

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.244917102516, median 0.194524007661, std: 0.207637128753

Gyroscope error (imu0): mean 1.52671831655, median 1.21040207176, std: 2.82725513624

Accelerometer error (imu0): mean 0.501427611863, median 0.316873492129, std: 1.69852424667

Residuals

Reprojection error (cam0) [px]: mean 0.244917102516, median 0.194524007661, std: 0.207637128753

Gyroscope error (imu0) [rad/s]: mean 0.00431821149837, median 0.0034235340516, std: 0.00799668511593

Accelerometer error (imu0) [m/s²]: mean 0.0567300583396, median 0.0358501432101, std: 0.192166082053

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.00123571 -0.00272642 0.99999552 0.02325144]

[-0.00306638 -0.99999159 -0.00272262 -0.00277855]

[0.99999454 -0.00306301 -0.00124406 -0.03651076]

[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.00123571 -0.00306638 0.99999454 0.03647331]

[-0.00272642 -0.99999159 -0.00306301 -0.00282697]

[0.99999552 -0.00272262 -0.00124406 -0.02330432]

[0. 0. 0. 1.]]

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

0.00020885189242952584

Gravity vector in target coords: [m/s²]

[0.03704581 -9.77424723 -0.79444424]

Calibration configuration

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cam0

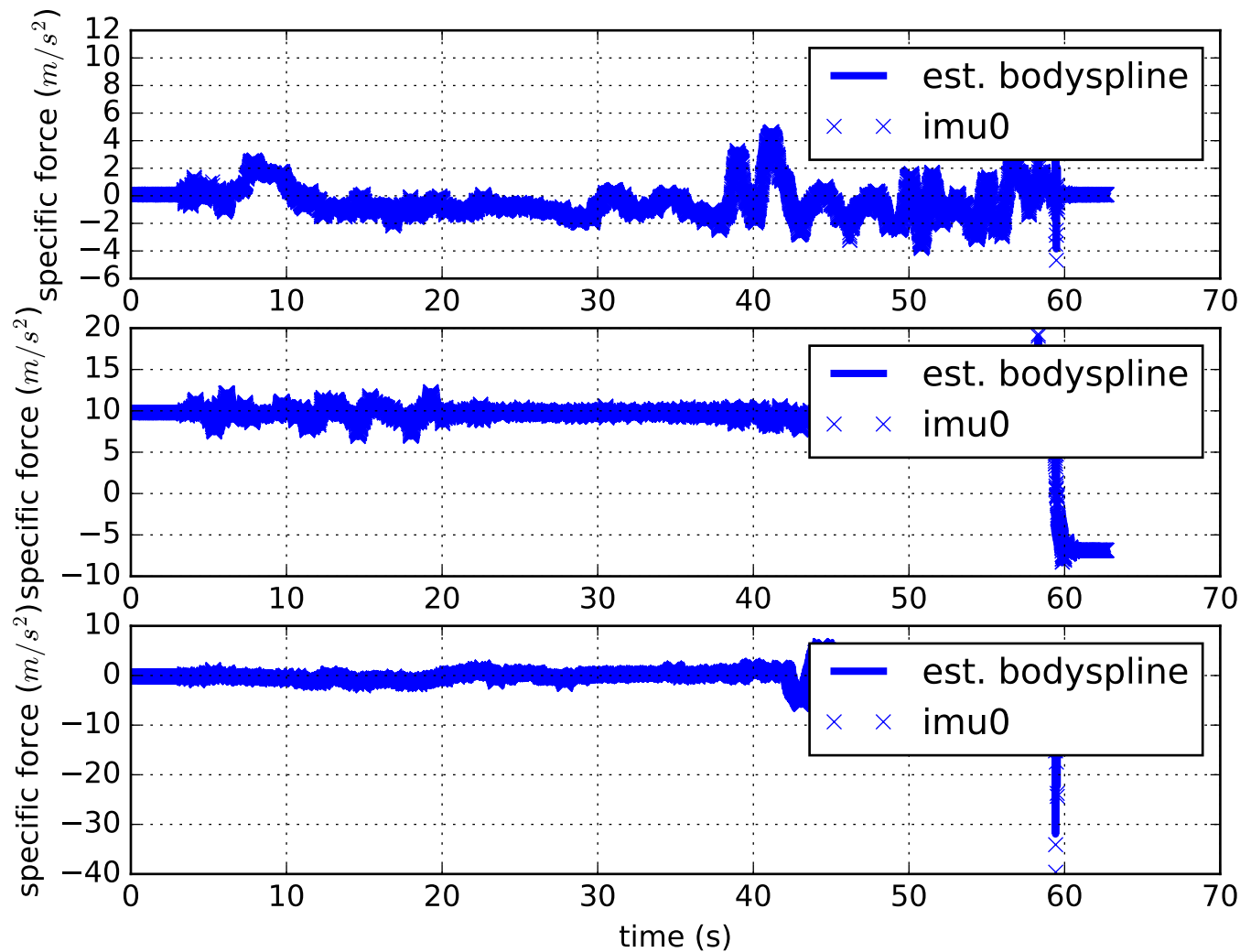
Camera model: pinhole
Focal length: [305.94701243402363, 305.9255016888083]
Principal point: [358.1988446527053, 280.09937901975894]
Distortion model: equidistant
Distortion coefficients: [0.027862784385873397, -0.007995187204749149, 0.013176416291364505, -0.0029001371414023426]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.083 [m]
 Spacing 0.0249 [m]

IMU configuration
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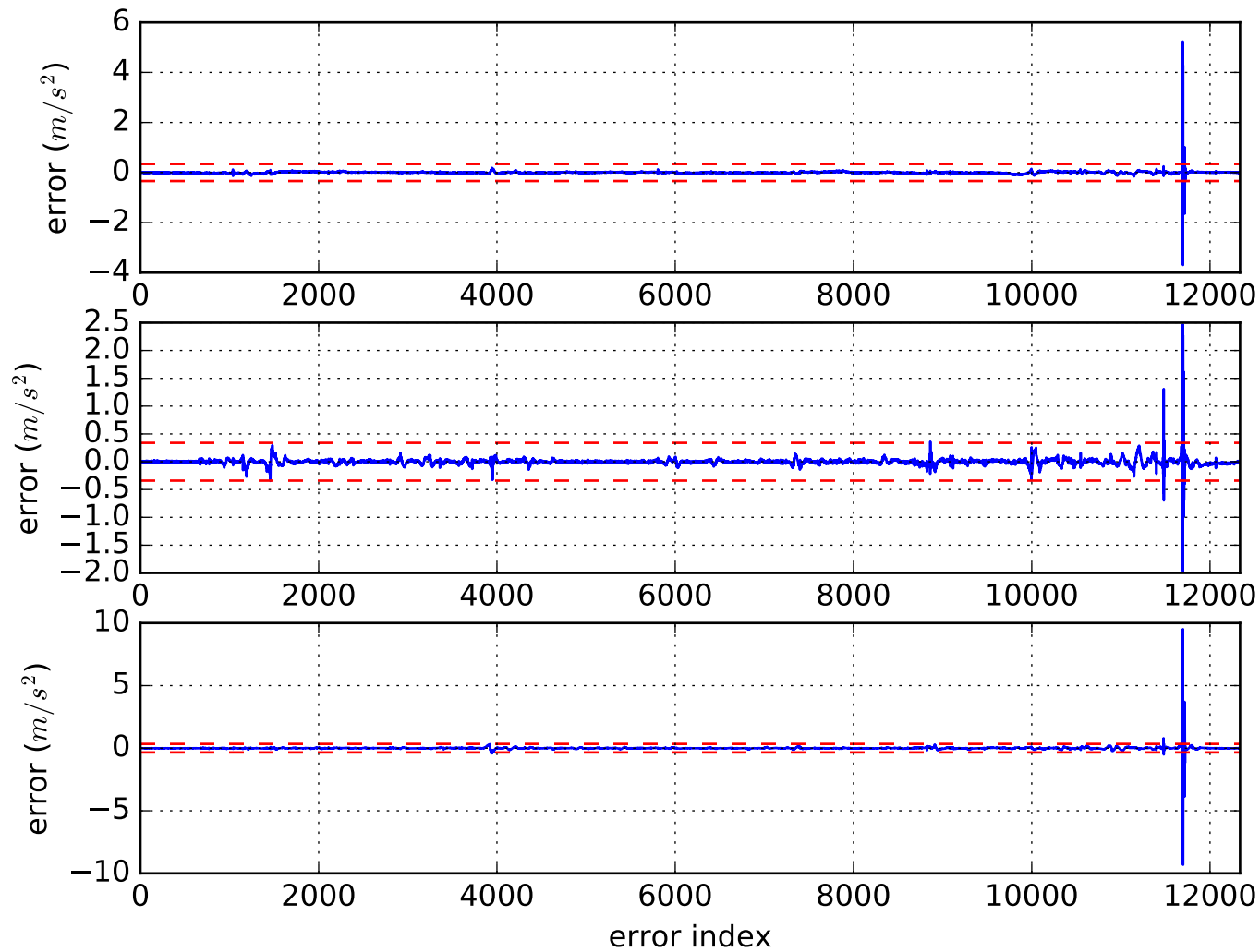
IMU0:

Model: calibrated
Update rate: 200.0
Accelerometer:
 Noise density: 0.008
 Noise density (discrete): 0.11313708499
 Random walk: 0.0002
Gyroscope:
 Noise density: 0.0002
 Noise density (discrete): 0.00282842712475
 Random walk: 4e-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]

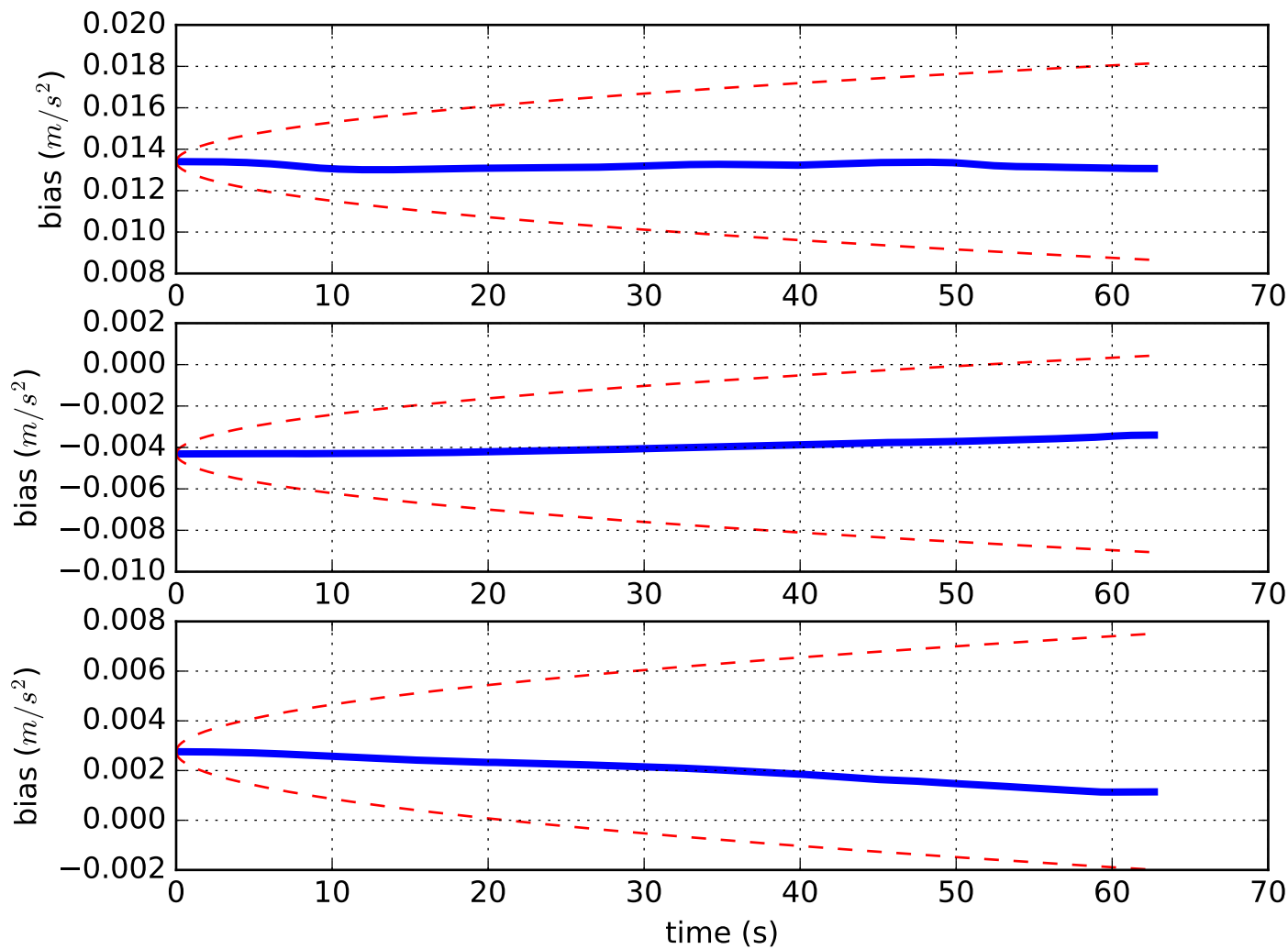
Comparison of predicted and measured specific force (imu0 frame)



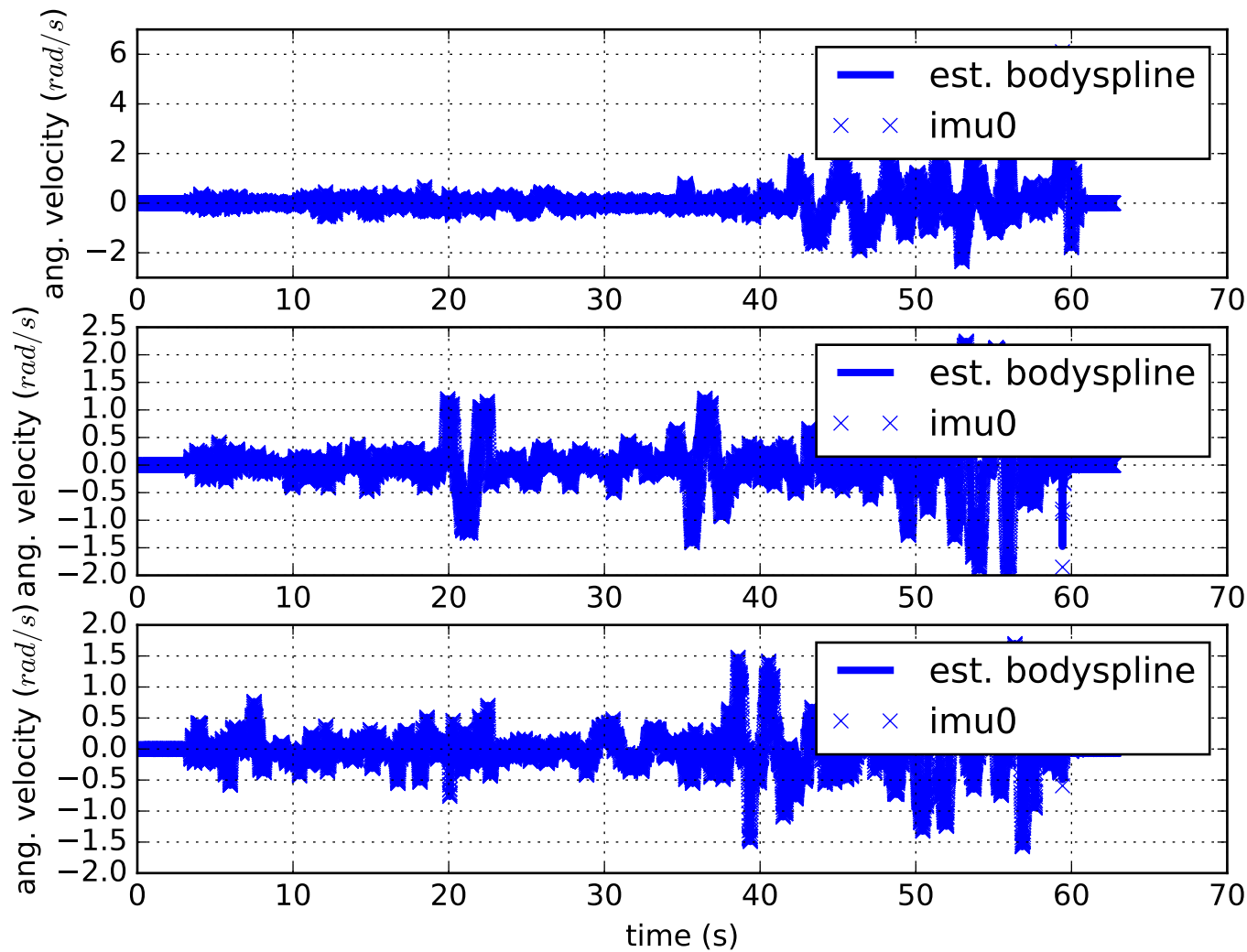
imu0: acceleration error



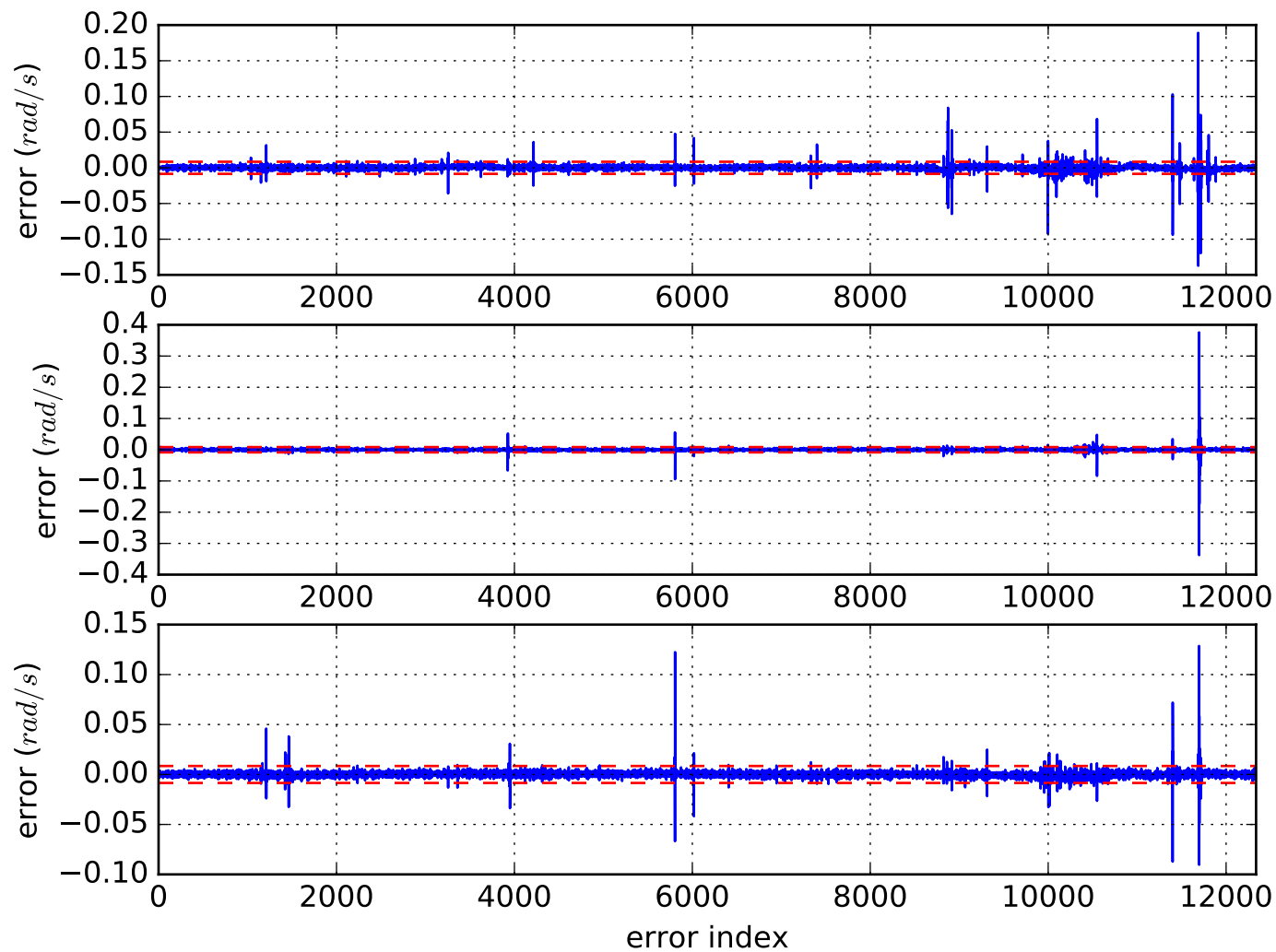
imu0: estimated accelerometer bias (imu frame)



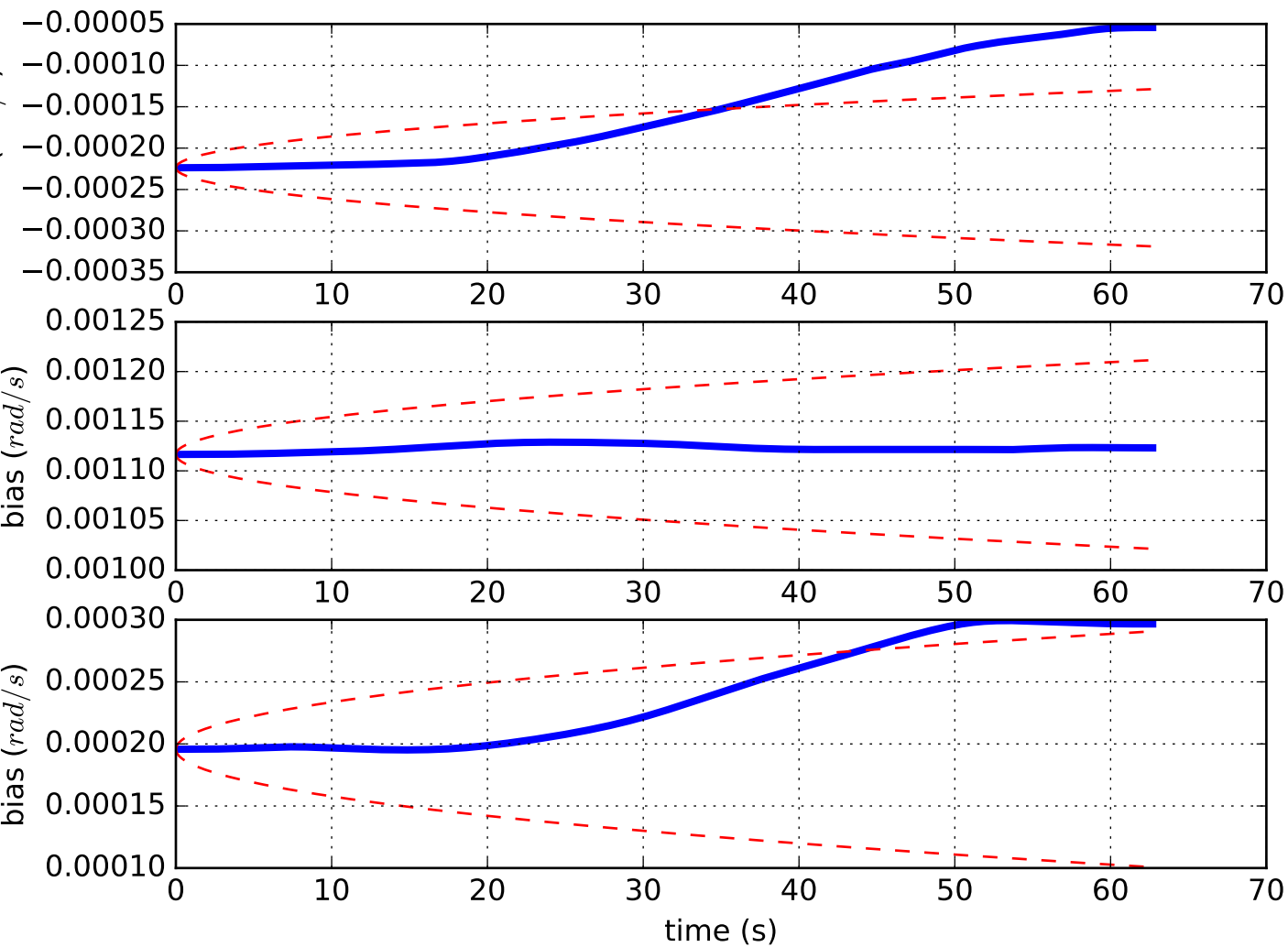
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

