

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.259825554004, median 0.25453792432, std: 0.0946651602569

Reprojection error (cam1): mean 0.257555925166, median 0.250287346383, std: 0.0965855374403

Gyroscope error (imu0): mean 0.792061958825, median 0.588440502284, std: 0.744050615395

Accelerometer error (imu0): mean 0.378930419112, median 0.275954314651, std: 0.506107239994

Residuals

Reprojection error (cam0) [px]: mean 0.259825554004, median 0.25453792432, std: 0.0946651602569

Reprojection error (cam1) [px]: mean 0.257555925166, median 0.250287346383, std: 0.0965855374403

Gyroscope error (imu0) [rad/s]: mean 0.0155163611655, median 0.0115274509224, std: 0.0145758269858

Accelerometer error (imu0) [m/s^2]: mean 0.0975770947645, median 0.0710600652605, std: 0.130325969167

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.00063894 -0.99997422 -0.00715148 0.02525623]
[-0.04411608 0.00717271 -0.99900066 -0.05025407]
[0.99902621 -0.00032281 -0.04411952 -0.07788426]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.00063894 -0.04411608 0.99902621 0.07560754]
[-0.99997422 0.00717271 -0.00032281 0.02559089]
[-0.00715148 -0.99900066 -0.04411952 -0.05345945]
[0. 0. 0. 1.]]

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

-0.00972592869176

Transformation (cam1):

T_ci: (imu0 to cam1):

[[-0.00063894 -0.99997422 -0.00715148 -0.02474011]
[-0.04411608 0.00717271 -0.99900066 -0.05025407]
[0.99902621 -0.00032281 -0.04411952 -0.07788426]

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

T_ic: (cam1 to imu0):

```
[[ -0.00063894 -0.04411608  0.99902621  0.07557559]
 [ -0.99997422  0.00717271 -0.00032281 -0.02440416]
 [ -0.00715148 -0.99900066 -0.04411952 -0.053817 ]
 [ 0.      0.      0.      1.      ]]
```

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

```
-0.00976781660146
```

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]

```
[ 0.05405798 -9.73481012 -1.18278169]
```

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:

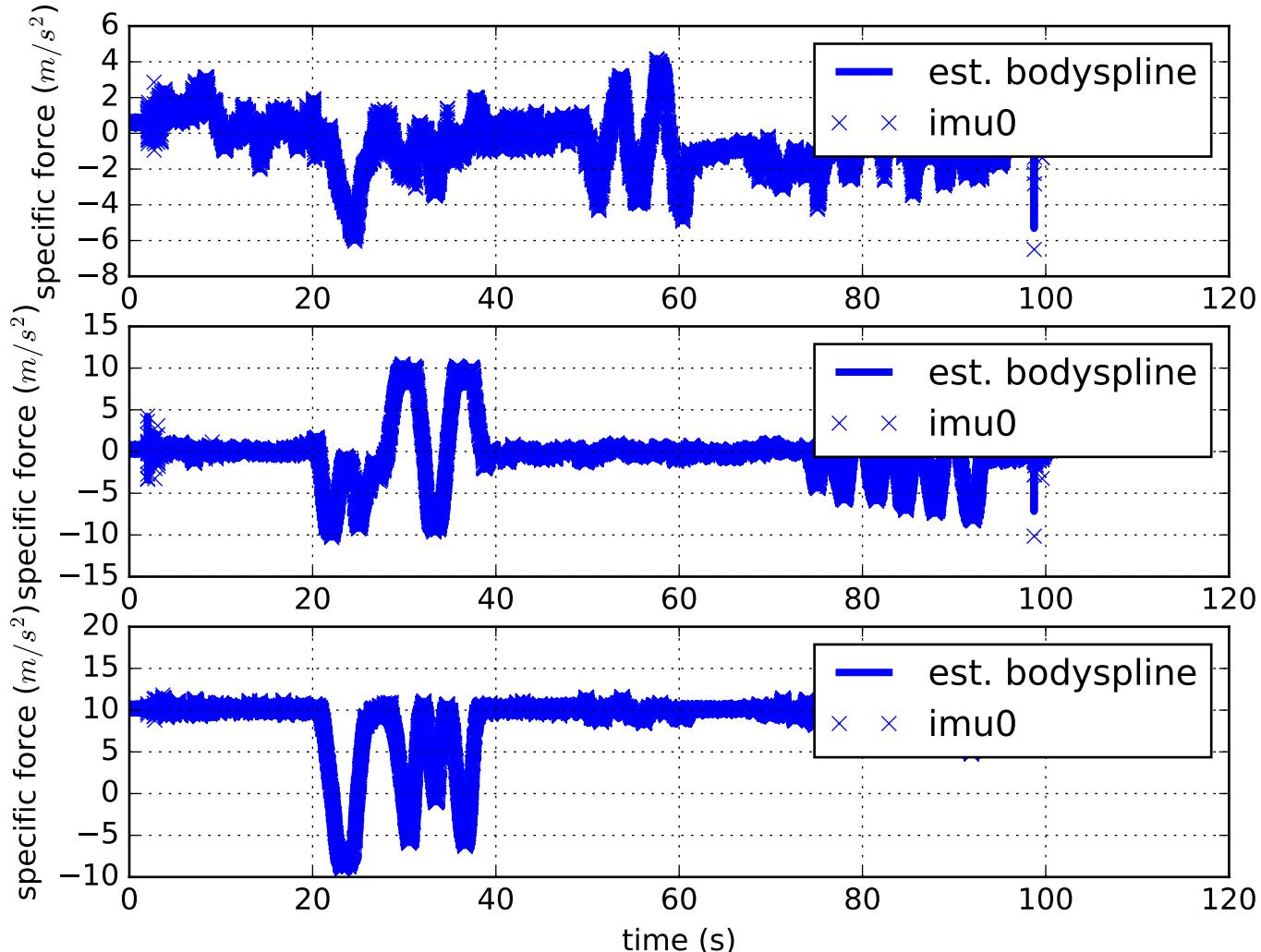
Model: calibrated
Update rate: 196.0
Accelerometer:
Noise density: 0.0183933306265
Noise density (discrete): 0.257506628771
Random walk: 0.000822996092865
Gyroscope:
Noise density: 0.00139927375564
Noise density (discrete): 0.0195898325789
Random walk: 6.6045706138e-05

T_i_b

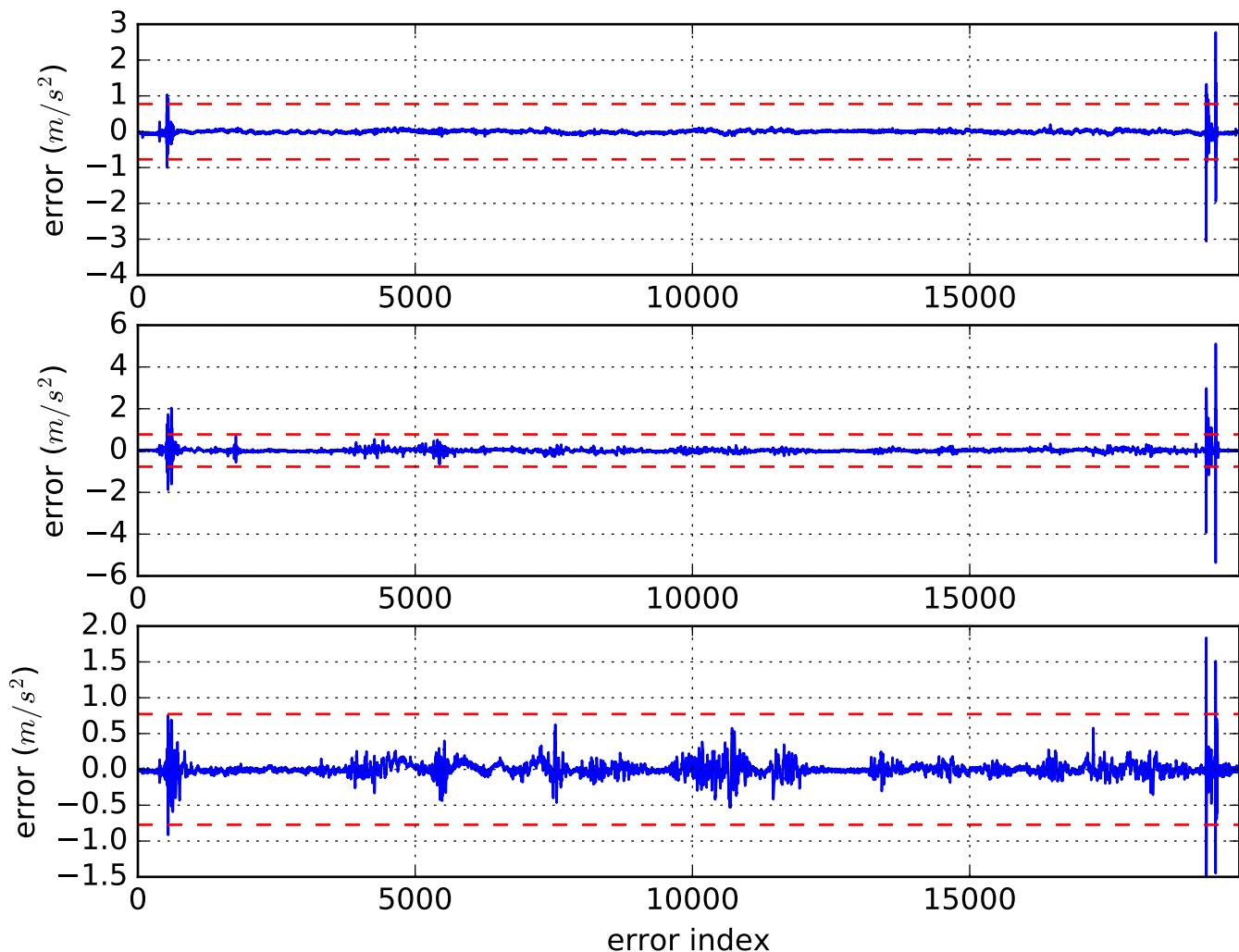
[[1. 0. 0. 0.]
[0. 1. 0. 0.]
[0. 0. 1. 0.]
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

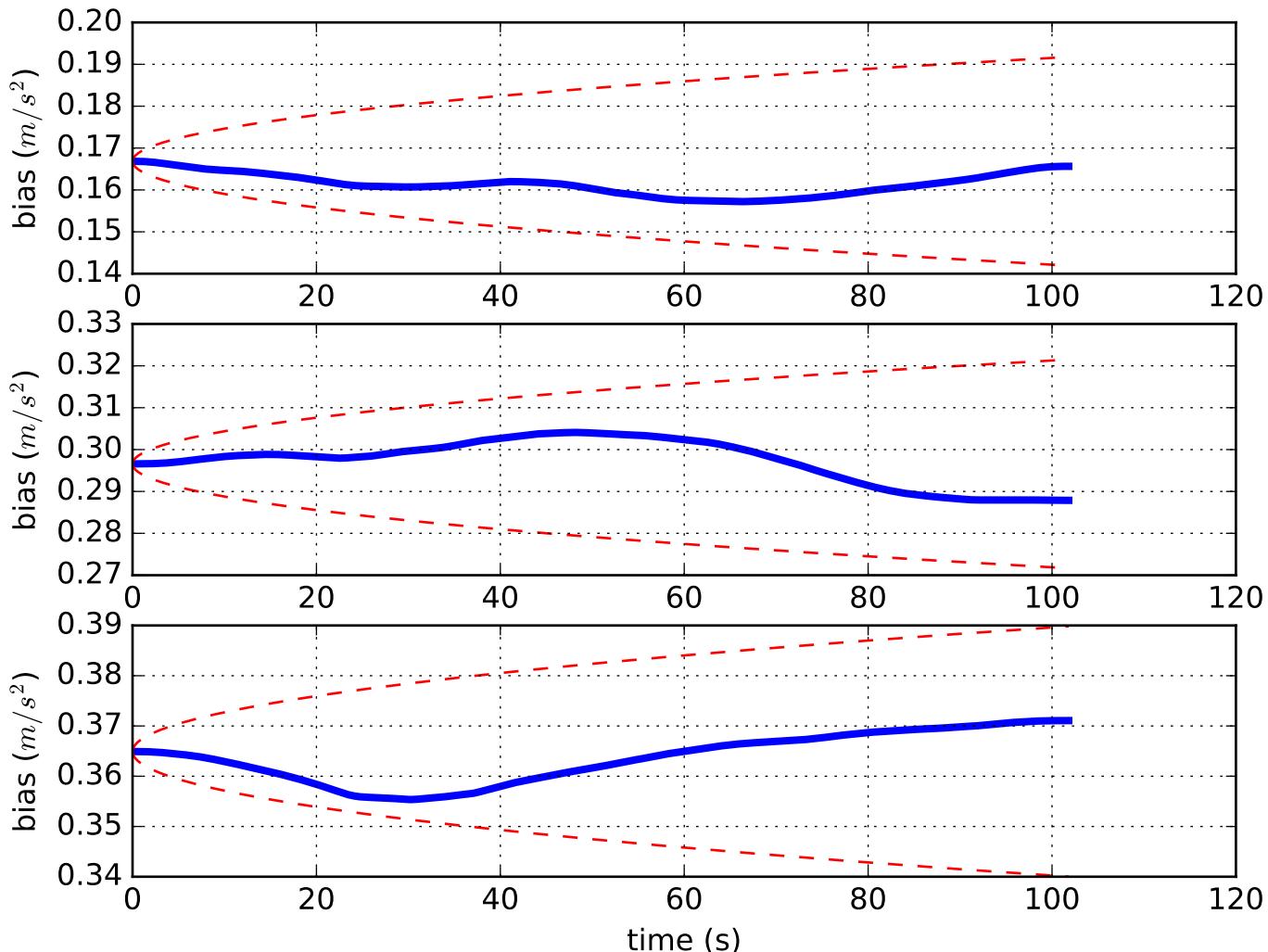
Comparison of predicted and measured specific force (imu0 frame)



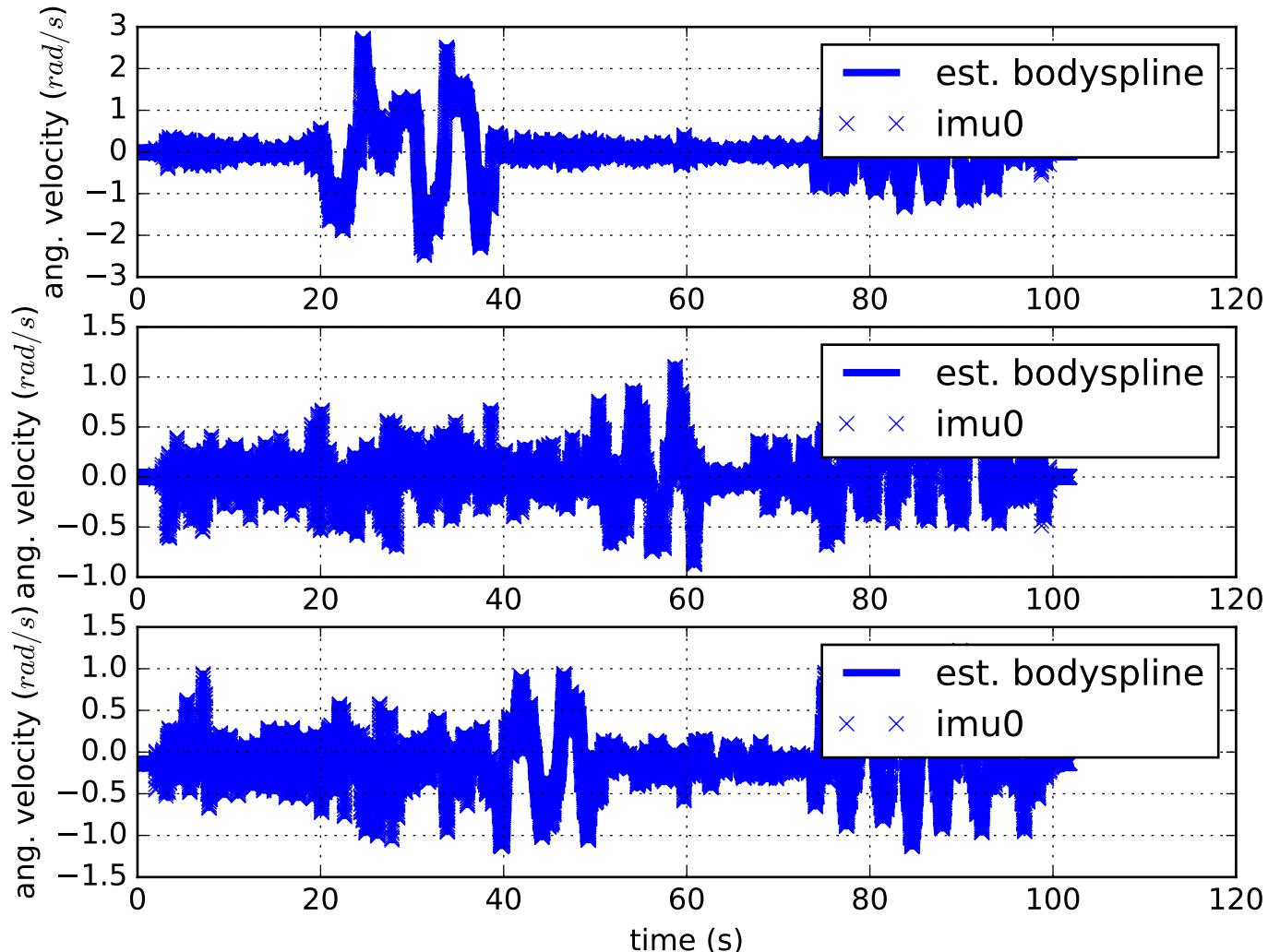
imu0: acceleration error



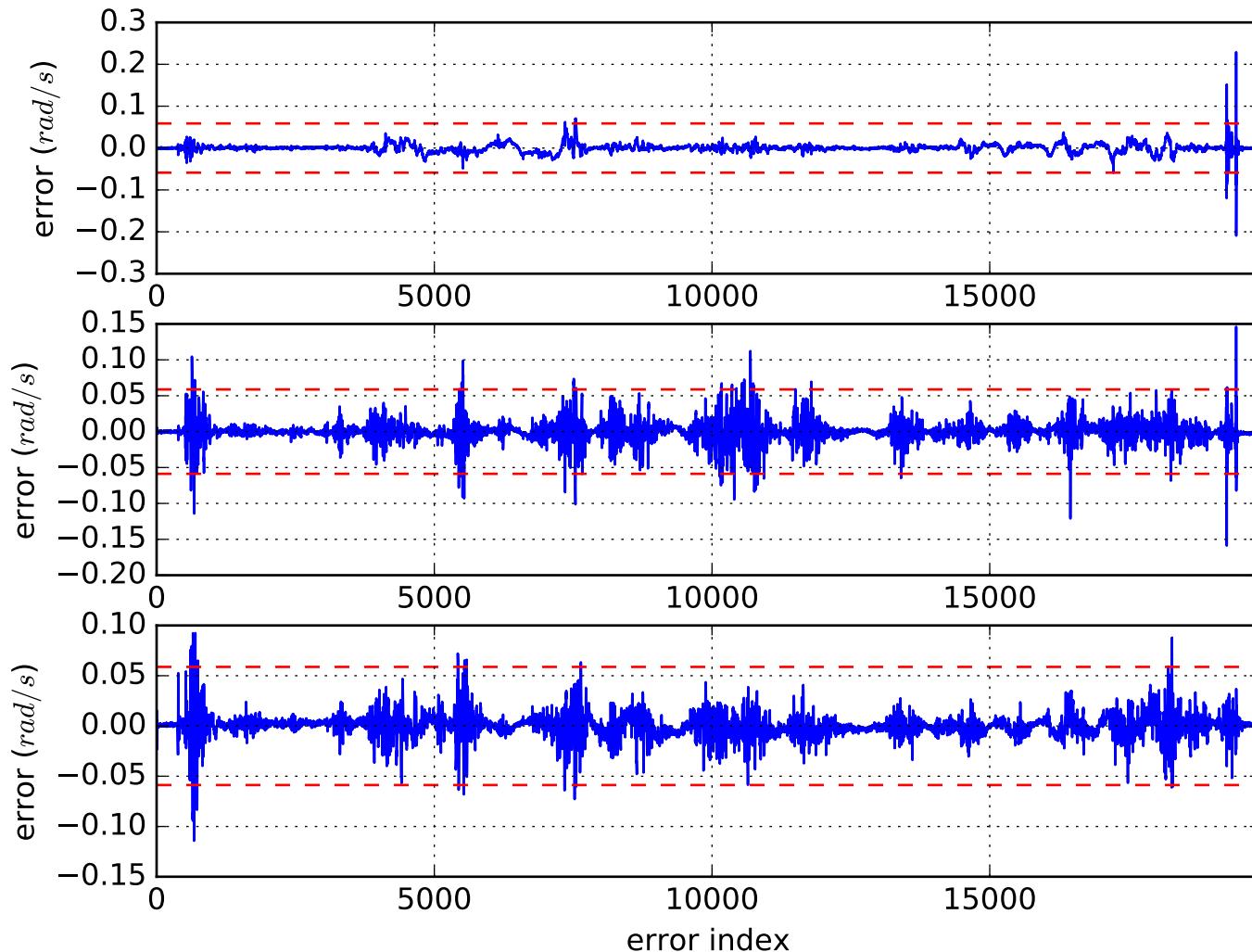
imu0: estimated accelerometer bias (imu frame)



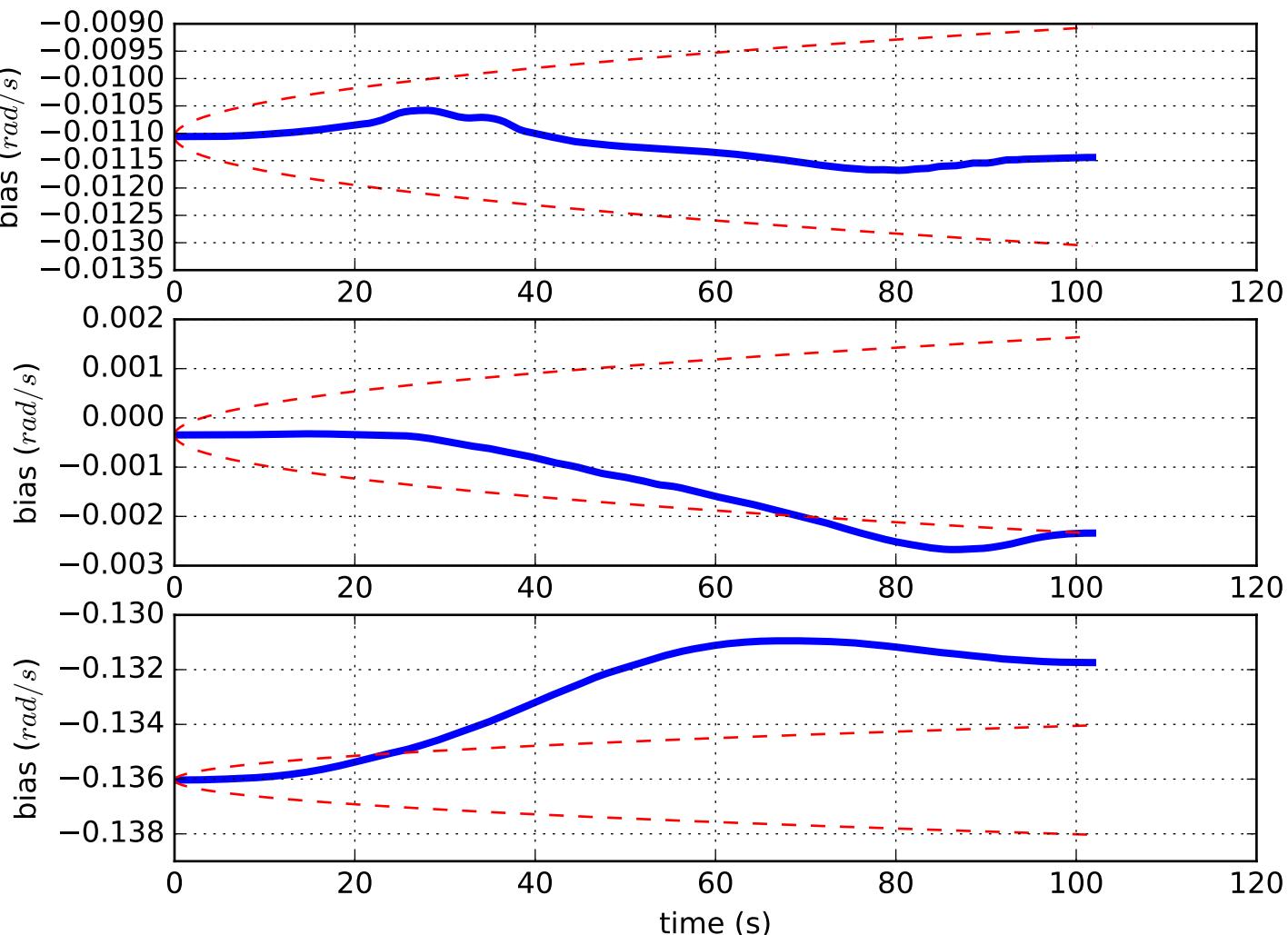
Comparison of predicted and measured angular velocities (body frame)



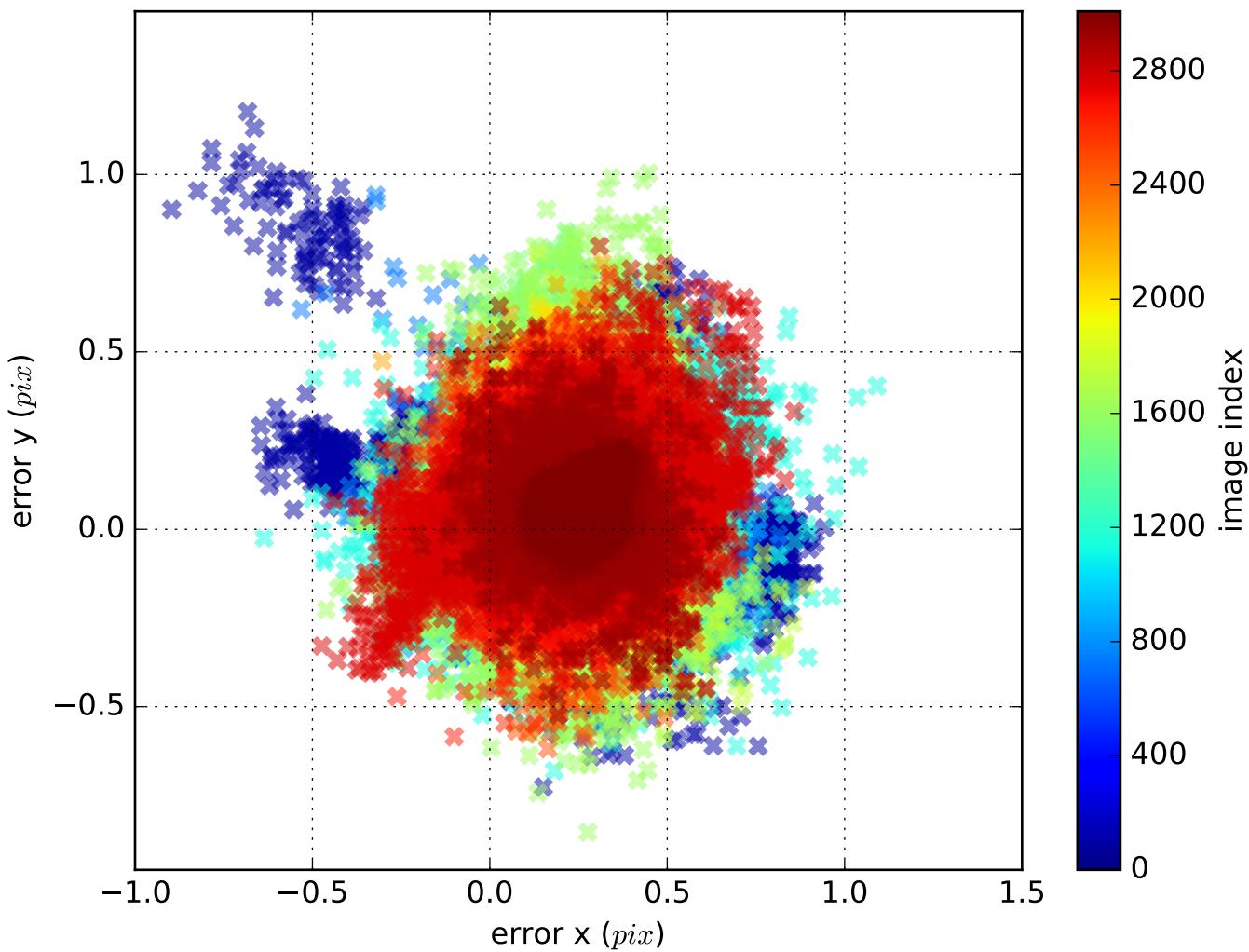
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

