

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.552203899805, median 0.511653605061, std: 0.298590654185

Gyroscope error (imu0): mean 0.00526727370965, median 0.00433581515712, std: 0.00404879551456

Accelerometer error (imu0): mean 0.0187969965187, median 0.020034531351, std: 0.0118568529226

Residuals

Reprojection error (cam0) [px]: mean 0.552203899805, median 0.511653605061, std: 0.298590654185

Gyroscope error (imu0) [rad/s]: mean 9.89546290272, median 8.14556075977, std: 7.60634590559

Accelerometer error (imu0) [m/s^2]: mean 8.11017880614, median 8.64412734194, std: 5.11577459645

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.80446985 -0.11169441 0.58339748 -0.00002506]
[-0.52139056 -0.60331596 0.60345815 0.00020244]
[0.28457011 -0.78964182 -0.54358591 0.00040079]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.80446985 -0.52139056 0.28457011 0.00001166]
[-0.11169441 -0.60331596 -0.78964182 0.00043581]
[0.58339748 0.60345815 -0.54358591 0.00011032]
[0. 0. 0. 1.]]

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

-0.0194366557765

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

[1.67460118 -5.45395453 7.97612147]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [647.5037713837596, 860.2835166759764]
Principal point: [300.2422691674086, 231.85601047756396]
Distortion model: radtan
Distortion coefficients: [0.16886766443276924, -0.27983955532486726, 0.0023200396979456417, -0.003111586927134966]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.02 [m]
 Spacing 0.006 [m]

IMU configuration

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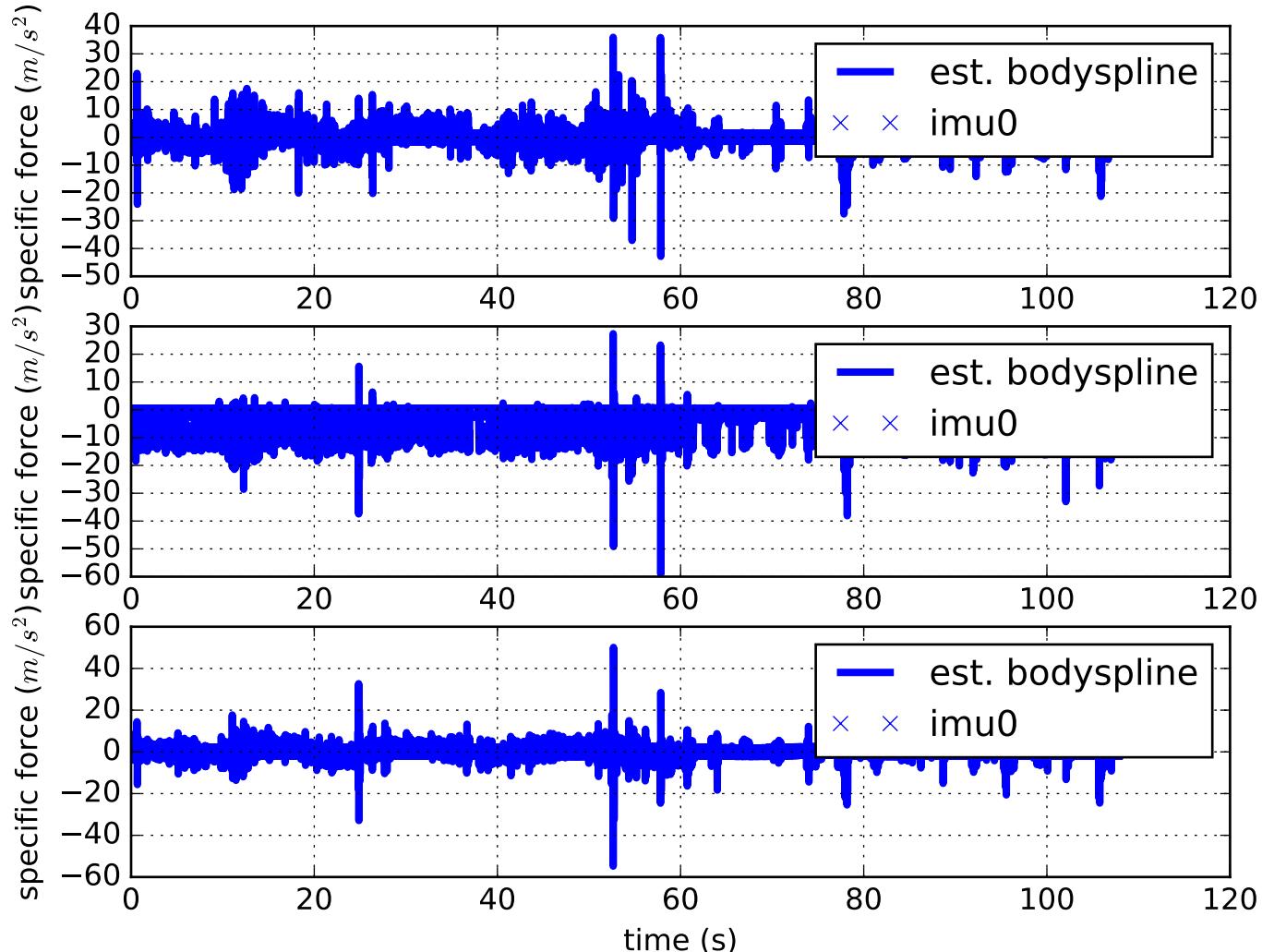
IMU0:

 Model: calibrated
 Update rate: 100.0
 Accelerometer:
 Noise density: 43.146141981
 Noise density (discrete): 431.46141981
 Random walk: 61.2122072734
 Gyroscope:
 Noise density: 187.866882342
 Noise density (discrete): 1878.66882342
 Random walk: 21.4450075787

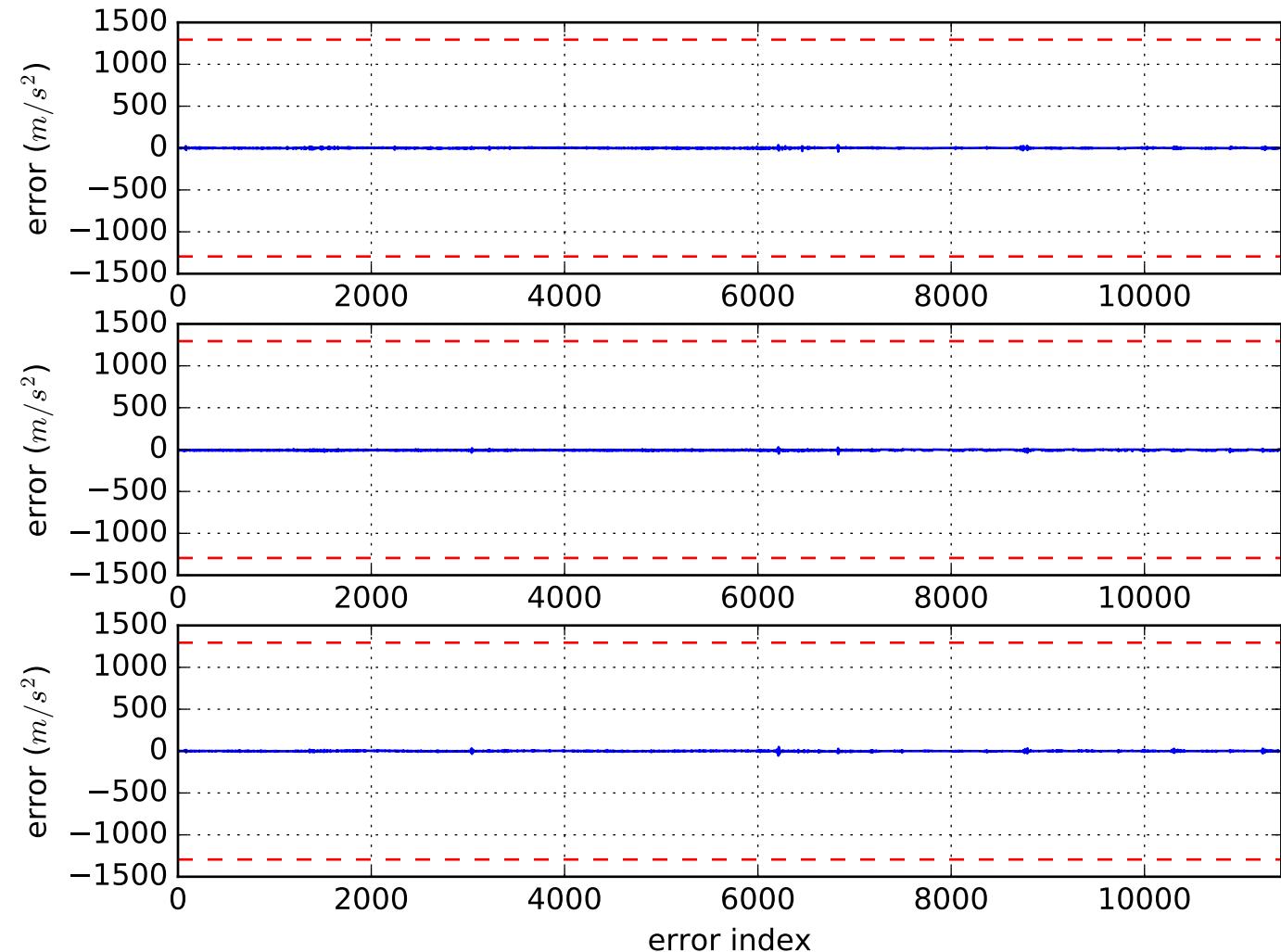
 T_i_b
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

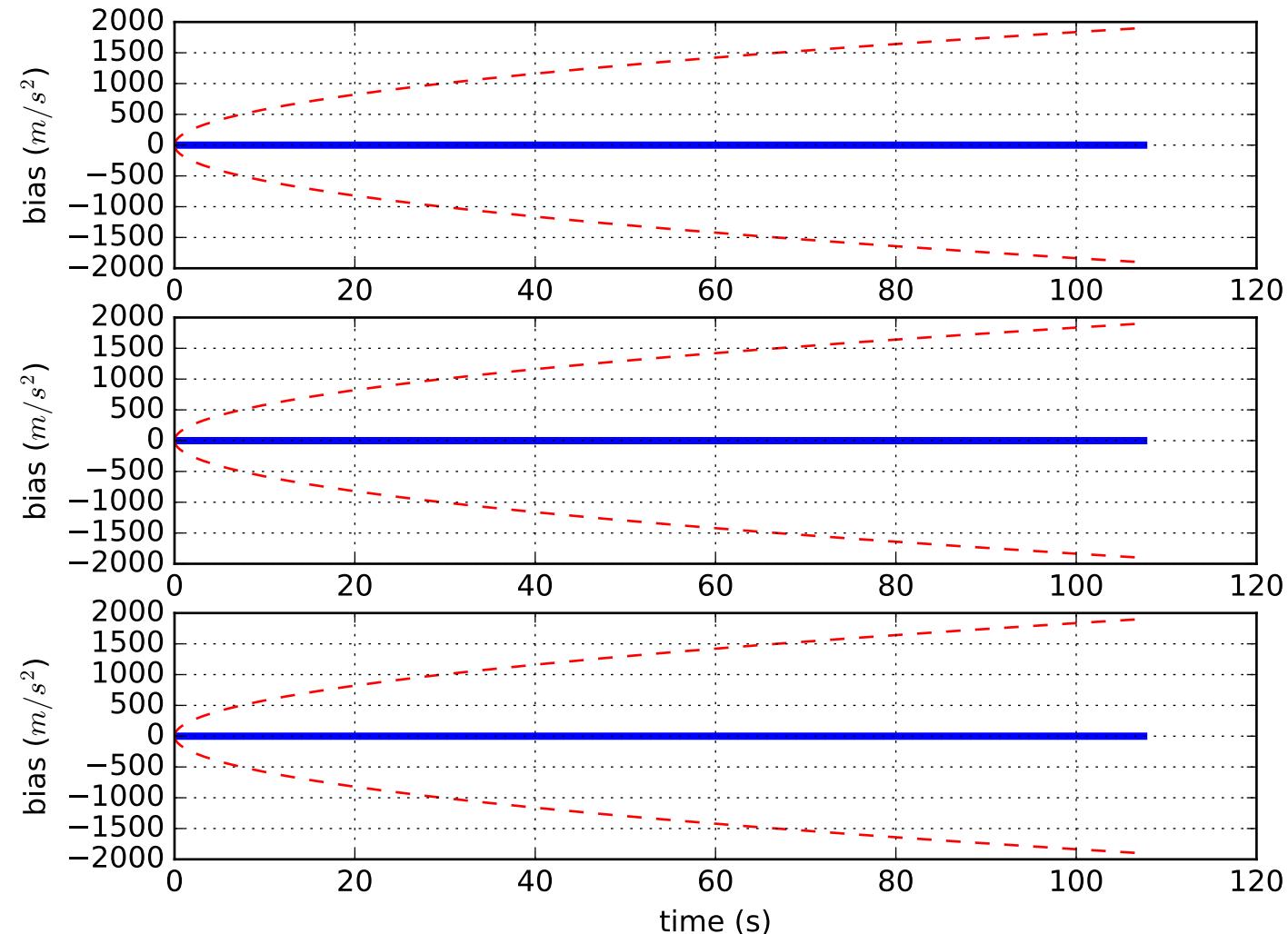
Comparison of predicted and measured specific force (imu0 frame)



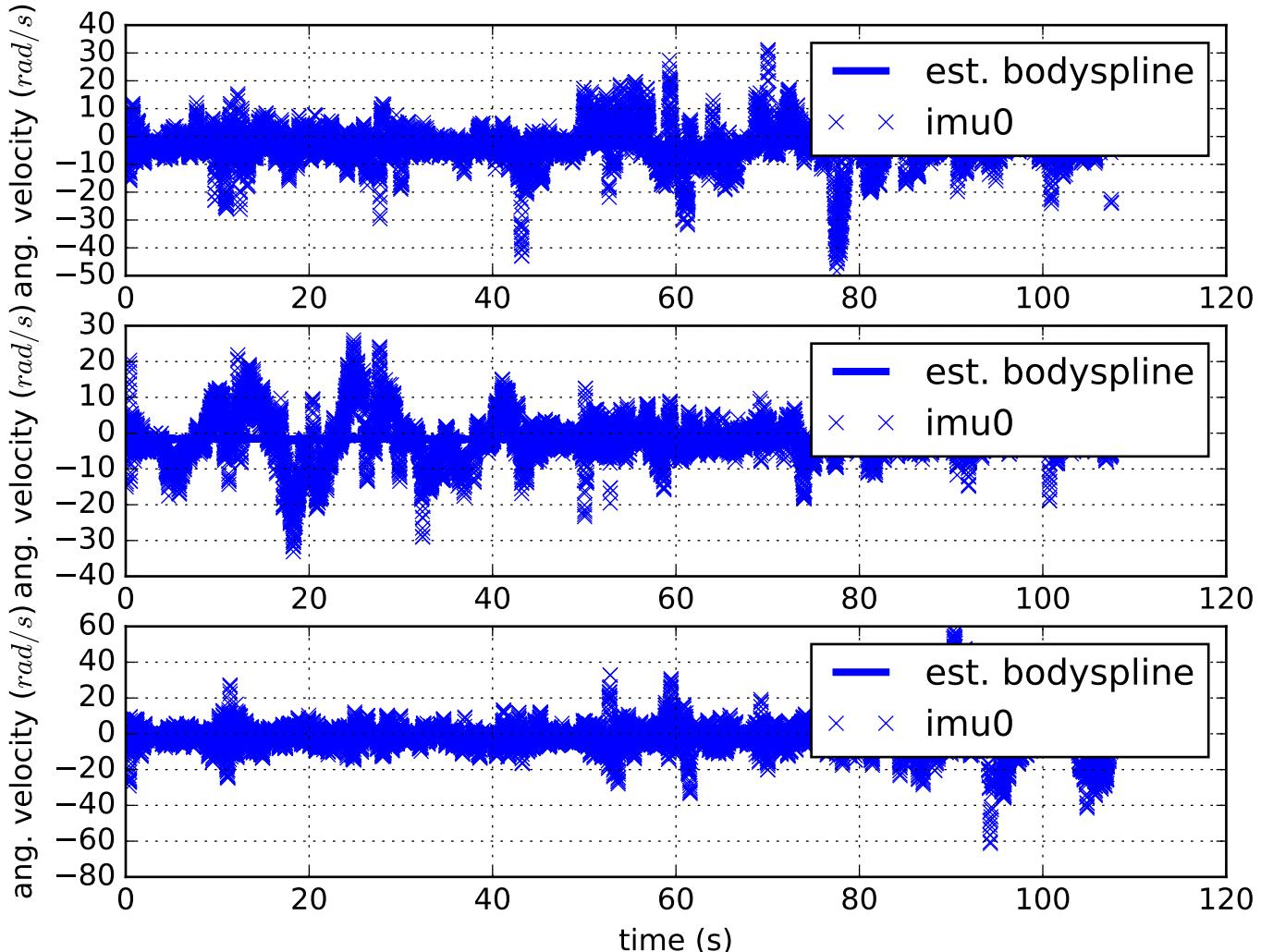
imu0: acceleration error



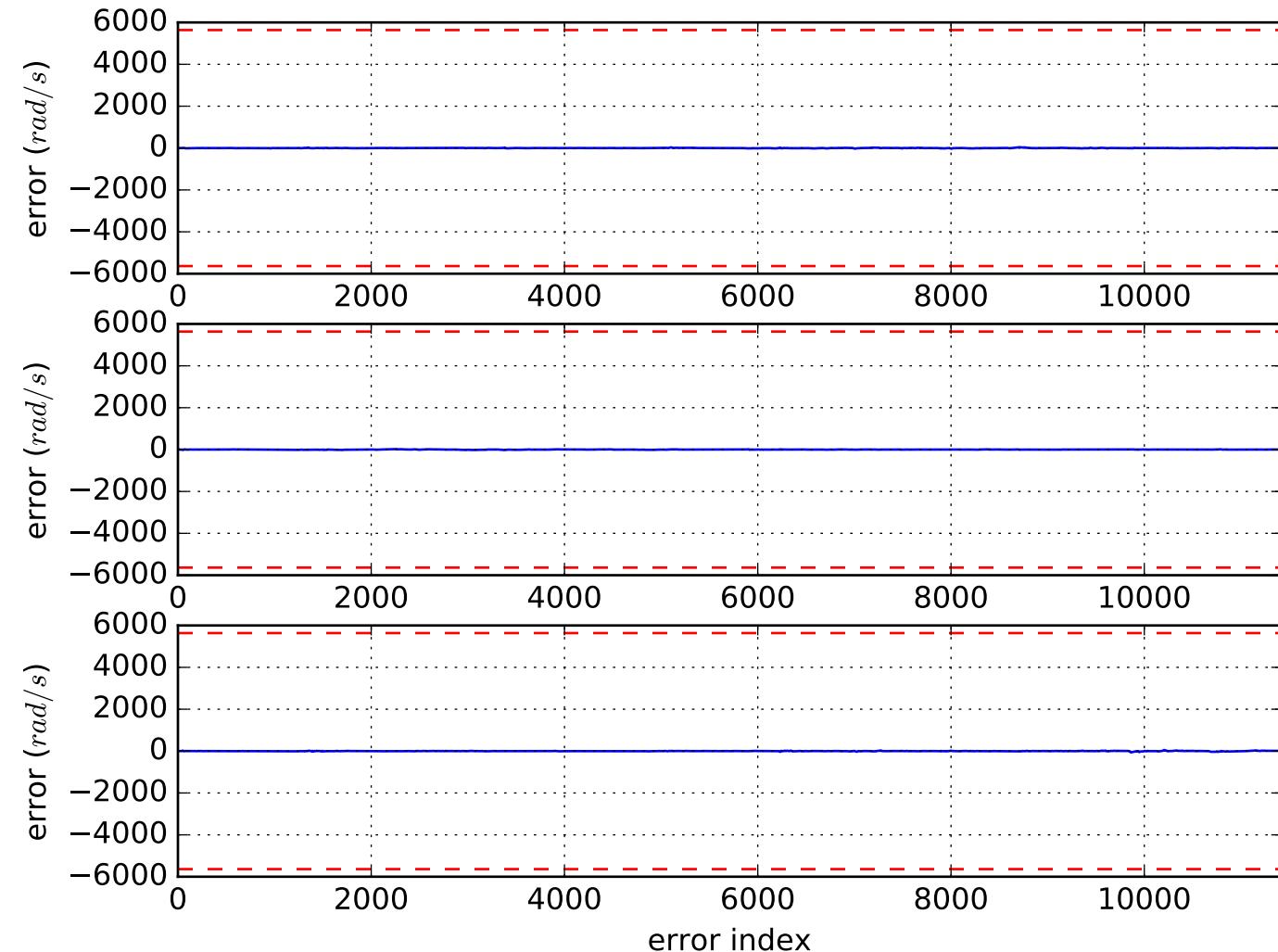
imu0: estimated accelerometer bias (imu frame)



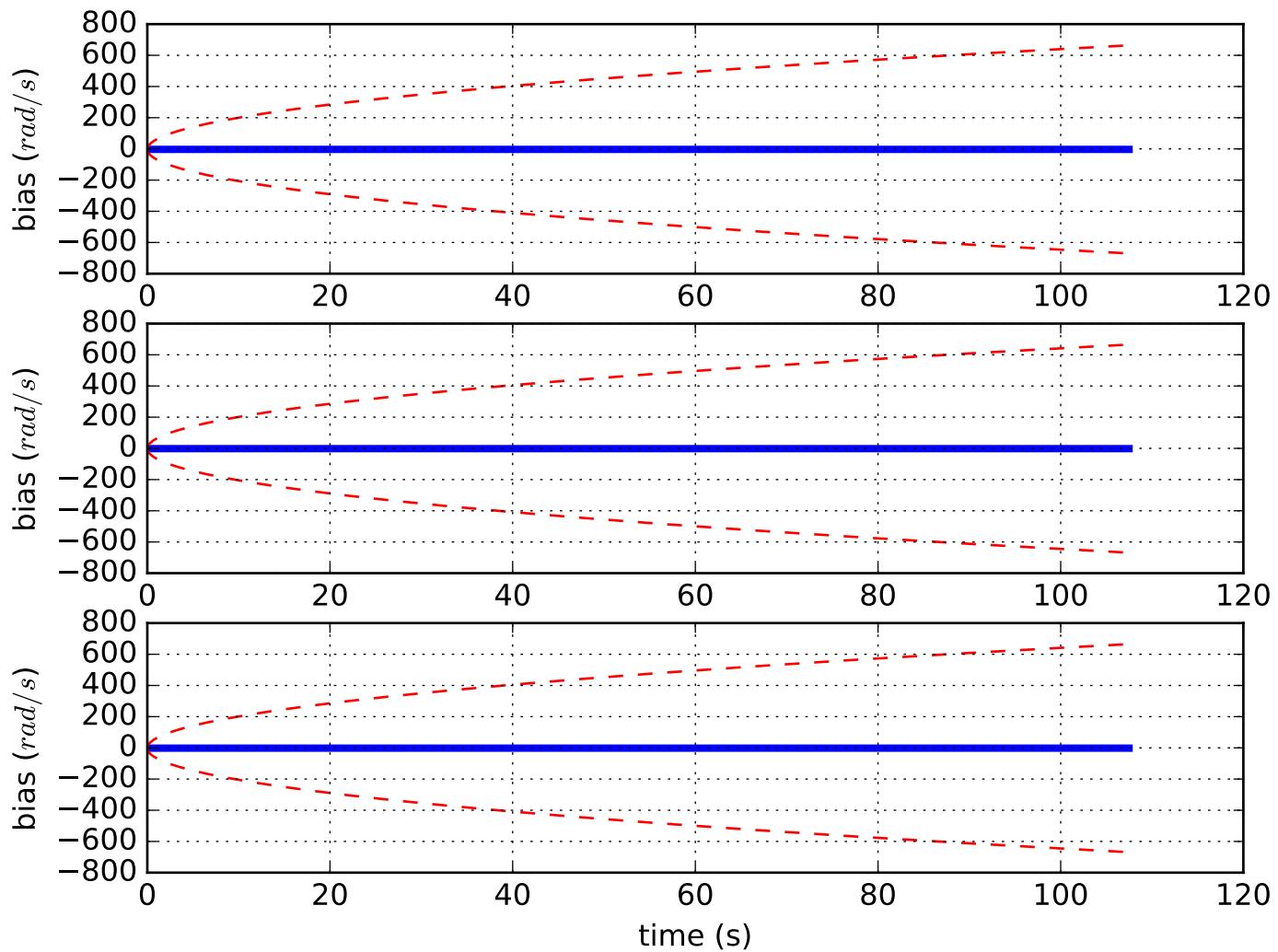
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

