

Calibration results

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Normalized Residuals

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Reprojection error (cam0): mean 1.09550370434, median 0.429950419264, std: 1.93867803501

Gyroscope error (imu0): mean 4.54713241124, median 3.91487046945, std: 3.01790197573

Accelerometer error (imu0): mean 74.9011405285, median 81.8567489755, std: 30.6220783464

Residuals

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Reprojection error (cam0) [px]: mean 1.09550370434, median 0.429950419264, std: 1.93867803501

Gyroscope error (imu0) [rad/s]: mean 8.82748326011, median 7.60005436593, std: 5.85874277721

Accelerometer error (imu0) [m/s^2]: mean 5.64138045719, median 6.16526077843, std: 2.30638402998

Transformation (cam0):

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T\_ci: (imu0 to cam0):

[ [ 0.99827655 0.04058665 0.04238702 -0.02785058 ]  
[ -0.03855045 0.99811279 -0.0477988 -0.04172971 ]  
[ -0.04424702 0.04608238 0.99795722 -0.23016337 ]  
[ 0. 0. 0. 1. ] ]

T\_ic: (cam0 to imu0):

[ [ 0.99827655 -0.03855045 -0.04424702 0.01600984 ]  
[ 0.04058665 0.99811279 0.04608238 0.0533878 ]  
[ 0.04238702 -0.0477988 0.99795722 0.22887907 ]  
[ 0. 0. 0. 1. ] ]

timeshift cam0 to imu0: [s] (t\_imu = t\_cam + shift)

-0.0123473063624

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

[ -0.29644978 -9.72699077 -1.21086373 ]

Calibration configuration

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cam0

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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

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### IMU0:

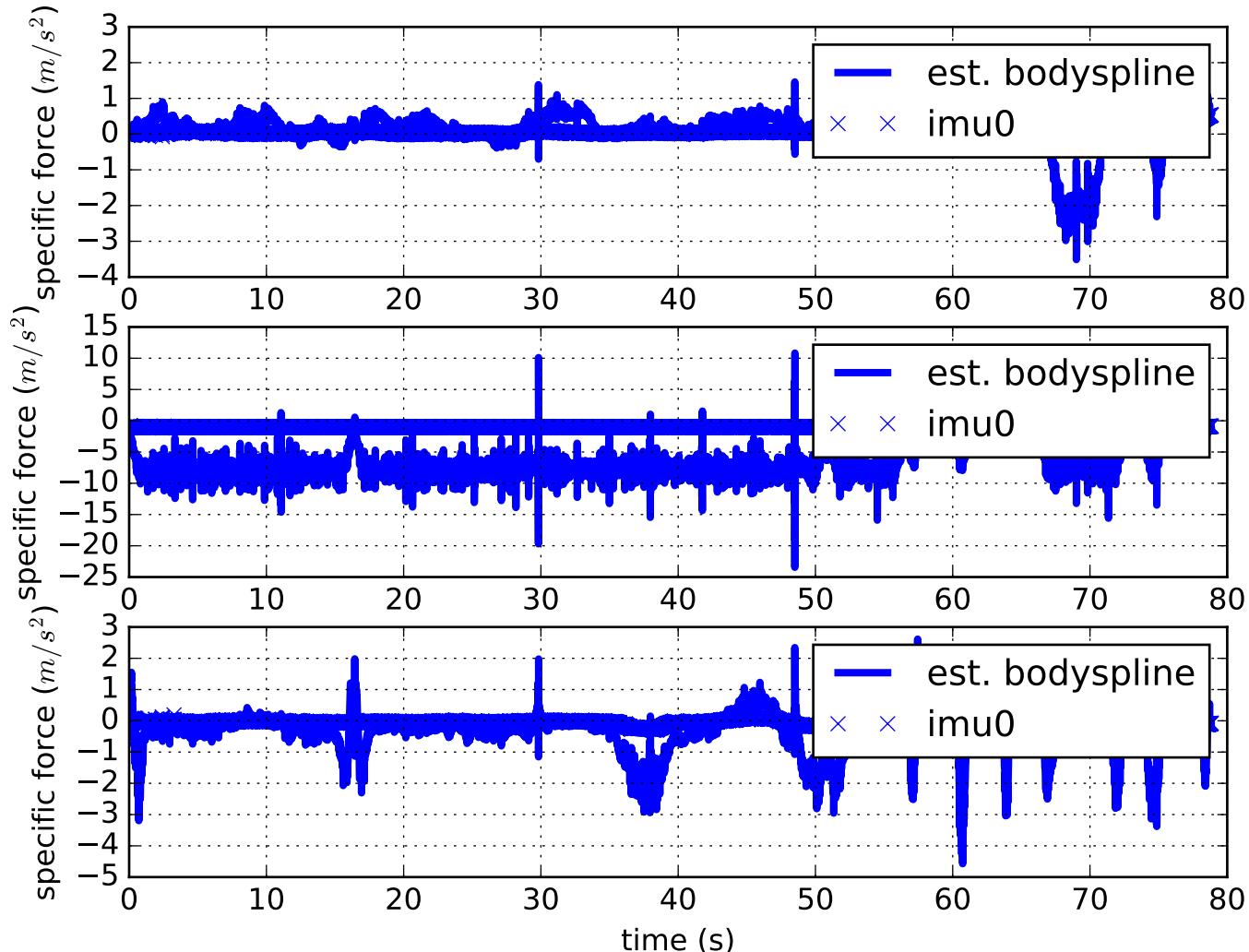
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  Model: calibrated  
  Update rate: 100.0  
  Accelerometer:  
    Noise density: 0.00753176843155  
    Noise density (discrete): 0.0753176843155  
    Random walk: 0.00495131527336  
  Gyroscope:  
    Noise density: 0.194132971327  
    Noise density (discrete): 1.94132971327  
    Random walk: 0.0263736983586

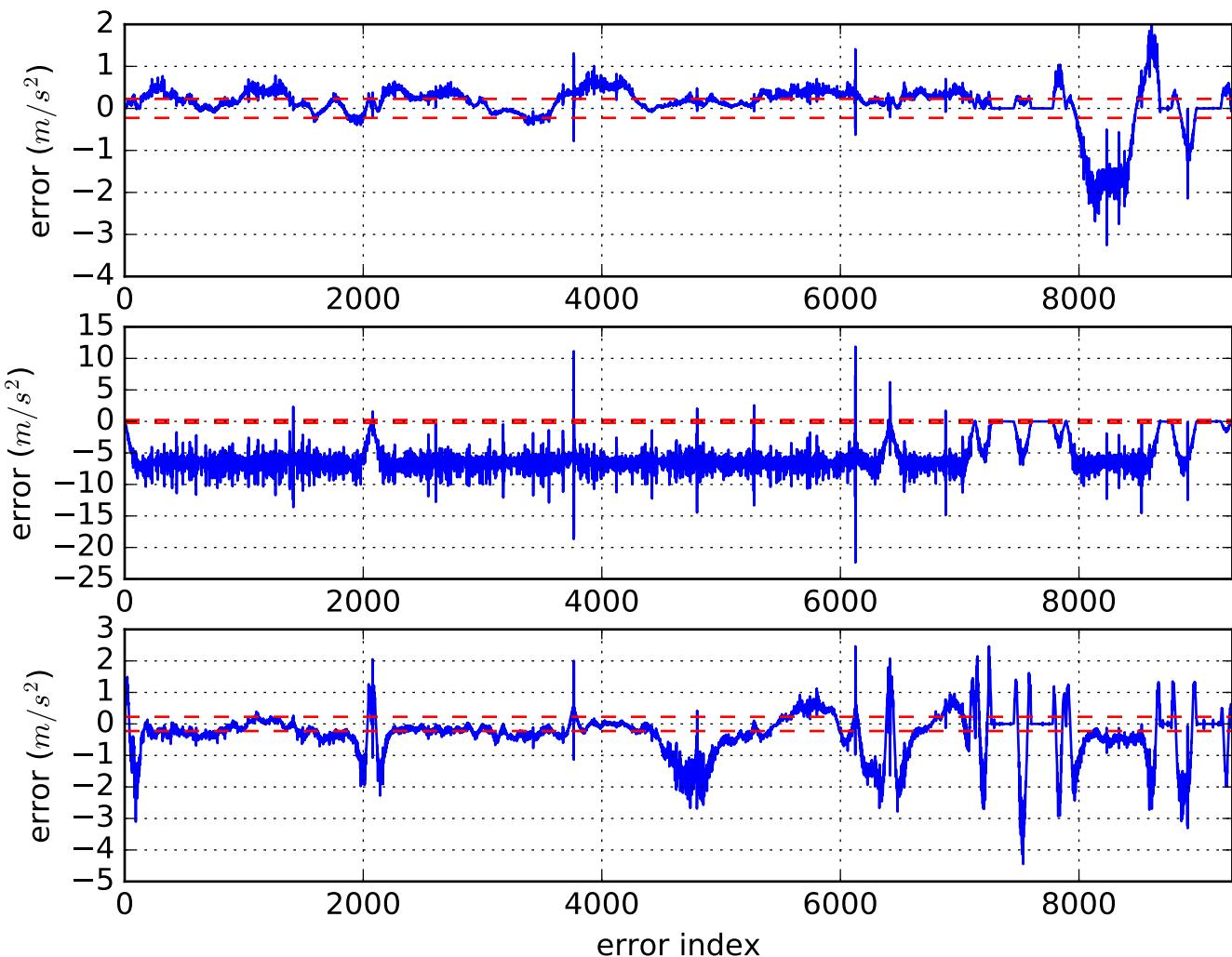
  T\_i\_b  
  [[ 1. 0. 0. 0.]  
   [ 0. 1. 0. 0.]  
   [ 0. 0. 1. 0.]  
   [ 0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

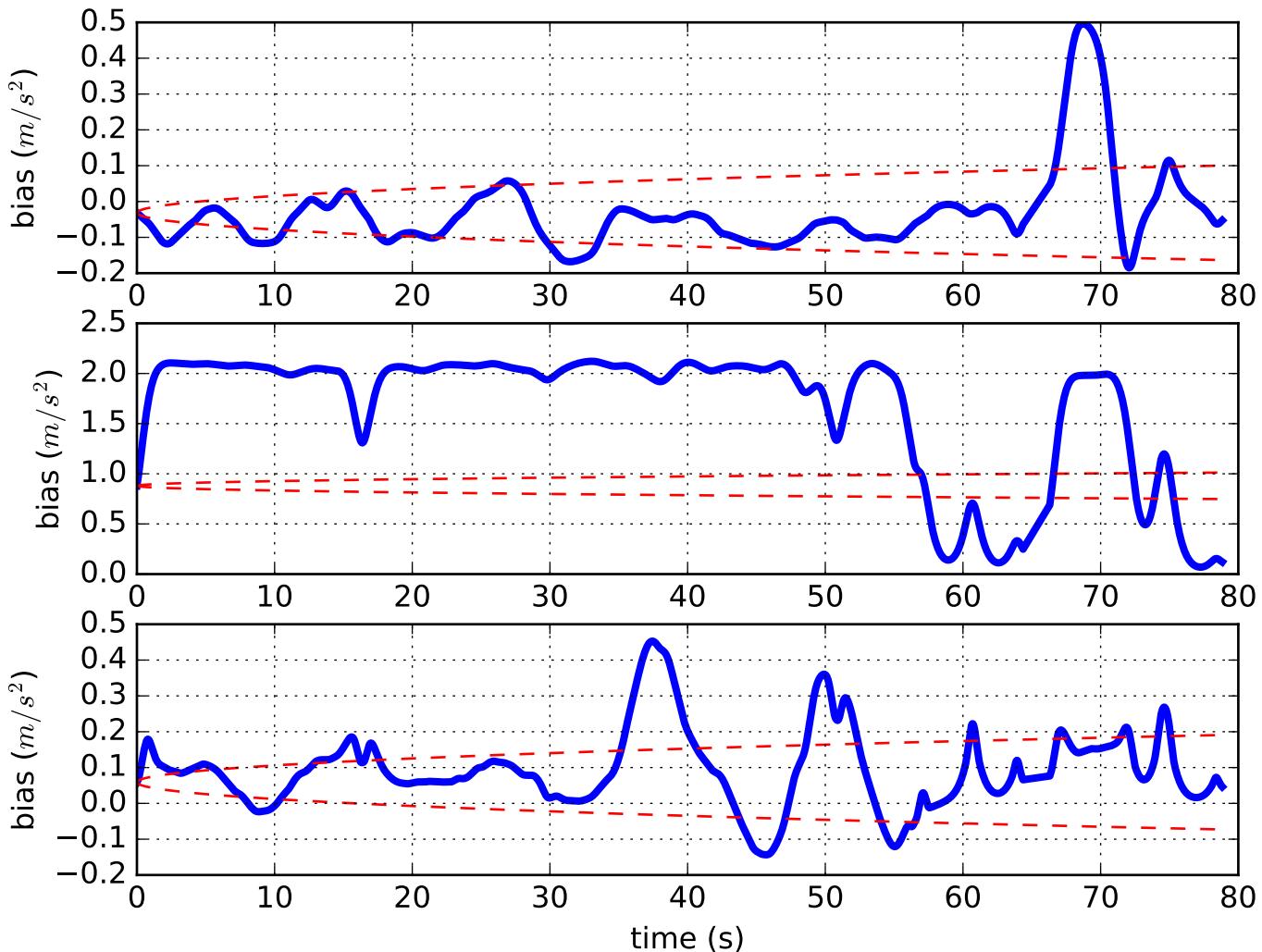
Comparison of predicted and measured specific force (imu0 frame)



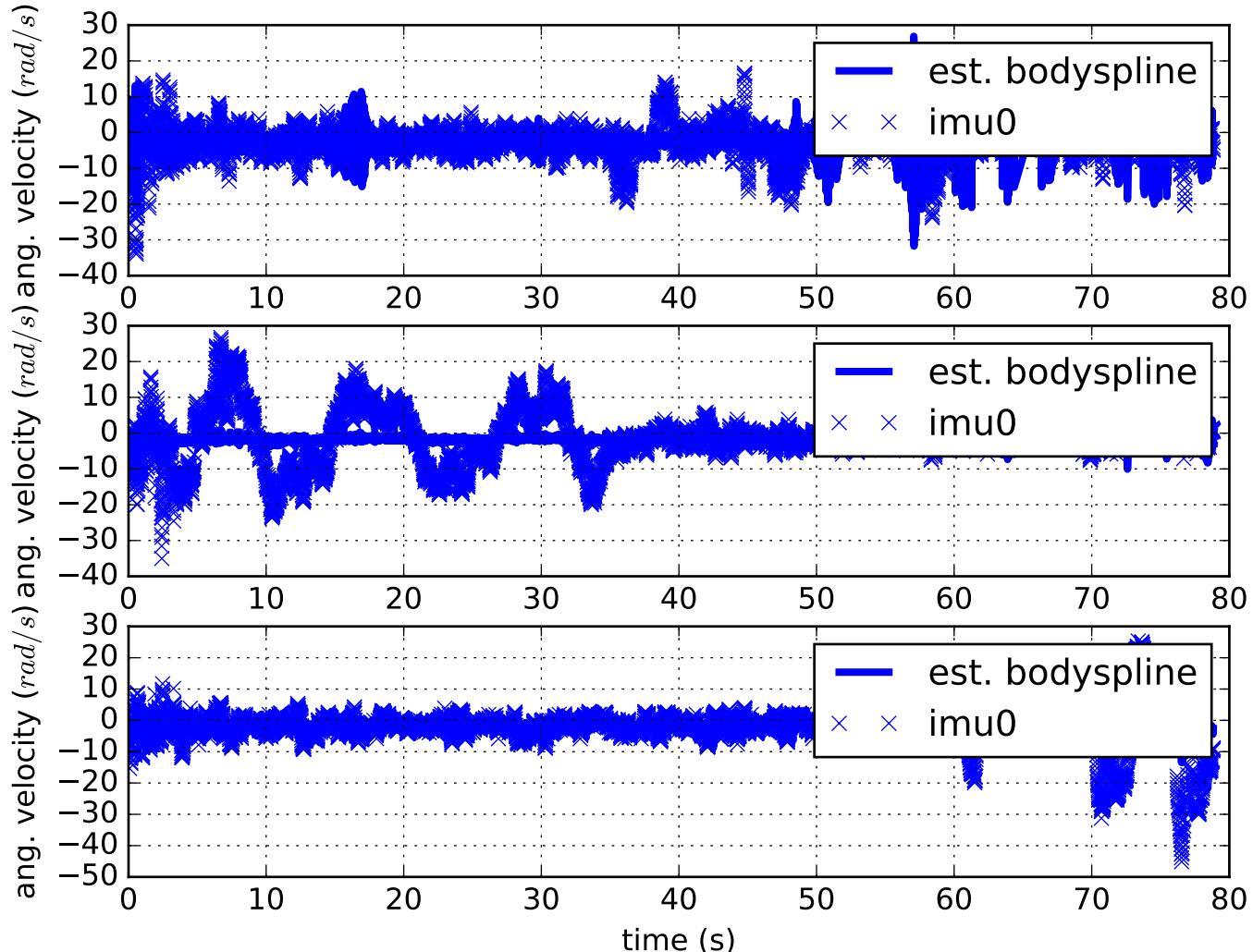
# imu0: acceleration error



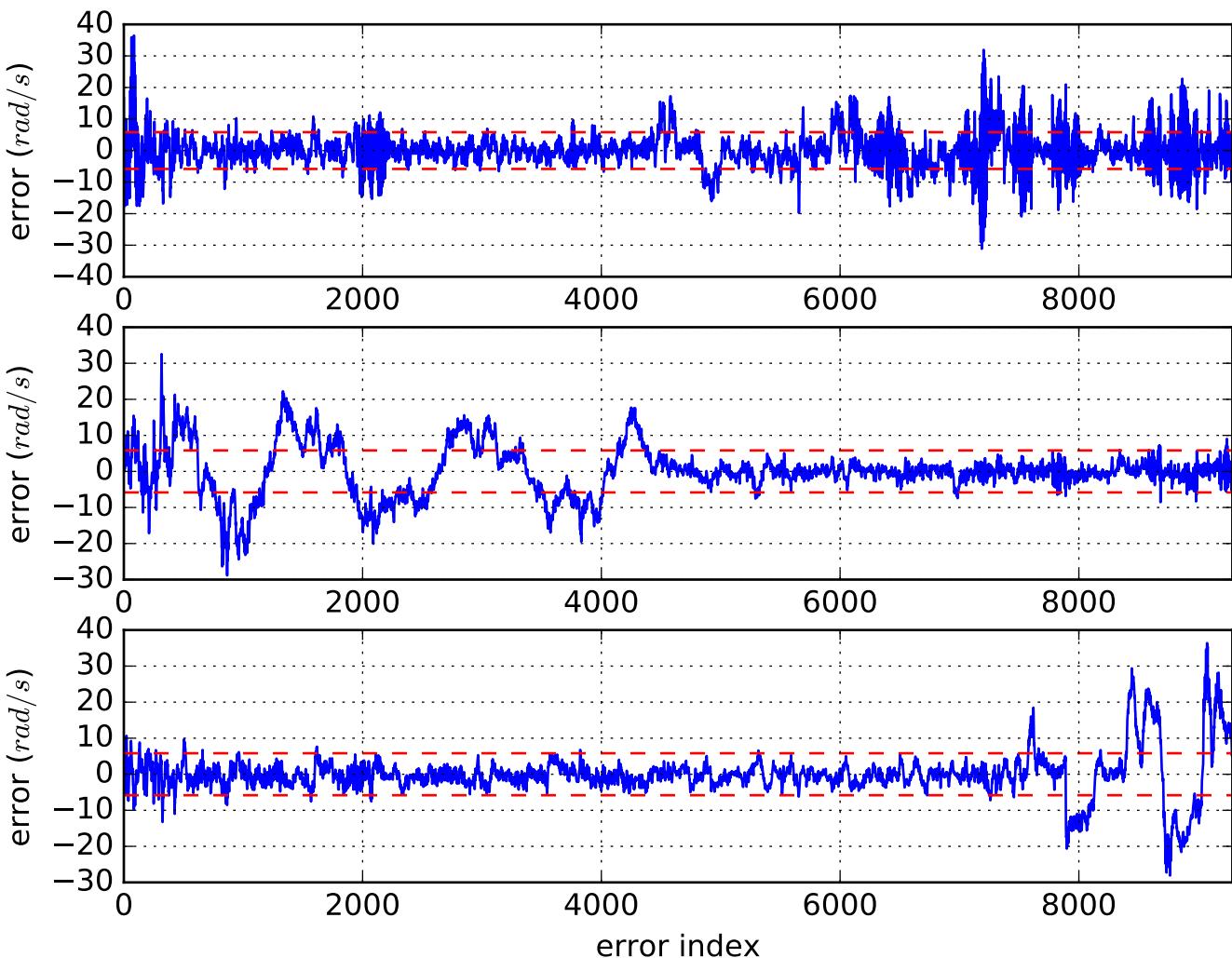
# imu0: estimated accelerometer bias (imu frame)



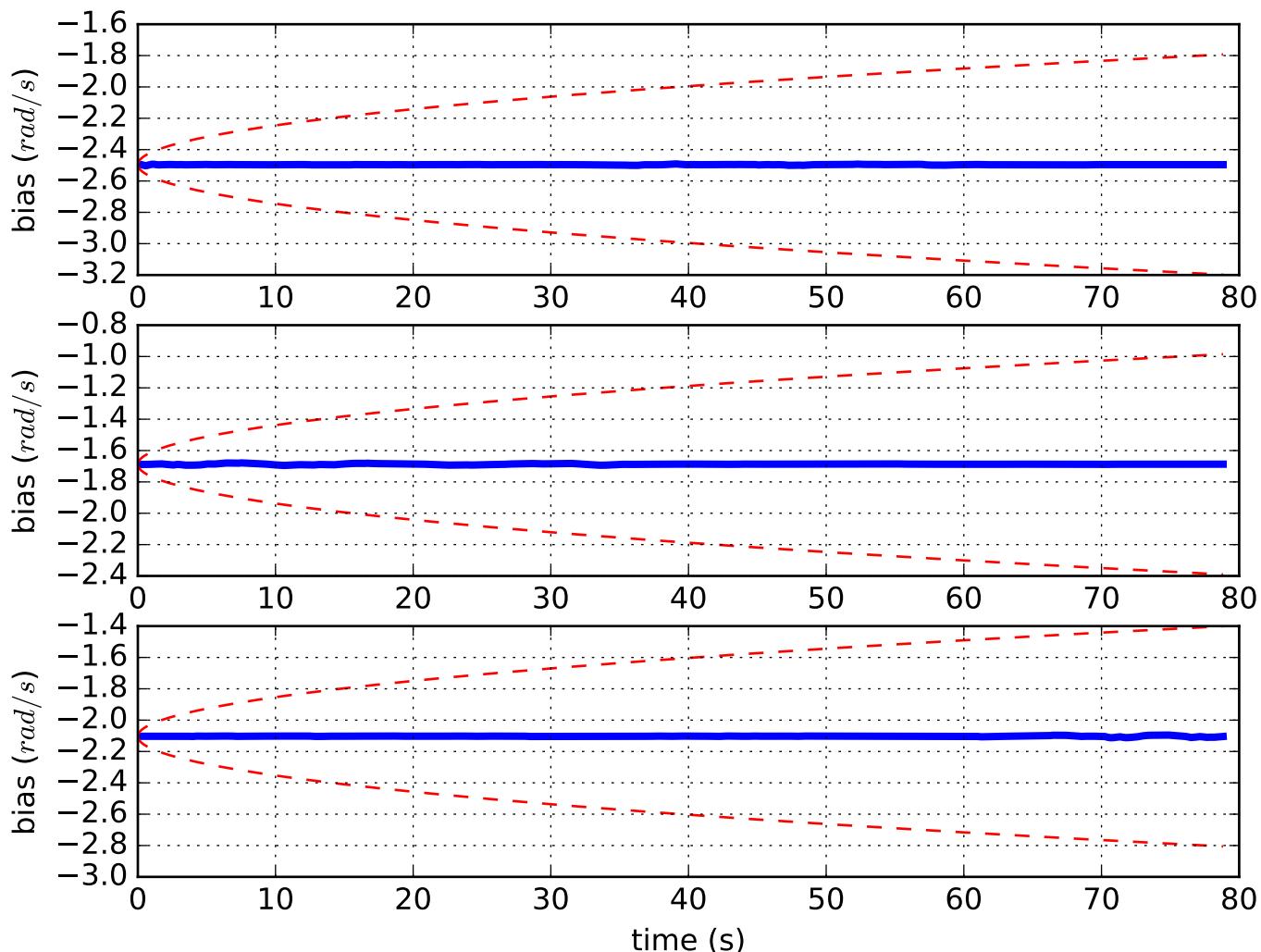
Comparison of predicted and measured angular velocities (body frame)



# imu0: angular velocities error



# imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

