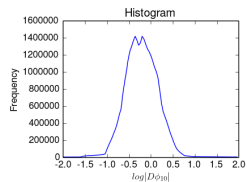
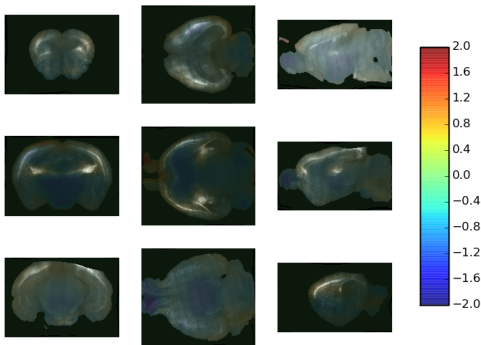


Jacobian Determinant

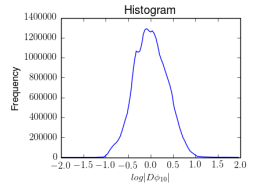
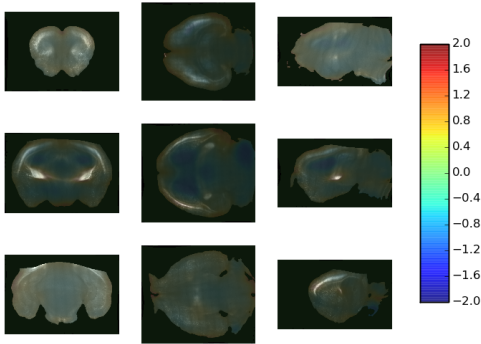
- ▶ Log of *Jacobian Determinant* of LDDMM mapping, $\log |D\phi_{10}|$, measures local volume change
 - ▶ > 0 means ARA would need to expand to match CLARITY brain
 - ▶ < 0 means ARA would need to contract to match CLARITY brain
- ▶ Following images show the $\log |D\phi_{10}|$ overlaid on coronal, axial and sagittal CLARITY slices
- ▶ In general most ARA regions contract to match CLARITY brain
- ▶ Exception is in olfactory bulbs which usually expand during registration

Cocaine174



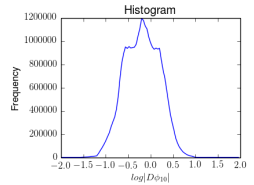
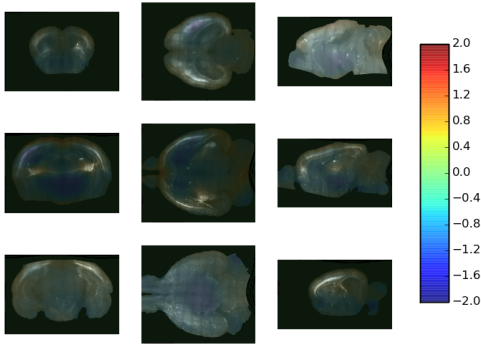
Average Volume Change: -13.9%

Cocaine175



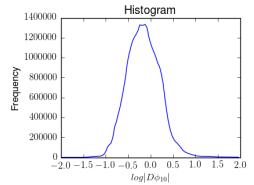
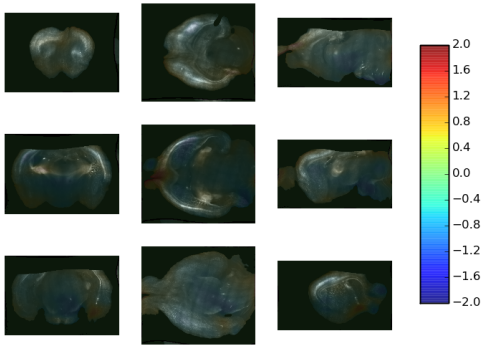
Average Volume Change: 2.7%

Cocaine178



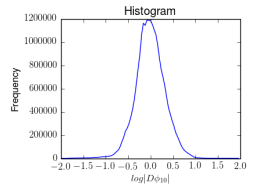
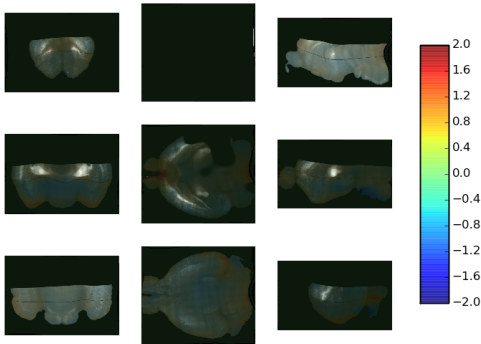
Average Volume Change: -10.3%

Control181



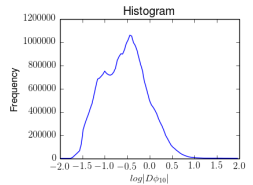
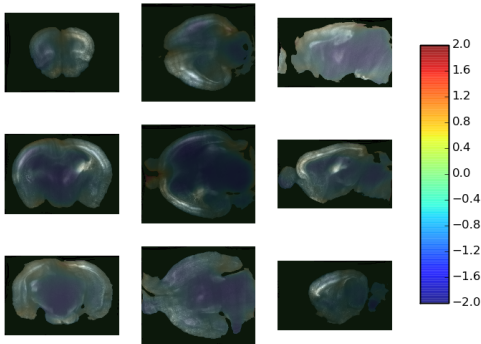
Average Volume Change: -14.1%

Control182



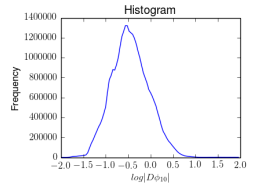
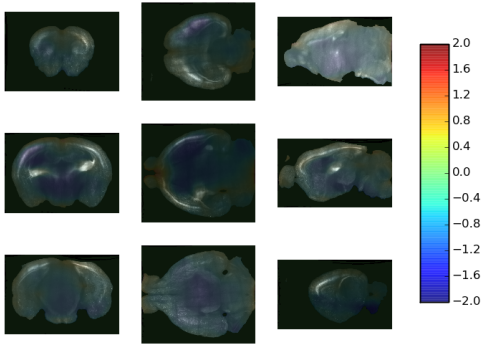
Average Volume Change: -25.5%

Control239



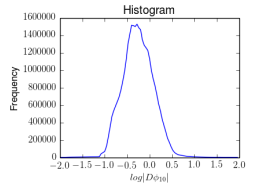
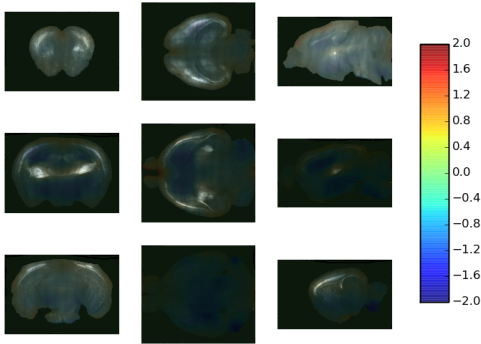
Average Volume Change: -35.1%

Control258



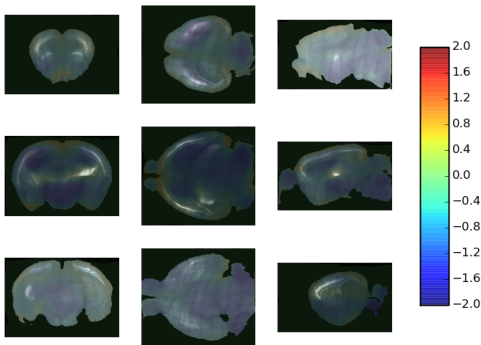
Average Volume Change: -30.5%

Fear197



Average Volume Change: -17.6%

Fear199



Average Volume Change: -43.3%