

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.37840865823, median 0.321323875802, std: 0.255749144745
Reprojection error (cam1): mean 0.39411642956, median 0.334276401427, std: 0.265375609192
Gyroscope error (imu0): mean 1.09339104635, median 0.986481009508, std: 0.60511201783
Accelerometer error (imu0): mean 1.40338244374, median 1.2320575761, std: 0.901762789105

Residuals

Reprojection error (cam0) [px]: mean 0.37840865823, median 0.321323875802, std: 0.255749144745
Reprojection error (cam1) [px]: mean 0.39411642956, median 0.334276401427, std: 0.265375609192
Gyroscope error (imu0) [rad/s]: mean 0.00262374223641, median 0.00236719689511, std: 0.00145204953364
Accelerometer error (imu0) [m/s^2]: mean 0.0396936497026, median 0.034847850675, std: 0.0255057033279

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ 0.01489758  0.99969658 -0.01961655  0.06874744]
 [-0.99988562  0.01494589  0.0023182 -0.01574093]
 [ 0.00261069  0.01957977  0.99980489 -0.00575637]
 [ 0.          0.          0.          1.          ]]
```

T_ic: (cam0 to imu0):

```
[[ 0.01489758 -0.99988562  0.00261069 -0.01674827]
 [ 0.99969658  0.01494589  0.01957977 -0.06837861]
 [-0.01961655  0.0023182  0.99980489  0.00714033]
 [ 0.          0.          0.          1.          ]]
```

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

0.0

Transformation (cam1):

T_ci: (imu0 to cam1):

```
[[ 0.01263744  0.99970582 -0.02070188 -0.04134356]
 [-0.99977871  0.01298115  0.01655334 -0.01522538]
 [ 0.0168172  0.02048811  0.99964865 -0.00590589]
```

[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):

[[0.01263744 -0.99977871 0.0168172 -0.01460021]
[0.99970582 0.01298115 0.02048811 0.04165004]
[-0.02070188 0.01655334 0.99964865 0.00529996]
[0. 0. 0. 1.]]

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

Baselines:

Baseline (cam0 to cam1):

[[0.99999686 0.00225751 -0.00109084 -0.11006152]
[-0.0022418 0.99989674 0.01419417 0.00074976]
[0.00112277 -0.01419168 0.99989866 -0.00045068]
[0. 0. 0. 1.]]

baseline norm: 0.110064995402 [m]

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

[-0.01139132 -9.55712781 -2.19763537]

Calibration configuration

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cam0

Camera model: omni

Focal length: [1303.138702808121, 1299.7999552373774]

Principal point: [365.74776069235077, 248.4822337321788]

Omni xi: 1.83813176113

Distortion model: none

Distortion coefficients: []

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.088 [m]
Spacing 0.0264 [m]

cam1

Camera model: omni
Focal length: [1296.6805744248873, 1293.1940856532365]
Principal point: [379.1645704472761, 255.10698366529073]
Omni xi: 1.83057146944
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: 0.002
 Noise density (discrete): 0.0282842712475
 Random walk: 0.003
Gyroscope:
 Noise density: 0.00016968
 Noise density (discrete): 0.00239963757263
 Random walk: 1.9393e-05

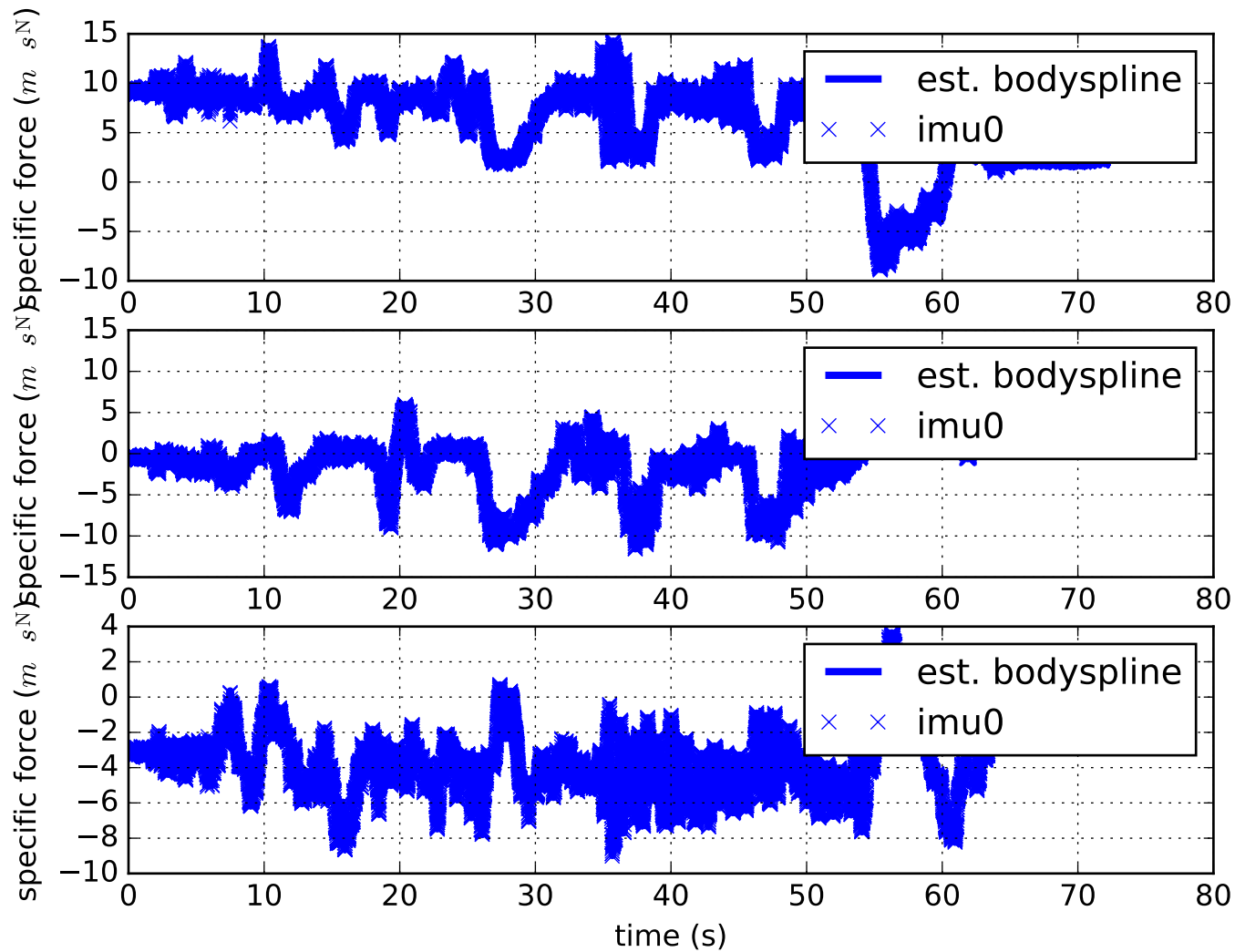
T_i_b

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

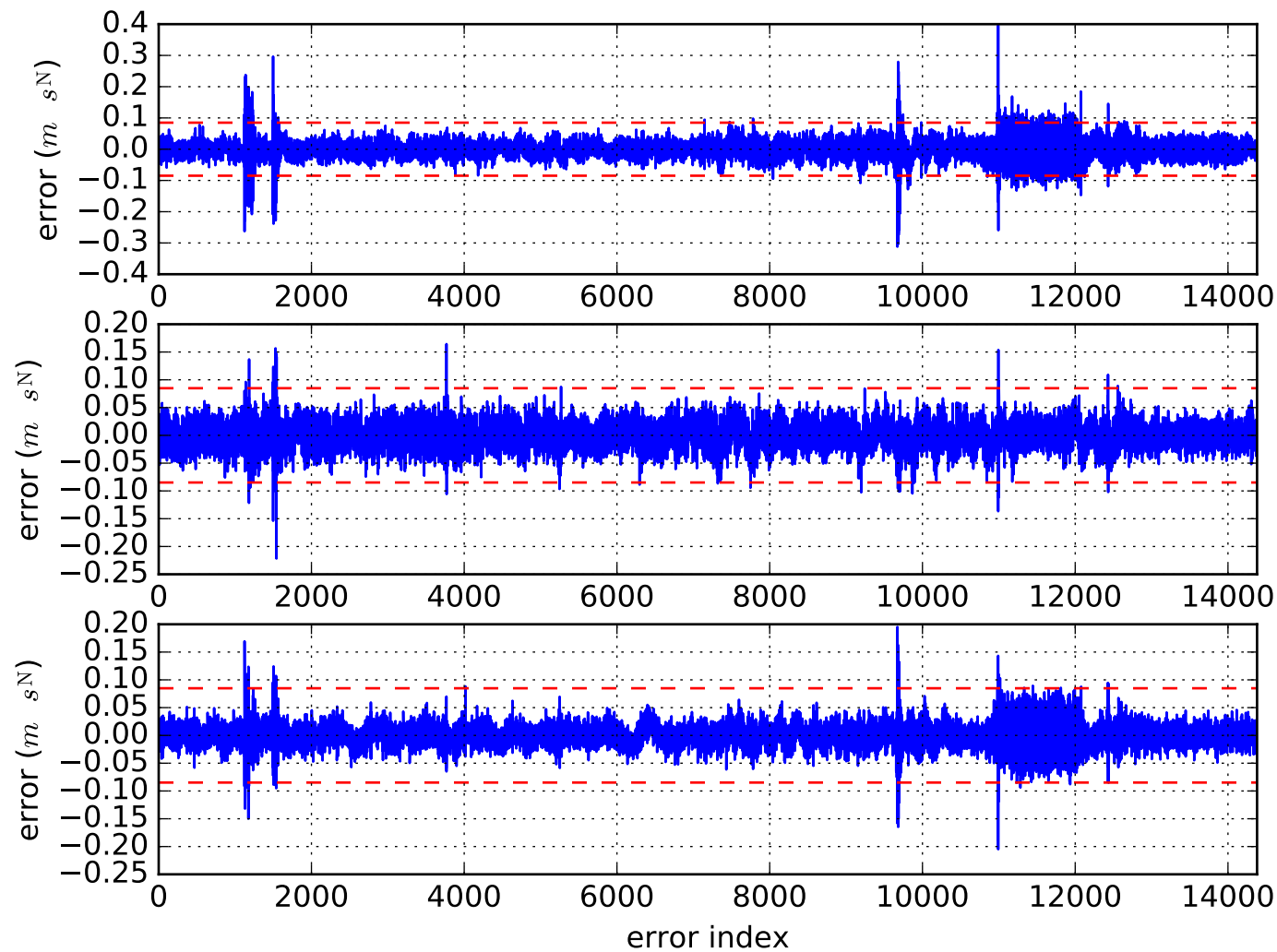
[0. 0. 0. 1.]

time offset with respect to IMU0: 0.0 [s]

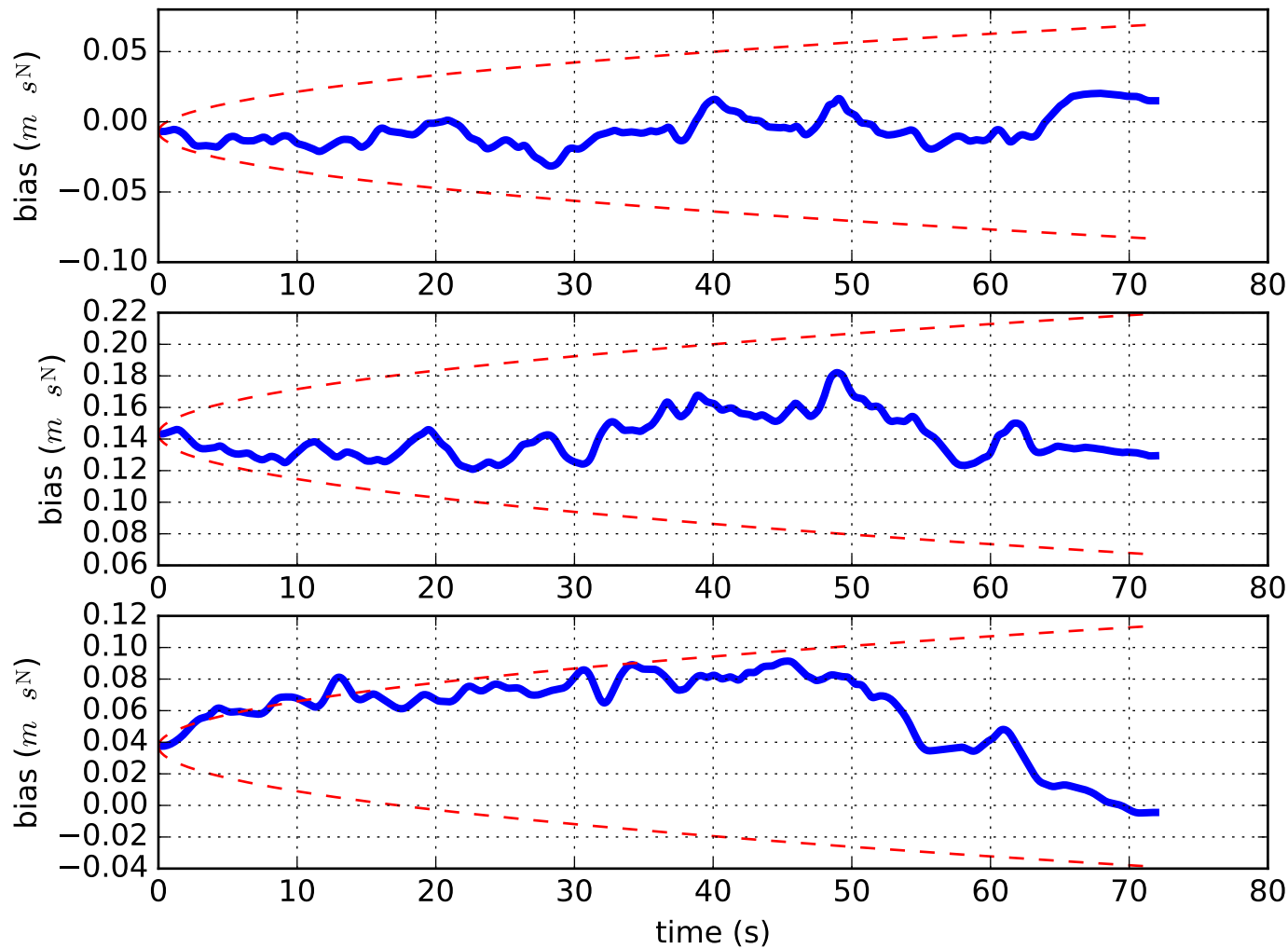
Comparison of predicted and measured specific force (imu0 frame)



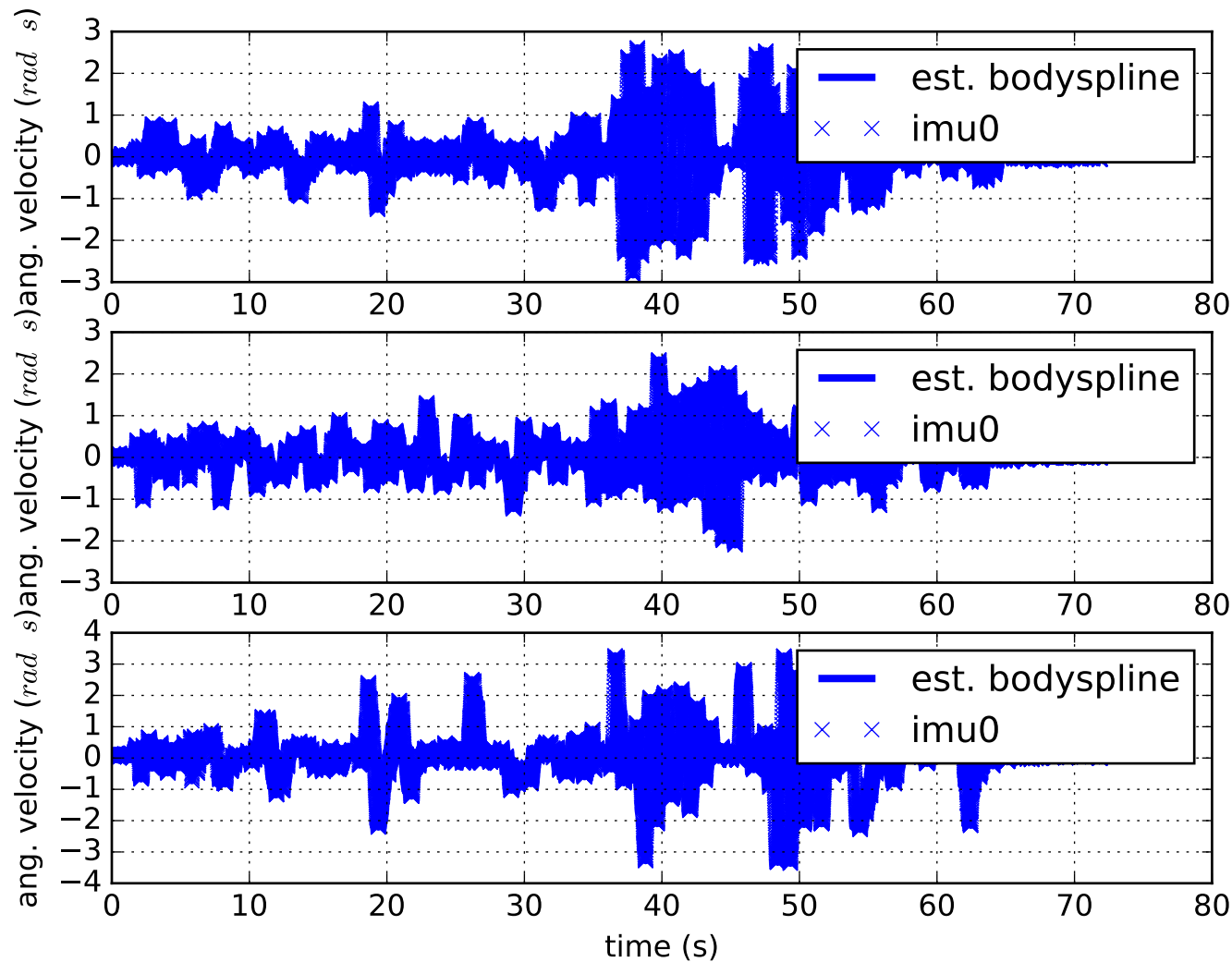
imu0: acceleration error



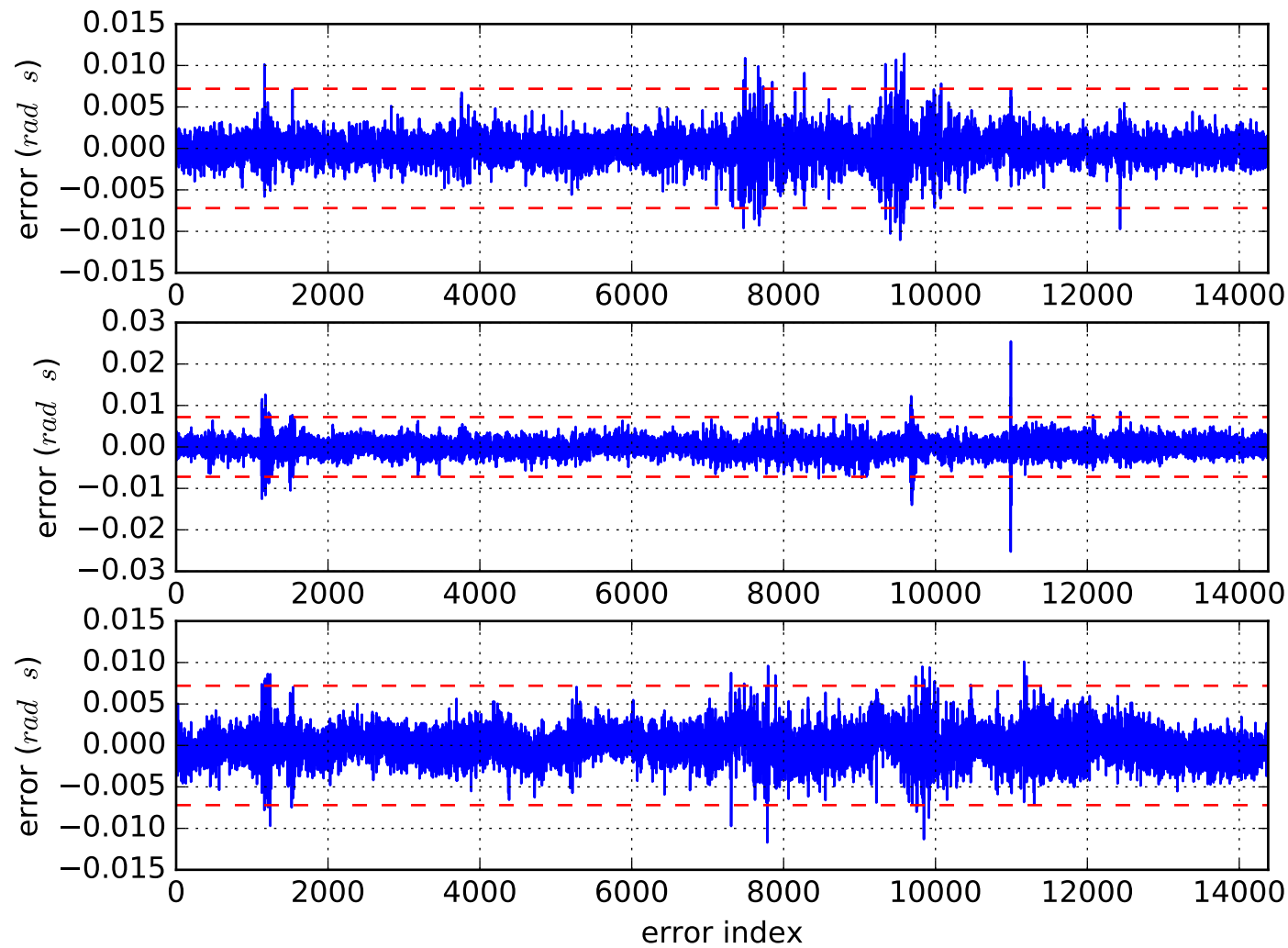
imu0: estimated accelerometer bias (imu frame)



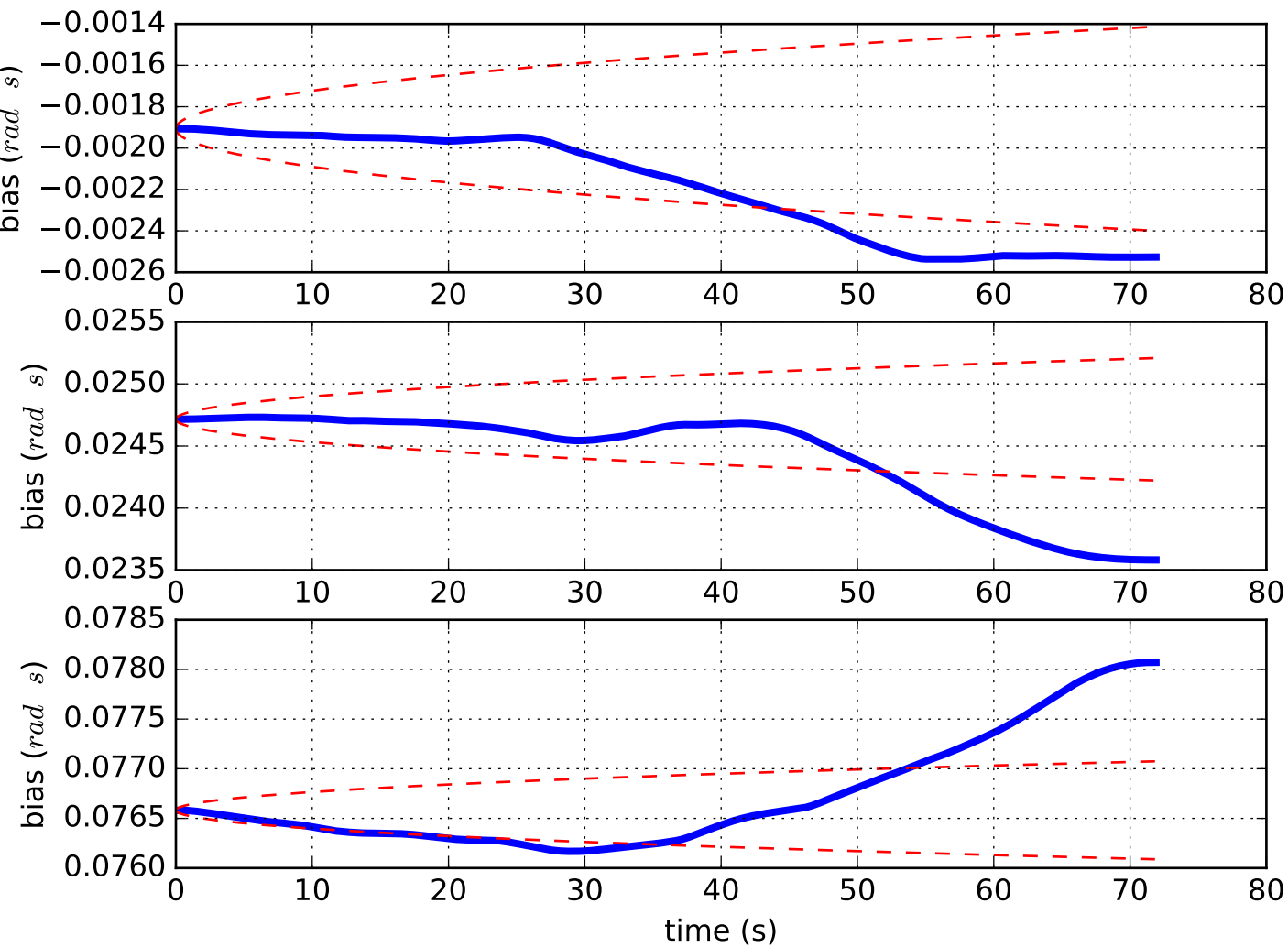
Comparison of predicted and measured angular velocities (body frame)



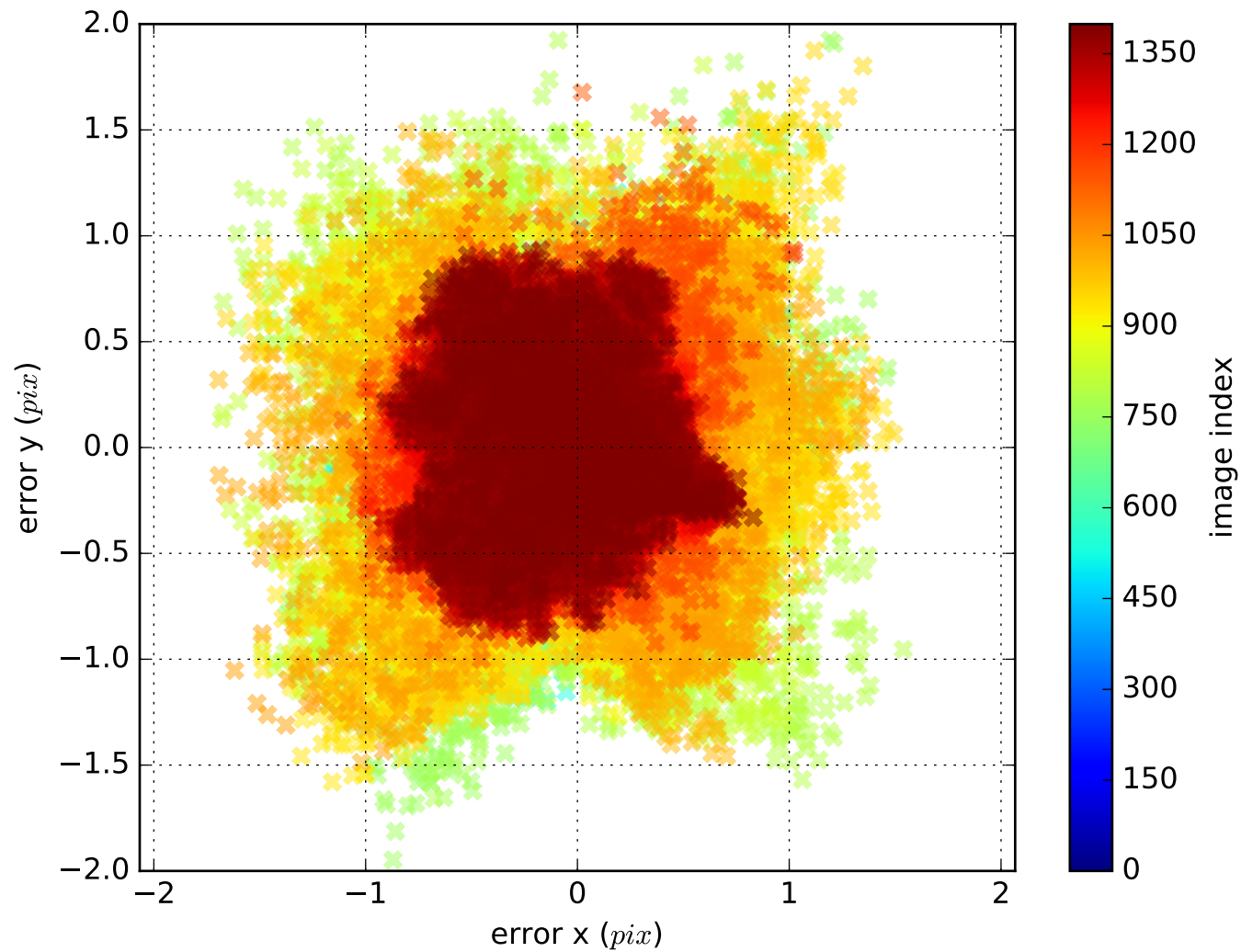
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

