

Calibration results

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Normalized Residuals

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Reprojection error (cam0): mean 88.7103072367, median 66.1265451333, std: 80.5631087779

Gyroscope error (imu0): mean 1012.07612917, median 894.173149035, std: 784.107950304

Accelerometer error (imu0): mean 34.5983603123, median 20.5734200765, std: 47.3091914889

Residuals

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Reprojection error (cam0) [px]: mean 88.7103072367, median 66.1265451333, std: 80.5631087779

Gyroscope error (imu0) [rad/s]: mean 3.24167984174, median 2.86403659636, std: 2.51149776482

Accelerometer error (imu0) [m/s^2]: mean 191.121342365, median 113.647572503, std: 261.335973784

Transformation (cam0):

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T\_ci: (imu0 to cam0):

[ [ 0.99357236 0.03074799 0.10894278 -0.02039652 ]  
[ -0.02421117 0.99785475 -0.0608253 -0.00739974 ]  
[ -0.11057933 0.05779671 0.99218534 0.16523872 ]  
[ 0. 0. 0. 1. ] ]

T\_ic: (cam0 to imu0):

[ [ 0.99357236 -0.02421117 -0.11057933 0.03835825 ]  
[ 0.03074799 0.99785475 0.05779671 -0.00153923 ]  
[ 0.10894278 -0.0608253 0.99218534 -0.16217547 ]  
[ 0. 0. 0. 1. ] ]

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

-0.113749485615

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

[ 0.16239319 -9.7979951 -0.37595661 ]

Calibration configuration

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cam0

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Camera model: pinhole  
Focal length: [657.6143342957149, 875.0754793394281]  
Principal point: [294.6677706487931, 234.9397442208543]  
Distortion model: radtan  
Distortion coefficients: [0.21286951481655816, -0.3076597497131197, 0.0010928220943022357, -0.009796477352799324]  
Type: aprilgrid  
Tags:  
  Rows: 6  
  Cols: 6  
  Size: 0.03 [m]  
  Spacing 0.009 [m]

## IMU configuration

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### IMU0:

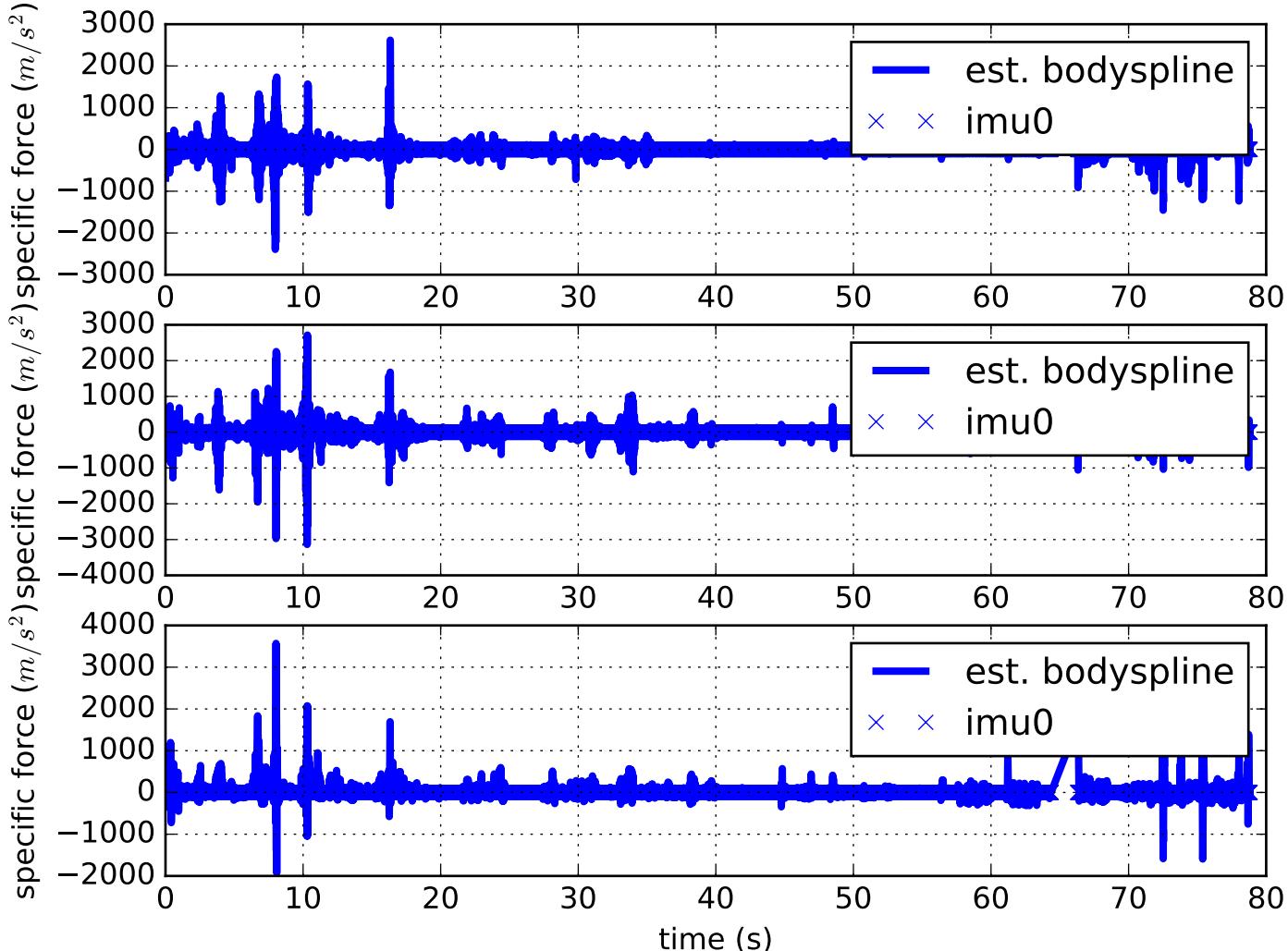
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  Model: calibrated  
  Update rate: 100.0  
  Accelerometer:  
    Noise density: 0.5524  
    Noise density (discrete): 5.524  
    Random walk: 0.0006196  
  Gyroscope:  
    Noise density: 0.0003203  
    Noise density (discrete): 0.003203  
    Random walk: 2.542704e-06

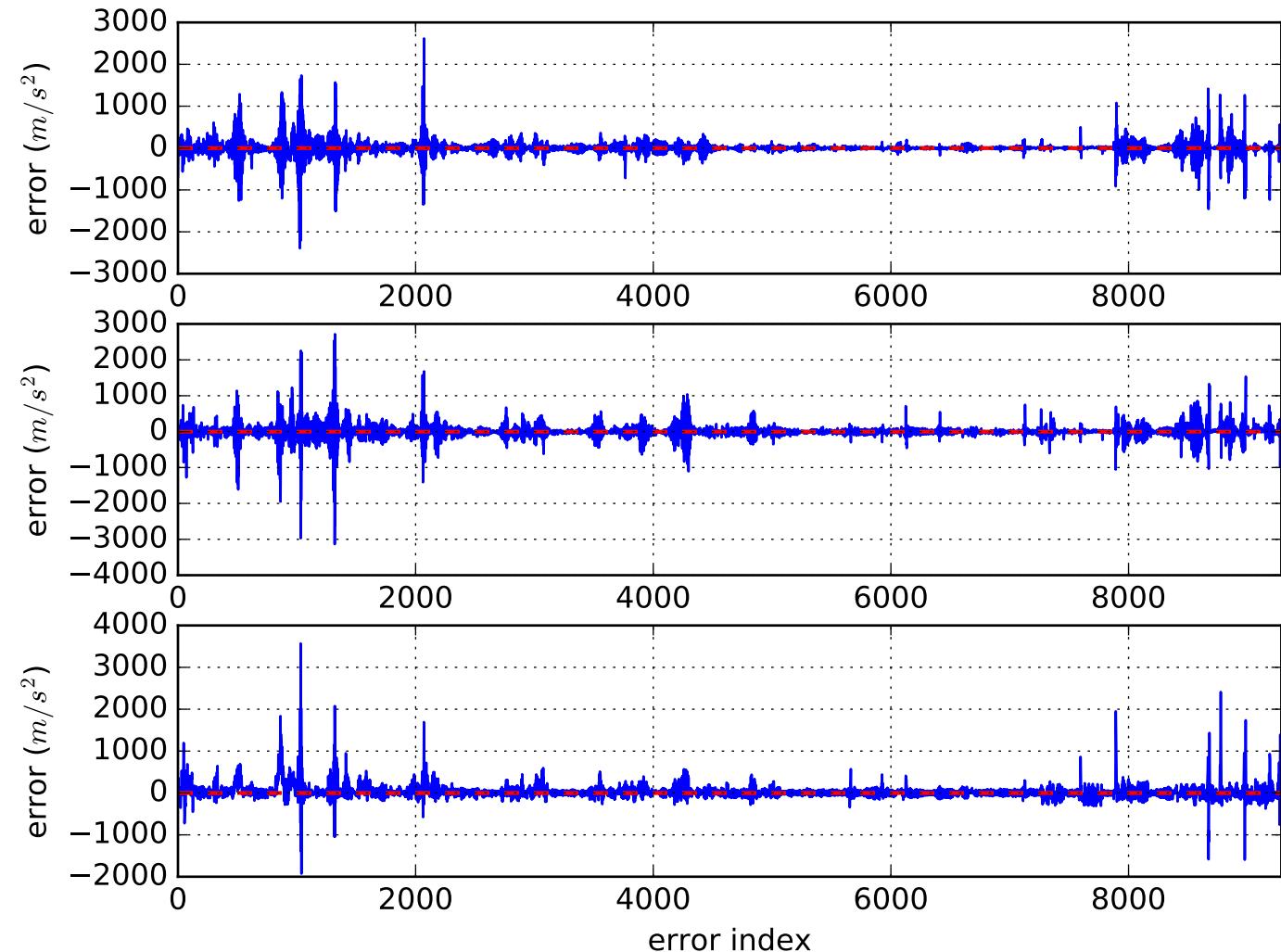
  T\_i\_b  
  [[ 1. 0. 0. 0.]  
   [ 0. 1. 0. 0.]  
   [ 0. 0. 1. 0.]  
   [ 0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

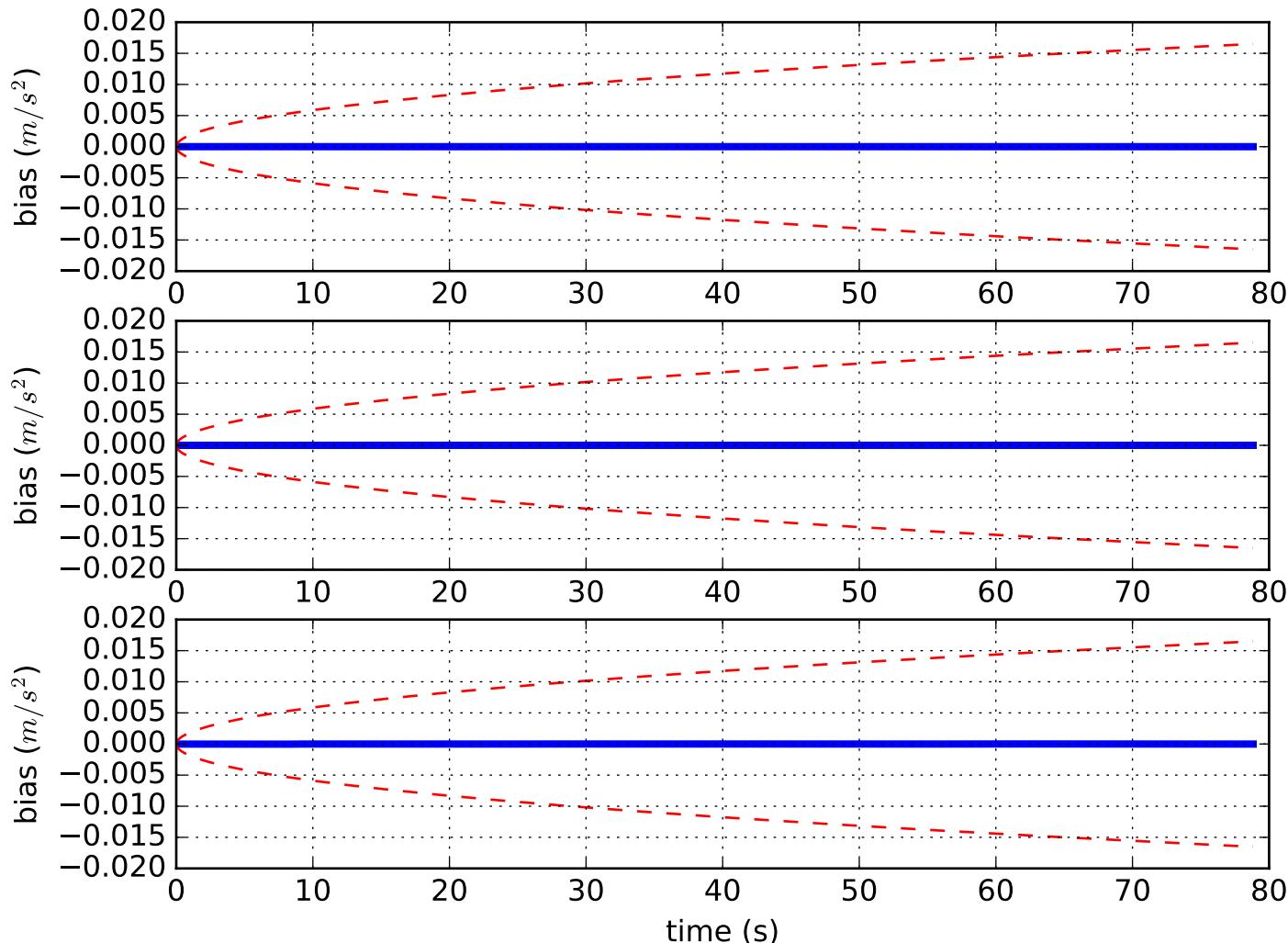
Comparison of predicted and measured specific force (imu0 frame)



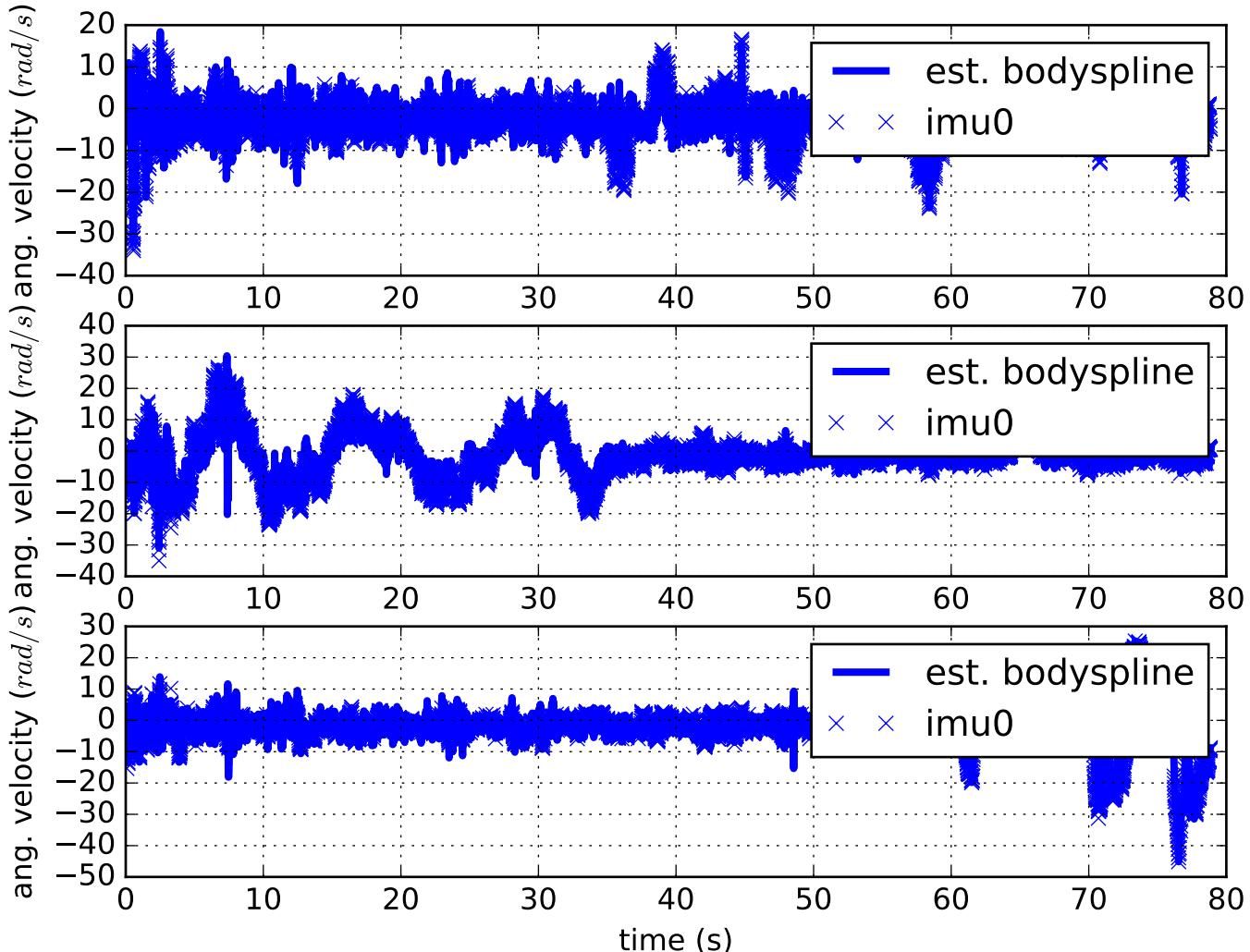
imu0: acceleration error



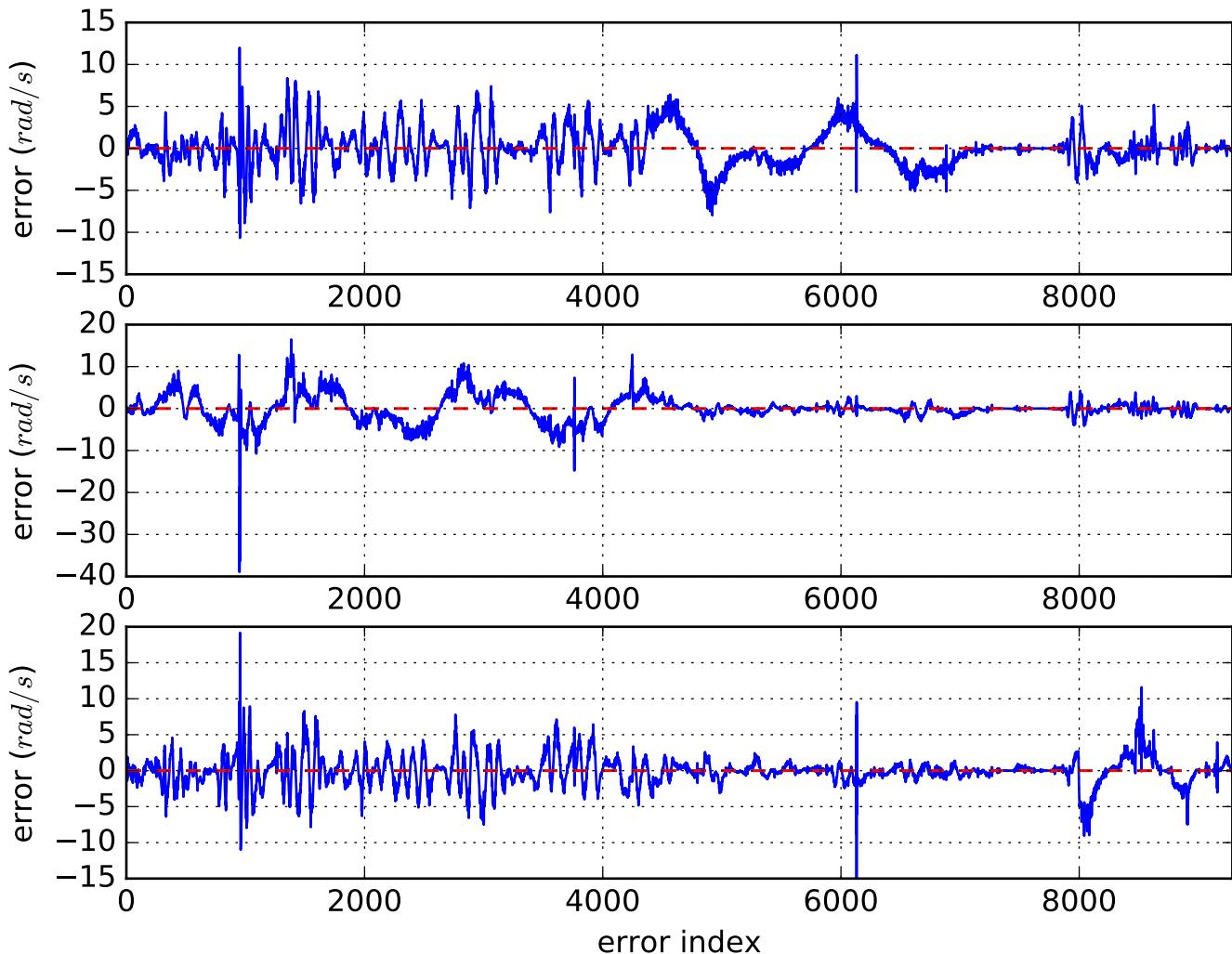
# imu0: estimated accelerometer bias (imu frame)



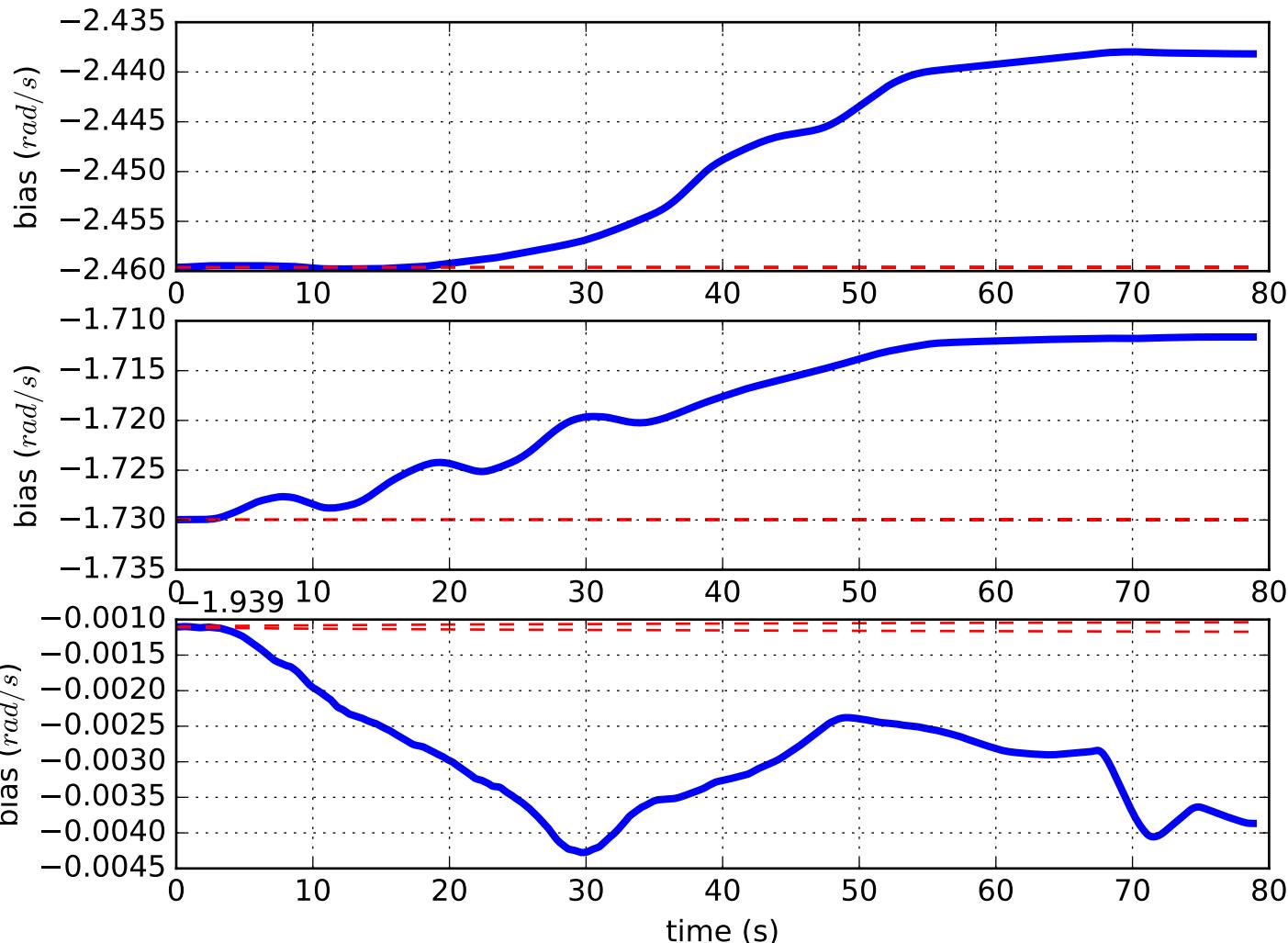
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

