

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.554760172633, median 0.513776826221, std: 0.300469308257

Gyroscope error (imu0): mean 0.494935014786, median 0.400644936616, std: 0.381916737117

Accelerometer error (imu0): mean 1.52279337043, median 1.81380935401, std: 0.861742171083

Residuals

Reprojection error (cam0) [px]: mean 0.554760172633, median 0.513776826221, std: 0.300469308257

Gyroscope error (imu0) [rad/s]: mean 9.29818981895, median 7.5267915168, std: 7.17495067163

Accelerometer error (imu0) [m/s^2]: mean 6.57026589682, median 7.82588759145, std: 3.71808500646

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.99743811 0.01273141 0.07039265 -0.00054265]
[0.00377688 -0.97328979 0.22954894 -0.00100938]
[0.07143493 0.22922672 0.97074825 -0.00155808]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.99743811 0.00377688 0.07143493 -0.00042614]
[0.01273141 -0.97328979 0.22922672 -0.00061835]
[0.07039265 0.22954894 0.97074825 0.00178241]
[0. 0. 0. 1.]]

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

-0.0172803491051

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

[0.43861995 -9.76681029 -0.76514846]

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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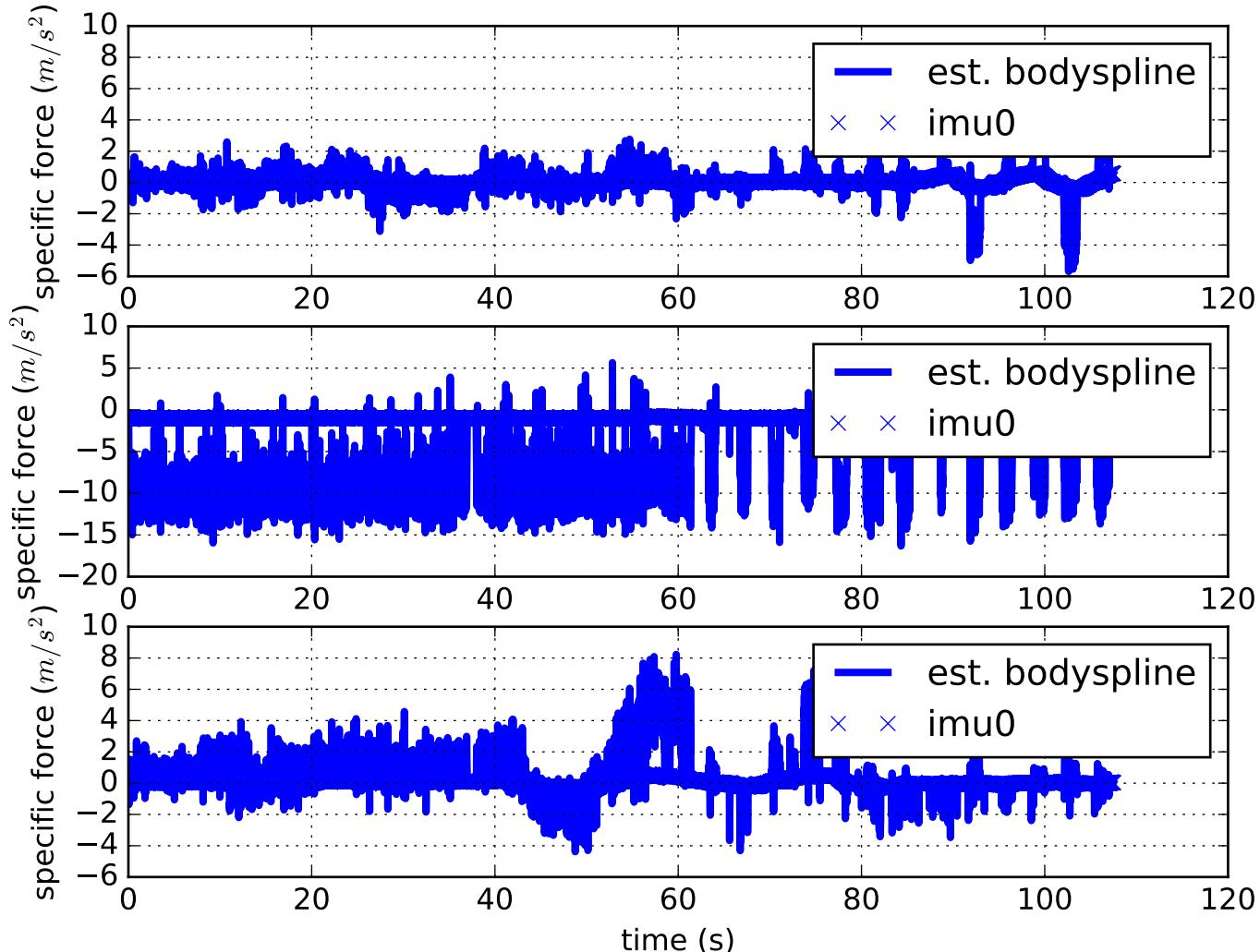
IMU0:

 Model: calibrated
 Update rate: 100.0
 Accelerometer:
 Noise density: 0.43146141981
 Noise density (discrete): 4.3146141981
 Random walk: 0.612122072734
 Gyroscope:
 Noise density: 1.87866882342
 Noise density (discrete): 18.7866882342
 Random walk: 0.214450075787

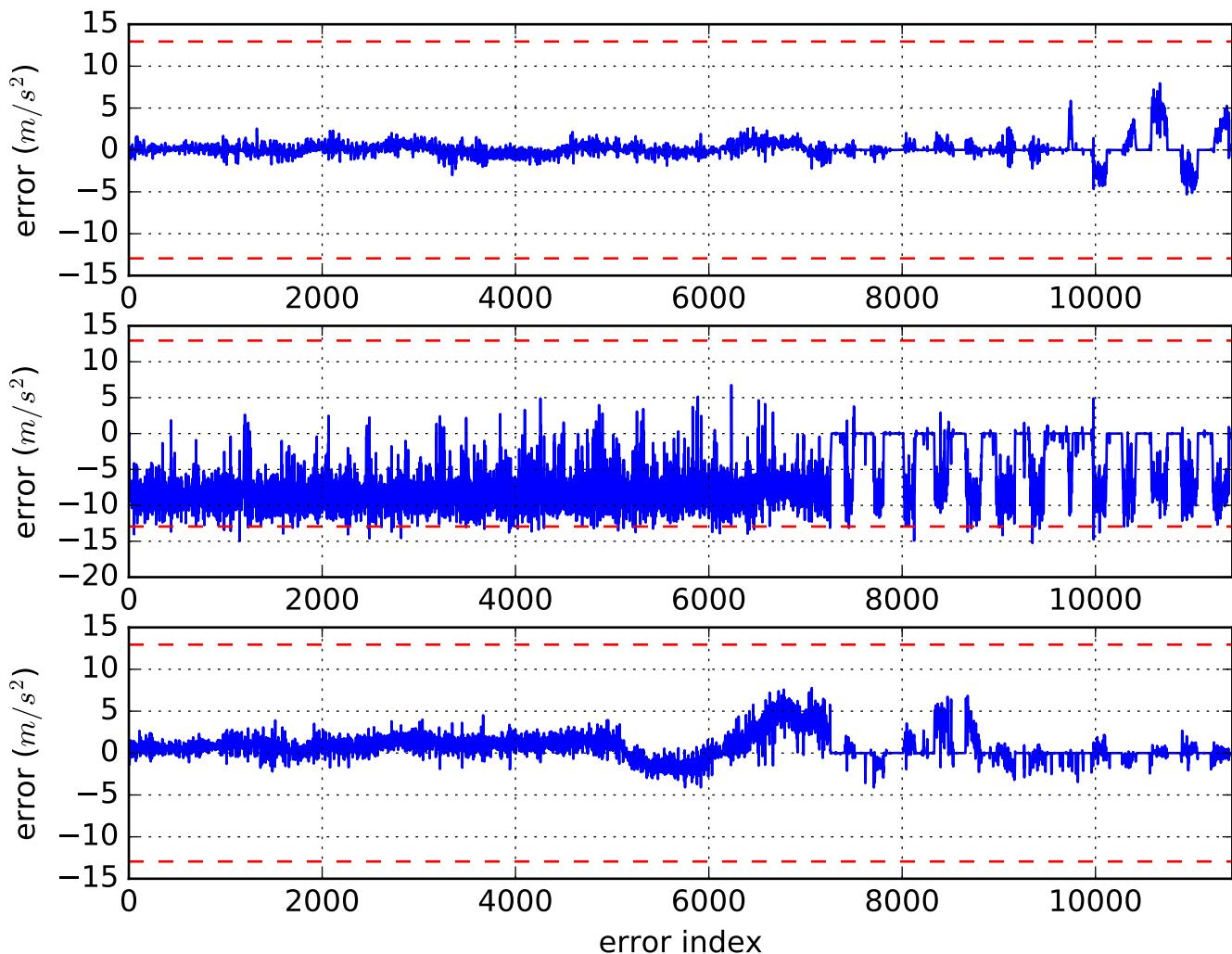
T_i_b
[[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

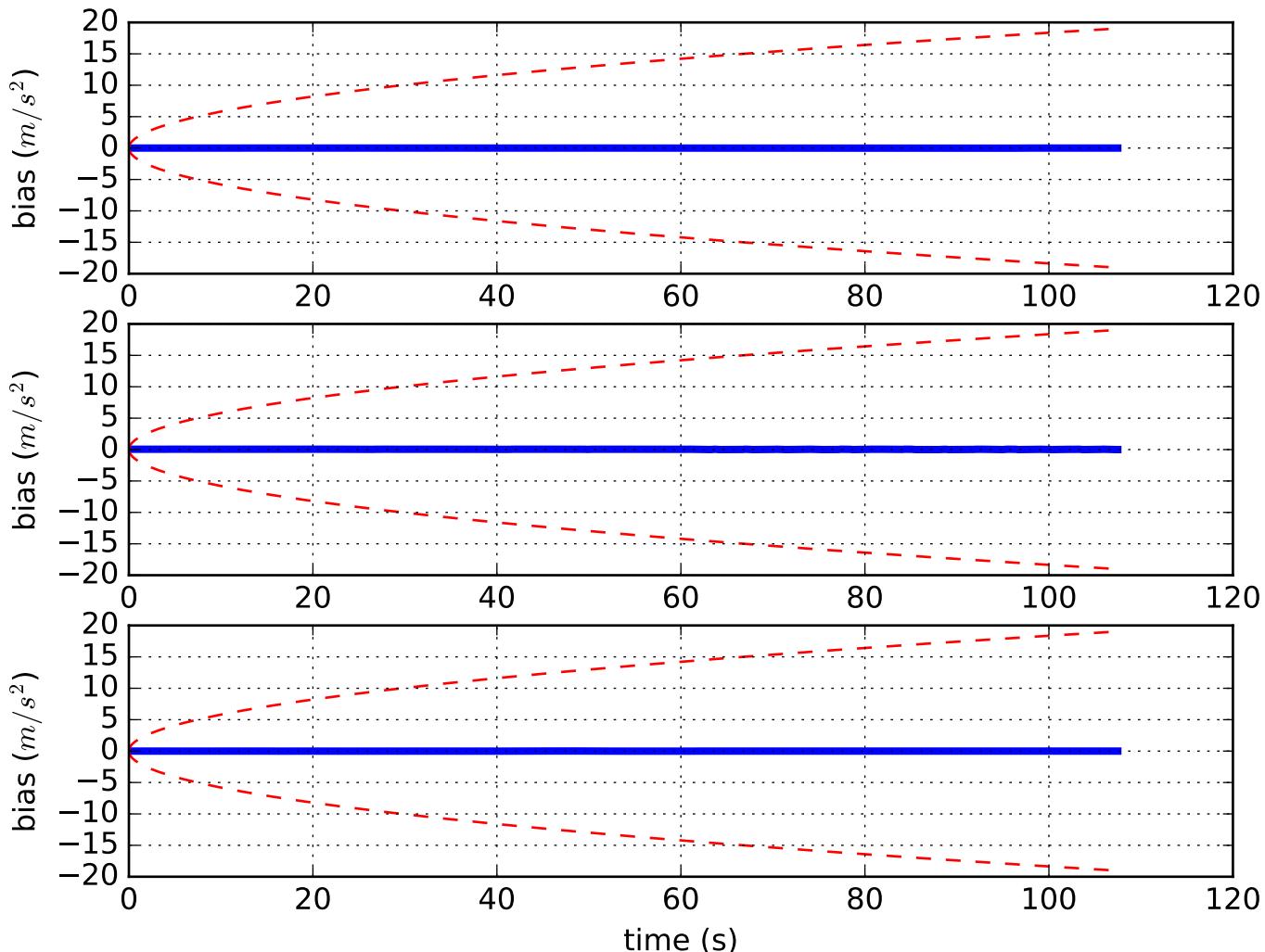
Comparison of predicted and measured specific force (imu0 frame)



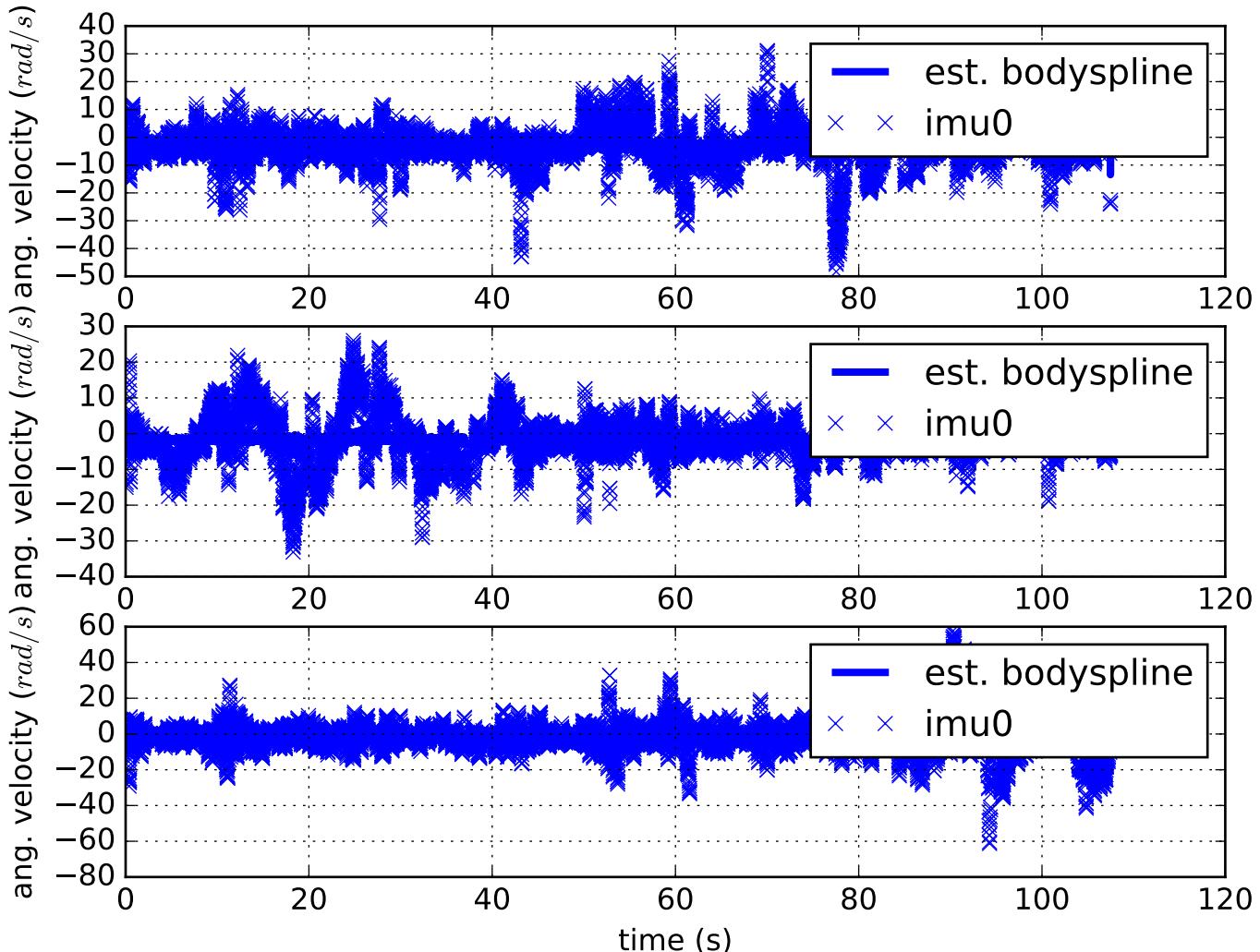
imu0: acceleration error



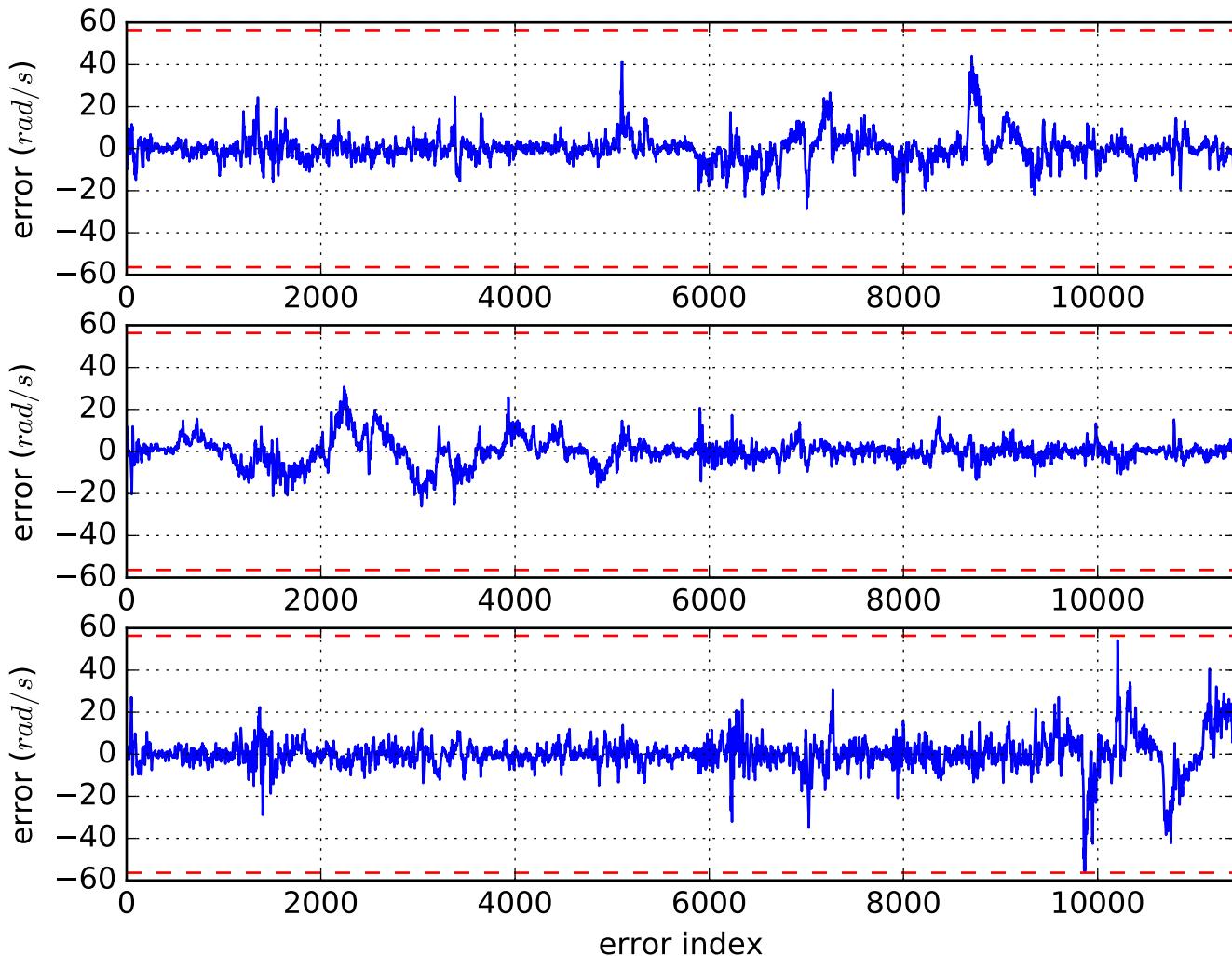
imu0: estimated accelerometer bias (imu frame)



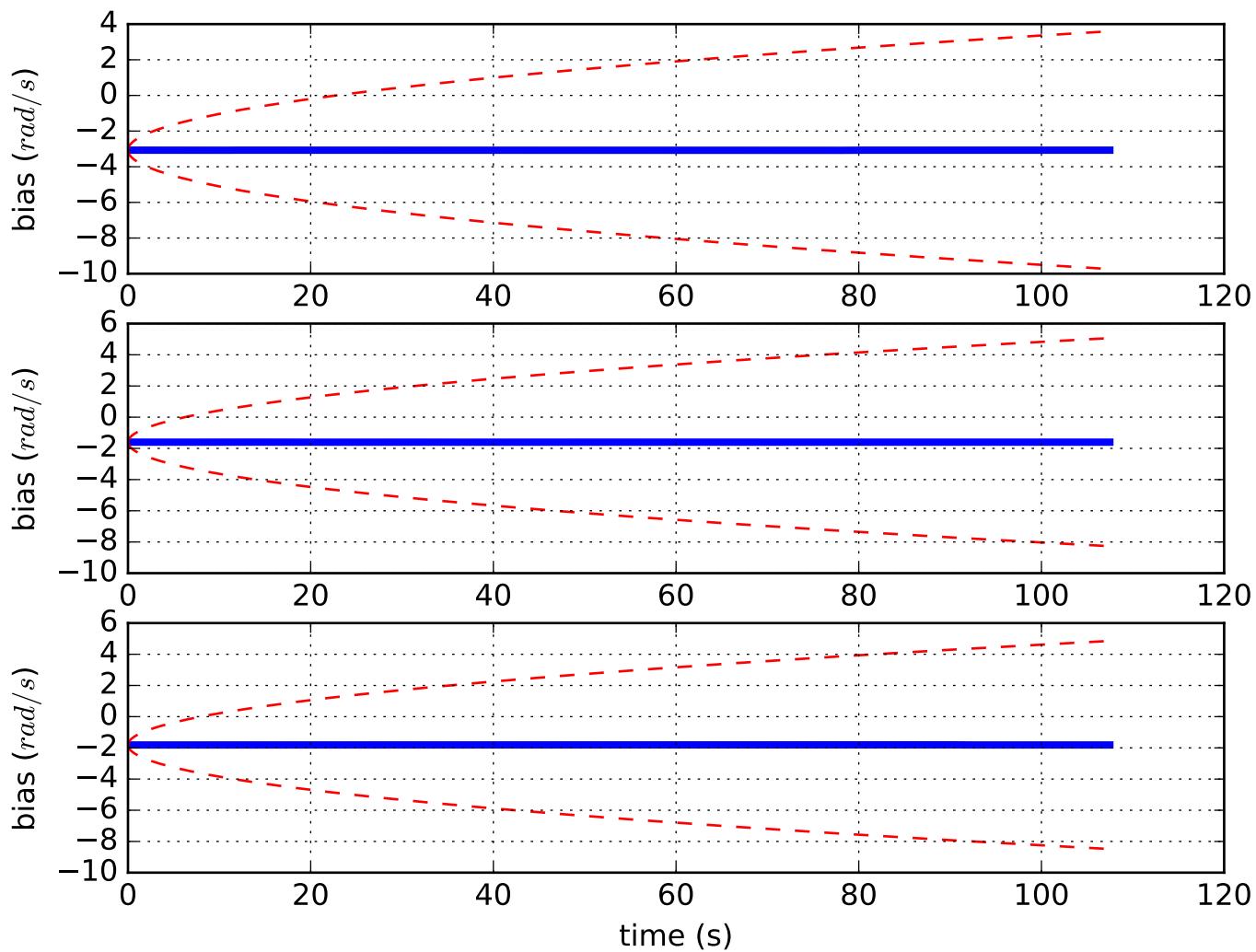
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

