

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.588583551449, median 0.465329094233, std: 0.455603005617

Gyroscope error (imu0): mean 1.17772173604, median 1.00806796912, std: 0.799706974034

Accelerometer error (imu0): mean 0.748513768784, median 0.683482326465, std: 0.414602069348

Residuals

Reprojection error (cam0) [px]: mean 0.588583551449, median 0.465329094233, std: 0.455603005617

Gyroscope error (imu0) [rad/s]: mean 0.0229315249417, median 0.0196281813176, std: 0.0155711658025

Accelerometer error (imu0) [m/s^2]: mean 0.117183883573, median 0.107002859144, std: 0.0649081989534

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.99987107 0.01591199 -0.00215653 0.04379407]
[-0.01582407 0.99922626 0.03600665 -0.00160094]
[0.0027278 -0.03596788 0.99934922 -0.06562518]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.99987107 -0.01582407 0.0027278 -0.04363475]
[0.01591199 0.99922626 -0.03596788 -0.00145755]
[-0.00215653 0.03600665 0.99934922 0.06573457]
[0. 0. 0. 1.]]

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

0.0340586182721

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

[-0.0589587 -9.80310277 0.25322482]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [556.9411411777448, 554.3071368304684]
Principal point: [328.5102548230616, 237.02234744269407]
Distortion model: radtan
Distortion coefficients: [0.097177275647074, -0.18018445843947403, -0.00034879300301104407, 0.0006675838642464431]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.03 [m]
 Spacing 0.009 [m]

IMU configuration

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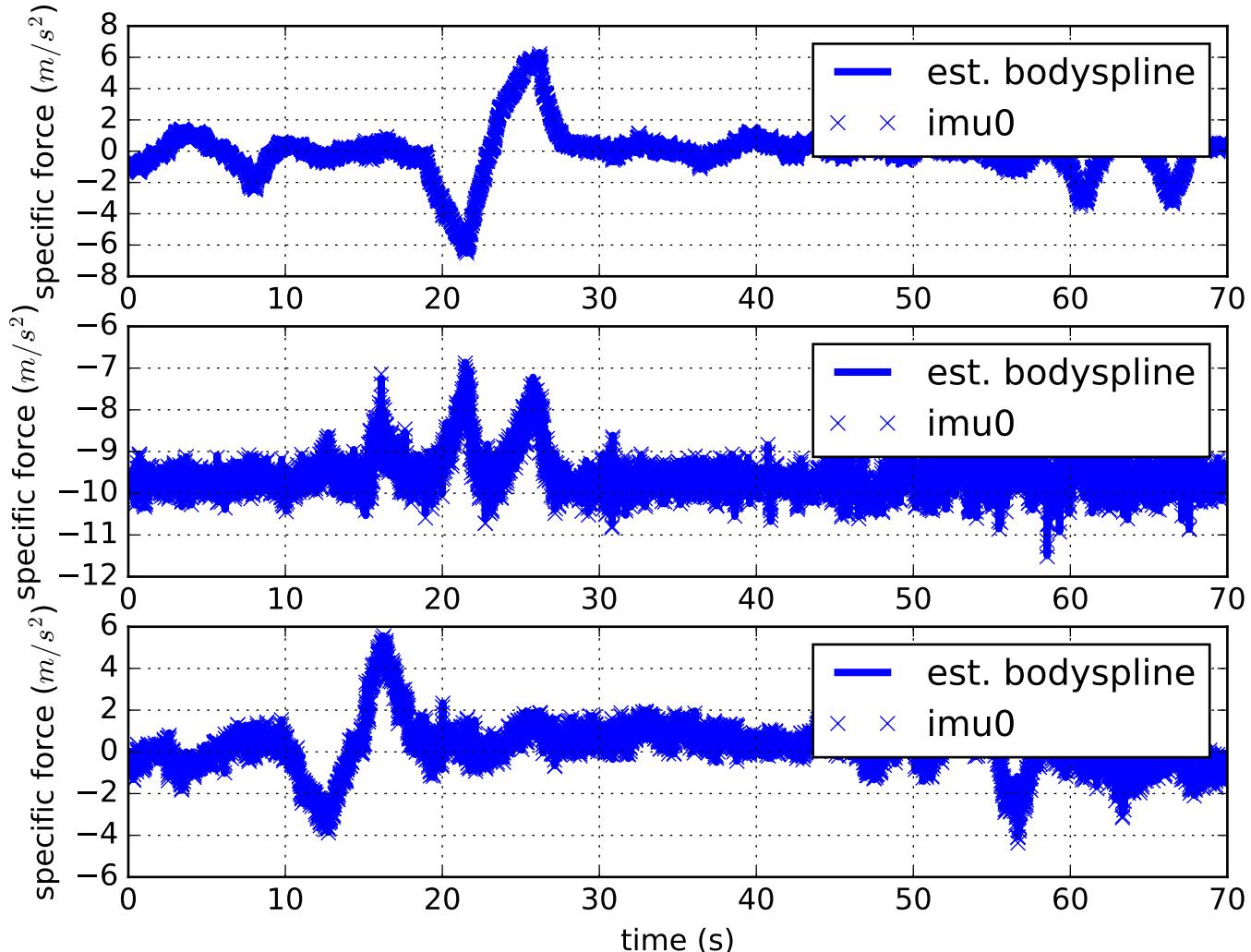
IMU0:

 Model: calibrated
 Update rate: 100.0
 Accelerometer:
 Noise density: 0.0156555414824
 Noise density (discrete): 0.156555414824
 Random walk: 0.000448354296713
 Gyroscope:
 Noise density: 0.00194710891715
 Noise density (discrete): 0.0194710891715
 Random walk: 7.33617853861e-05

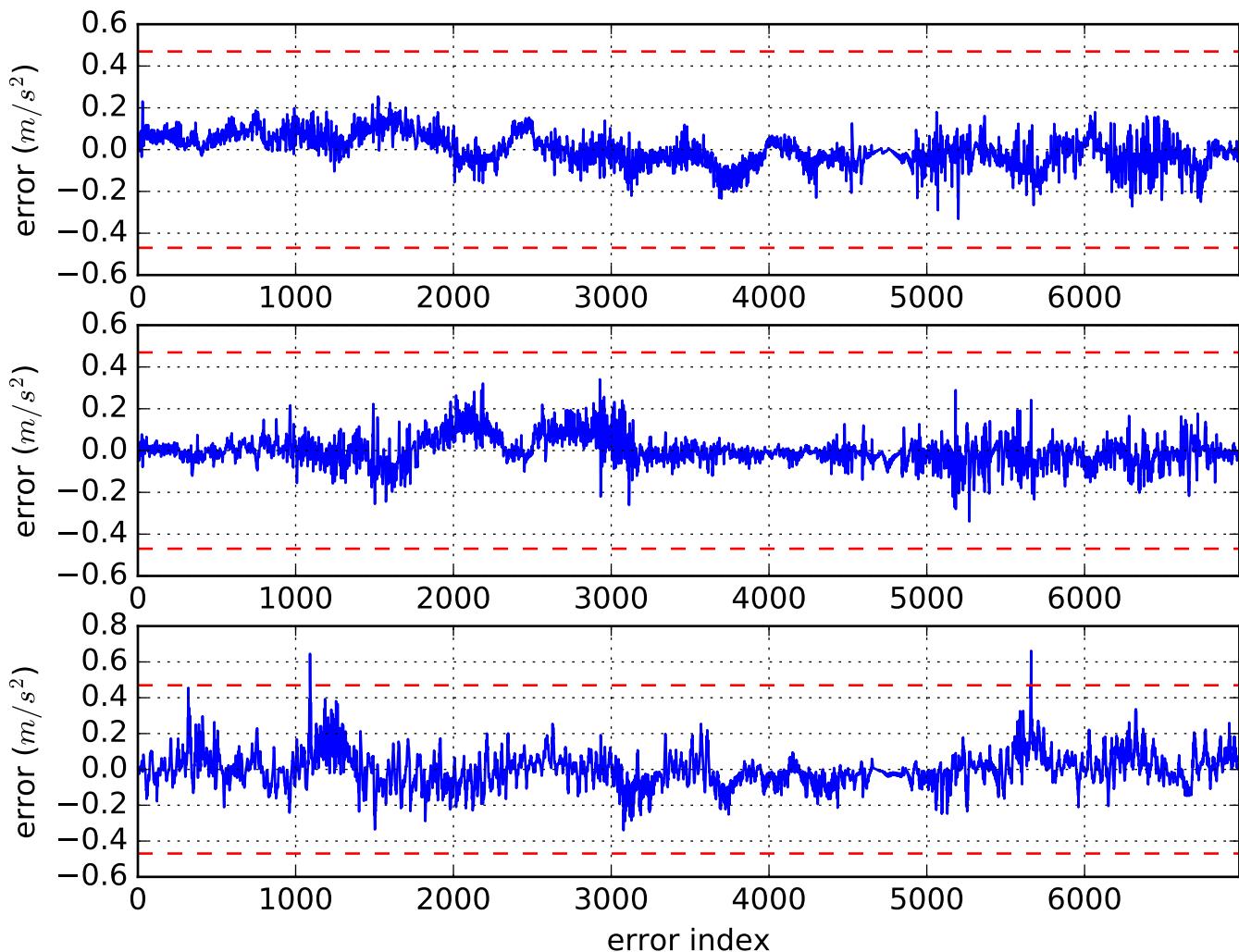
 T_i_b
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

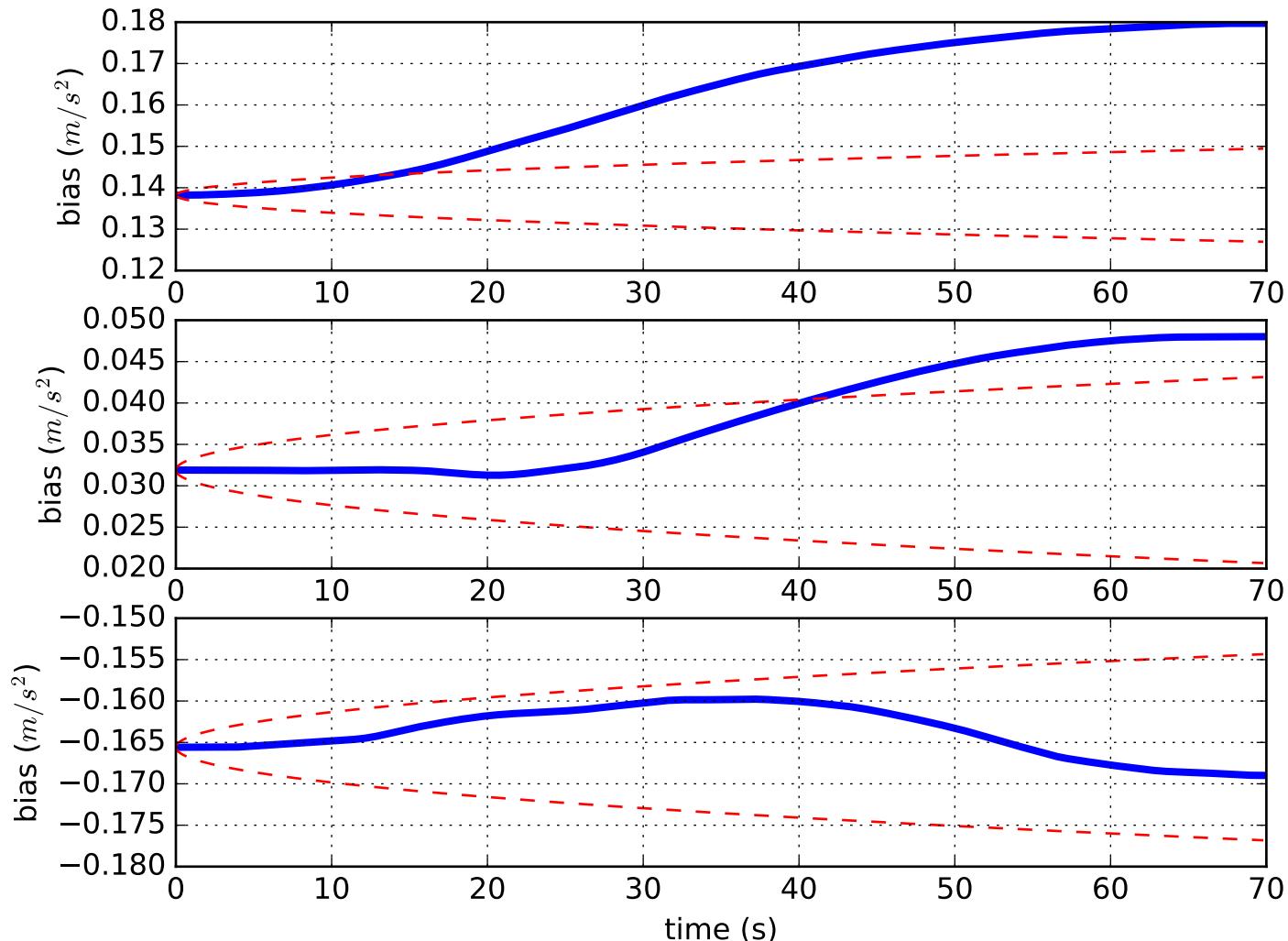
Comparison of predicted and measured specific force (imu0 frame)



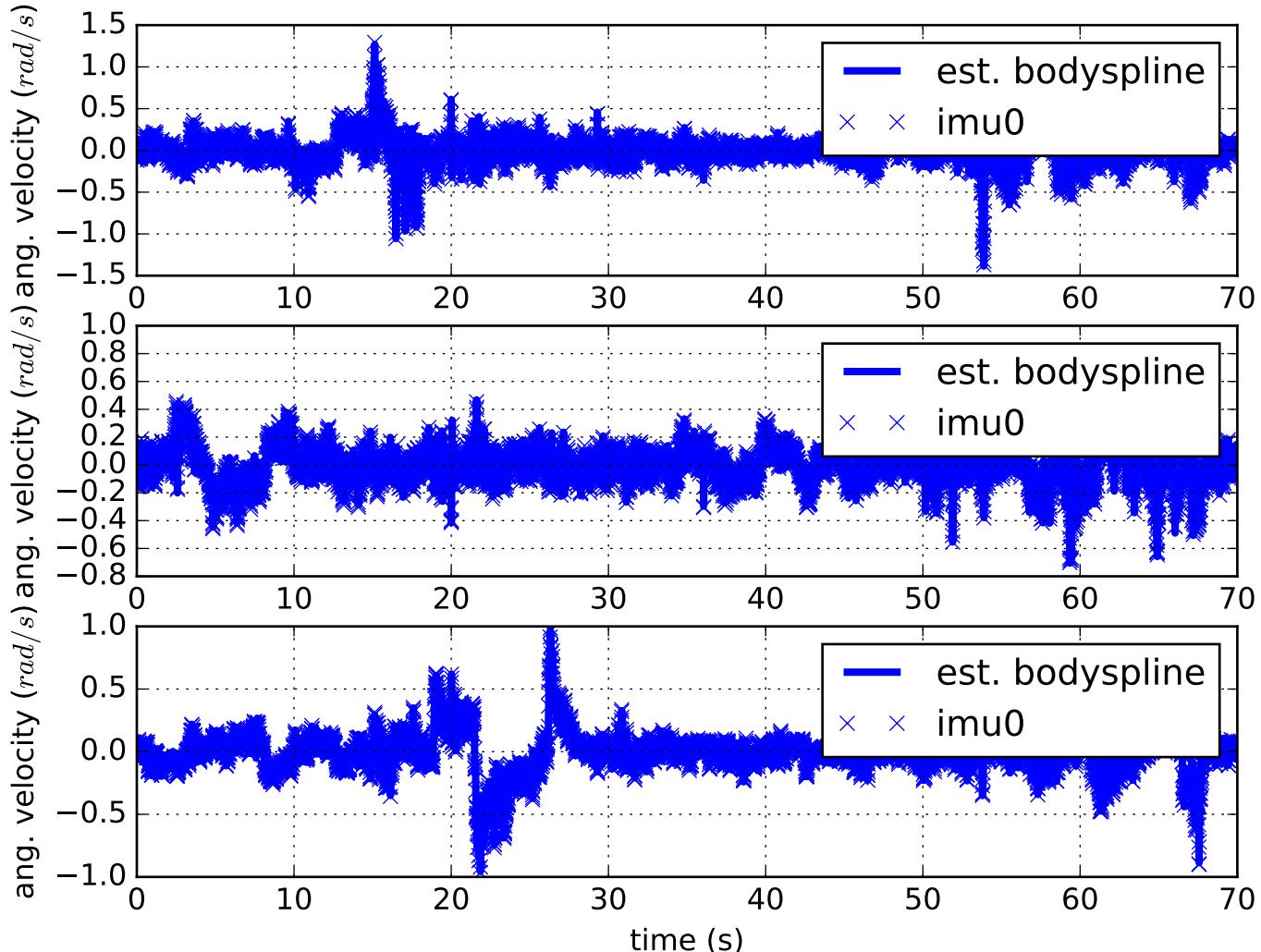
imu0: acceleration error



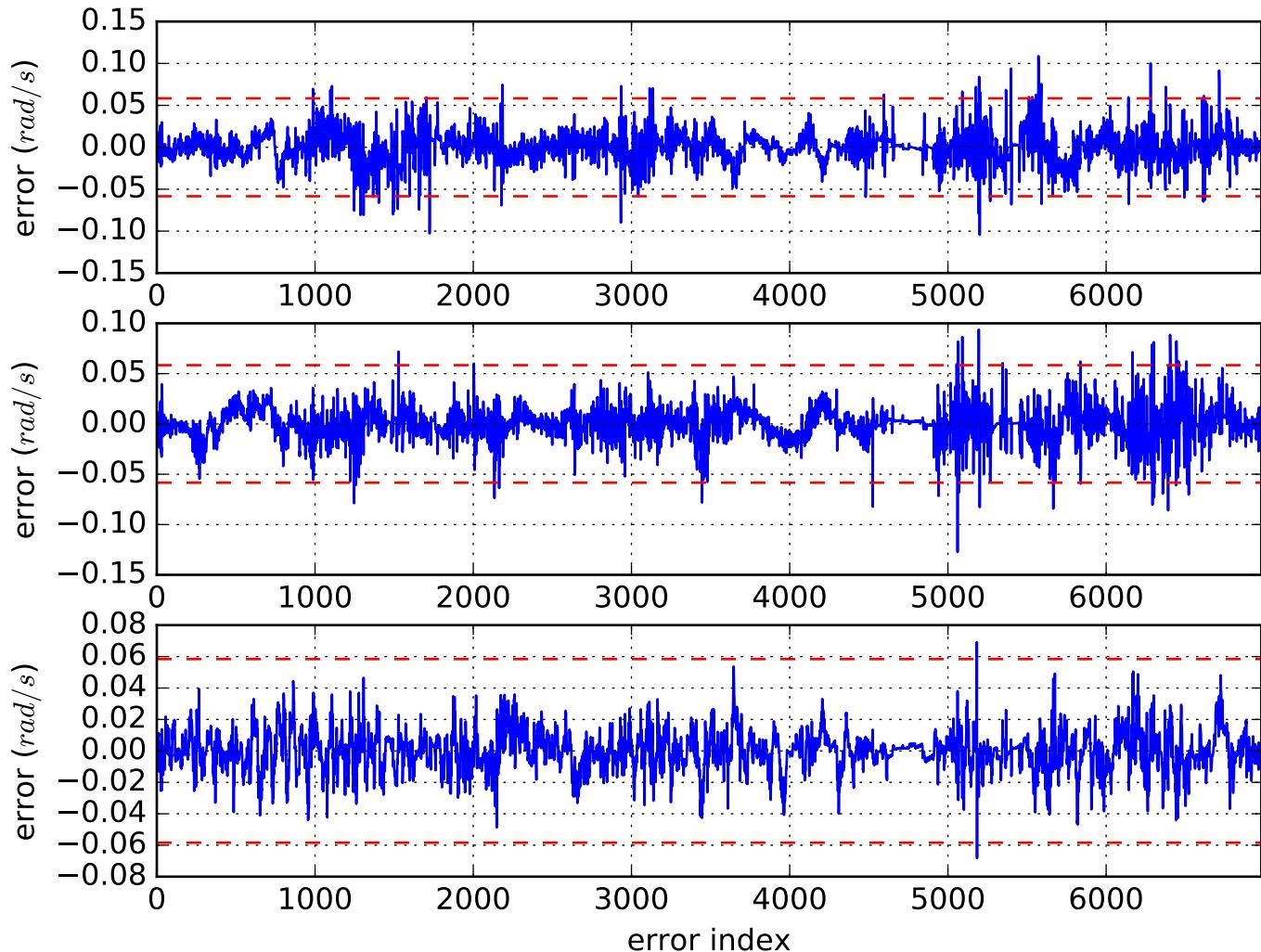
imu0: estimated accelerometer bias (imu frame)



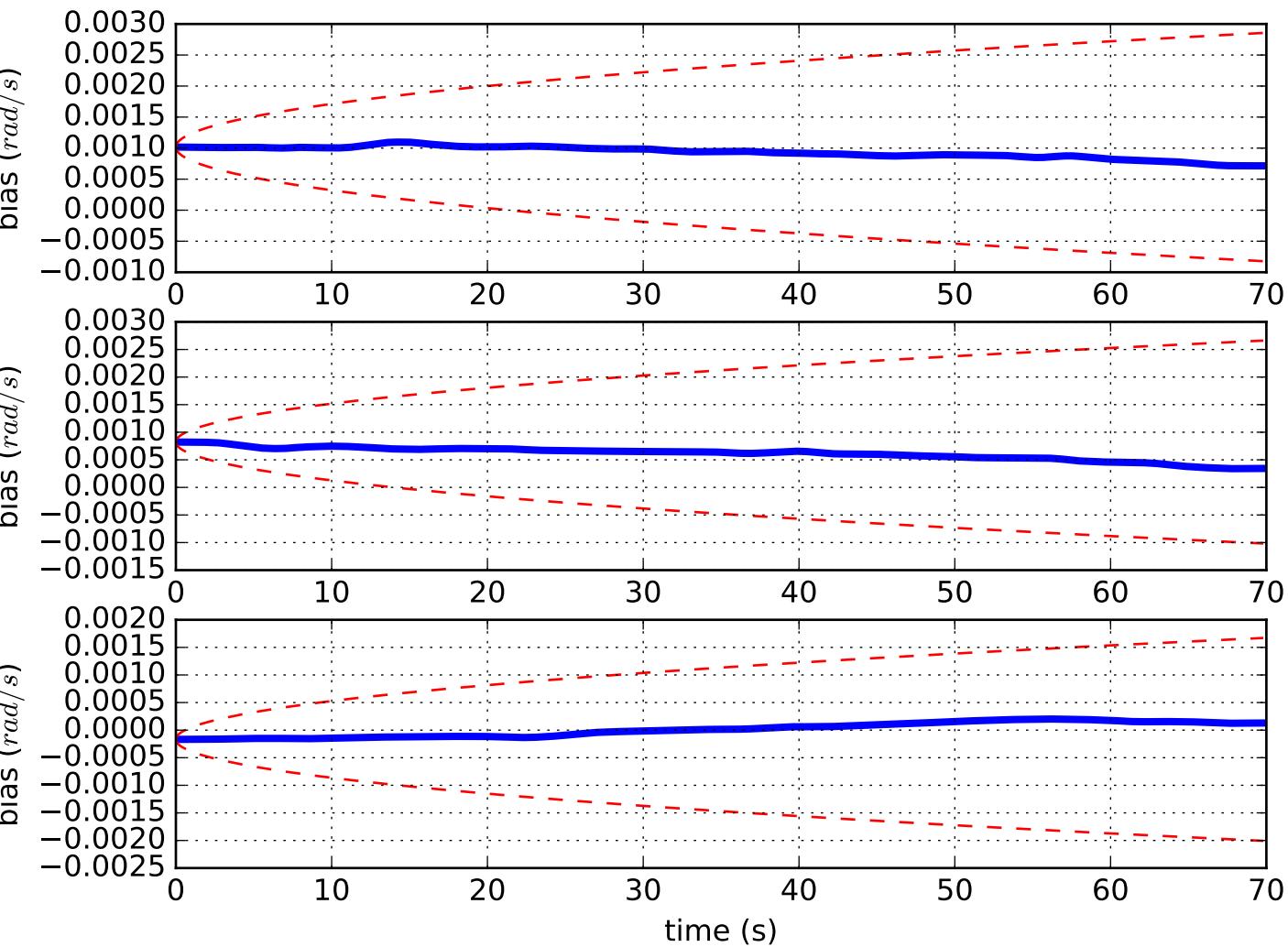
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

