

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.324624110181, median 0.318541844767, std: 0.120174280796

Reprojection error (cam1): mean 0.322340411236, median 0.314658623266, std: 0.113591674222

Gyroscope error (imu0): mean 0.263554794734, median 0.207461349995, std: 0.228981748641

Accelerometer error (imu0): mean 0.428402602012, median 0.314428778236, std: 0.447323744808

Residuals

Reprojection error (cam0) [px]: mean 0.324624110181, median 0.318541844767, std: 0.120174280796

Reprojection error (cam1) [px]: mean 0.322340411236, median 0.314658623266, std: 0.113591674222

Gyroscope error (imu0) [rad/s]: mean 0.00737570614887, median 0.00580590444715, std: 0.00640816302788

Accelerometer error (imu0) [m/s^2]: mean 0.157595014001, median 0.115667849532, std: 0.164555470707

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.99984784 -0.01706312 -0.00362601 0.02176022]
[-0.01701434 -0.99976965 0.01308268 0.02442728]
[-0.00384841 -0.013019 -0.99990784 -0.01244545]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.99984784 -0.01701434 -0.00384841 -0.02138919]
[-0.01706312 -0.99976965 -0.013019 0.02463093]
[-0.00362601 0.01308268 -0.99990784 -0.01268497]
[0. 0. 0. 1.]]

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

-0.00115775461466

Transformation (cam1):

T_ci: (imu0 to cam1):

[[-0.99984784 -0.01706312 -0.00362601 -0.02823612]
[-0.01701434 -0.99976965 0.01308268 0.02442728]
[-0.00384841 -0.013019 -0.99990784 -0.01244545]]

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

T_ic: (cam1 to imu0):

```
[[ 0.99984784 -0.01701434 -0.00384841  0.02859954]
 [-0.01706312 -0.99976965 -0.013019   0.02377783]
 [-0.00362601  0.01308268 -0.99990784 -0.01286626]
 [ 0.      0.      0.      1.      ]]
```

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

```
-0.00108915906454
```

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]

```
[ 0.04884274 -9.78968503 -0.57280391]
```

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:

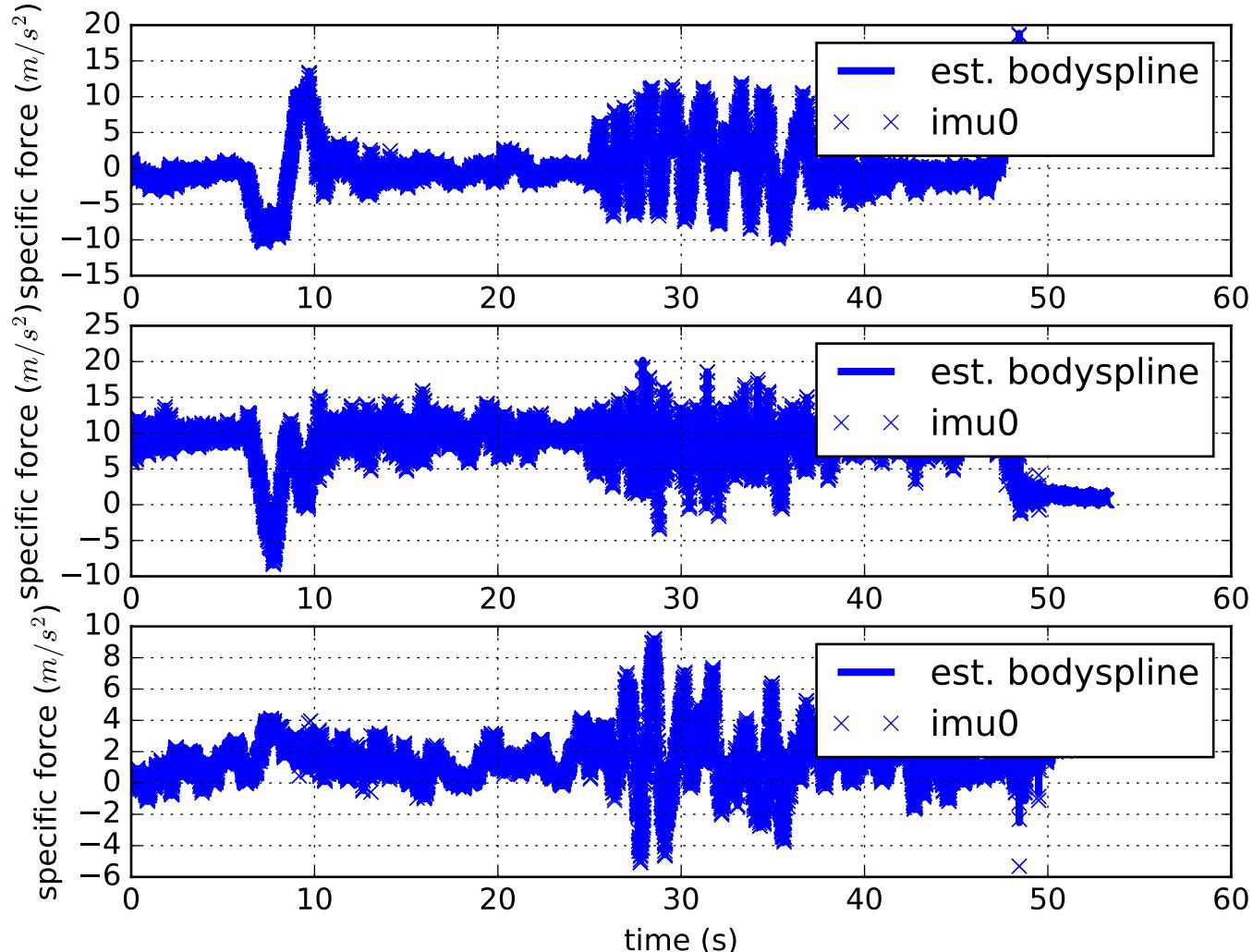
Model: calibrated
Update rate: 400.0
Accelerometer:
Noise density: 0.0183933306265
Noise density (discrete): 0.36786661253
Random walk: 0.000822996092865
Gyroscope:
Noise density: 0.00139927375564
Noise density (discrete): 0.0279854751128
Random walk: 6.6045706138e-05

T_i_b

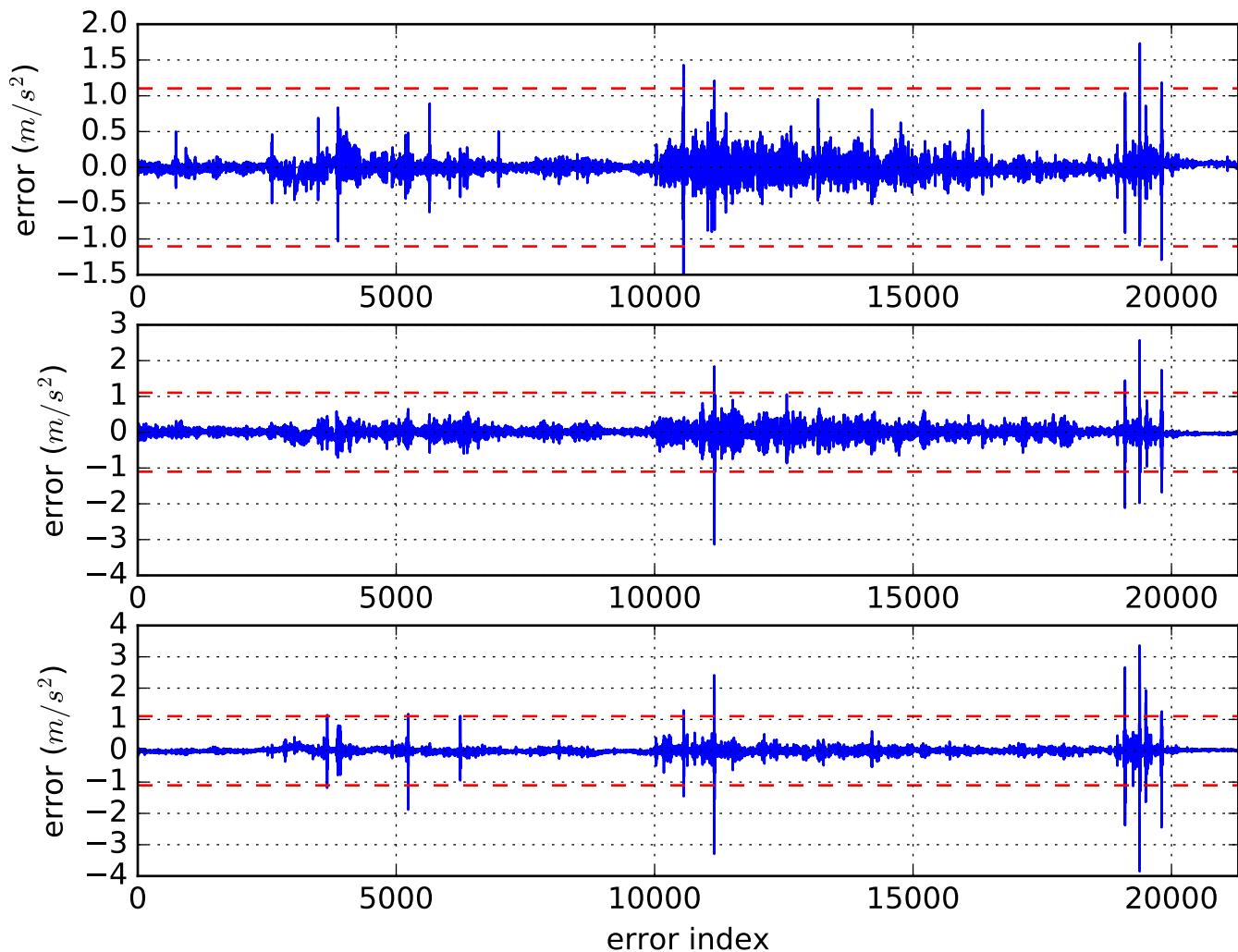
[[1. 0. 0. 0.]
[0. 1. 0. 0.]
[0. 0. 1. 0.]
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

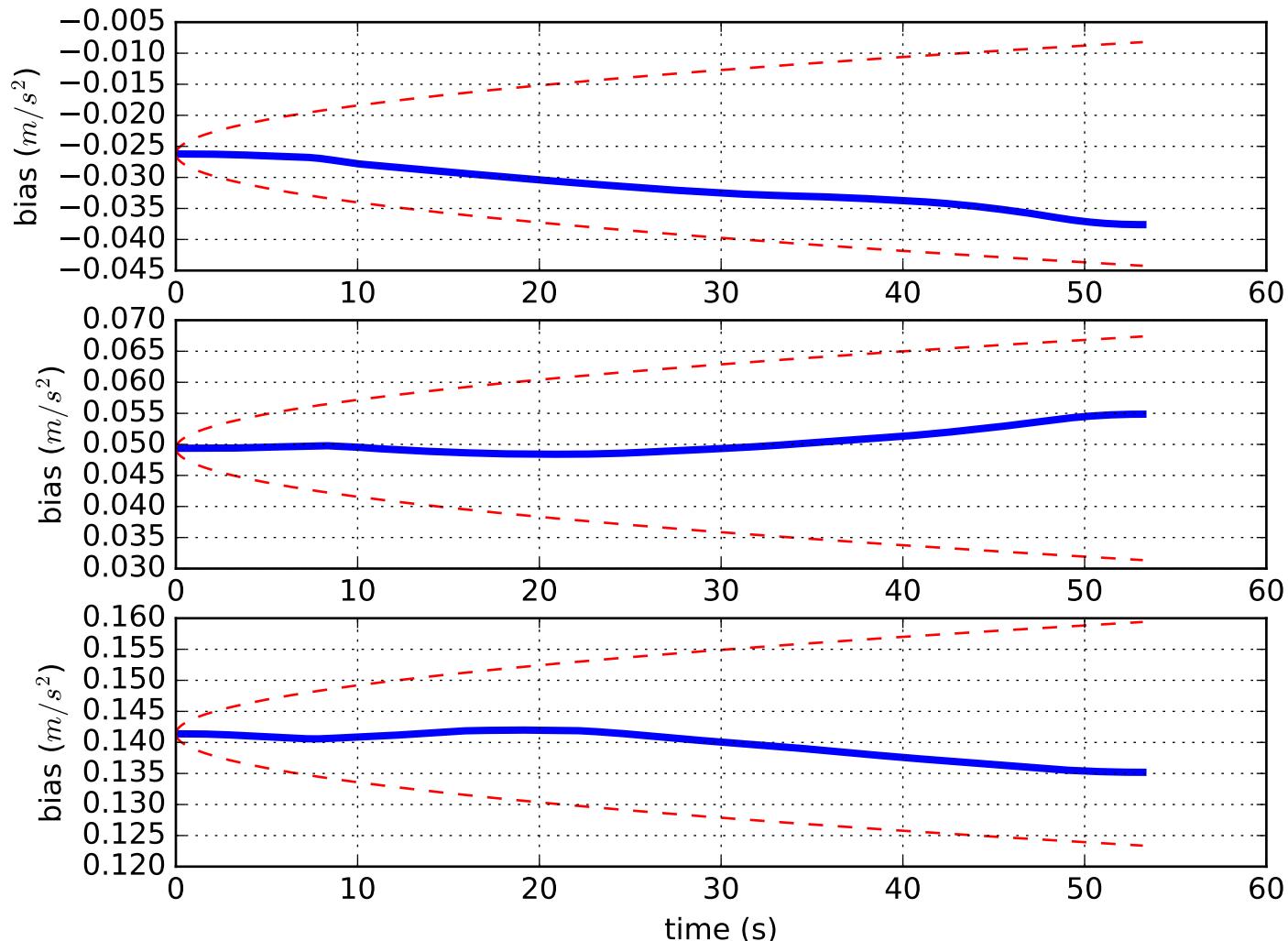
Comparison of predicted and measured specific force (imu0 frame)



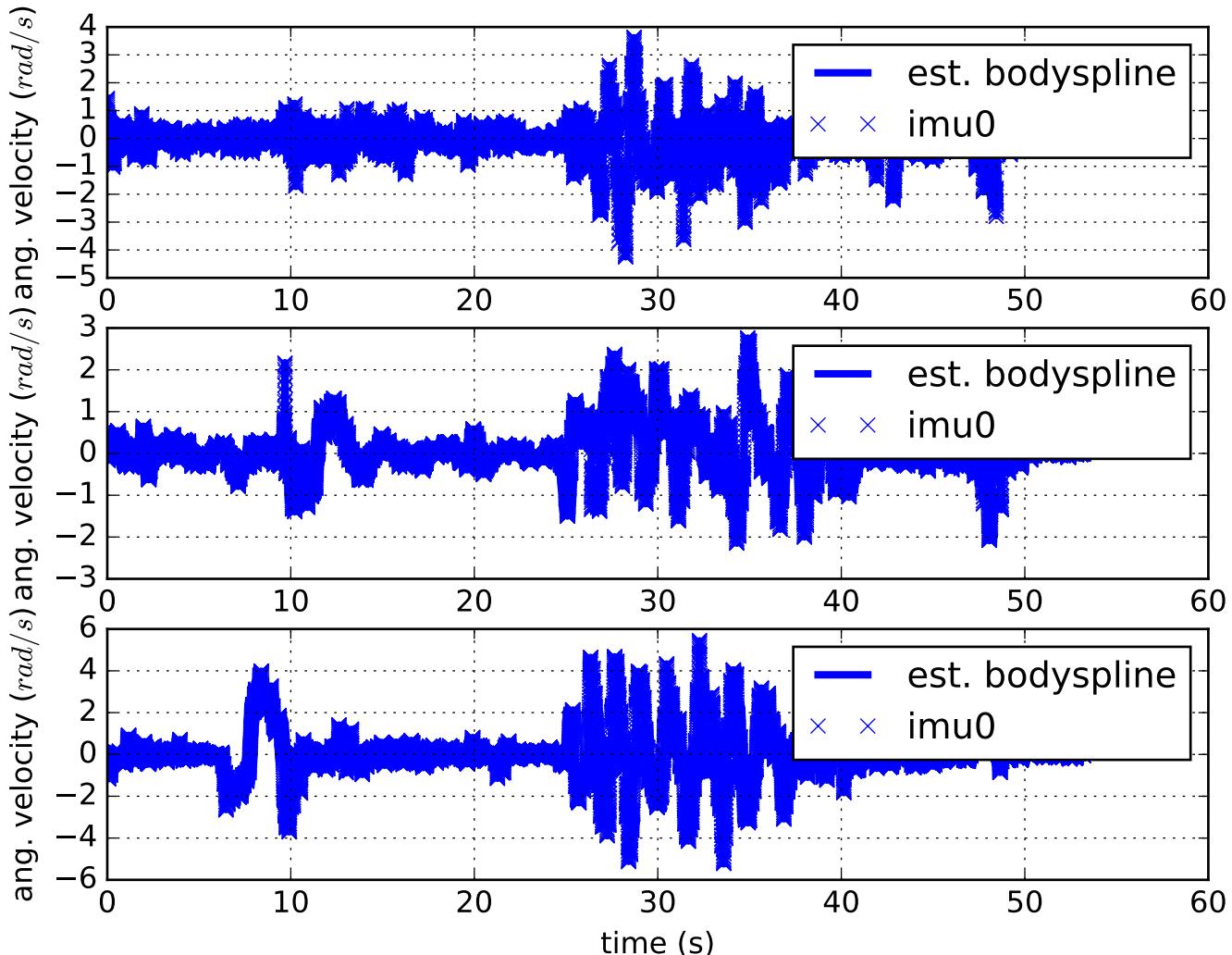
imu0: acceleration error



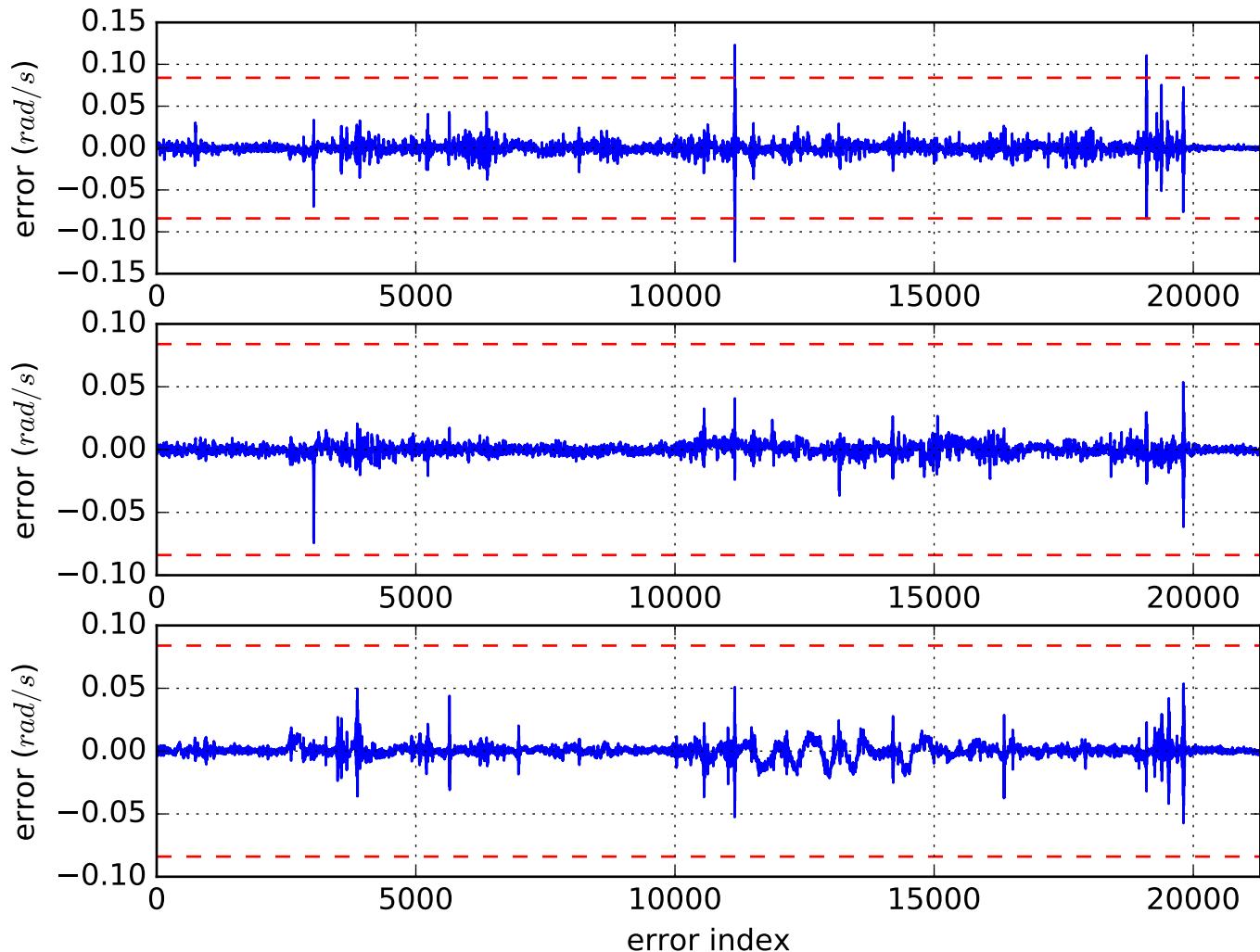
imu0: estimated accelerometer bias (imu frame)



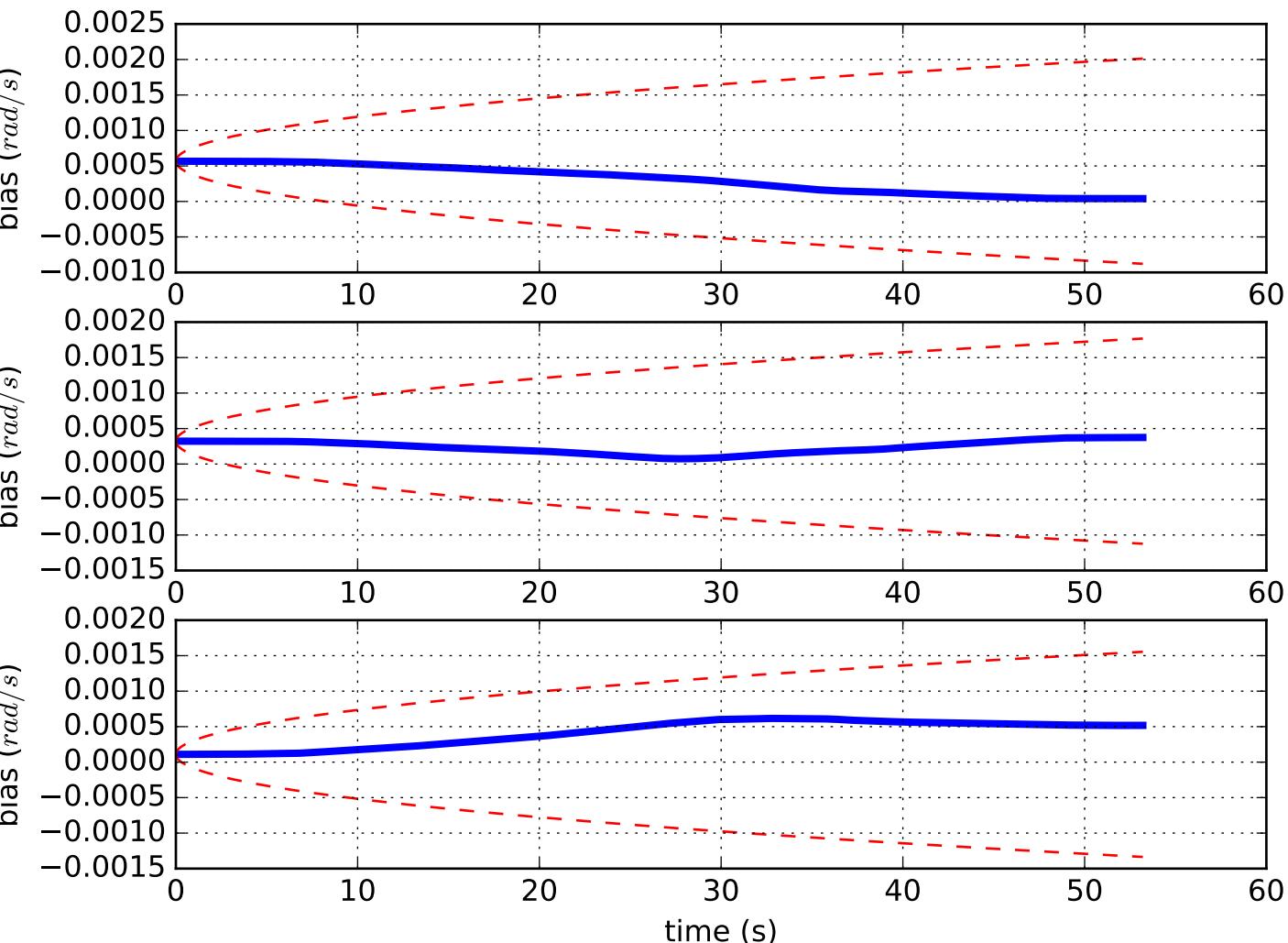
Comparison of predicted and measured angular velocities (body frame)



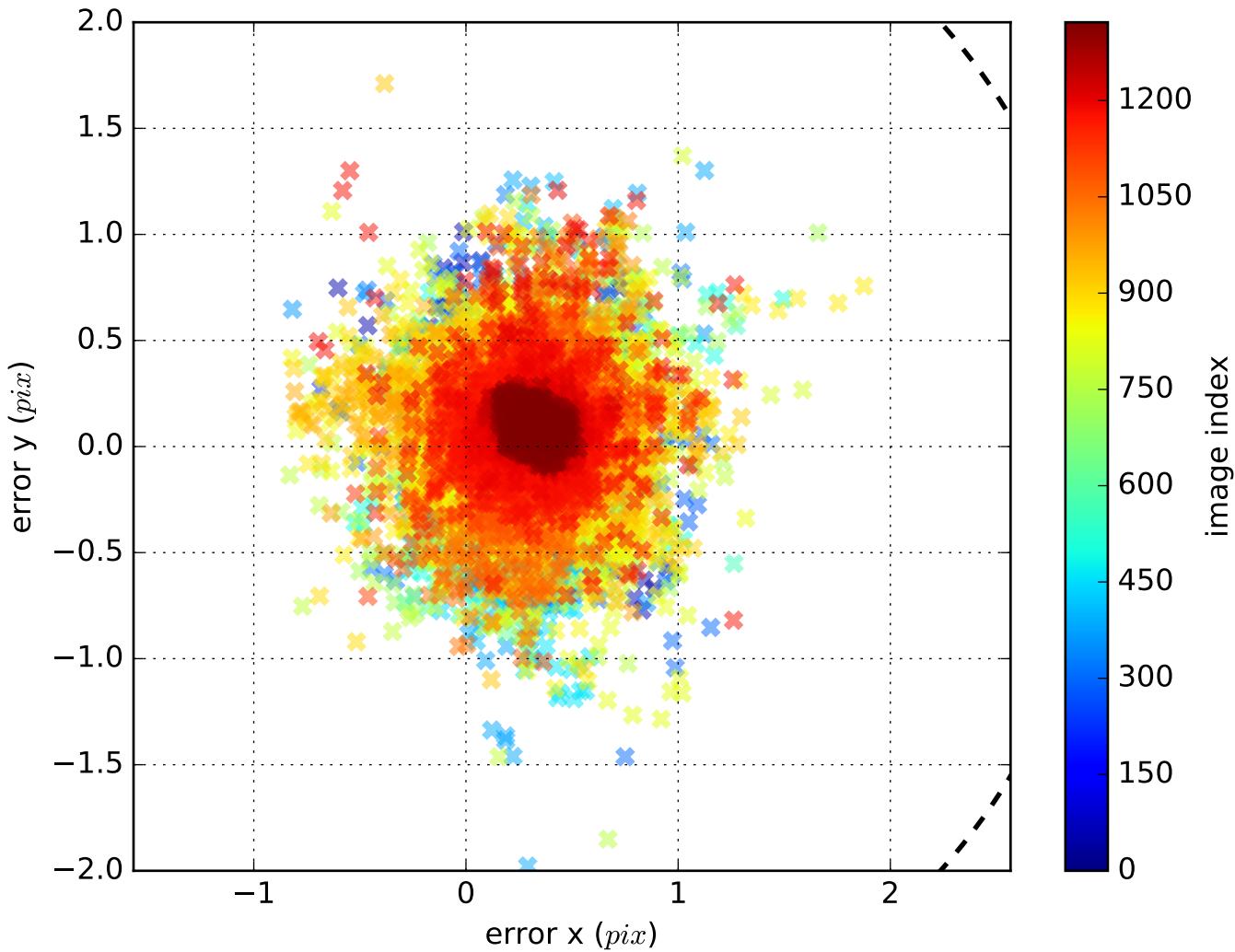
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

