

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.0898262747875, median 0.085821558453, std: 0.0451639909589
Reprojection error (cam1): mean 0.0905604313303, median 0.0858360332706, std: 0.0459945554965
Gyroscope error (imu0): mean 0.492334079081, median 0.457350963319, std: 0.260763749568
Accelerometer error (imu0): mean 0.581335561315, median 0.536284424944, std: 0.302556832074

Residuals

Reprojection error (cam0) [px]: mean 0.0898262747875, median 0.085821558453, std: 0.0451639909589
Reprojection error (cam1) [px]: mean 0.0905604313303, median 0.0858360332706, std: 0.0459945554965
Gyroscope error (imu0) [rad/s]: mean 0.00111402485097, median 0.00103486709614, std: 0.000590041009943
Accelerometer error (imu0) [m/s^2]: mean 0.0230197137828, median 0.0212357797973, std: 0.0119806393086

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ -0.99952217  0.02969703 -0.00857435  0.0472582 ]  
 [  0.00755046 -0.03442004 -0.99937893 -0.04753649]  
 [ -0.02997371 -0.99896614  0.03417936 -0.067602  ]  
 [  0.          0.          0.          1.         ]]
```

T_ic: (cam0 to imu0):

```
[[ -0.99952217  0.00755046 -0.02997371  0.04556826]  
 [  0.02969703 -0.03442004 -0.99896614 -0.07057175]  
 [ -0.00857435 -0.99937893  0.03417936 -0.04479117]  
 [  0.          0.          0.          1.         ]]
```

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)

0.0

Transformation (cam1):

T_ci: (imu0 to cam1):

```
[[ -0.99951431  0.03020583 -0.00766443 -0.05367698]  
 [  0.00806541  0.01317556 -0.99988067 -0.04621666]  
 [ -0.03010124 -0.99945686 -0.01341278 -0.07110778]
```

[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):

[[-0.99951431 0.00806541 -0.03010124 -0.05541858]
[0.03020583 0.01317556 -0.99945686 -0.06883887]
[-0.00766443 -0.99988067 -0.01341278 -0.04757631]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
0.0

Baselines:

Baseline (cam0 to cam1):

[[0.99999946 -0.00092681 -0.00047741 -0.10101148]
[0.00090305 0.99886707 -0.04757897 -0.00199314]
[0.00052097 0.04757851 0.99886737 -0.00134526]
[0. 0. 0. 1.]]

baseline norm: 0.101040099414 [m]

Gravity vector in target coords: [m/s^2]

[0.03432376 -9.69485141 -1.47550025]

Calibration configuration

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cam0

Camera model: eucm

Focal length: [191.1394674074927, 191.10326119822042]

Principal point: [254.95938973249324, 256.9502975322689]

EUCM alpha: 0.628872960651

EUCM beta: 1.04593492071

Distortion model: none

Distortion coefficients: []

Type: aprilgrid

Tags:

Rows: 6

Cols: 6
Size: 0.088 [m]
Spacing 0.0264 [m]

cam1

Camera model: eucm
Focal length: [190.4786346139882, 190.4342021932622]
Principal point: [252.58672601847402, 255.08241648246496]
EUCM alpha: 0.628444880113
EUCM beta: 1.04340201197
Distortion model: none
Distortion coefficients: []
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.088 [m]
 Spacing 0.0264 [m]

IMU configuration

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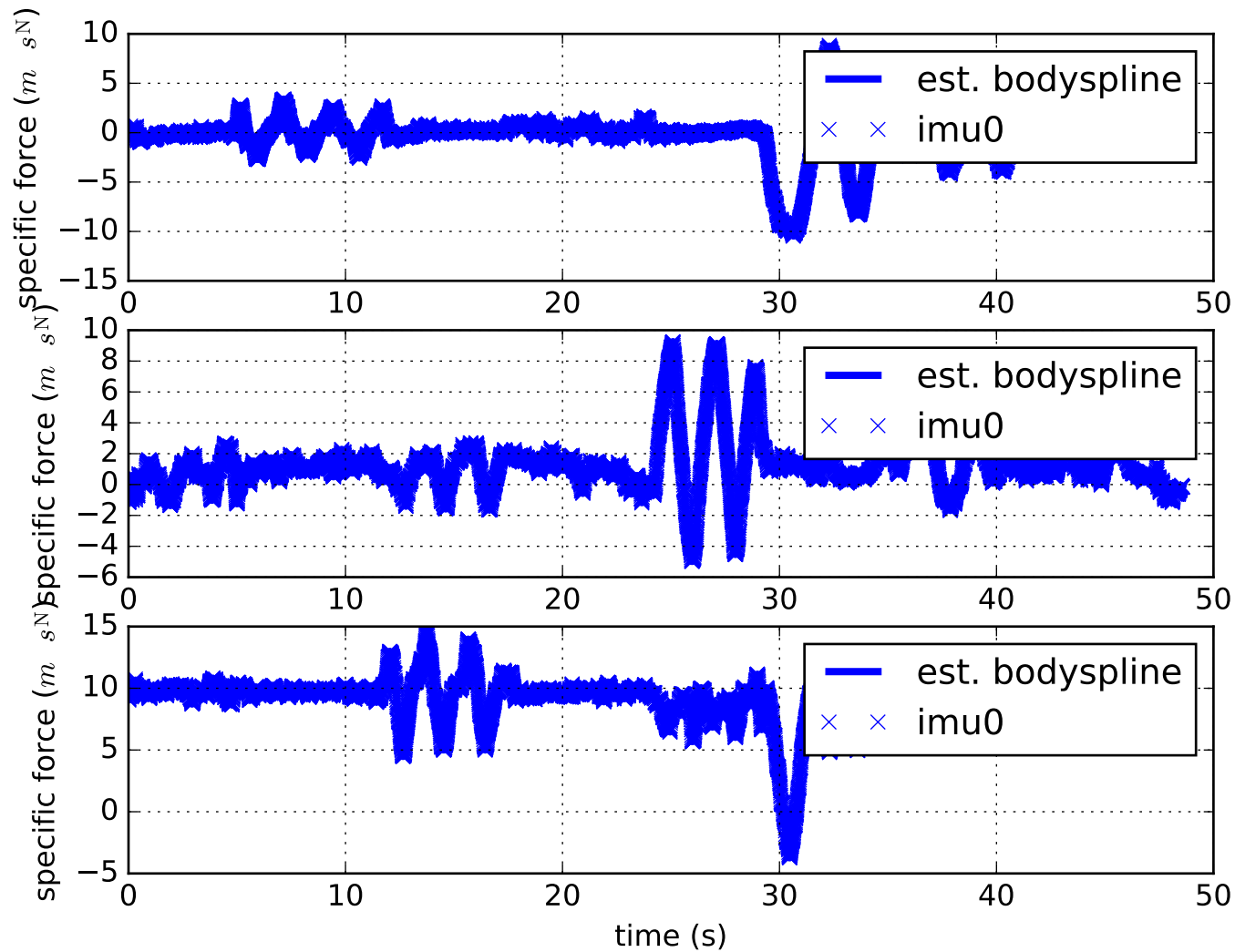
IMU0:

Model: calibrated
Update rate: 200.0
Accelerometer:
 Noise density: 0.0028
 Noise density (discrete): 0.0395979797464
 Random walk: 0.00086
Gyroscope:
 Noise density: 0.00016
 Noise density (discrete): 0.0022627416998
 Random walk: 2.2e-05
T_i_b
[[1. 0. 0. 0.]

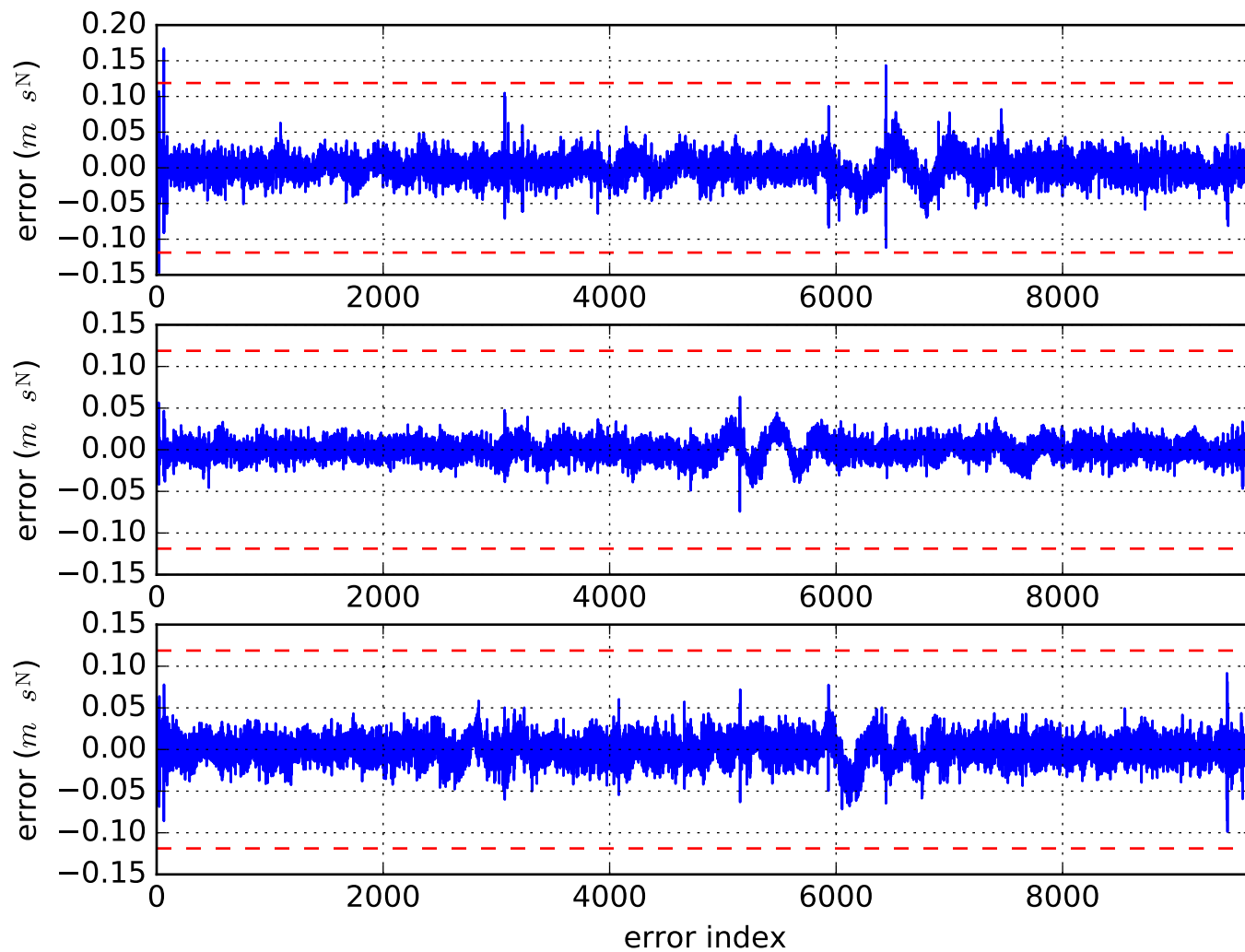
```
[ 0.  1.  0.  0.]  
[ 0.  0.  1.  0.]  
[ 0.  0.  0.  1.]
```

time offset with respect to IMU0: 0.0 [s]

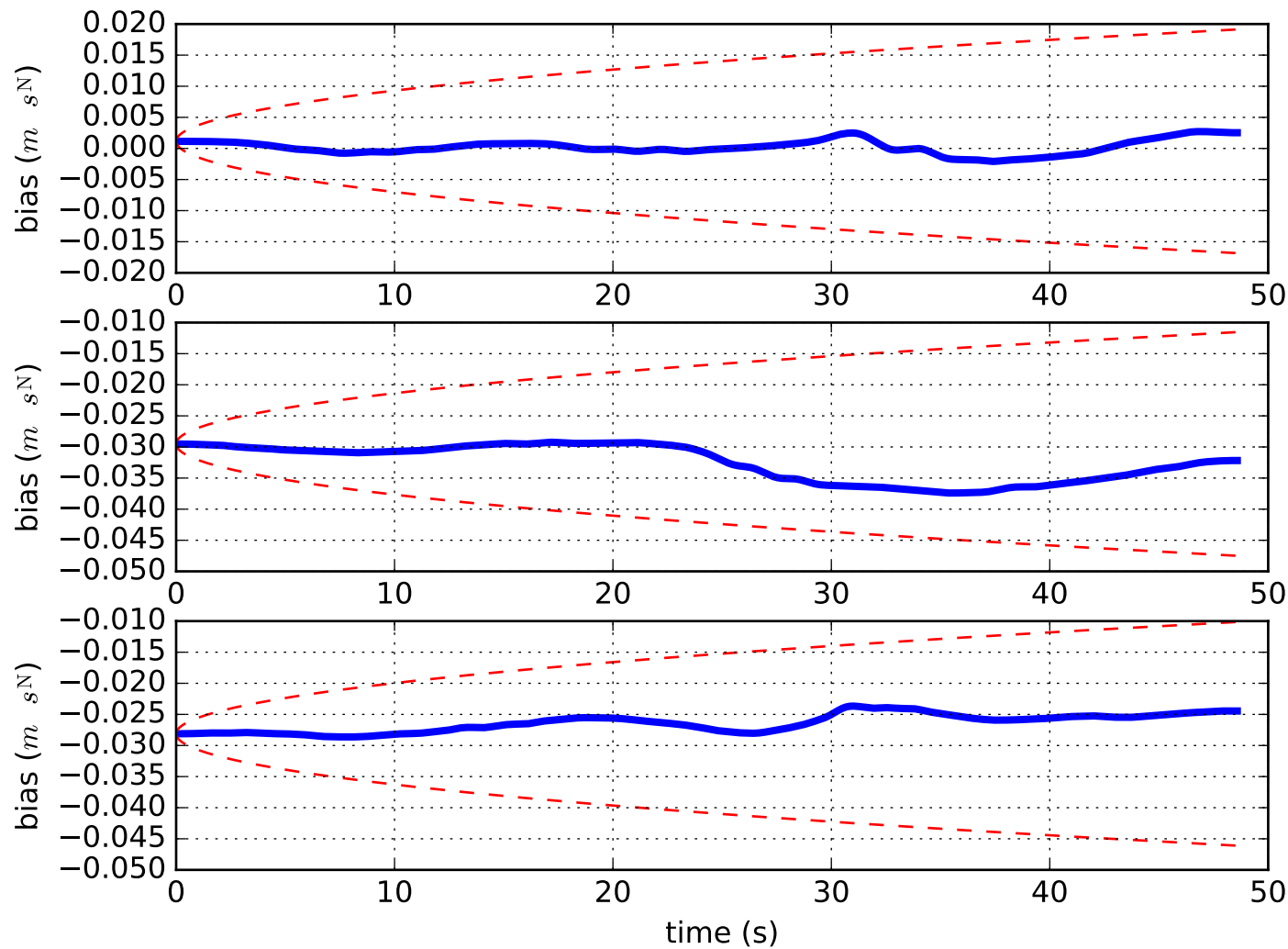
Comparison of predicted and measured specific force (imu0 frame)



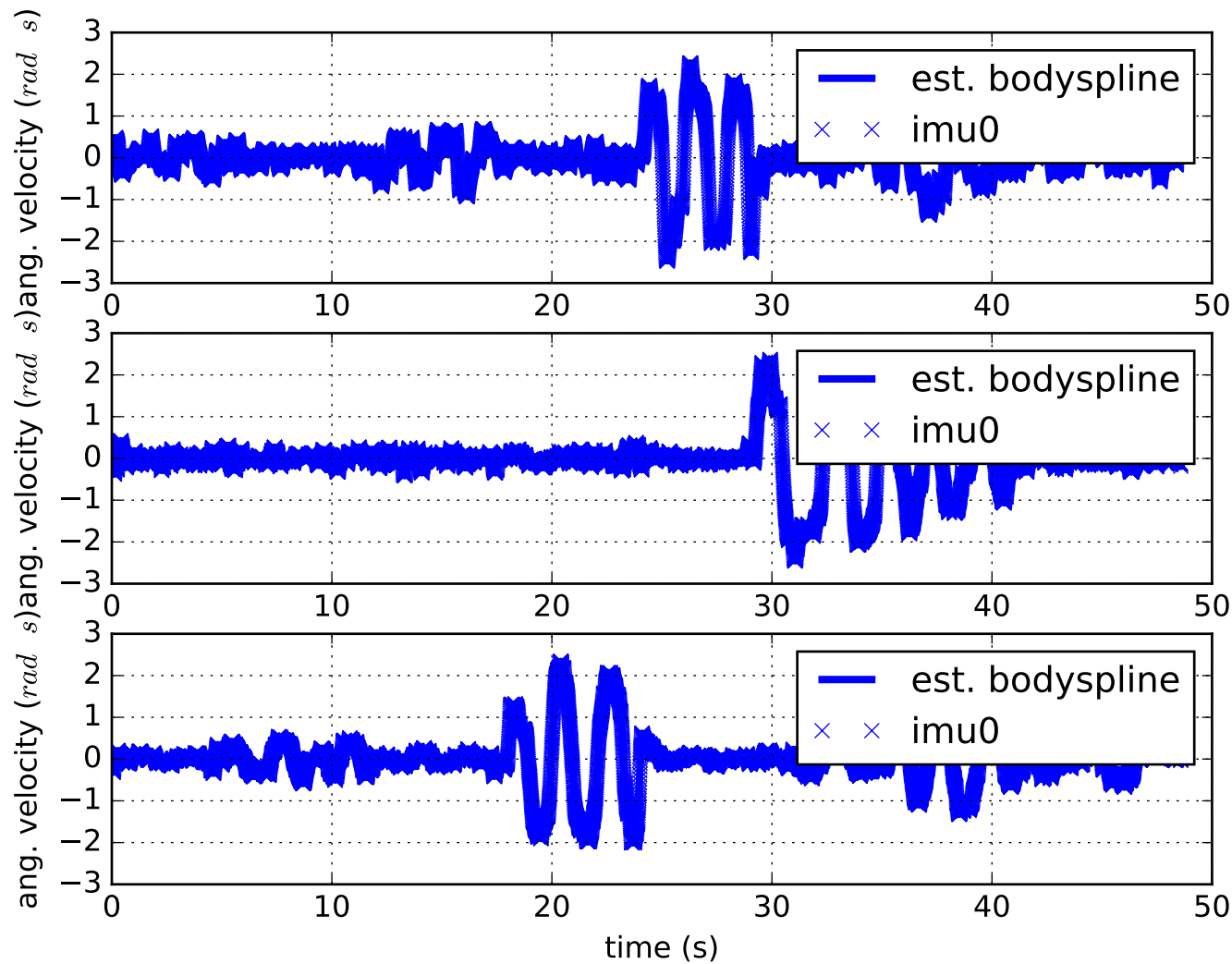
imu0: acceleration error



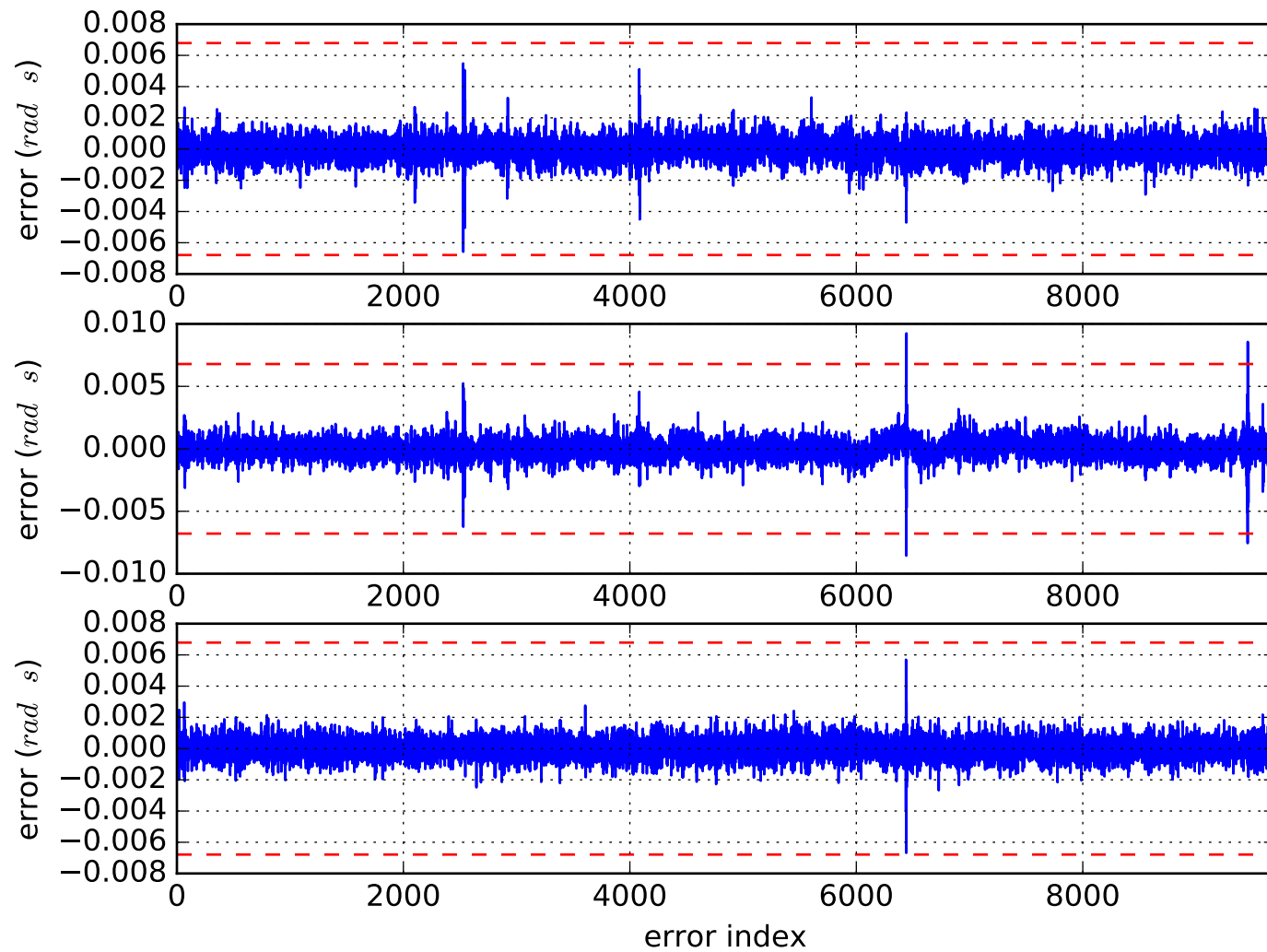
imu0: estimated accelerometer bias (imu frame)



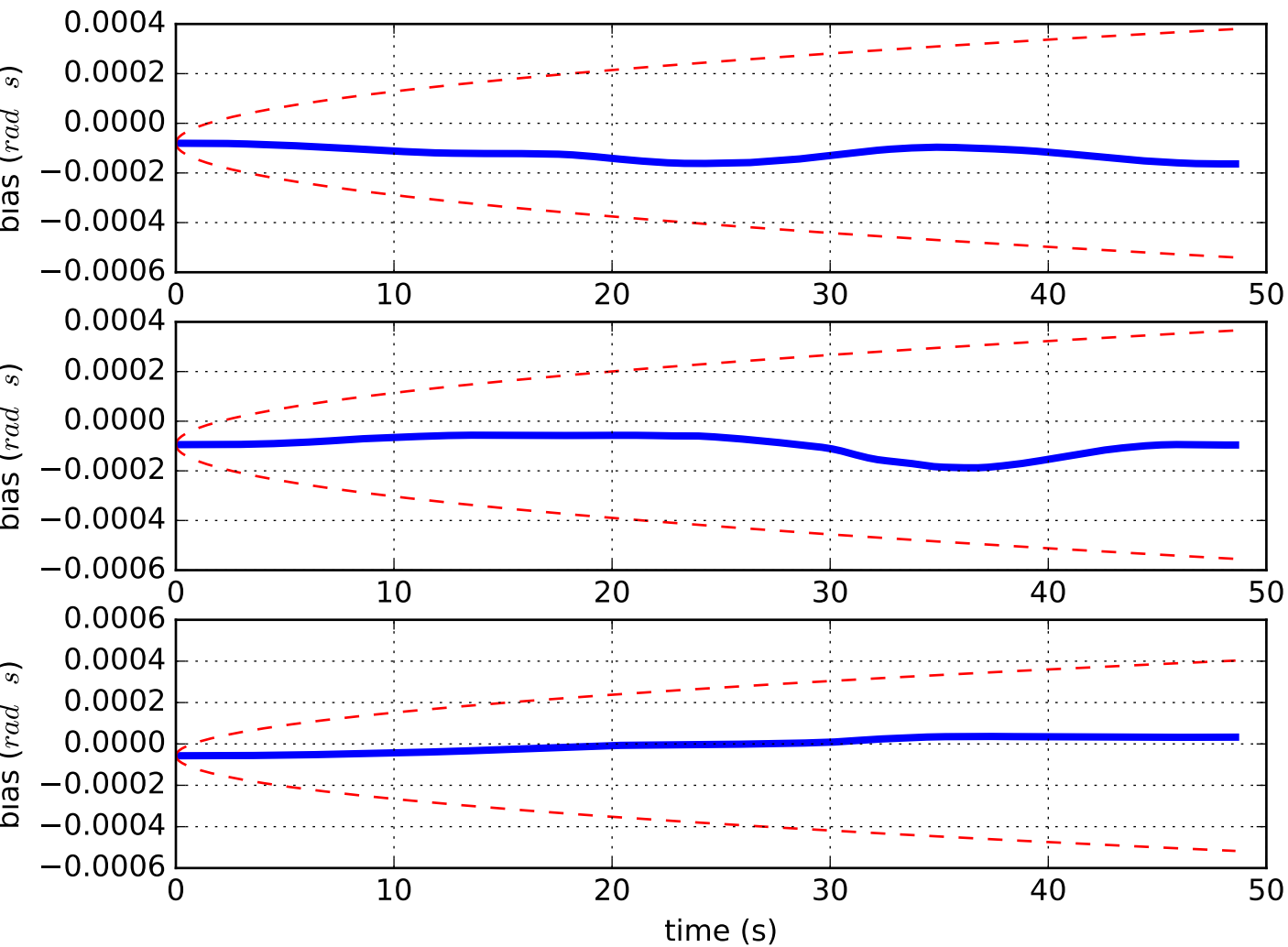
Comparison of predicted and measured angular velocities (body frame)



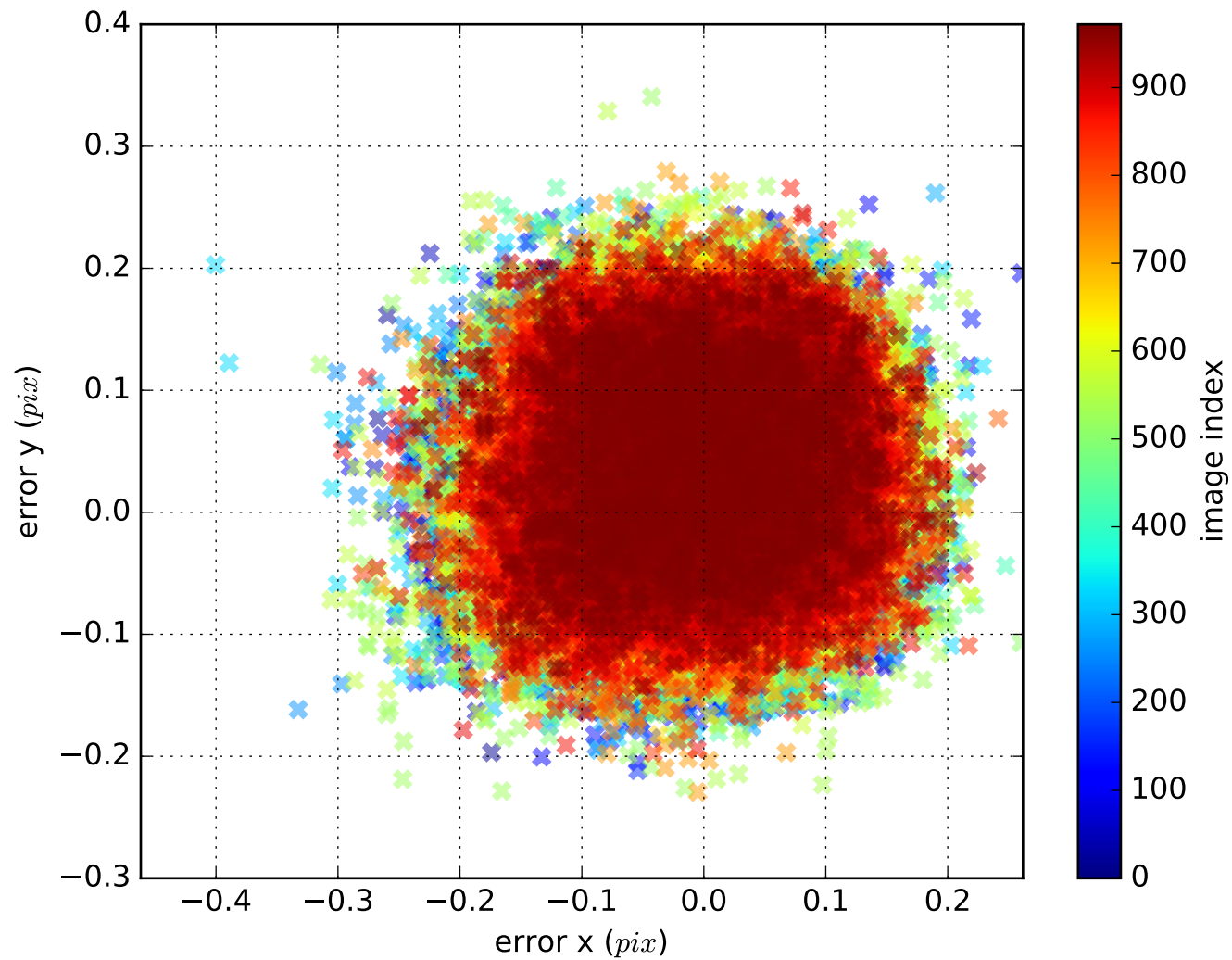
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

