

Calibration results

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Normalized Residuals

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Reprojection error (cam0): mean 0.152779480394, median 0.140041069089, std: 0.0861630100207

Gyroscope error (imu0): mean 349.237549593, median 269.163114407, std: 321.201725425

Accelerometer error (imu0): mean 67.7052851739, median 52.9722511823, std: 55.9286022234

Residuals

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Reprojection error (cam0) [px]: mean 0.152779480394, median 0.140041069089, std: 0.0861630100207

Gyroscope error (imu0) [rad/s]: mean 0.0473217033543, median 0.0364716138592, std: 0.0435228479445

Accelerometer error (imu0) [m/s^2]: mean 0.241452100539, median 0.188910825579, std: 0.199453830707

Transformation (cam0):

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T\_ci: (imu0 to cam0):

[[-0.99993082 -0.00905836 -0.00750408 0.00022037]  
[-0.00733804 -0.01822597 0.99980697 -0.00001026]  
[-0.00919338 0.99979286 0.01815824 0.00002923]  
[ 0. 0. 0. 1. ]]

T\_ic: (cam0 to imu0):

[[-0.99993082 -0.00733804 -0.00919338 0.00022055]  
[-0.00905836 -0.01822597 0.99979286 -0.00002742]  
[-0.00750408 0.99980697 0.01815824 0.00001139]  
[ 0. 0. 0. 1. ]]

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

-0.0250032405335

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

[ 0.30740614 -9.79760276 -0.28443727]

Calibration configuration

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cam0

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Camera model: pinhole  
Focal length: [300.26727670860583, 300.5359947225621]  
Principal point: [334.3499337779835, 255.0070711537088]  
Distortion model: equidistant  
Distortion coefficients: [-0.04210595252028014, -0.003160205204601509, -0.004043046853633767, 0.00606445867739579]  
Type: aprilgrid  
Tags:  
  Rows: 6  
  Cols: 6  
  Size: 0.0293 [m]  
  Spacing 0.00879 [m]

## IMU configuration

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### IMU0:

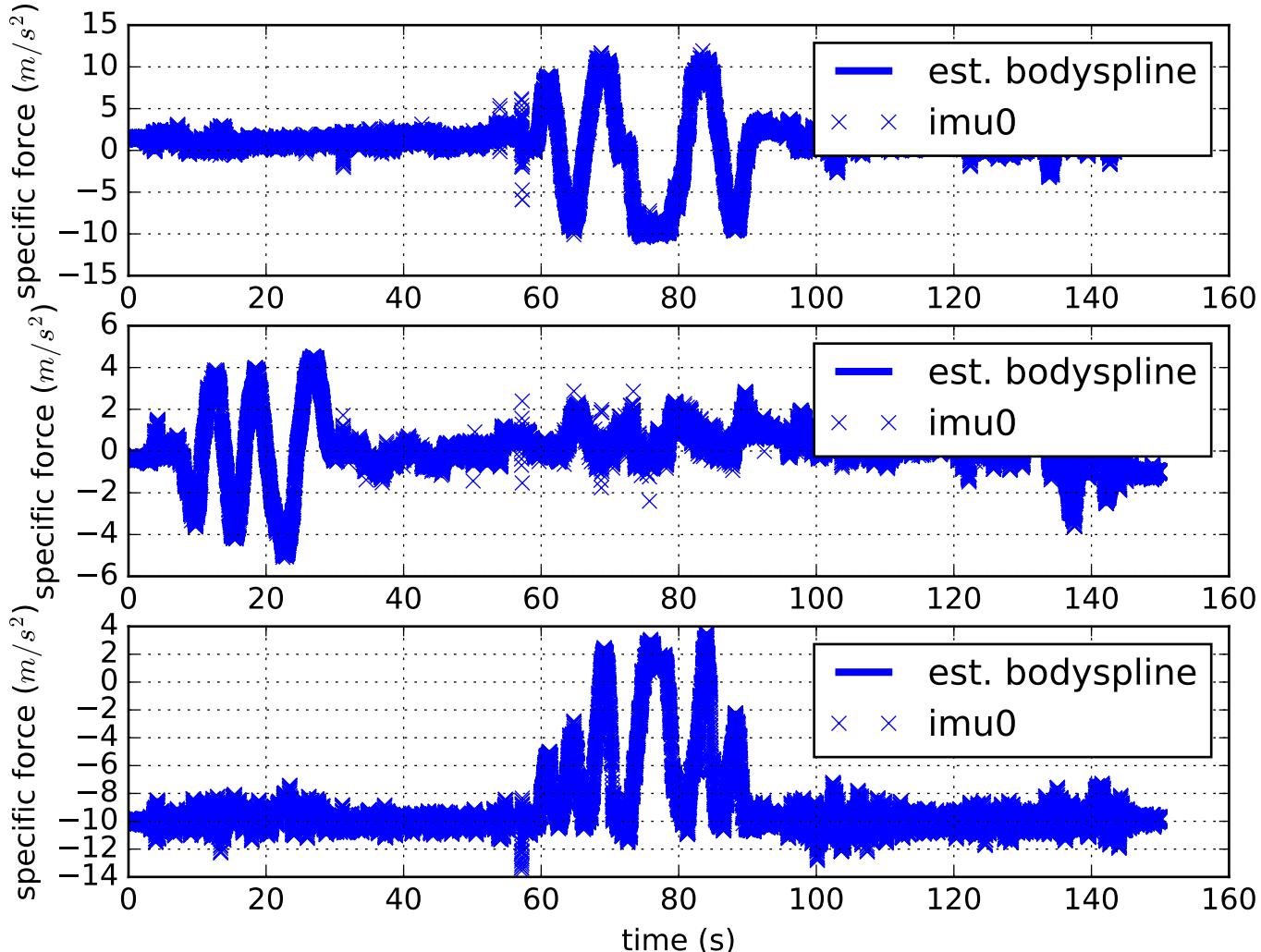
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  Model: calibrated  
  Update rate: 200.0  
  Accelerometer:  
    Noise density: 0.00025217  
    Noise density (discrete): 0.00356622234024  
    Random walk: 0.000147  
  Gyroscope:  
    Noise density: 9.5813e-06  
    Noise density (discrete): 0.000135500044052  
    Random walk: 1.48e-05

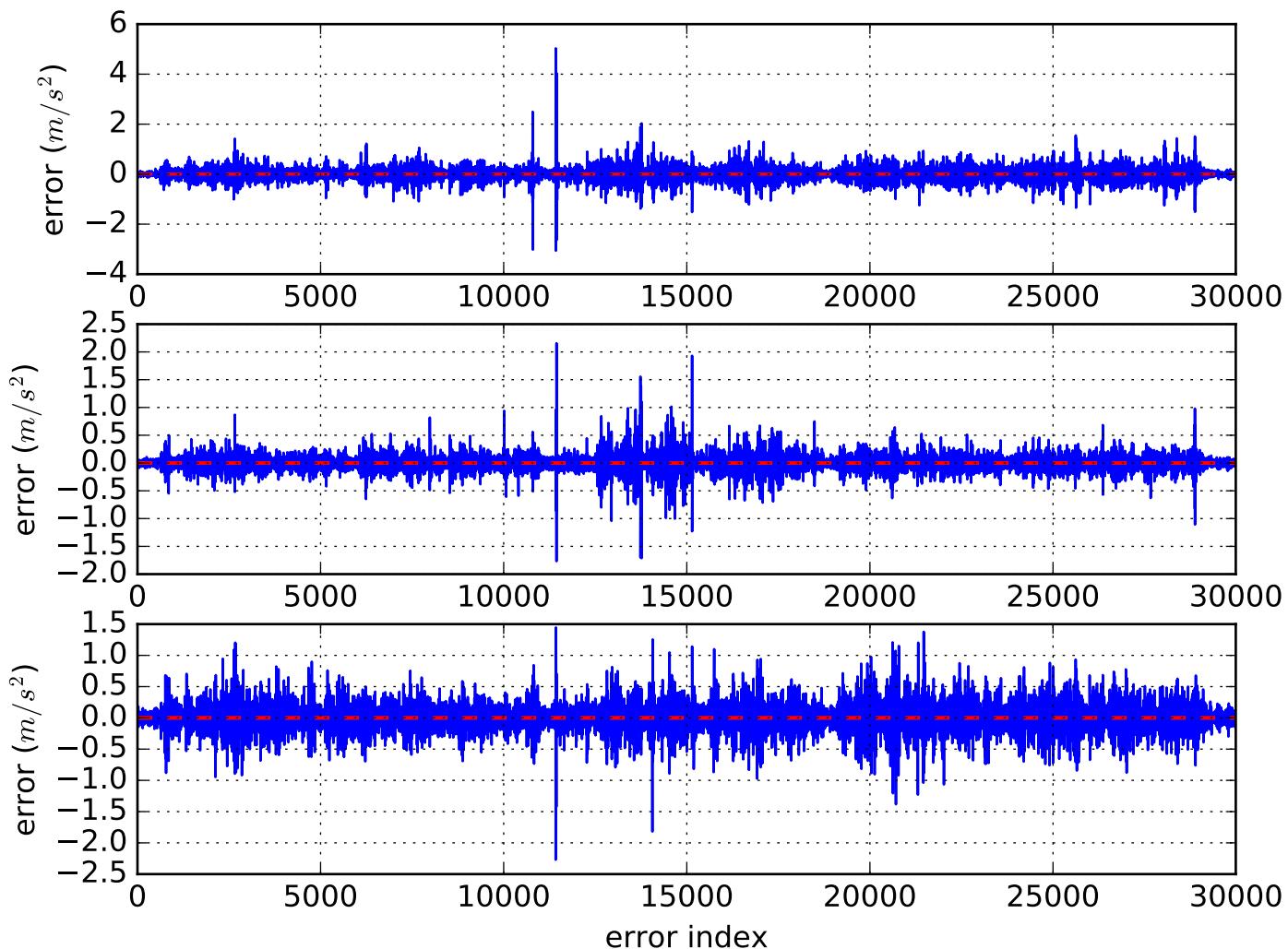
  T\_i\_b  
  [[ 1. 0. 0. 0.]  
   [ 0. 1. 0. 0.]  
   [ 0. 0. 1. 0.]  
   [ 0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

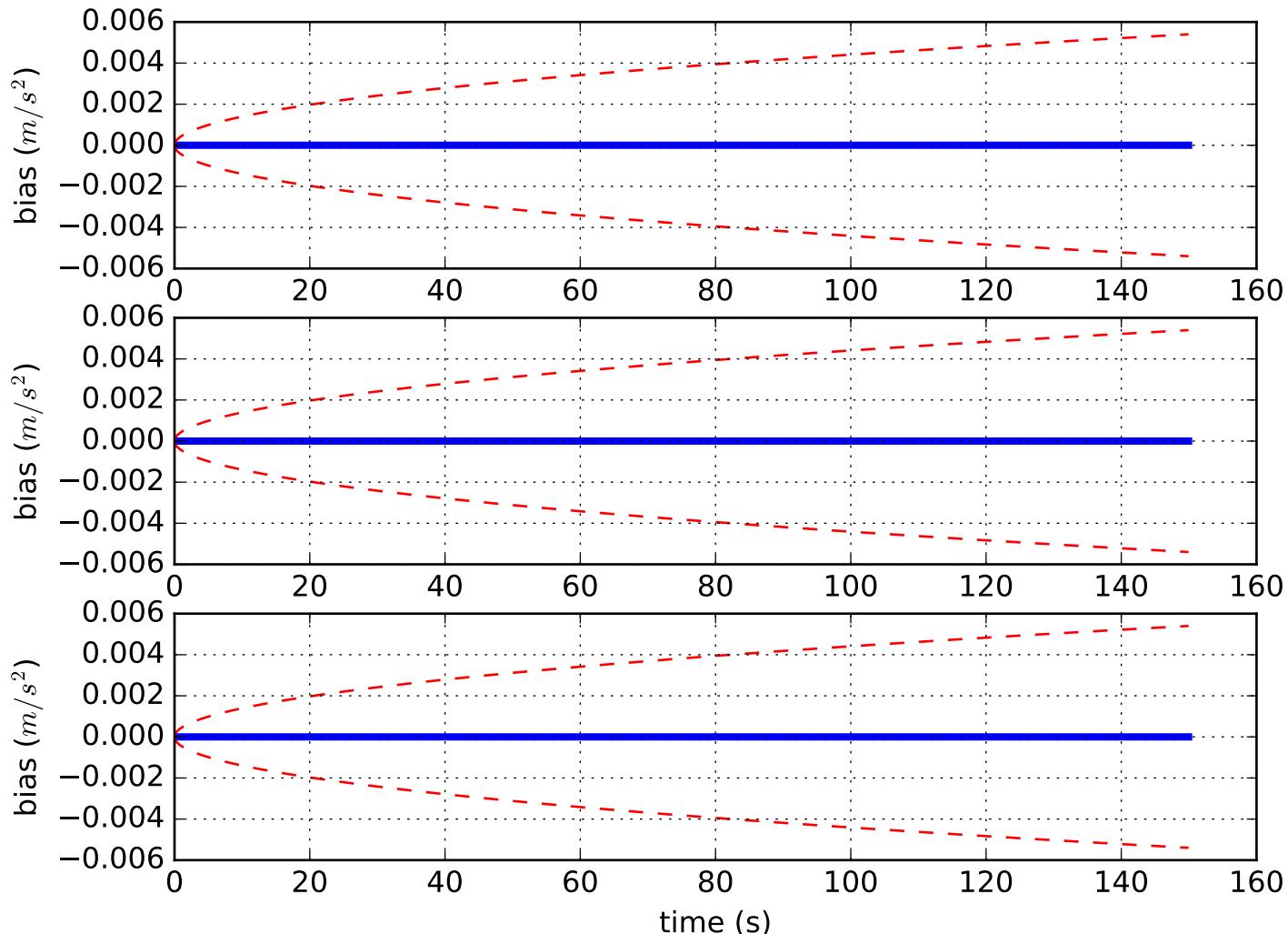
Comparison of predicted and measured specific force (imu0 frame)



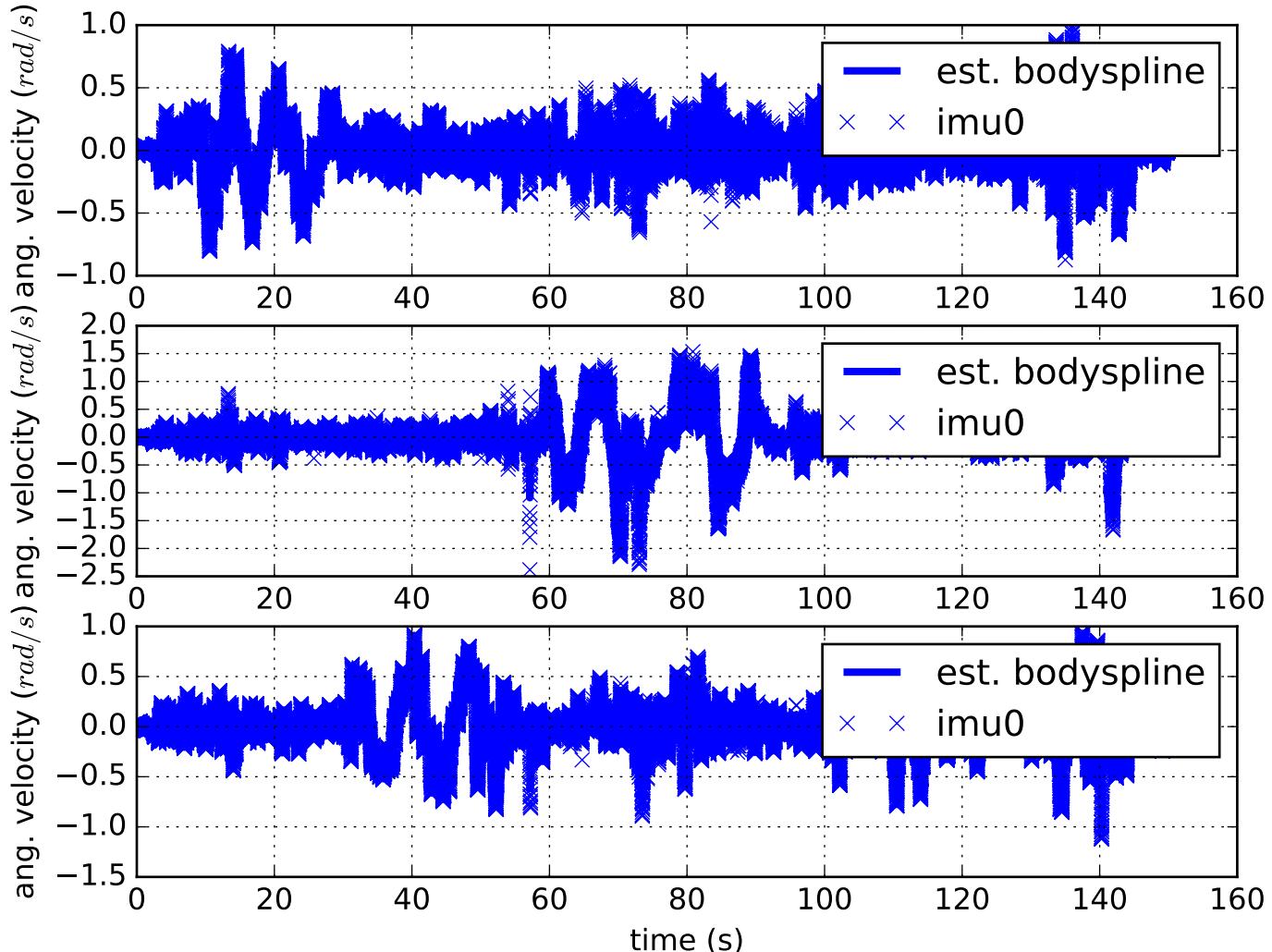
imu0: acceleration error



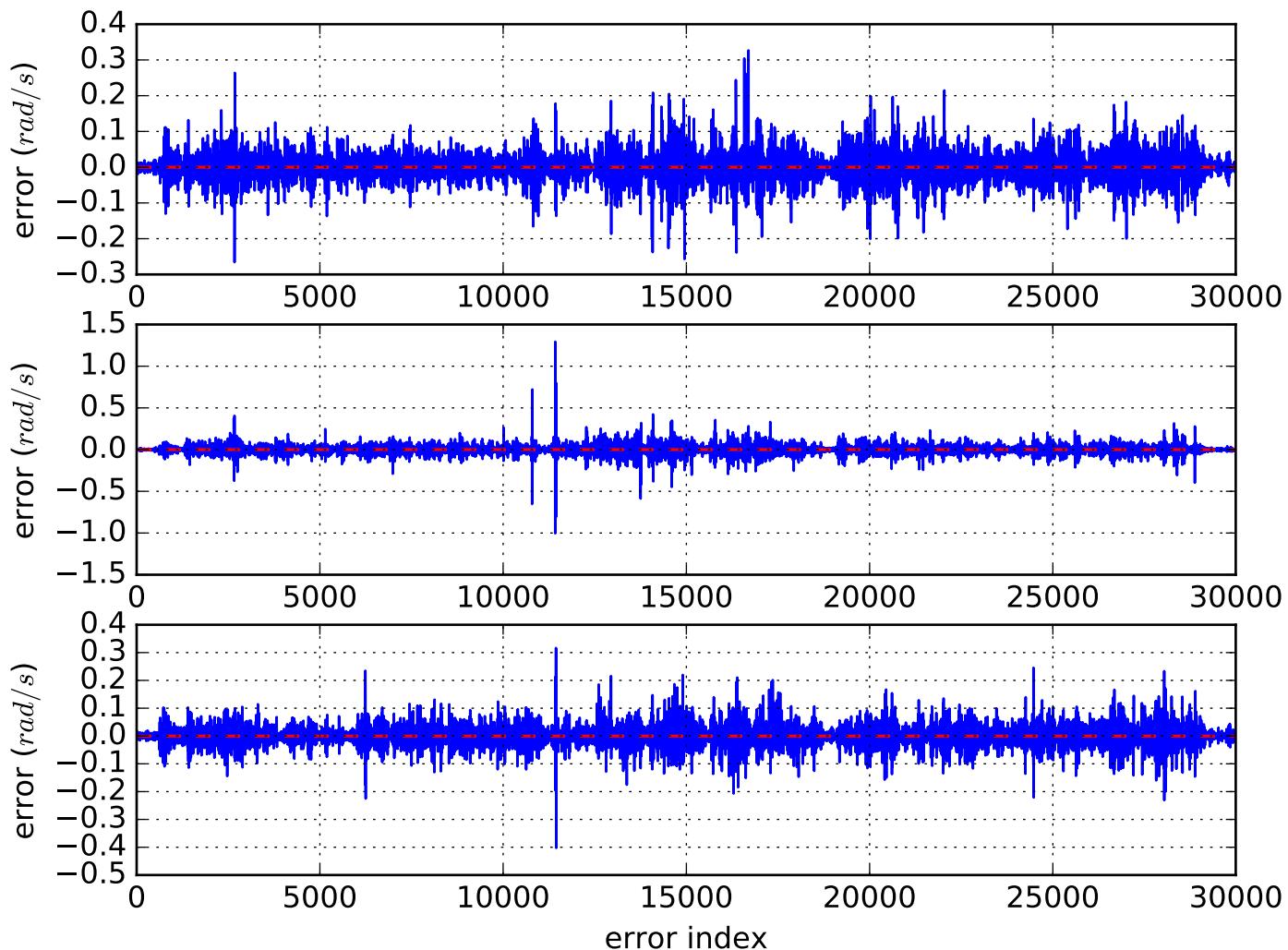
# imu0: estimated accelerometer bias (imu frame)



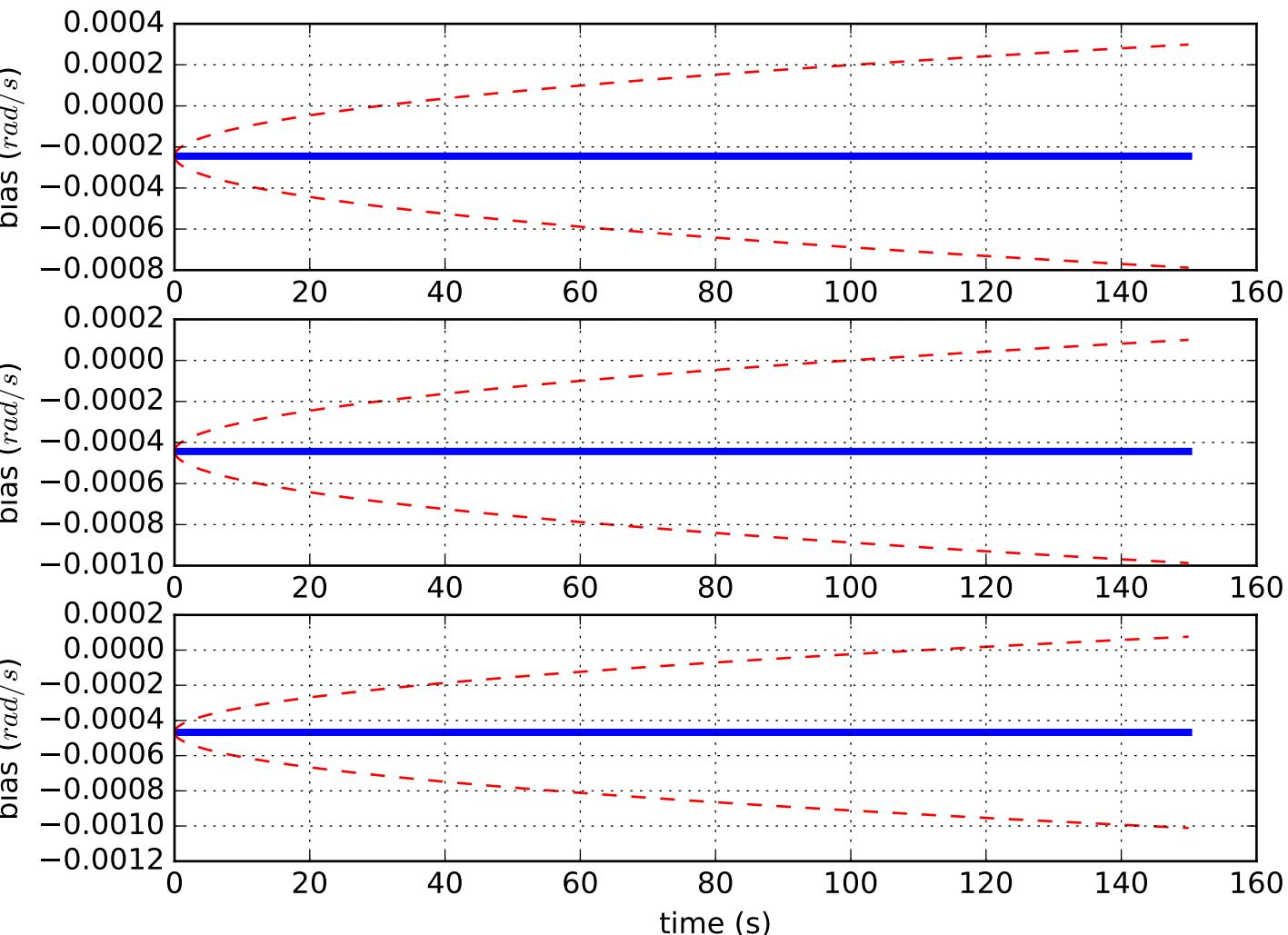
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



# imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

