

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.343120702822, median 0.291535709231, std: 0.249505916496
Reprojection error (cam1): mean 0.351722337721, median 0.296985964904, std: 0.254655747621
Gyroscope error (imu0): mean 1.72491054386, median 1.36846924645, std: 1.6893803149
Accelerometer error (imu0): mean 1.7808880963, median 1.48610287566, std: 1.58388162031

Residuals

Reprojection error (cam0) [px]: mean 0.343120702822, median 0.291535709231, std: 0.249505916496
Reprojection error (cam1) [px]: mean 0.351722337721, median 0.296985964904, std: 0.254655747621
Gyroscope error (imu0) [rad/s]: mean 0.00456166282497, median 0.00361902552619, std: 0.00446770031474
Accelerometer error (imu0) [m/s^2]: mean 0.0468451434388, median 0.0390910032582, std: 0.0416630117566

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ 0.99990944  0.01328033 -0.00217996 -0.04120042]
 [-0.01323502  0.99971975  0.01962799  0.03177353]
 [ 0.00244002 -0.01959736  0.99980498 -0.02491935]
 [ 0.         0.         0.         1.        ]]
```

T_ic: (cam0 to imu0):

```
[[ 0.99990944 -0.01323502  0.00244002  0.04167802]
 [ 0.01328033  0.99971975 -0.01959736 -0.03170583]
 [-0.00217996  0.01962799  0.99980498  0.02420102]
 [ 0.         0.         0.         1.        ]]
```

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

0.0

Transformation (cam1):

T_ci: (imu0 to cam1):

```
[[ 0.99999111  0.00353313 -0.00230226  0.0680753 ]
 [-0.00348068  0.999743   0.02240152  0.03134132]
 [ 0.00238082 -0.02239331  0.9997464  -0.0246757 ]]
```

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

T_ic: (cam1 to imu0):

```
[[ 0.99999111 -0.00348068 0.00238082 -0.06790686]
 [ 0.00353313 0.999743  -0.02239331 -0.03212636]
 [-0.00230226 0.02240152 0.9997464  0.02412408]
 [ 0.    0.    0.    1.   ]]
```

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

Baselines:

Baseline (cam0 to cam1):

```
[[ 0.99995249 -0.00974795 0.00006894 0.10958521]
 [ 0.00974772 0.99994858 0.00279634 0.00004071]
 [-0.0000962 -0.00279554 0.99999609 0.00032841]
 [ 0.    0.    0.    1.   ]]
```

baseline norm: 0.109585710868 [m]

Gravity vector in target coords: [m/s^2]
[-9.80322627 -0.0052014 -0.25524598]

Calibration configuration

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cam0

Camera model: pinhole

Focal length: [454.2054629991089, 457.33560363977205]

Principal point: [377.5066415569141, 215.8006396635025]

Distortion model: radtan

Distortion coefficients: [-0.2860257300369246, 0.08711003951991249, 0.004792336054448033, -6.486468580368658e-05]

Type: checkerboard

Rows

Count: 11

Distance: 0.07 [m]

Cols

Count: 8
Distance: 0.07 [m]

cam1

Camera model: pinhole
Focal length: [456.7450164330277, 459.8770974695283]
Principal point: [380.3680965954139, 200.4684409691214]
Distortion model: radtan
Distortion coefficients: [-0.2850731296133328, 0.08503821734952068, 0.004654403764703568, 0.0004828138023750604]
Type: checkerboard
Rows
 Count: 11
 Distance: 0.07 [m]
Cols
 Count: 8
 Distance: 0.07 [m]

IMU configuration

=====

IMU0:

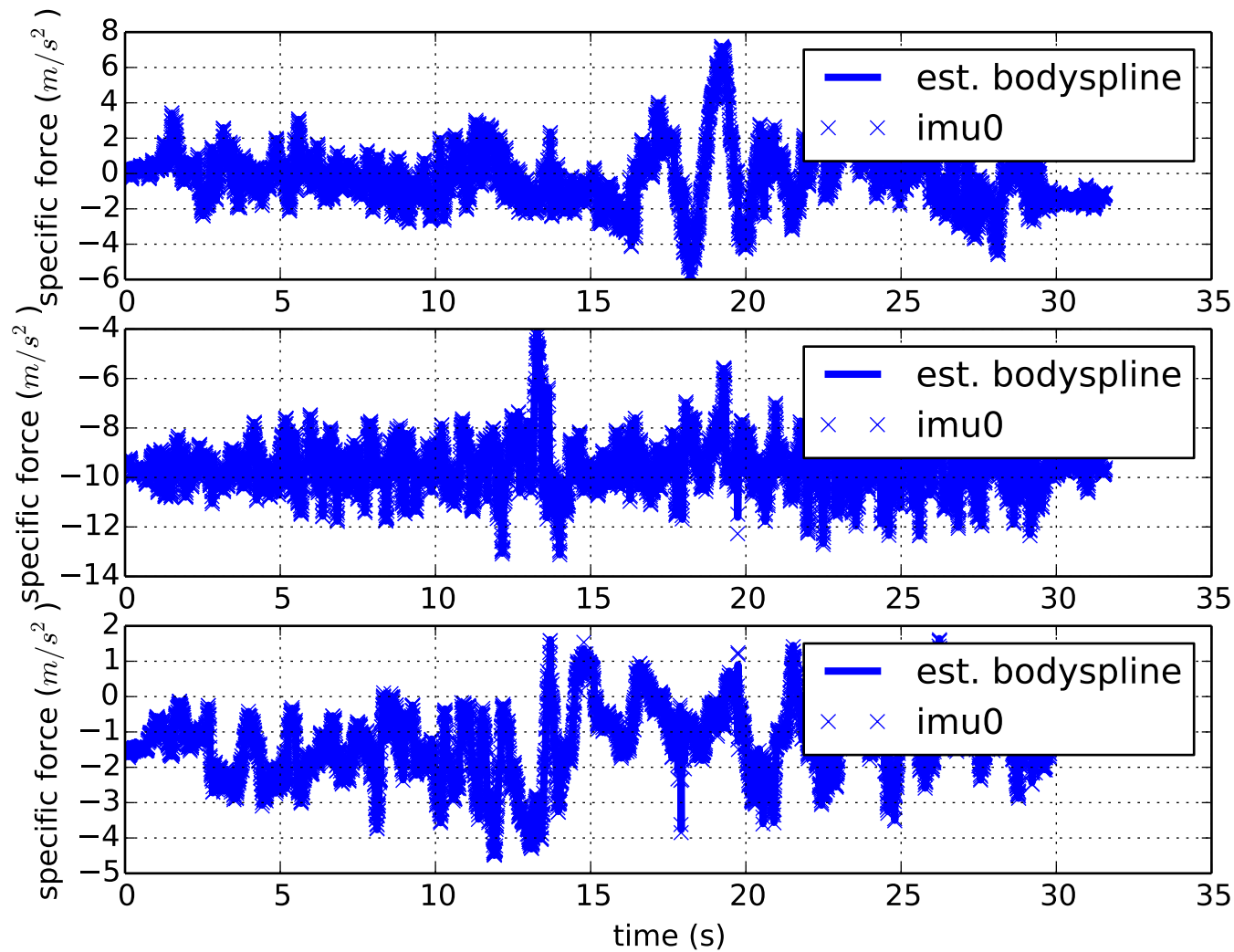
Model: calibrated
Update rate: 200.0
Accelerometer:
 Noise density: 0.00186
 Noise density (discrete): 0.0263043722601
 Random walk: 0.000433
Gyroscope:
 Noise density: 0.000187
 Noise density (discrete): 0.00264457936164
 Random walk: 2.66e-05

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

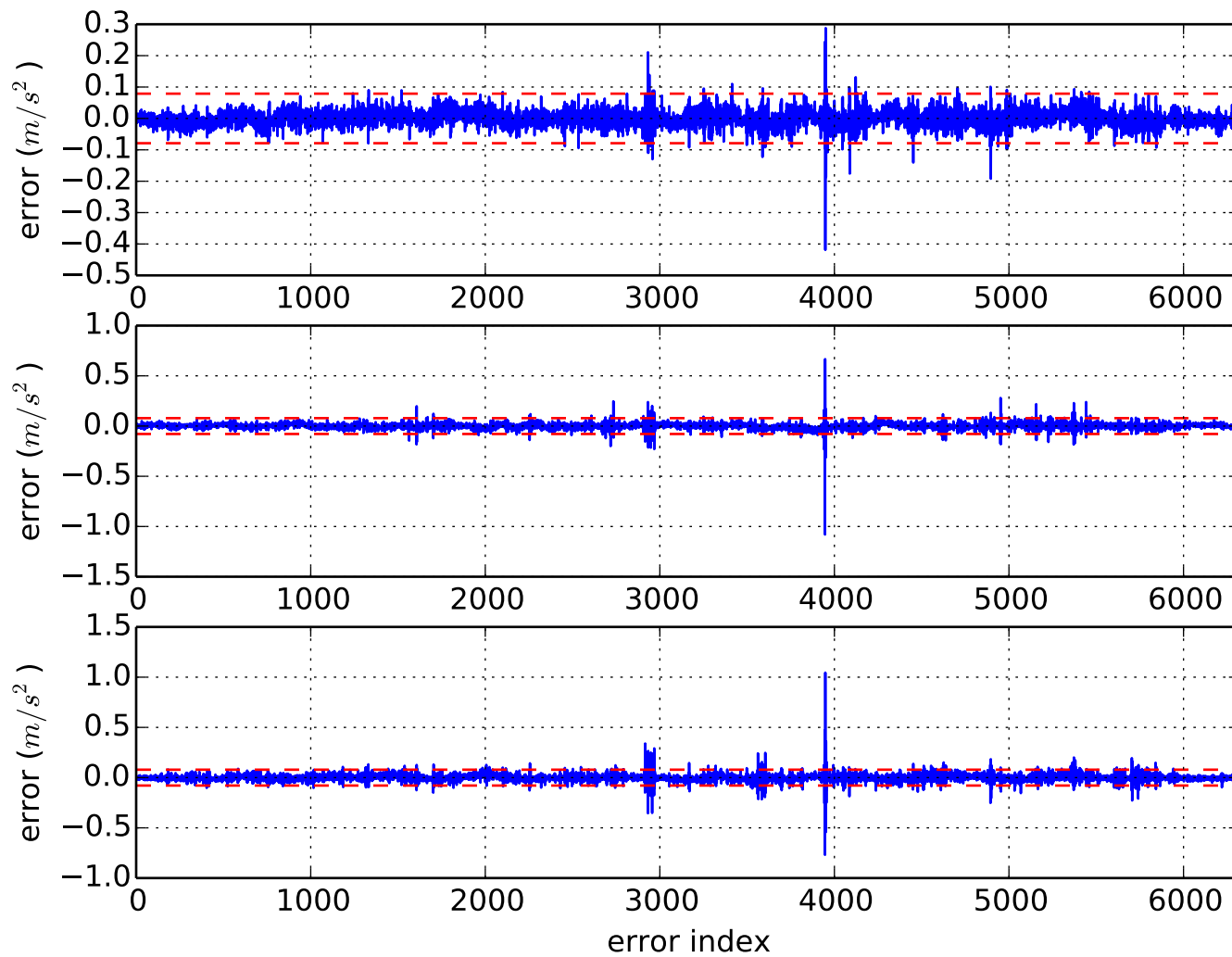
[0. 0. 0. 1.]

time offset with respect to IMU0: 0.0 [s]

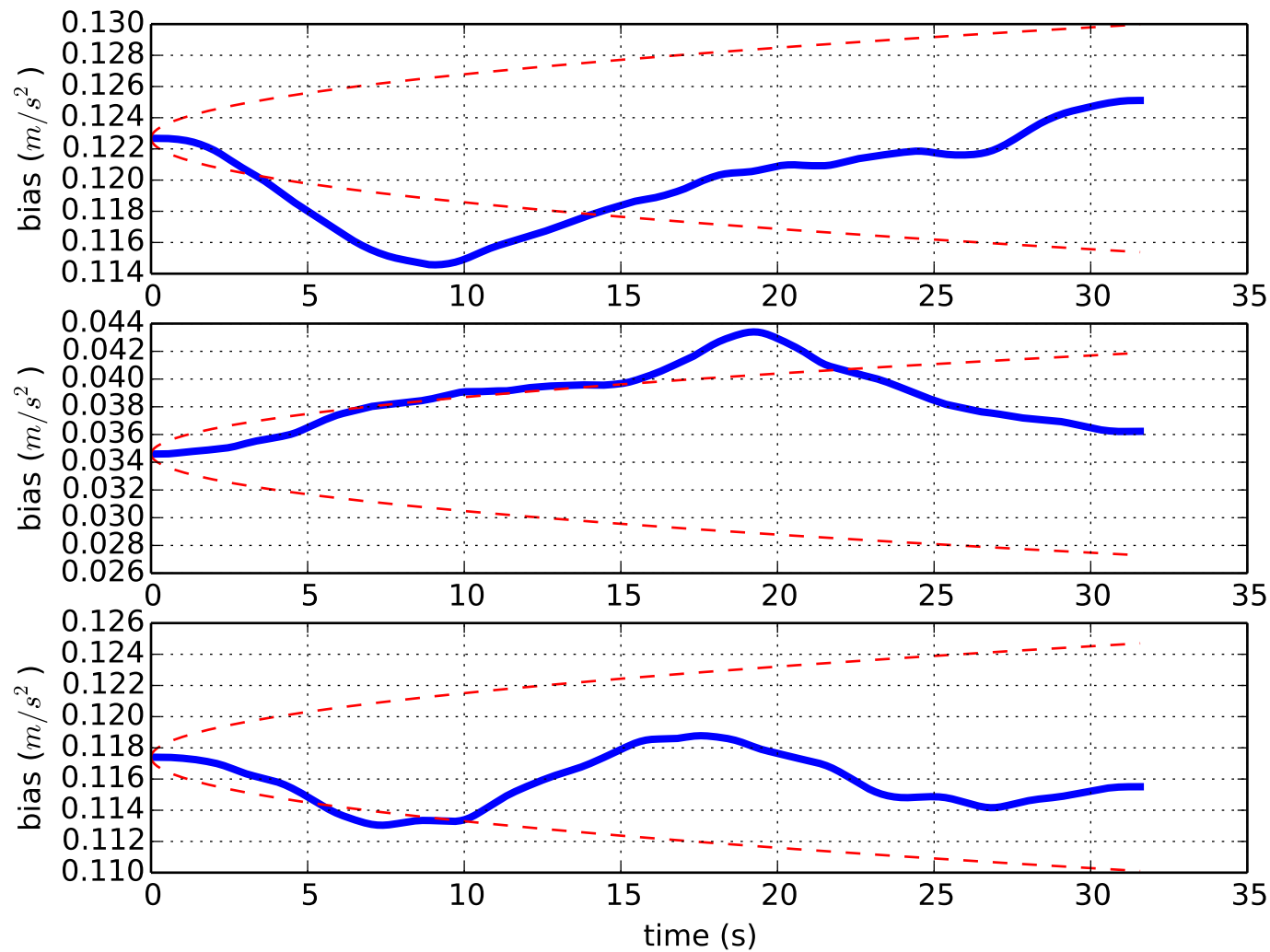
Comparison of predicted and measured specific force (imu0 frame)



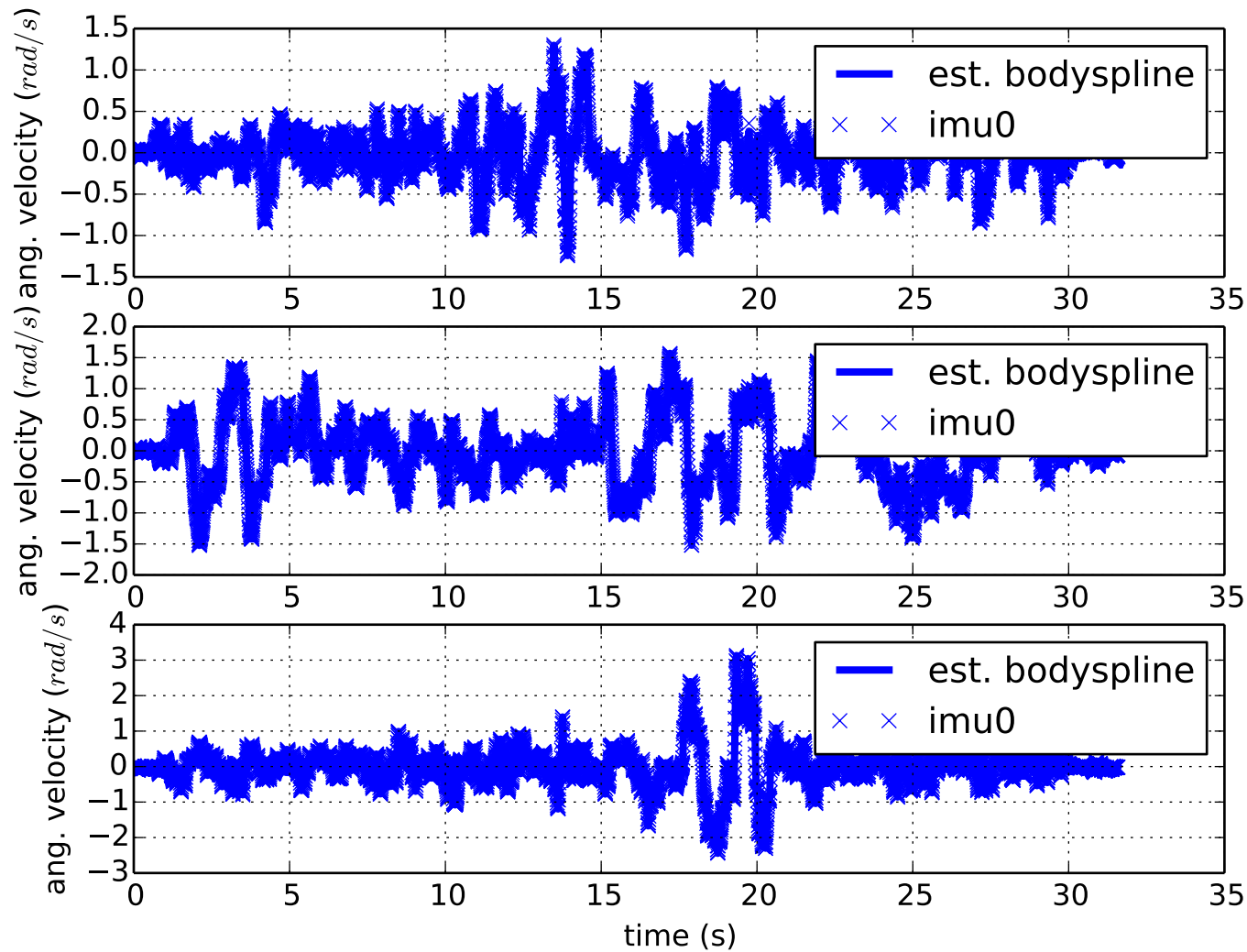
imu0: acceleration error



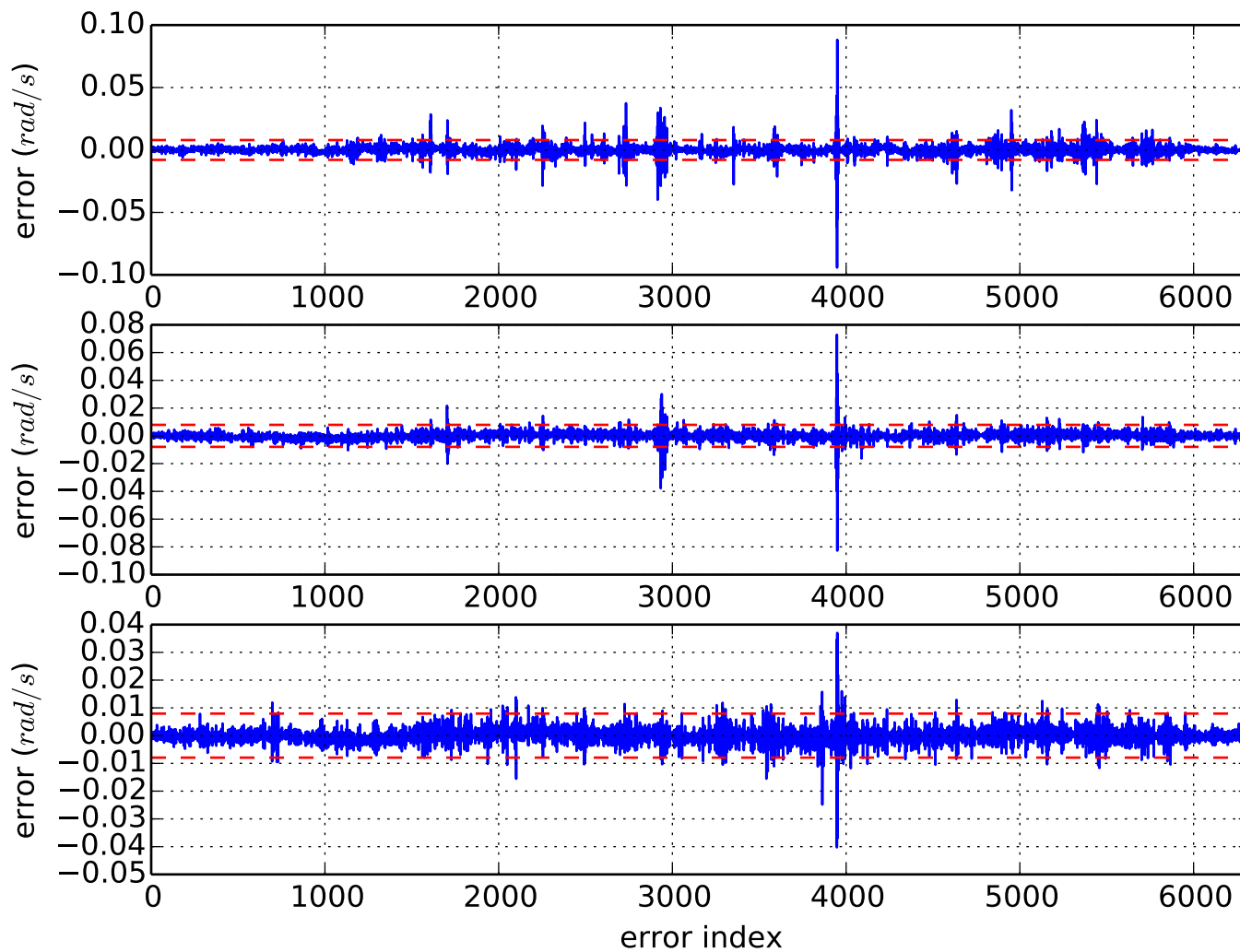
imu0: estimated accelerometer bias (imu frame)



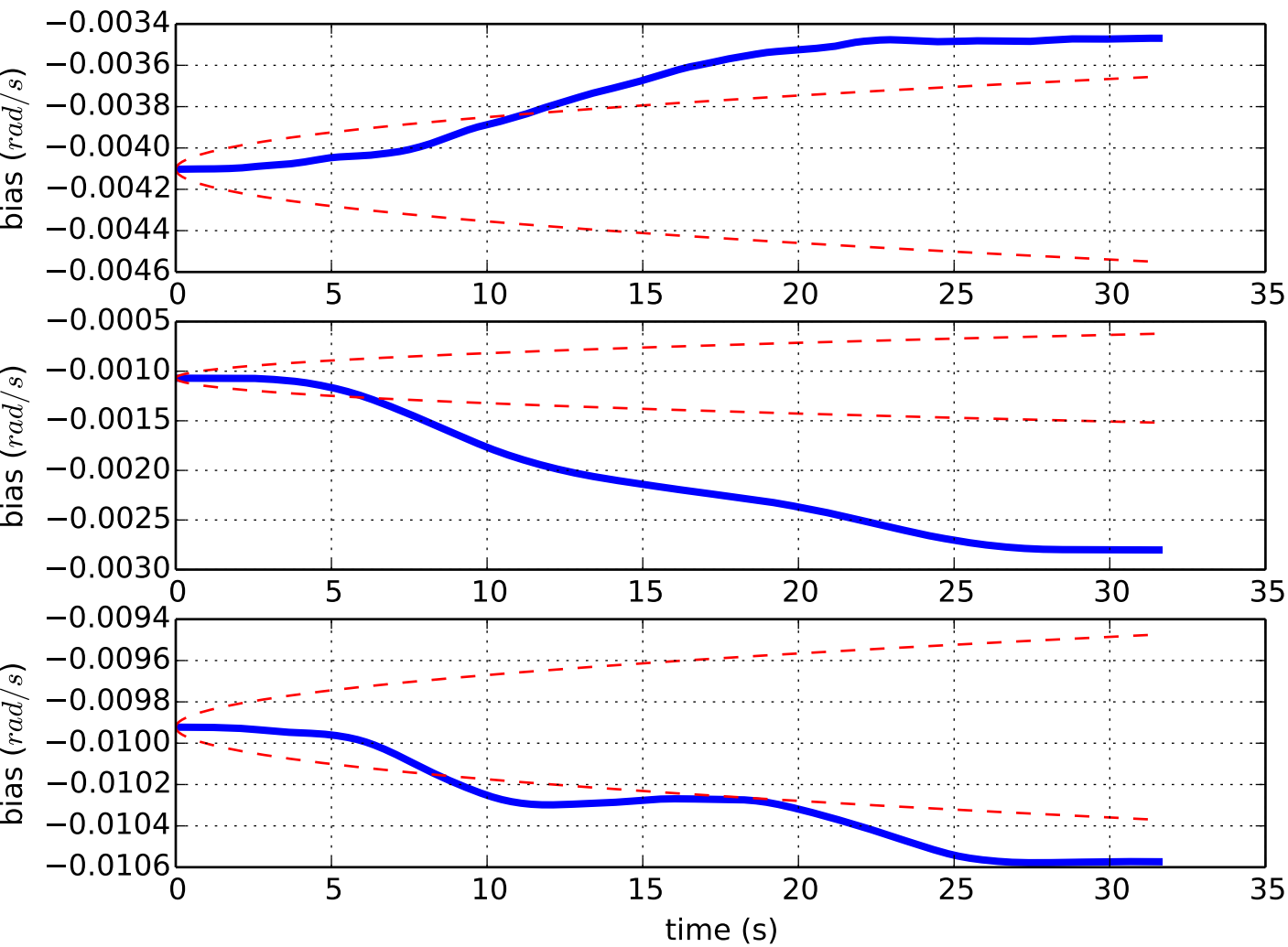
Comparison of predicted and measured angular velocities (body frame)



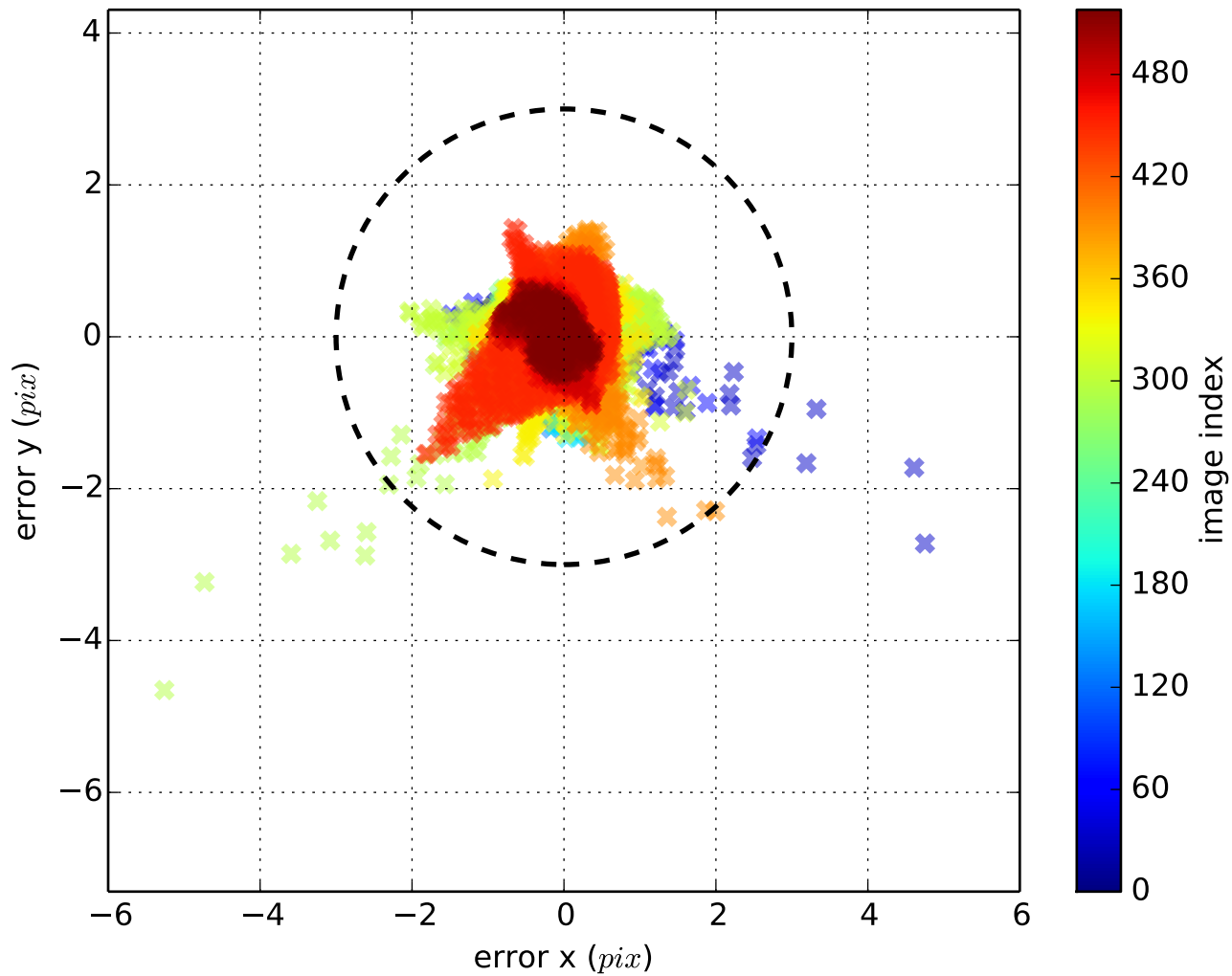
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

