

five_mobile_restricted_noisy_true Turtlebot 2 Report

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This is a summary of the data from the five_mobile_restricted_noisy_true experiment, Turtlebot #2.

The runtime of this experiment was 1 hours, 8 minutes, and 19.7 seconds.

The total number of external pose measurements received by the robot during this time was 30865 which means poses were received at an average of 7.5285997 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. 
## -6.973e-02 -3.564e-03 3.897e-05 9.270e-06 3.611e-03 7.312e-02
```

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

```
##      Min.   1st Qu.   Median   Mean   3rd Qu.   Max. 
## -7.824e-02 -3.555e-03 1.059e-04 2.664e-05 3.687e-03 7.451e-02
```

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

```
##      Min.   1st Qu.   Median   Mean   3rd Qu.   Max. 
## -6.283000 -0.010960  0.035280  0.007284  0.047510  6.281000
```

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

```
##      Min.   1st Qu.   Median   Mean   3rd Qu.   Max. 
## 2.927e-05 3.901e-03 6.212e-03 8.173e-03 9.330e-03 8.559e-02
```

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

```
##      Min.   1st Qu.   Median   Mean   3rd Qu.   Max. 
## -8.919000 -0.000085  0.168900  4.472000  7.574000 30.090000
```

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

```
##      Min.   1st Qu.   Median   Mean   3rd Qu.   Max. 
## -9.778000 -0.040170  0.002249  1.793000  2.920000 15.400000
```

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

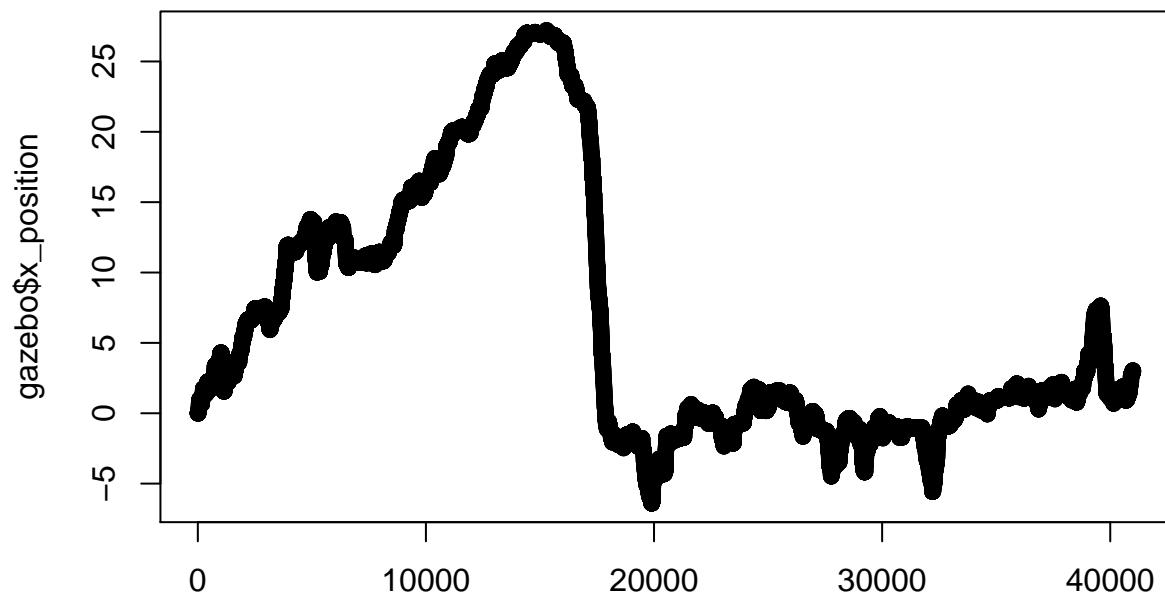
```
##      Min.   1st Qu.   Median   Mean   3rd Qu.   Max. 
## -6.281000 -0.158200 -0.003816  0.015450  0.008057  6.278000
```

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

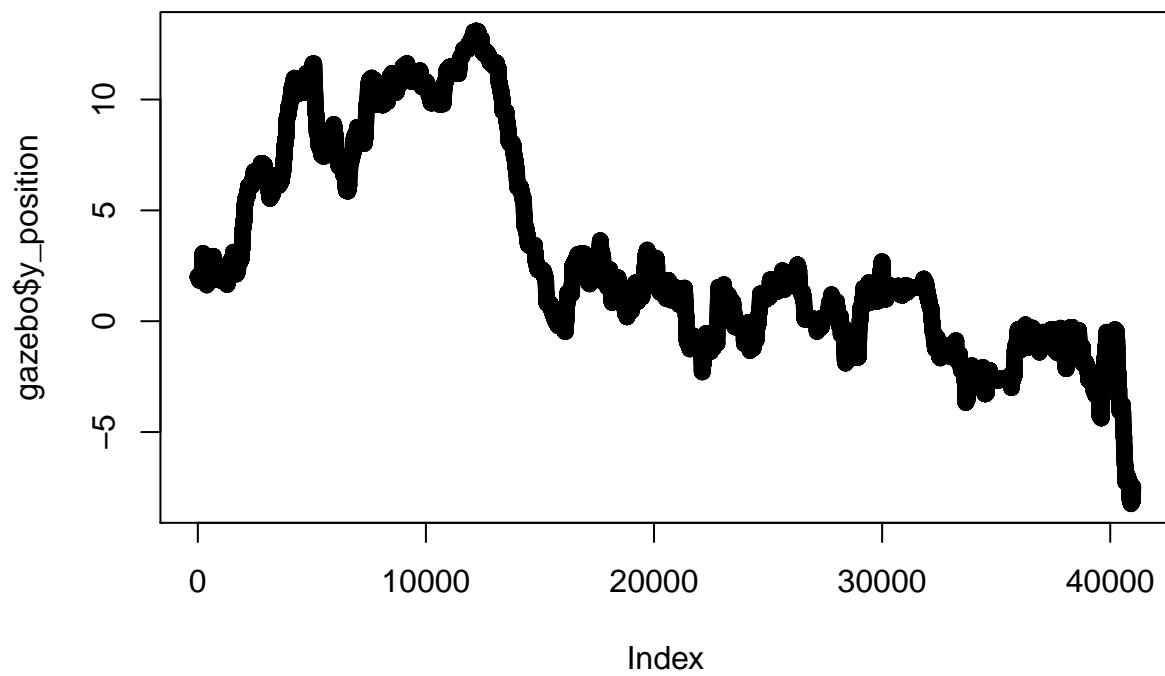
```
##      Min.   1st Qu.   Median   Mean   3rd Qu.   Max. 
## 0.00000  0.01614  0.83600  5.75700  9.54500 30.42000
```

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

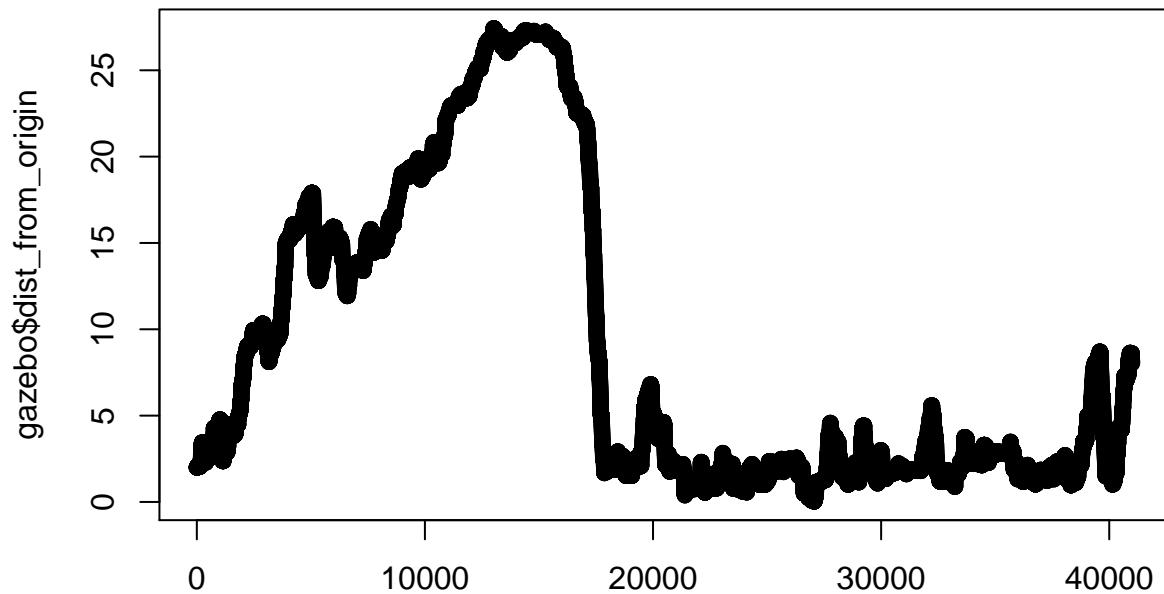
X coordinate of robot over time



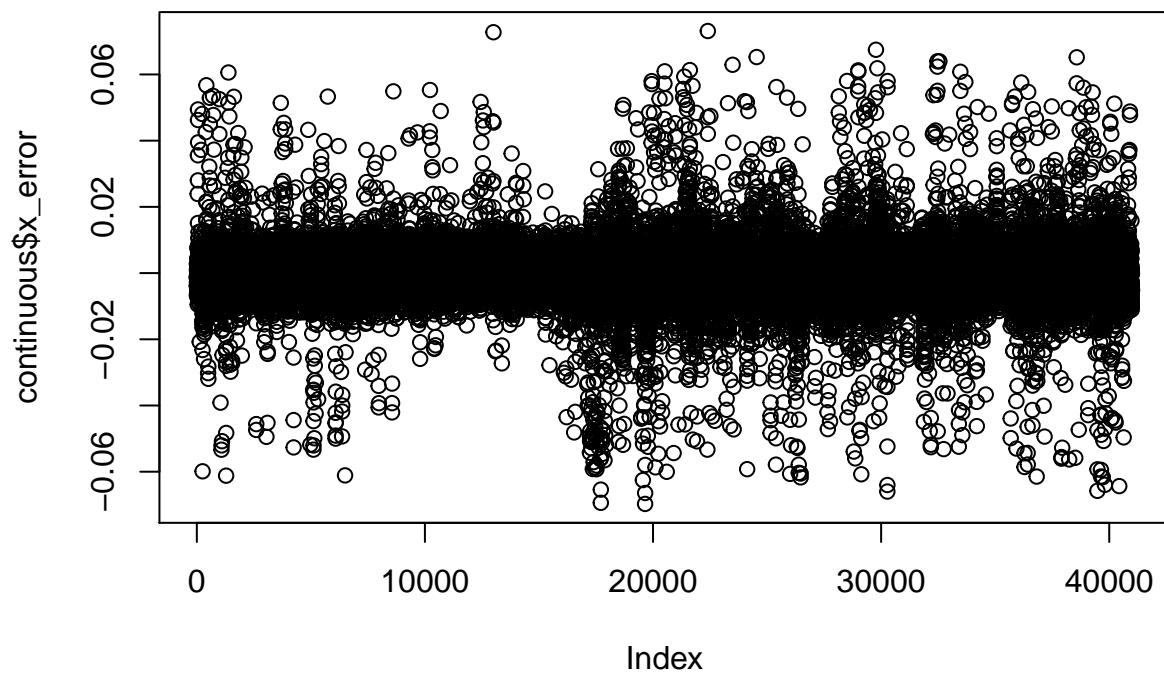
Y coordinate of robot over time



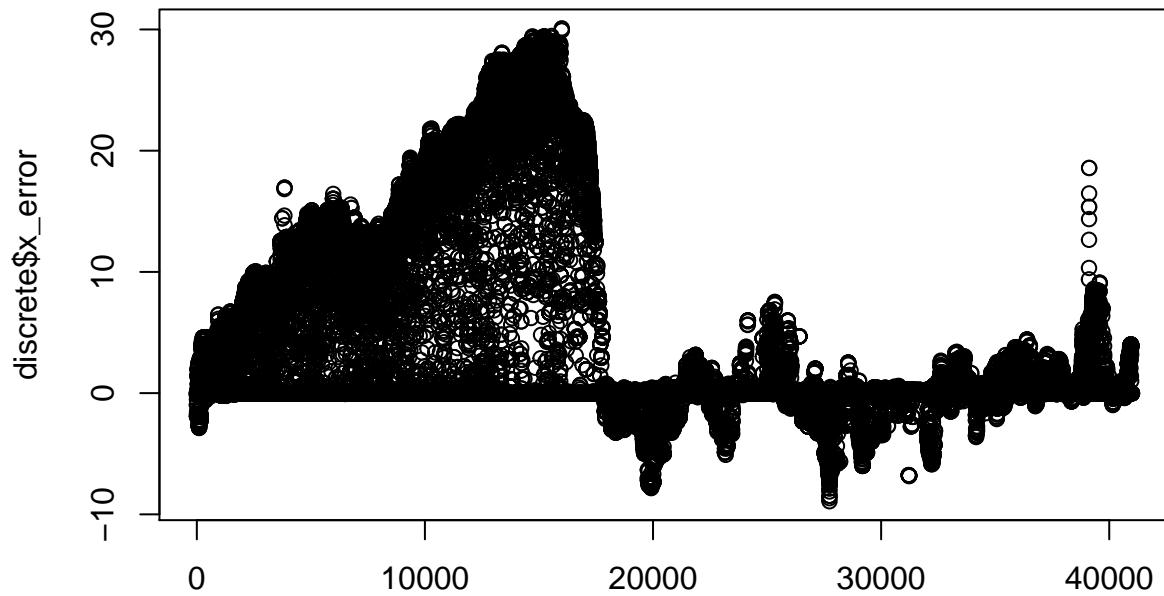
Distance from origin vs. time



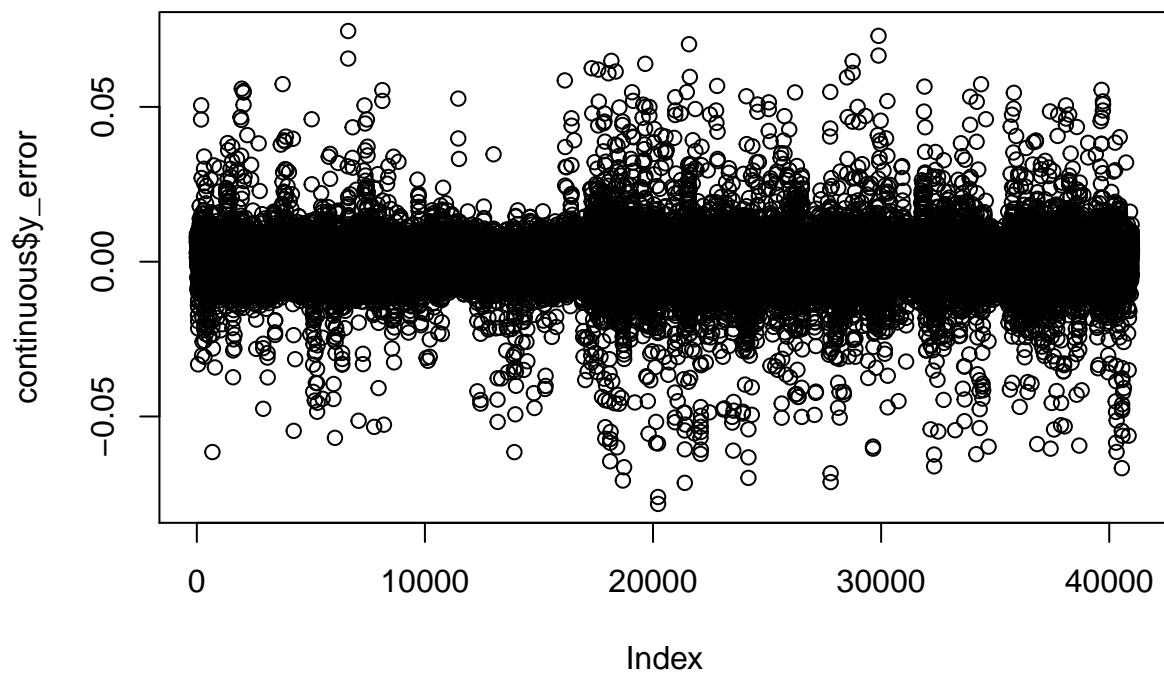
Continuous x_error over time



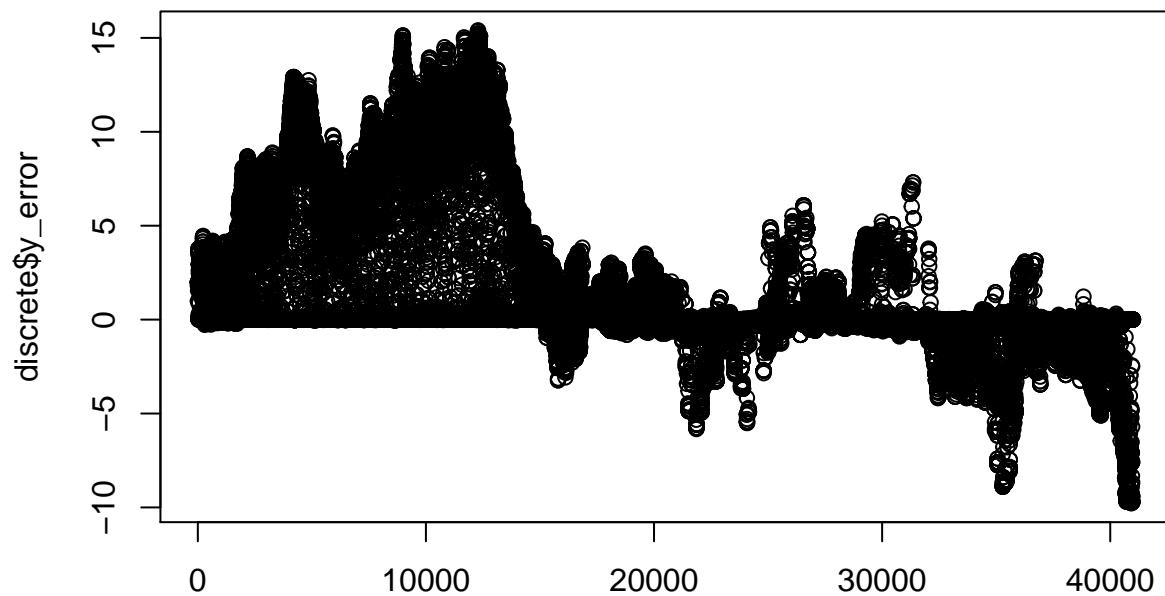
Discrete x_error over time



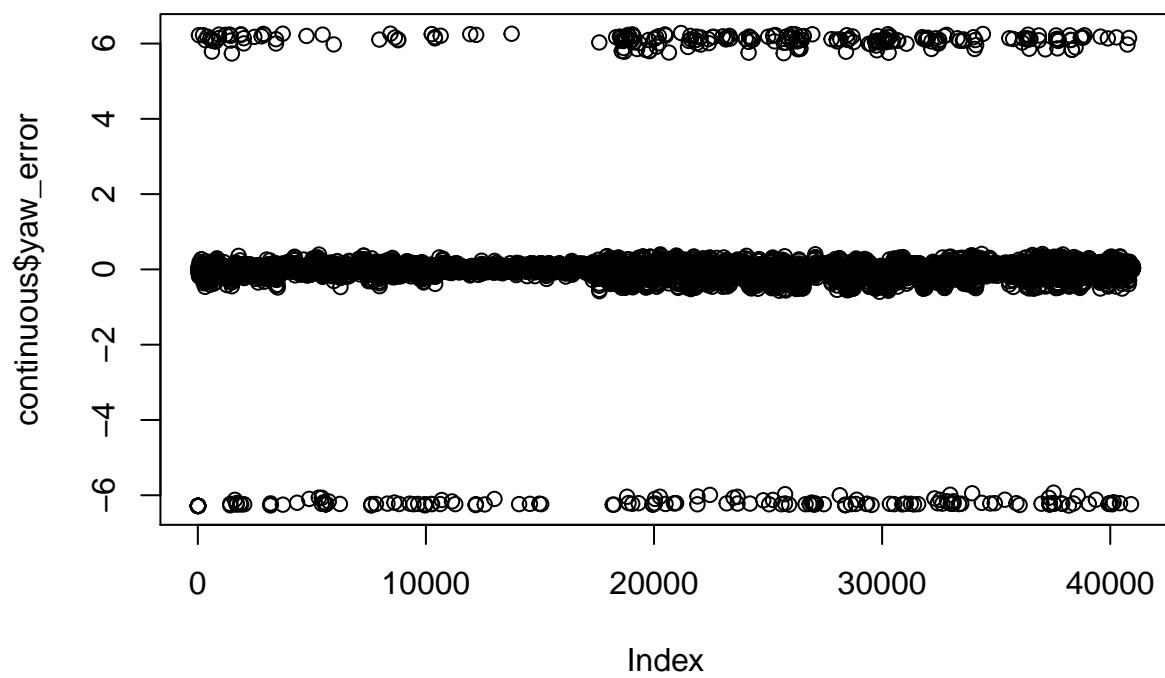
Continuous y_error over time



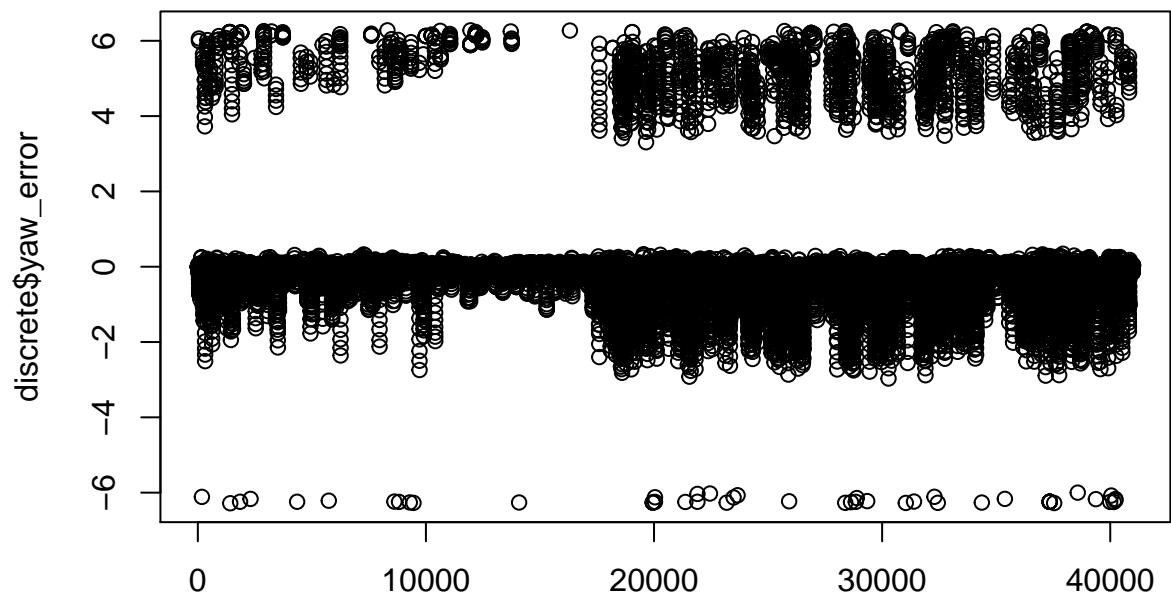
Discrete y_error over time



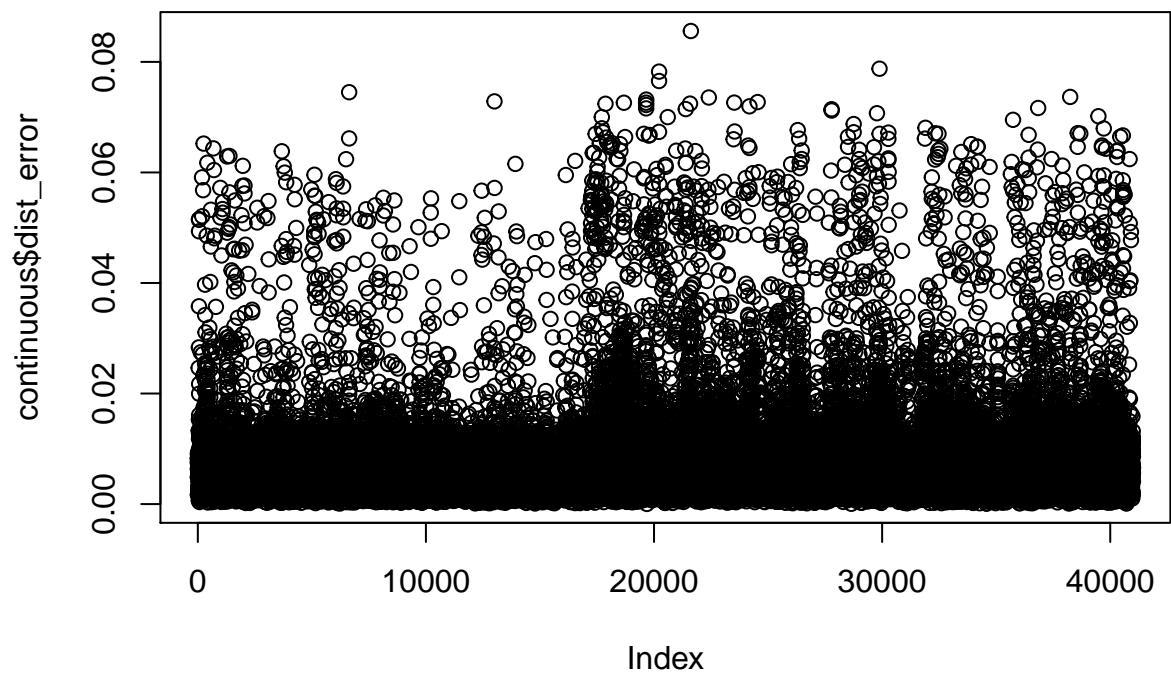
Continuous yaw error over time



Discrete yaw error over time



Continuous total distance error over time



Discrete total distance error over time

