

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.583427686052, median 0.483796773798, std: 0.417118572415

Gyroscope error (imu0): mean 0.778656318922, median 0.515459403844, std: 0.789702022385

Accelerometer error (imu0): mean 1.27084327344, median 0.602009580535, std: 2.08466386017

Residuals

Reprojection error (cam0) [px]: mean 0.583427686052, median 0.483796773798, std: 0.417118572415

Gyroscope error (imu0) [rad/s]: mean 0.00205921843083, median 0.00136317330117, std: 0.00208842967024

Accelerometer error (imu0) [m/s^2]: mean 0.0334287345489, median 0.0158354841106, std: 0.0548357742152

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.05327165 0.9975072 0.04627656 -0.00765729]
[-0.83592661 -0.0698971 0.54437221 -0.04720471]
[0.5462498 -0.0096842 0.83756634 -0.21597952]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.05327165 -0.83592661 0.5462498 0.07811118]
[0.9975072 -0.0698971 -0.0096842 0.00224714]
[0.04627656 0.54437221 0.83756634 0.20694846]
[0. 0. 0. 1.]]

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

-0.0777259925377

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

[0.1645386 -9.80510055 -0.0367843]

Calibration configuration

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cam0

Camera model: omni
Focal length: [2165.114673661876, 2163.1980164528827]
Principal point: [628.928311546262, 379.12139482159745]
Omni xi: 2.92327333151
Distortion model: radtan
Distortion coefficients: [-0.07978301189712277, 1.324663802513209, -8.934431117322677e-05, 0.004060443092887014]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.0345 [m]
 Spacing 0.01000155 [m]

IMU configuration

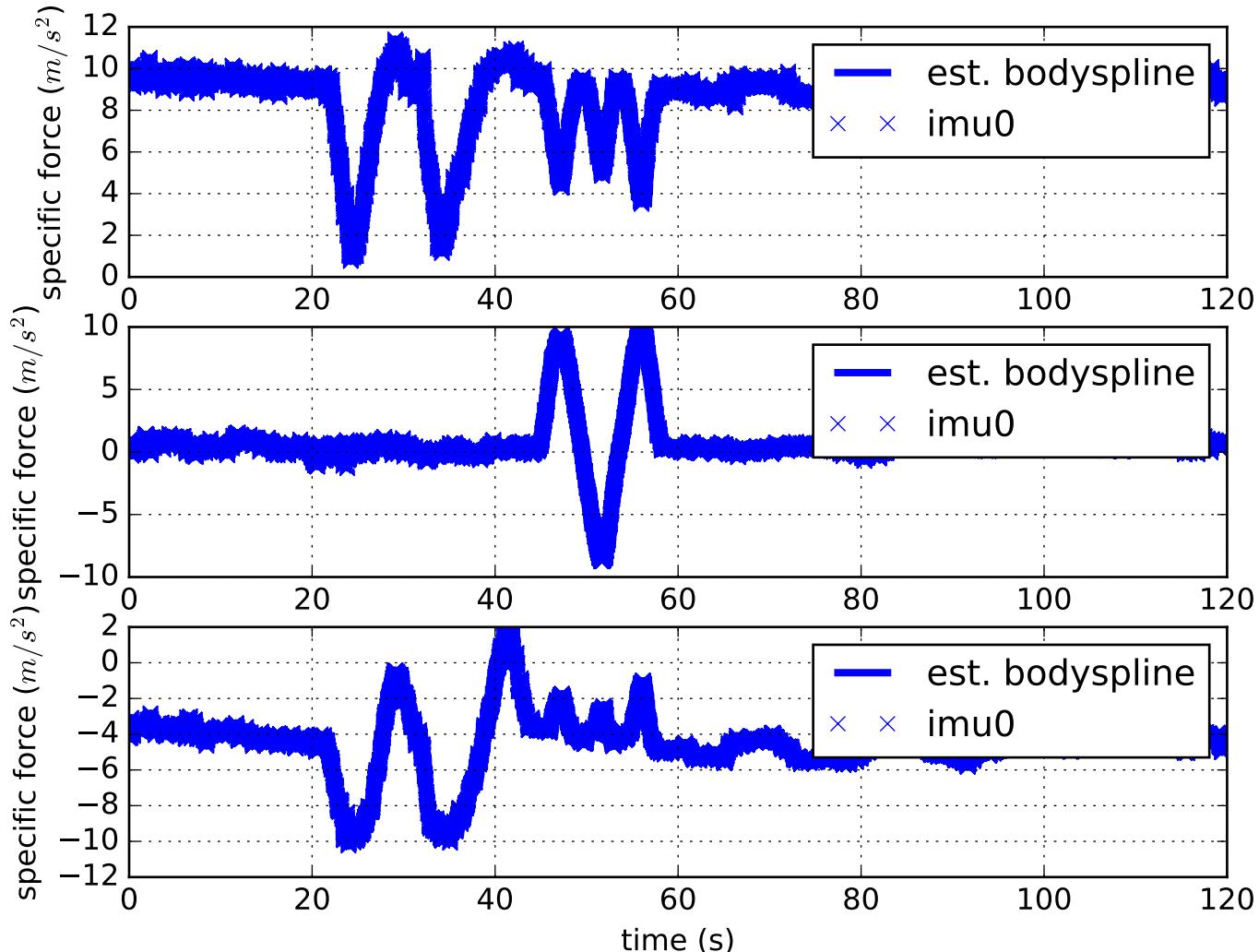
IMU0:

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

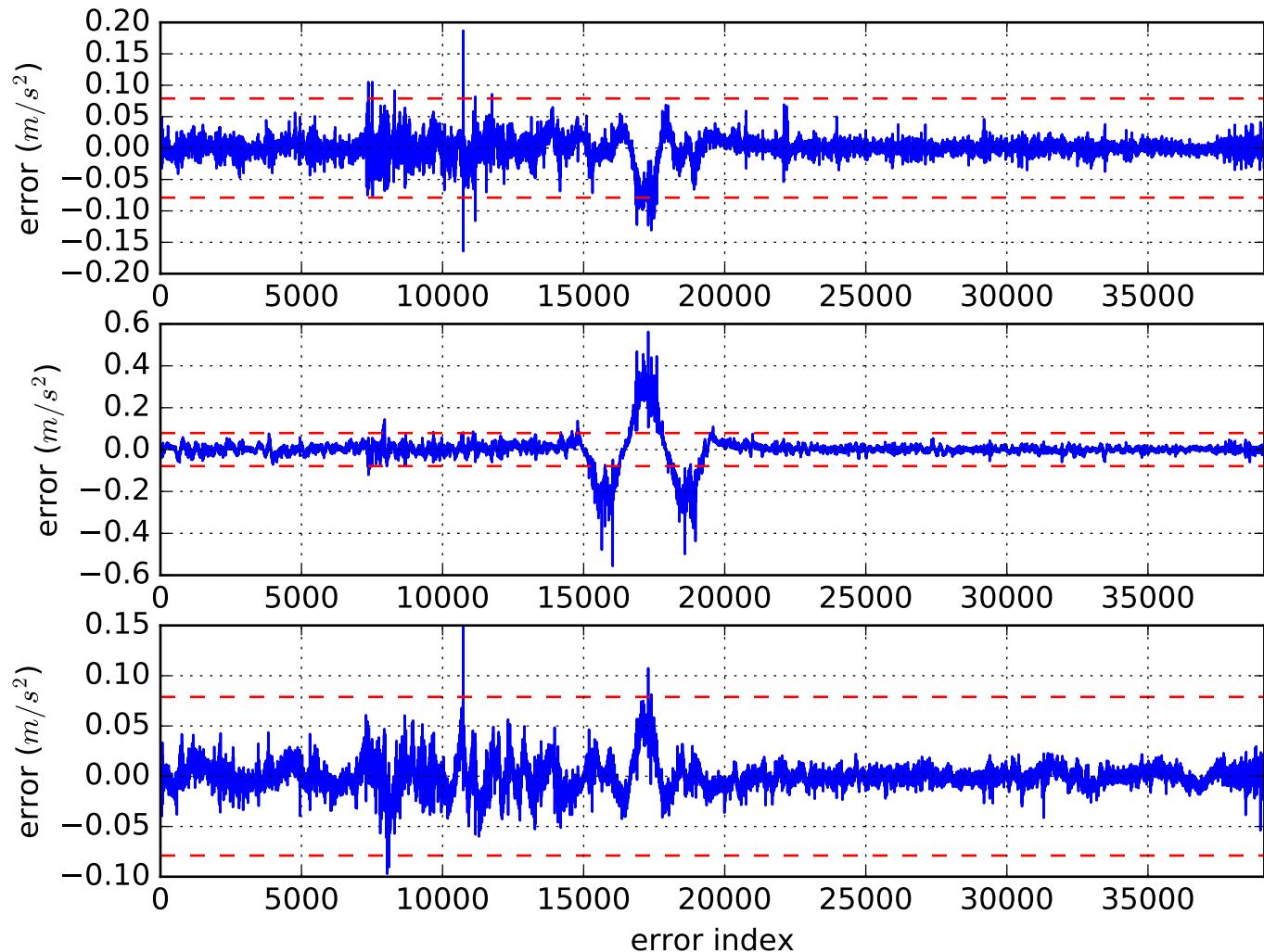
T_{i_b}
[[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

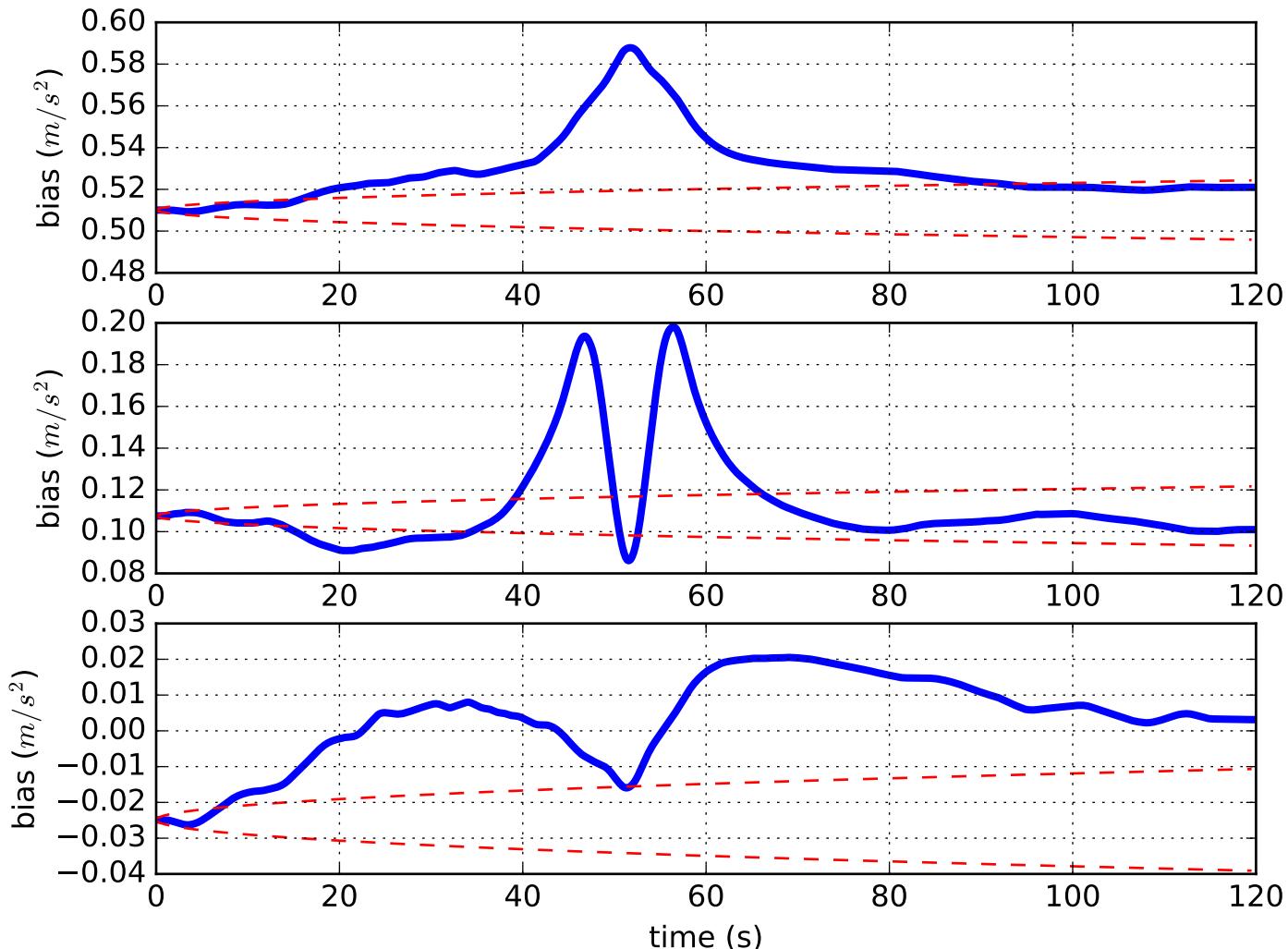
Comparison of predicted and measured specific force (imu0 frame)



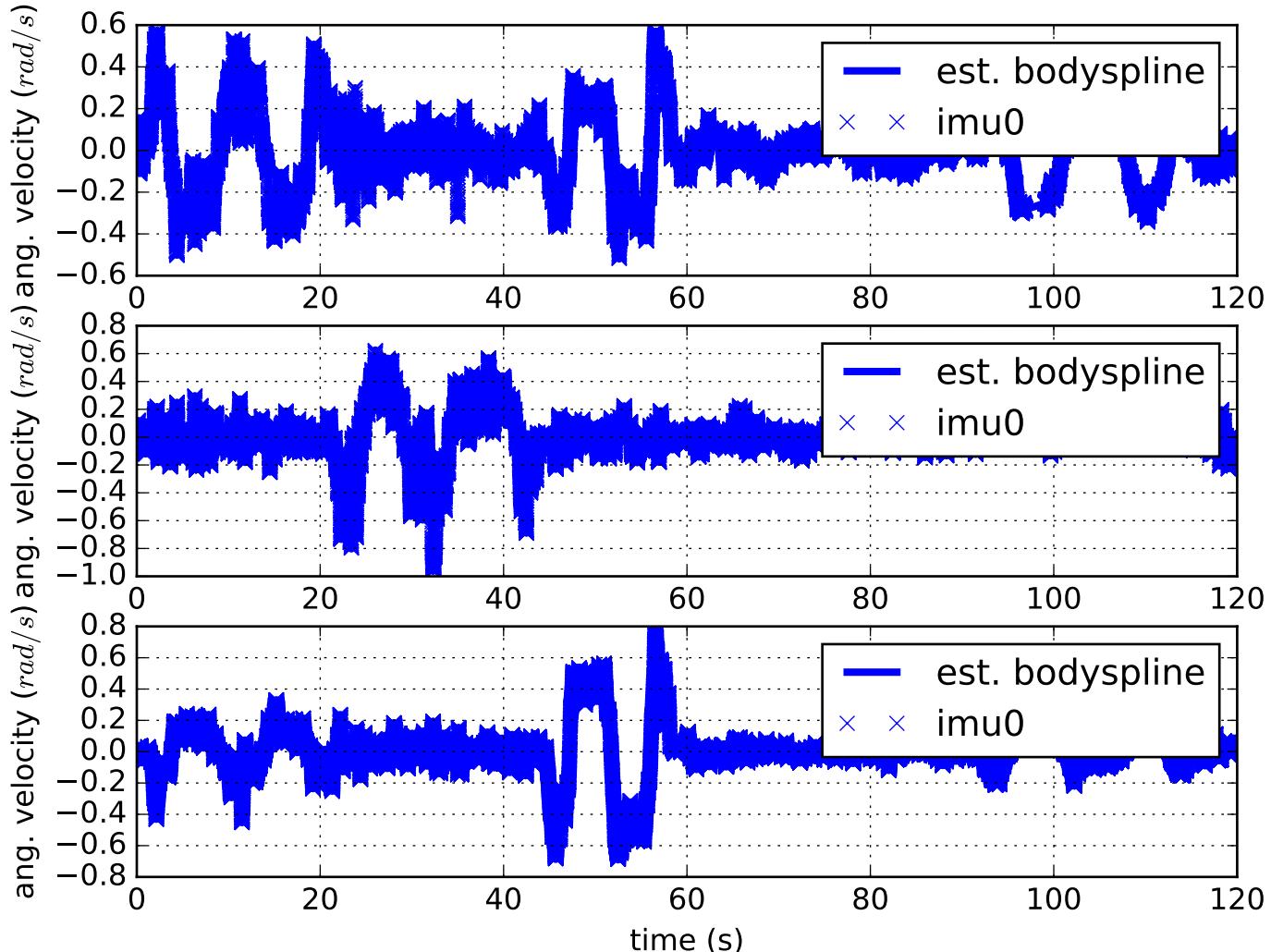
imu0: acceleration error



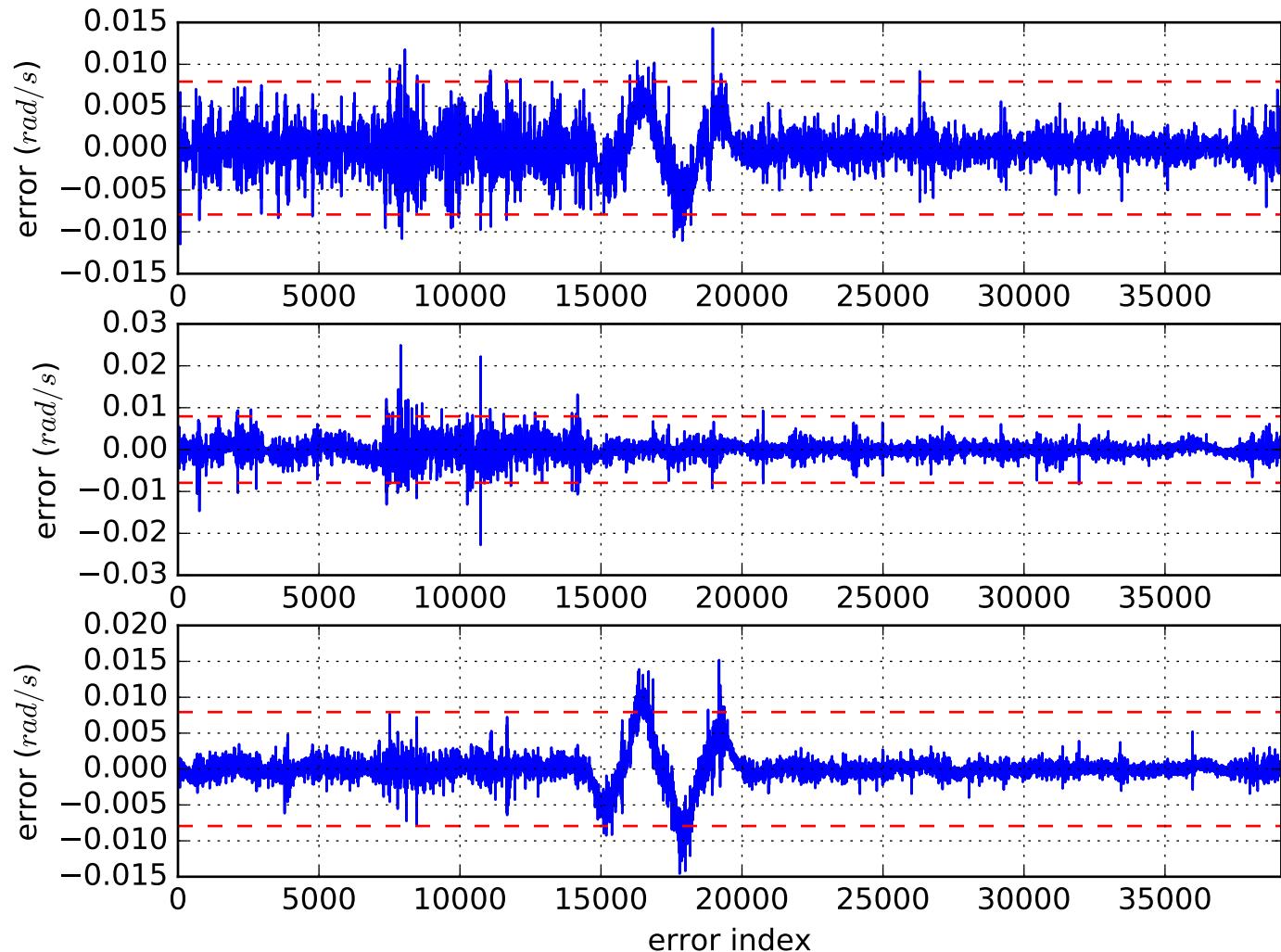
imu0: estimated accelerometer bias (imu frame)



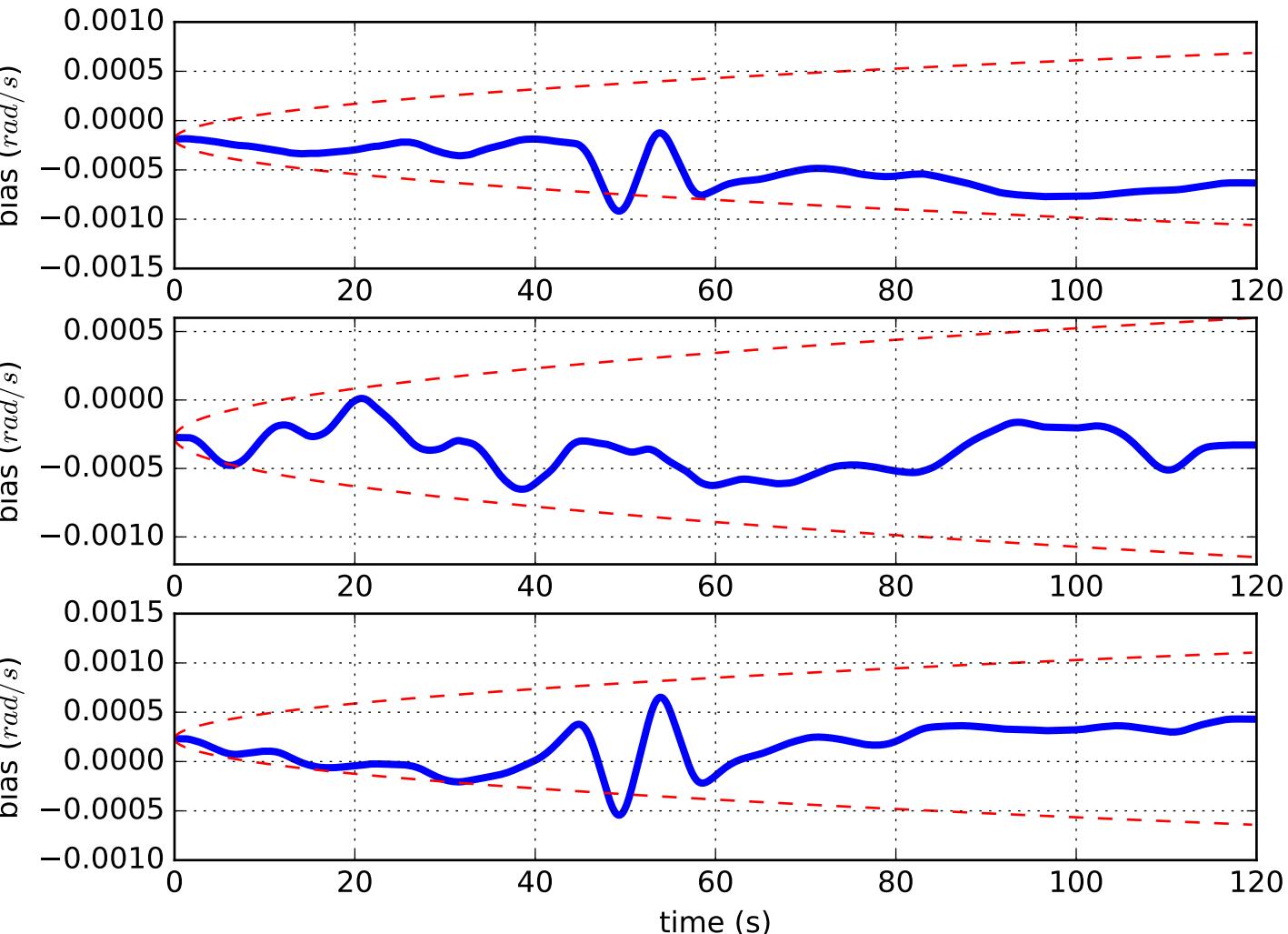
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

