

# two\_stationary\_noisy\_false Turtlebot 1 Report

Matthew Swartwout

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

The runtime of this experiment was 1 hours, 8 minutes, and 18.6 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. 
## 1.978e-06 2.157e-06 2.207e-06 2.205e-06 2.254e-06 2.639e-06
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max. 
## 4.939e-11 1.398e-08 2.781e-08 2.699e-08 3.949e-08 5.695e-08
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max. 
## -6.283000 0.001920 0.003682 -0.022010 0.004790 0.006549
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max. 
## 1.978e-06 2.157e-06 2.207e-06 2.206e-06 2.254e-06 2.639e-06
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max. 
## 1.118e-06 3.004e-06 4.899e-06 5.141e-06 7.279e-06 9.313e-06
```

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

```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max. 
## 3.154e-11 2.259e-08 5.002e-08 6.291e-08 9.373e-08 2.194e-07
```

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

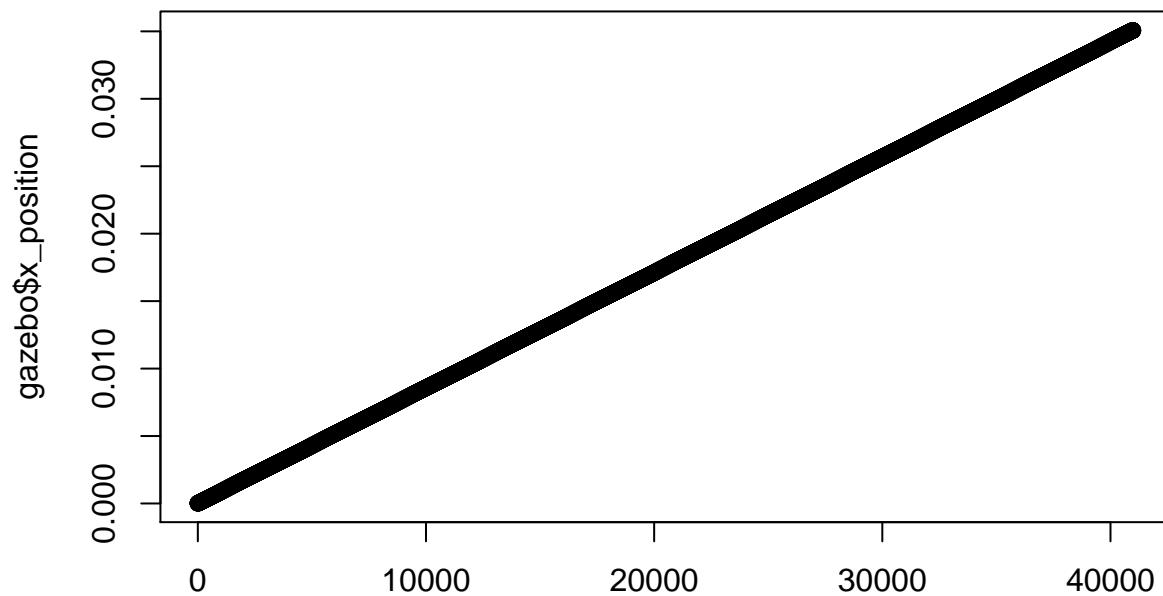
```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max. 
## -6.085e-05 -4.669e-06 3.487e-06 3.582e-06 1.171e-05 8.457e-05
```

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

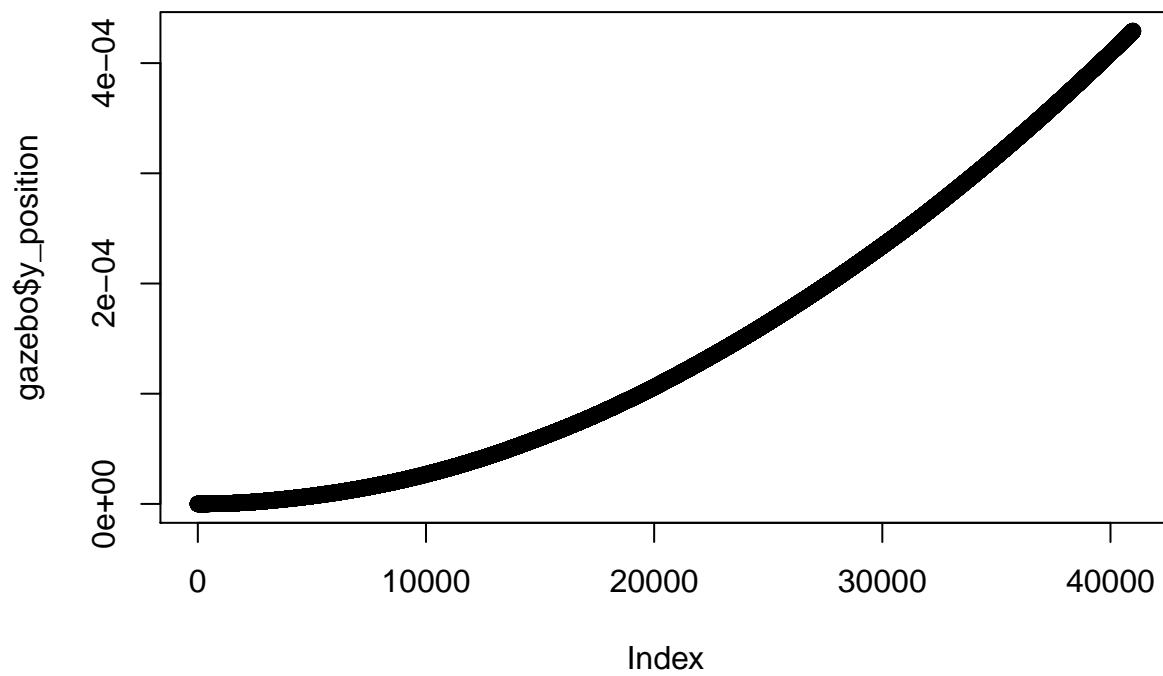
```
##      Min.    1st Qu.     Median      Mean    3rd Qu.      Max. 
## 1.118e-06 3.005e-06 4.899e-06 5.142e-06 7.280e-06 9.314e-06
```

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

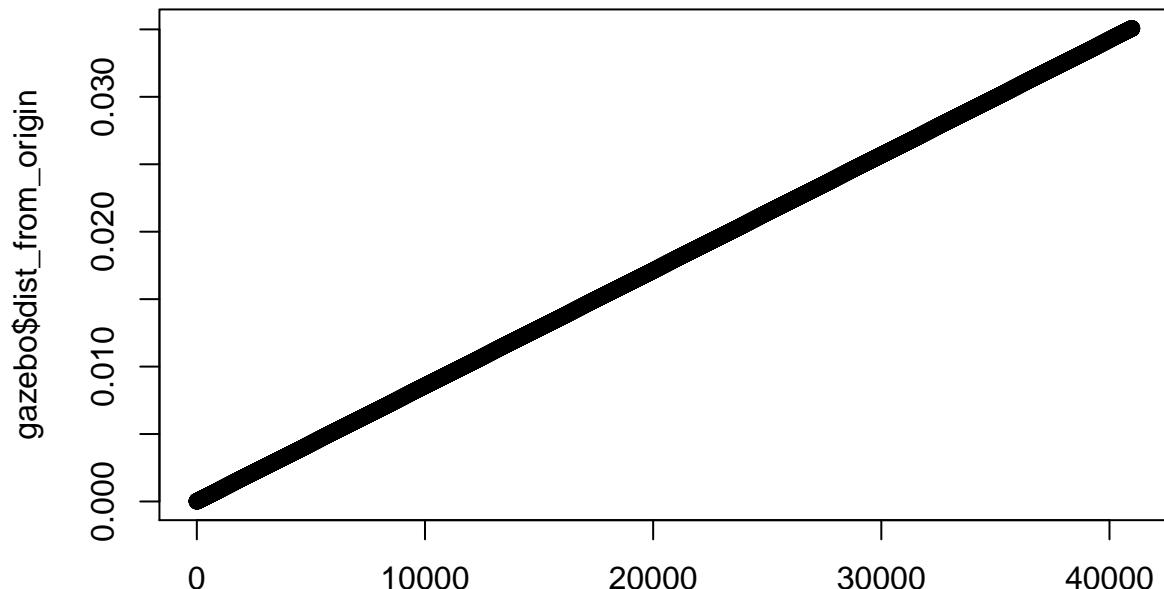
**X coordinate of robot over time**



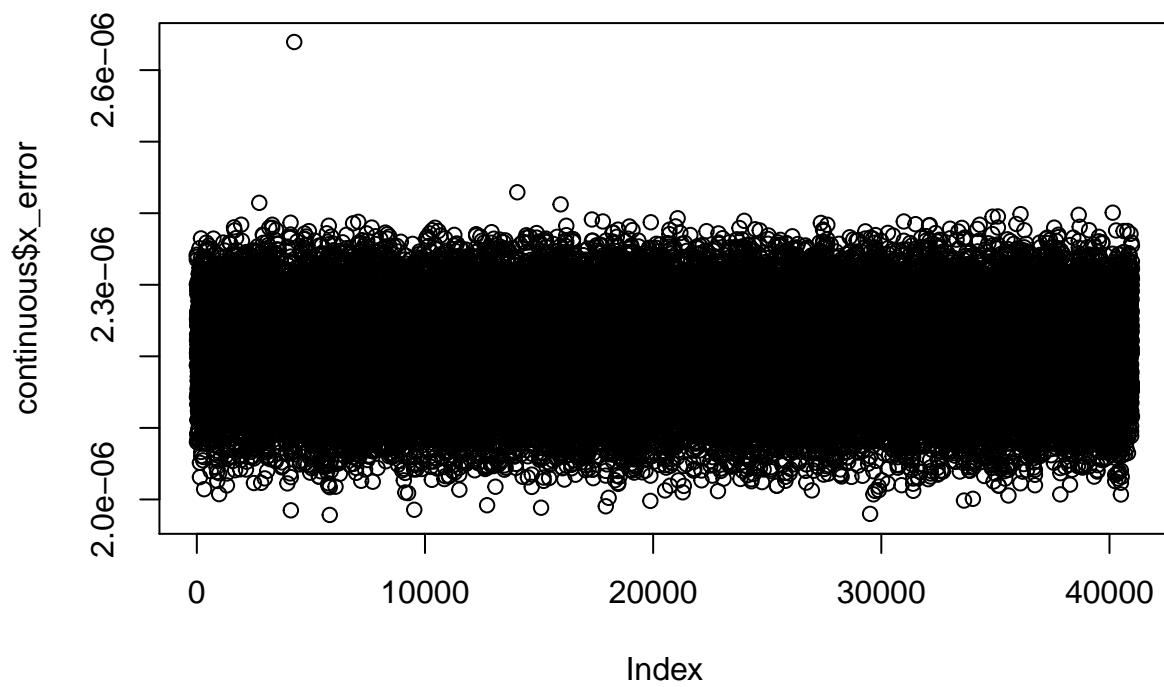
**Y coordinate of robot over time**



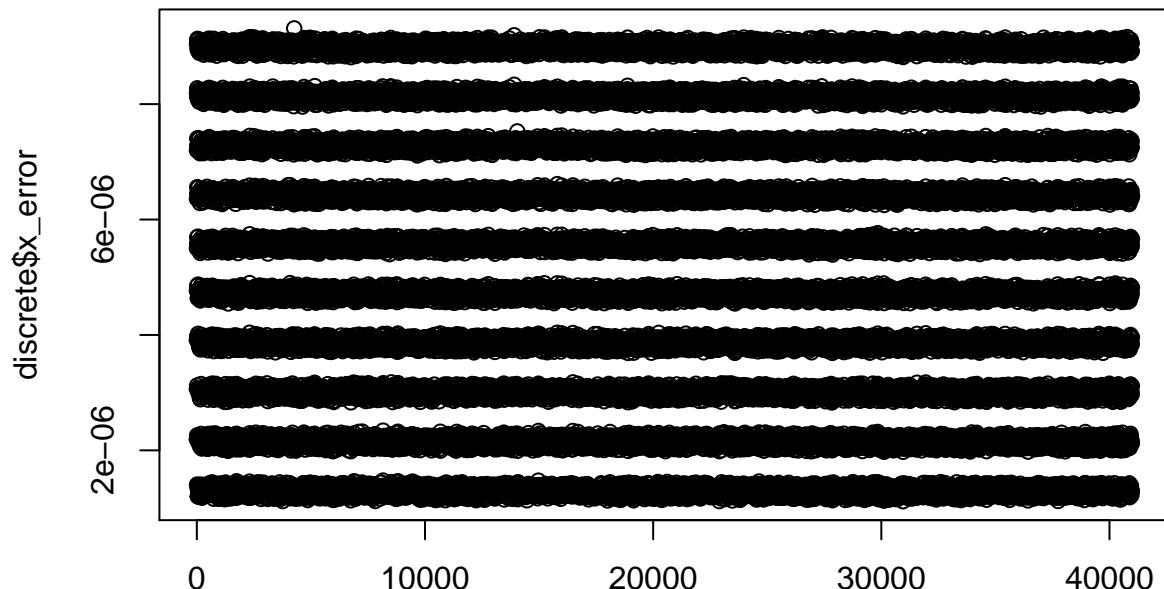
**Distance from origin vs. time**



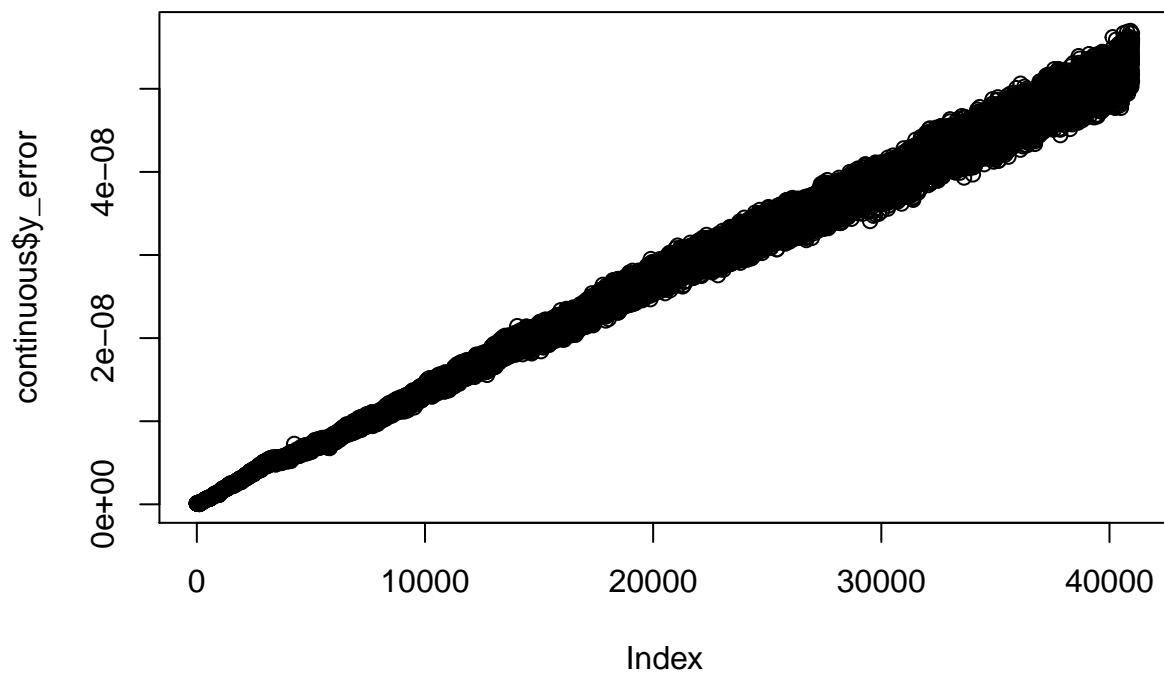
**Continuous x\_error over time**



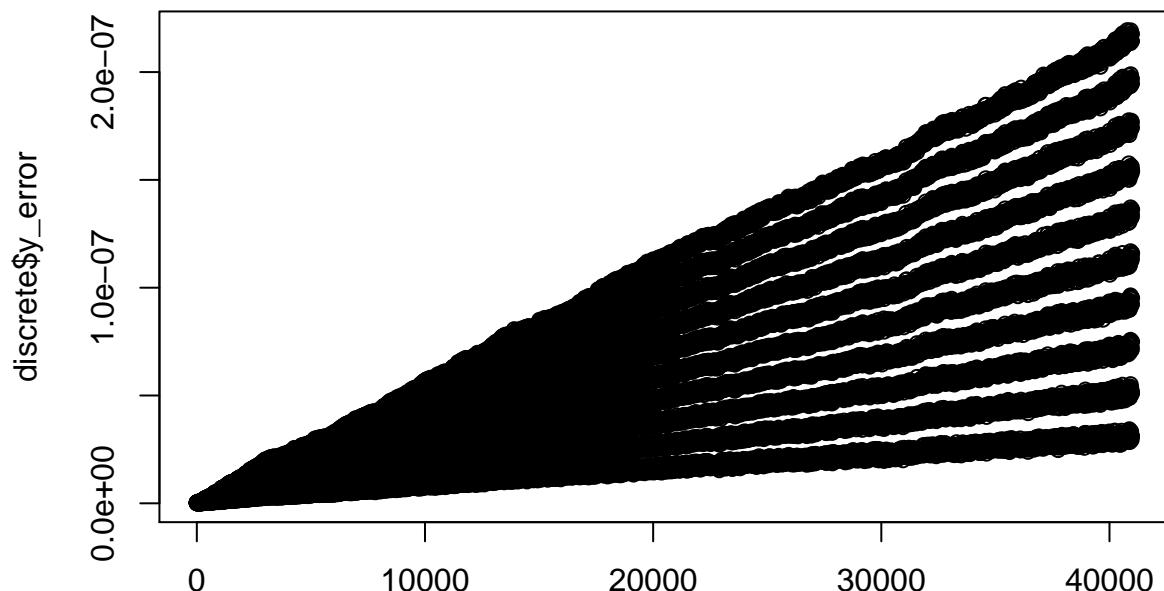
**Discrete x\_error over time**



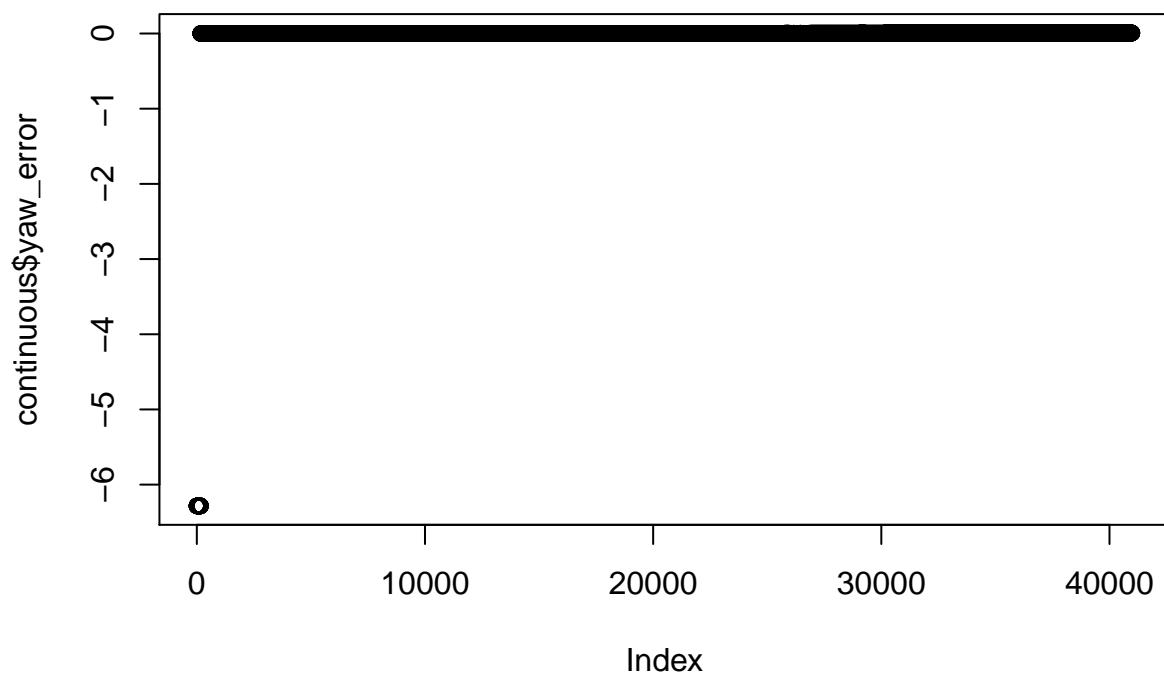
**Continuous y\_error over time**



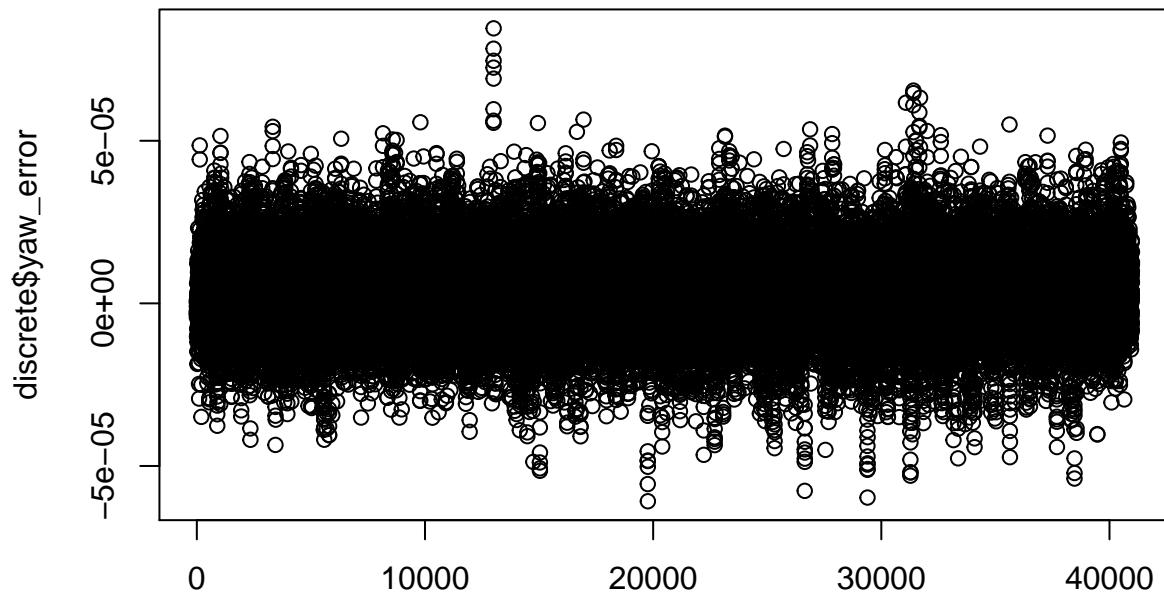
**Discrete y\_error over time**



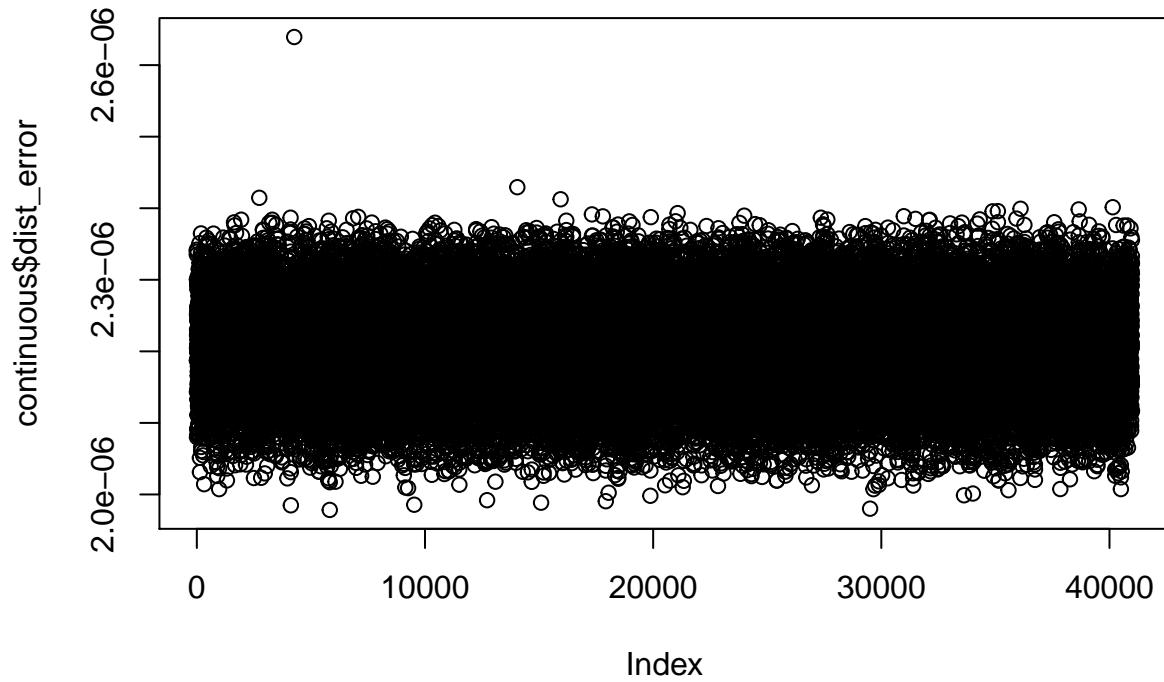
**Continuous yaw error over time**



**Discrete yaw error over time**



**Continuous total distance error over time**



### Discrete total distance error over time

