

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.227277624041, median 0.190397655122, std: 0.166869229682

Gyroscope error (imu0): mean 0.957618890308, median 0.829446862828, std: 0.603979418086

Accelerometer error (imu0): mean 0.199265941183, median 0.129372319375, std: 0.231151356514

Residuals

Reprojection error (cam0) [px]: mean 0.227277624041, median 0.190397655122, std: 0.166869229682

Gyroscope error (imu0) [rad/s]: mean 18.5905400574, median 16.1022984038, std: 11.7252319053

Accelerometer error (imu0) [m/s^2]: mean 0.00150082492528, median 0.000974402350987, std: 0.0017409784899

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.9916817 -0.09960713 -0.08152191 -0.11136856]
[0.10288007 0.99400636 0.03697371 0.02085315]
[0.07735045 -0.04505313 0.9959855 -0.03610183]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.9916817 0.10288007 0.07735045 0.11108928]
[-0.09960713 0.99400636 -0.04505313 -0.03344777]
[-0.08152191 0.03697371 0.9959855 0.0261069]
[0. 0. 0. 1.]]

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

0.0240181853991

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

[-1.41465964 -9.70321885 -0.12126409]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [657.6283690104826, 874.8200413515597]
Principal point: [295.29354482420024, 230.72956849302324]
Distortion model: radtan
Distortion coefficients: [0.21423558354382966, -0.30586368141414483, -0.00030595444685297177, -0.009906257253676505]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.03 [m]
 Spacing 0.009 [m]

IMU configuration

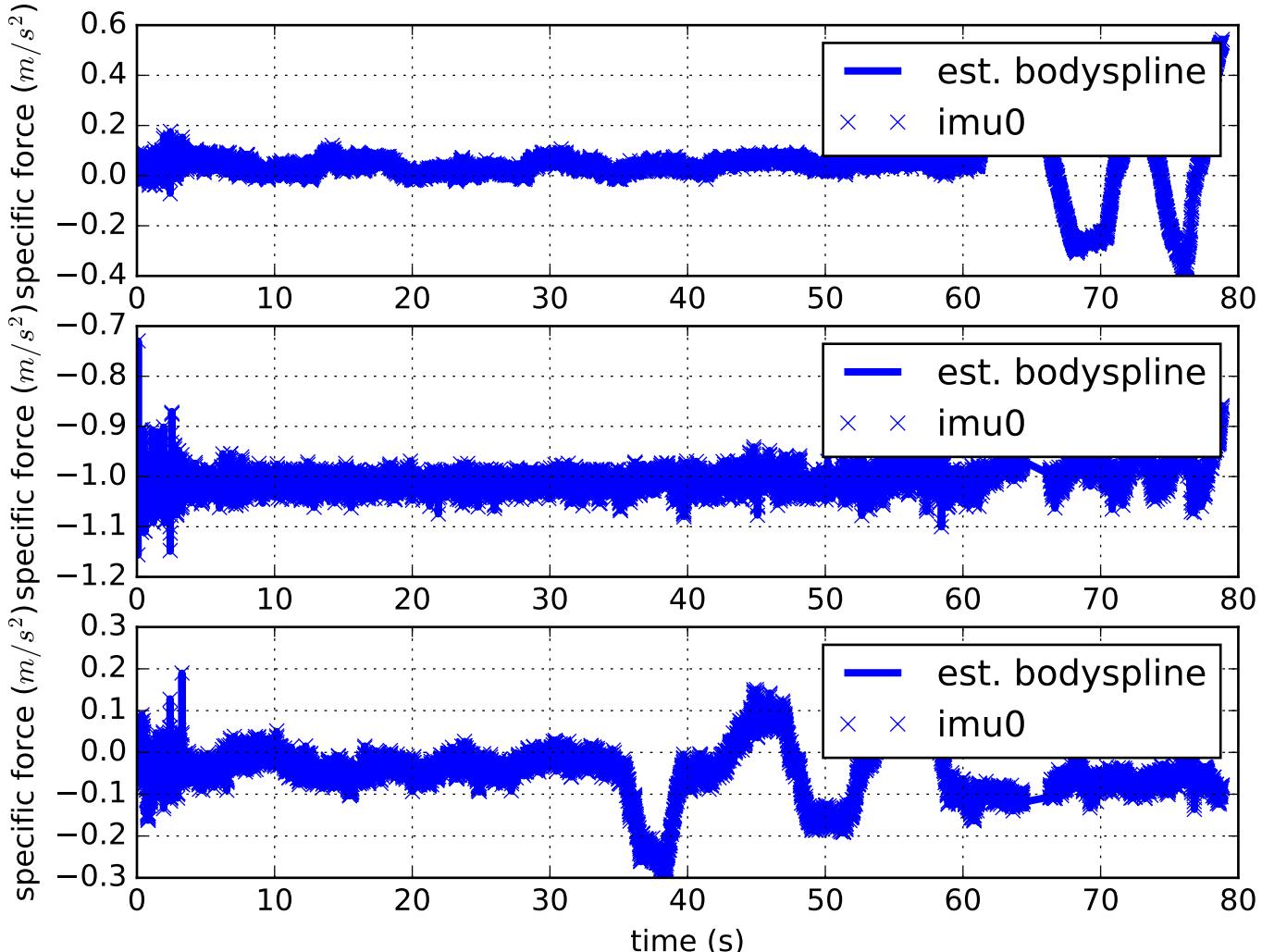
IMU0:

 Model: calibrated
 Update rate: 100.0
 Accelerometer:
 Noise density: 0.000753176843155
 Noise density (discrete): 0.00753176843155
 Random walk: 0.000495131527336
 Gyroscope:
 Noise density: 1.94132971327
 Noise density (discrete): 19.4132971327
 Random walk: 0.263736983586

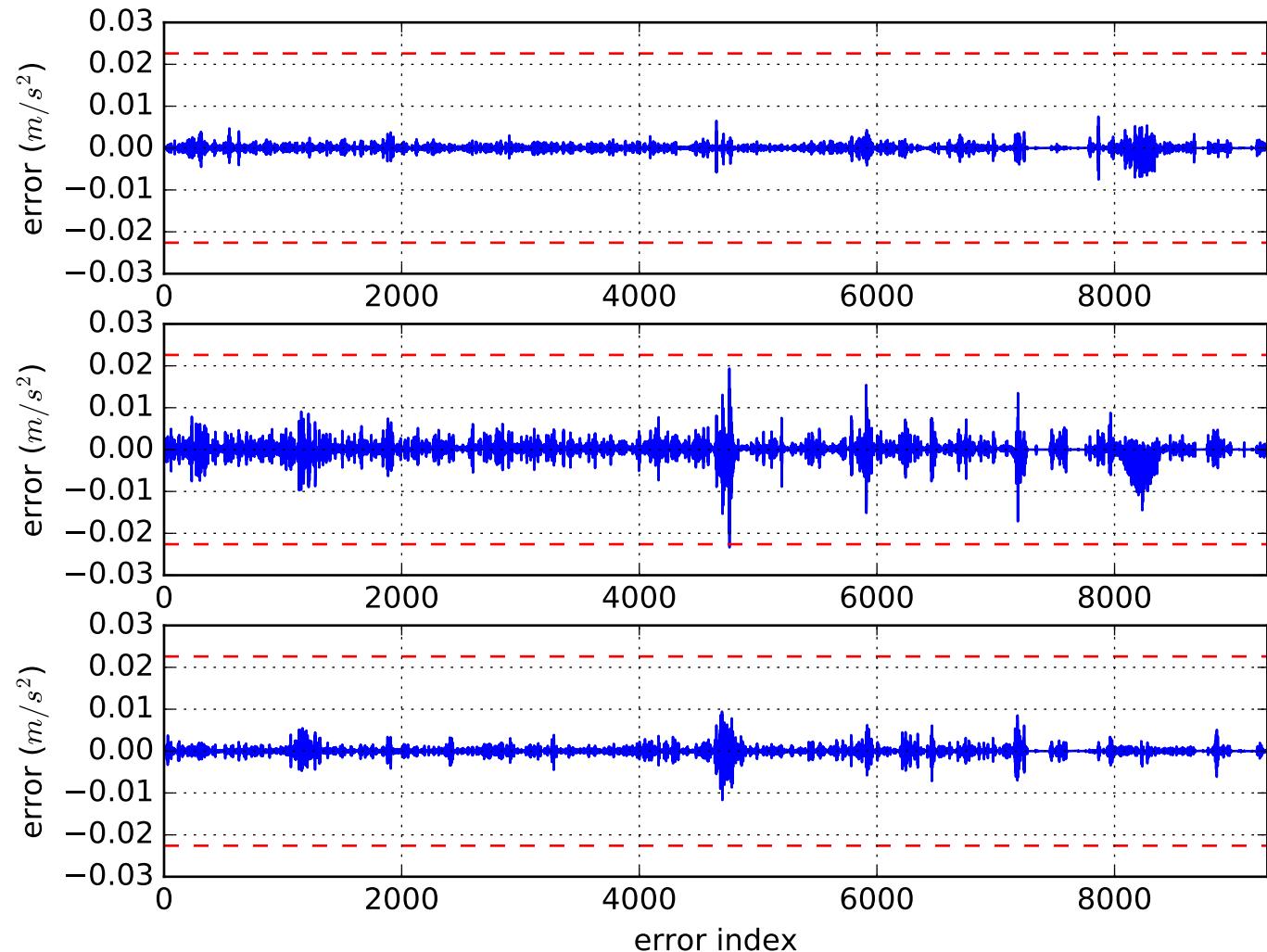
 T_i_b
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

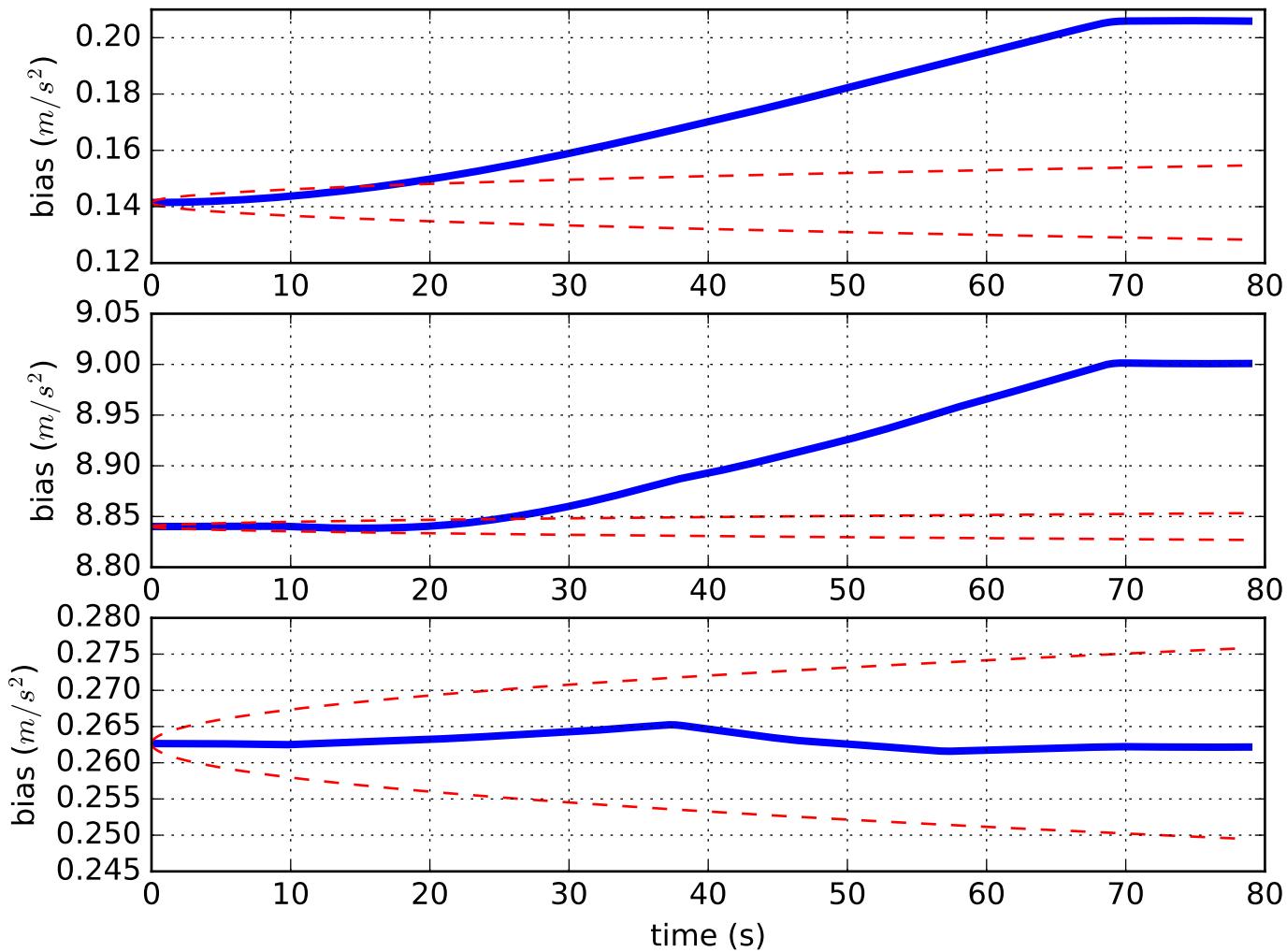
Comparison of predicted and measured specific force (imu0 frame)



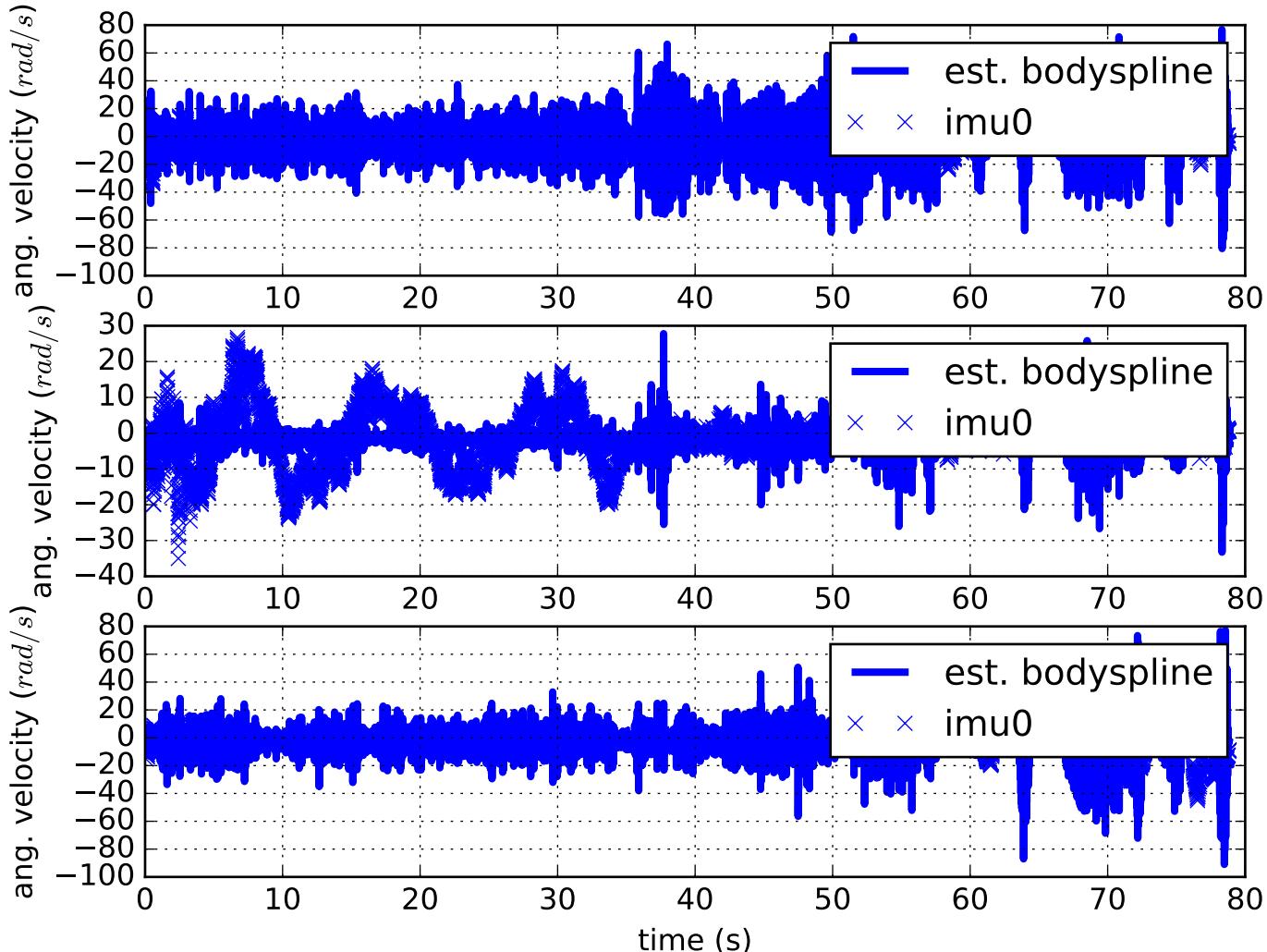
imu0: acceleration error



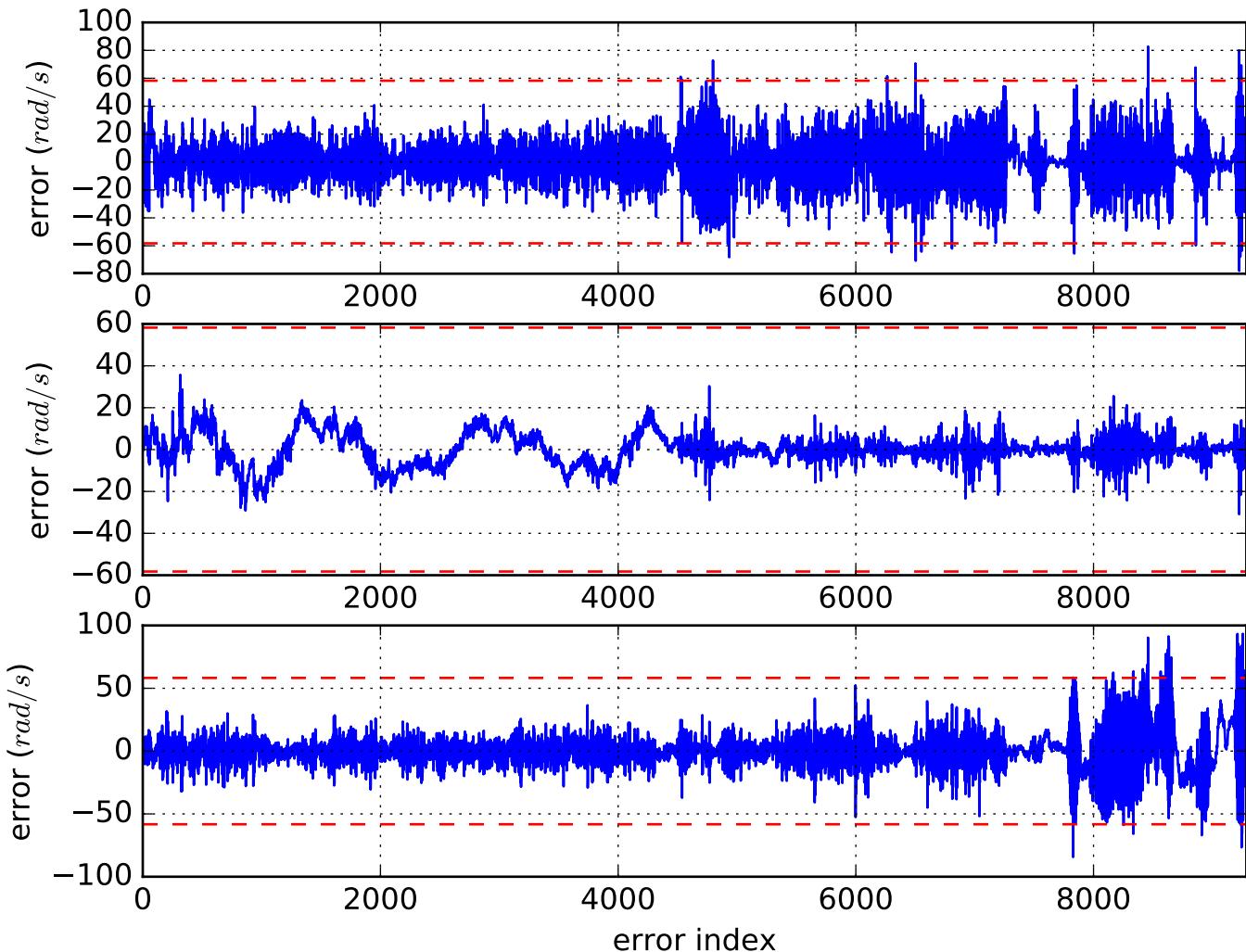
imu0: estimated accelerometer bias (imu frame)



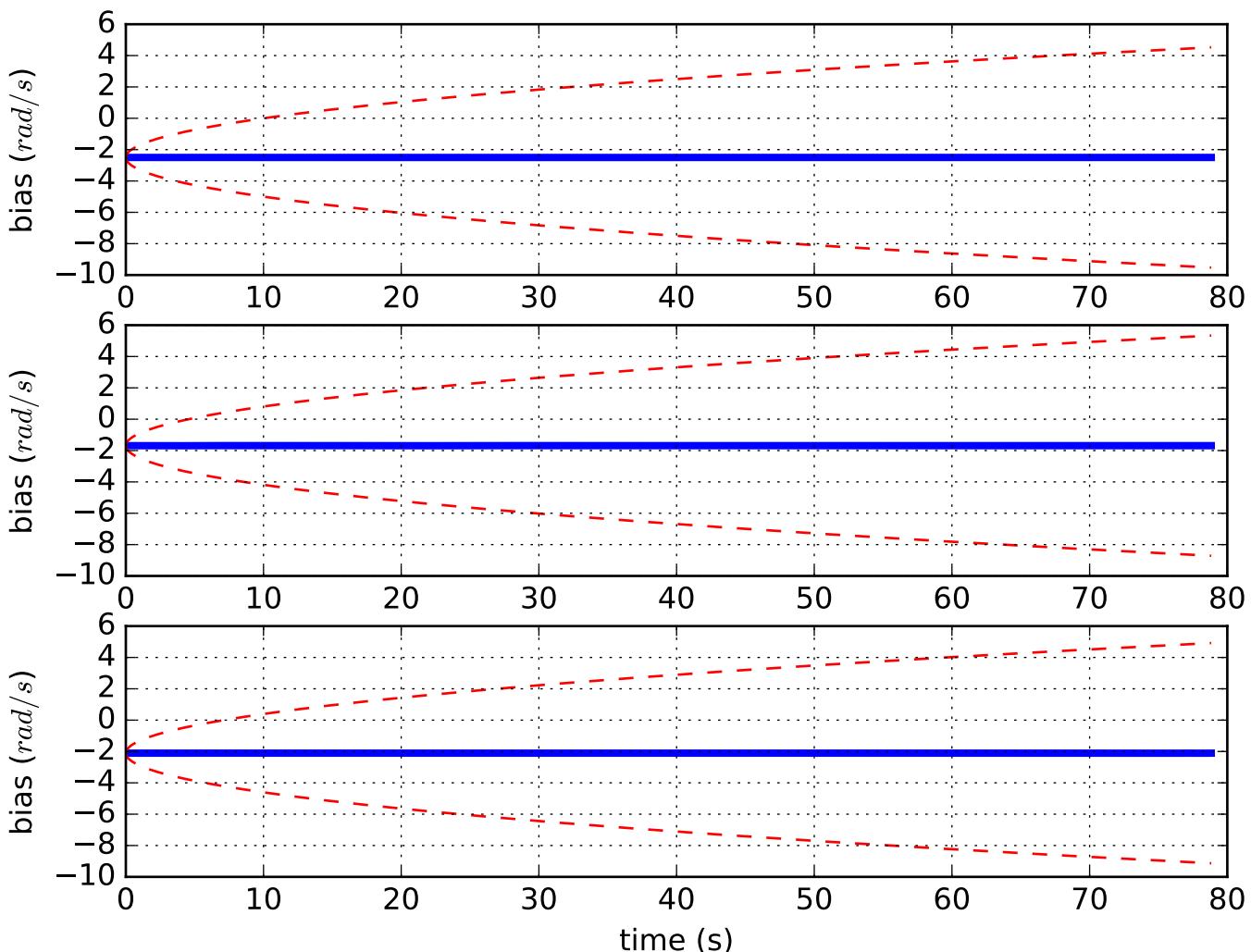
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

