

Notizia dell'AFNI Meet **afni_proc.py** - Your New Best Friend

<https://afni.nimh.nih.gov>

Robert Cox, Richard Reynolds, Paul Taylor
NIMH / NIH / DHHS / USA / Earth



afni_proc.py processing script for 1 subject

- results = ready for group or correlational analyses
- options to control each processing block
- spawn off multiple copies of script to run entire collection of datasets (e.g., BIDS)

```
set sub = sub-10506
set anat_orig = ${sub}_T1w.nii.gz
set func_dset = ${sub}_task-pamenc_bold.nii.gz
set anat_warped = anatQQ.${sub}.nii
set anat_qwarp = anatQQ.${sub}_WARP.nii
set anat_matrix = anatQQ.${sub}.aff12.1D

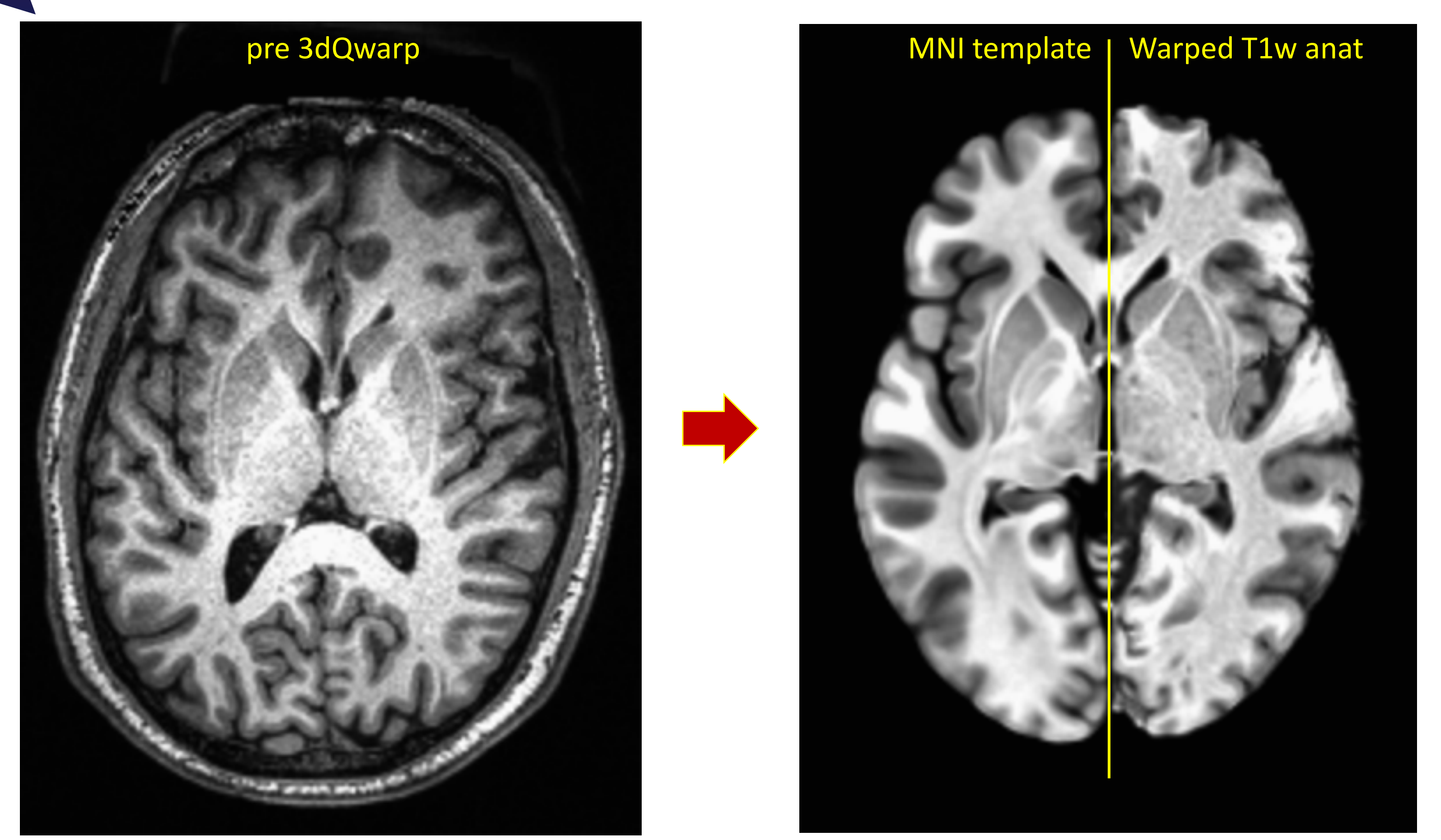
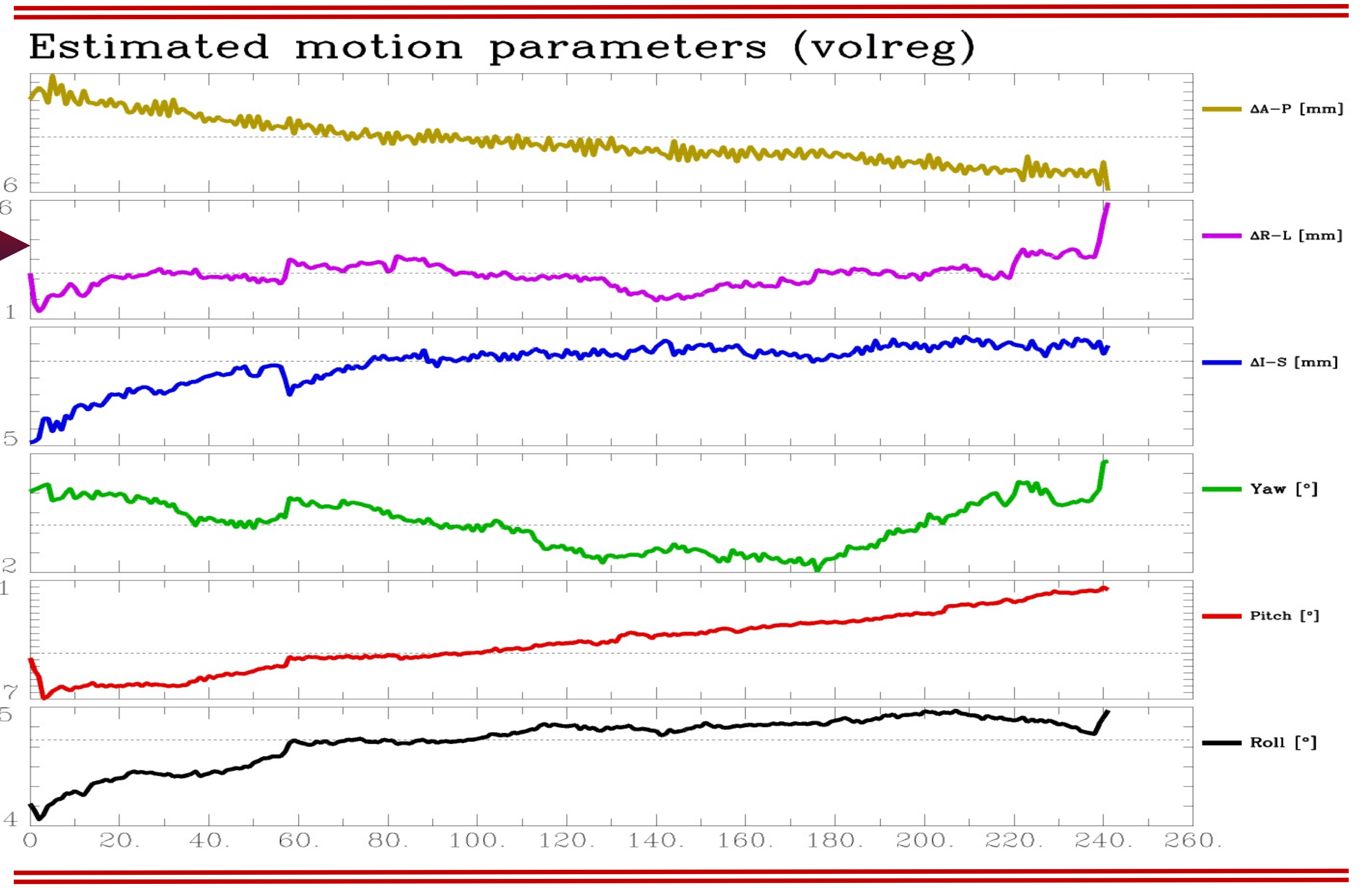
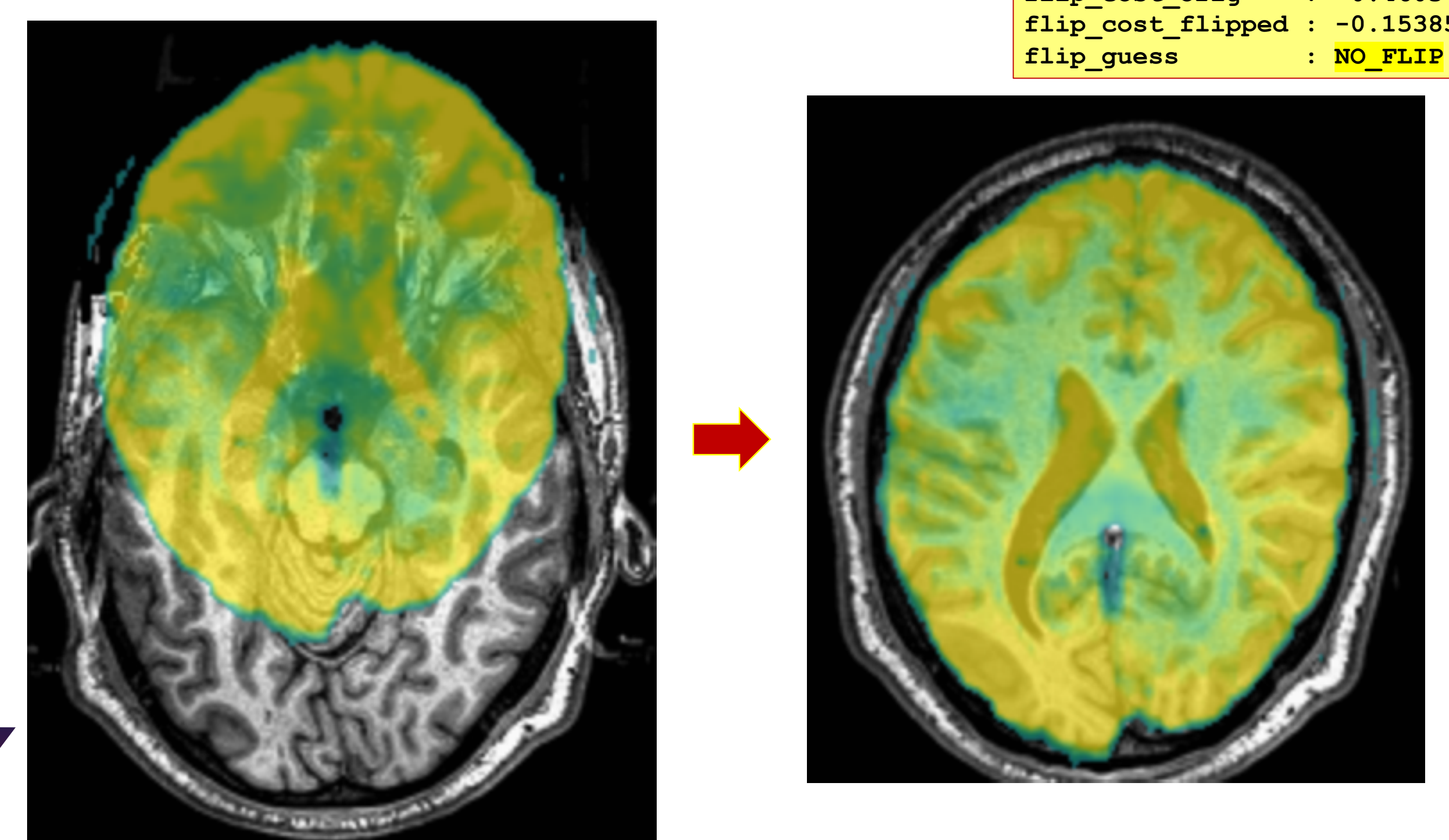
afni_proc.py -subj_id $sub -script proc.$sub
-blocks despike tshift align tlrc
volreg mask scale regress
N.B.: no blur block here
-copy_anat $anat_orig -anat_has_skull yes
-dsets $func_dset -tcats_remove_first_trs 0
-align_opts_aea -ginormous_move -deoblique on
-cost lpc+ZZ -check_flip
-volreg_align_to MIN_OUTLIER
-volreg_align_e2a
-volreg_tlrc_warp
-tlrc_NL_warp
-tlrc_NL_warped_dsets
$anat_warped $anat_matrix $anat_qwarp
-tlrc_base MNI152_2009_template_SSW.nii.gz
-regress_reml_exec
-regress_stim_times
pamenc.times.CONTROL.txt pamenc.times.TASK.txt
-regress_stim_labels CONTROL TASK
-regress_stim_types times times
-regress_basis_multi 'BLOCK(2)' 'BLOCK(4)'
-regress_anaticor_fast
-regress_anaticor_radius 20
-regress_ROI_PC WMe 5
-regress_censor_motion 0.2
-regress_censor_outliers 0.02
-regress_apply_mot_types demean deriv
-regress_est_blur_errts
-regress_run_clustsim no
-execute
```

align EPI-T1w anatomical

x-shift= -3.0769 y-shift= 23.0737 z-shift=-16.9802 ... enorm= 28.8131 mm
z-angle= 0.1485 x-angle= 33.2276 y-angle= 0.4893 ... total= 33.2320 deg
x-scale= 0.9995 y-scale= 1.0149 z-scale= 1.0050 ... vol3D= 1.0195
y/x-shear= 0.0156 z/x-shear= -0.0002 z/y-shear= -0.0126

L-R Dataset Flip Check

flip_cost_orig : -0.460349
flip_cost_flipped : -0.153855
flip_guess : NO_FLIP

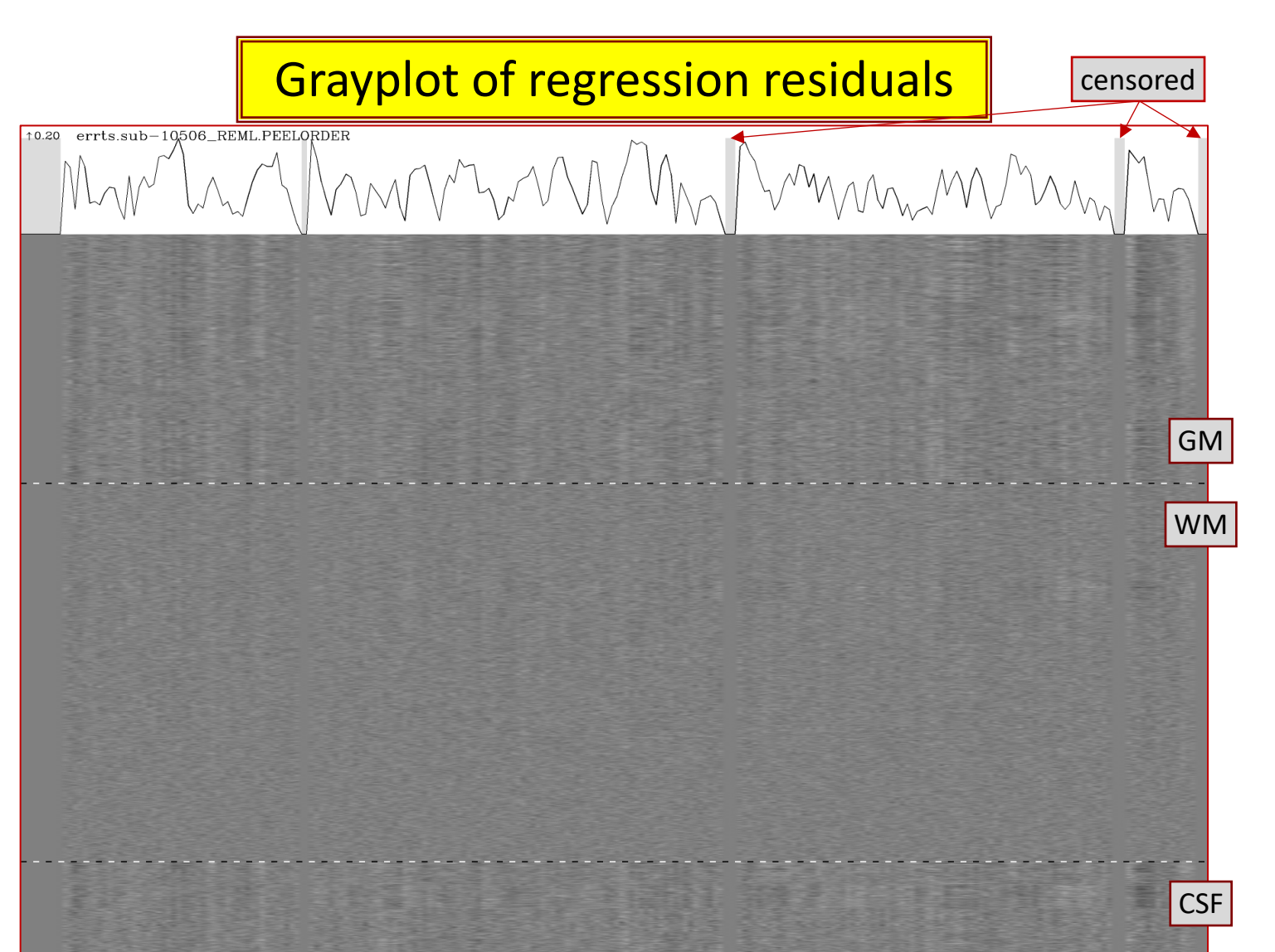


Looking at results in AFNI

subject	tensor frac	ave cens mot	max cens disp	TSNR
sub-10506	0.012397	0.0574521	2.00455	191.738
sub-10517	0.008264	0.0278666	0.552299	214.021
sub-10530	0.000000	0.0256038	0.987428	220.156
sub-10557	0.024793	0.0390013	0.471018	192.847
sub-10565	0.000000	0.0360863	2.29433	231.08
sub-10570	0.008264	0.0453044	1.63932	232.706
sub-10575	0.194215	0.0840084	2.05136	201.473
sub-10680	0.008264	0.0956203	1.13795	214.916
sub-10704	0.099174	0.0848005	1.02983	175.461
sub-10707	0.000000	0.0657703	0.452908	245.007
sub-10882	0.128099	0.0777758	2.37029	163.93

ANATICor - voxel-wise tissue based regressor

base/drift tasks 5 WMe PCs 6 motion params + derivatives



Also See <https://afni.nimh.nih.gov>

Yet More Fun at This Meeting
Software Demo #4590 (Wednesday Station #4)
- Even easier FMRI QC, with **afni_proc.py**'s automatic HTML review

More AFNI Posters
T542 - Efficient Inter-Subject Correlation Analysis for Naturalistic Data
T546 - Do We Have to Deal with Multiple Comparisons in Neuroimaging?
W450 - Adapting to future needs in human neuroimaging
W470 - Even easier FMRI QC, with **afni_proc.py**'s automatic HTML review
W552 - AFNI now makes templates from your subjects easily!

Data Source
<https://openneuro.org/datasets/ds000030/>
- A phenome-wide examination of neural and cognitive function
RA Poldrack et al. Scientific Data volume 3, Article number: 160110 (2016).
<https://doi.org/10.1038/sdata.2016.110>