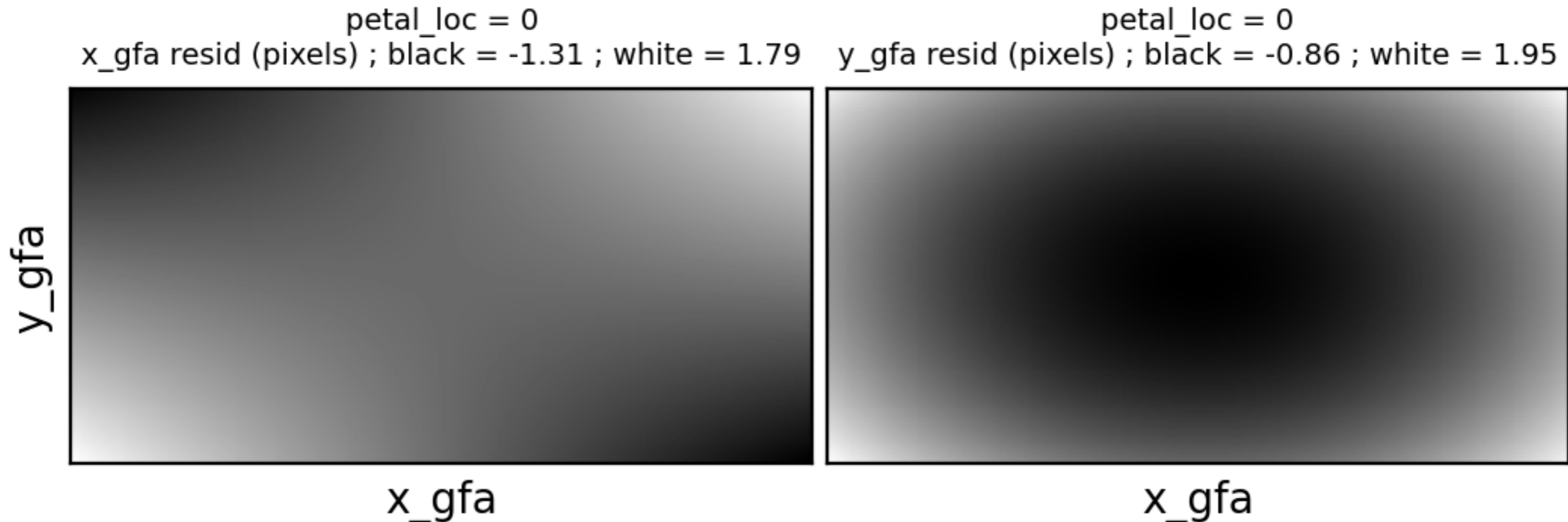


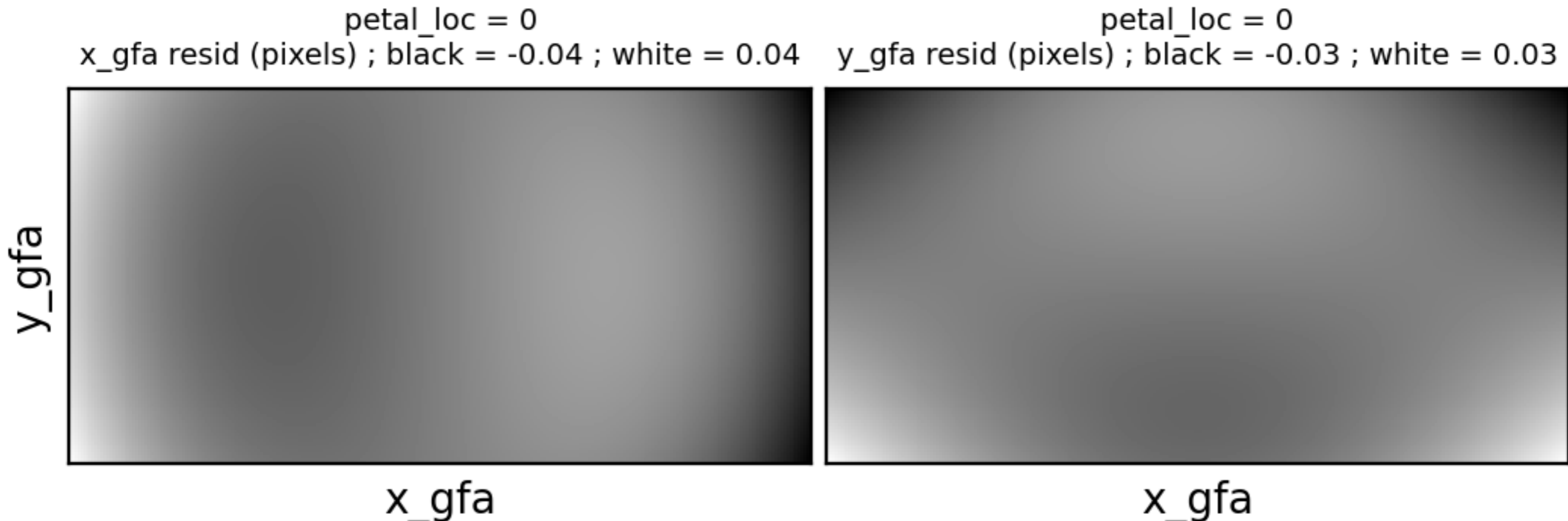
**WCS distortions/
templates based on
desimeter metrology**

Residuals relative to TAN WCS



- Mean absolute residual per-coordinate = 0.44 pixels
- Max absolute residual per-coordinate = 1.95 pixels
- These residuals look essentially identical for all cameras

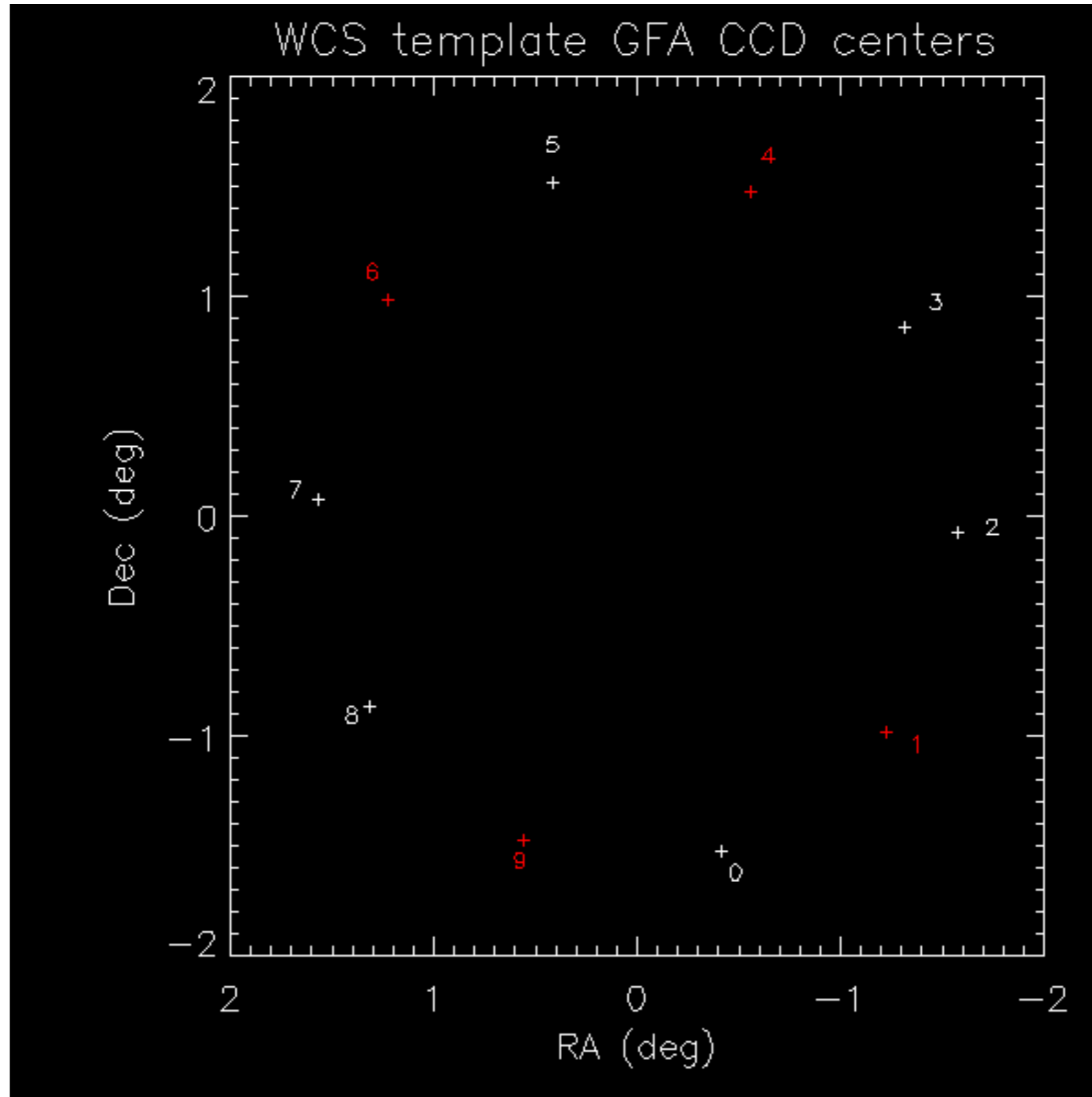
Residuals relative to TAN-SIP (2nd order) WCS



- Mean absolute residual per-coordinate = 0.006 pixels
- Max absolute residual per-coordinate = 0.04 pixels
- These residuals look essentially identical for all cameras
- Second order SIP captures pretty much all of the distortions

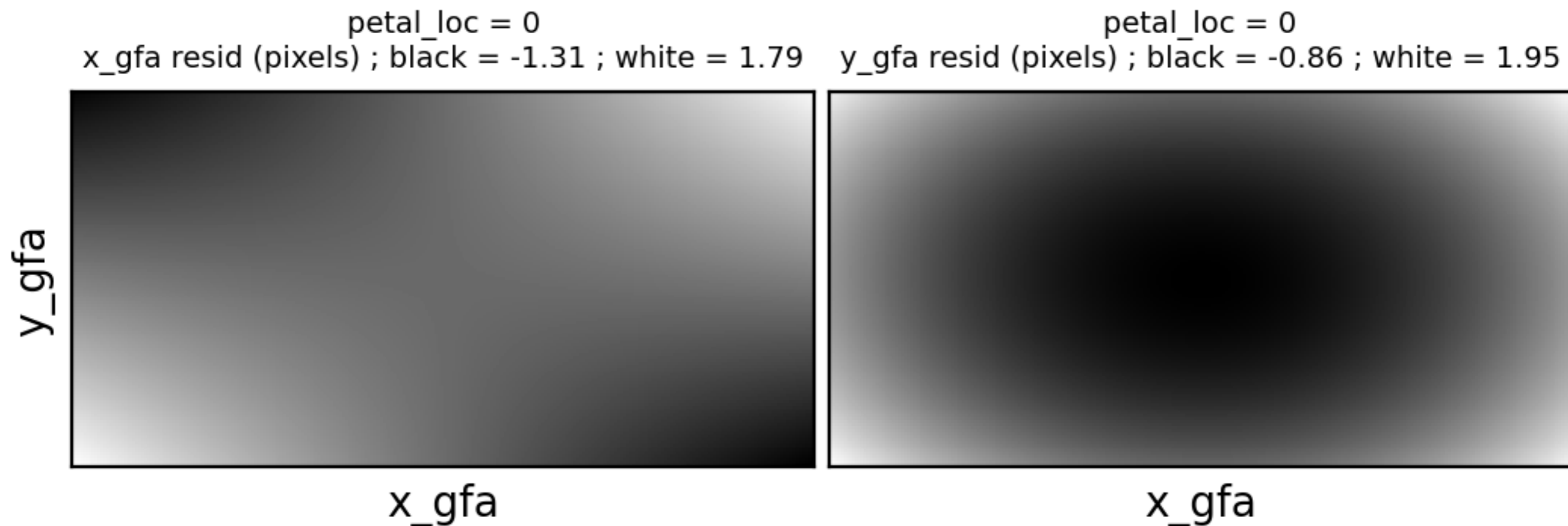
```
A_ORDER = 2 / polynomial order, axis 1, detector to sky
A_0_2 = 6.66119E-08 / distortion coefficient
A_1_1 = 2.90122E-06 / distortion coefficient
A_2_0 = 2.36821E-07 / distortion coefficient
B_ORDER = 2 / polynomial order, axis 2, detector to sky
B_0_2 = 4.16623E-06 / distortion coefficient
B_1_1 = 1.21050E-07 / distortion coefficient
B_2_0 = 1.57192E-06 / distortion coefficient
AP_ORDER = 2 / polynomial order, axis 1, sky to detector
AP_0_1 = 4.11052225972E-07 /
AP_0_2 = -6.66161429183E-08 /
AP_1_0 = 4.76955630405E-06 /
AP_1_1 = -2.90100825103E-06 /
AP_2_0 = -2.36819038613E-07 /
BP_ORDER = 2 / polynomial order, axis 2, sky to detector
BP_0_1 = 1.00983762920E-05 /
BP_0_2 = -4.16599659418E-06 /
BP_1_0 = 1.98495898559E-06 /
BP_1_1 = -1.20965168769E-07 /
BP_2_0 = -1.57194671124E-06 /
```

desimeter-based WCS templates for focus cameras

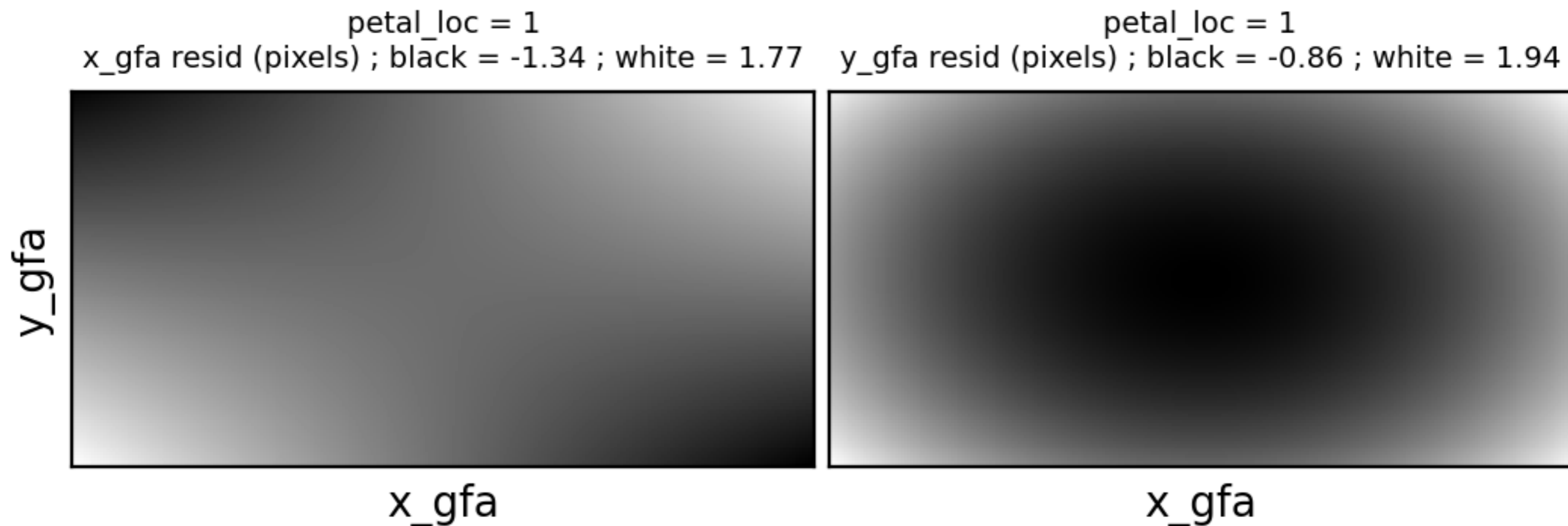


appendix: all plots

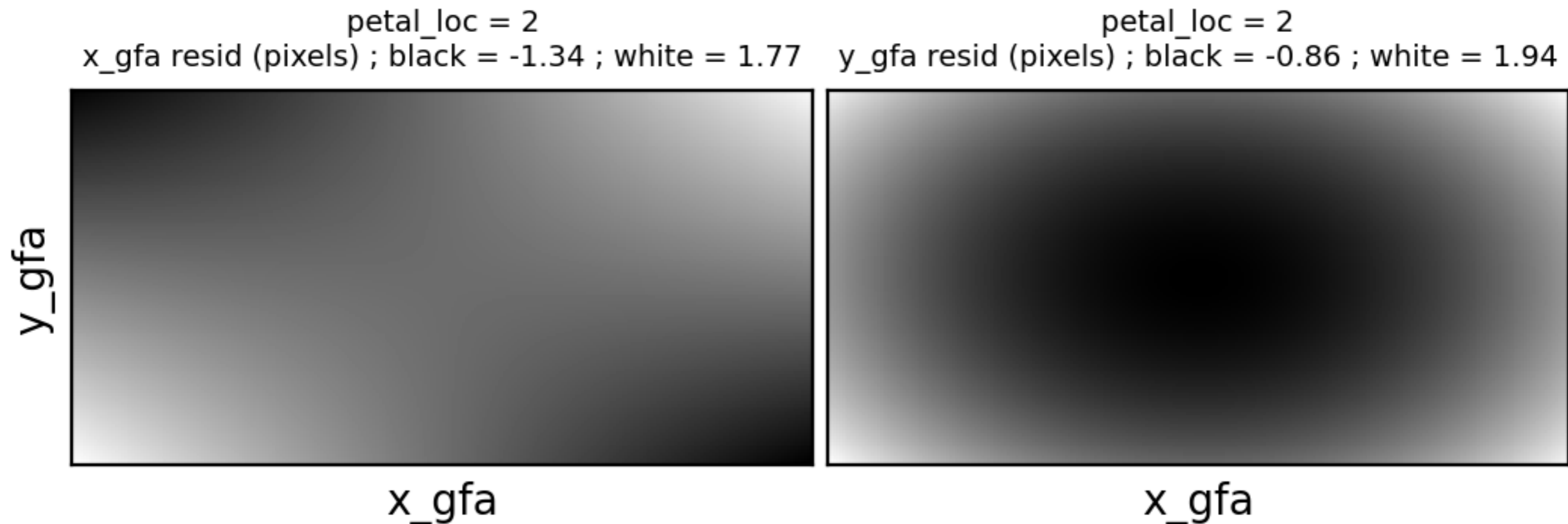
TAN residuals



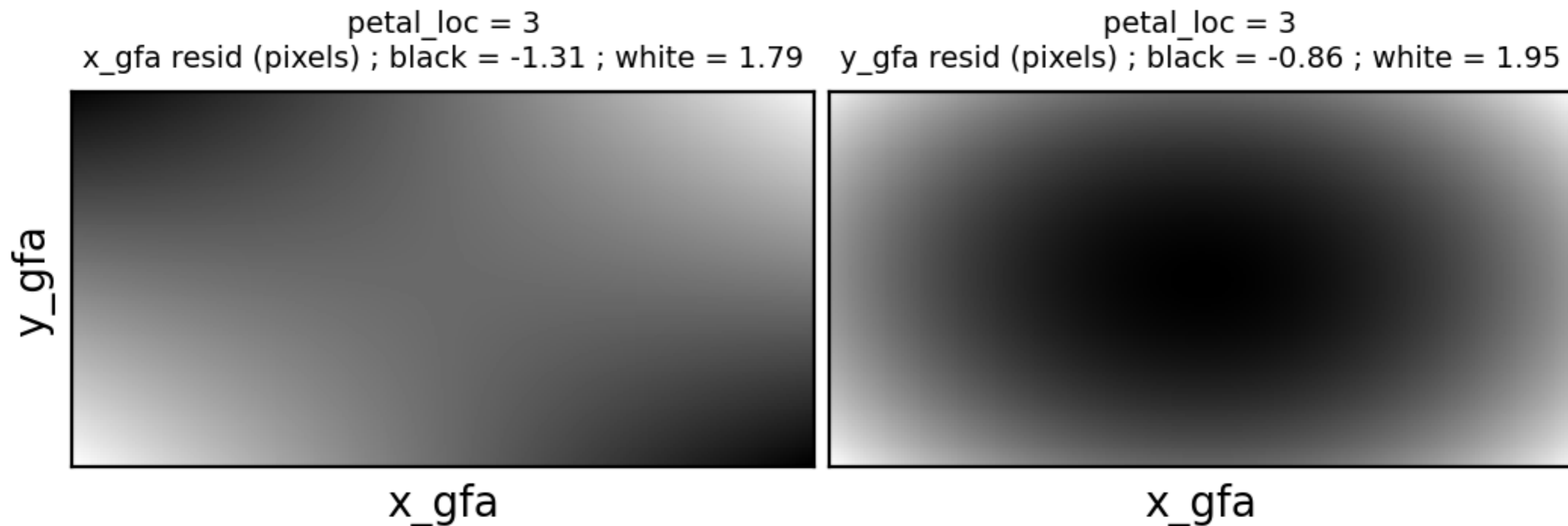
TAN residuals



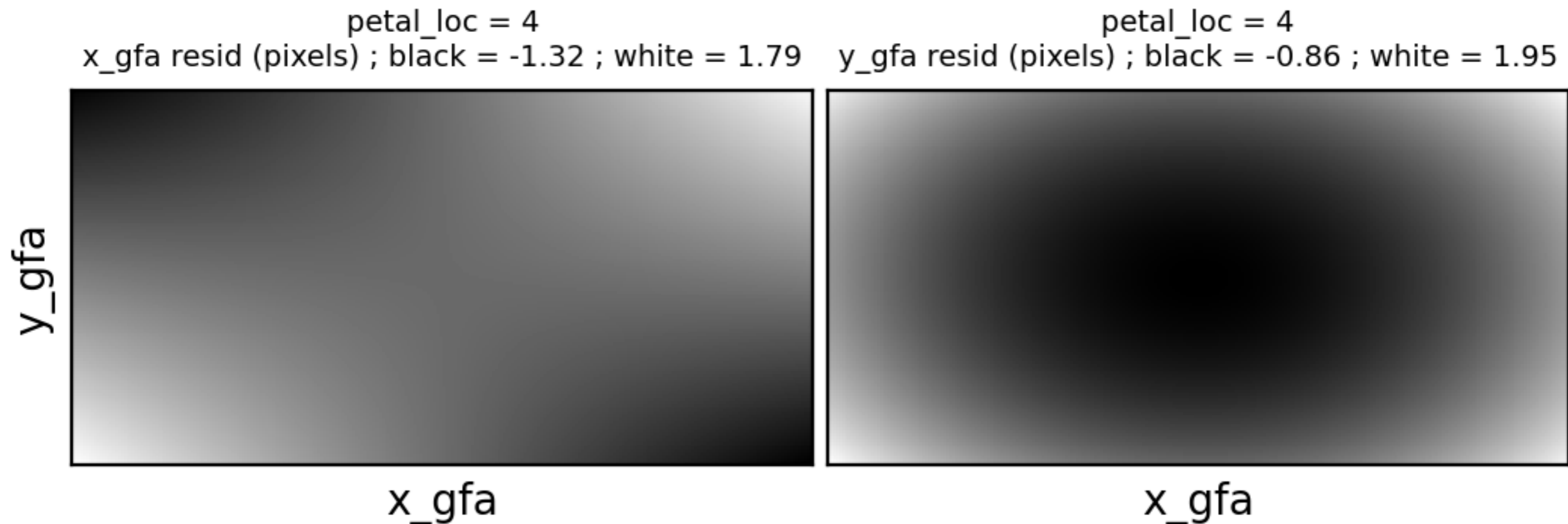
TAN residuals



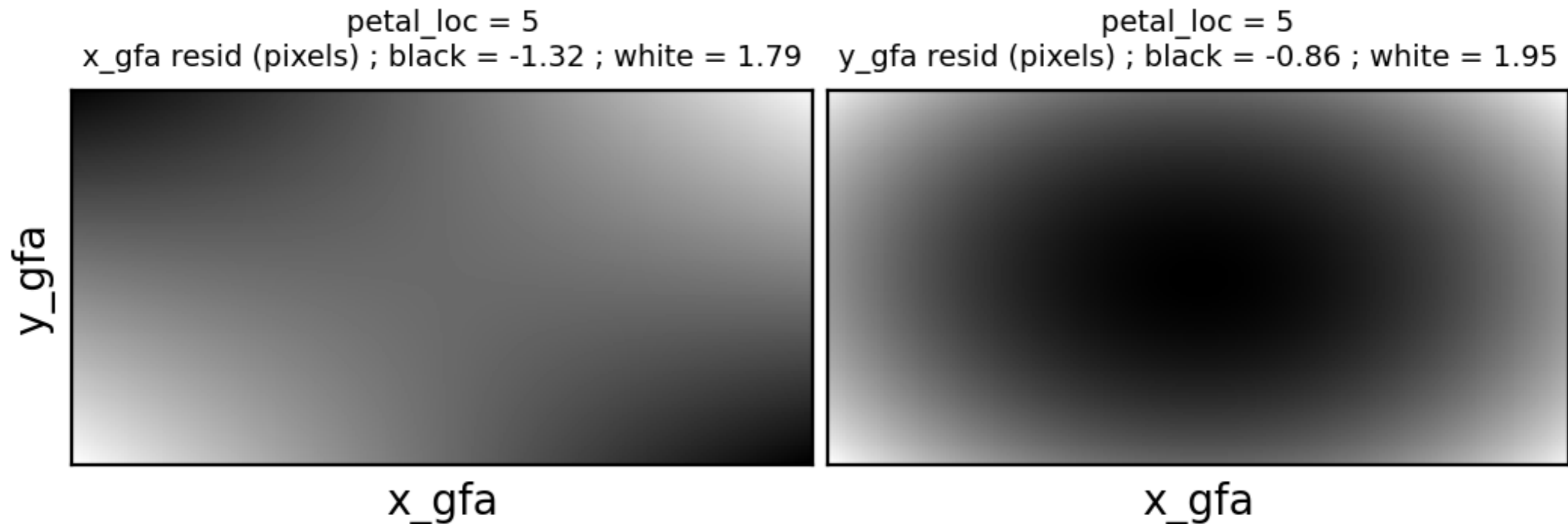
TAN residuals



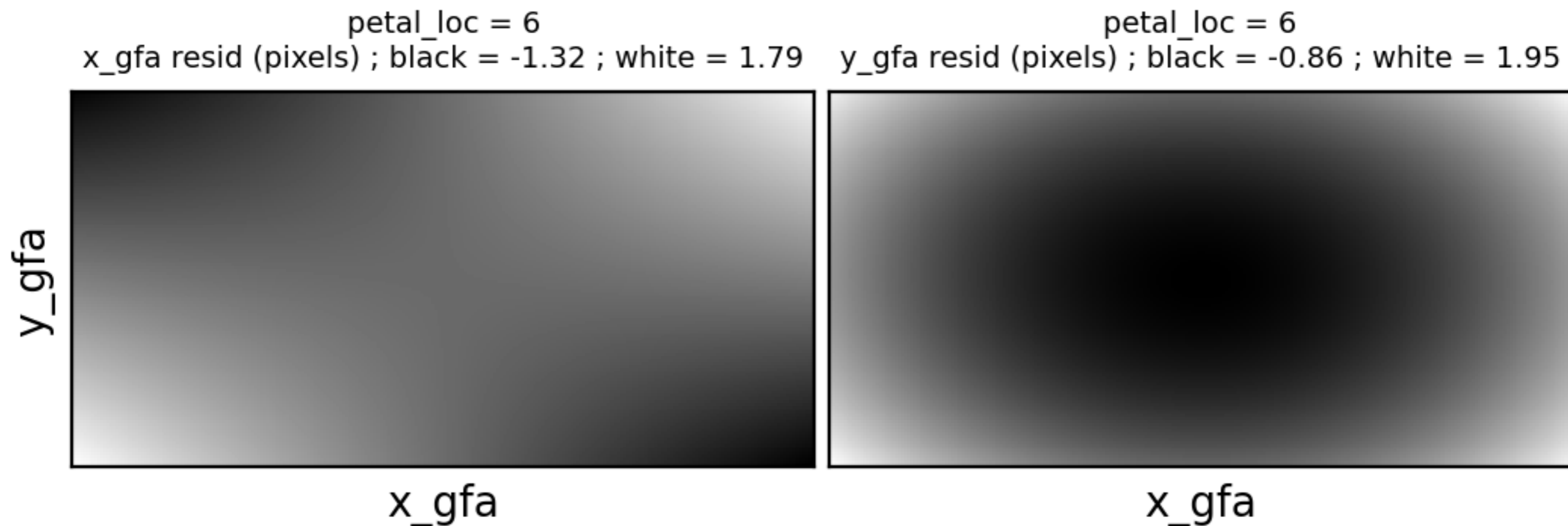
TAN residuals



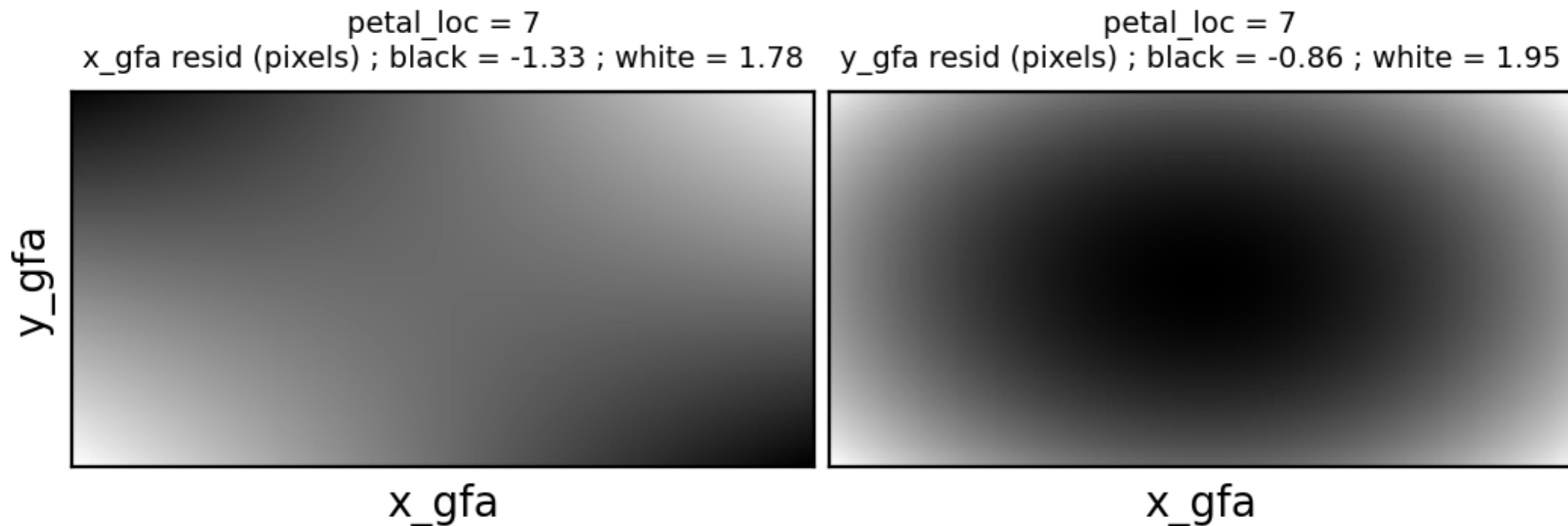
TAN residuals



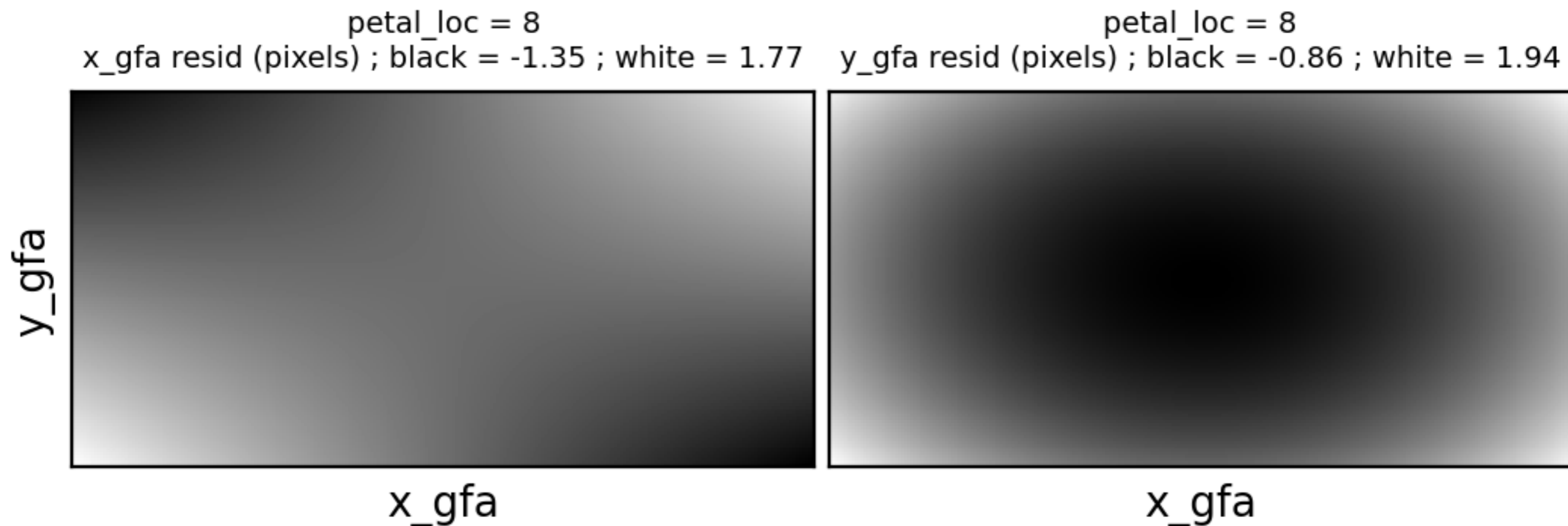
TAN residuals



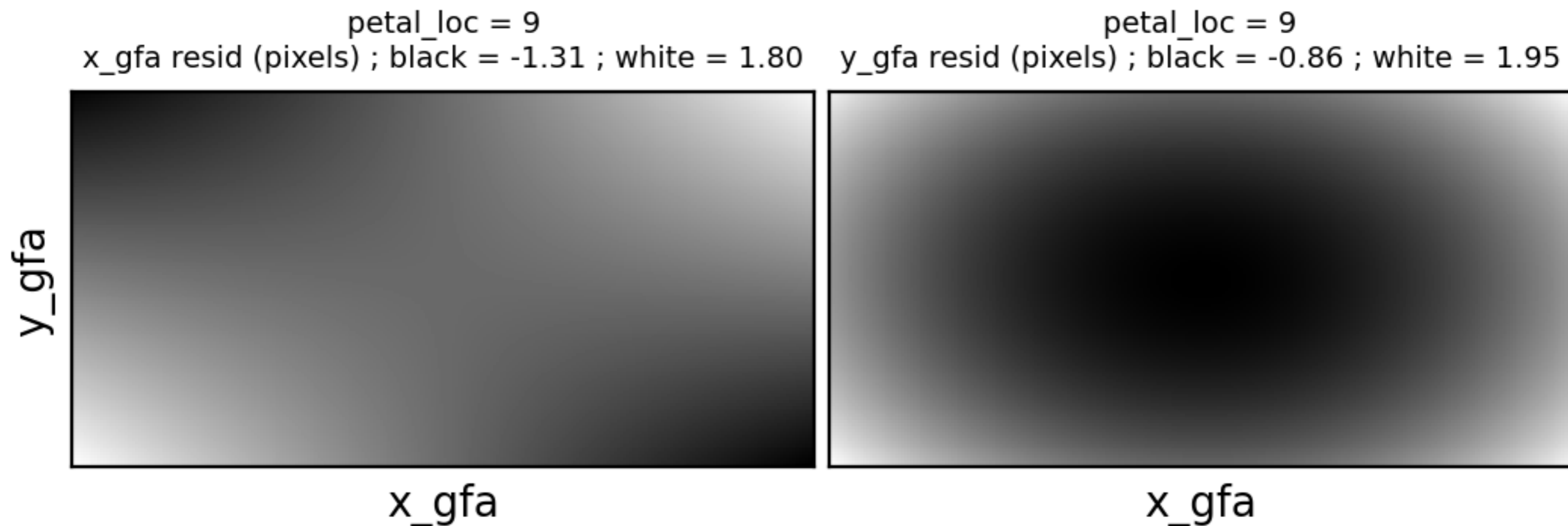
TAN residuals



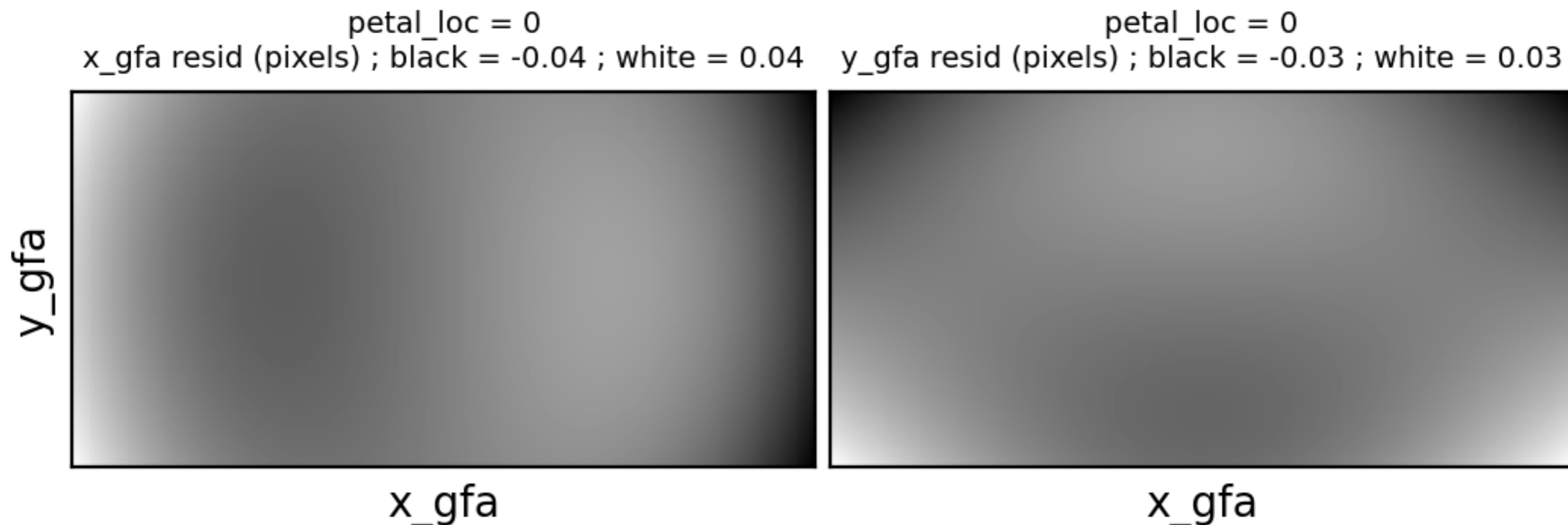
TAN residuals



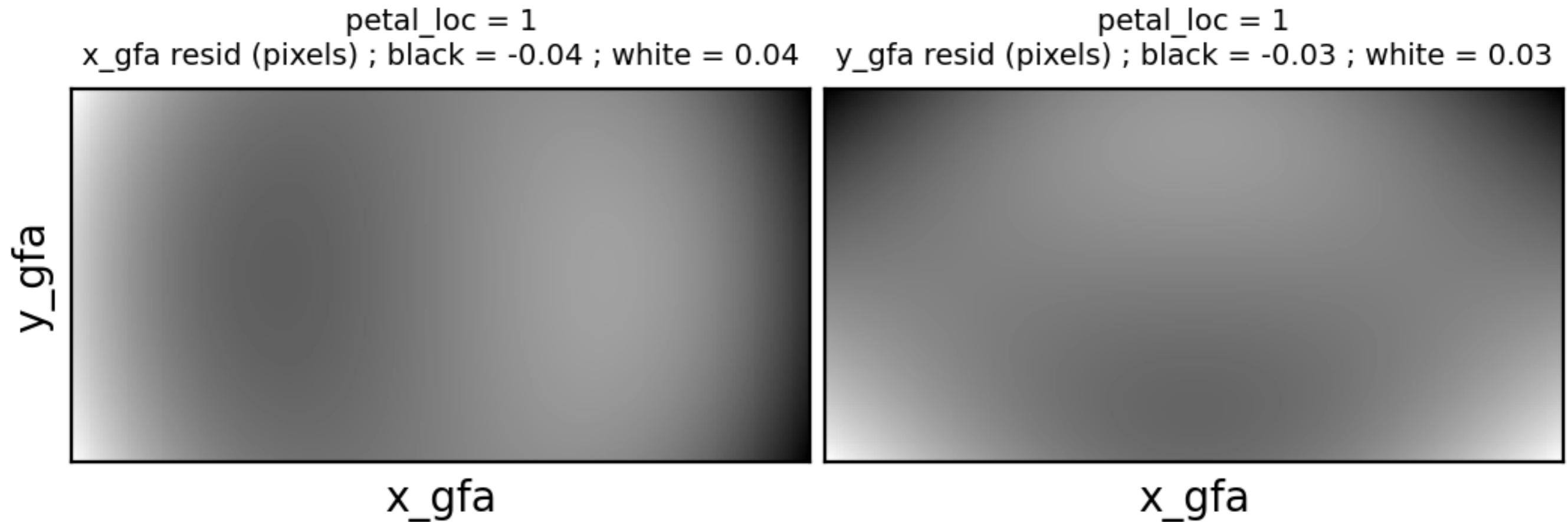
TAN residuals



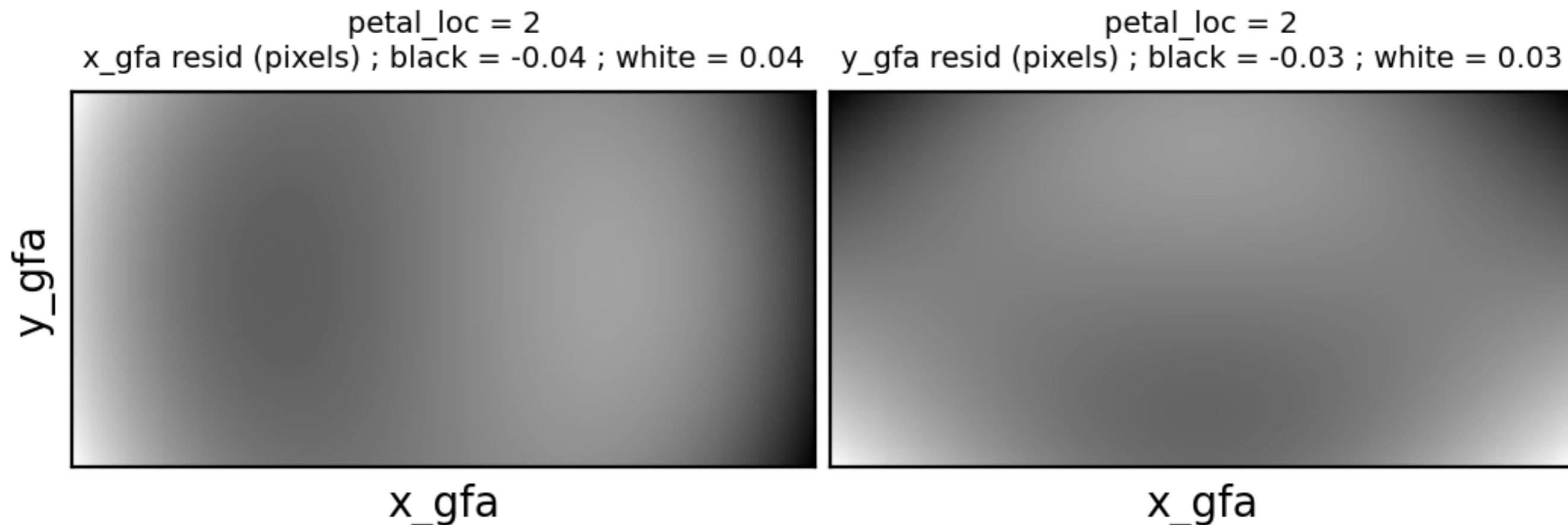
2nd order SLP residuals



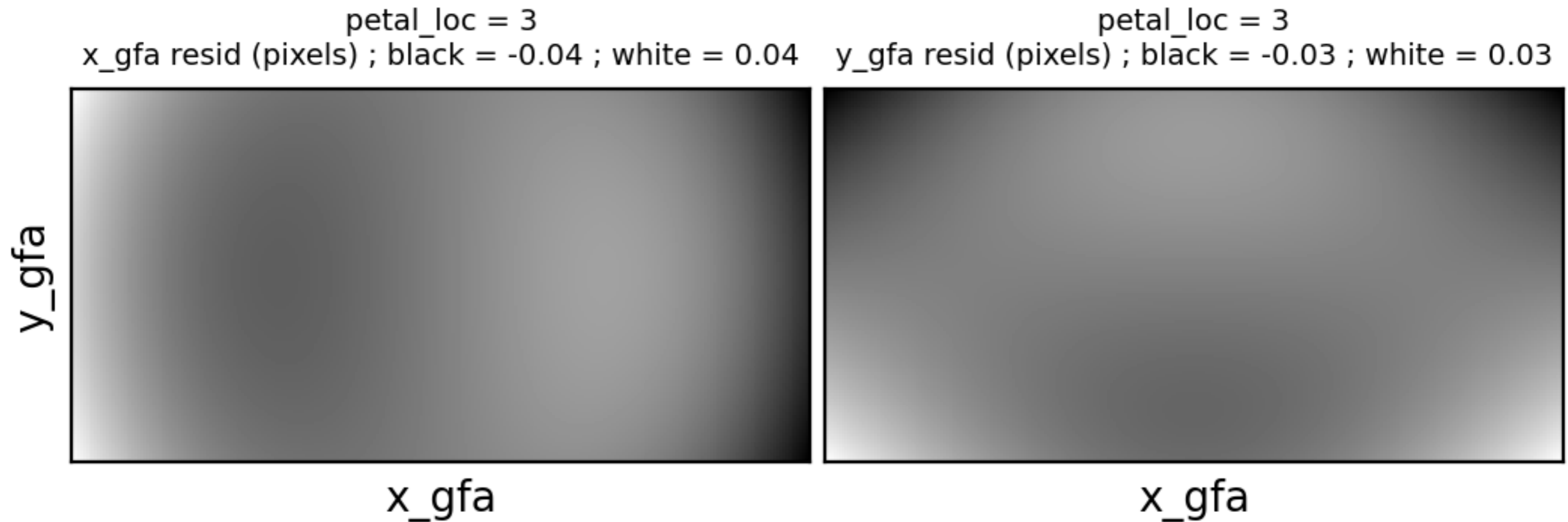
2nd order SLP residuals



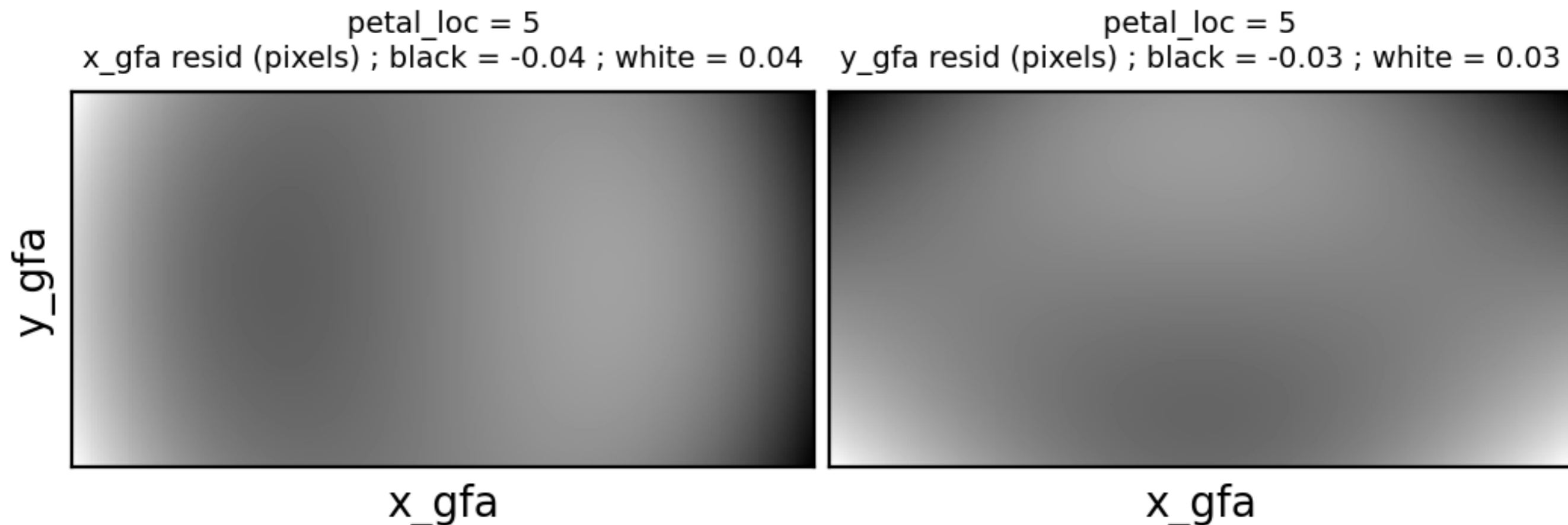
2nd order SLP residuals



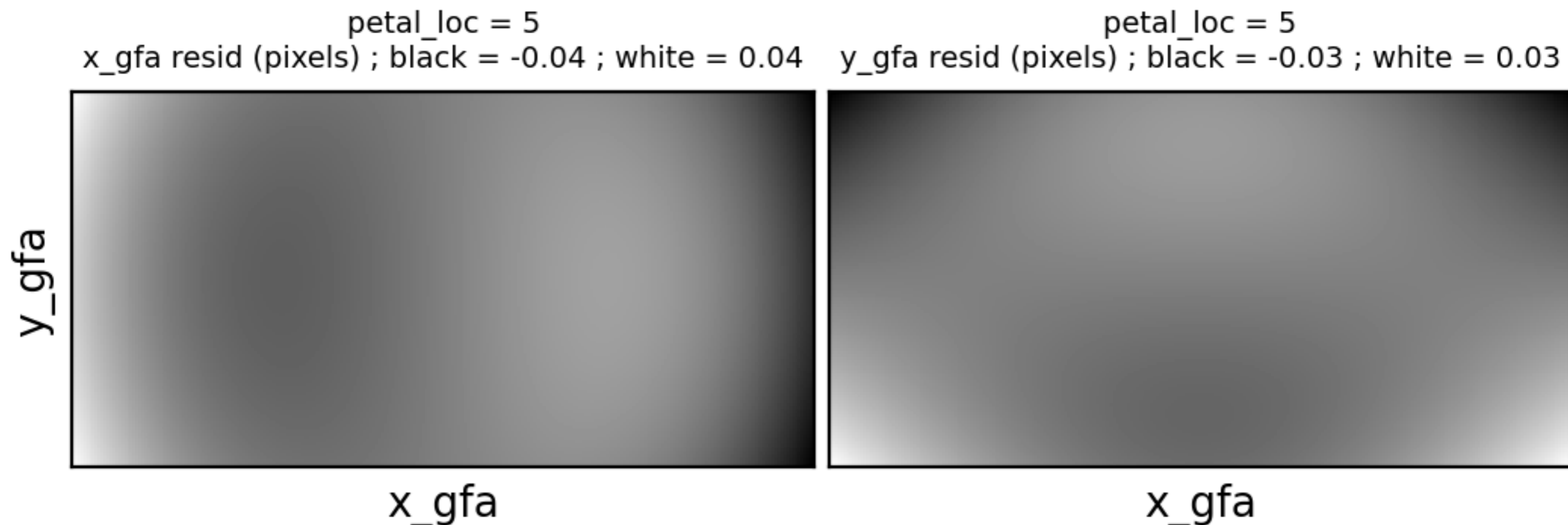
2nd order SLP residuals



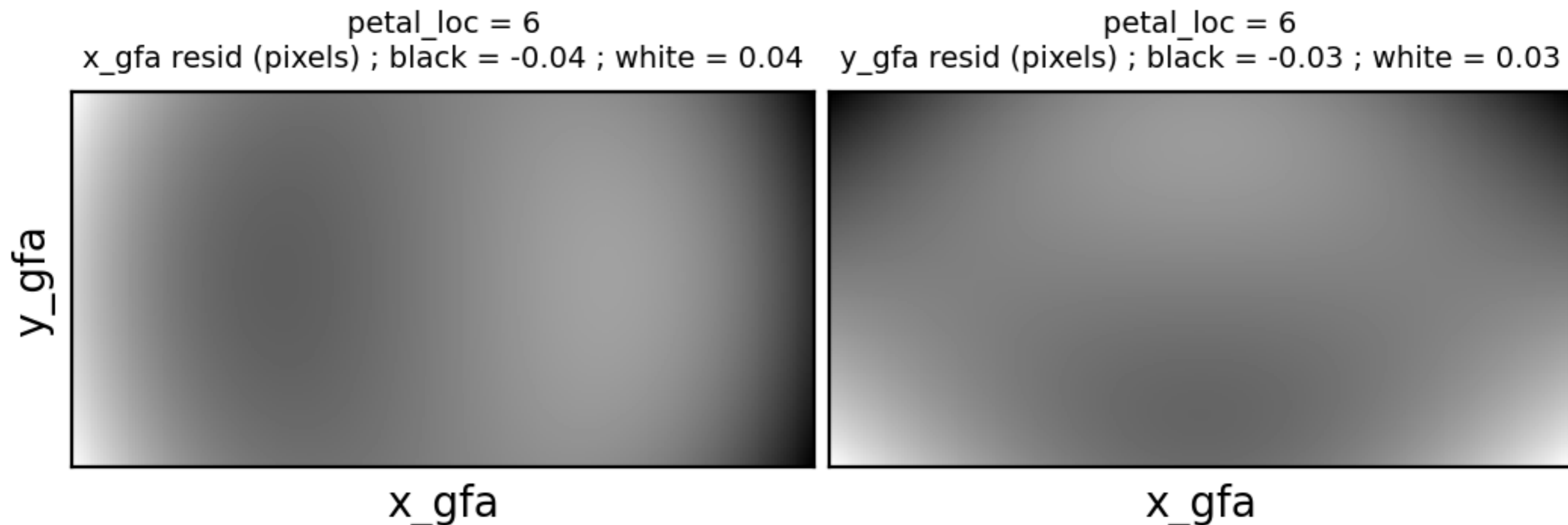
2nd order SLP residuals



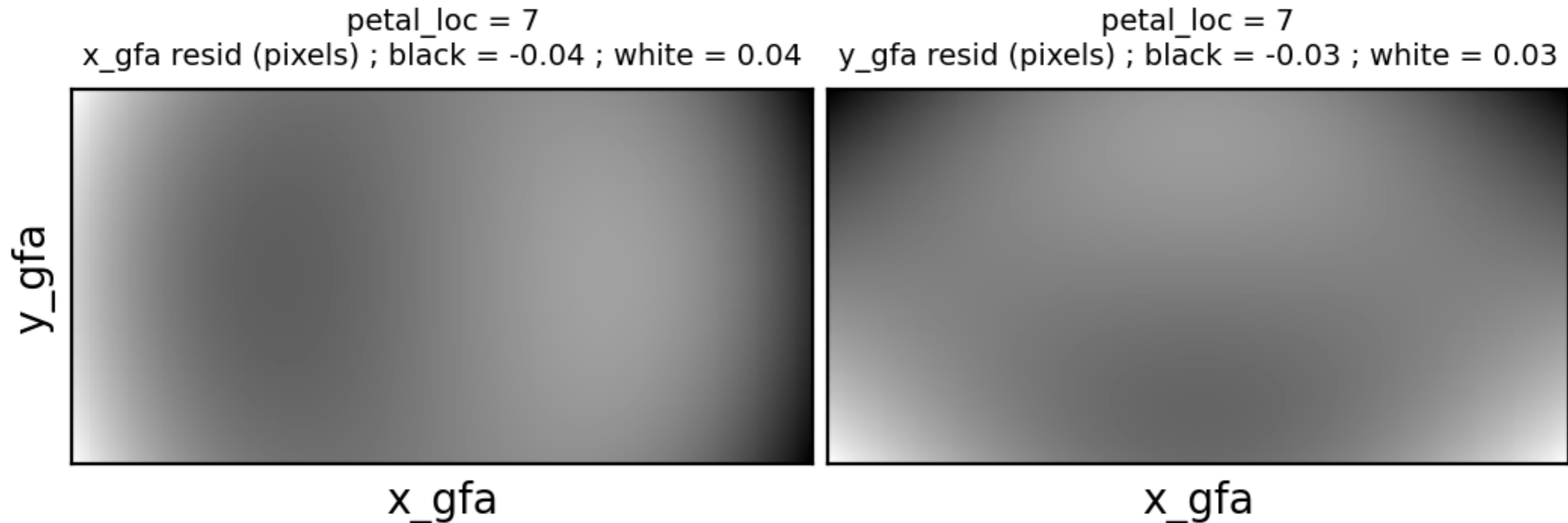
2nd order SLP residuals



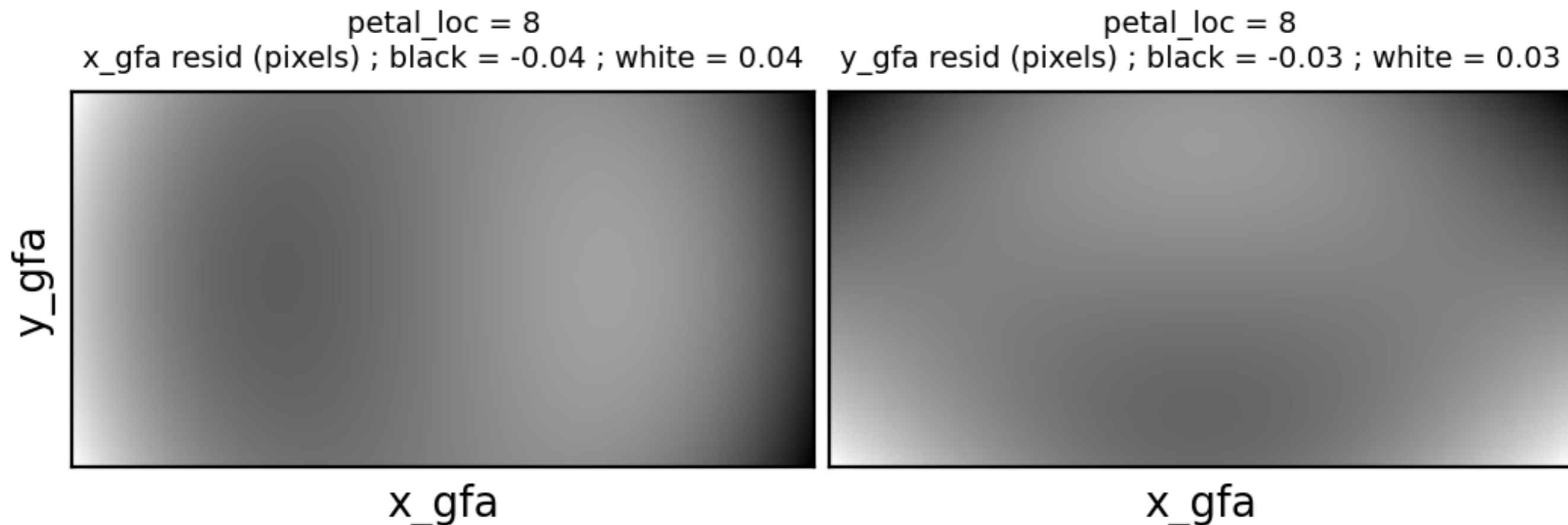
2nd order SLP residuals



2nd order SLP residuals



2nd order SLP residuals



2nd order SLP residuals

