

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.681777436058, median 0.549392733127, std: 0.513456406346

Gyroscope error (imu0): mean 0.774915740432, median 0.429143746972, std: 1.02686442125

Accelerometer error (imu0): mean 1.26499710274, median 0.437032048677, std: 2.23820832867

Residuals

Reprojection error (cam0) [px]: mean 0.681777436058, median 0.549392733127, std: 0.513456406346

Gyroscope error (imu0) [rad/s]: mean 0.00204932617415, median 0.00113490469642, std: 0.00271562445563

Accelerometer error (imu0) [m/s^2]: mean 0.0332749546986, median 0.011495853698, std: 0.0588746650731

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.05276703 0.99772448 0.04197032 -0.00667541]
[-0.83895781 -0.06708785 0.54004537 -0.02133462]
[0.54163219 -0.00671473 0.84058877 -0.21254826]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.05276703 -0.83895781 0.54163219 0.0968719]
[0.99772448 -0.06708785 -0.00671473 0.00380172]
[0.04197032 0.54004537 0.84058877 0.19046751]
[0. 0. 0. 1.]]

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

-0.0772004850326

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

[-0.02431906 -9.80623423 -0.0748442]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [553.4675695233145, 551.5244385327326]
Principal point: [632.8010645006444, 377.82028365232196]
Distortion model: equidistant
Distortion coefficients: [-0.03760349183885542, -0.019846405449754675, 0.02033805575677833, -0.008820507351849157]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.0245 [m]
 Spacing 0.00699965 [m]

IMU configuration

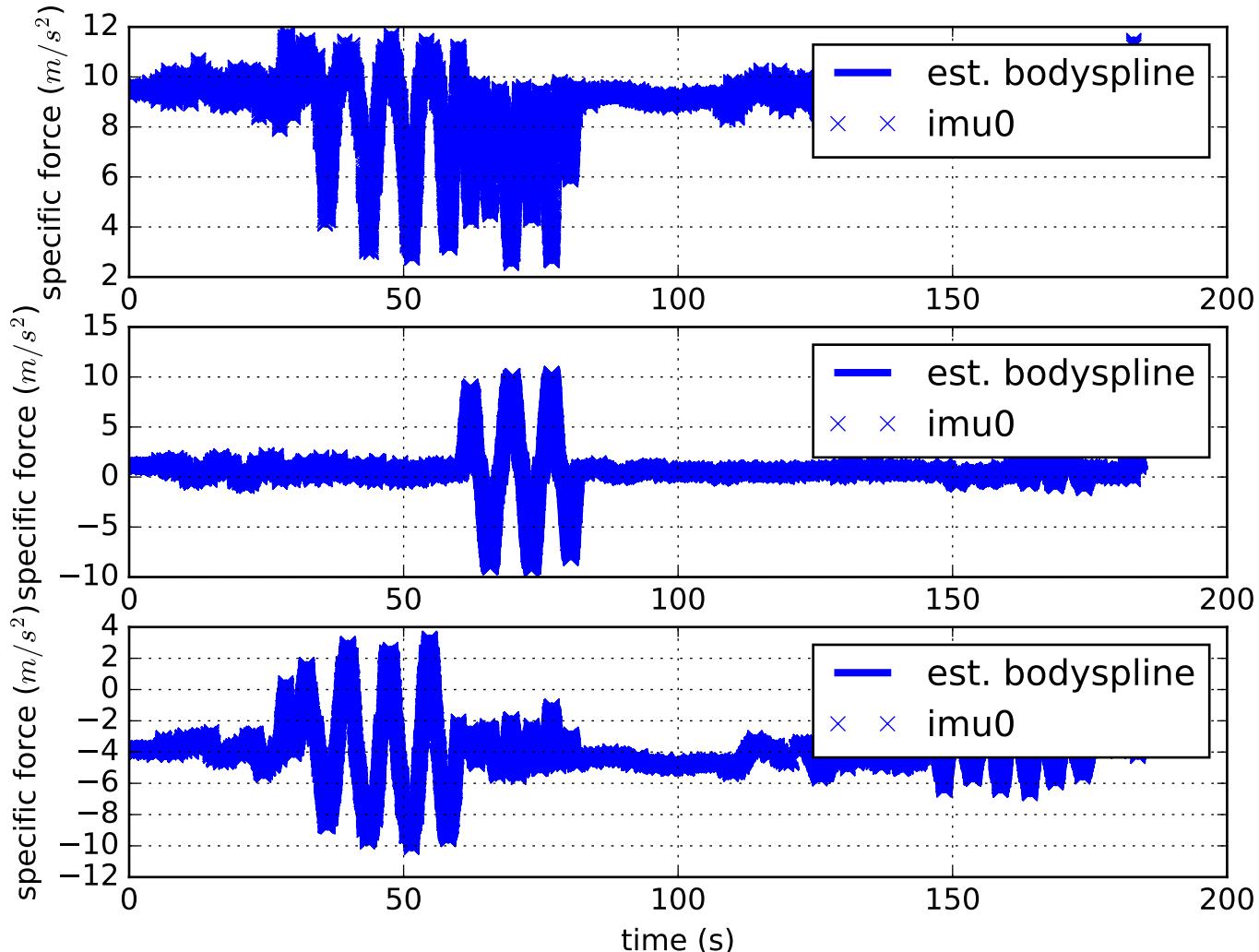
IMU0:

 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

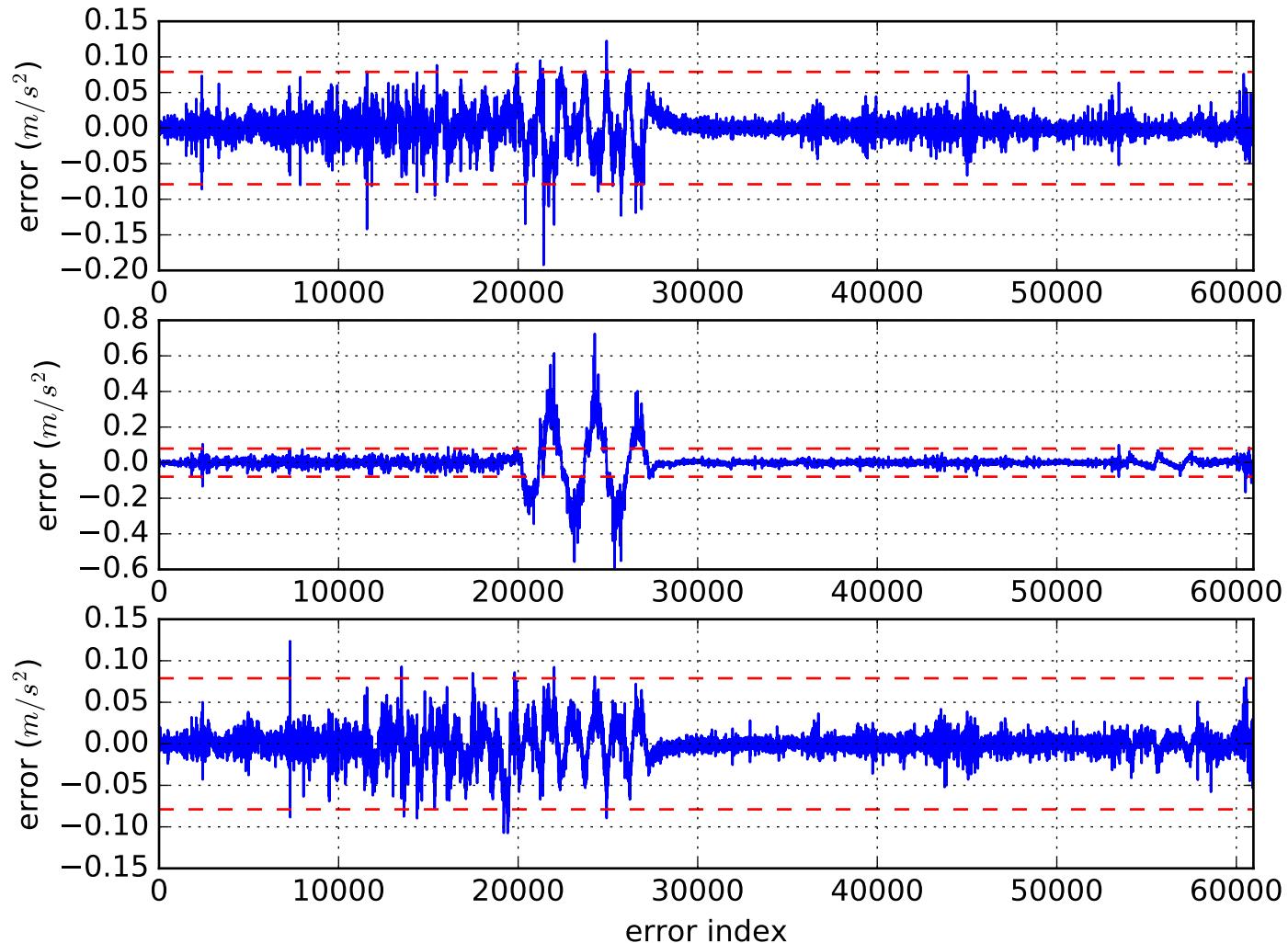
 T_i_b
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

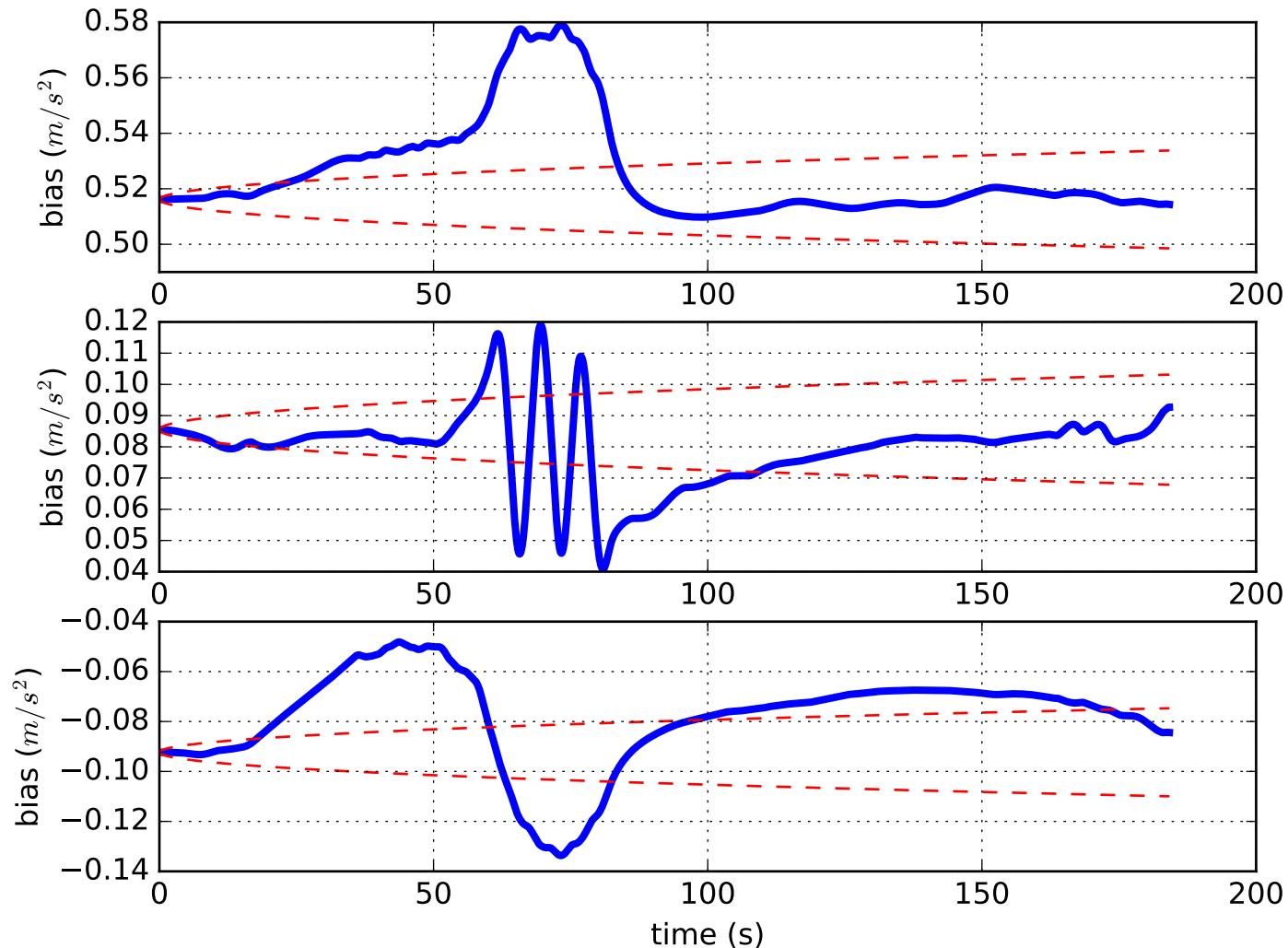
Comparison of predicted and measured specific force (imu0 frame)



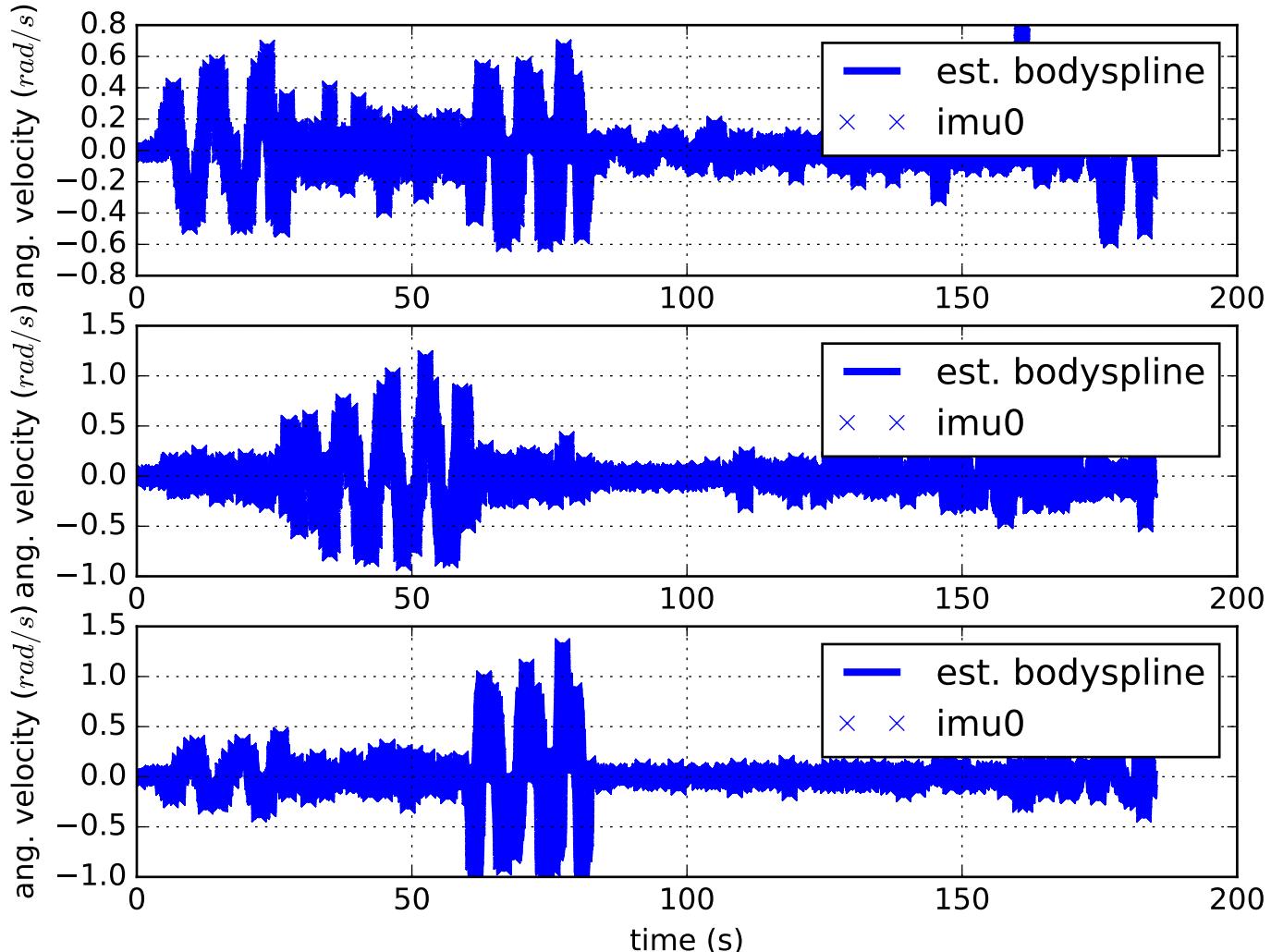
imu0: acceleration error



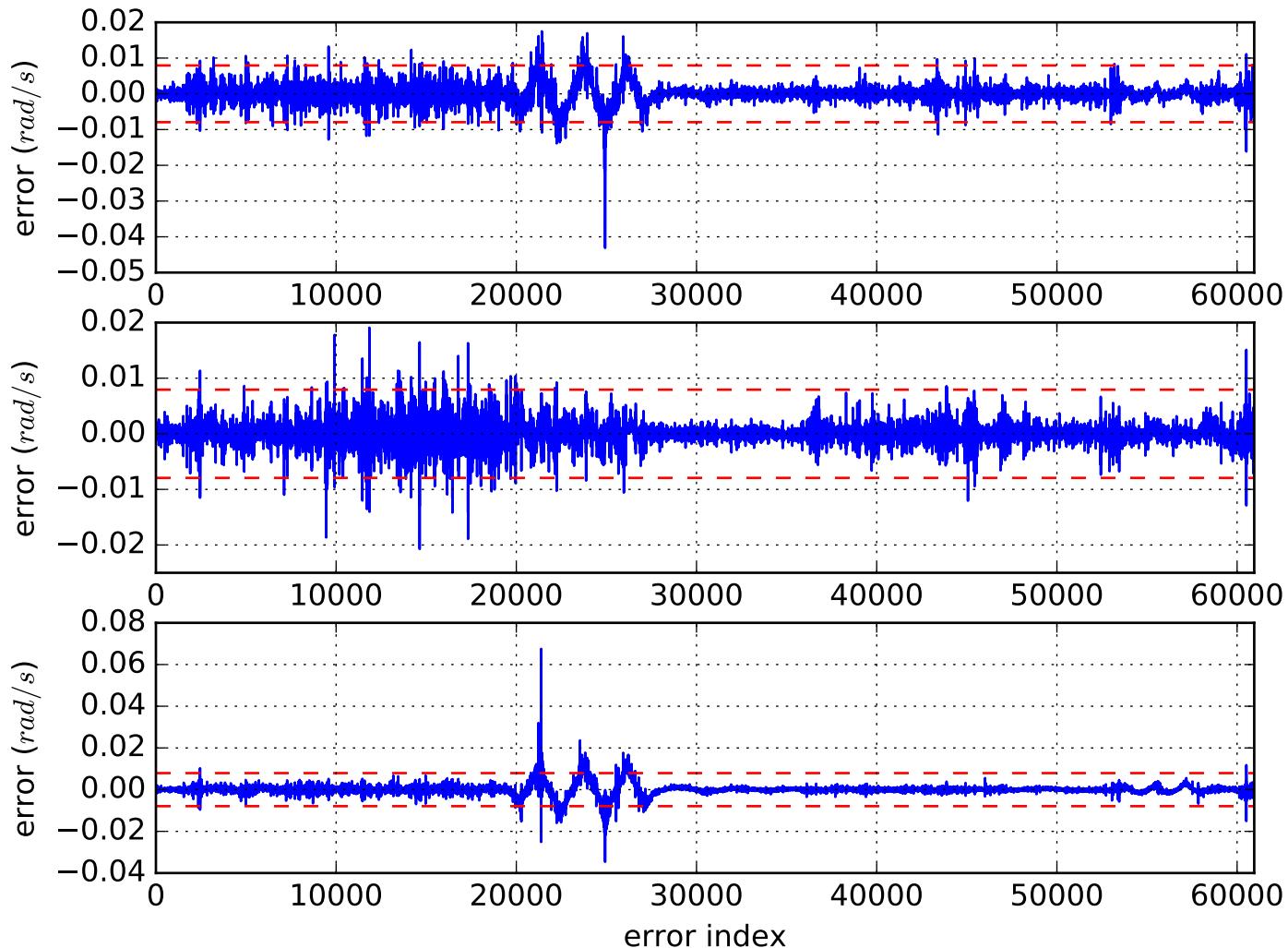
imu0: estimated accelerometer bias (imu frame)



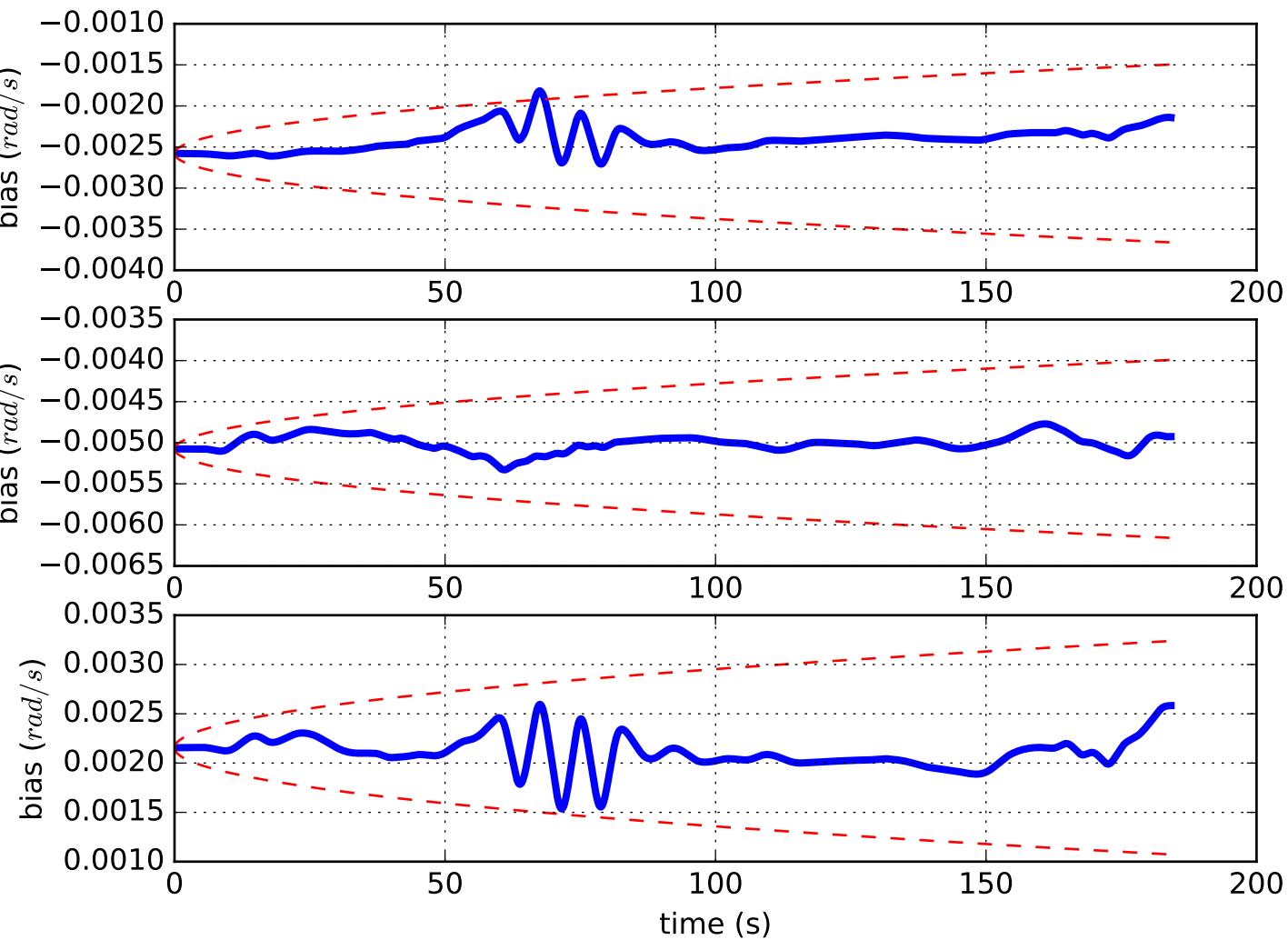
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

