



Single subject QC report generated using eddy quad v1.0.3

When using eddy and its QC tools, we ask you to please reference the papers describing the different aspects of the modelling and corrections. The following suggestion for a methods section and list of references has been tailored for you based on your eddy command line.

METHODS

The susceptibility induced off-resonance field was estimated from spin-echo EPI images acquired with different phase-encode directions (Andersson et al., 2003). This field was passed to "eddy", a tool that combined it with estimating gross subject movement and eddy current-induced distortions (Andersson & Sotiropoulos, 2016). The quality of the dataset was assessed using the eddy QC tools (Bastiani et al., 2019). Slices with signal loss caused by subject movement coinciding with the diffusion encoding were detected and replaced by predictions made by a Gaussian Process (Andersson et al., 2016).

REFERENCES

Jesper L.R. Andersson, Stefan Skare and John Ashburner. 2003. How to correct susceptibility distortions in spin-echo echo-planar images: application to diffusion tensor imaging. *NeuroImage* 20:870-888

Jesper L.R. Andersson and Stamatios N. Sotiropoulos. 2016. An integrated approach to correction for off-resonance effects and subject movement in diffusion MR imaging. *NeuroImage* 125:1063-1078

Matteo Bastiani, Michiel Cottaar, Sean P. Fitzgibbon, Sana Suri, Fidel Alfaro-Almagro, Stamatios N. Sotiropoulos, Saad Jbabdi and Jesper L.R. Andersson. 2019. Automated quality control for within and between studies diffusion MRI data using a non-parametric framework for movement and distortion correction. *NeuroImage* 184:801-812

Jesper L.R. Andersson, Mark S. Graham, Eniko Zsoldos and Stamatios N. Sotiropoulos. 2016. Incorporating outlier detection and replacement into a non-parametric framework for movement and distortion correction of diffusion MR images. *NeuroImage* 141:556-572

Volume-to-volume motion

Average abs. motion (mm)	0.67
Average rel. motion (mm)	0.82
Average x translation (mm)	-0.10
Average y translation (mm)	0.14
Average z translation (mm)	-0.02
Average x rotation (deg)	0.11
Average y rotation (deg)	0.25
Average z rotation (deg)	-0.07

Outliers

Total outliers (%)	0.45
Outliers (b=350 s/mm ²)	4.40
Outliers (b=650 s/mm ²)	1.11
Outliers (b=1350 s/mm ²)	0.00
Outliers (b=2000 s/mm ²)	0.00
Outliers (PE dir=[0. 1. 0.])	0.41
Outliers (PE dir=[0. -1. 0.])	0.00

SNR/CNR

Average SNR (b=0 s/mm ²)	11.71
Average CNR (b=350 s/mm ²)	0.97
Average CNR (b=650 s/mm ²)	1.08
Average CNR (b=1350 s/mm ²)	1.30
Average CNR (b=2000 s/mm ²)	1.46

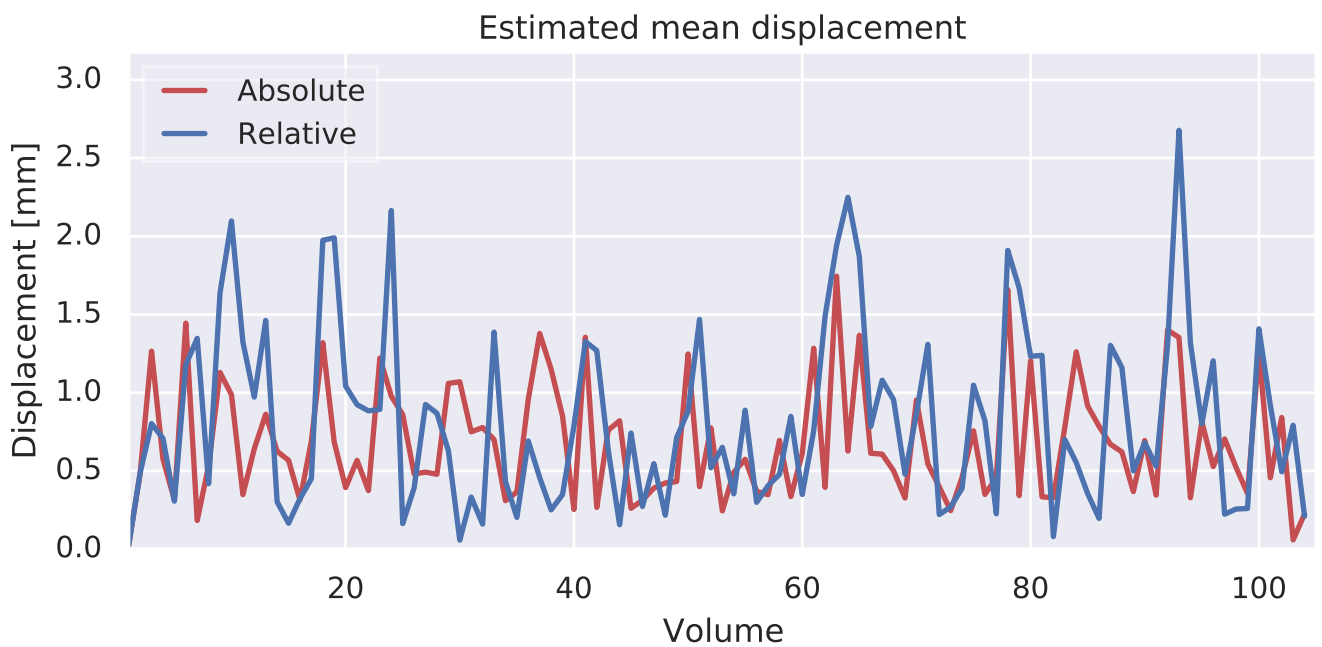
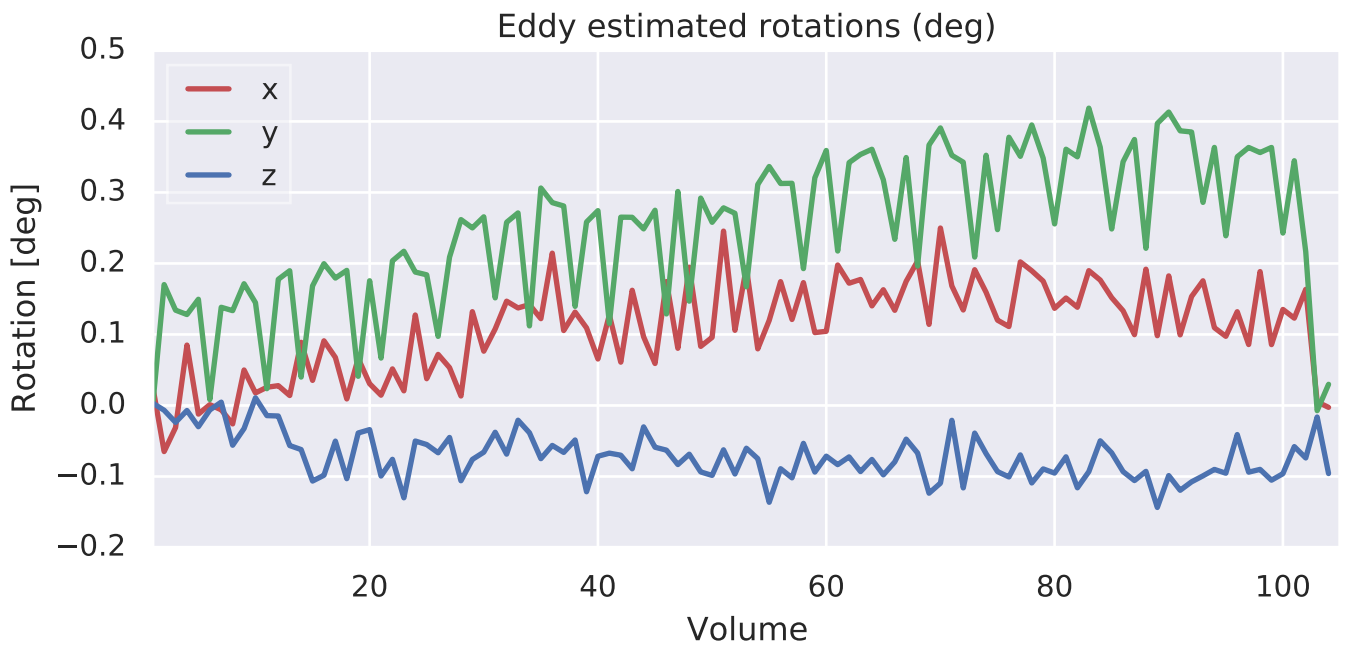
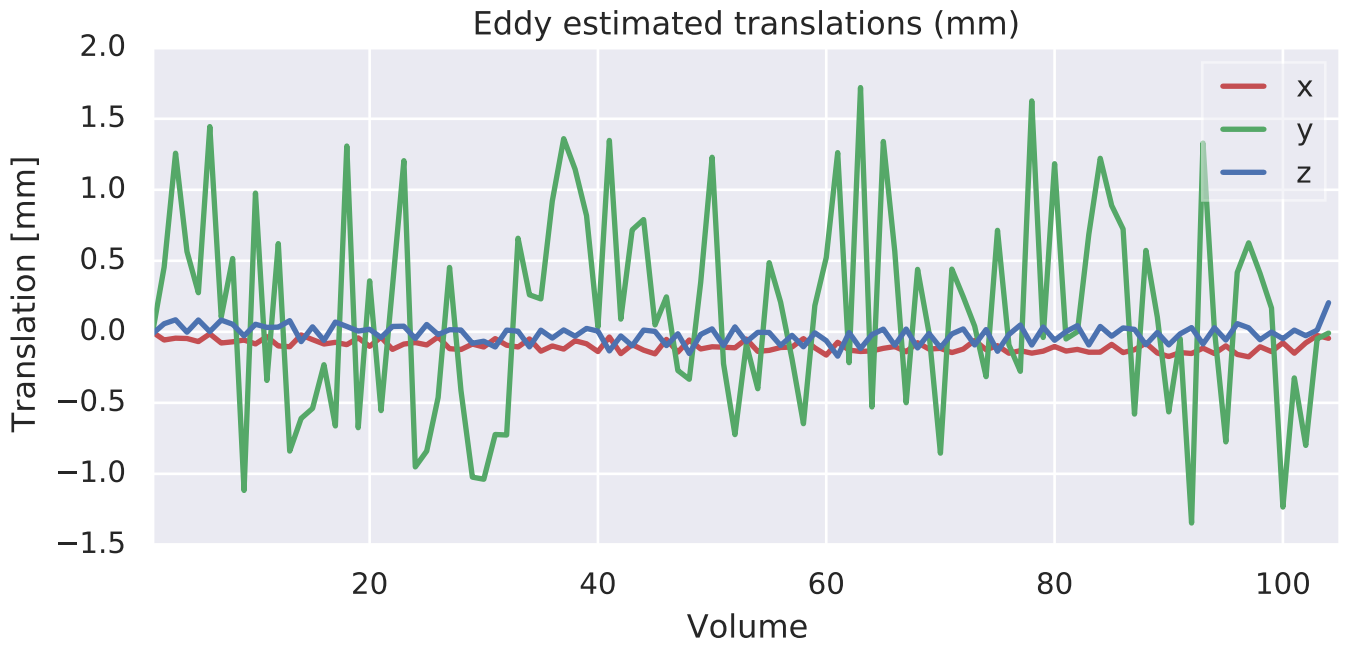
Eddy currents

Std Dev EC linear term (x)	0.02
Std Dev EC linear term (y)	0.05
Std Dev EC linear term (z)	0.08

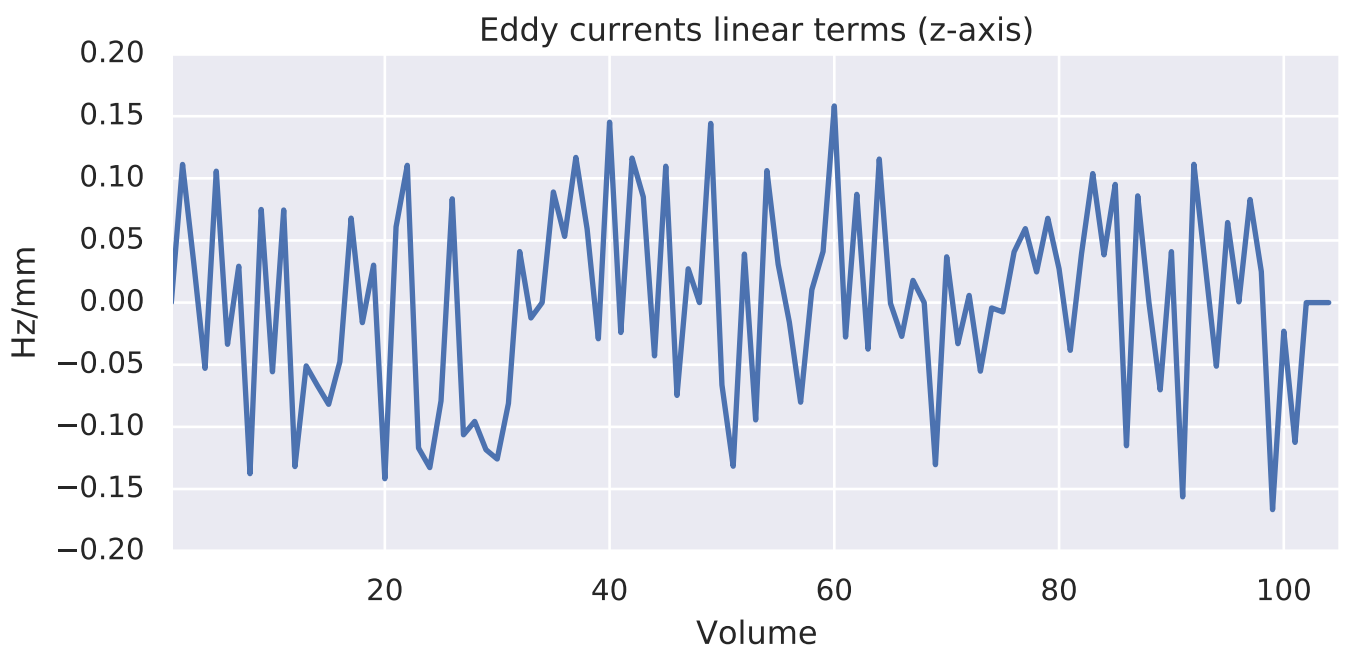
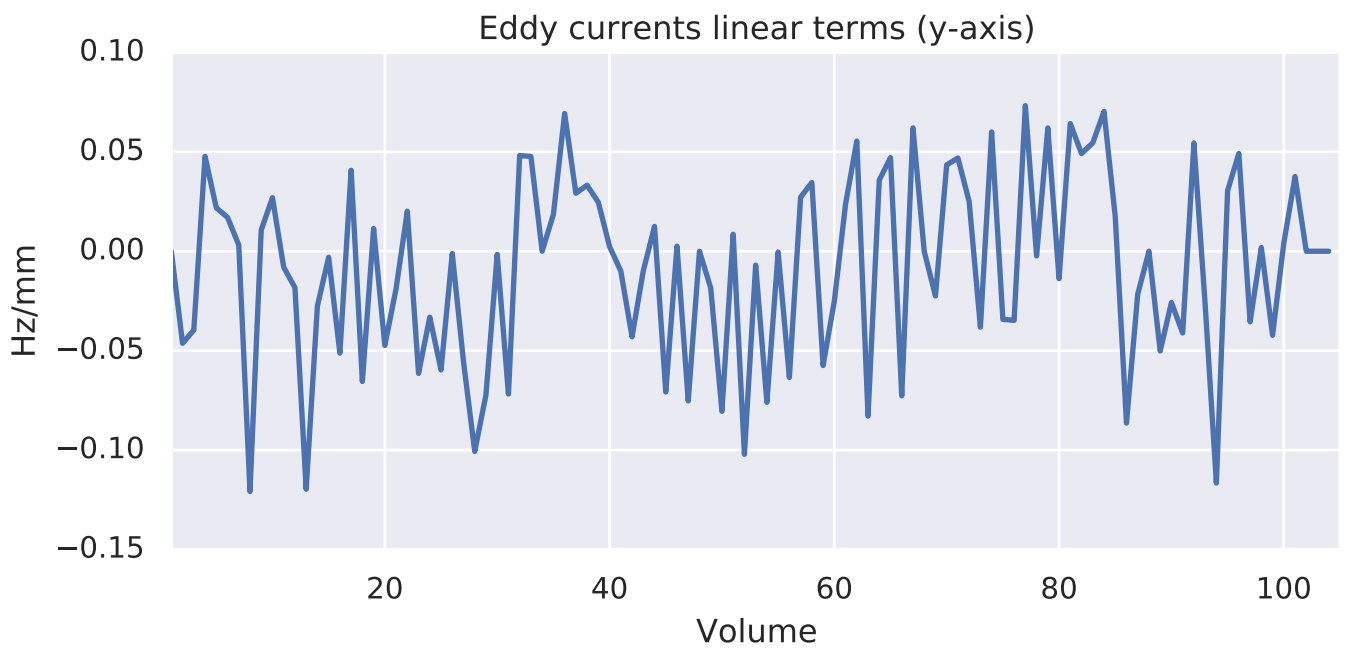
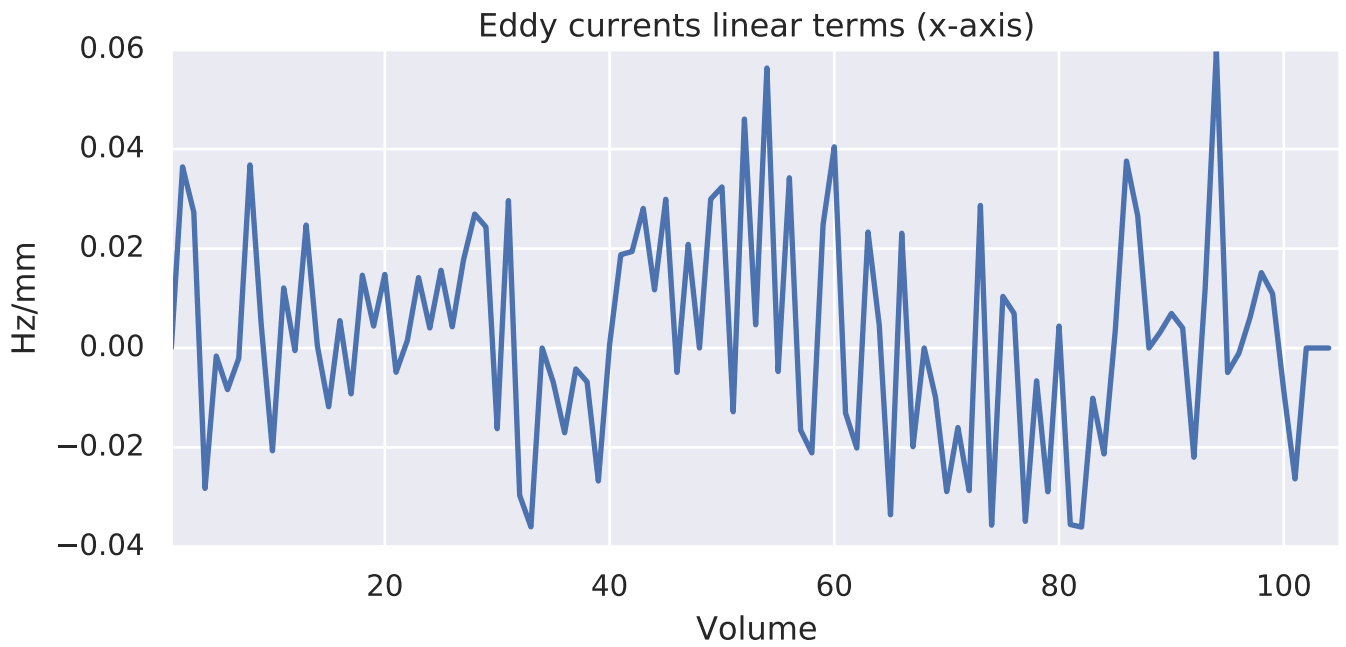
Susceptibility distortions

Std Dev voxel displacement	1.68
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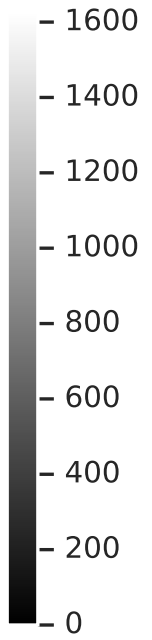
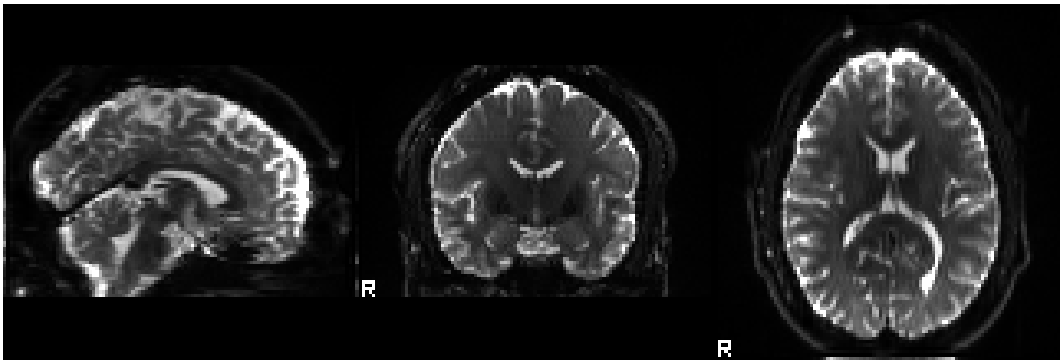
Subject MS881355_MS881355220321.nii.gz



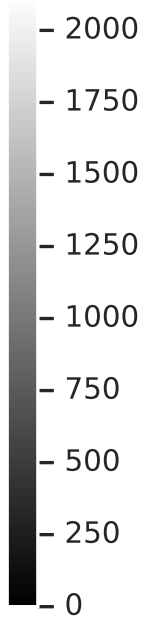
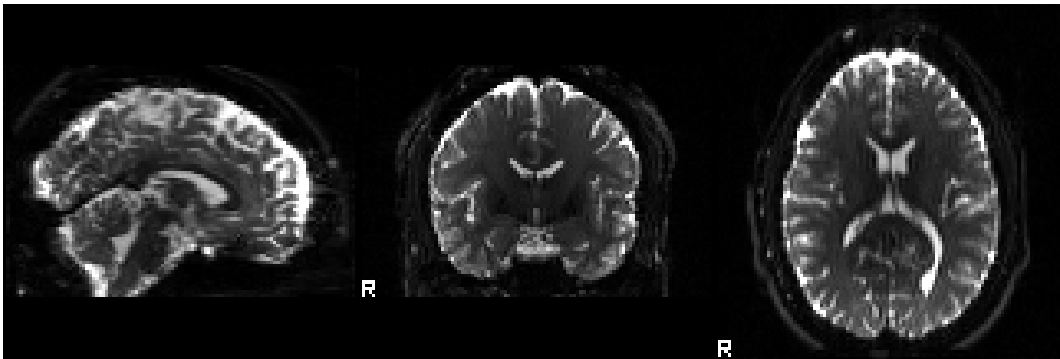
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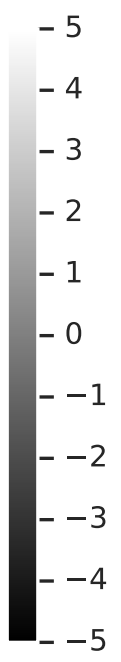
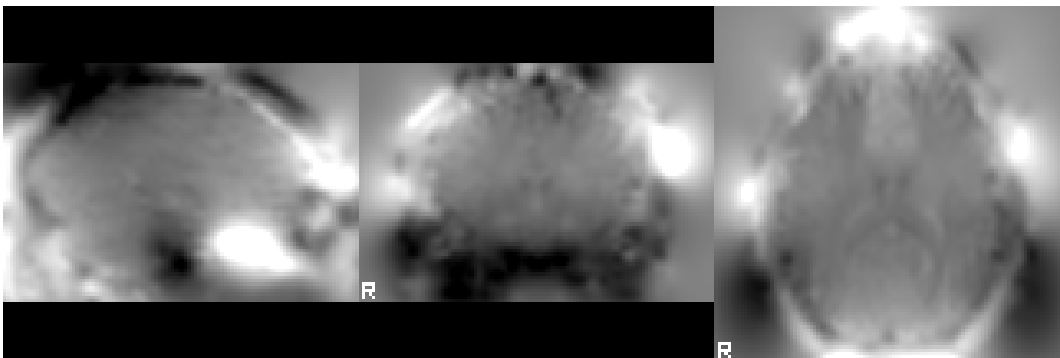
Average b0 signal (PE=[[0. 1. 0.]])



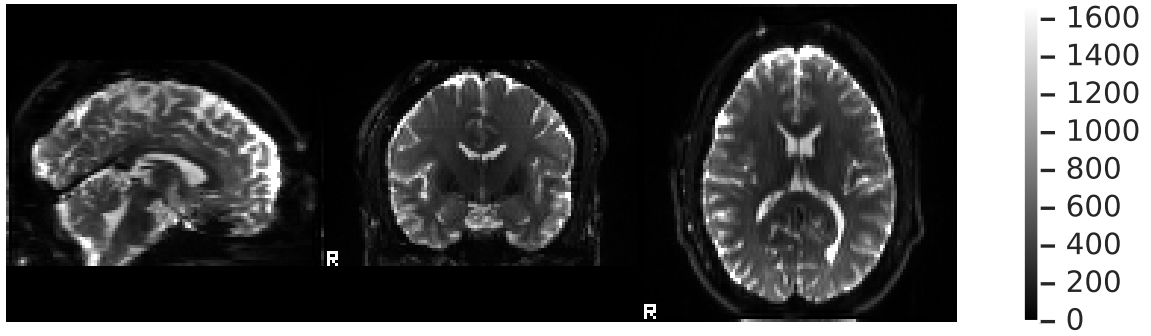
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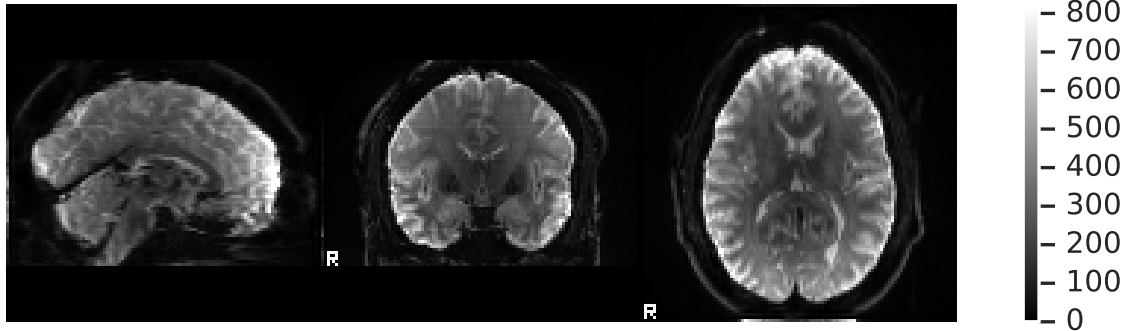
Voxel displacement map



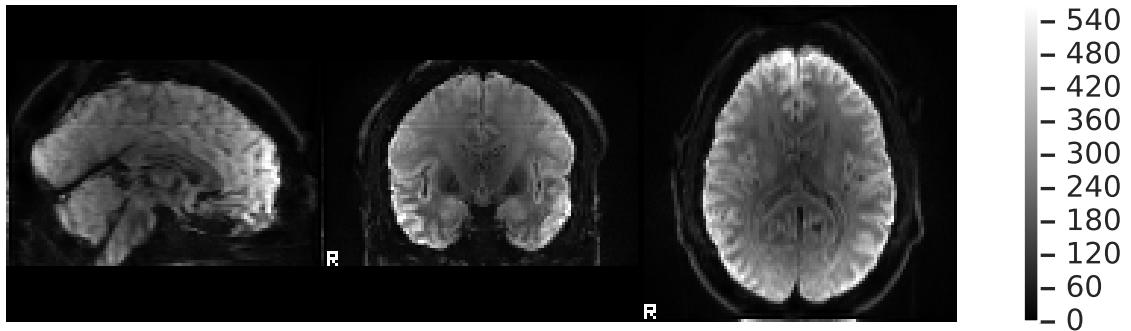
Average DW signal (b=0)



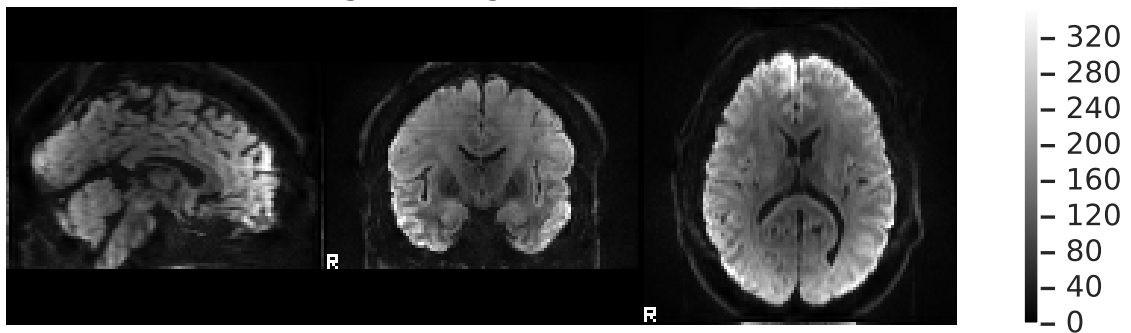
Average DW signal (b=350)



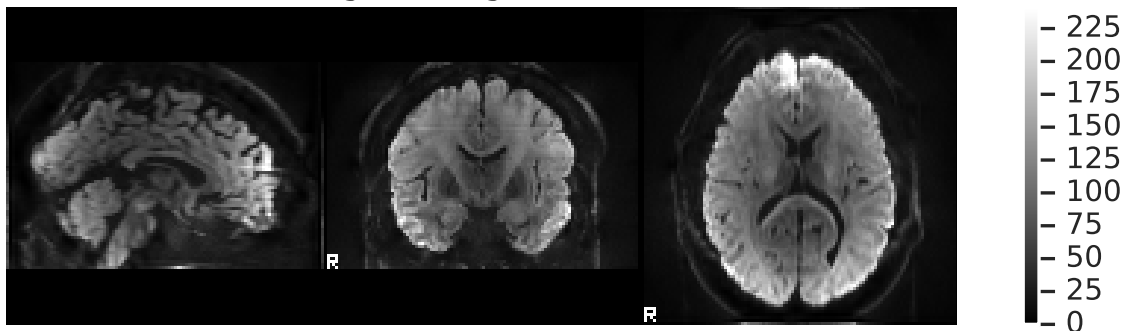
Average DW signal (b=650)



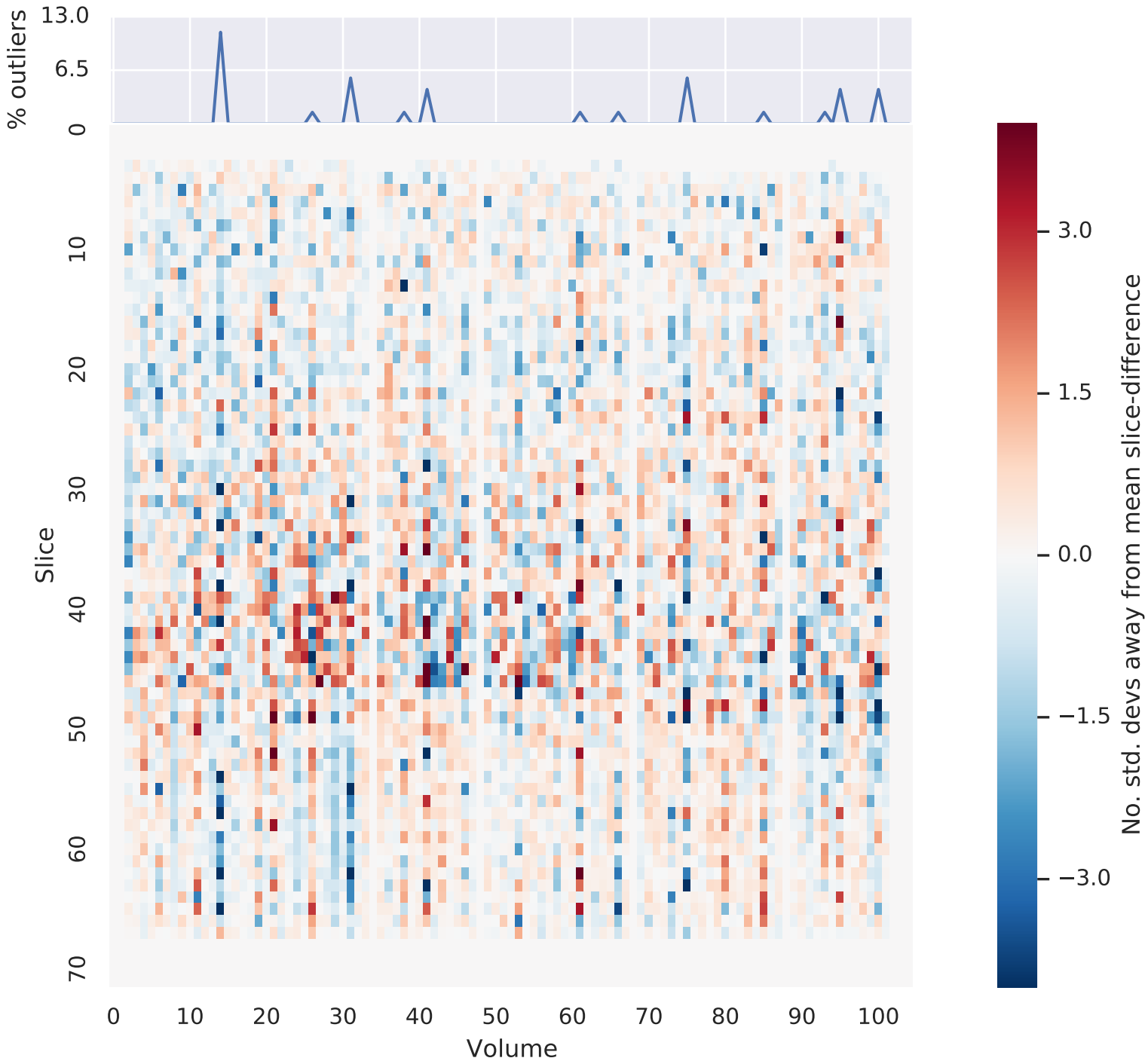
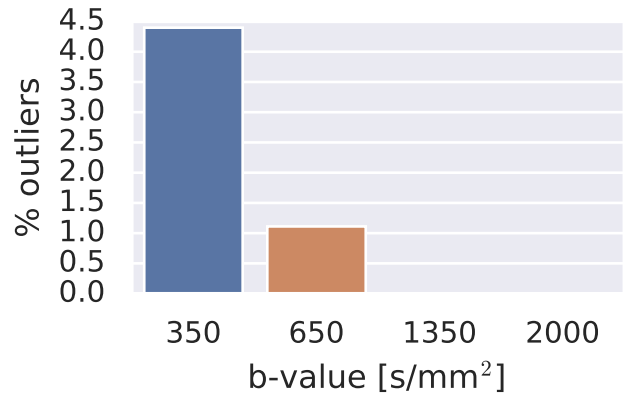
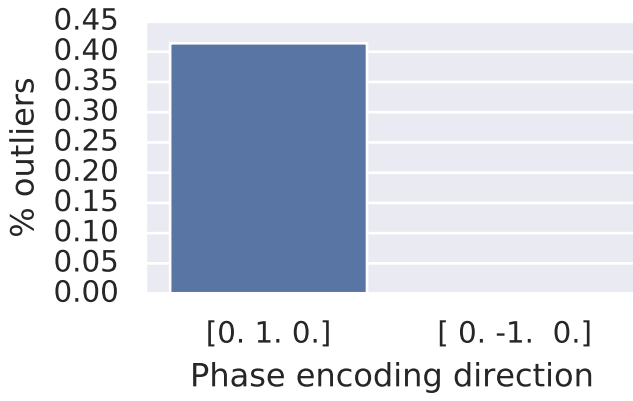
Average DW signal (b=1350)



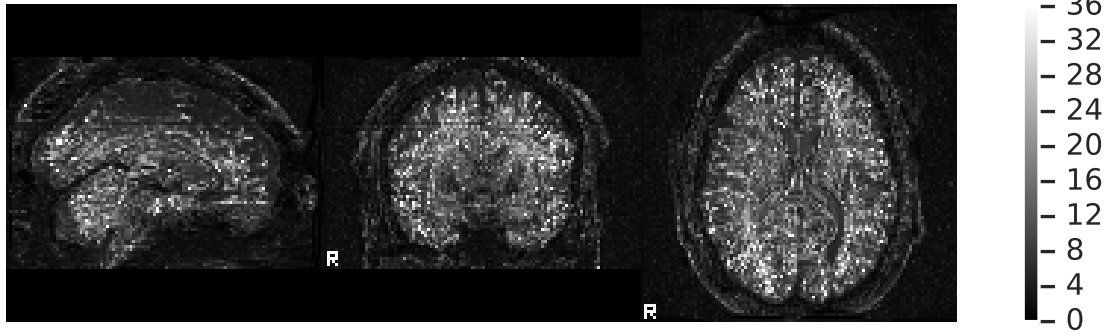
Average DW signal (b=2000)



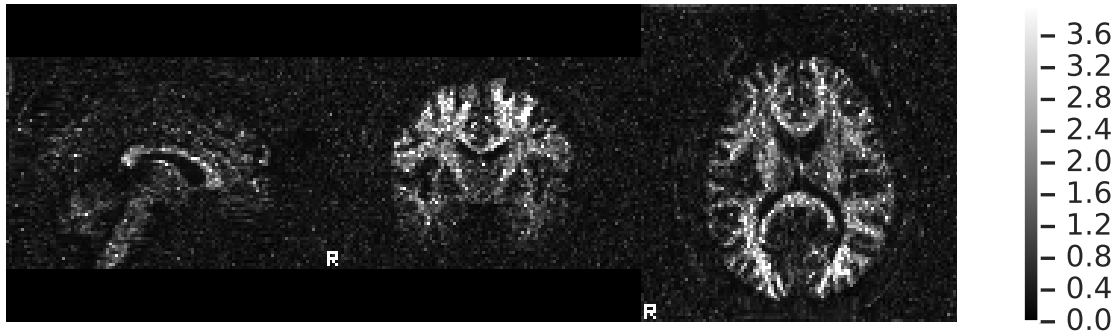
Subject MS881355_MS881355220321.nii.gz



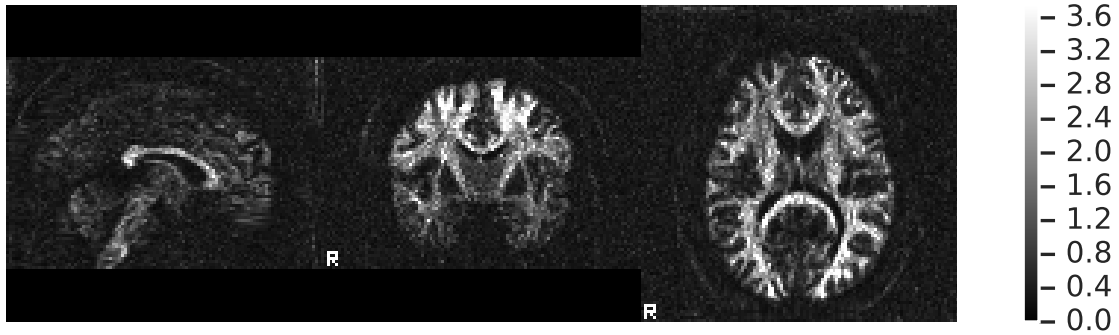
tSNR map (b=0)



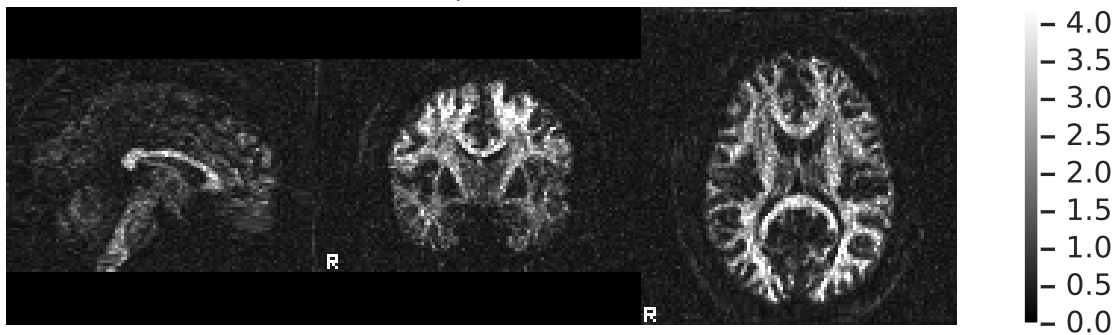
CNR map (b=350)



CNR map (b=650)



CNR map (b=1350)



CNR map (b=2000)

