

## Calibration results

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### Normalized Residuals

Reprojection error (cam0): mean 0.3765740348282974, median 0.30127455116419455, std: 0.30301039228181653  
Gyroscope error (imu0): mean 0.7240259166807912, median 0.5684277016675022, std: 0.6189169640833848  
Accelerometer error (imu0): mean 0.8926986801122834, median 0.7040096919556325, std: 0.7136607389489643

### Residuals

Reprojection error (cam0) [px]: mean 0.3765740348282974, median 0.30127455116419455, std: 0.30301039228181653  
Gyroscope error (imu0) [rad/s]: mean 0.003121730109091941, median 0.0024508485542510013, std: 0.0026685394504444224  
Accelerometer error (imu0) [m/s<sup>2</sup>]: mean 0.24182379859349754, median 0.19070970053852387, std: 0.19332407971968085

### Transformation (cam0):

T\_ci: (imu0 to cam0):

```
[[ 0.99999019  0.00209983  0.00390052  0.05615703]
 [ 0.00393197 -0.01518989 -0.9998769 -0.03205758]
 [-0.00204032  0.99988242 -0.015198 -0.06964224]
 [ 0.          0.          0.          1.          ]]
```

T\_ic: (cam0 to imu0):

```
[[ 0.99999019  0.00393197 -0.00204032 -0.05617252]
 [ 0.00209983 -0.01518989  0.99988242  0.06902918]
 [ 0.00390052 -0.9998769 -0.015198 -0.0333311 ]
 [ 0.          0.          0.          1.          ]]
```

timeshift cam0 to imu0: [s] (t\_imu = t\_cam + shift)  
-0.0047022182460895665

Gravity vector in target coords: [m/s<sup>2</sup>]

[-0.01161632 -9.72982616 -1.22424295]

## Calibration configuration

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cam0

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Camera model: pinhole

Focal length: [396.5999364098406, 396.4209082227211]

Principal point: [326.34870176643096, 239.38795467864827]

Distortion model: radtan

Distortion coefficients: [-0.3412642563474857, 0.10257232582980398, -0.00028809179845492135, 0.0005031282730652747]

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: 100

Accelerometer:

Noise density: 0.027089073164427782

Noise density (discrete): 0.2708907316442778

Random walk: 0.0026405437265548015

Gyroscope:

Noise density: 0.0004311627577370619

Noise density (discrete): 0.0043116275773706185

Random walk: 5.5971879319209416e-05

T\_ib (imu0 to imu0)

[[1. 0. 0. 0.]

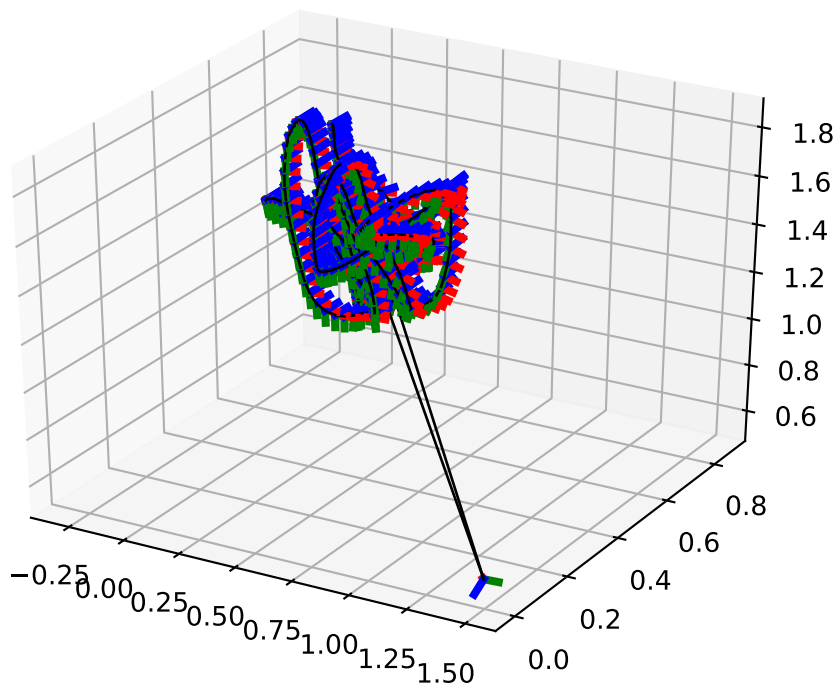
[0. 1. 0. 0.]

[0. 0. 1. 0.]

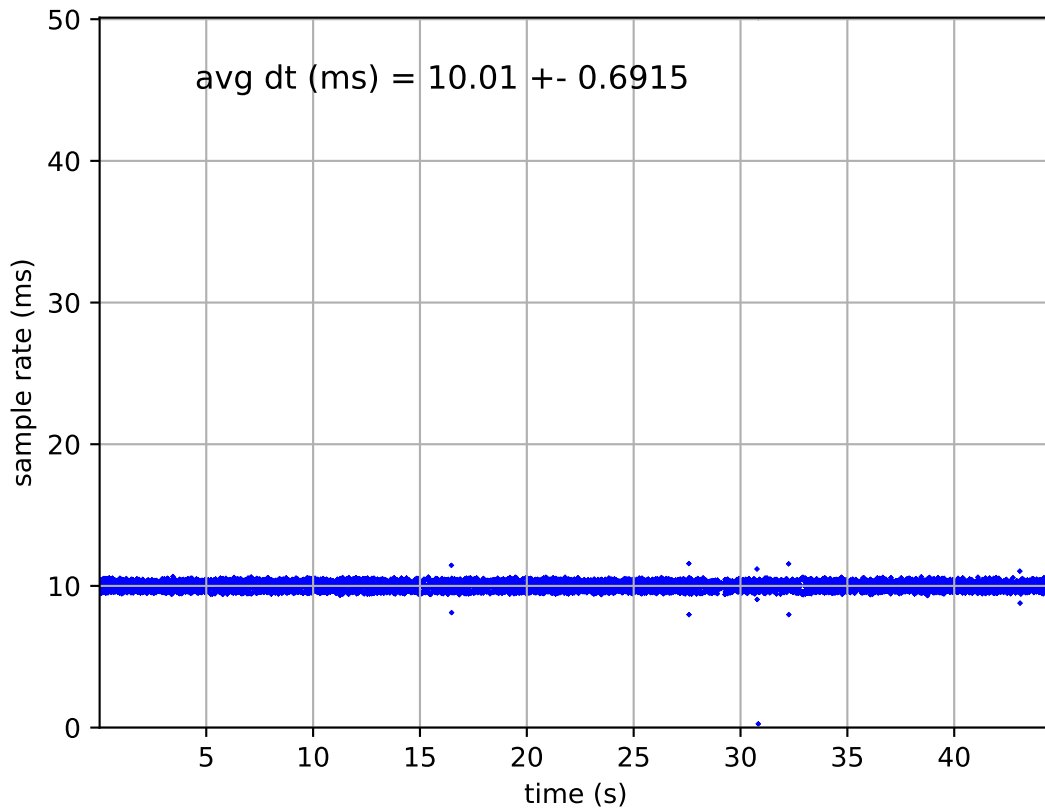
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

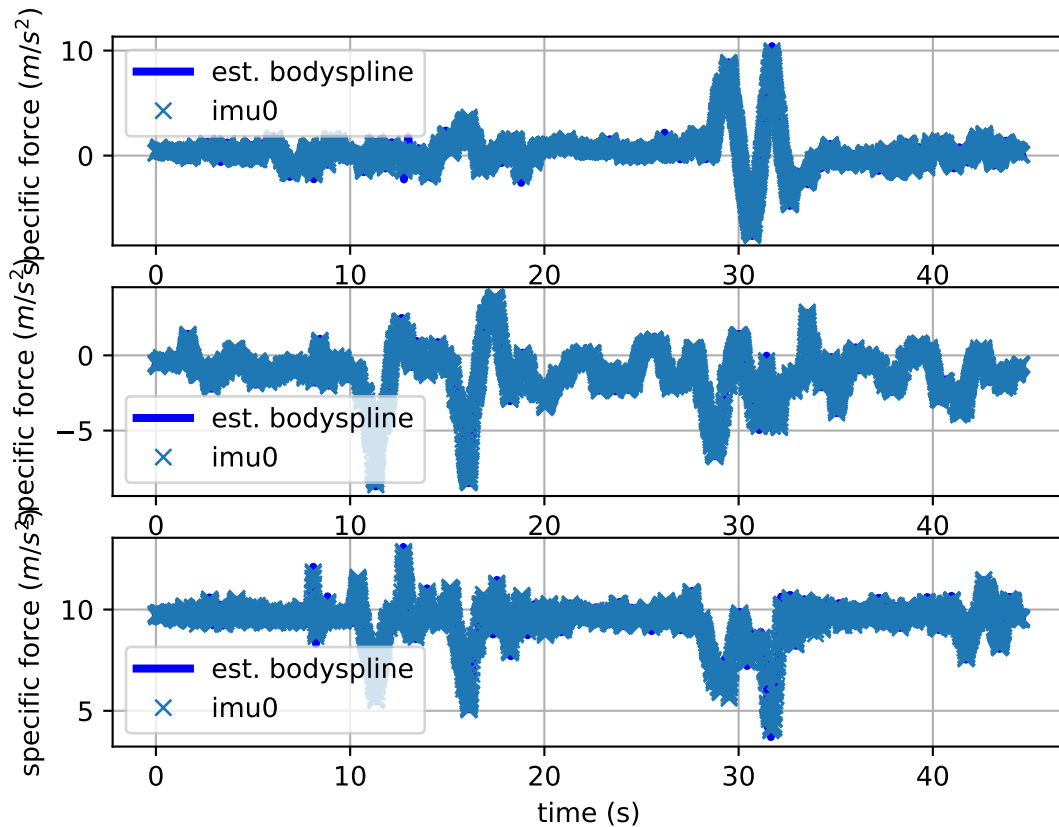
imu0: estimated poses



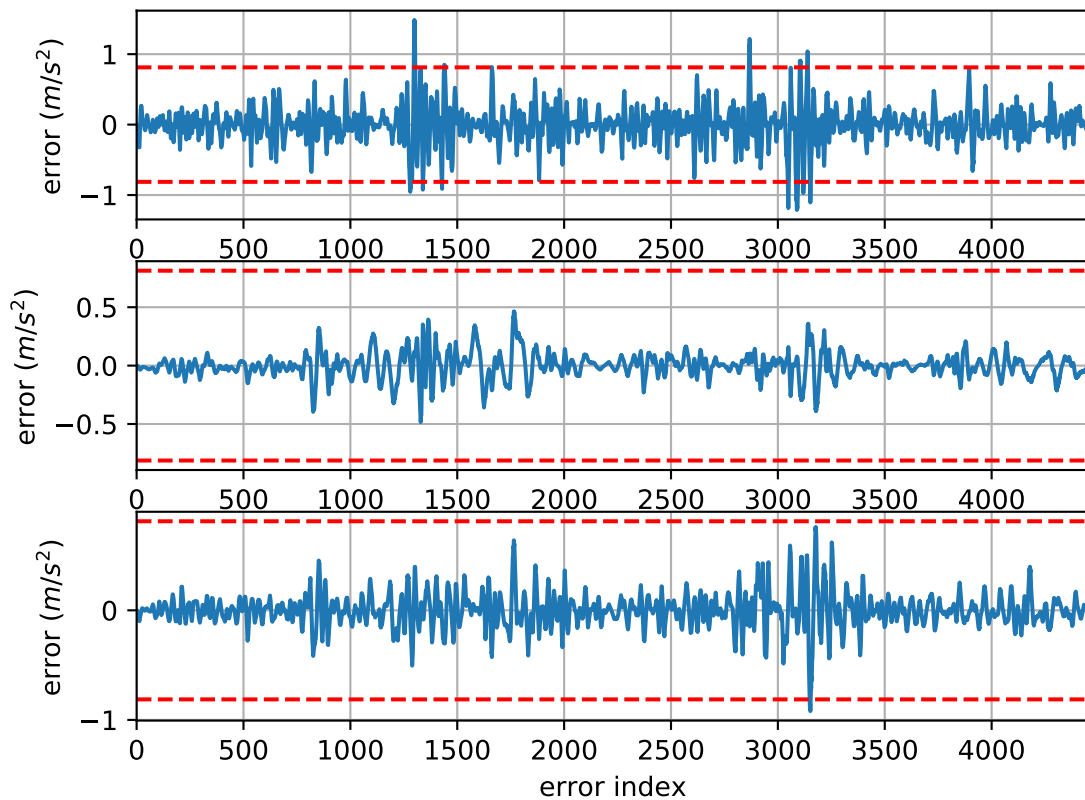
imu0: sample inertial rate



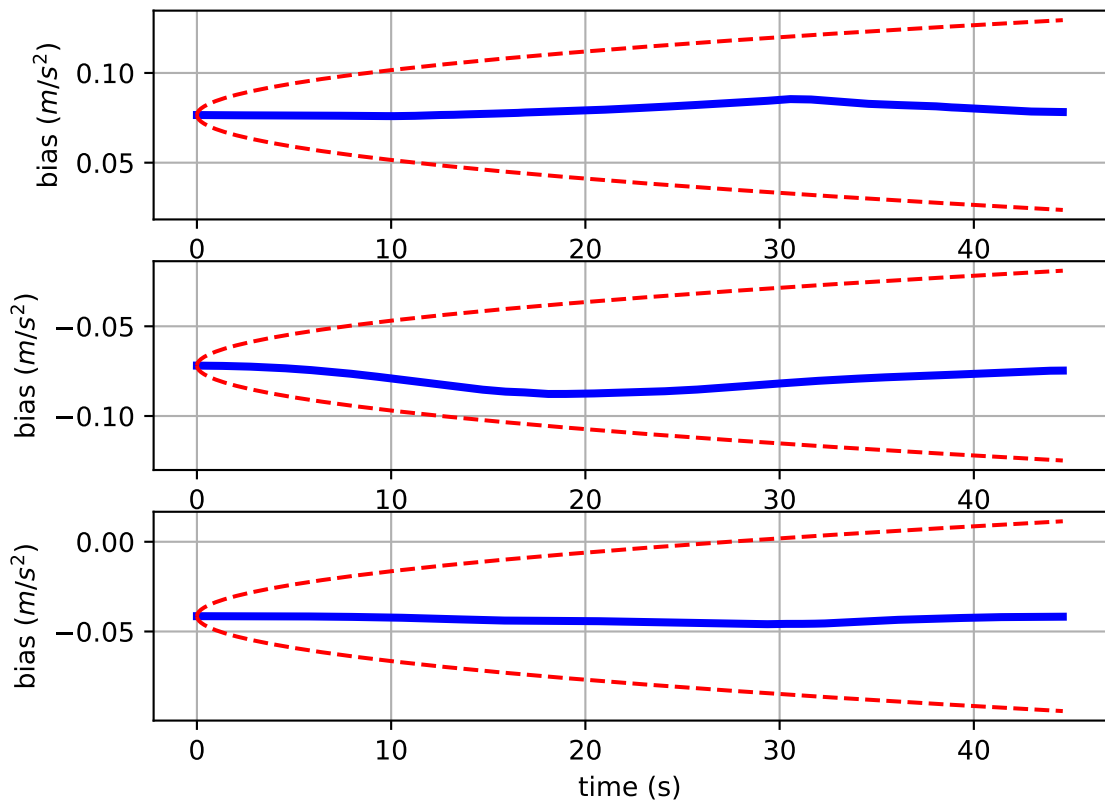
# Comparison of predicted and measured specific force (imu0 frame)



imu0: acceleration error

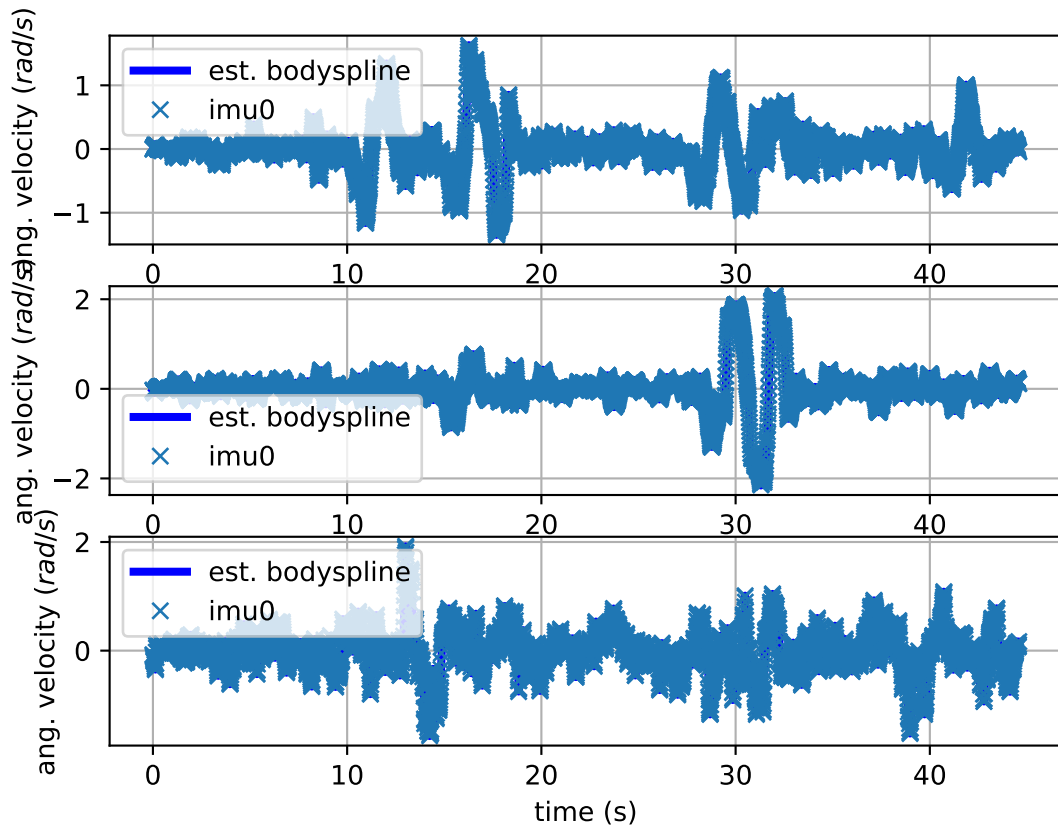


imu0: estimated accelerometer bias (imu frame)

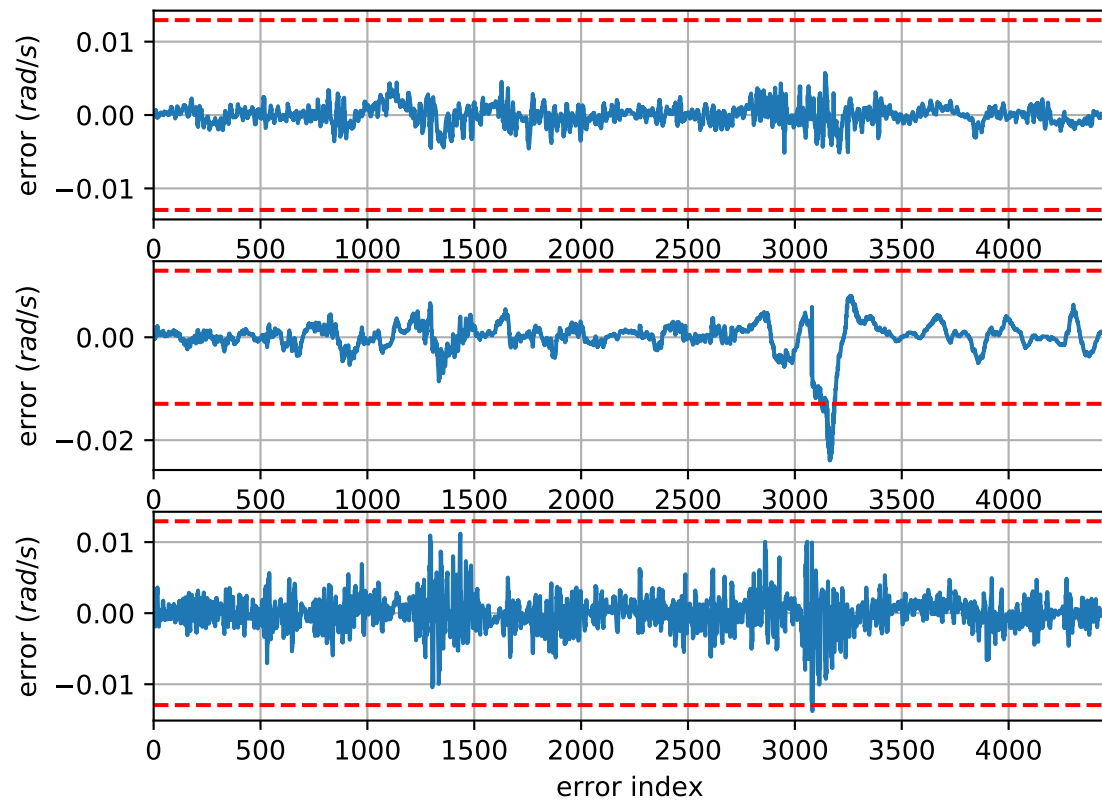




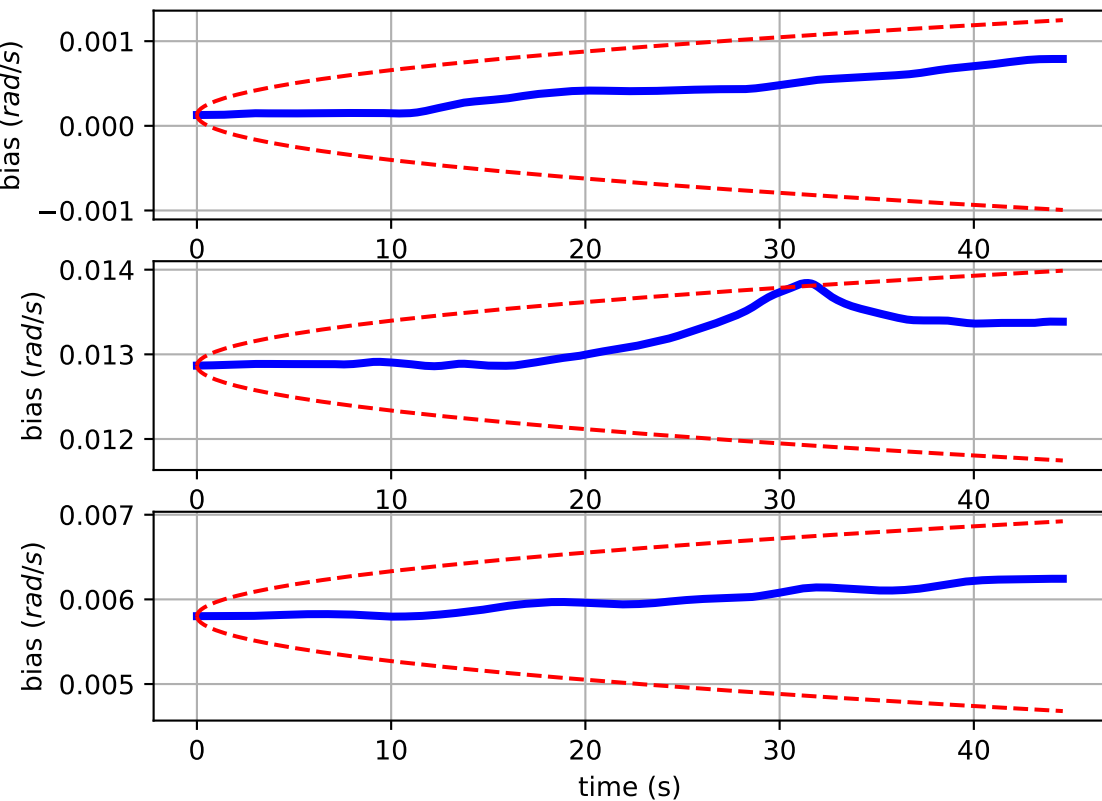
# Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

