

Calibration results

Normalized Residuals

Reprojection error (cam0): mean 0.314280451213, median 0.29884245532, std: 0.130321808889

Reprojection error (cam1): mean 0.318578560385, median 0.303846608242, std: 0.133422157757

Gyroscope error (imu0): mean 0.149212597409, median 0.123228318668, std: 0.102178438079

Accelerometer error (imu0): mean 0.247861624398, median 0.18919888085, std: 0.215603569782

Residuals

Reprojection error (cam0) [px]: mean 0.314280451213, median 0.29884245532, std: 0.130321808889

Reprojection error (cam1) [px]: mean 0.318578560385, median 0.303846608242, std: 0.133422157757

Gyroscope error (imu0) [rad/s]: mean 0.00417578543129, median 0.00344860304528, std: 0.00285951213592

Accelerometer error (imu0) [m/s^2]: mean 0.0911800161437, median 0.0695999513928, std: 0.0793133548651

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ 0.99983024 -0.01802853 -0.00380341  0.02186606]
 [-0.01798789 -0.99978348  0.01046087  0.02390945]
 [-0.00399118 -0.01039068 -0.99993805 -0.00903155]
 [ 0.        0.        0.        1.      ]]
```

T_ic: (cam0 to imu0):

```
[[ 0.99983024 -0.01798789 -0.00399118 -0.02146832]
 [-0.01802853 -0.99978348 -0.01039068  0.02420464]
 [-0.00380341  0.01046087 -0.99993805 -0.00919794]
 [ 0.        0.        0.        1.      ]]
```

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

0.00210107491195

Transformation (cam1):

T_ci: (imu0 to cam1):

```
[[ 0.99983024 -0.01802853 -0.00380341 -0.02813028]
 [-0.01798789 -0.99978348  0.01046087  0.02390945]
 [-0.00399118 -0.01039068 -0.99993805 -0.00903155]
```

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

T_ic: (cam1 to imu0):

```
[[ 0.99983024 -0.01798789 -0.00399118  0.02851953]
 [-0.01802853 -0.99978348 -0.01039068  0.02330328]
 [-0.00380341  0.01046087 -0.99993805 -0.00938809]
 [ 0.      0.      0.      1.      ]]
```

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

```
0.00209420396288
```

Baselines:

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Baseline (cam0 to cam1):

```
[[ 1.      0.      0.      -0.04999634]
 [ 0.      1.      0.      0.      ]
 [ 0.      0.      1.      0.      ]
 [ 0.      0.      0.      1.      ]]
baseline norm: 0.0499963387847 [m]
```

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

```
[ 0.08243833 -9.77394637 -0.7947321 ]
```

Calibration configuration

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cam0

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Camera model: pinhole

Focal length: [390.002380371094, 390.002380371094]

Principal point: [323.030731201172, 237.355239868164]

Distortion model: radtan

Distortion coefficients: [0, 0, 0, 0]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.088 [m]

Spacing 0.0264 [m]

cam1

Camera model: pinhole
Focal length: [390.002380371094, 390.002380371094]
Principal point: [323.030731201172, 237.355239868164]
Distortion model: radtan
Distortion coefficients: [0, 0, 0, 0]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.088 [m]
Spacing 0.0264 [m]

IMU configuration

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IMU0:

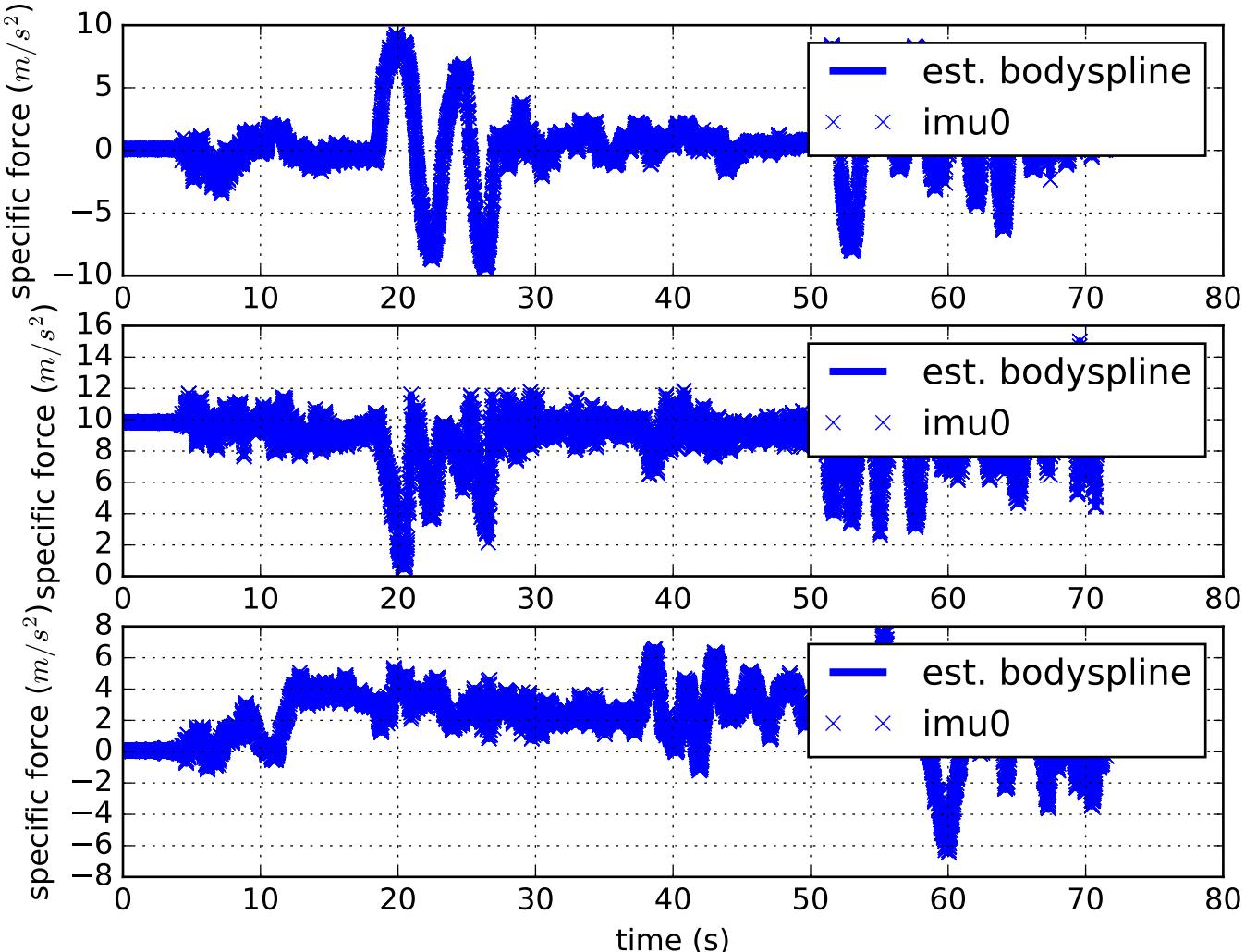
Model: calibrated
Update rate: 400.0
Accelerometer:
Noise density: 0.0183933306265
Noise density (discrete): 0.36786661253
Random walk: 0.000822996092865
Gyroscope:
Noise density: 0.00139927375564
Noise density (discrete): 0.0279854751128
Random walk: 6.6045706138e-05

T_i_b

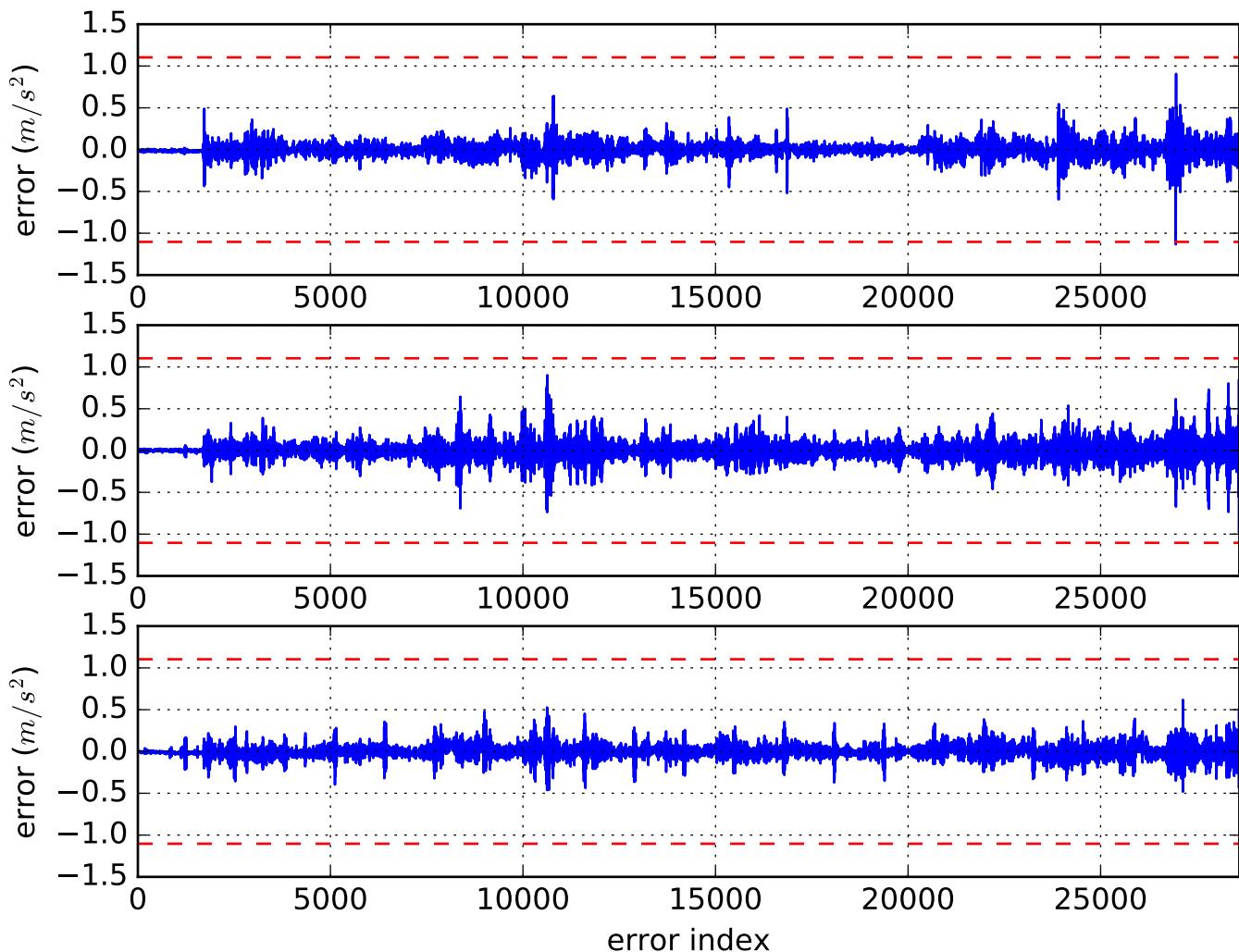
[[1. 0. 0. 0.]
[0. 1. 0. 0.]
[0. 0. 1. 0.]
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

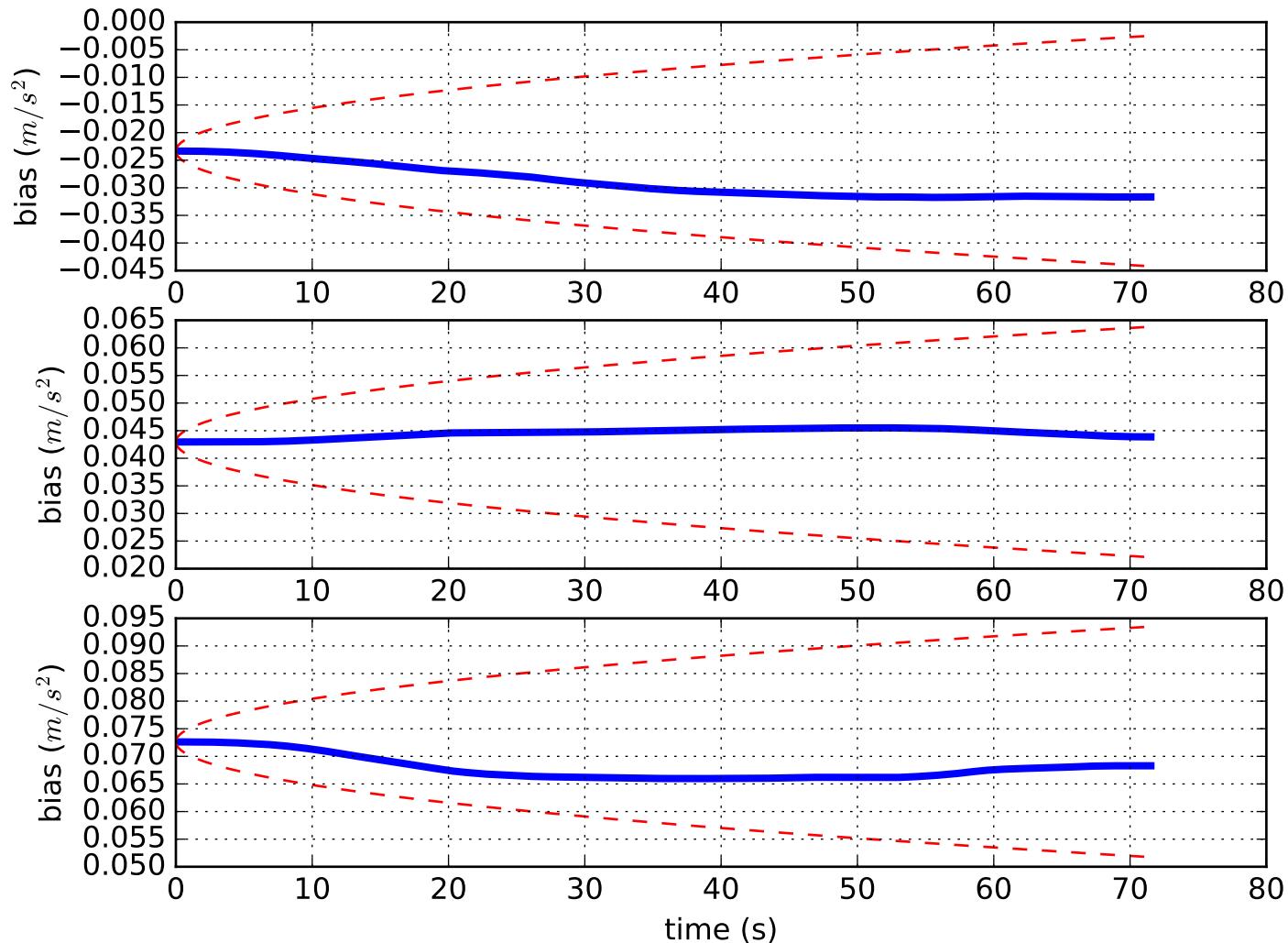
Comparison of predicted and measured specific force (imu0 frame)



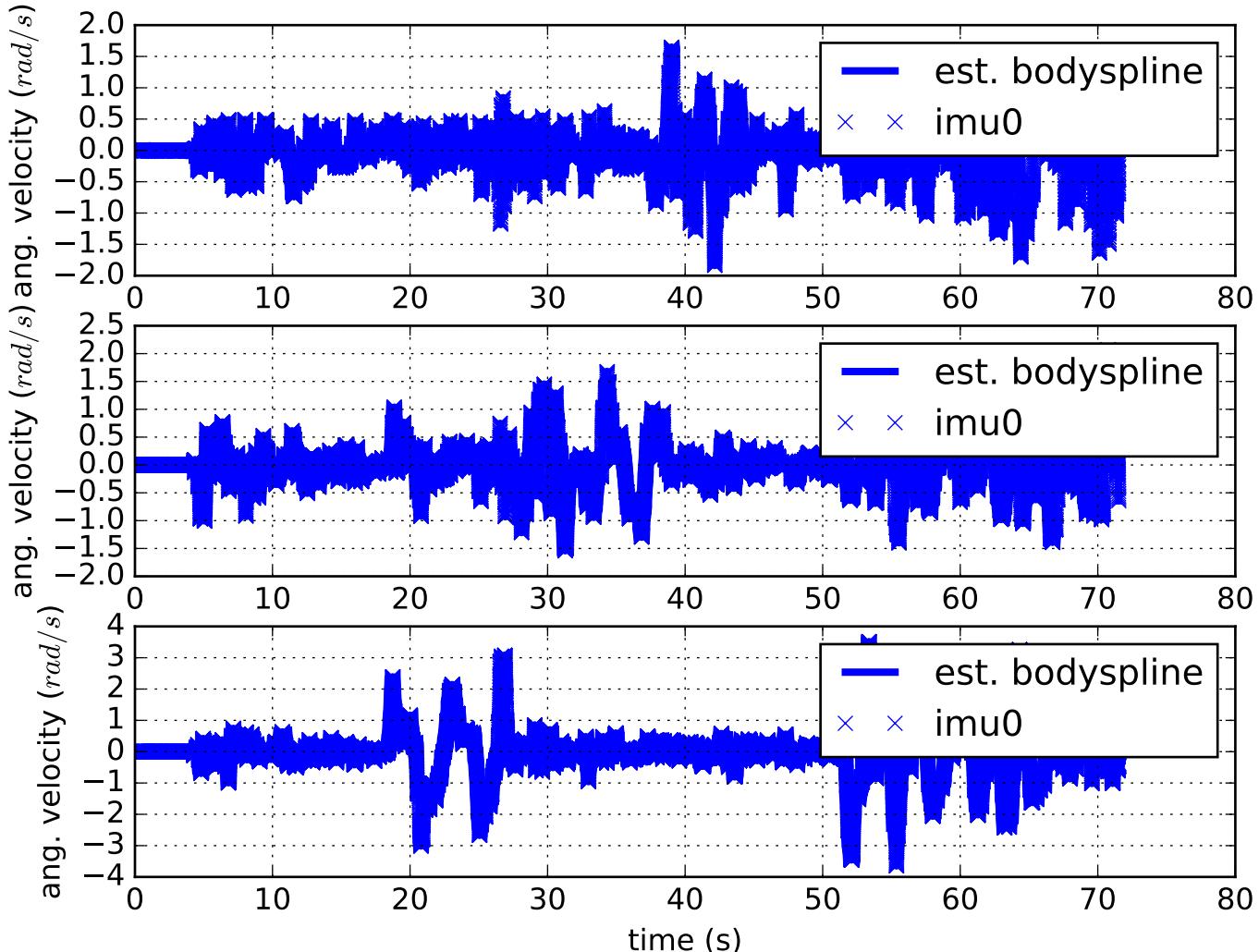
imu0: acceleration error



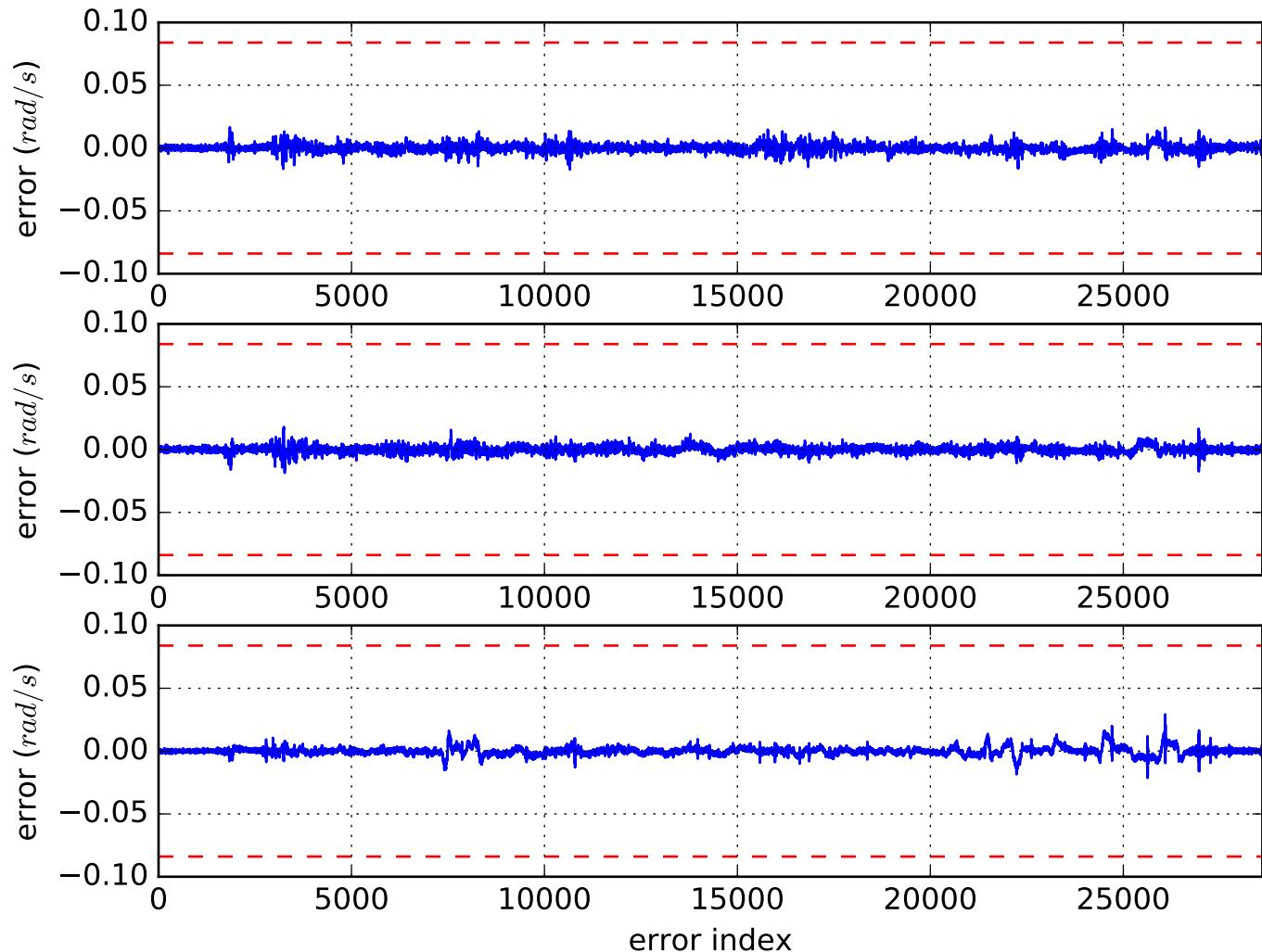
imu0: estimated accelerometer bias (imu frame)



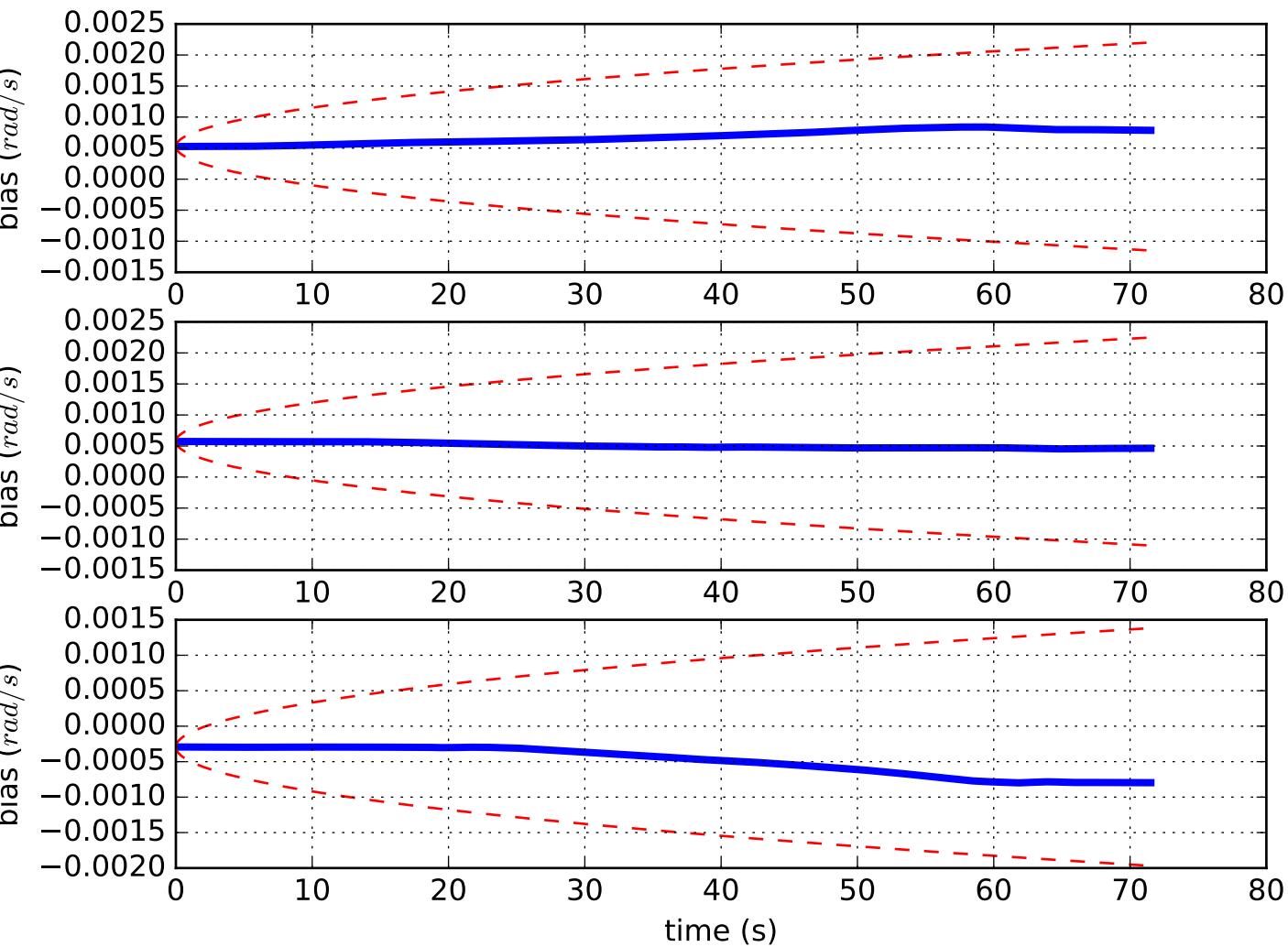
Comparison of predicted and measured angular velocities (body frame)



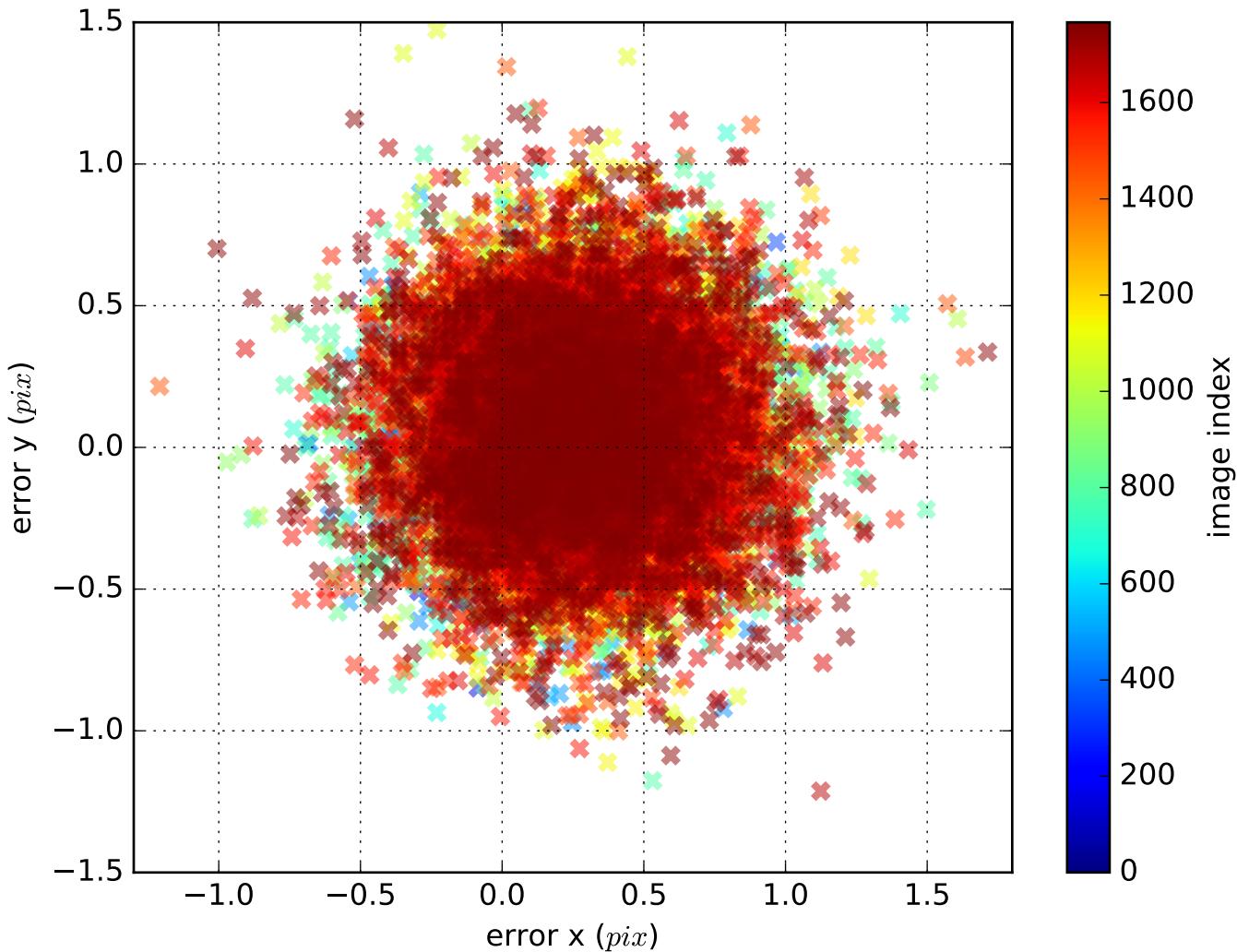
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

