

Calibration results

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Normalized Residuals

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Reprojection error (cam0): mean 0.153911855897, median 0.144534703707, std: 0.0808284284883

Gyroscope error (imu0): mean 1.31630178057, median 1.15219715833, std: 0.81794221084

Accelerometer error (imu0): mean 1.0880381945, median 0.841474358284, std: 0.861158674603

Residuals

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Reprojection error (cam0) [px]: mean 0.153911855897, median 0.144534703707, std: 0.0808284284883

Gyroscope error (imu0) [rad/s]: mean 0.00310875815653, median 0.00272118625589, std: 0.00193176409624

Accelerometer error (imu0) [m/s^2]: mean 0.0286201617013, median 0.0221344547677, std: 0.0226522383518

Transformation (cam0):

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T\_ci: (imu0 to cam0):

[ [ 0.05610601 0.04377181 0.99746486 0.11104024 ]  
[ 0.03994144 -0.9983372 0.04156344 0.00915847 ]  
[ 0.99762558 0.03750822 -0.05776102 -0.0375377 ]  
[ 0. 0. 0. 1. ] ]

T\_ic: (cam0 to imu0):

[ [ 0.05610601 0.03994144 0.99762558 0.03085275 ]  
[ 0.04377181 -0.9983372 0.03750822 0.00569079 ]  
[ 0.99746486 0.04156344 -0.05776102 -0.11330761 ]  
[ 0. 0. 0. 1. ] ]

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

0.00167919012363

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

[ 0.16561362 -9.80485859 0.07578313 ]

Calibration configuration

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cam0

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Camera model: pinhole  
Focal length: [617.249240738915, 617.823825643282]  
Principal point: [375.1235823747558, 241.9032672063267]  
Distortion model: radtan  
Distortion coefficients: [-0.4435178340619321, 0.2027350935660245, 2.37550289122828e-05, 0.0001425946418511655]  
Type: aprilgrid  
Tags:  
  Rows: 6  
  Cols: 6  
  Size: 0.034 [m]  
  Spacing 0.0102 [m]

## IMU configuration

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### IMU0:

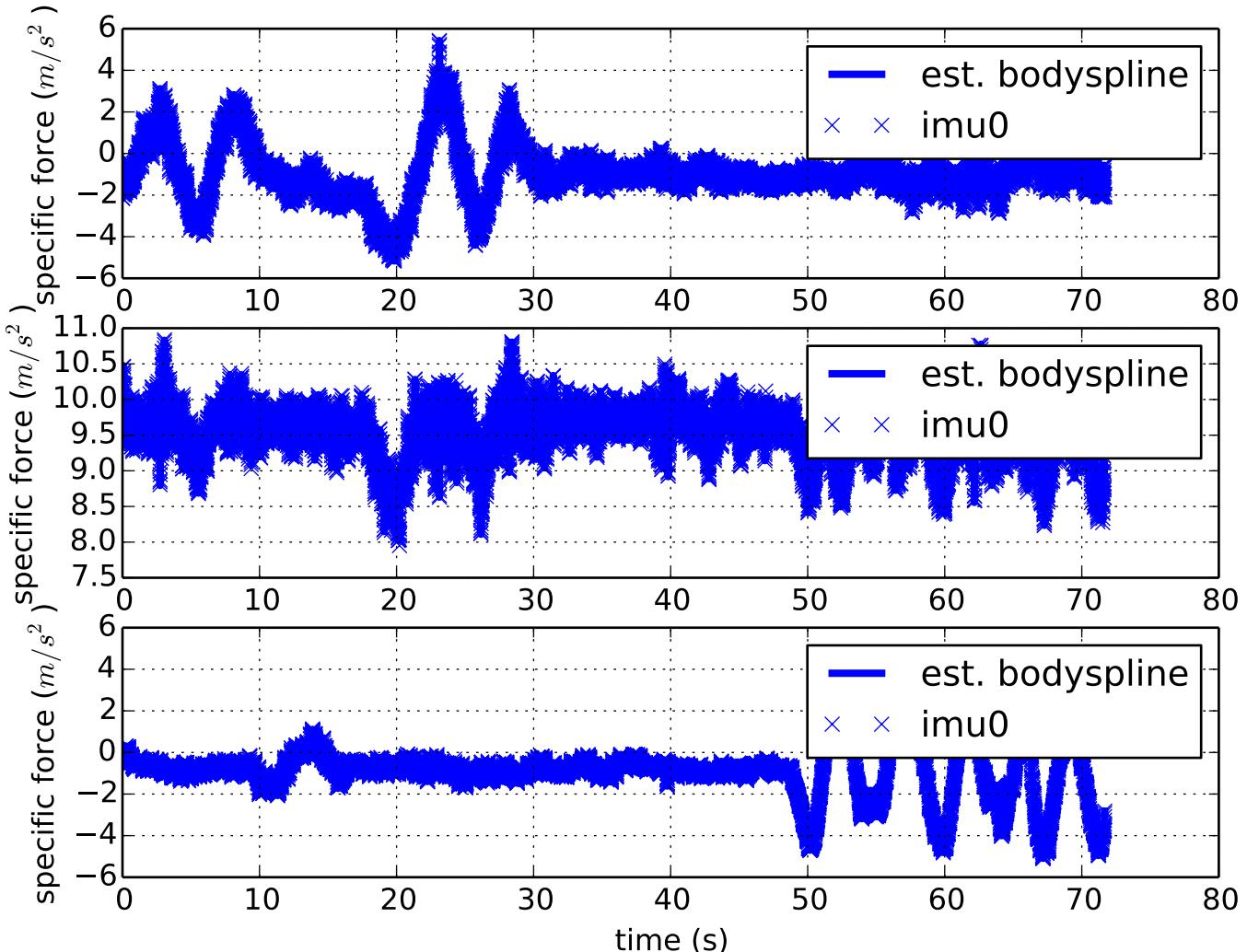
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  Model: calibrated  
  Update rate: 200.0  
  Accelerometer:  
    Noise density: 0.00186  
    Noise density (discrete): 0.0263043722601  
    Random walk: 0.00035  
  Gyroscope:  
    Noise density: 0.000167  
    Noise density (discrete): 0.00236173664916  
    Random walk: 4.85e-05

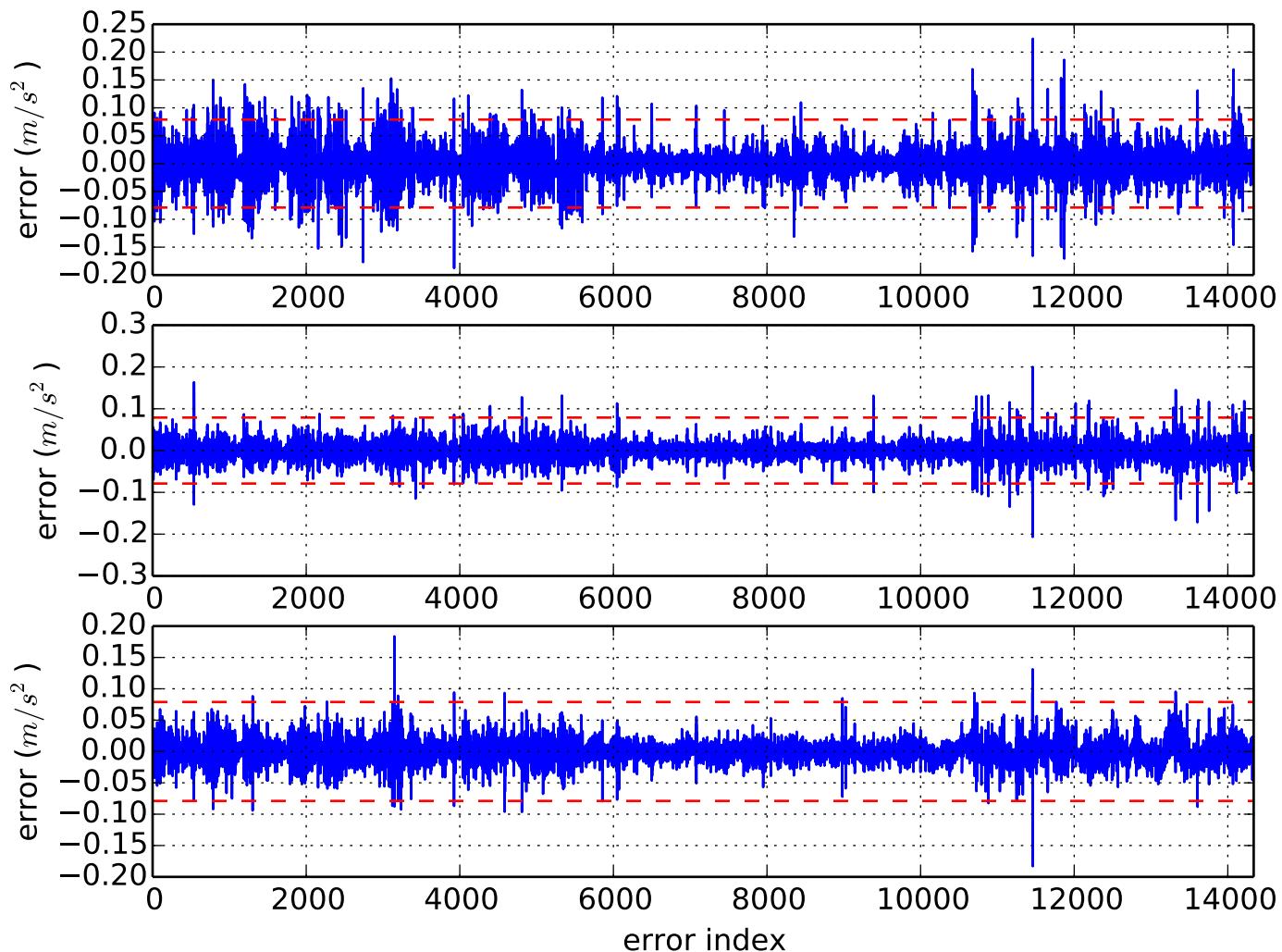
T\_i\_b  
[[ 1. 0. 0. 0.]  
 [ 0. 1. 0. 0.]  
 [ 0. 0. 1. 0.]  
 [ 0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

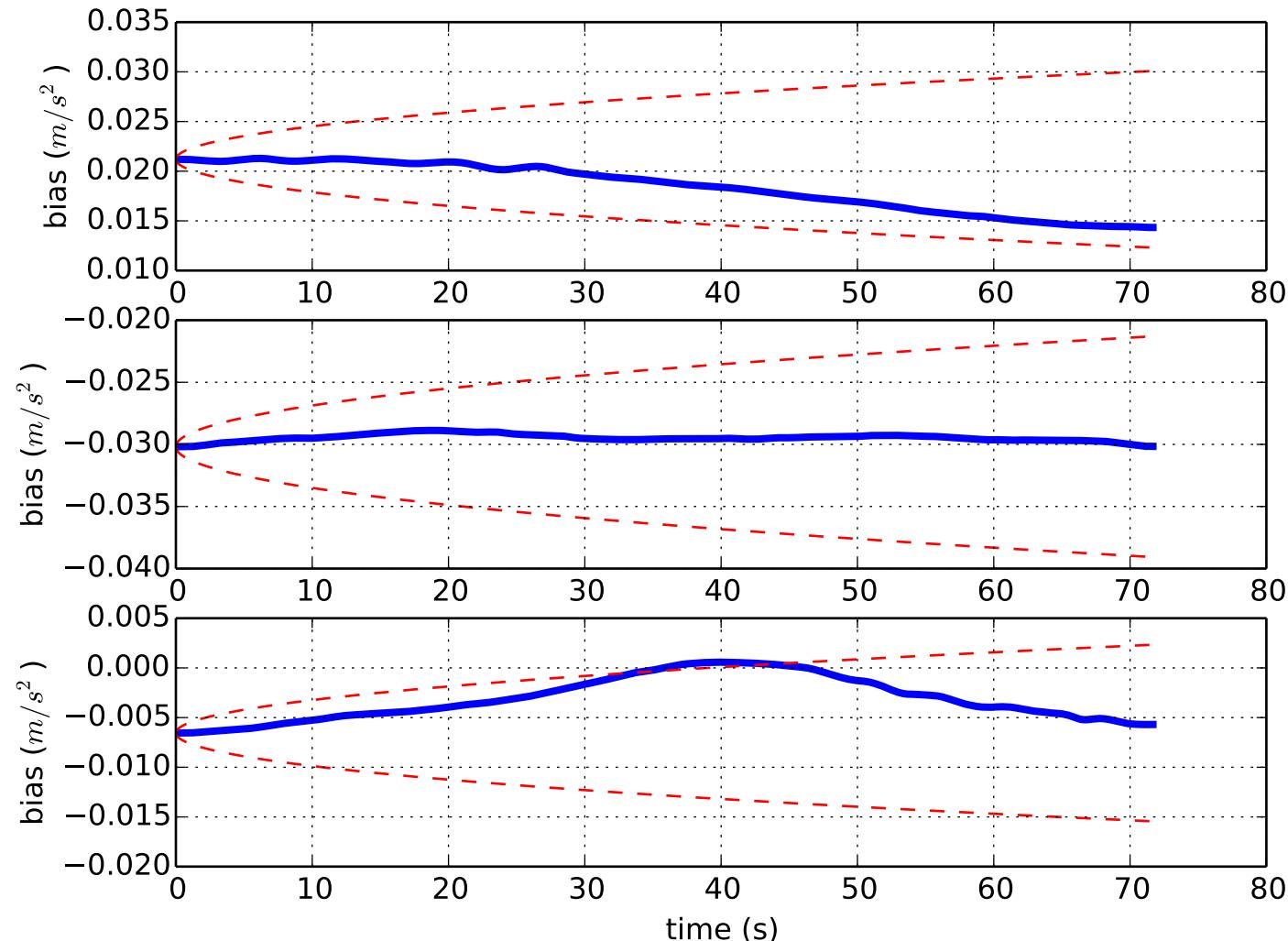
Comparison of predicted and measured specific force (imu0 frame)



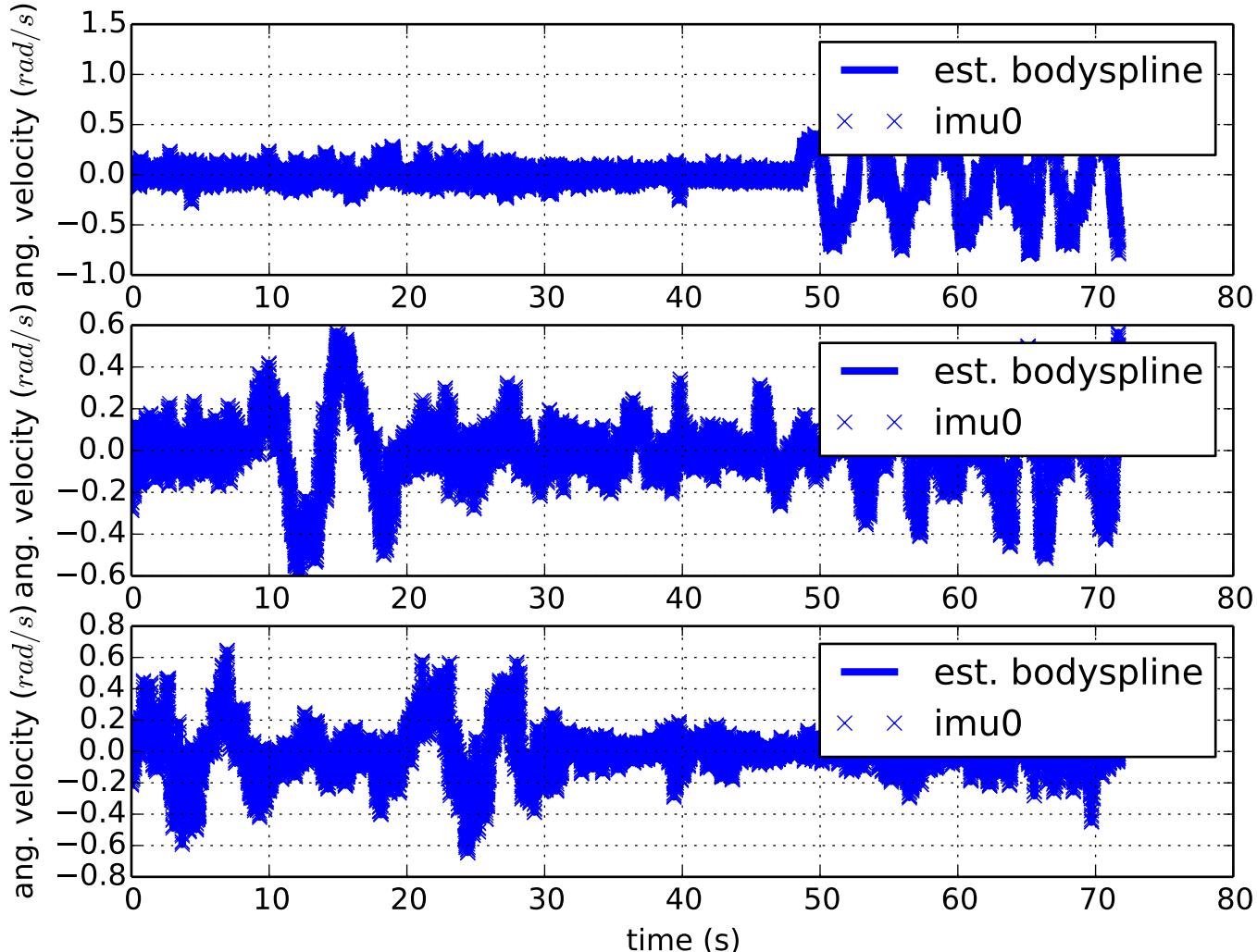
imu0: acceleration error



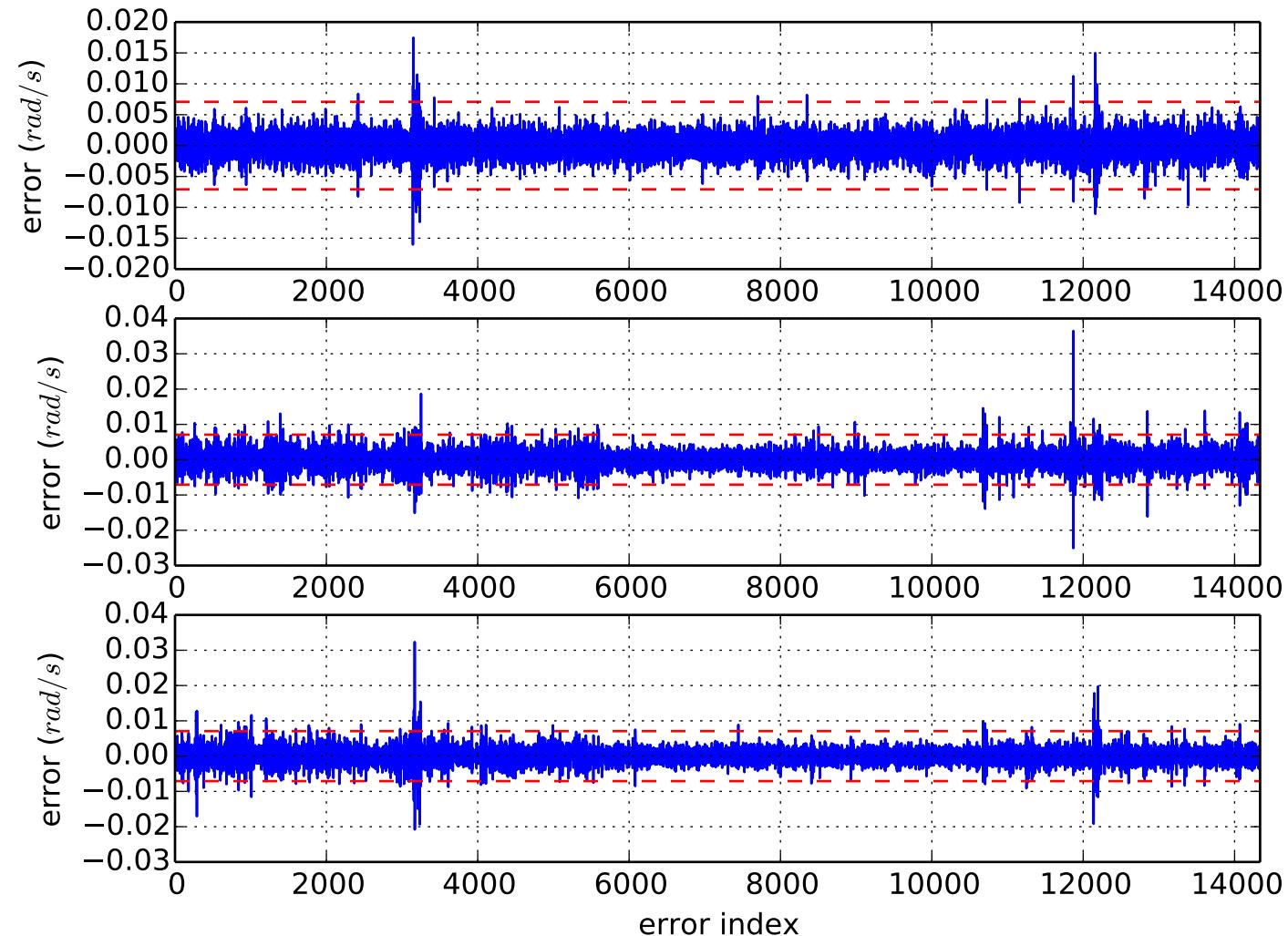
# imu0: estimated accelerometer bias (imu frame)



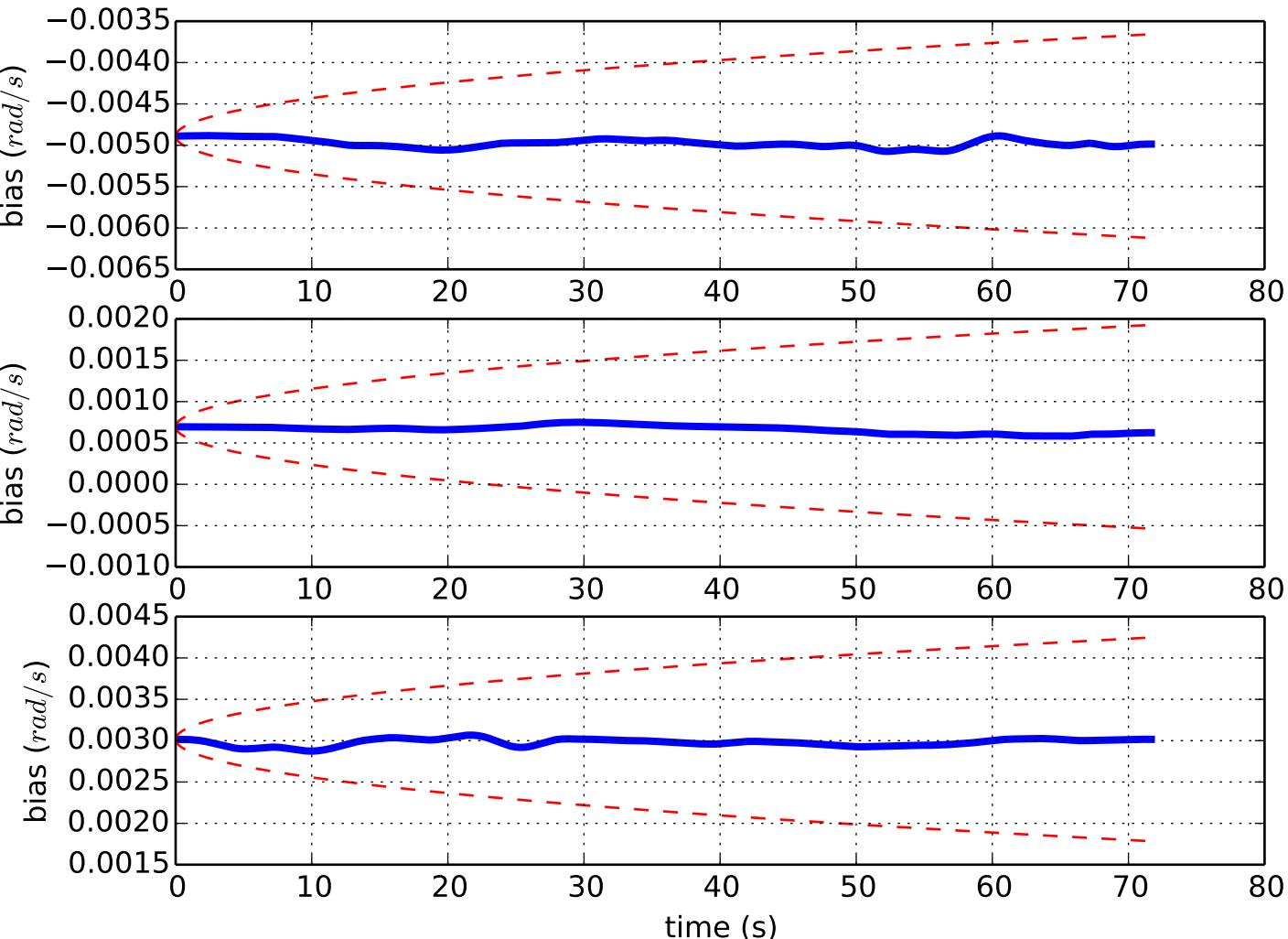
Comparison of predicted and measured angular velocities (body frame)



# imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

