

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.500803898905, median 0.397309599487, std: 0.481131887574

Gyroscope error (imu0): mean 1.04865449087, median 0.0279233847158, std: 3.24062527413

Accelerometer error (imu0): mean 0.315239723956, median 0.00621906218459, std: 1.61863215072

Residuals

Reprojection error (cam0) [px]: mean 0.500803898905, median 0.397309599487, std: 0.481131887574

Gyroscope error (imu0) [rad/s]: mean 0.0377263518188, median 0.00100457056631, std: 0.116584604624

Accelerometer error (imu0) [m/s^2]: mean 0.128191265222, median 0.00252896253028, std: 0.658211791098

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.53519318 -0.72460686 -0.43418103 -0.1057594]
[0.14619659 0.42677807 -0.89246122 -0.03491295]
[0.83198246 -0.54111494 -0.12247366 0.3562942]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.53519318 0.14619659 0.83198246 -0.34792809]
[-0.72460686 0.42677807 -0.54111494 0.13106221]
[-0.43418103 -0.89246122 -0.12247366 -0.03344052]
[0. 0. 0. 1.]]

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

-1.96104726041

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

[3.41152712 -9.19297558 -0.13822293]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [530.00468109, 521.86027041]
Principal point: [428.96714026, 248.36783979]
Distortion model: equidistant
Distortion coefficients: [0.31205856, 0.23307093, -0.13151944, 0.12435412]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.072 [m]
 Spacing 0.0216 [m]

IMU configuration

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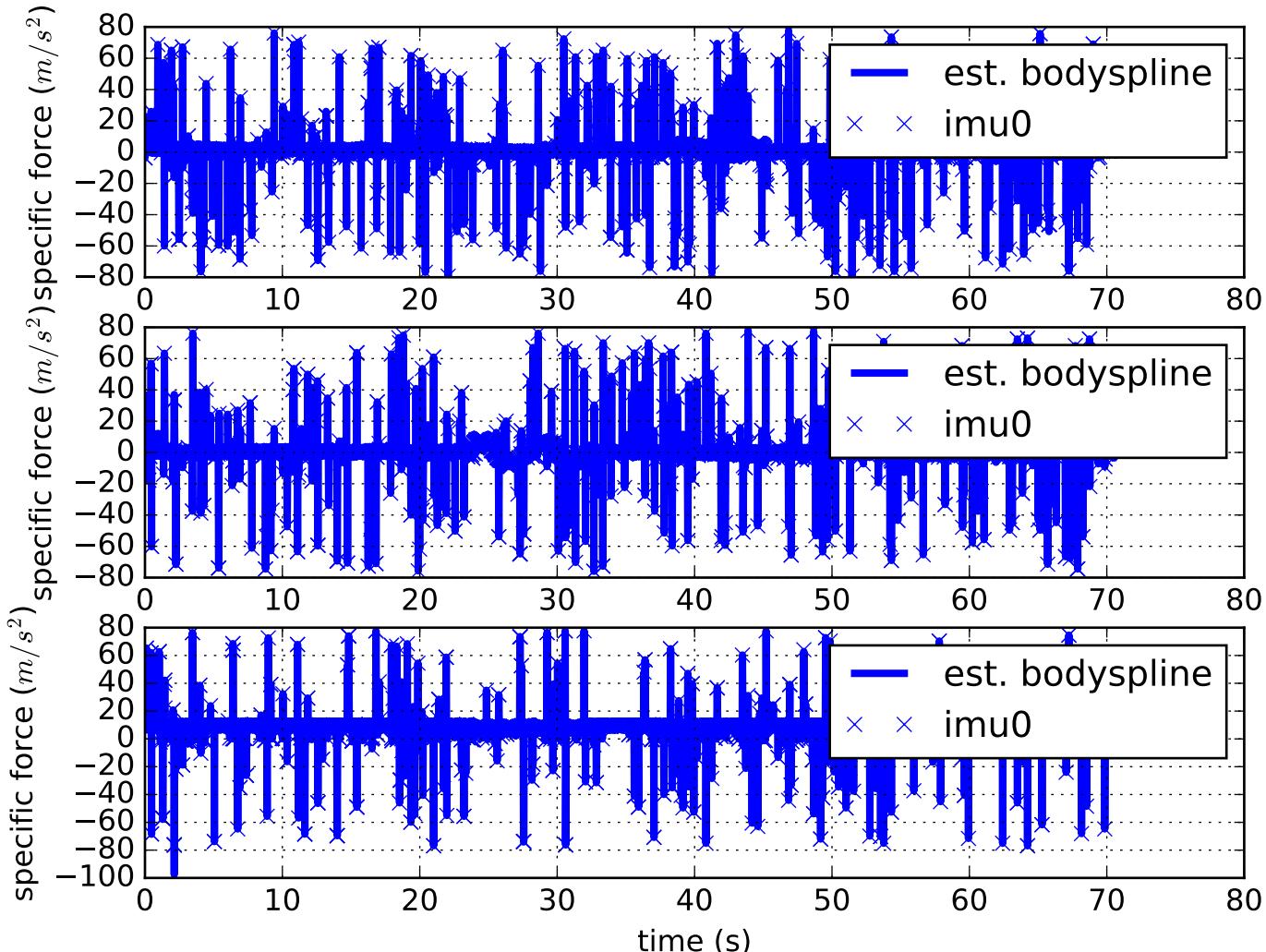
IMU0:

 Model: calibrated
 Update rate: 100.0
 Accelerometer:
 Noise density: 0.0406646927658
 Noise density (discrete): 0.406646927658
 Random walk: 0.00311311645065
 Gyroscope:
 Noise density: 0.00359759598107
 Noise density (discrete): 0.0359759598107
 Random walk: 0.000114424620336

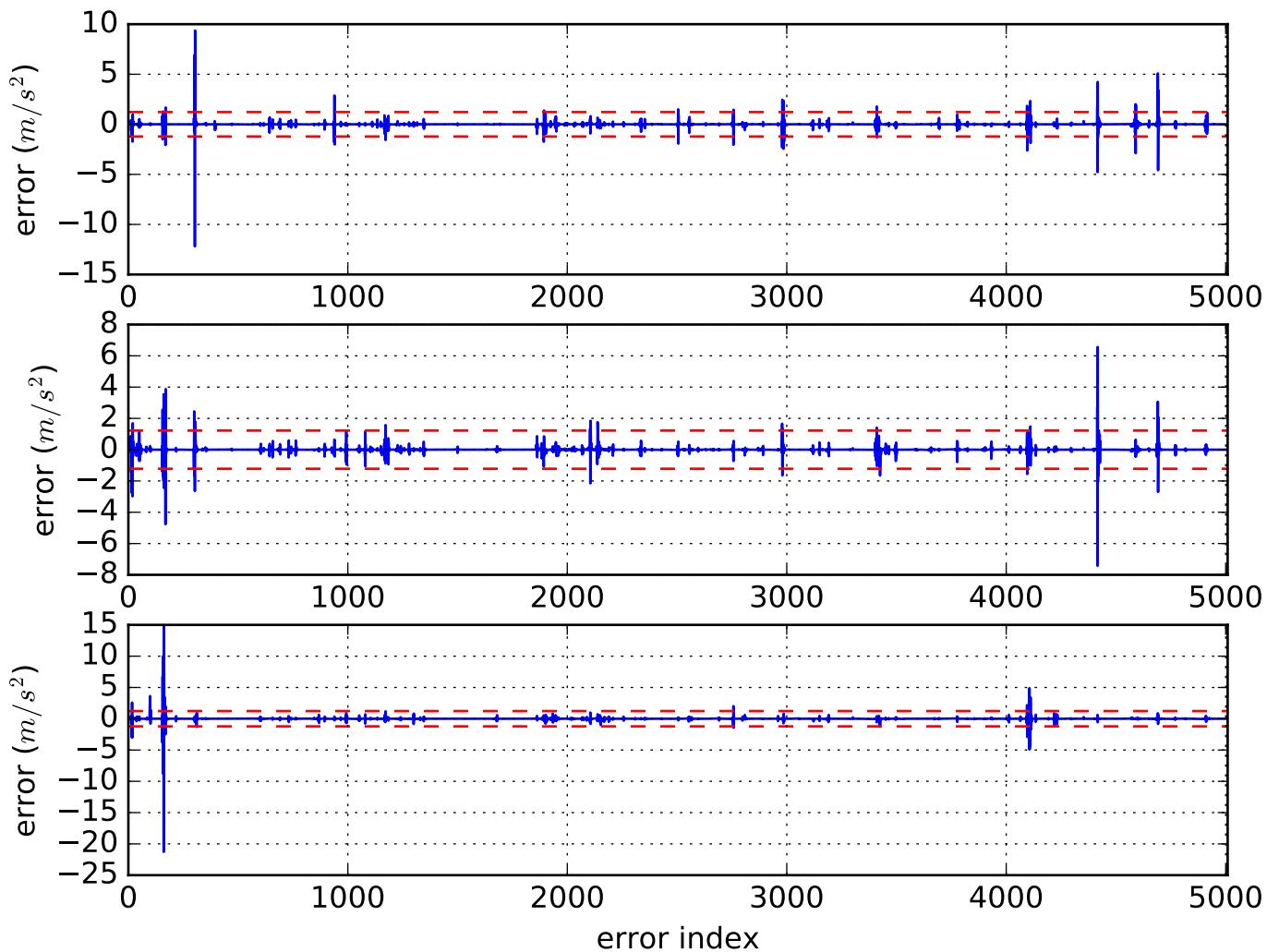
 T_i_b
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

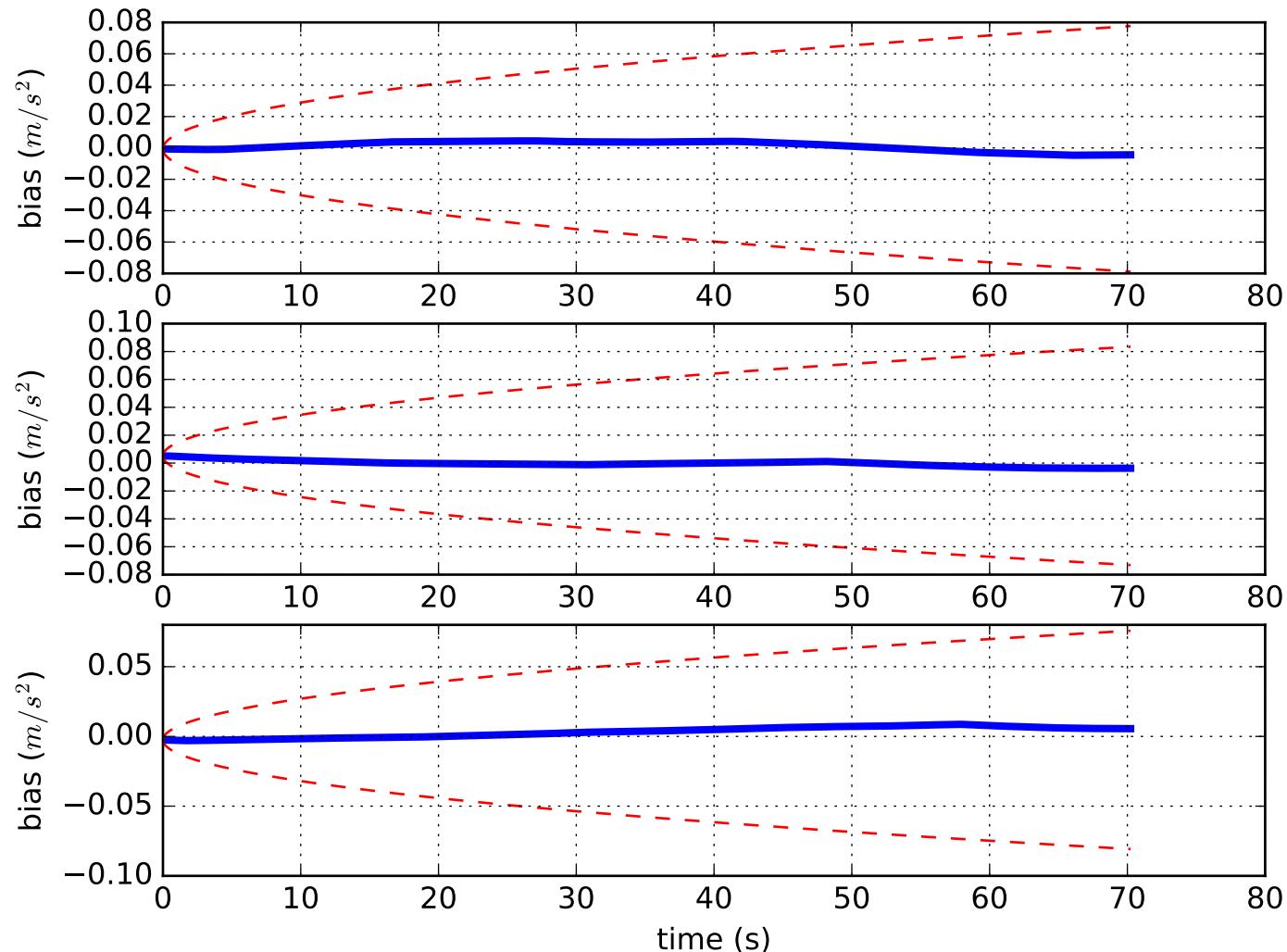
Comparison of predicted and measured specific force (imu0 frame)



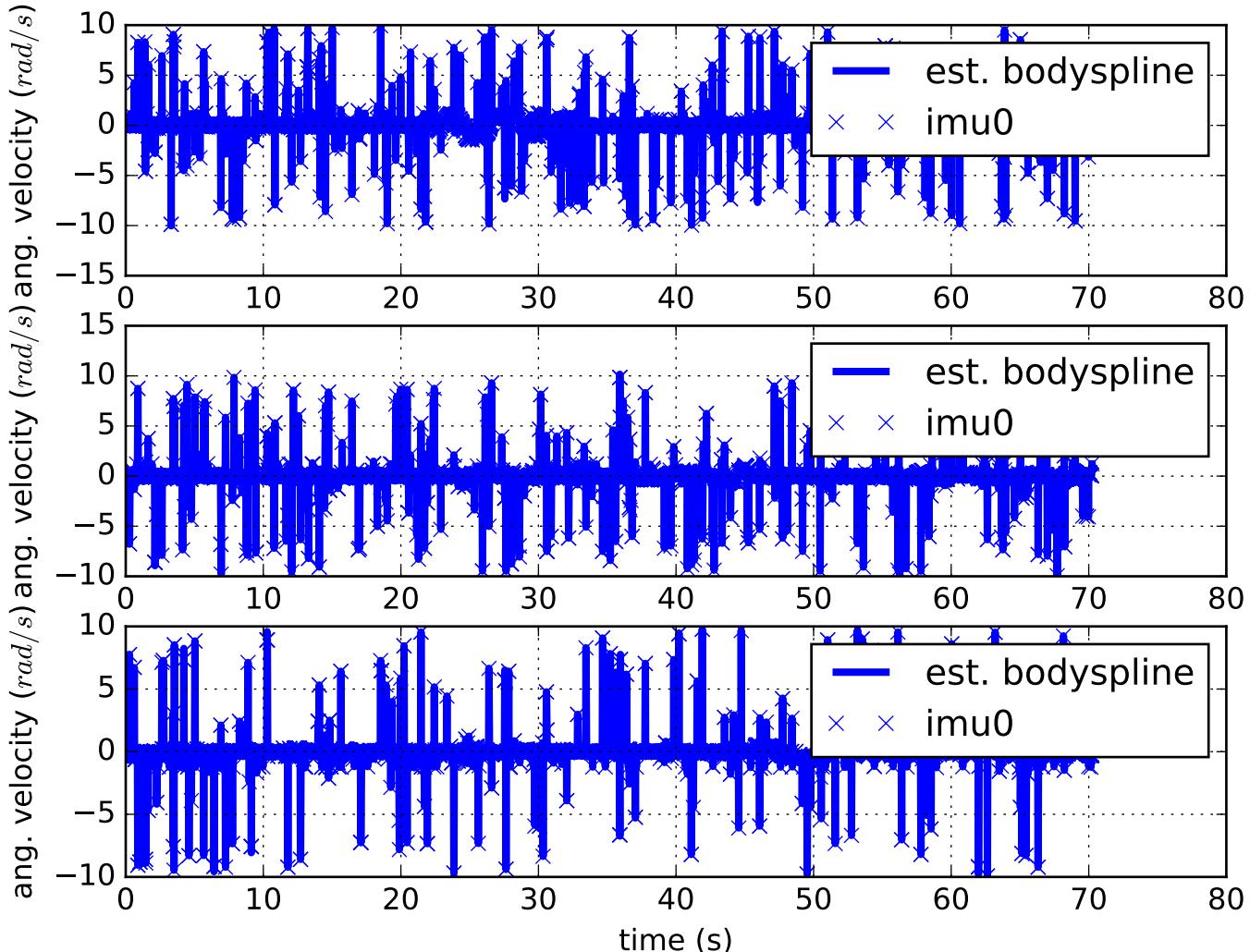
imu0: acceleration error



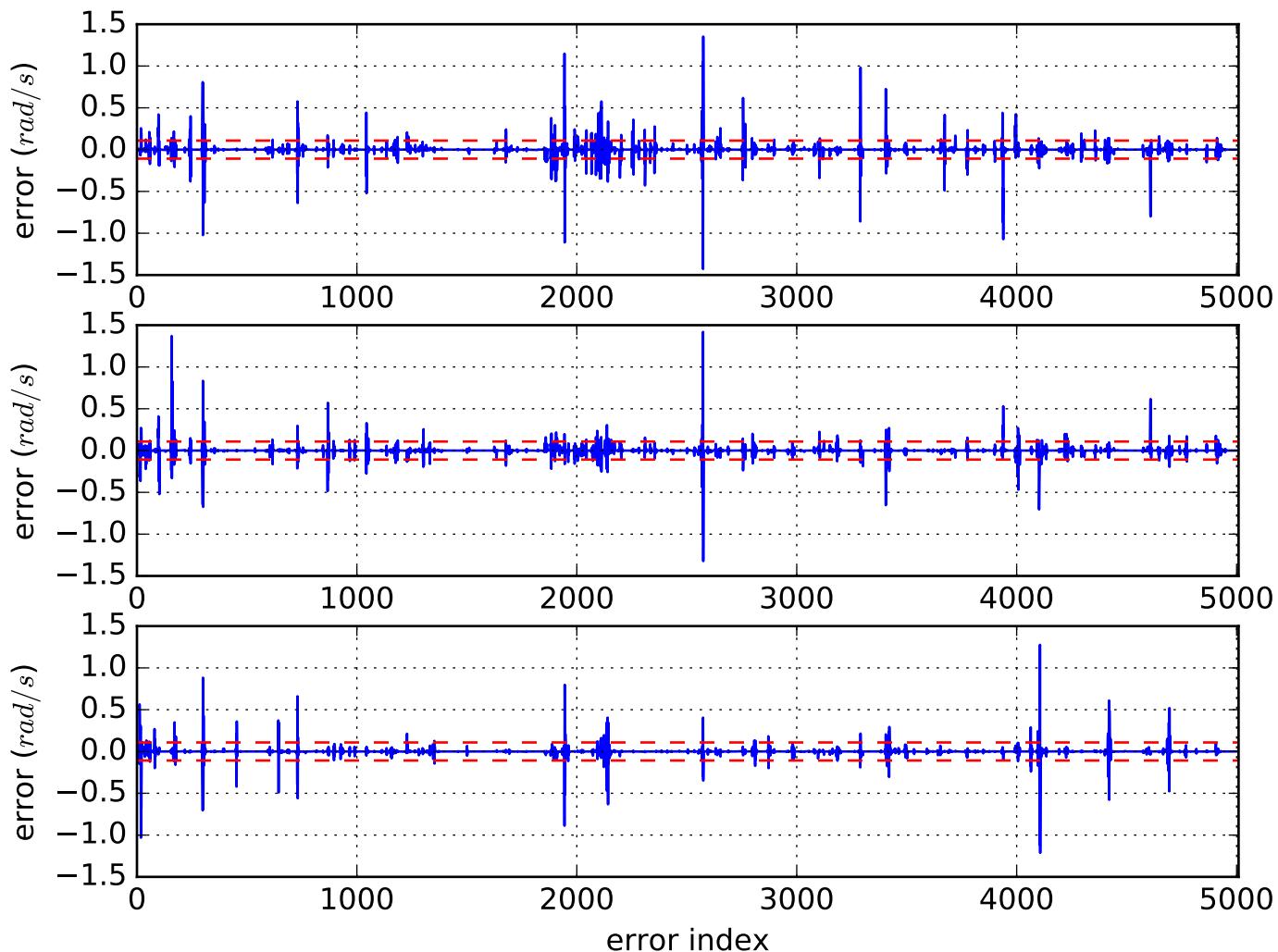
imu0: estimated accelerometer bias (imu frame)



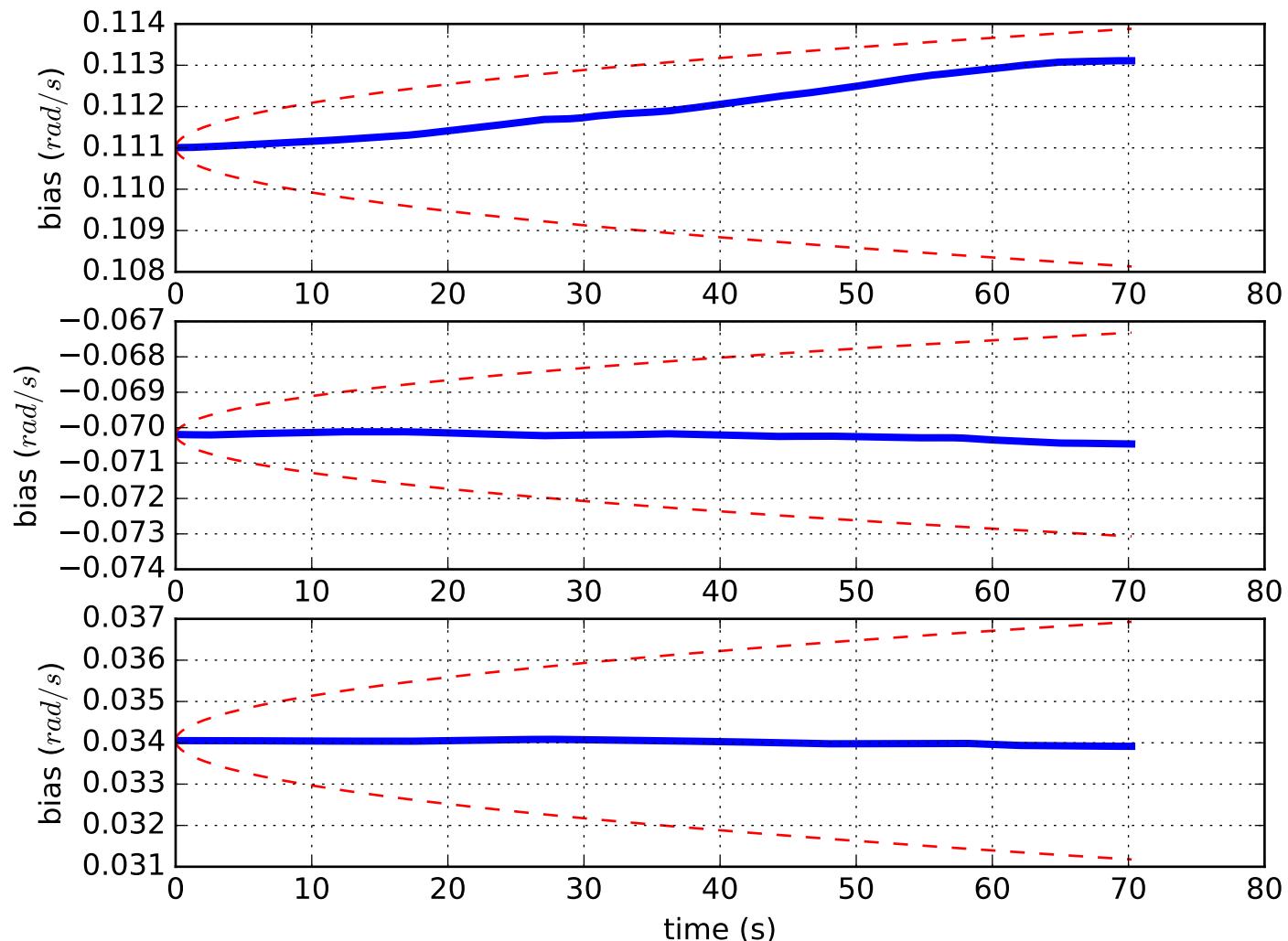
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

