

## Calibration results

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### Normalized Residuals

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Reprojection error (cam0): mean 0.4138325726514651, median 0.3626663487513858, std: 0.285647146619696  
Gyroscope error (imu0): mean 3.429671544332117, median 1.913978058816286, std: 7.093248523049221  
Accelerometer error (imu0): mean 4.375168039140616, median 2.025796598773441, std: 10.669926141834187

### Residuals

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Reprojection error (cam0) [px]: mean 0.4138325726514651, median 0.3626663487513858, std: 0.285647146619696  
Gyroscope error (imu0) [rad/s]: mean 0.008027976079562198, median 0.004480128745382886, std: 0.01660346442315607  
Accelerometer error (imu0) [m/s^2]: mean 0.06422278694071822, median 0.029736527188065093, std: 0.1566231027356874

### Transformation (cam0):

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T\_ci: (imu0 to cam0):

[[ 0.99998975 -0.00059713 -0.00448772 -0.03255748]  
[ 0.00059731 0.99999982 0.00003864 0.00027823]  
[ 0.0044877 -0.00004132 0.99998993 -0.04635967]  
[ 0. 0. 0. 1. ]]

T\_ic: (cam0 to imu0):

[[ 0.99998975 0.00059731 0.0044877 0.03276503]  
[-0.00059713 0.99999982 -0.00004132 -0.00029959]  
[-0.00448772 0.00003864 0.99998993 0.04621308]  
[ 0. 0. 0. 1. ]]

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

0.0003475970005734179

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

[-0.18833243 -9.80078881 -0.27837465]

## Calibration configuration

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cam0

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Camera model: omni

Focal length: [734.3776679117653, 732.2170774337844]

Principal point: [643.6277127157528, 362.3537262028298]

Omni xi: 0.16032526151323875

Distortion model: radtan

Distortion coefficients: [0.01818980491453005, 0.04896232274295983, -0.0022347444505812313, 0.002600266470087707]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.088 [m]

Spacing 0.026399999999999996 [m]

## IMU configuration

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IMU0:

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Model: calibrated

Update rate: 200.0

Accelerometer:

Noise density: 0.00103795711950302

Noise density (discrete): 0.014678930355628823

Random walk: 3.2656995585435125e-05

Gyroscope:

Noise density: 0.0001655154510187148

Noise density (discrete): 0.002340741956129662

Random walk: 2.848286811512562e-06

T\_ib (imu0 to imu0)

[[1. 0. 0. 0.]

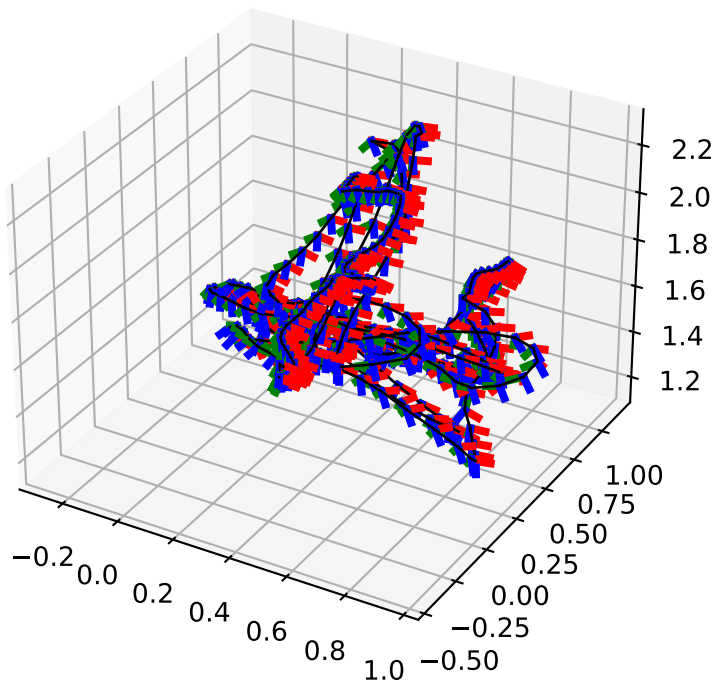
[0. 1. 0. 0.]

[0. 0. 1. 0.]

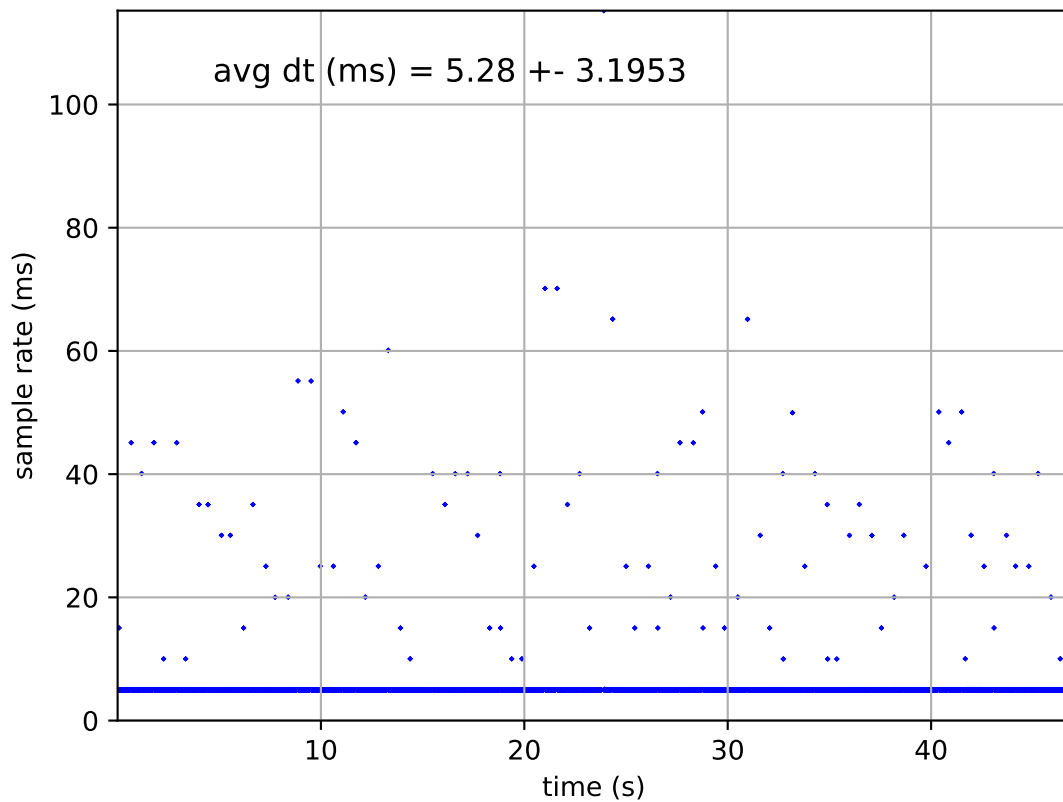
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

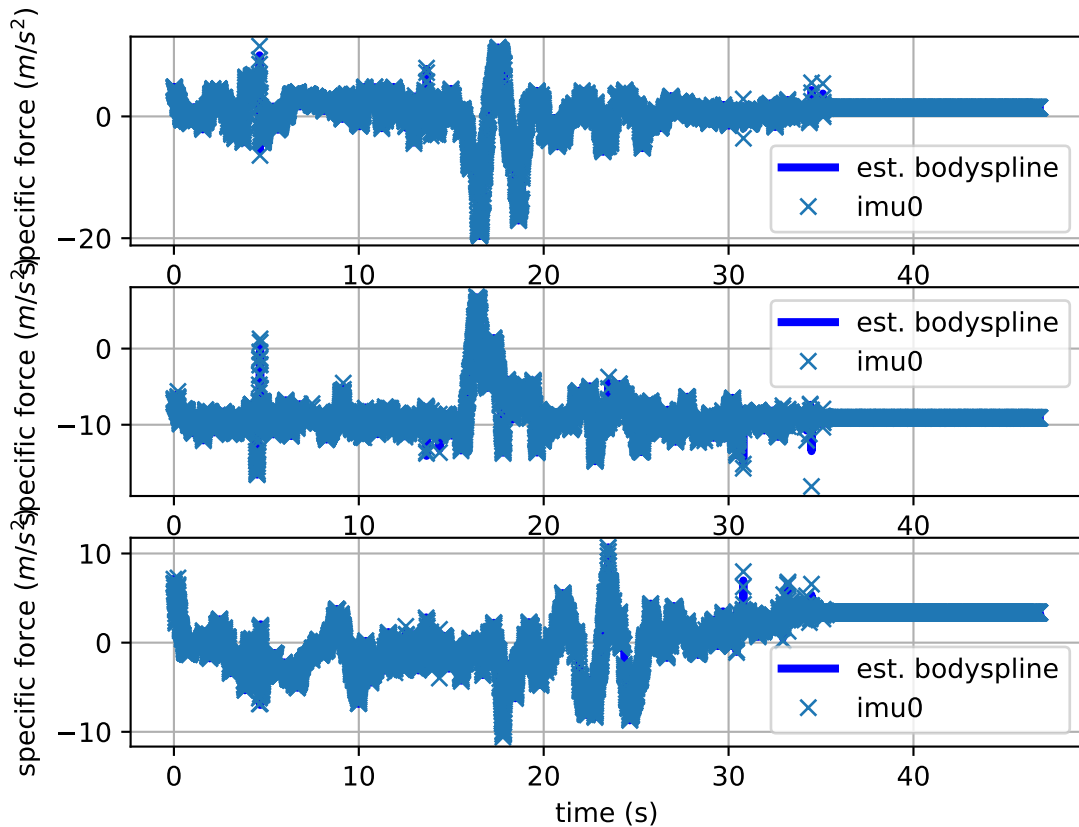
imu0: estimated poses



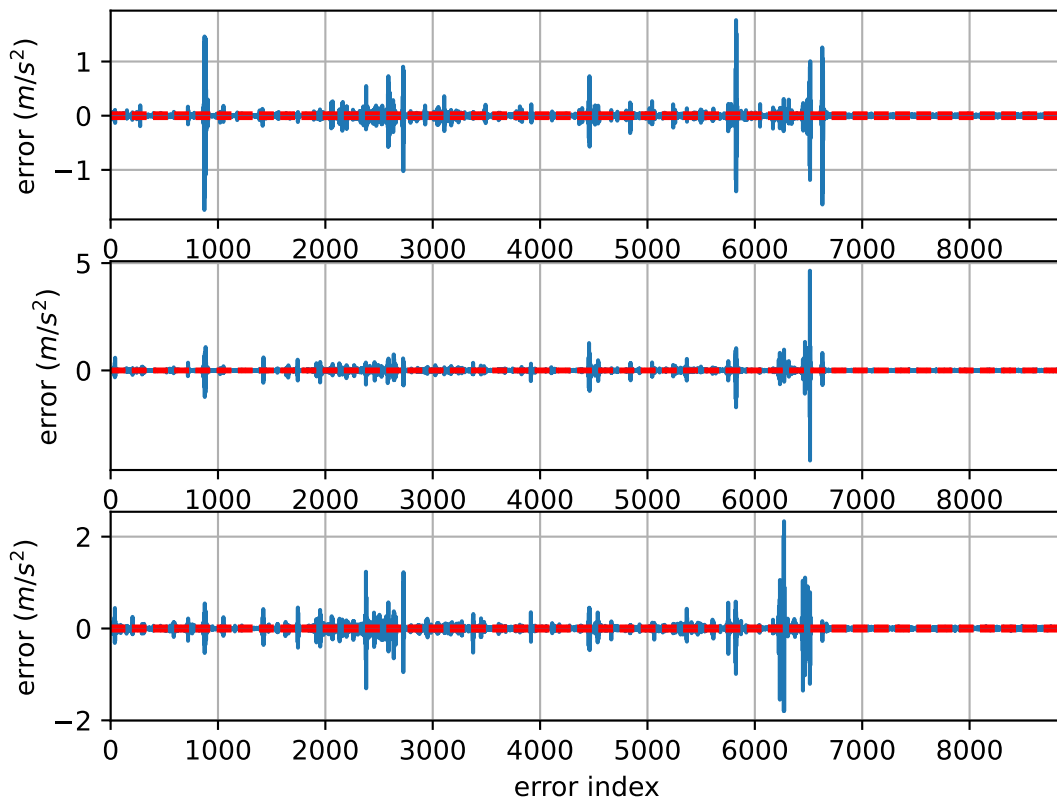
imu0: sample inertial rate



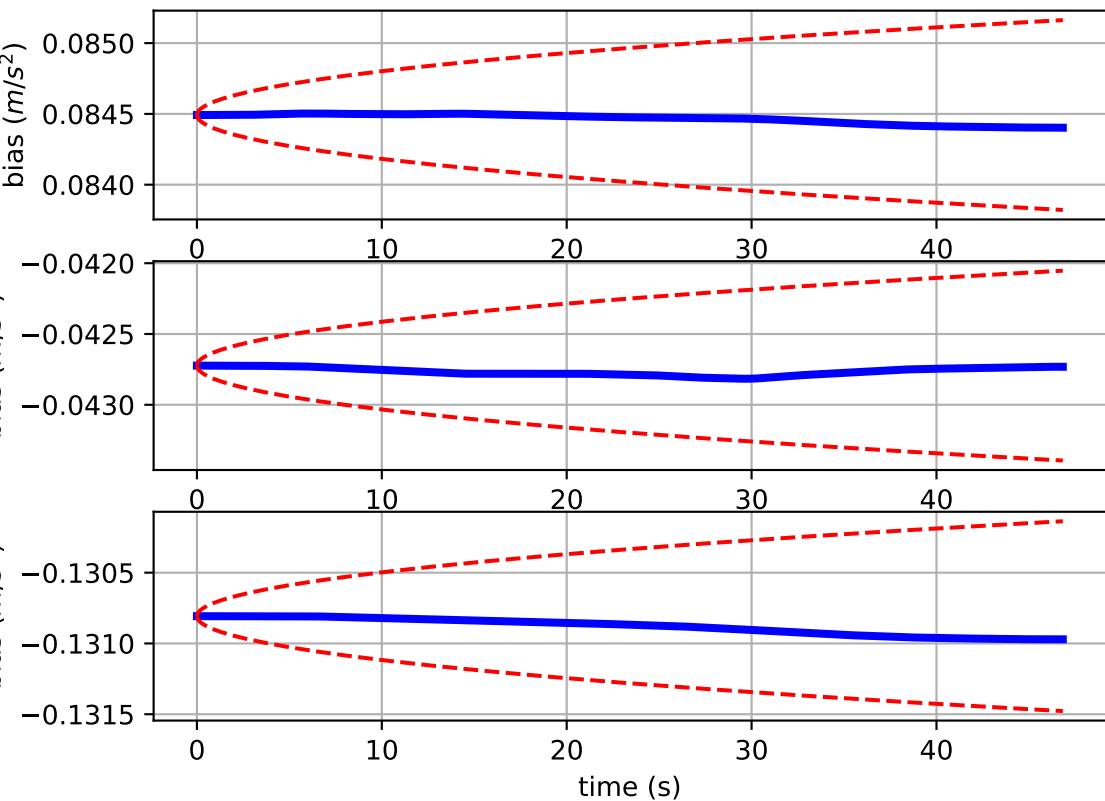
Comparison of predicted and measured specific force (imu0 frame)



imu0: acceleration error

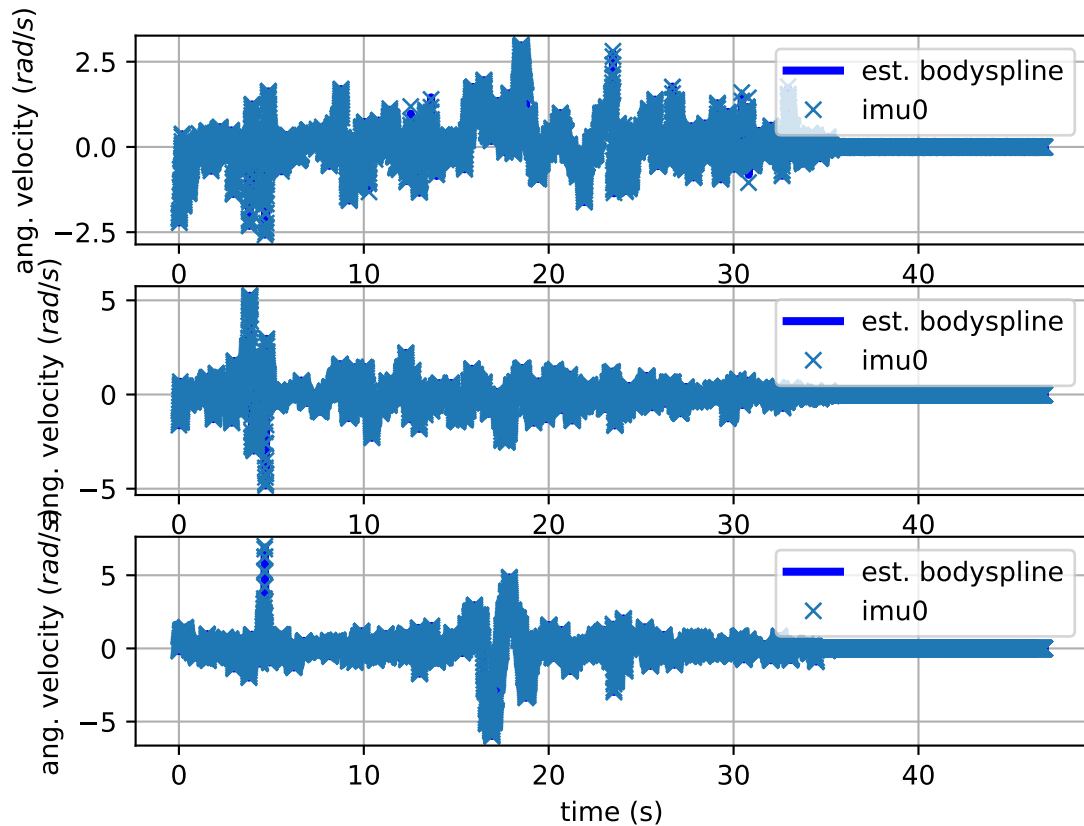


imu0: estimated accelerometer bias (imu frame)

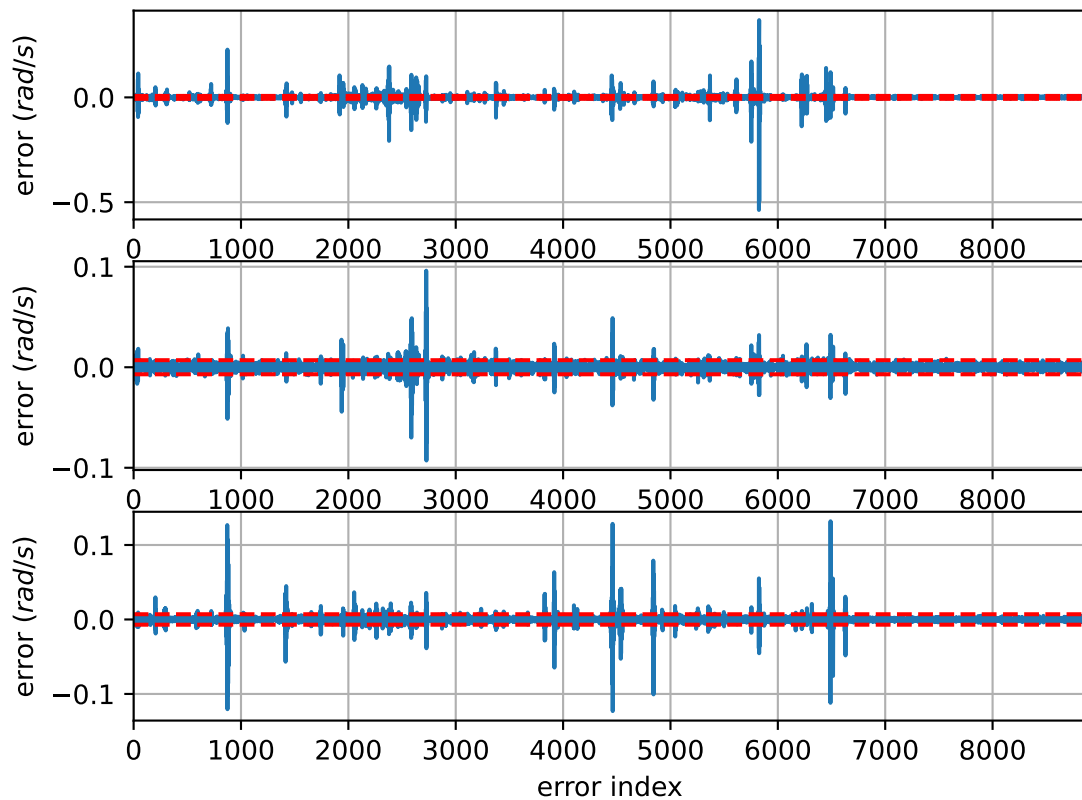




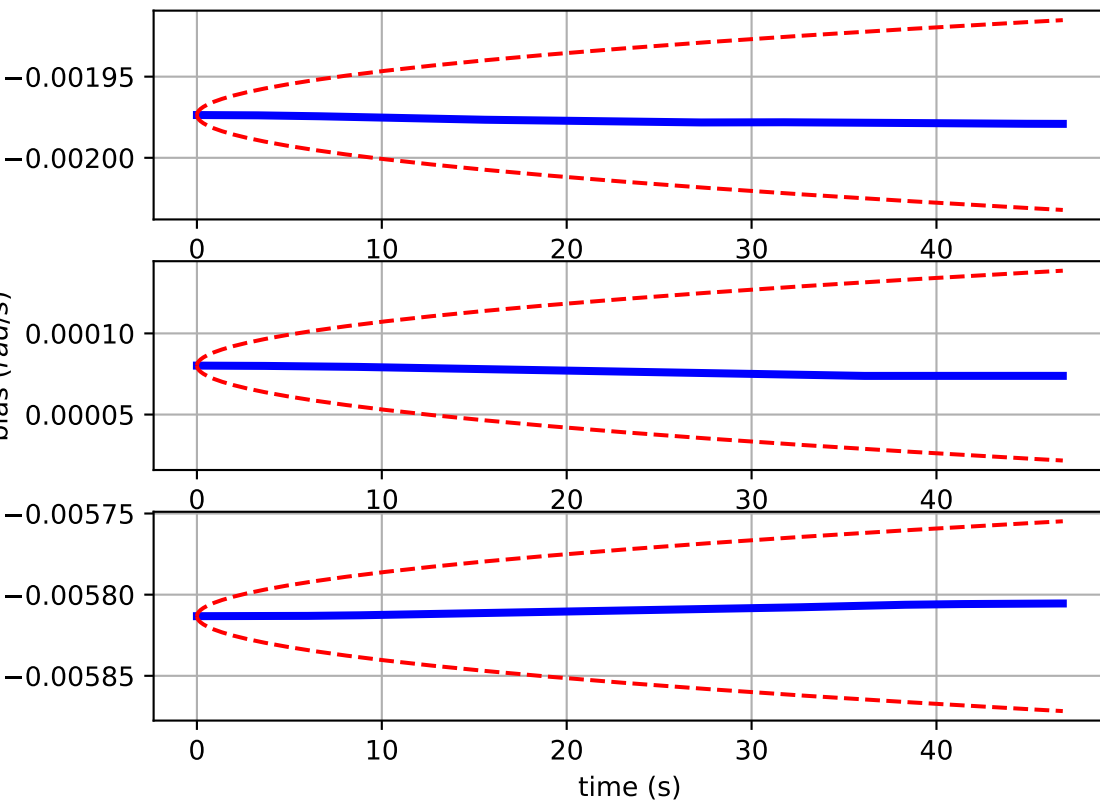
# Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

