

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.583641752223, median 0.48383415602, std: 0.417457862154

Gyroscope error (imu0): mean 0.776520597628, median 0.51383674321, std: 0.7897533517

Accelerometer error (imu0): mean 1.27003919229, median 0.601483133997, std: 2.08462690105

Residuals

Reprojection error (cam0) [px]: mean 0.583641752223, median 0.48383415602, std: 0.417457862154

Gyroscope error (imu0) [rad/s]: mean 0.00205357034637, median 0.00135888204635, std: 0.00208856541469

Accelerometer error (imu0) [m/s^2]: mean 0.033407583699, median 0.0158216362649, std: 0.0548348020286

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.05595662 0.99751134 0.04289498 -0.00794198]
[-0.83571486 -0.07030128 0.5446452 -0.04734853]
[0.54630534 -0.00537147 0.83756888 -0.21724406]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.05595662 -0.83571486 0.54630534 0.07866732]
[0.99751134 -0.07030128 -0.00537147 0.00342664]
[0.04289498 0.5446452 0.83756888 0.20808569]
[0. 0. 0. 1.]]

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

-0.0777167578306

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

[0.17061278 -9.80499481 -0.03729597]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [550.5667268263406, 550.1398372743699]
Principal point: [632.4838758640666, 378.9278821888779]
Distortion model: equidistant
Distortion coefficients: [-0.04645236314145721, 0.009703581028530216, -0.01623271928238084, 0.006701945483805712]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.0345 [m]
 Spacing 0.01000155 [m]

IMU configuration

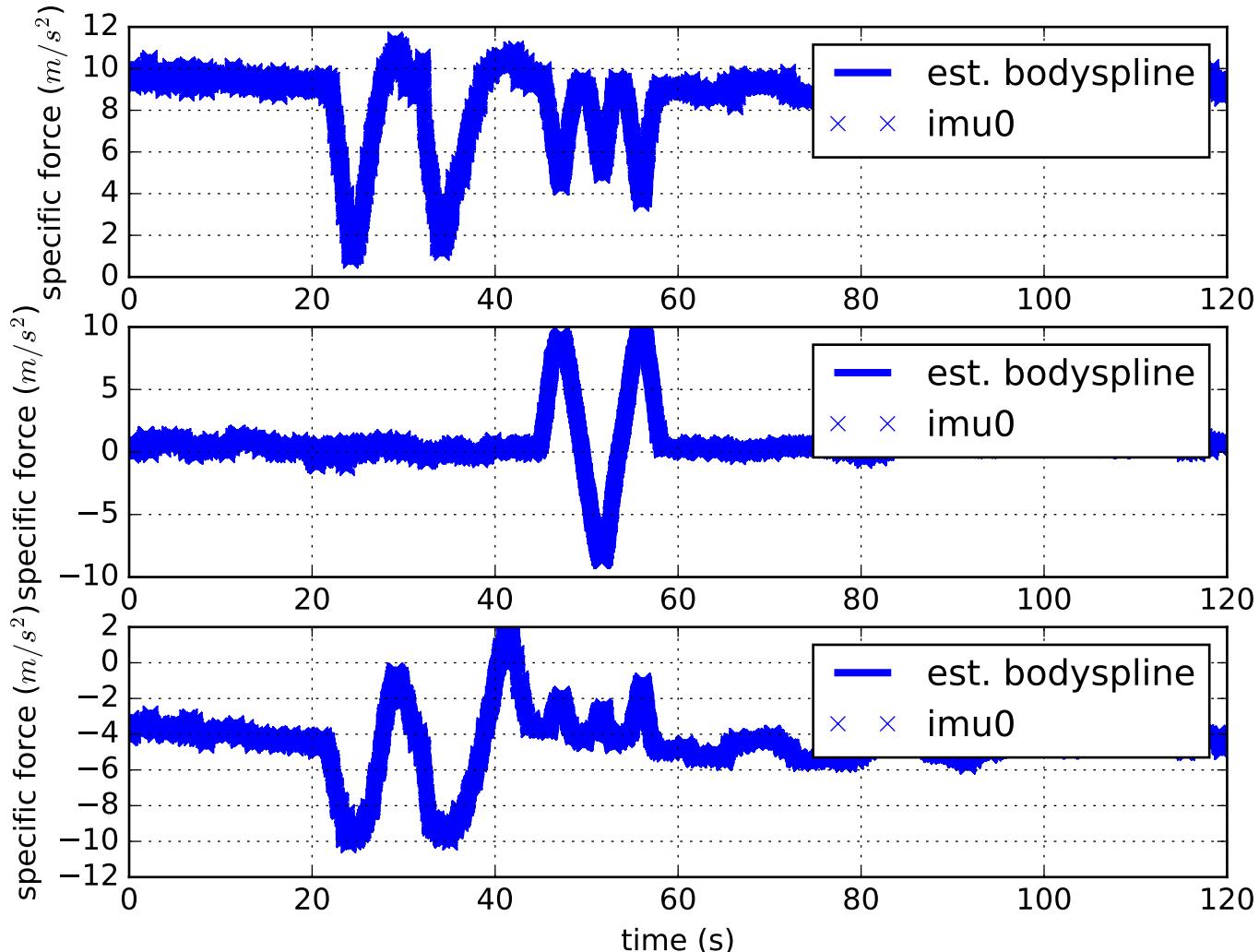
IMU0:

 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

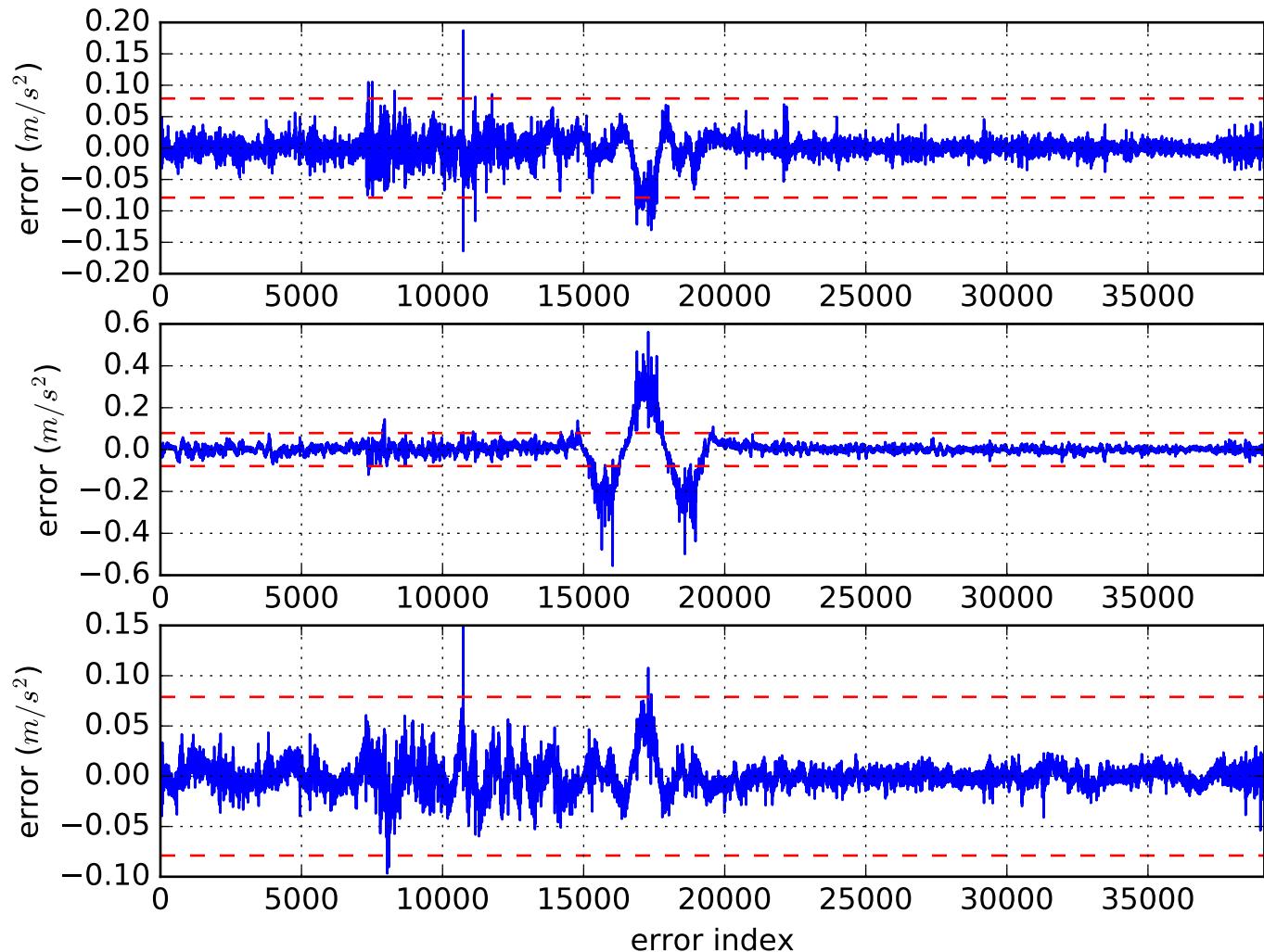
T_i_b
[[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

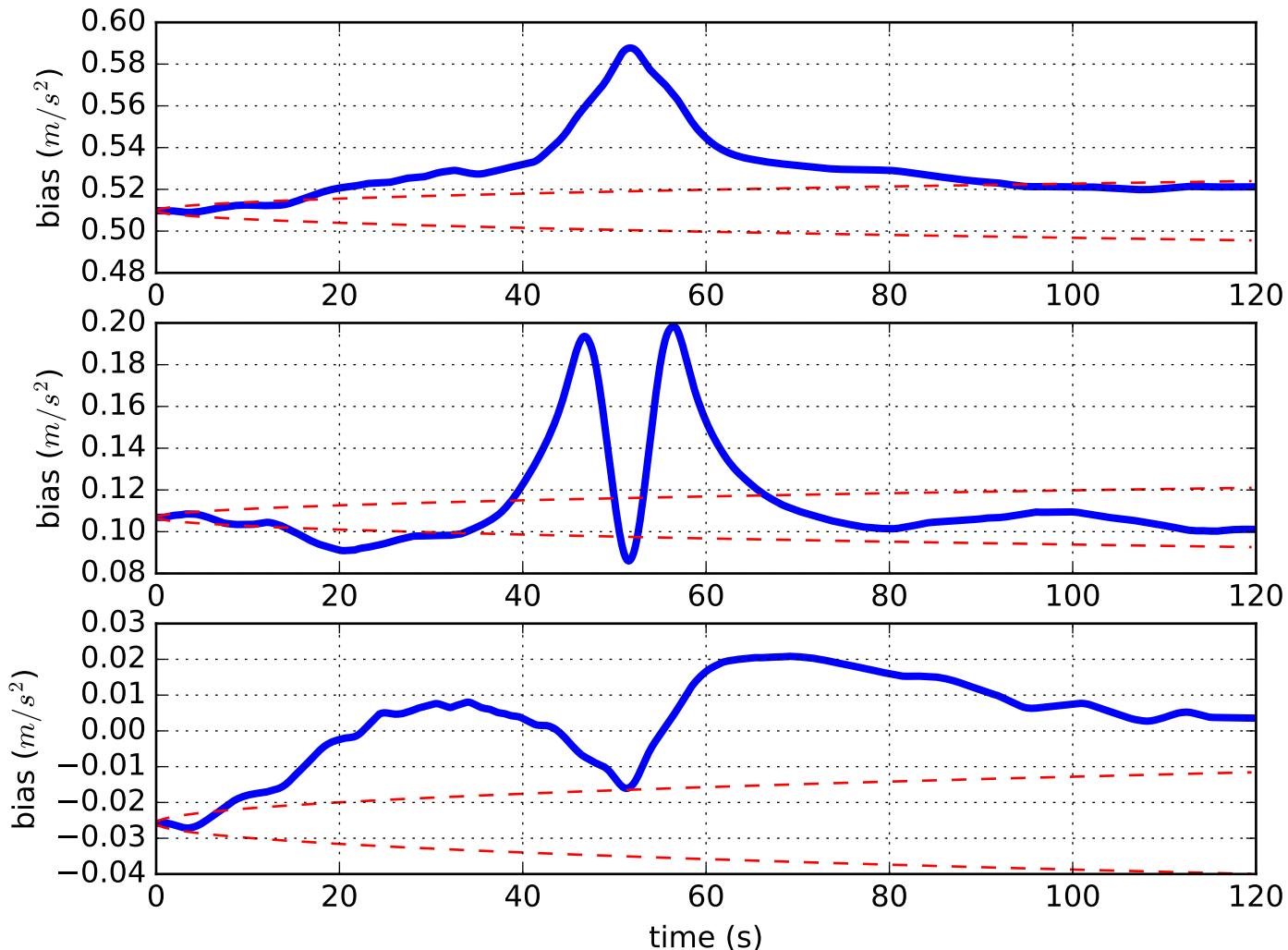
Comparison of predicted and measured specific force (imu0 frame)



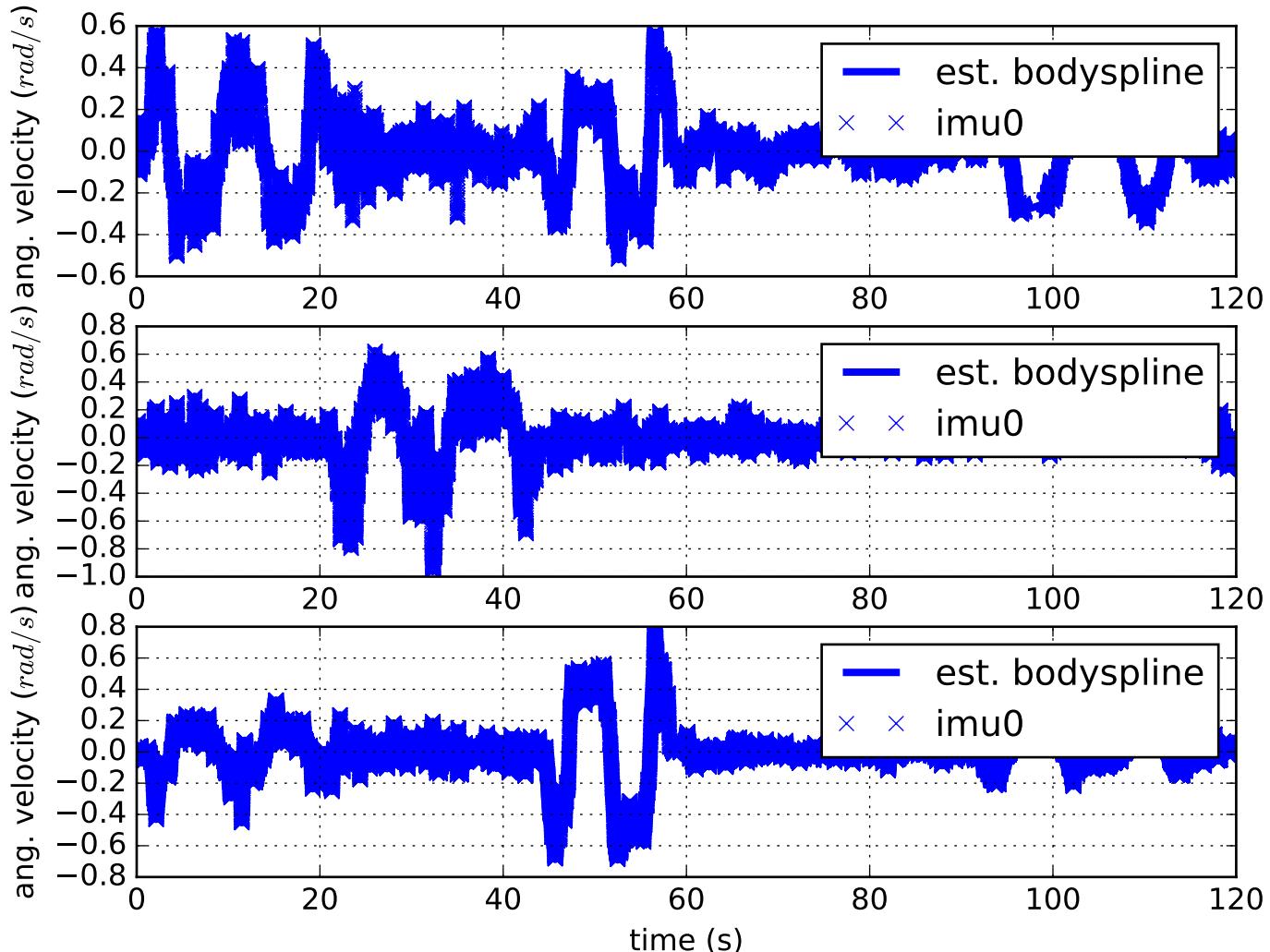
imu0: acceleration error



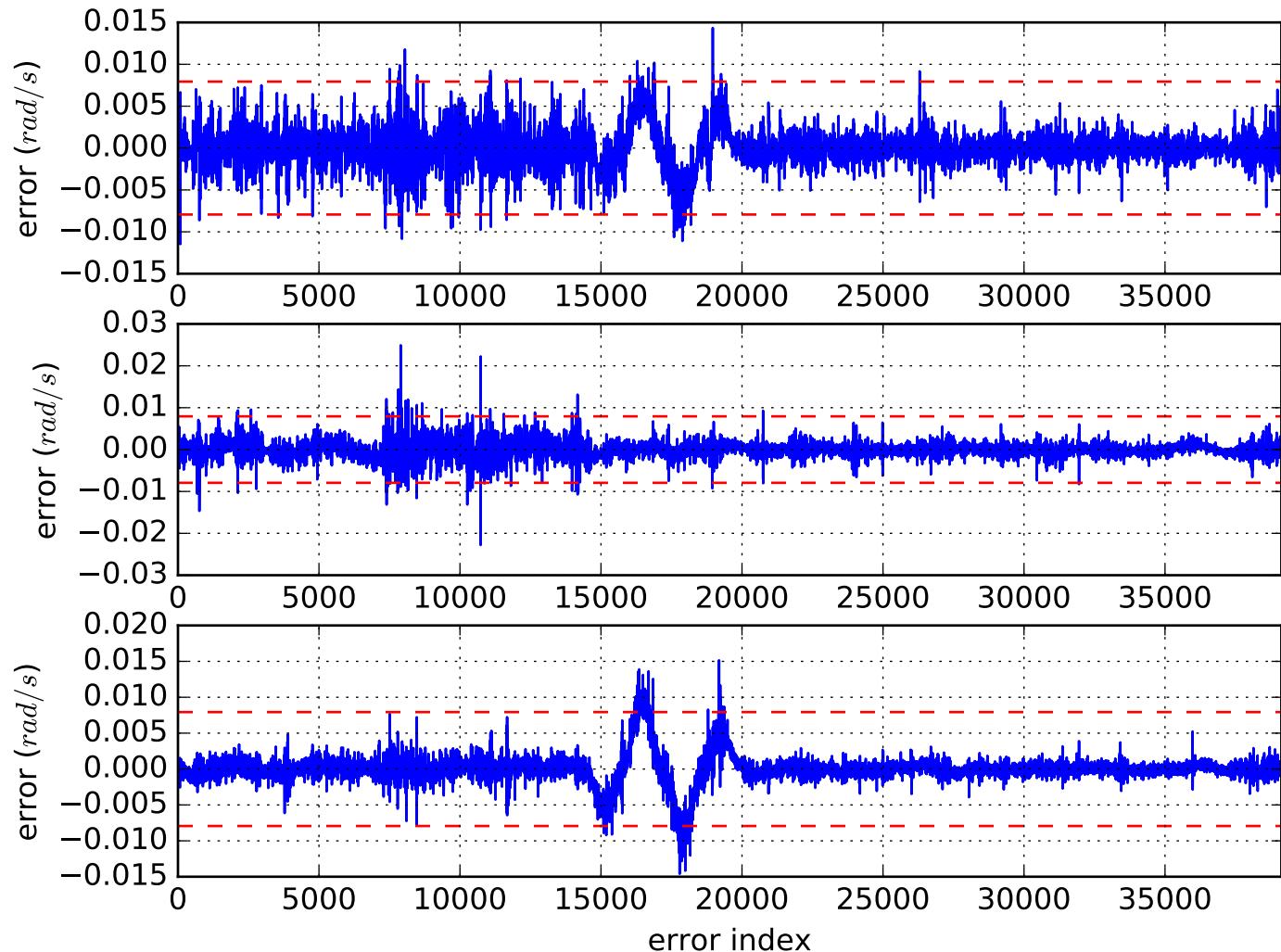
imu0: estimated accelerometer bias (imu frame)



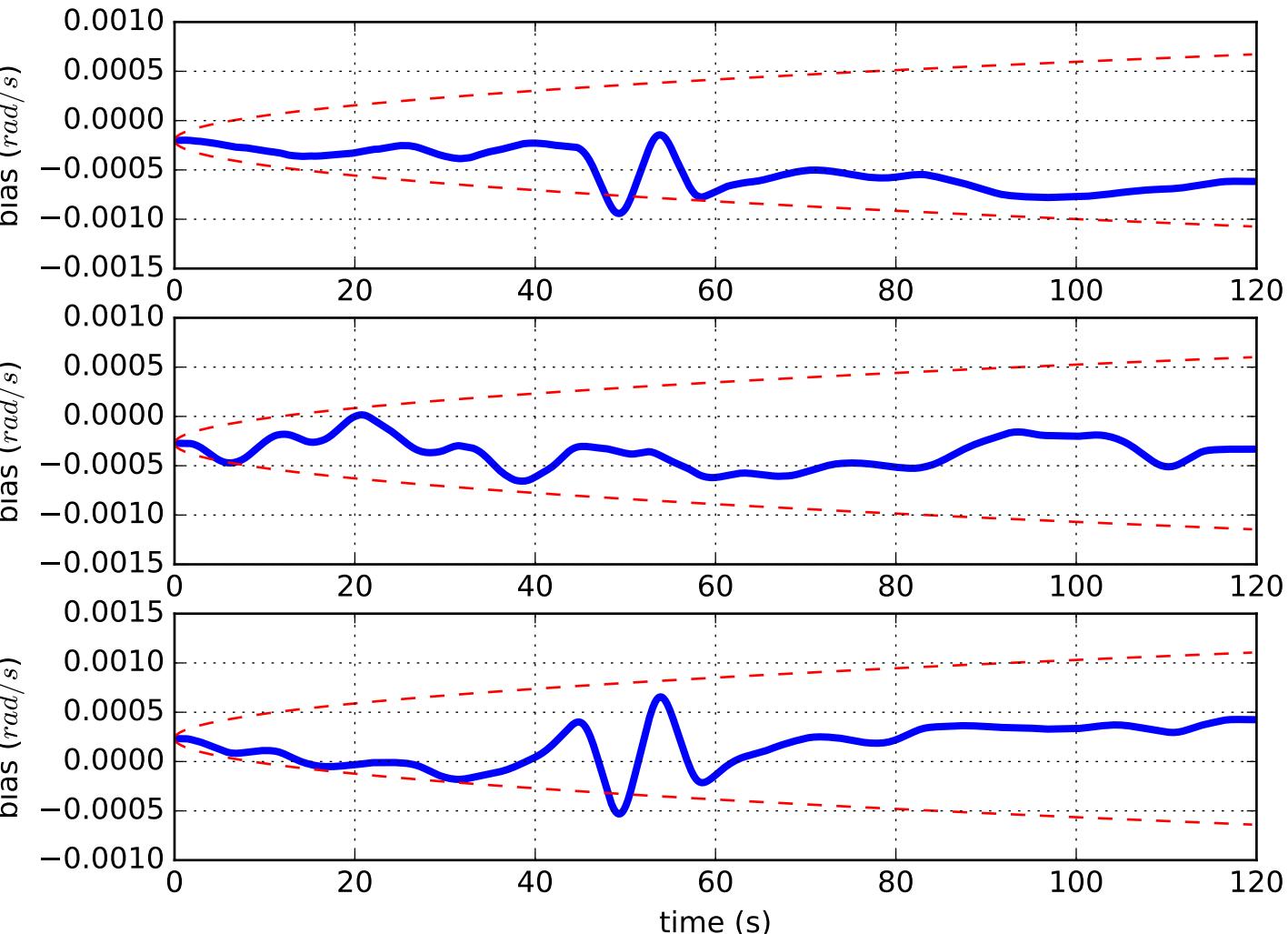
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

