

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 17.2112697166, median 8.65201476087, std: 22.8595679224

Gyroscope error (imu0): mean 65.3359628026, median 51.1301780337, std: 52.1674763089

Accelerometer error (imu0): mean 1017.59016506, median 1160.86282025, std: 862.950811051

Residuals

Reprojection error (cam0) [px]: mean 17.2112697166, median 8.65201476087, std: 22.8595679224

Gyroscope error (imu0) [rad/s]: mean 12.2744636365, median 9.60566714075, std: 9.80054113378

Accelerometer error (imu0) [m/s^2]: mean 4.39050897402, median 5.00867520628, std: 3.72329982163

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.99854655 0.03641605 -0.0397324 0.01300375]
[-0.04480179 -0.97064056 0.23632542 -0.01188766]
[-0.02995984 0.23776202 0.97086128 -0.05042454]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.99854655 -0.04480179 -0.02995984 0.01094155]
[0.03641605 -0.97064056 0.23776202 -0.00002315]
[-0.0397324 0.23632542 0.97086128 0.05228126]
[0. 0. 0. 1.]]

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

0.017648762216

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

[0.1233915 -9.80003028 -0.33556518]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [647.5037713837596, 860.2835166759764]
Principal point: [300.2422691674086, 231.85601047756396]
Distortion model: radtan
Distortion coefficients: [0.16886766443276924, -0.27983955532486726, 0.0023200396979456417, -0.003111586927134966]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.02 [m]
 Spacing 0.006 [m]

IMU configuration

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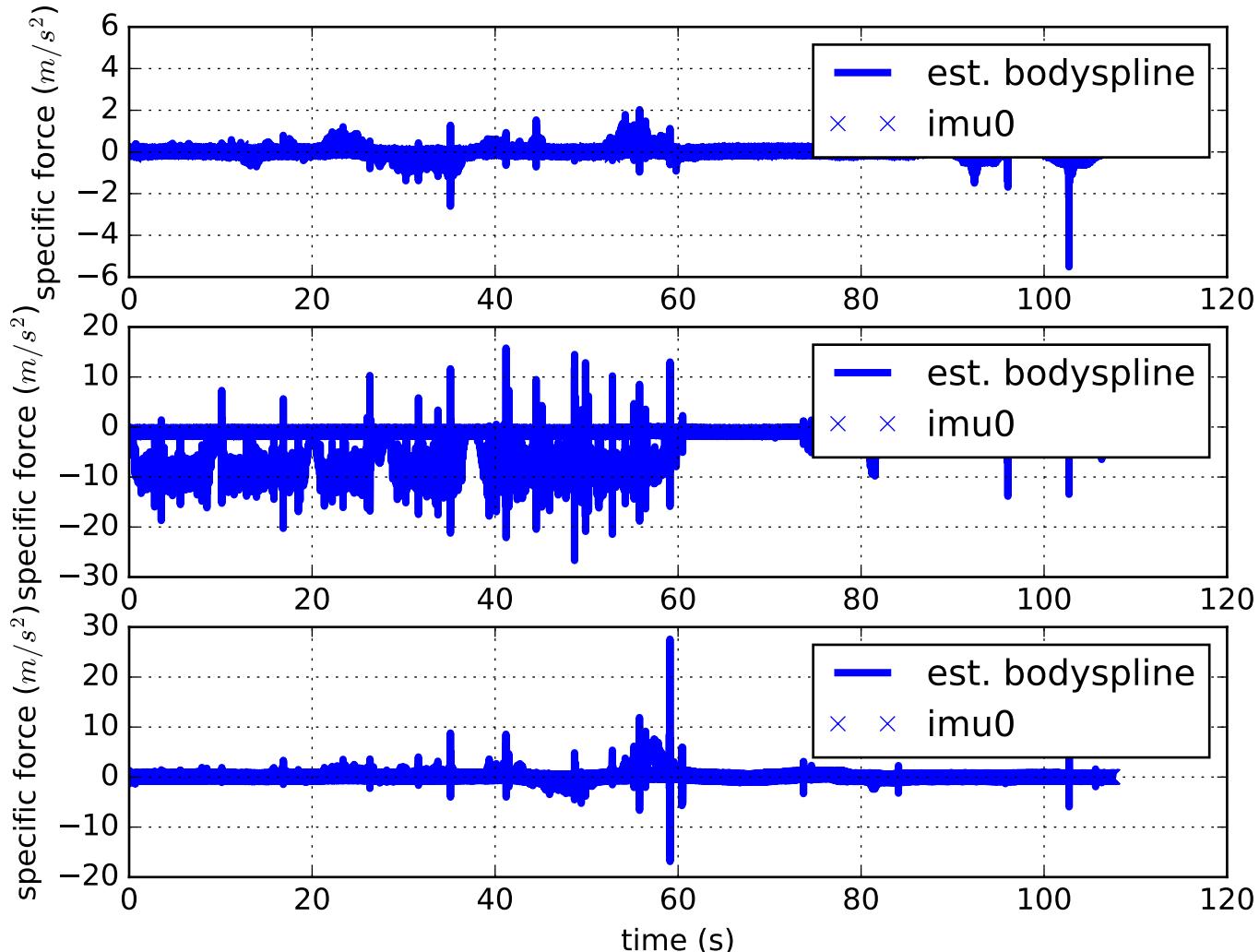
IMU0:

 Model: calibrated
 Update rate: 100.0
 Accelerometer:
 Noise density: 0.00043146141981
 Noise density (discrete): 0.0043146141981
 Random walk: 0.000612122072734
 Gyroscope:
 Noise density: 0.0187866882342
 Noise density (discrete): 0.187866882342
 Random walk: 0.00214450075787

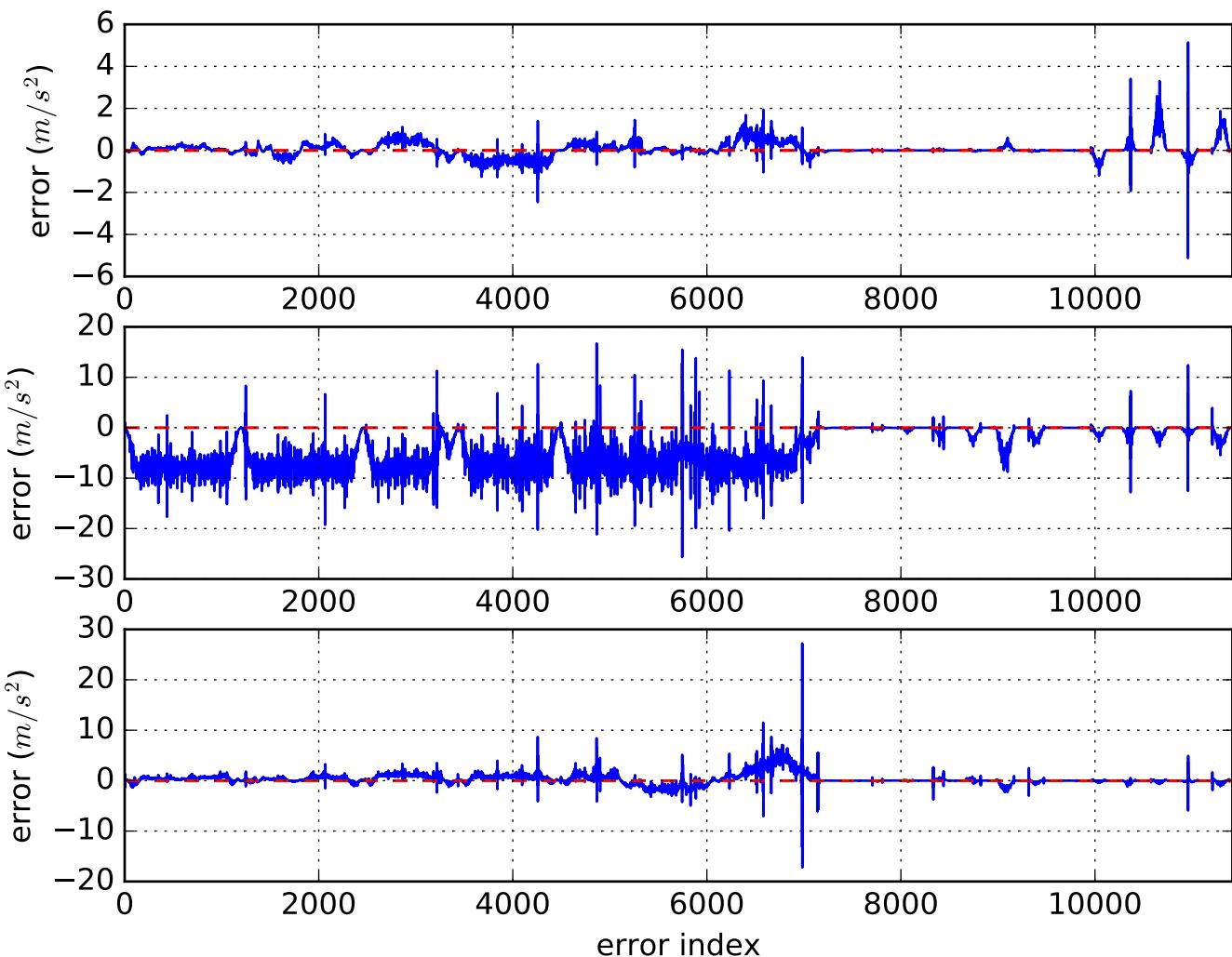
$T_{i,b}$
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

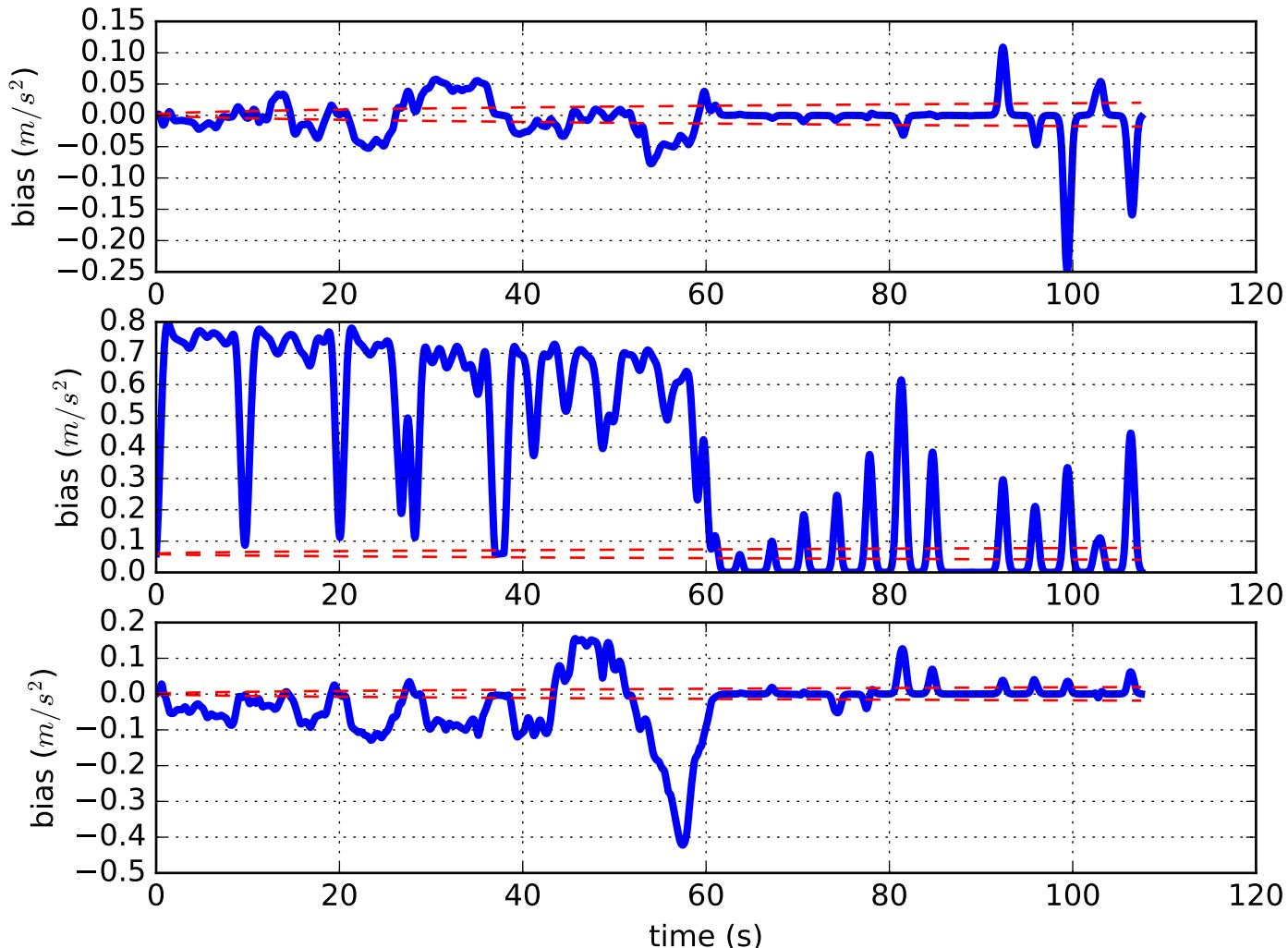
Comparison of predicted and measured specific force (imu0 frame)



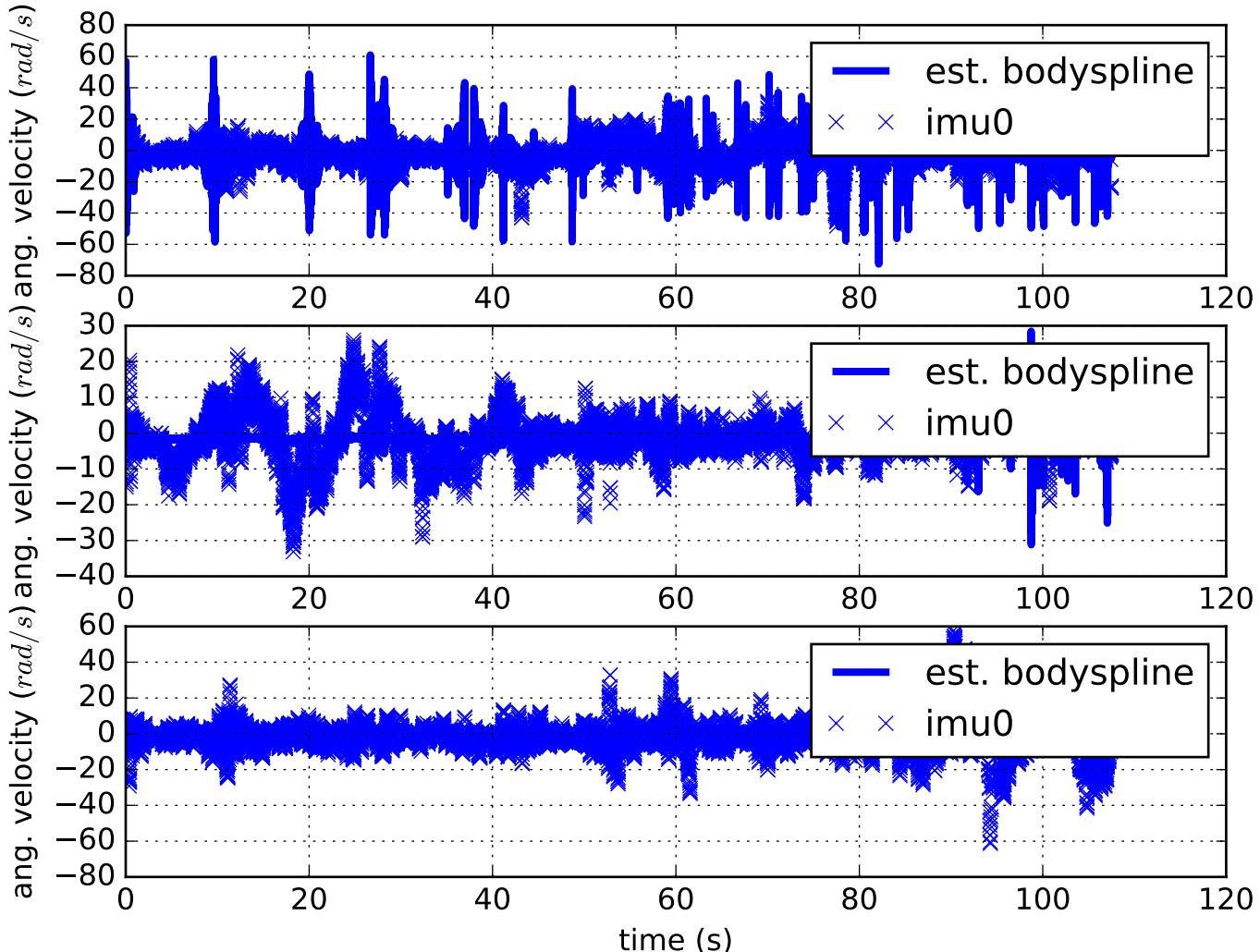
imu0: acceleration error



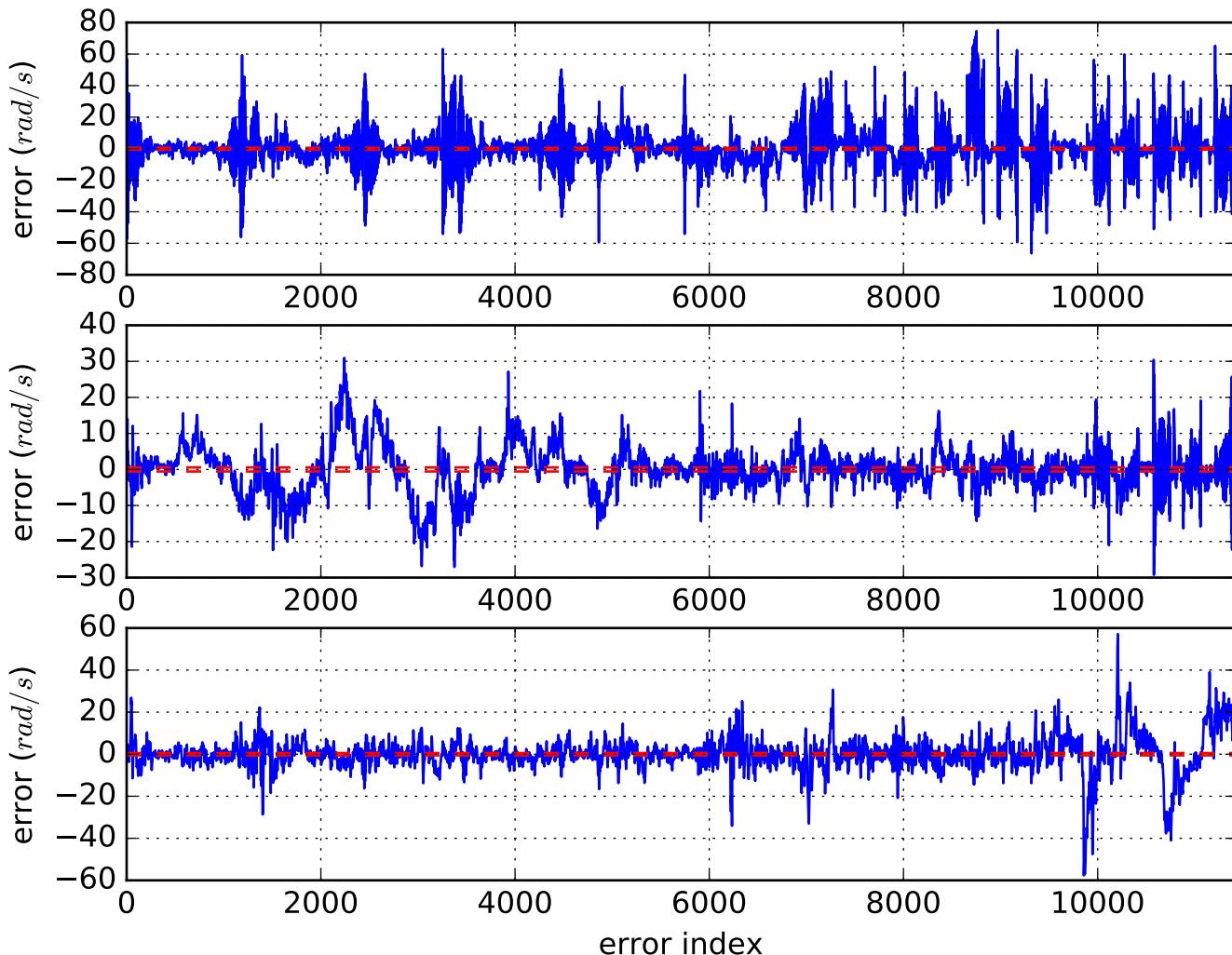
imu0: estimated accelerometer bias (imu frame)



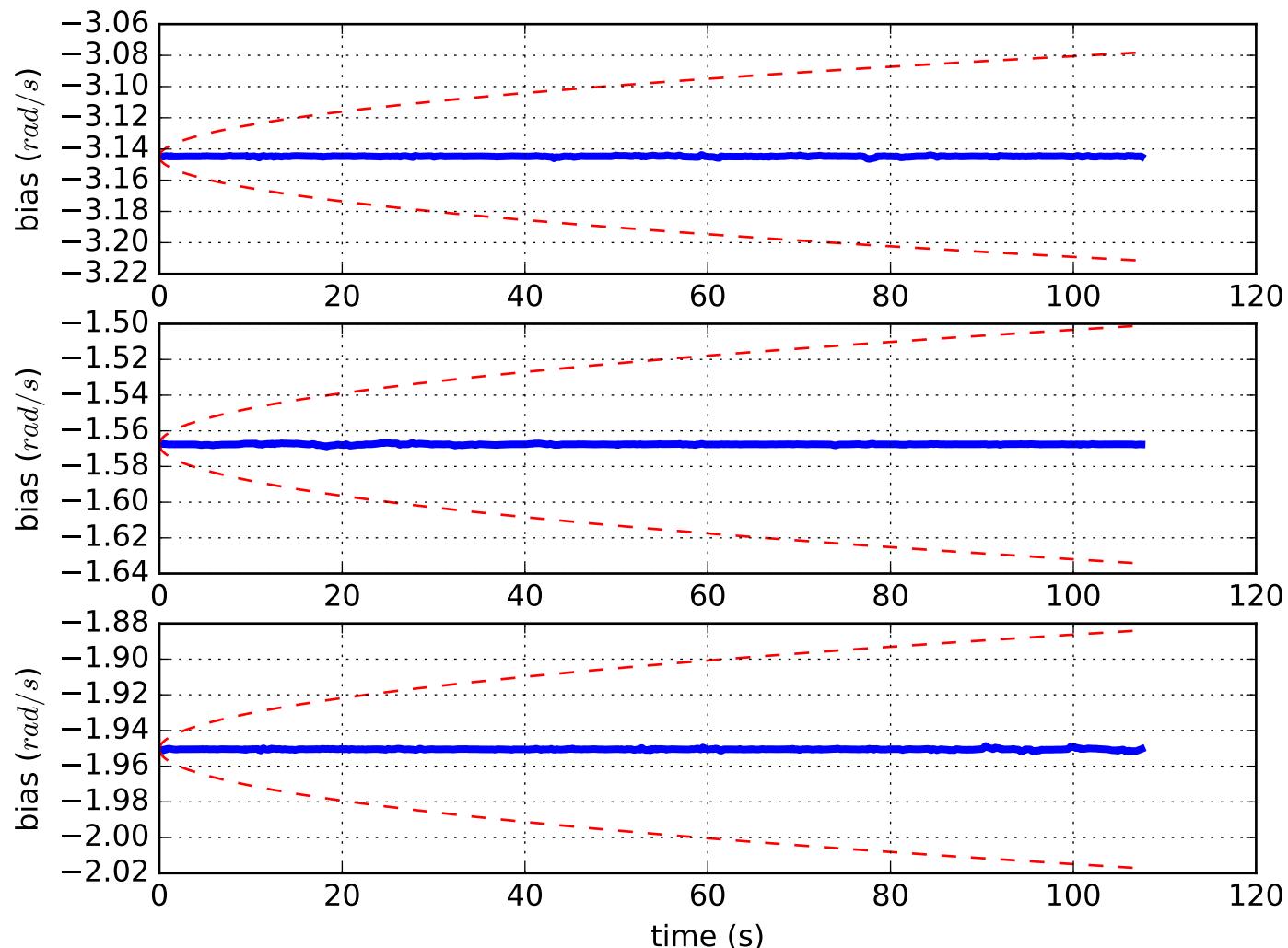
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

