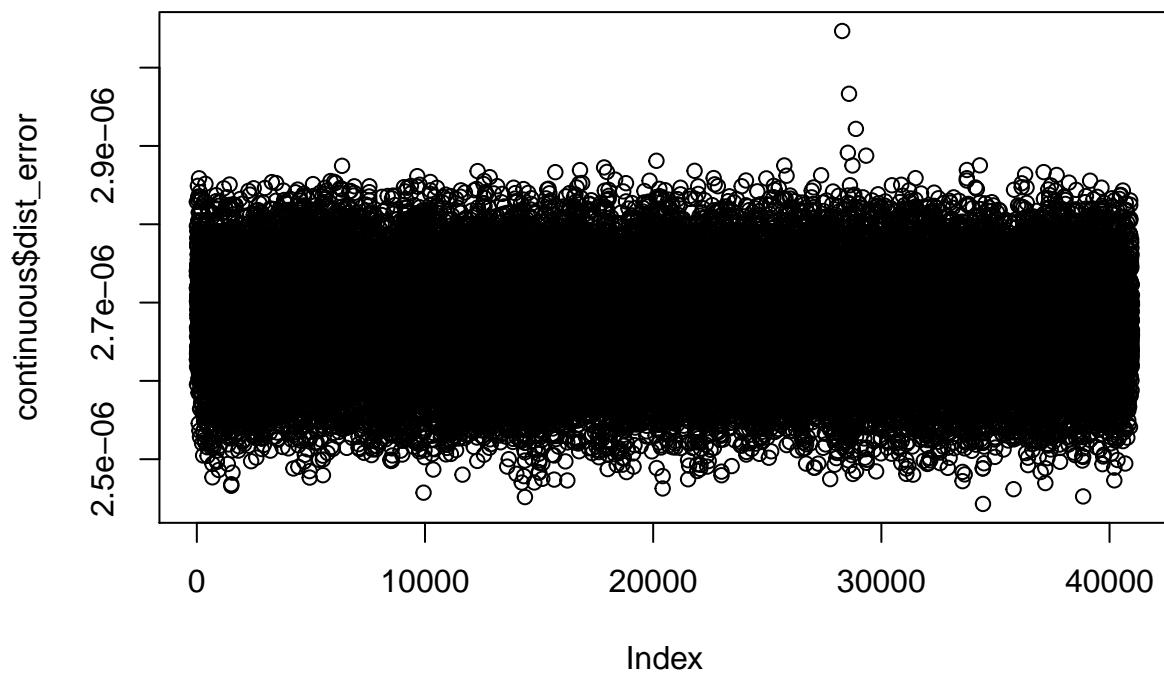
**Continuous yaw error over time**



**Discrete yaw error over time**



**Continuous total distance error over time**



### Discrete total distance error over time

