

Calibration results

=====

Normalized Residuals

Reprojection error (cam0): mean 0.779255714089, median 0.699021723998, std: 0.500954489318

Gyroscope error (imu0): mean 1.28619030681, median 1.14606147564, std: 0.719323559305

Accelerometer error (imu0): mean 0.127054052308, median 0.108581929945, std: 0.084352749207

Residuals

Reprojection error (cam0) [px]: mean 0.779255714089, median 0.699021723998, std: 0.500954489318

Gyroscope error (imu0) [rad/s]: mean 0.00296574637213, median 0.00264263200057, std: 0.00165864353439

Accelerometer error (imu0) [m/s^2]: mean 0.0468118920724, median 0.0400060092004, std: 0.0310789913438

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.05169094 -0.99865374 0.00433113 -0.00225076]
[-0.4506175 0.01945348 -0.89250514 -0.05219416]
[0.89121934 -0.04808612 -0.45101642 -0.19543847]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.05169094 -0.4506175 0.89121934 0.1505426]
[-0.99865374 0.01945348 -0.04808612 -0.01063025]
[0.00433113 -0.89250514 -0.45101642 -0.13471977]
[0. 0. 0. 1.]]

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

-0.0378687157233

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

[9.79942085 -0.02978717 -0.37267496]

Calibration configuration

=====

cam0

Camera model: pinhole
Focal length: [411.3366, 412.6712]
Principal point: [320.4049, 251.967]
Distortion model: radtan
Distortion coefficients: [-0.3565, 0.1078, 0.0, 0.0]
Type: checkerboard
Rows
 Count: 6
 Distance: 0.119 [m]
Cols
 Count: 8
 Distance: 0.119 [m]

IMU configuration

=====

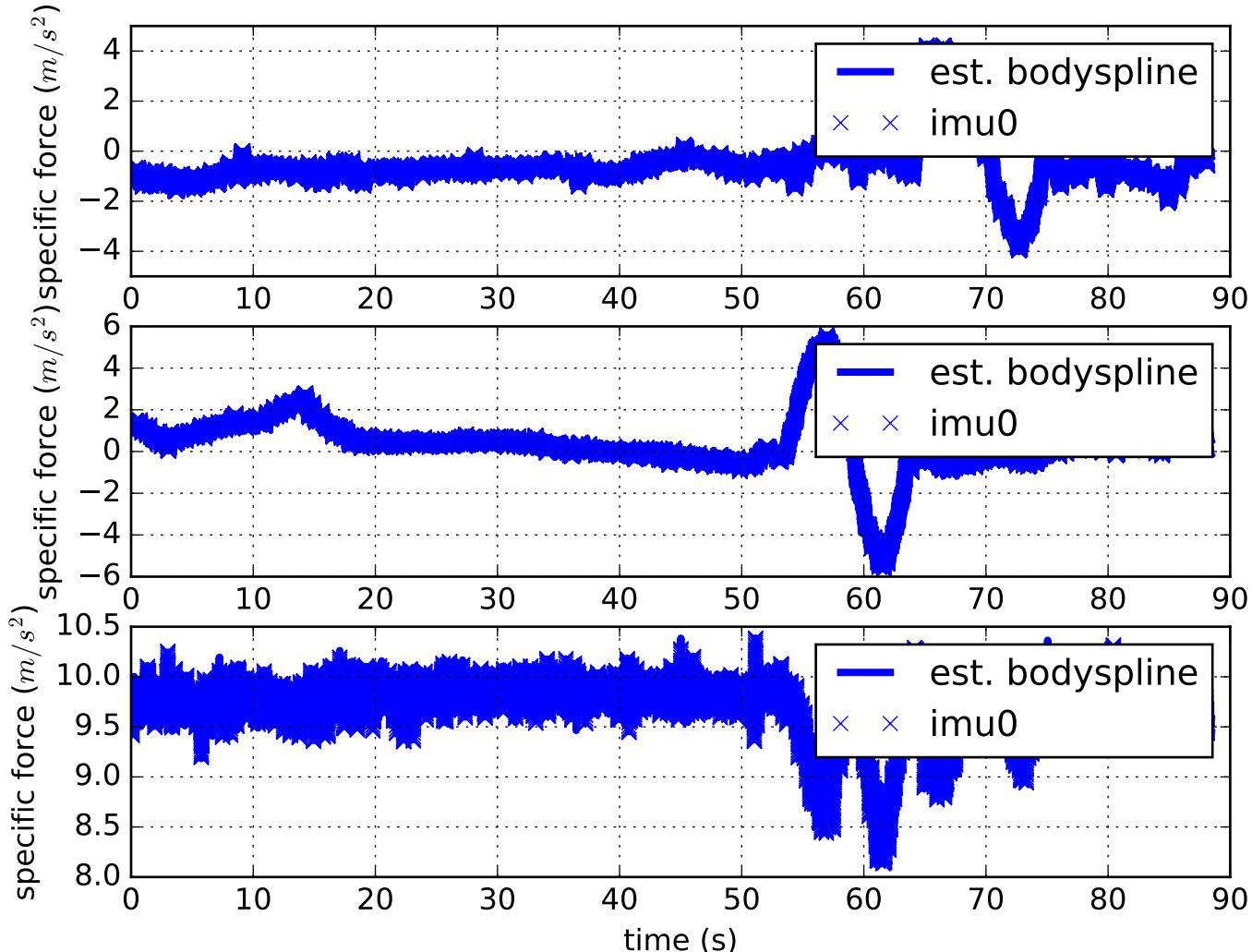
IMU0:

Model: calibrated
Update rate: 400.0
Accelerometer:
 Noise density: 0.0184220381884
 Noise density (discrete): 0.368440763769
 Random walk: 0.000363213558624
Gyroscope:
 Noise density: 0.000115291895625
 Noise density (discrete): 0.00230583791249
 Random walk: 2.77942117965e-06

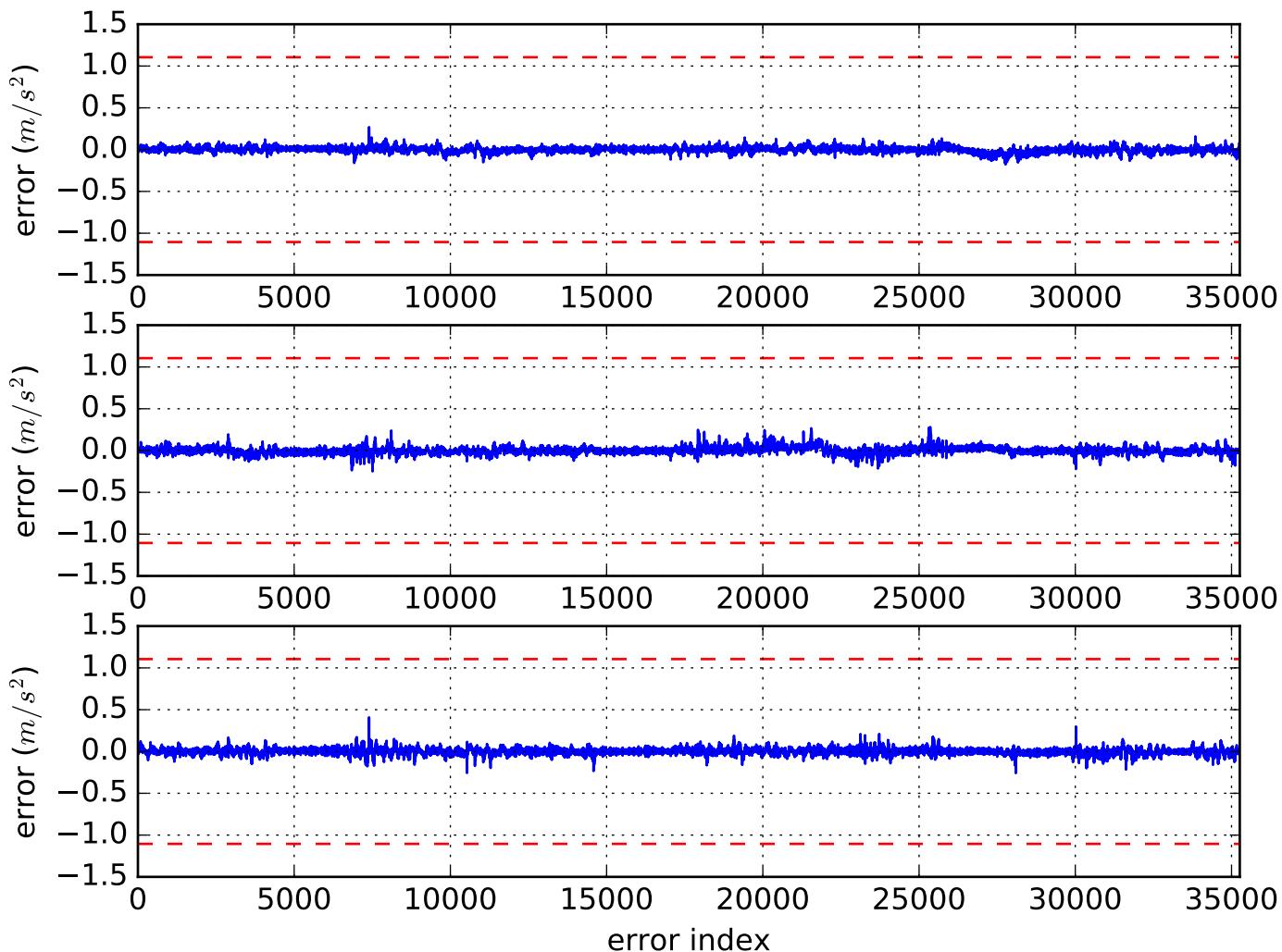
T_{i_b}
[[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

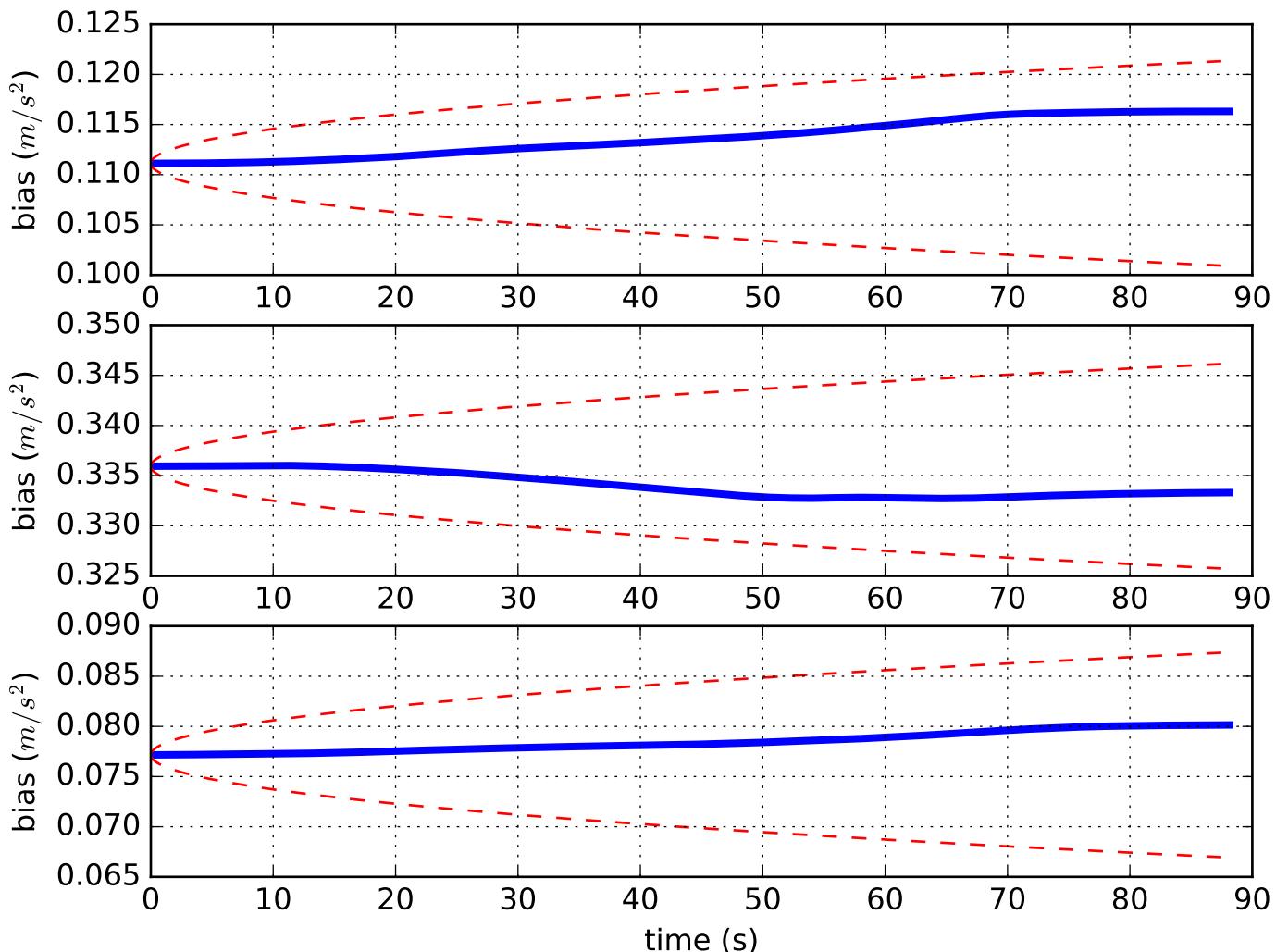
Comparison of predicted and measured specific force (imu0 frame)



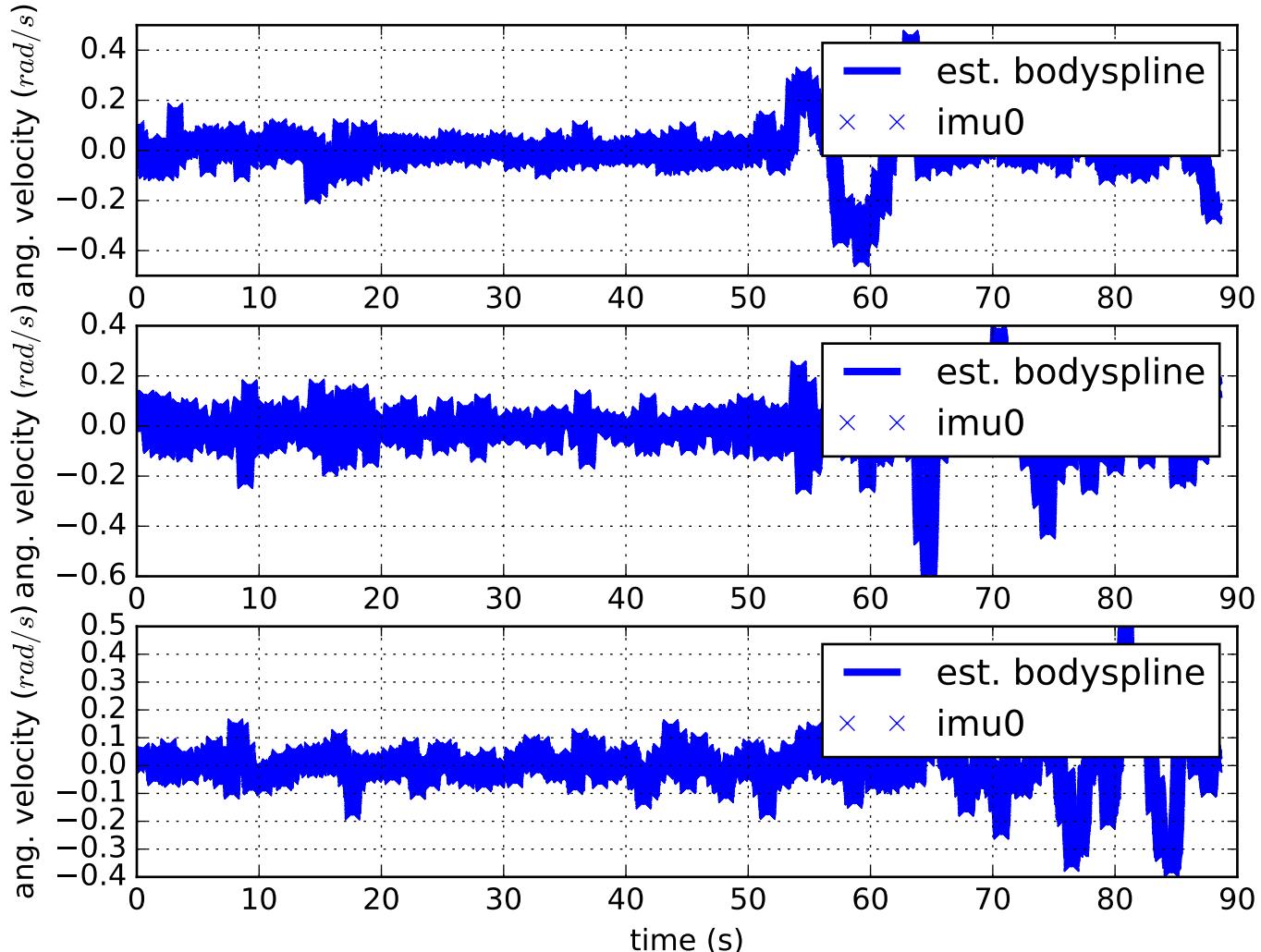
imu0: acceleration error



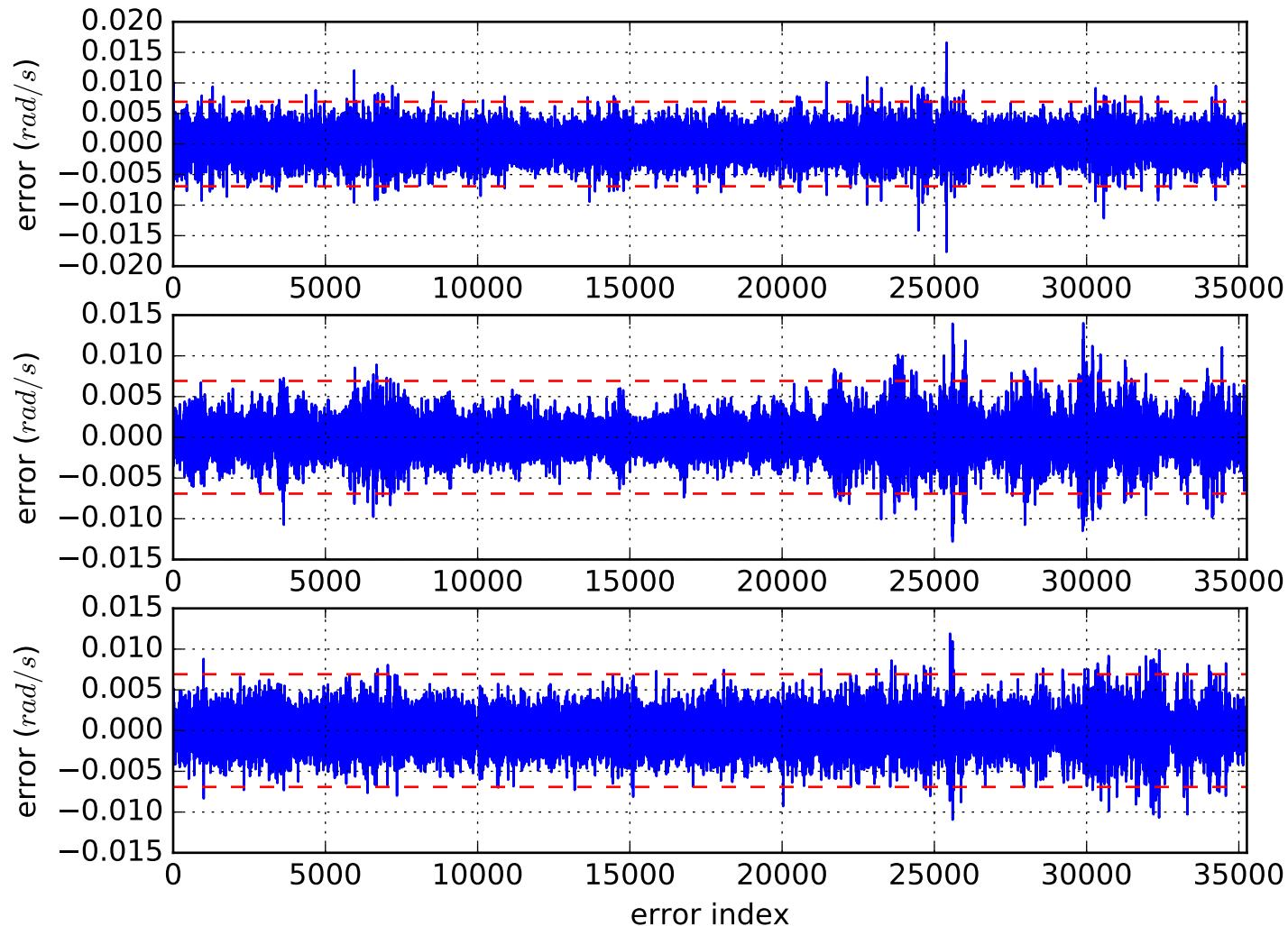
imu0: estimated accelerometer bias (imu frame)



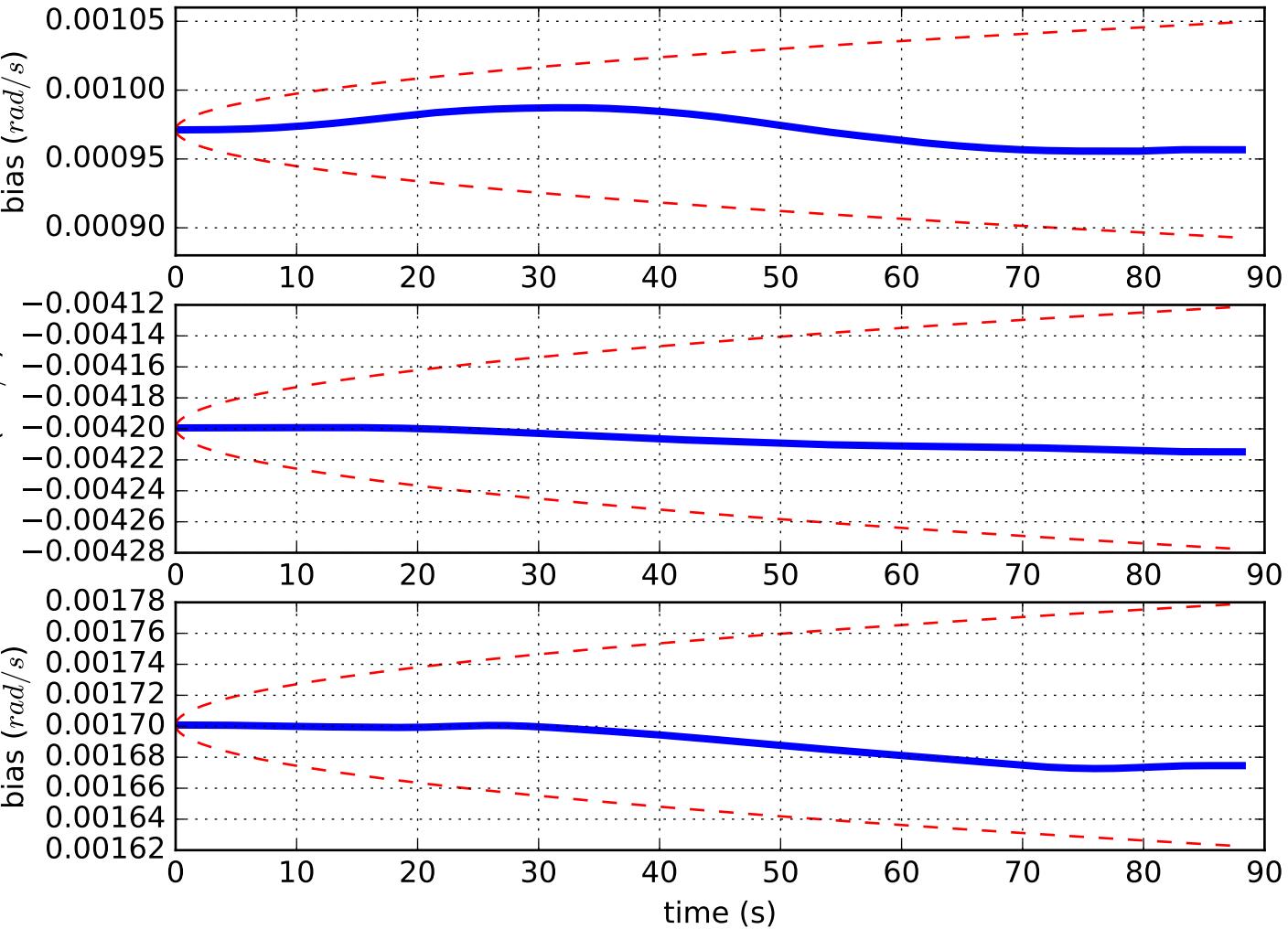
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

