

Lensing maps for the Garching-Bonn Deep Survey

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1. Summary

This booklet contains maps of the gravitational-lensing convergence of a set of fields in the Garching-Bonn Deep Survey (GaBoDS). Details on the galaxy catalogues in GaBoDS can be found in Erben et al. (2005).

The map compilation only comprises fields that are suitable for an analysis of cosmic shear (Hettterscheidt et al. 2007). The reconstruction of these fields employs a Wiener-filter technique based on an estimate of the signal strength of gravitational shear inside the fields (Sect. 3 in McInnes et al. 2009). The maps show the estimated lensing convergence with values depicted in the adjacent color scale. The convergence is essentially the projected matter density in excess of the mean density.

Note that the maps are subject to statistical noise, and that many of the structures visible in the maps are not real; signal-to-noise levels of structures are not given here. In some cases, the determination of the signal strength fails, probably for being too small; these maps have unphysically large values for the convergence (values well beyond about 0.1). These maps are not included here.

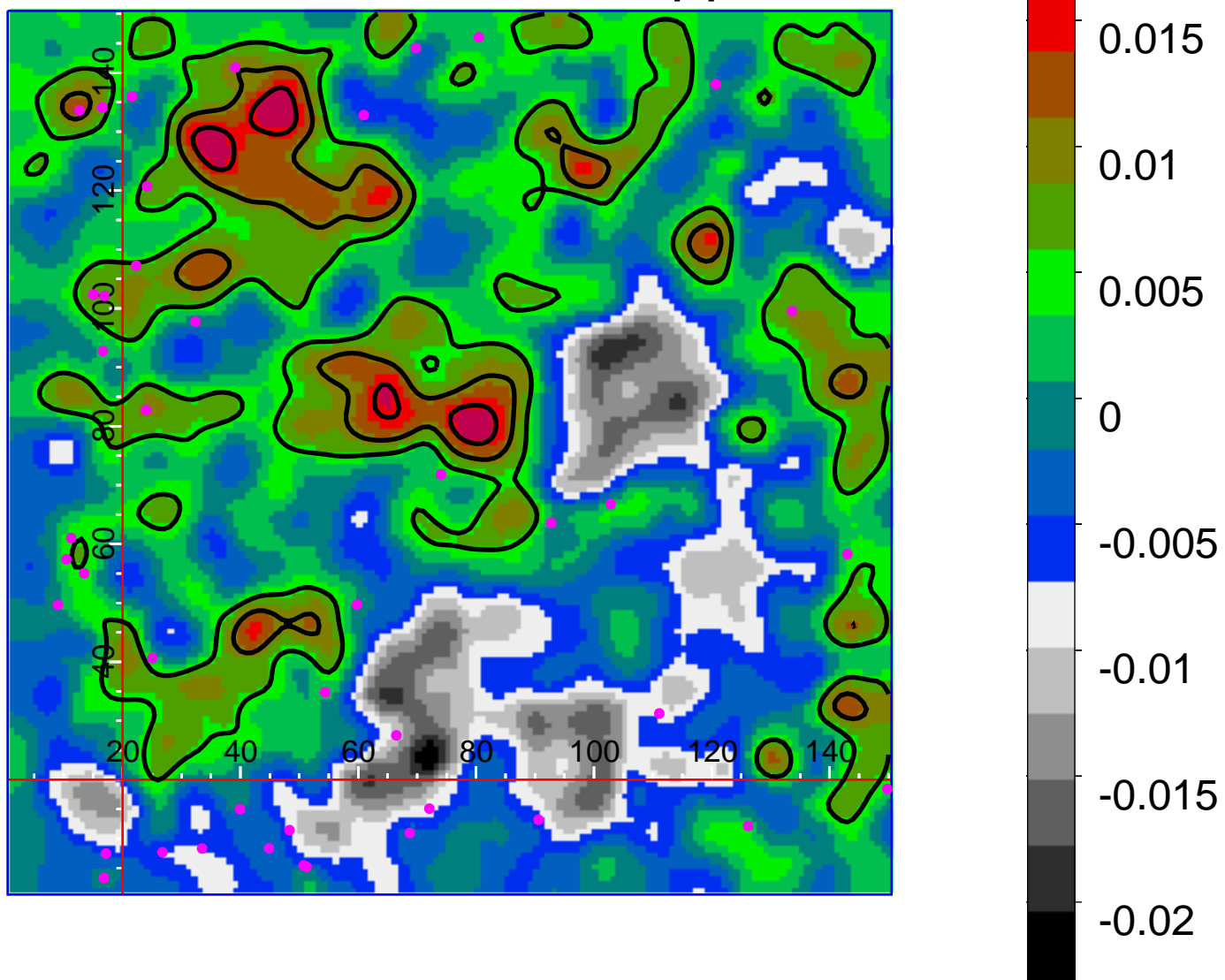
2. Format details

The angular scale of each map amounts to 33.3 arcmin times 33.3 arcmin on the sky -- the angular size of the full moon -- which corresponds to 150 pixel times 150 pixel in the map representation. The pixel scale is indicated by ticks and labels on the two axes inside the map. The map contours show equal levels of the lensing convergence with values 0.005, 0.01, 0.015, 0.02, and 0.025. Galaxy sources used in the analysis are selected within a R-band magnitude of 21.0 and 24.5 but are also subject to further selection criteria (Hettterscheidt et al. 2007). Their total number per field is typically ten thousand. The average convergence over the entire field area is defined to be zero in the reconstruction. The magenta points indicate positions of bright galaxies relative to the projected matter density seen in the convergence map. The galaxies have a magnitude between 19.5 and 20.0 in the R-band. Lensing techniques can be used to study the relation between matter and galaxies (Simon et al. 2007).

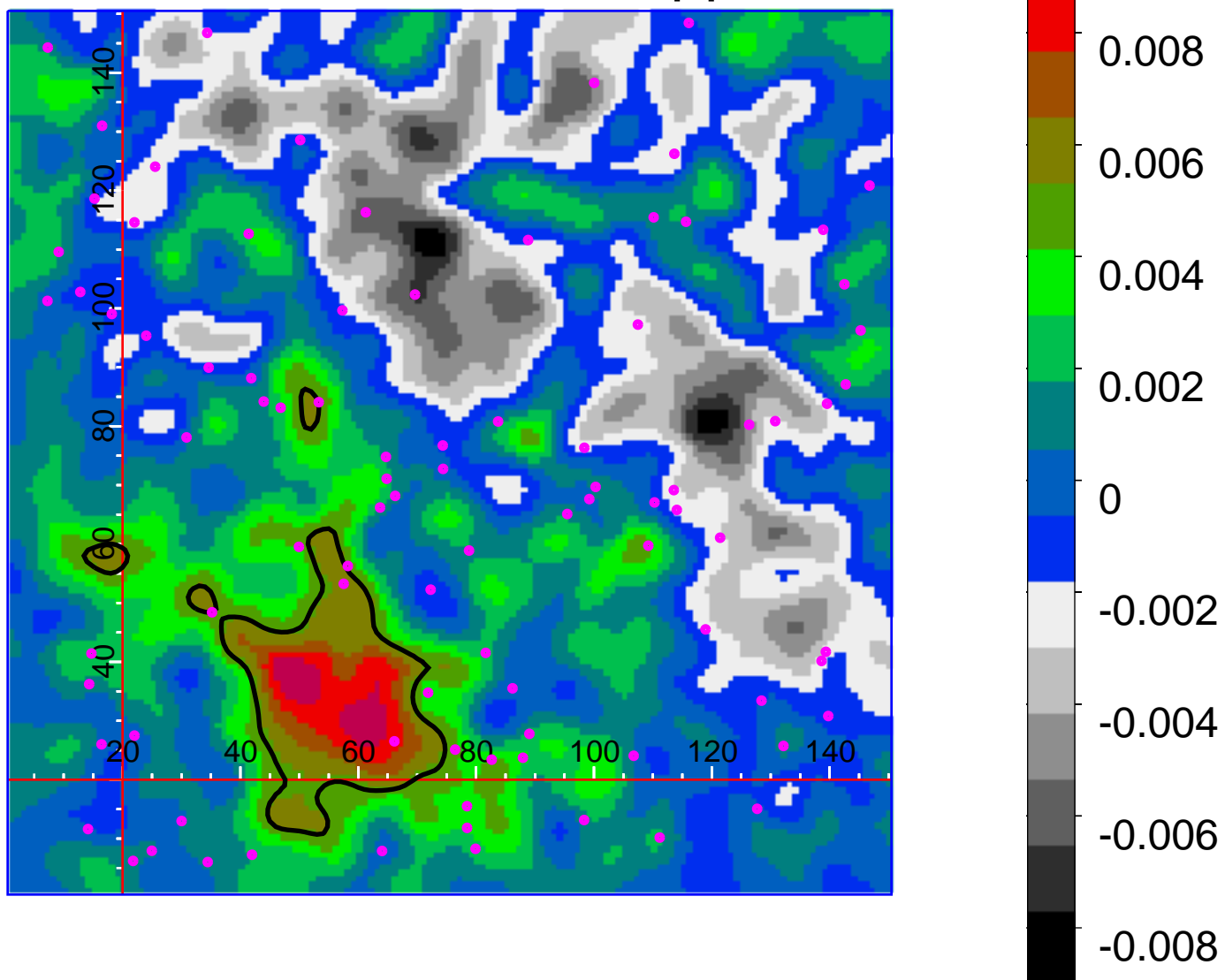
3. References

- Erben, T. et al., 2005, AN, 326, 432
- Hettterscheidt, M. et al., 2007, A&A, 468, 359
- McInnes, I. et al., 2009, MNRAS, 399, 84
- Simon, P. et al., 2007, A&A, 461, 861

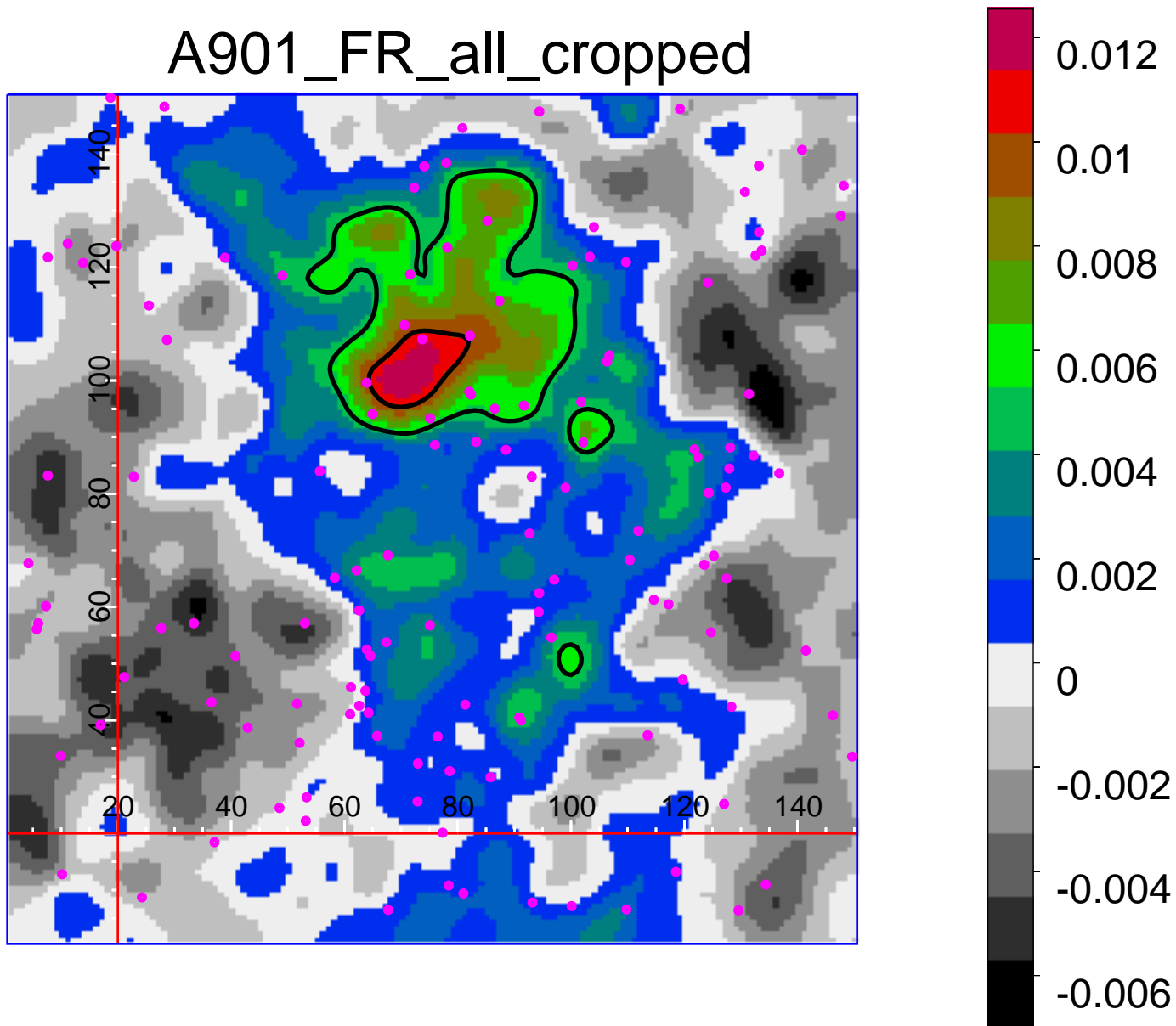
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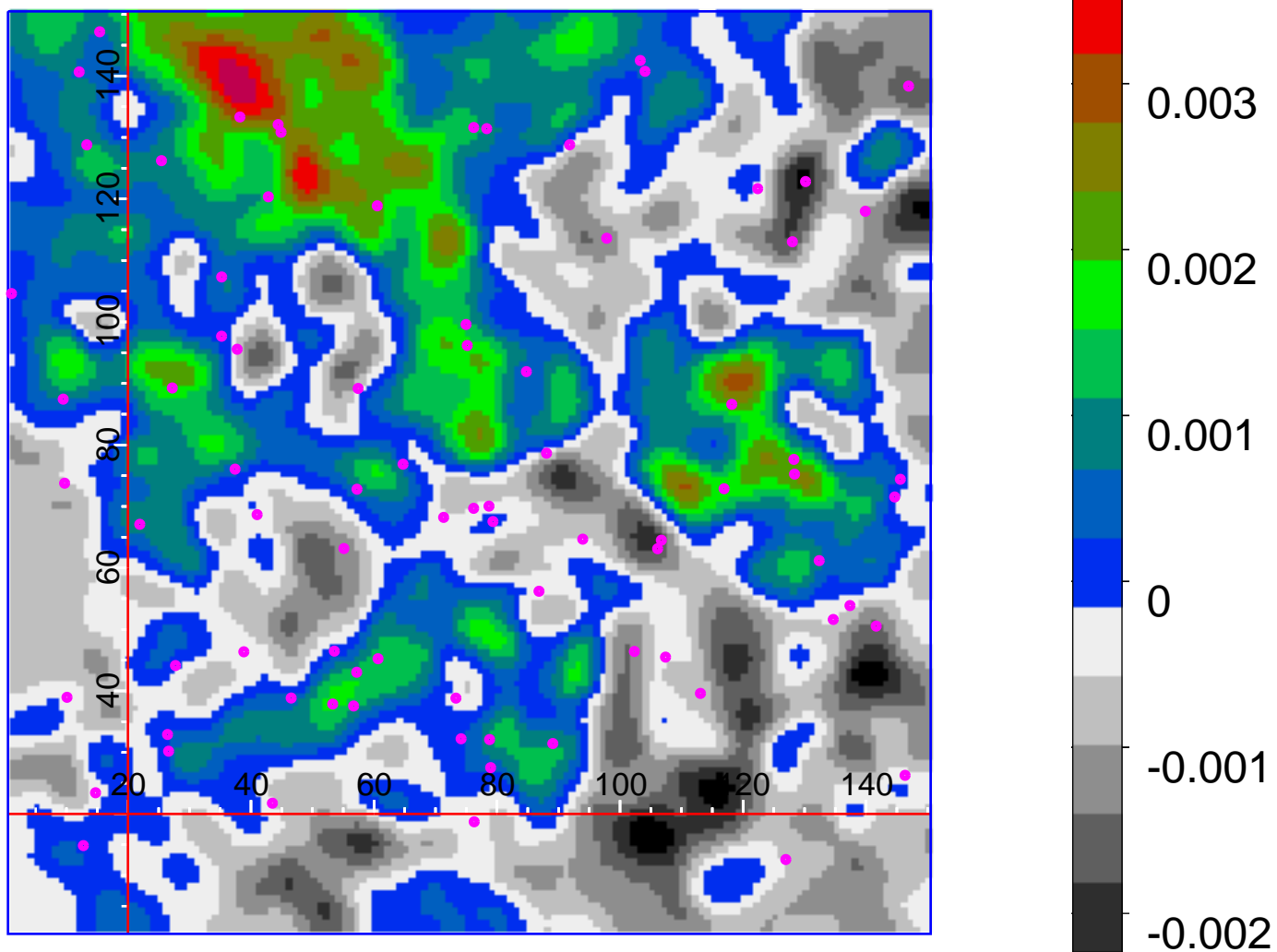
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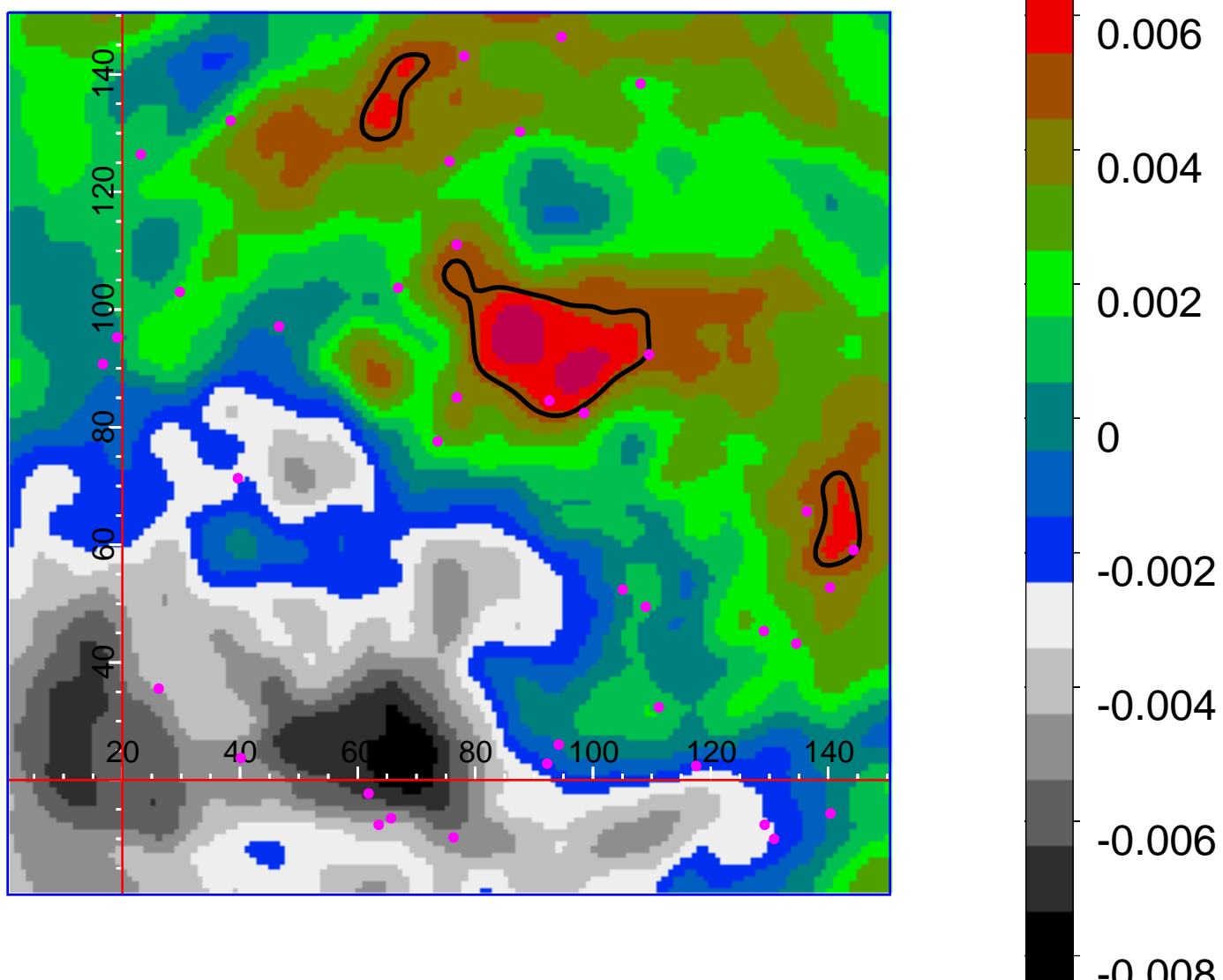
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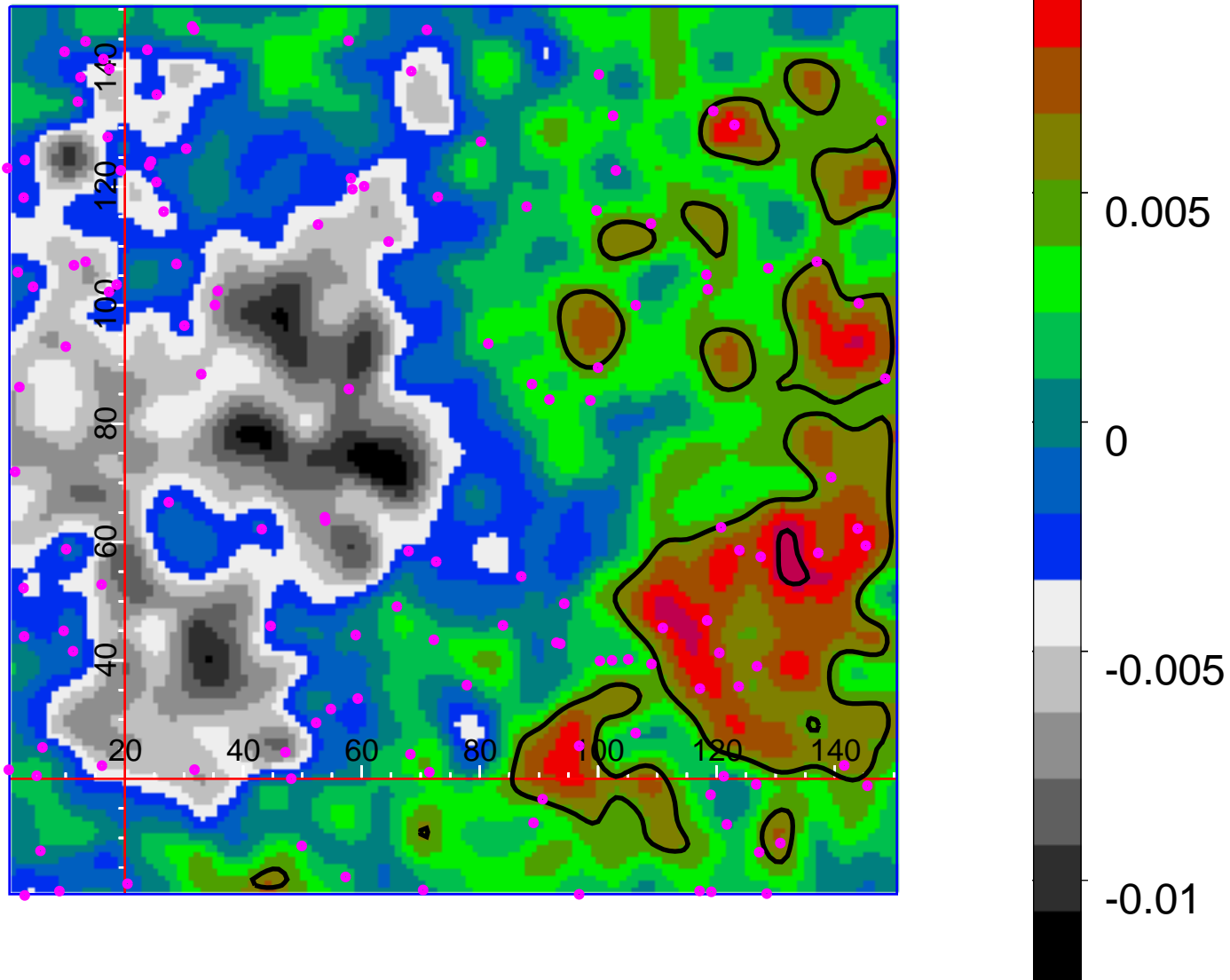
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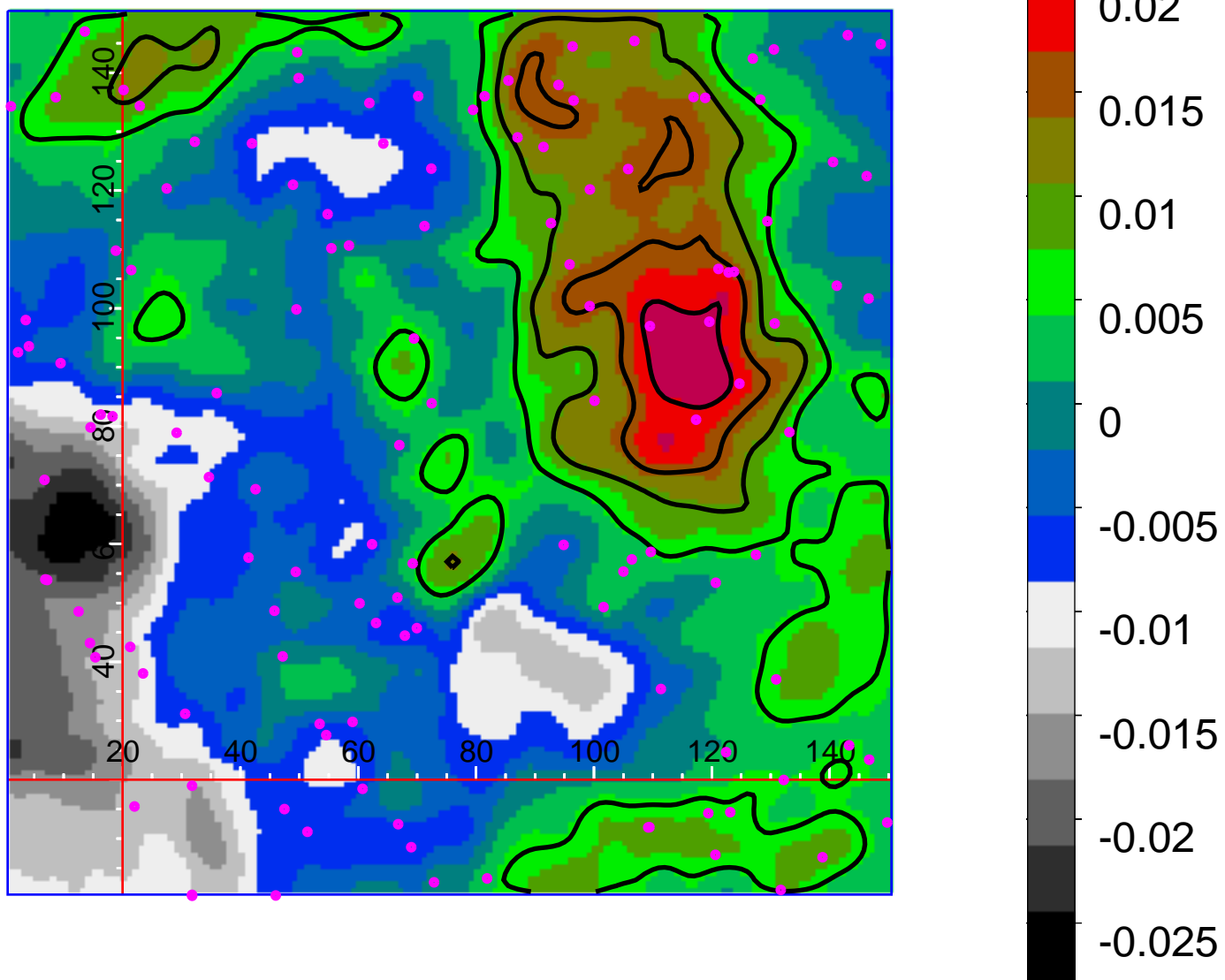
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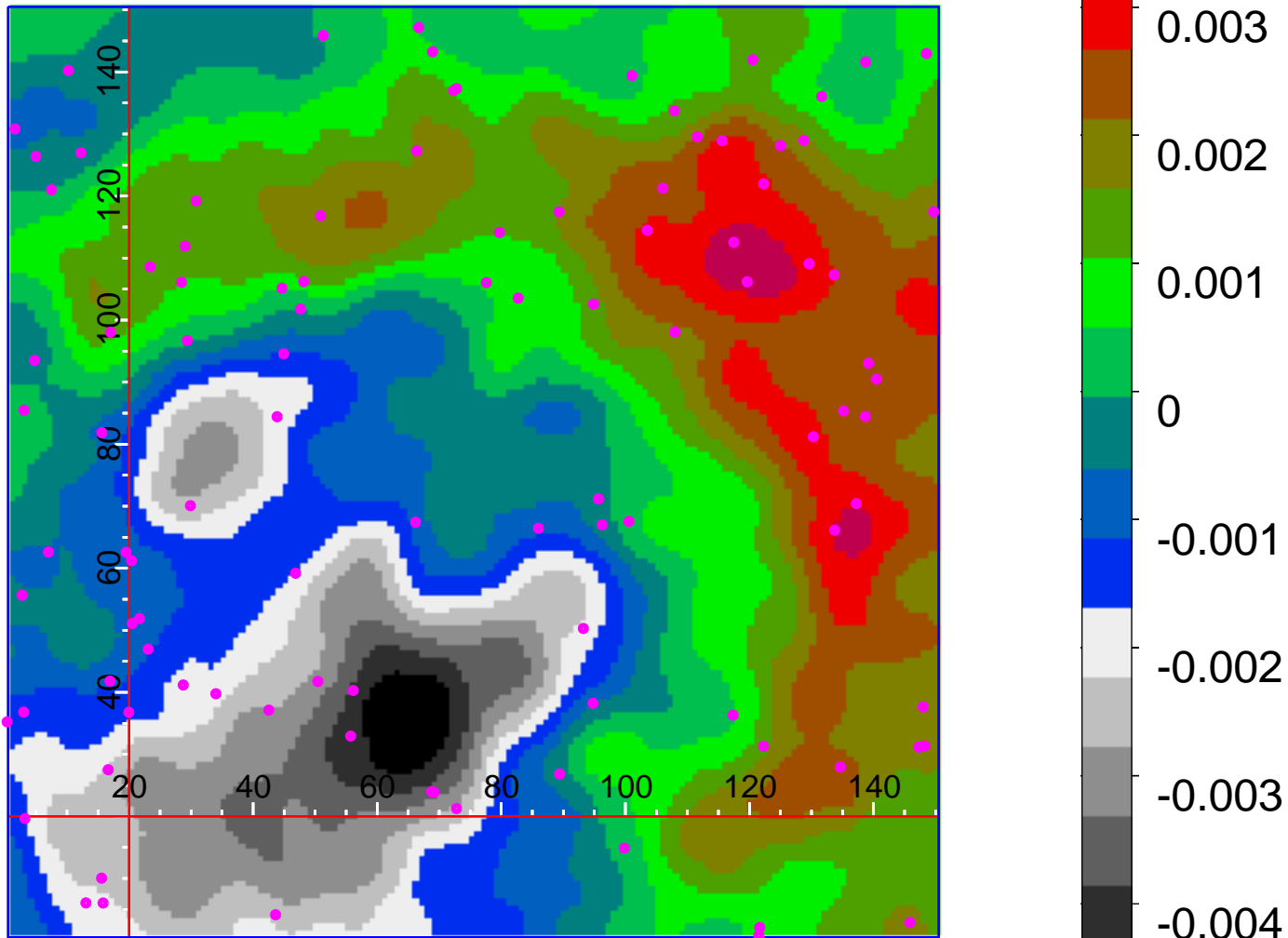
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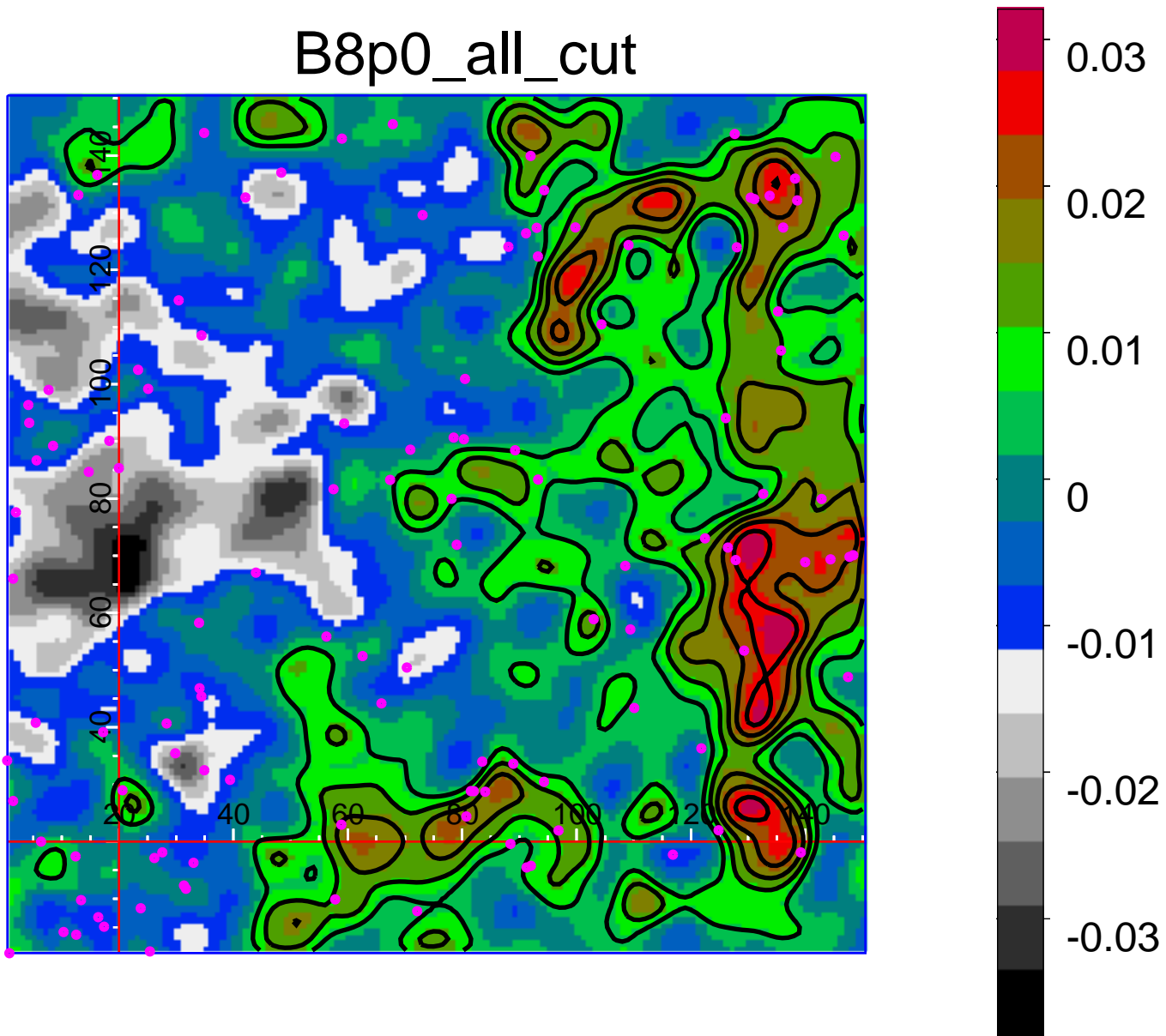
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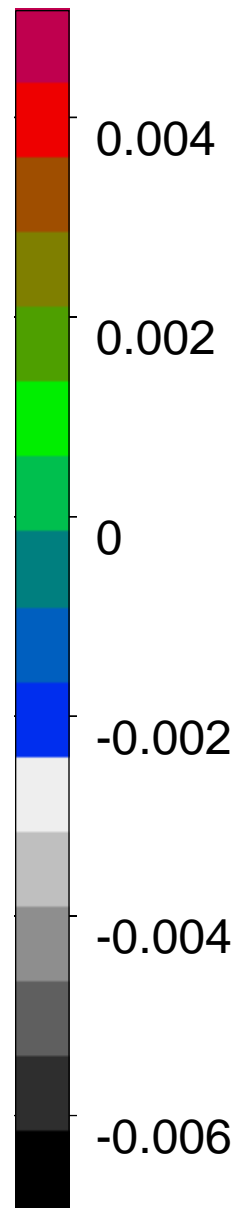
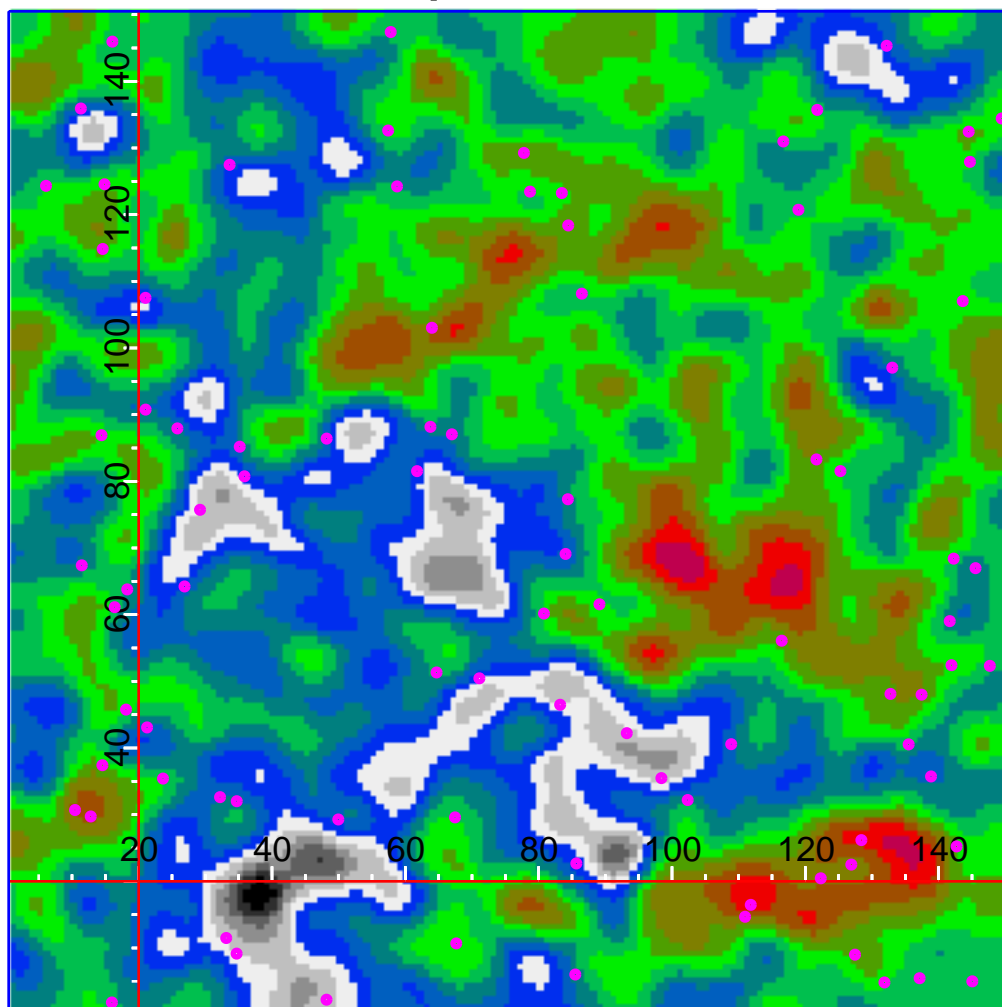
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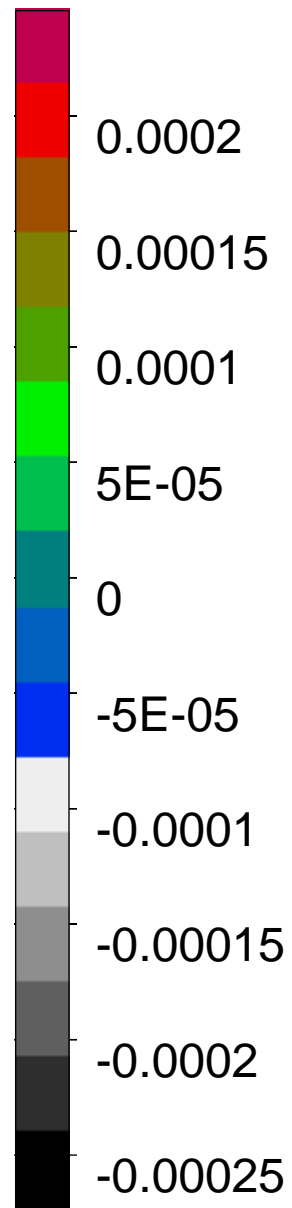
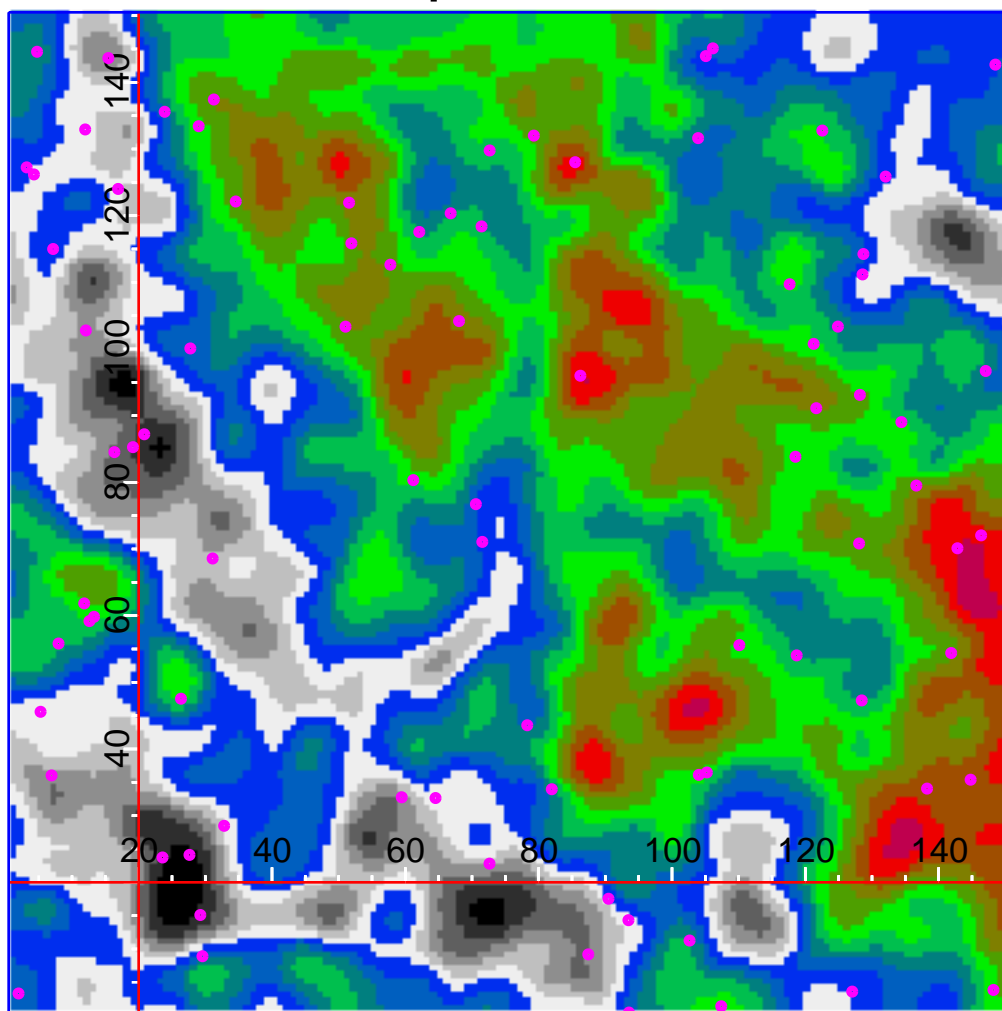
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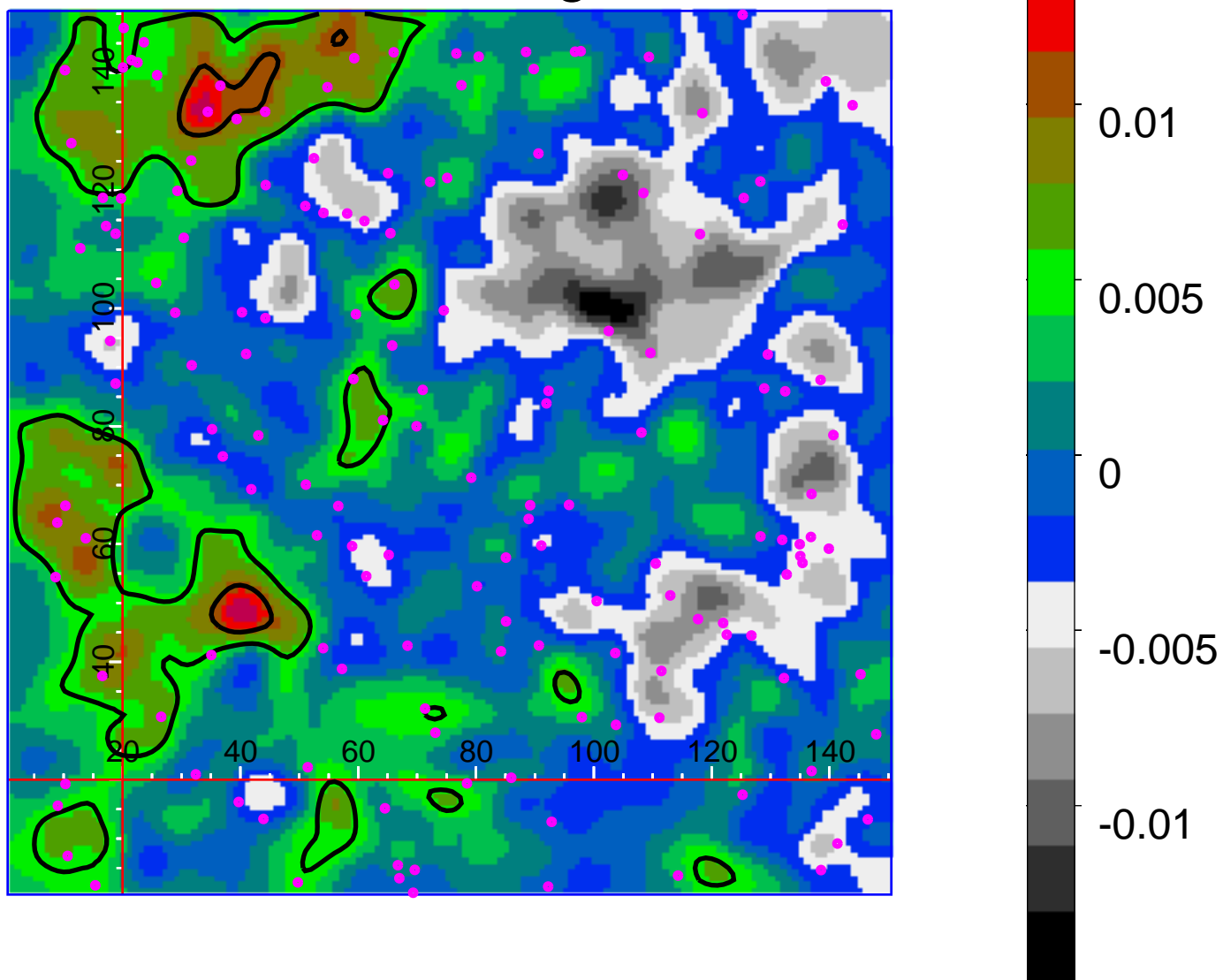
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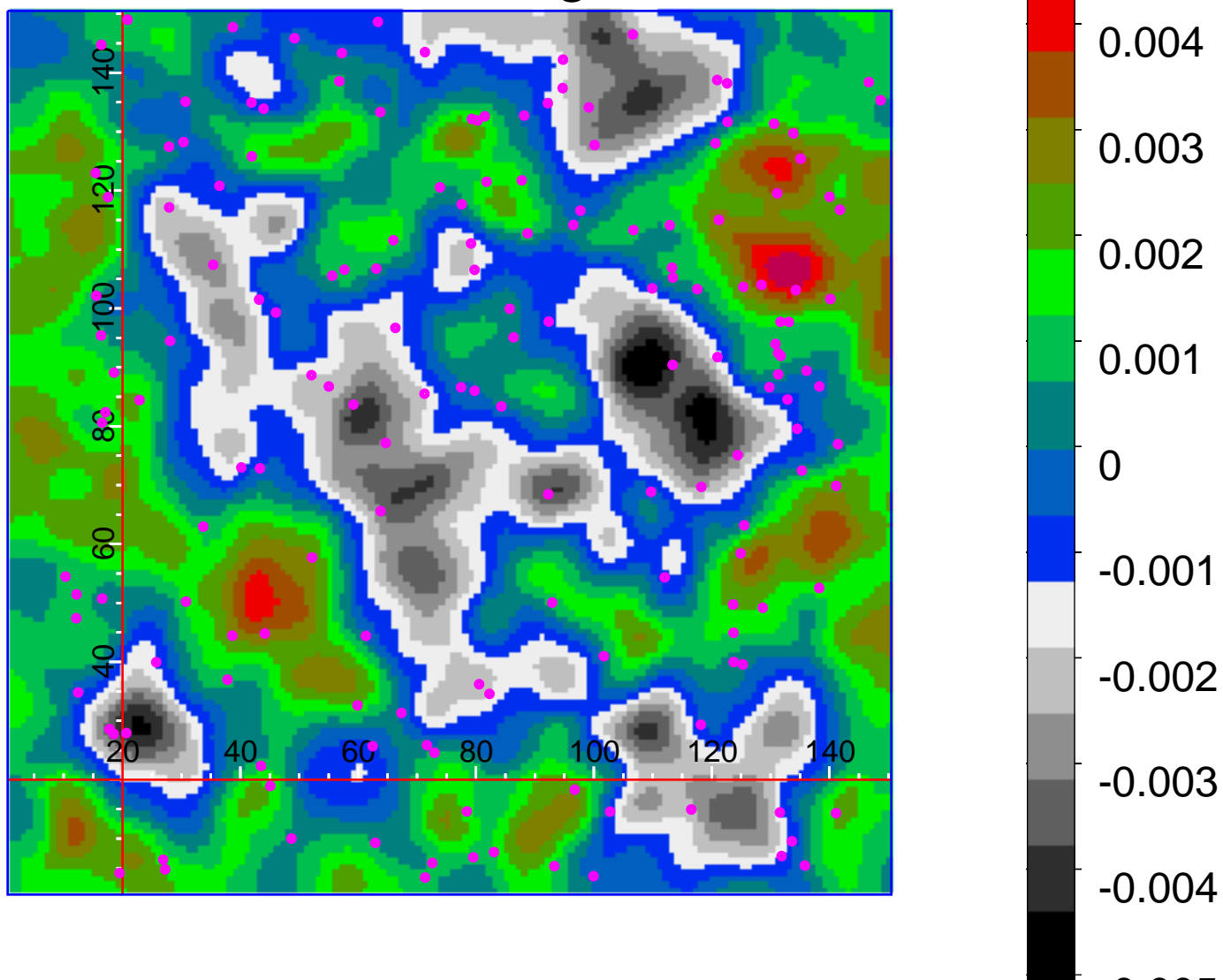
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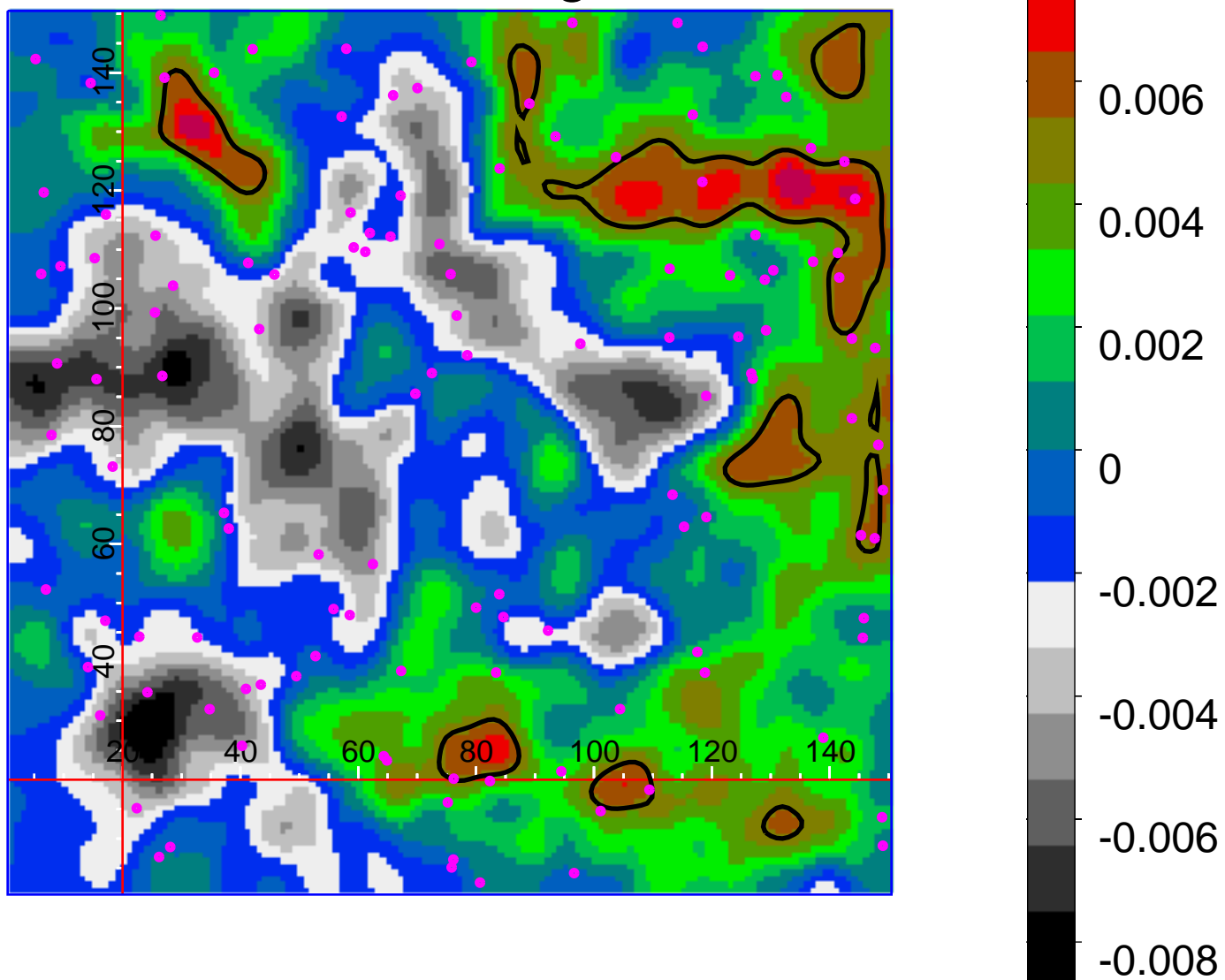
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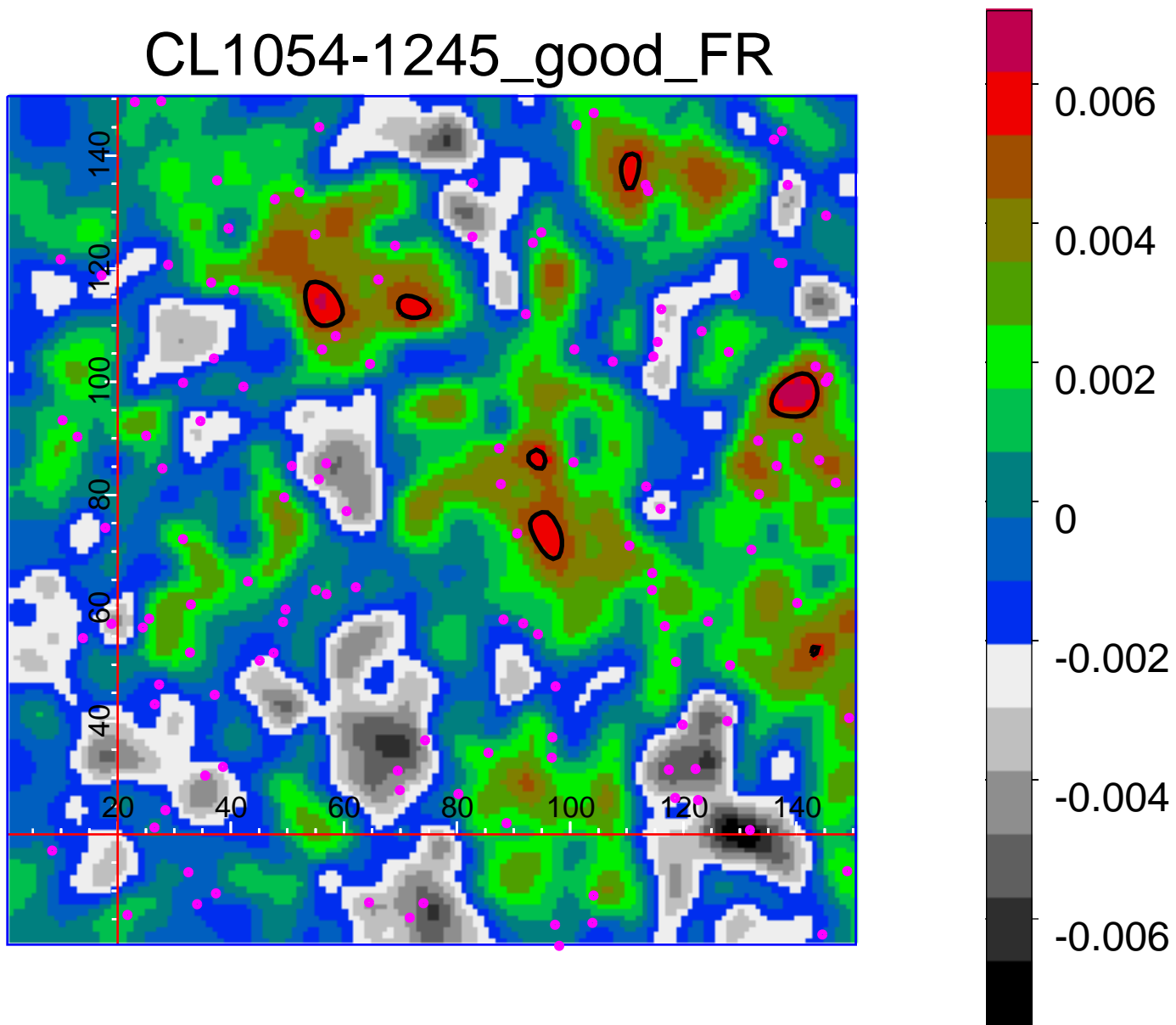
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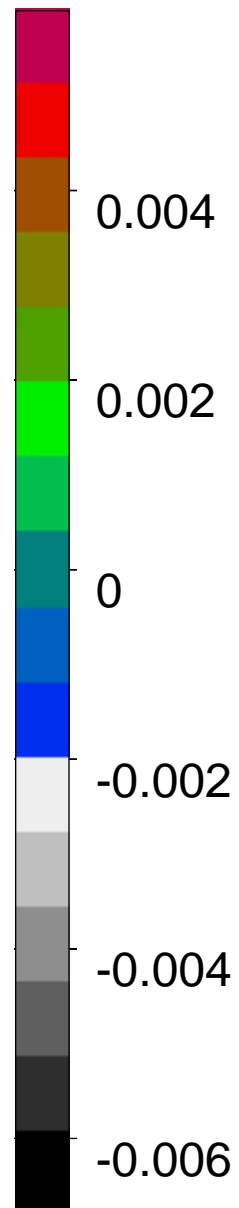
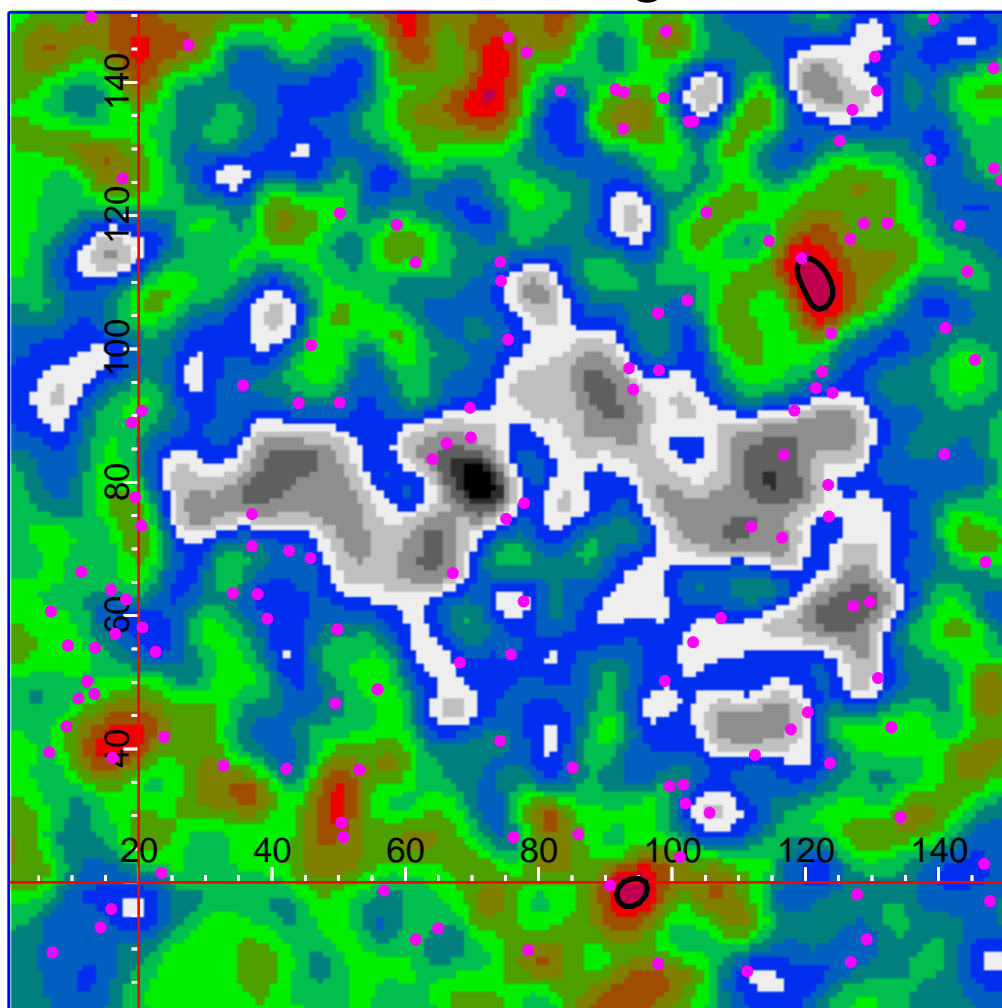
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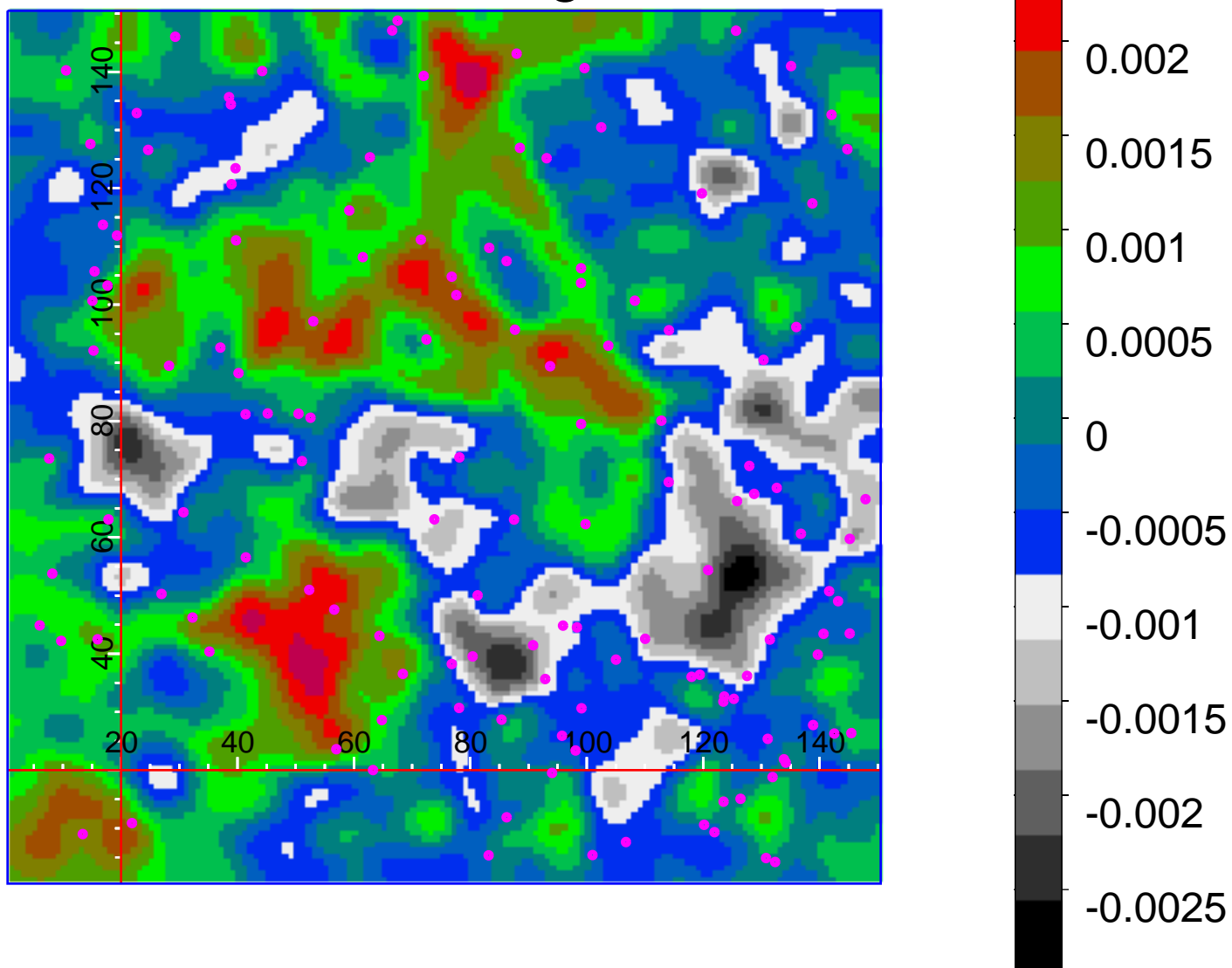
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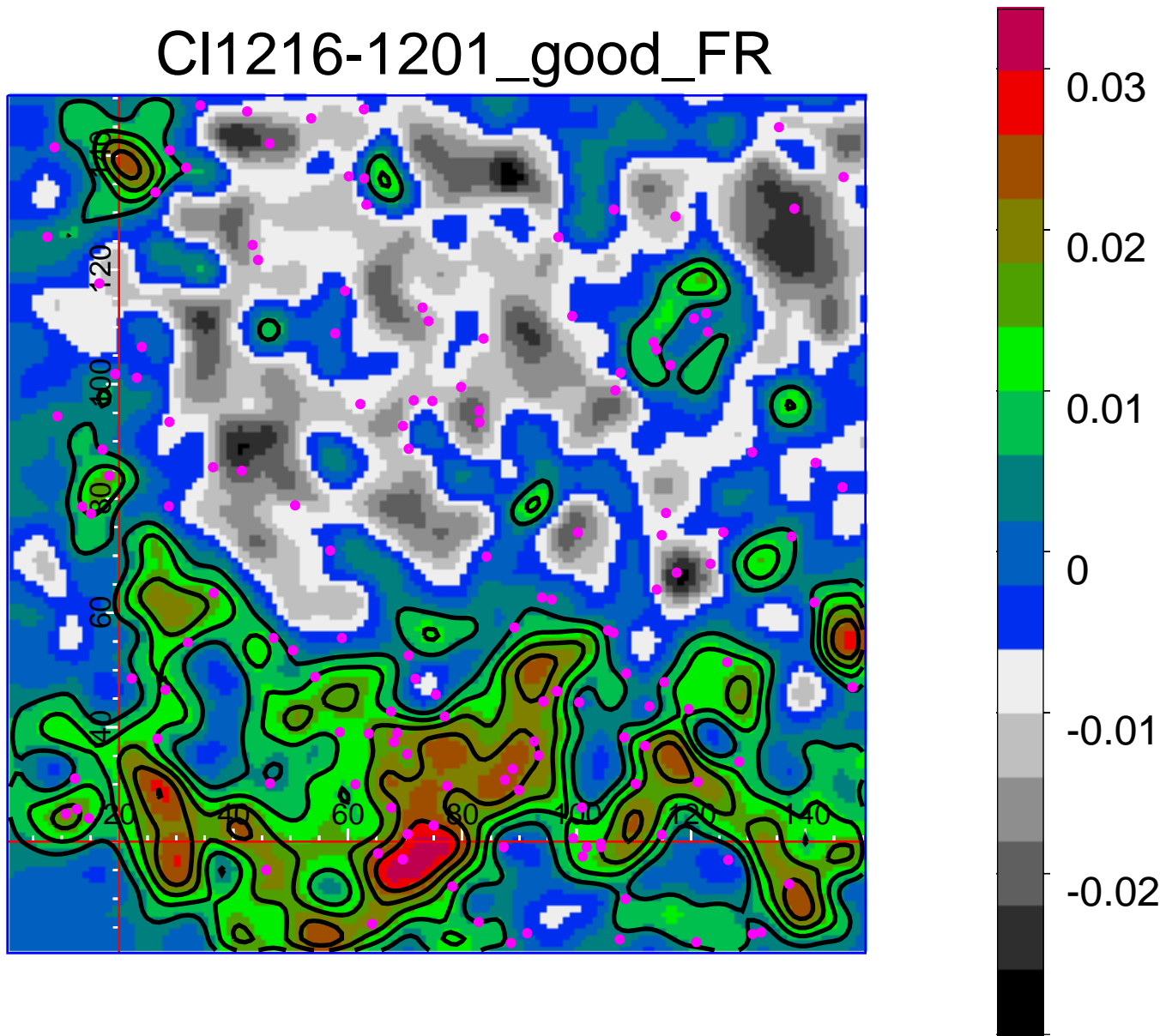
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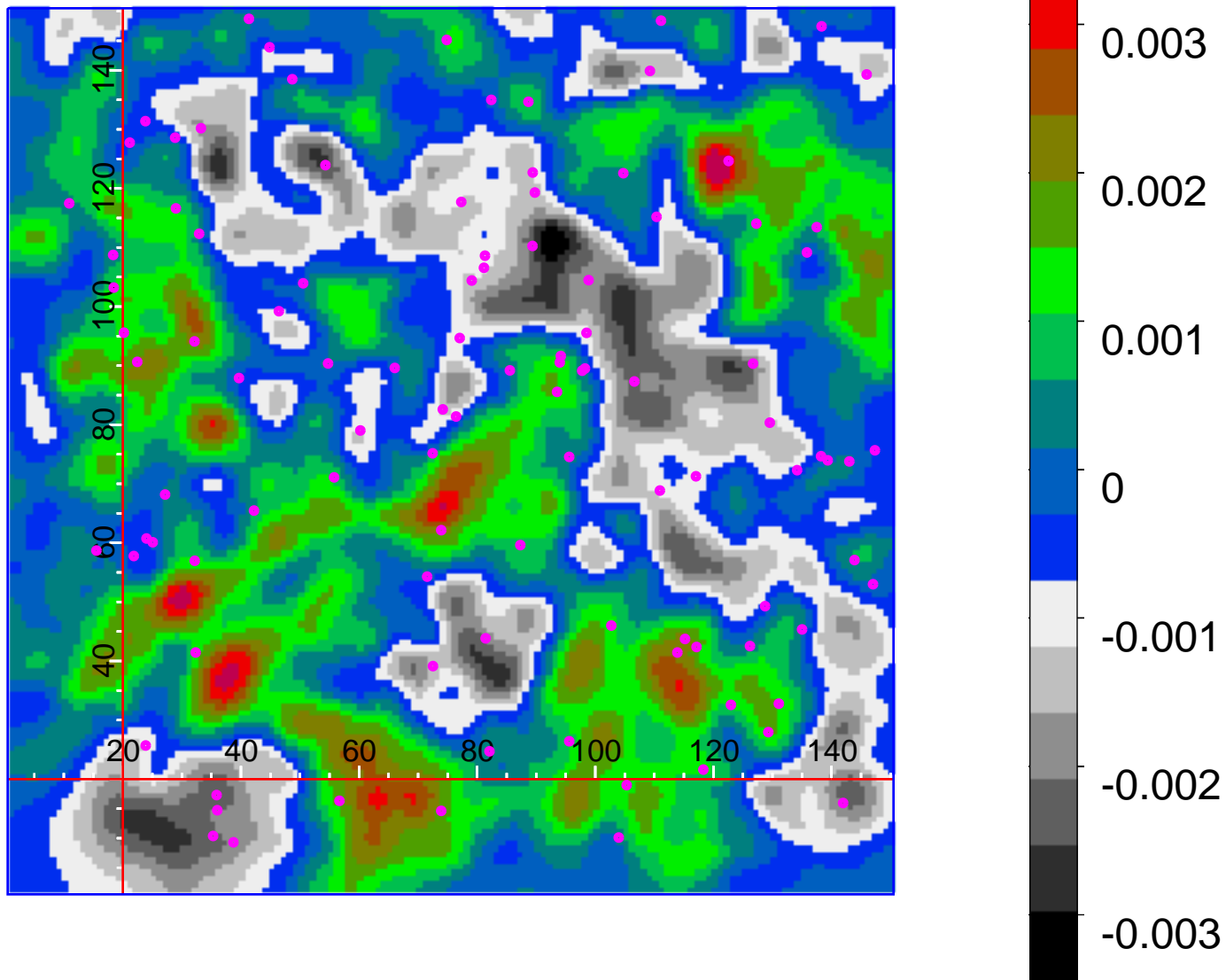
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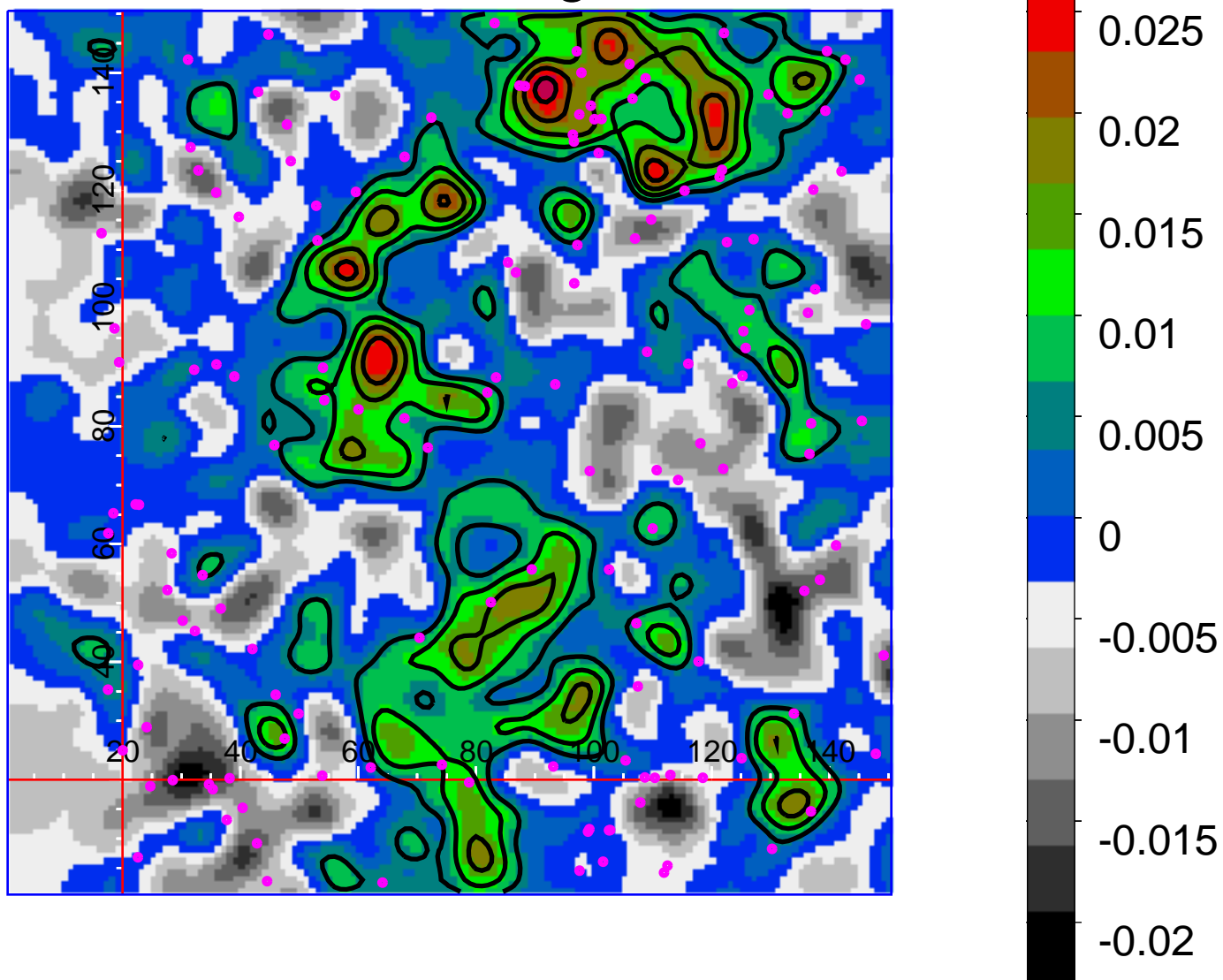
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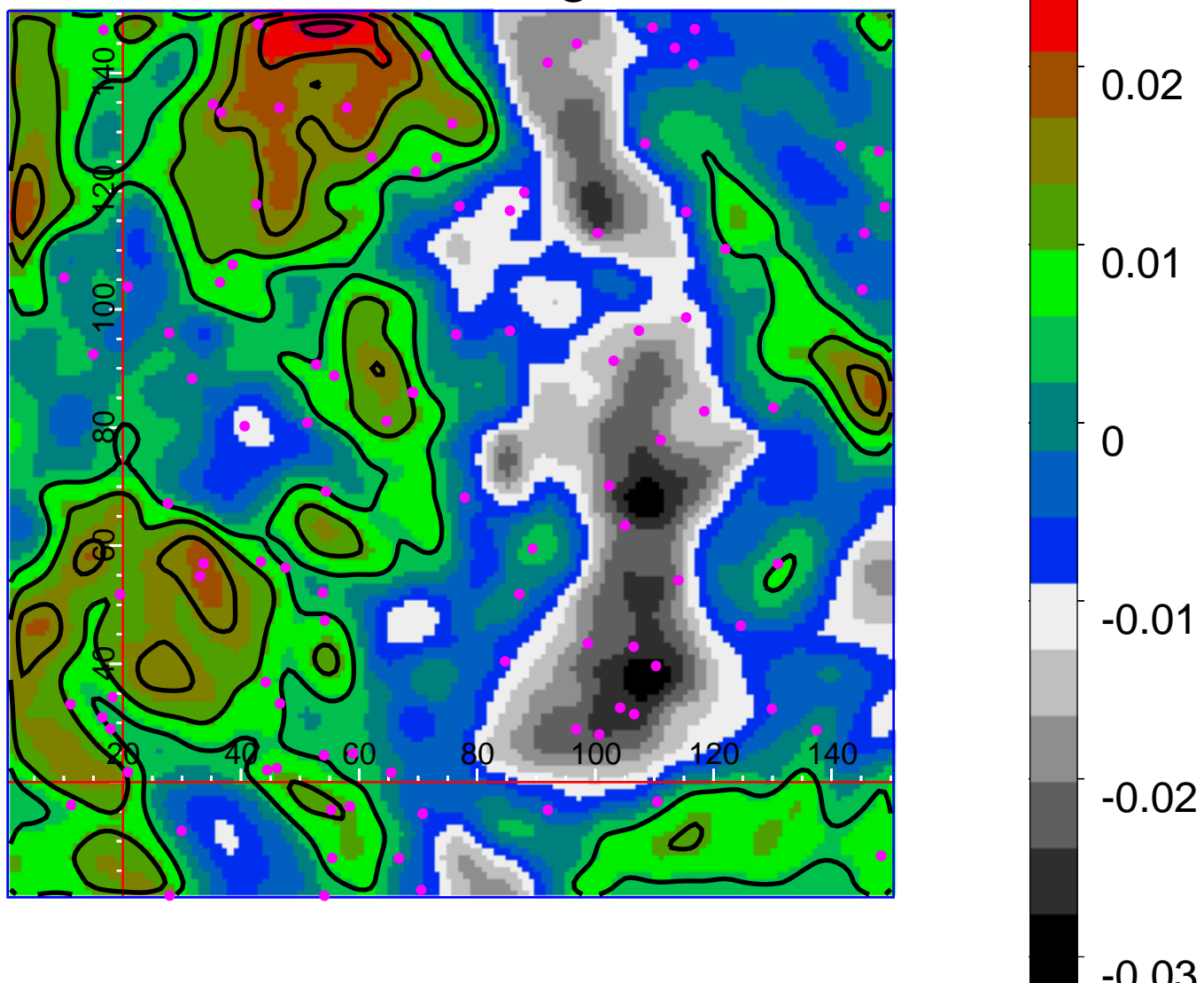
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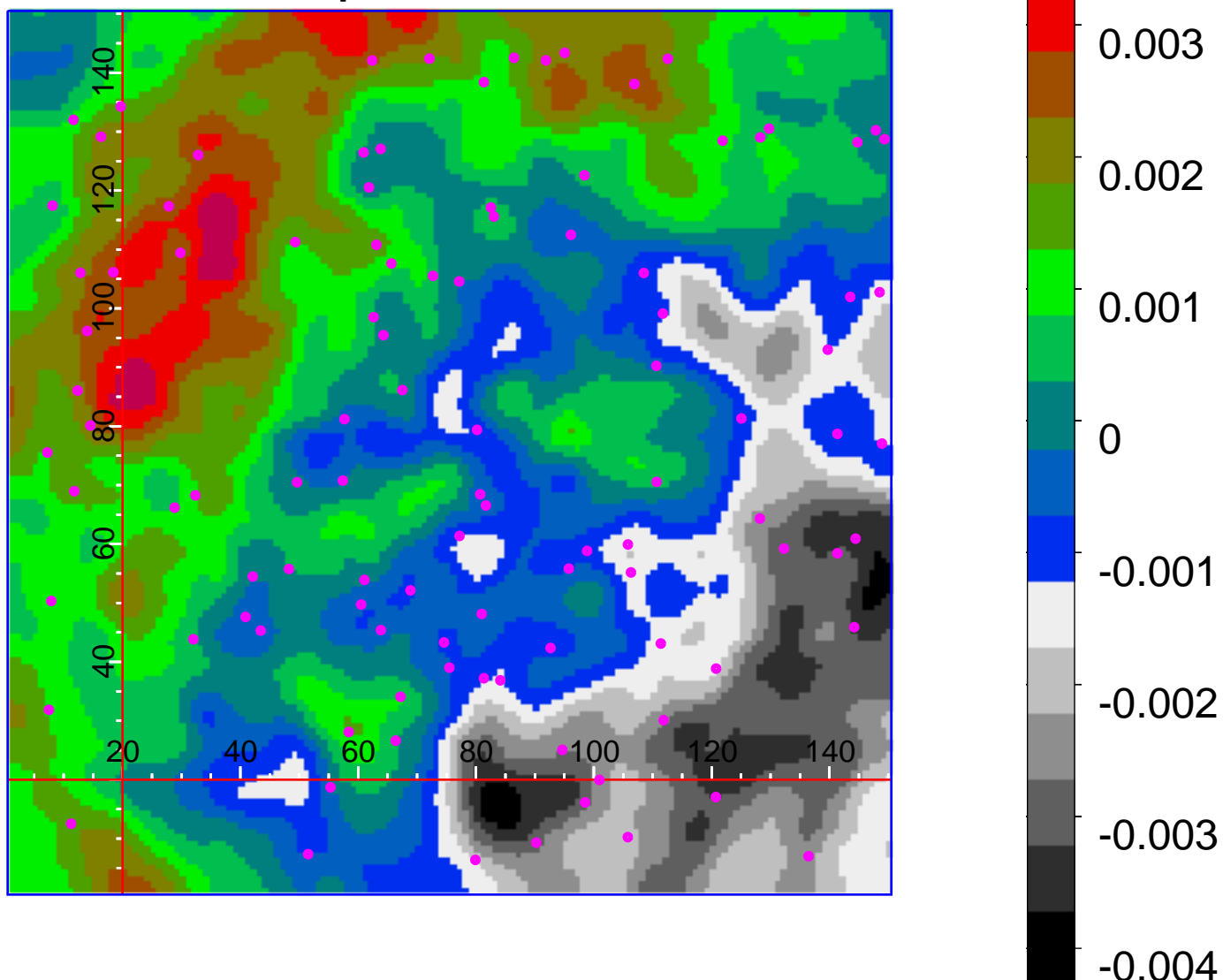
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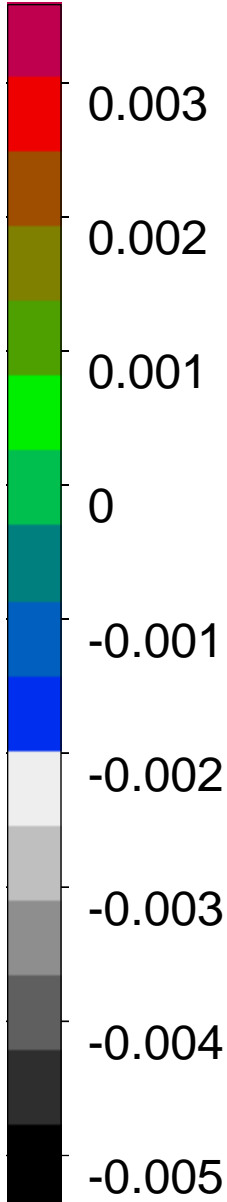
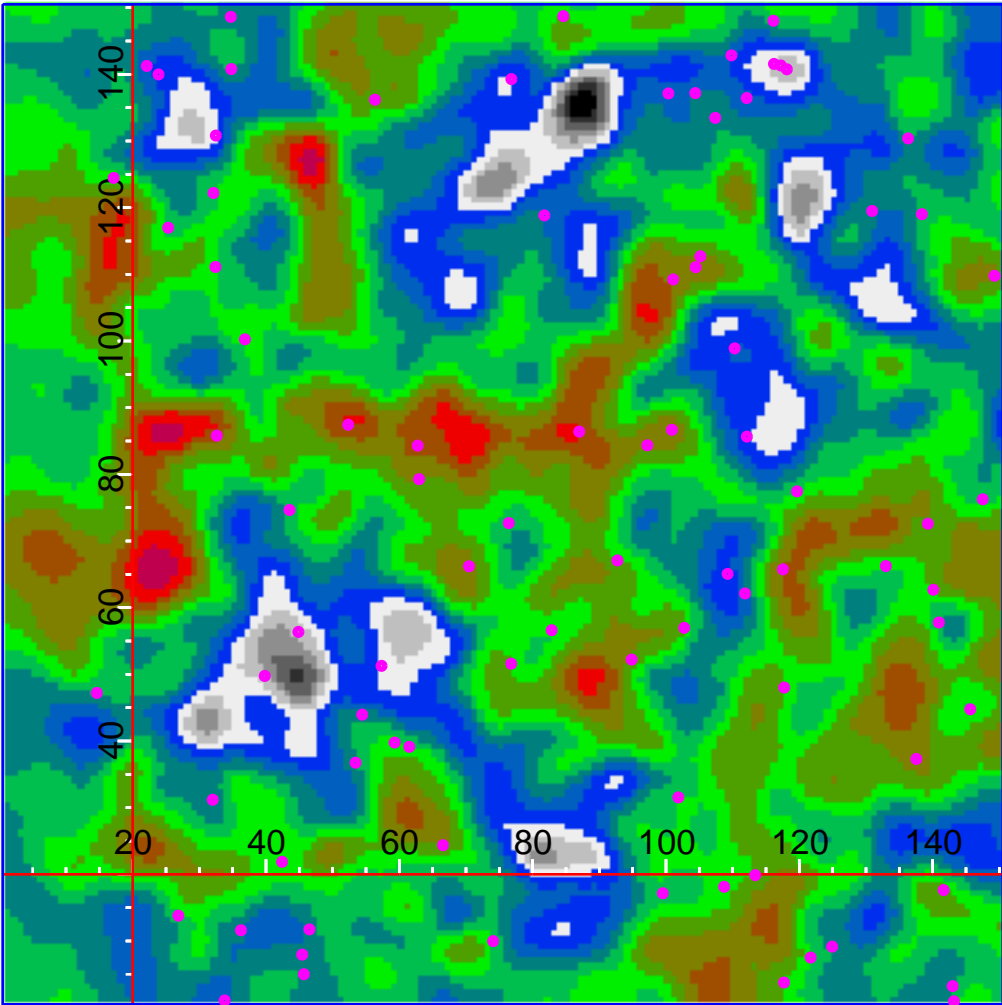
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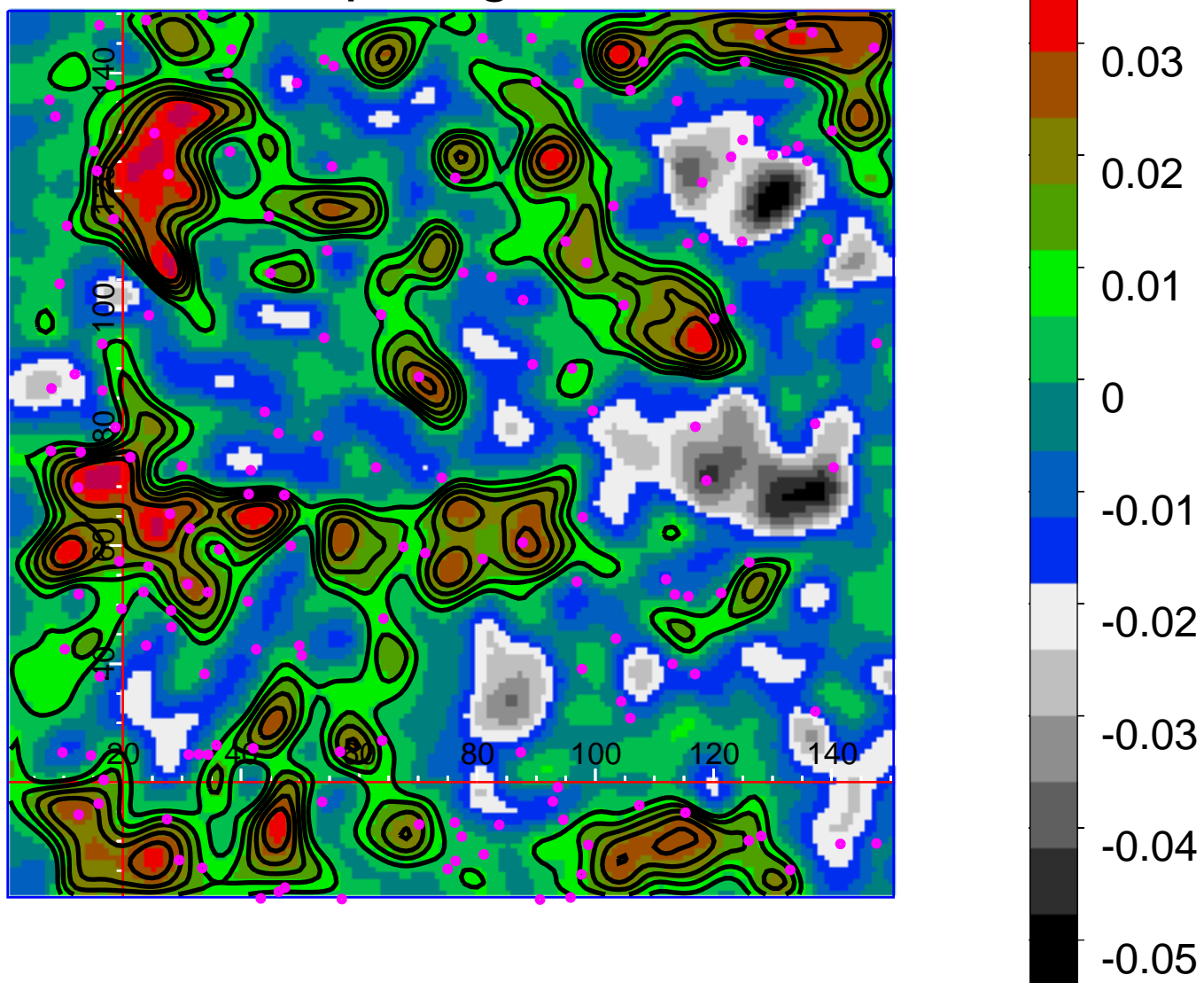
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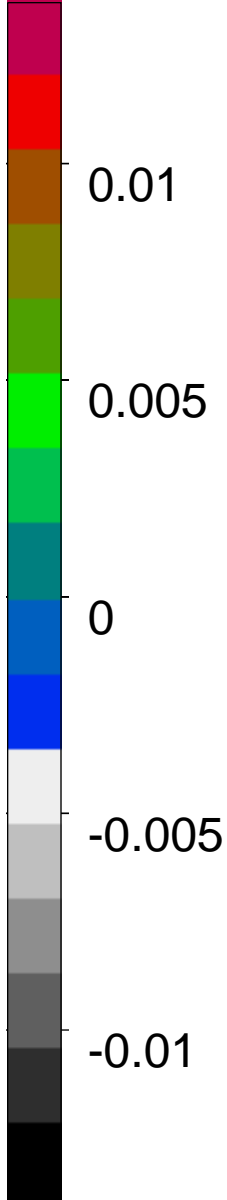
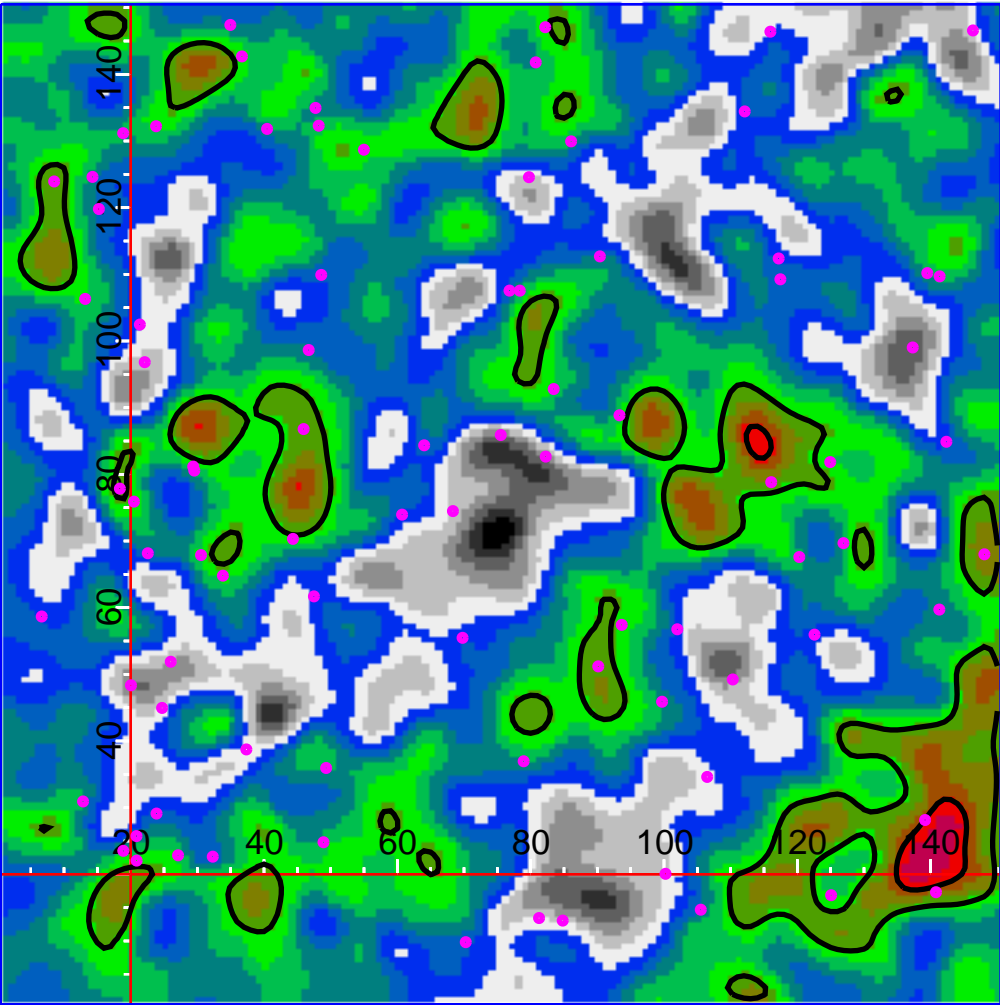
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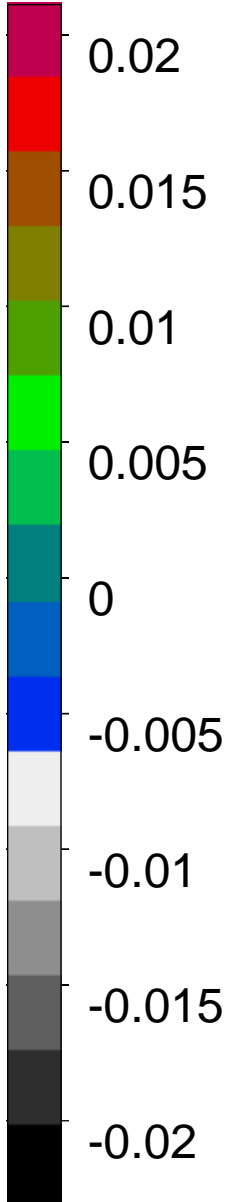
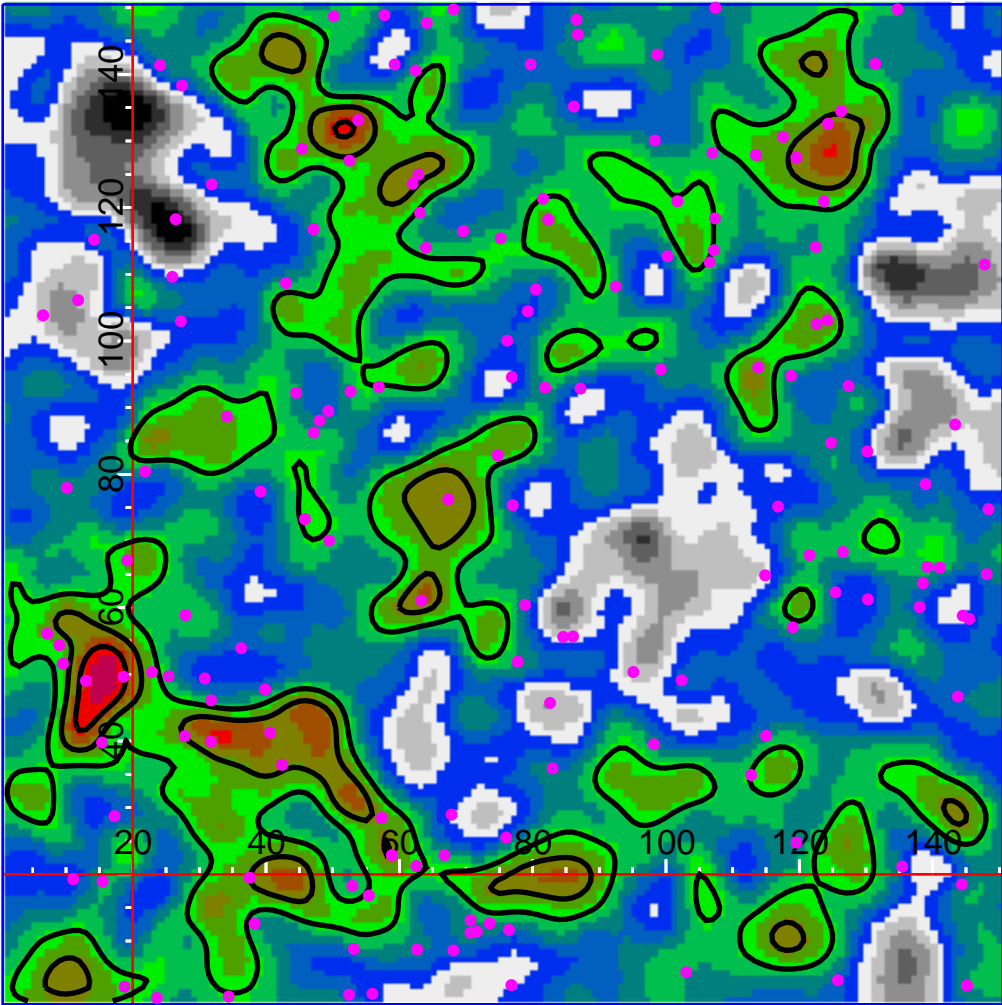
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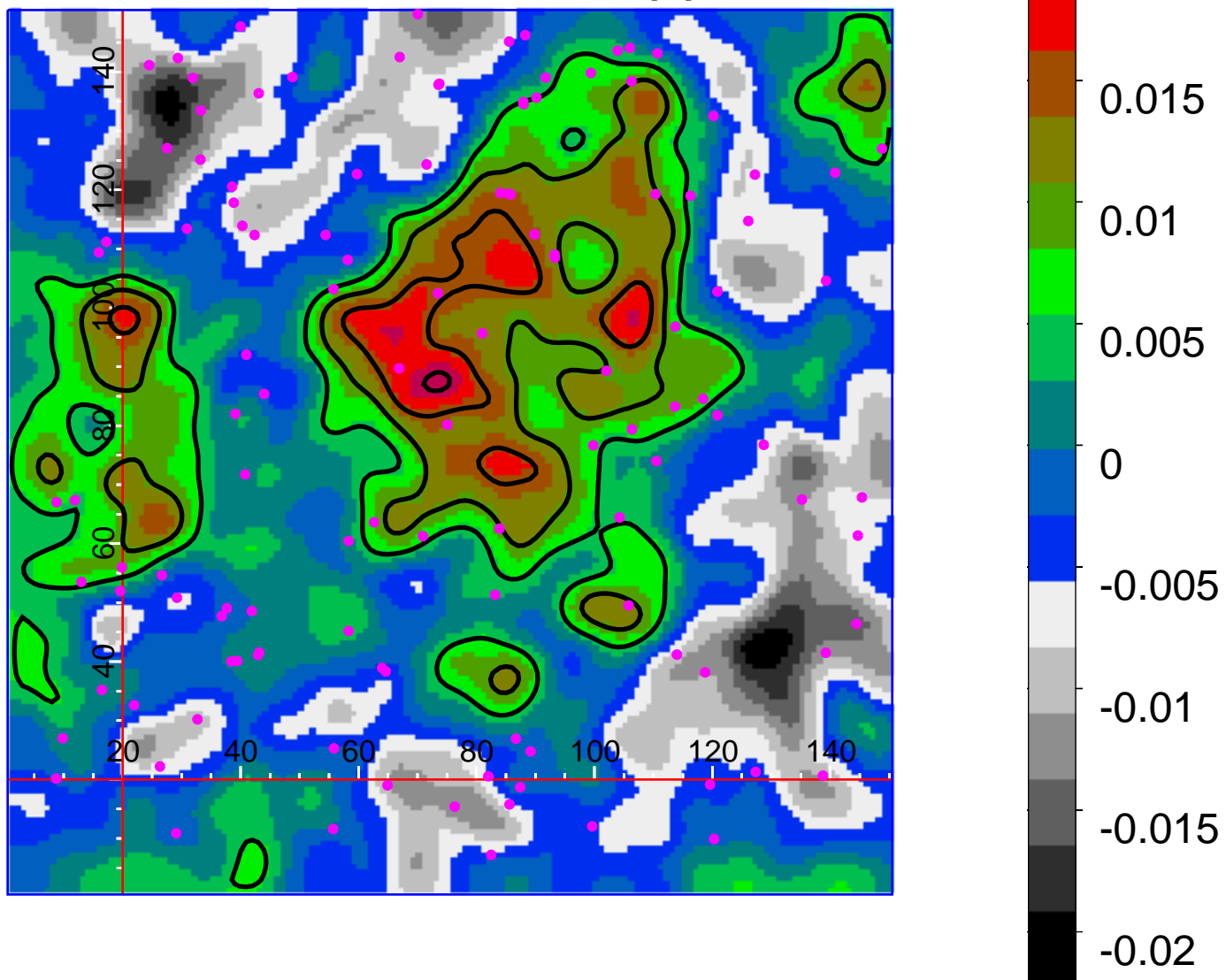
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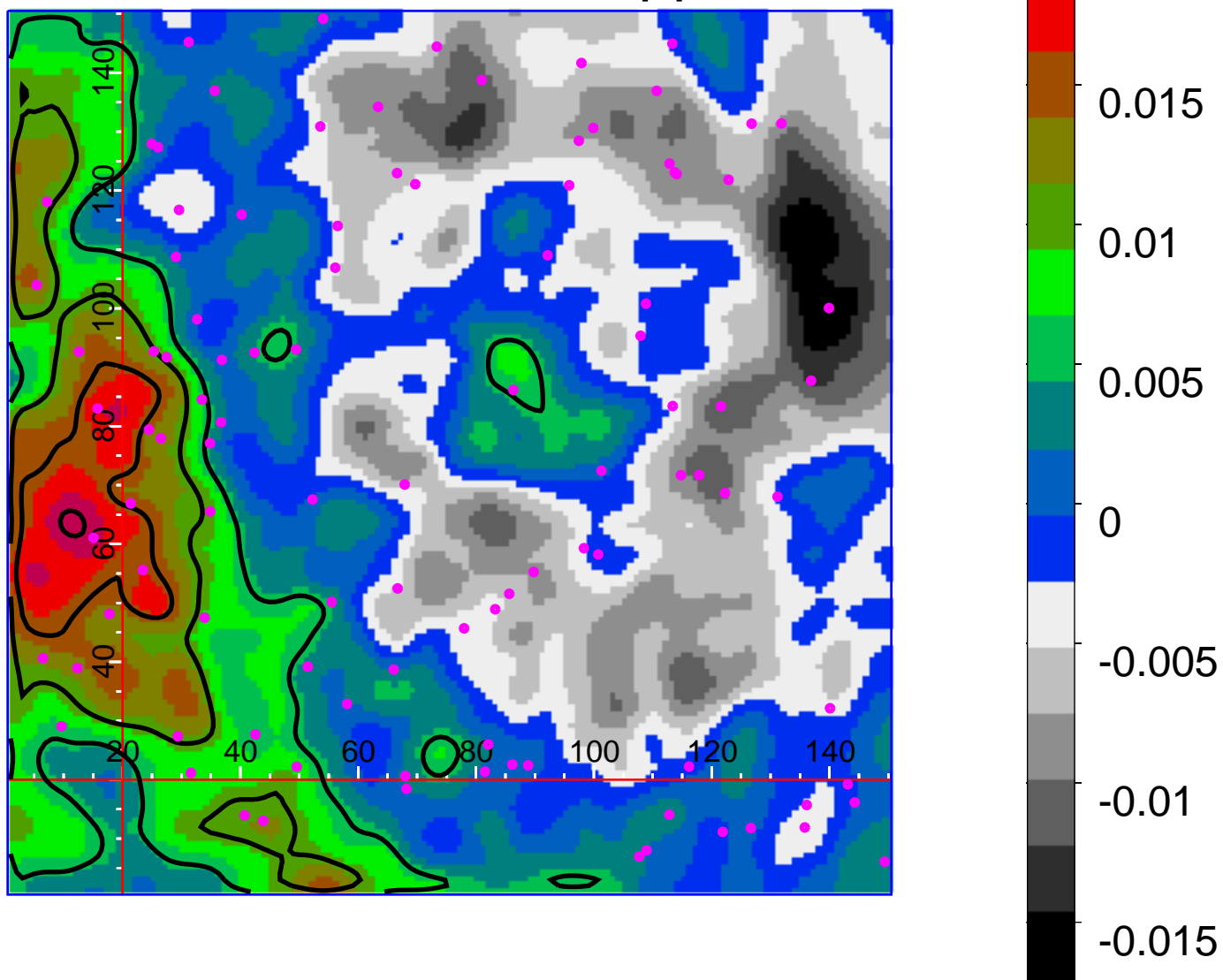
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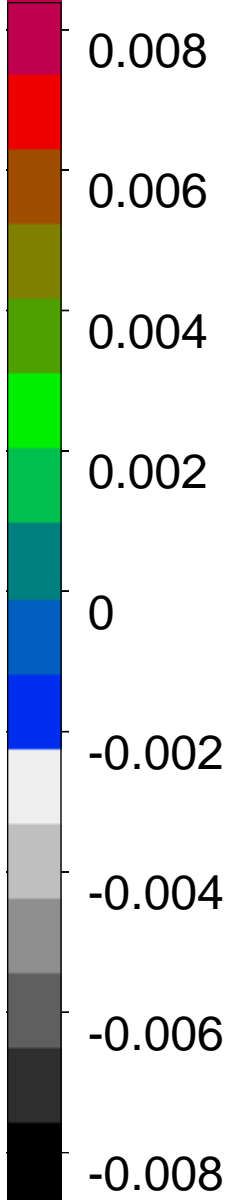
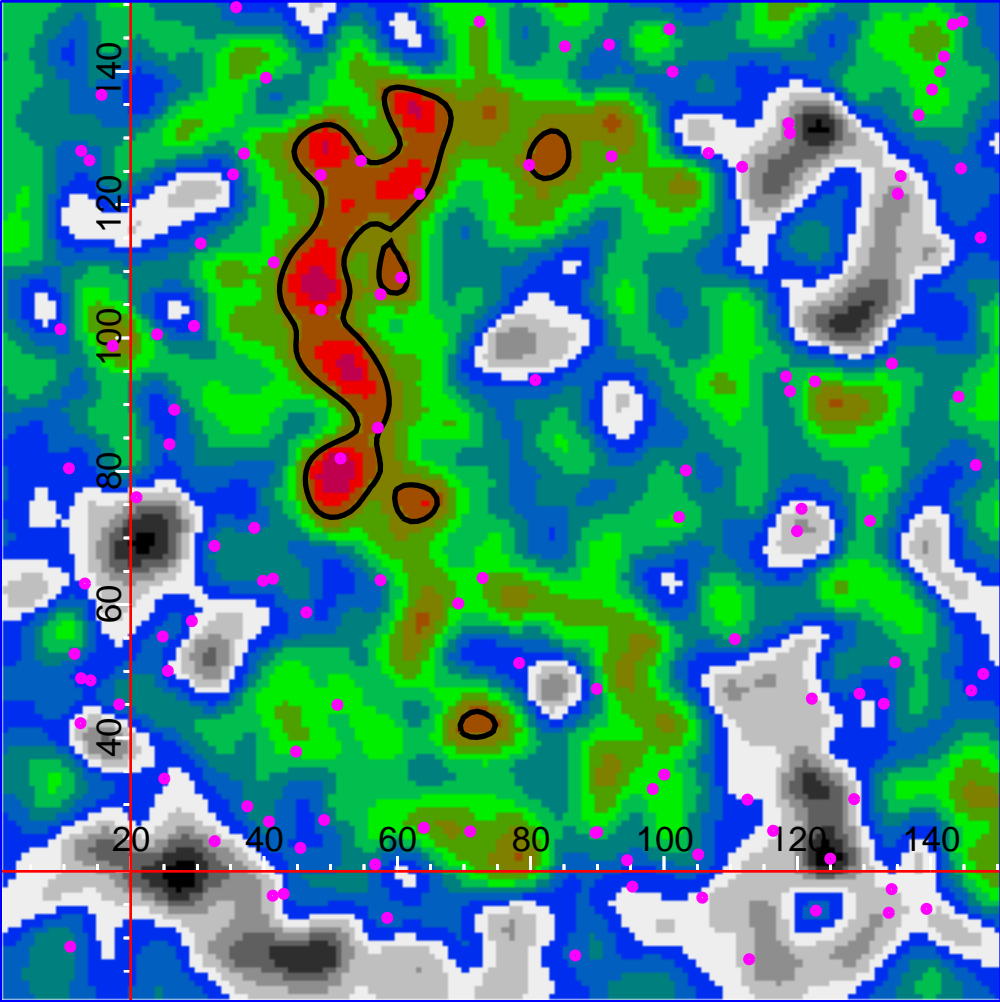
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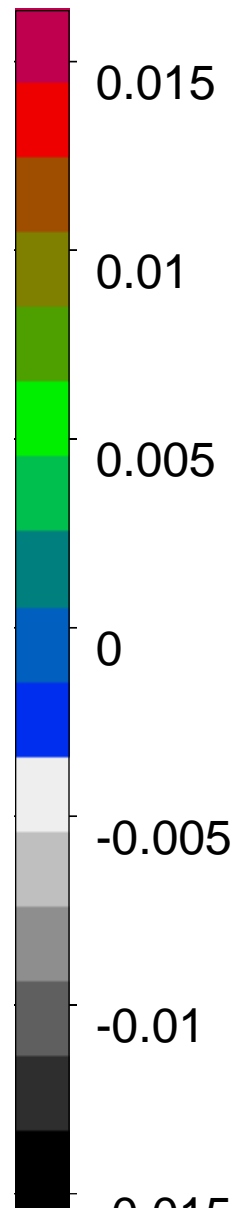
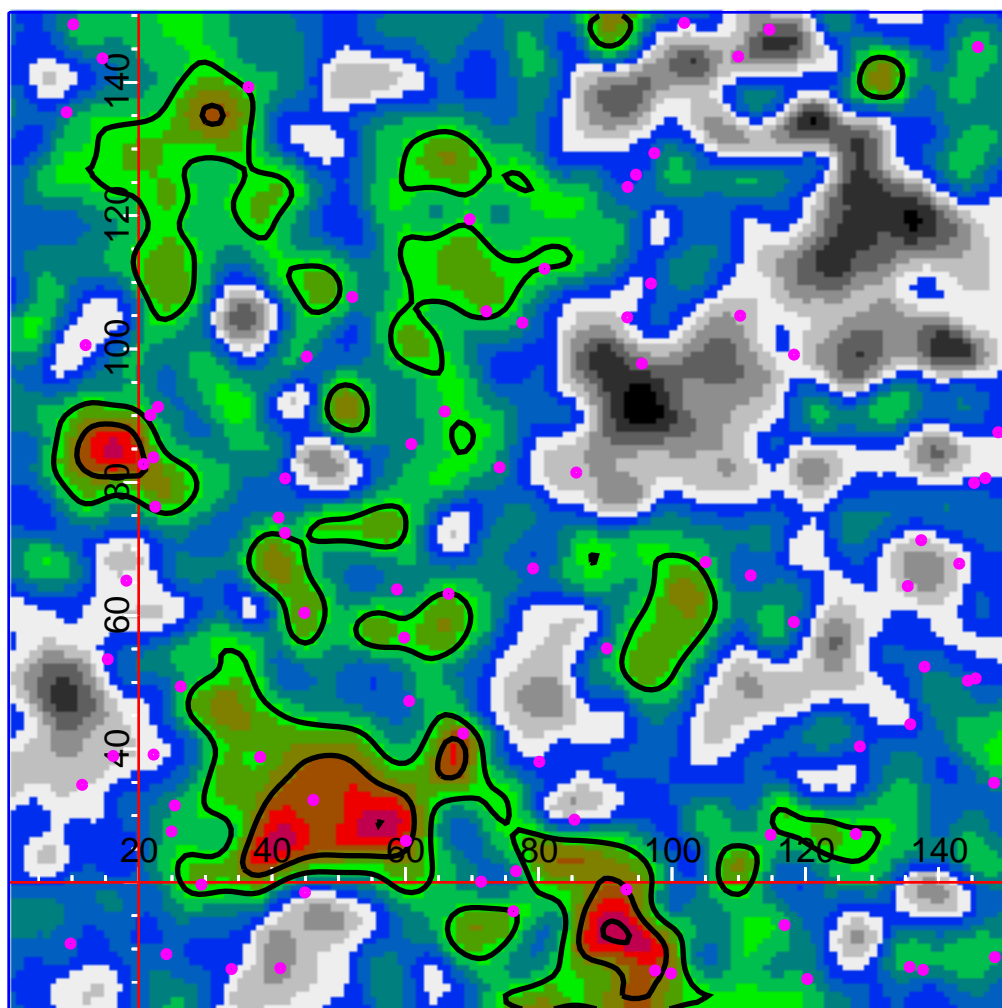
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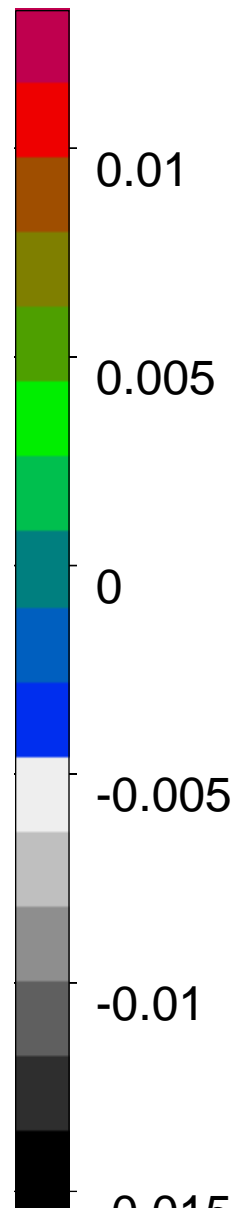
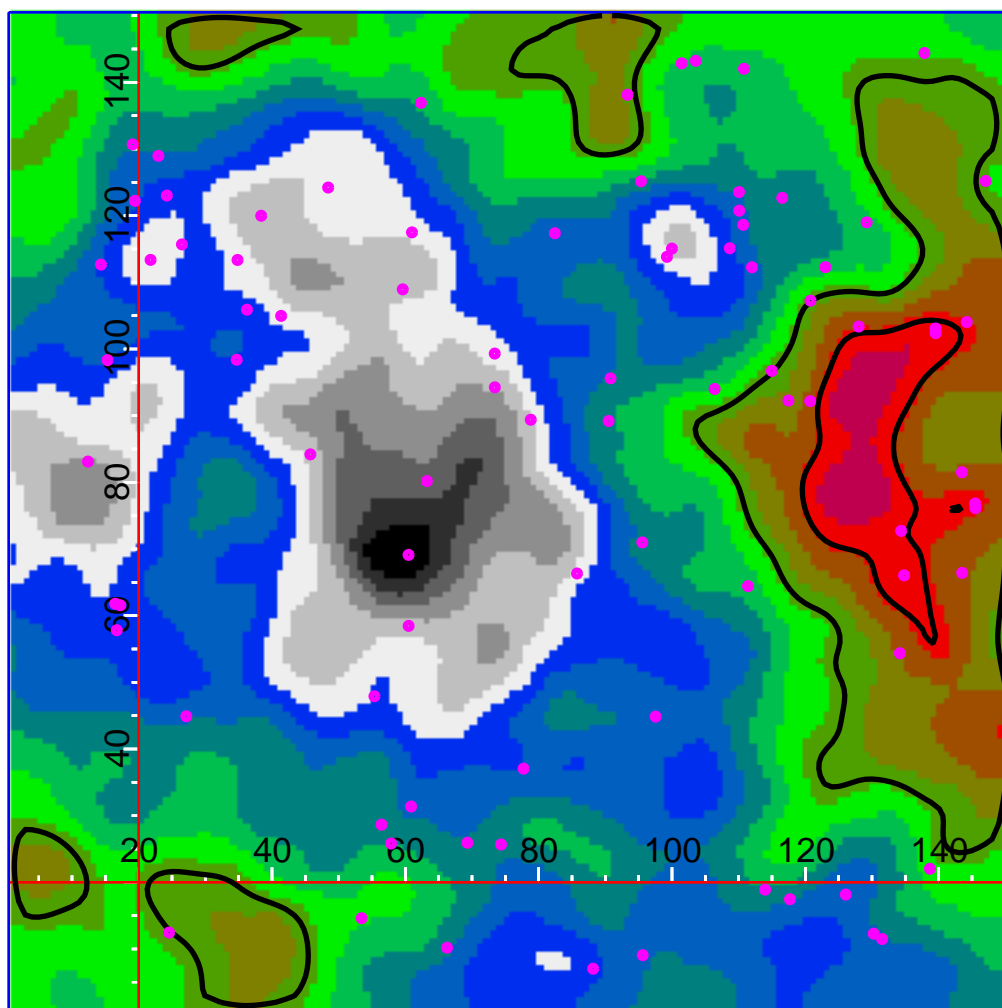
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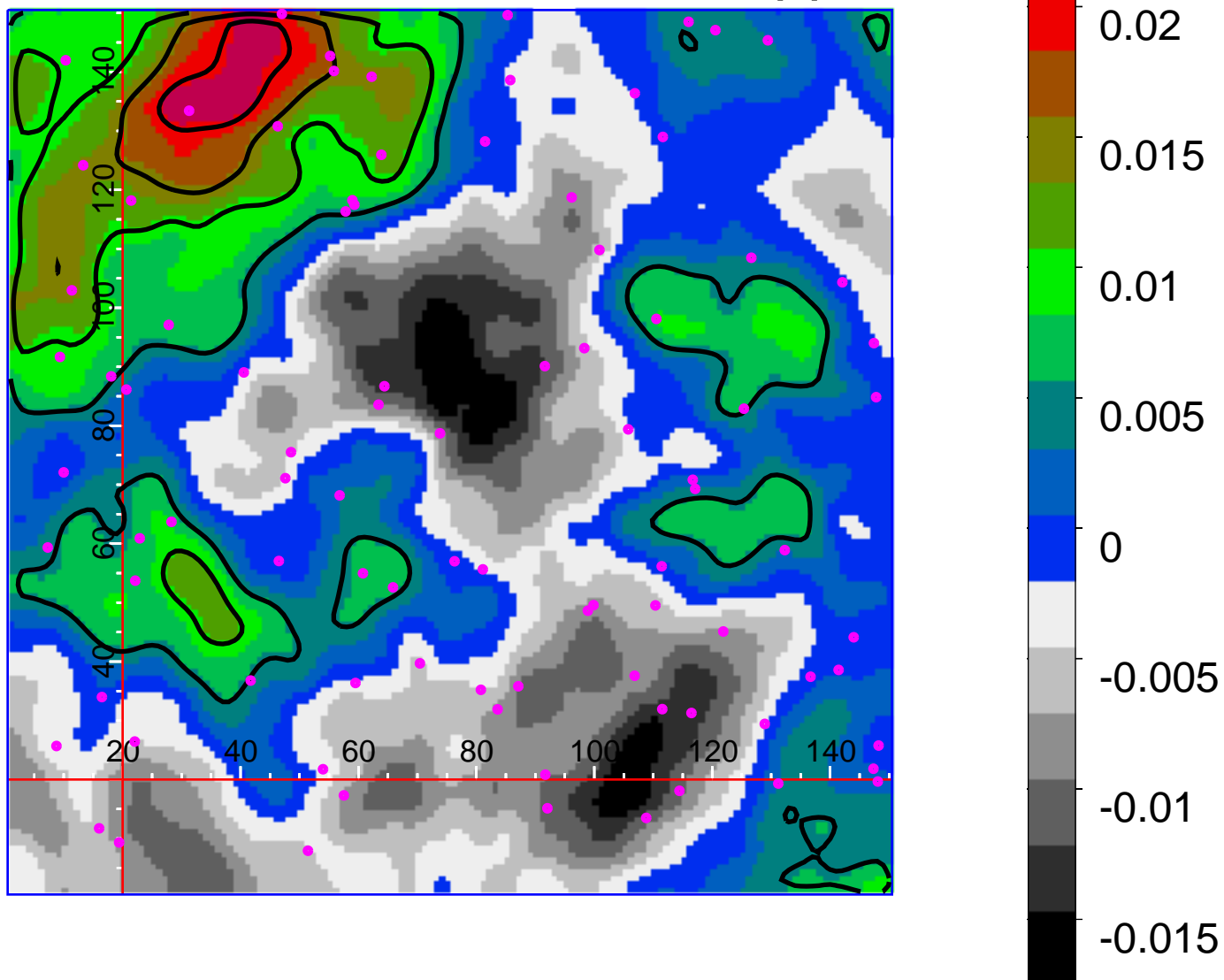
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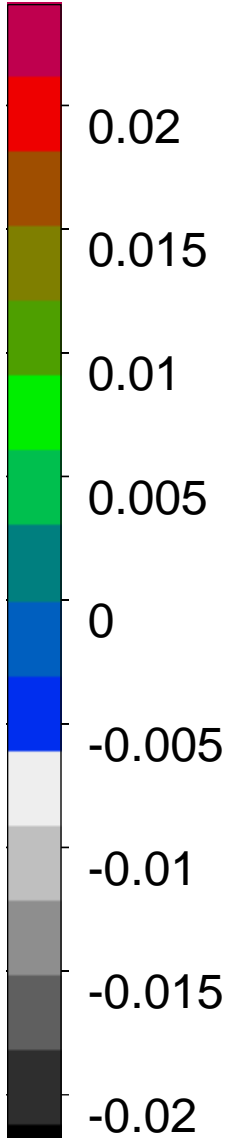
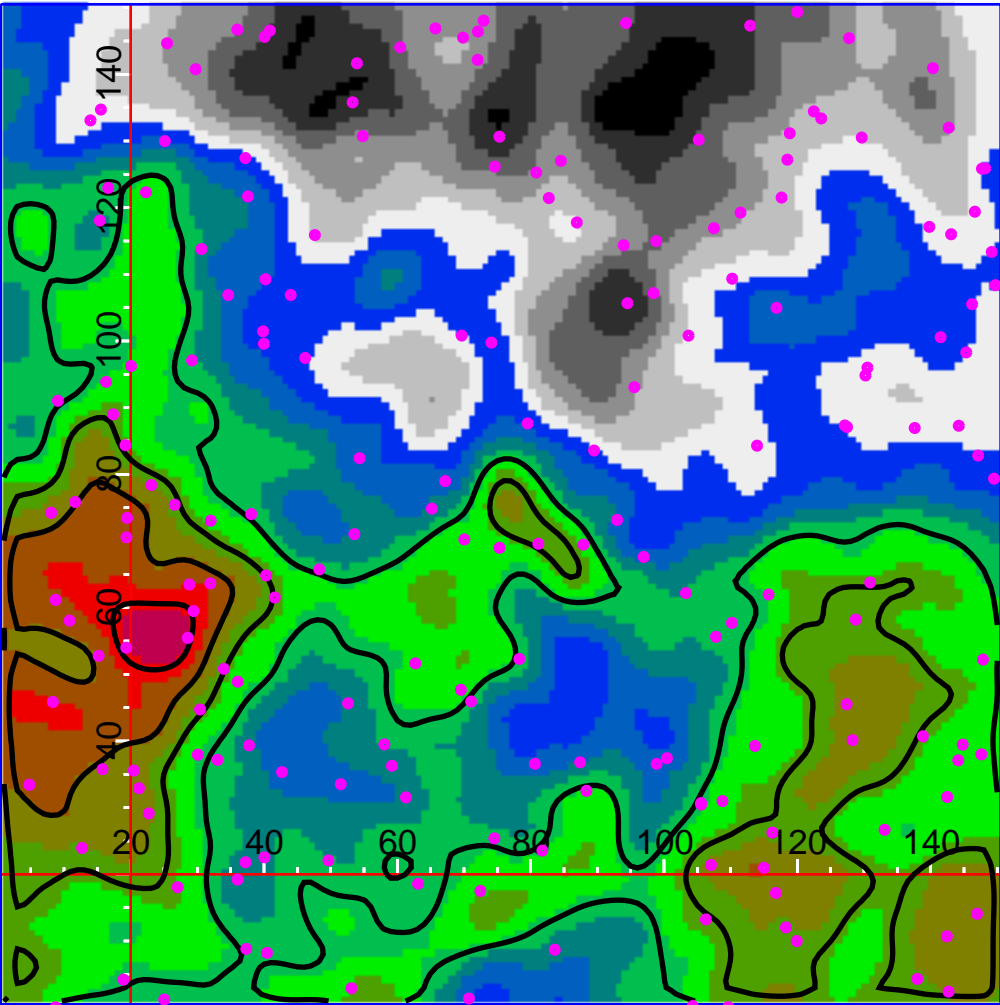
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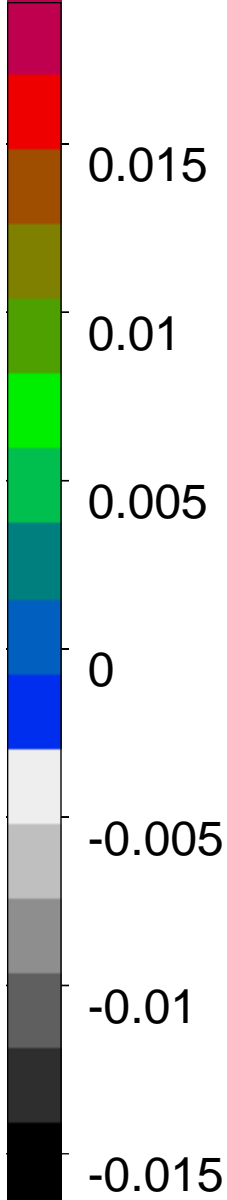
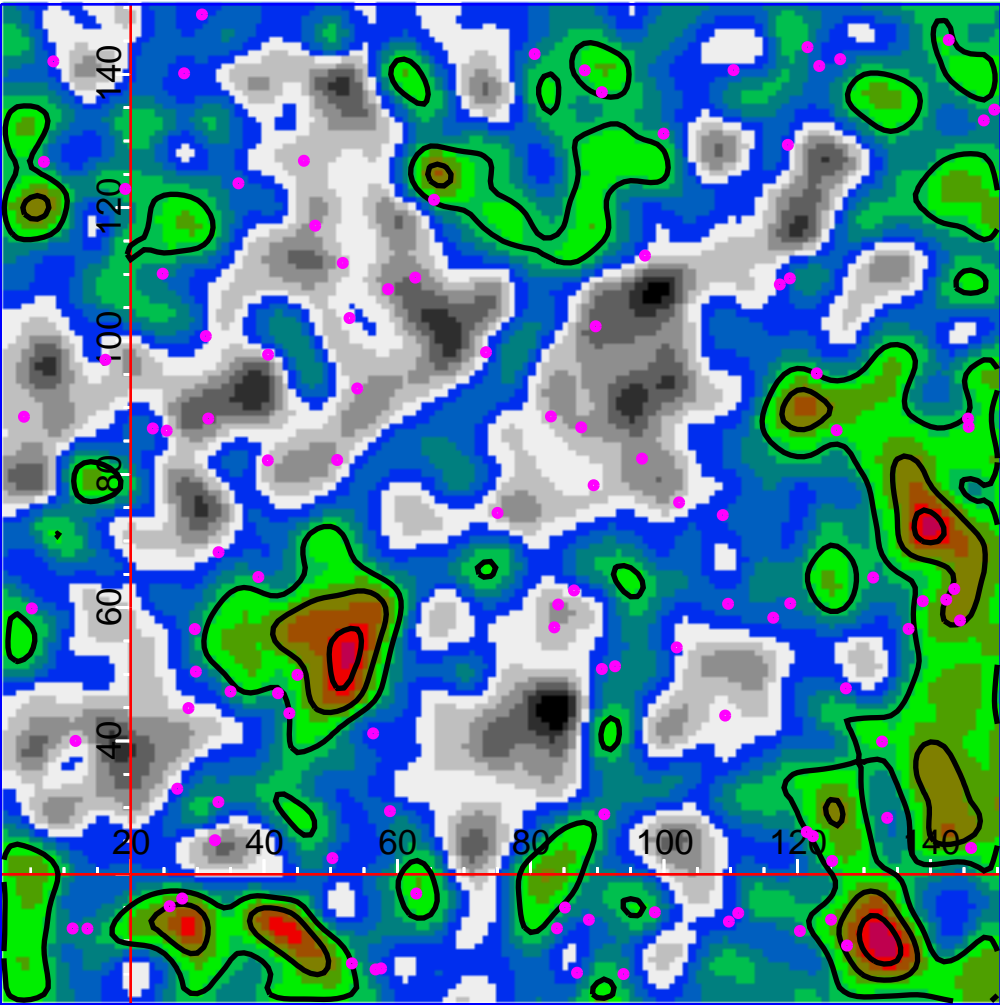
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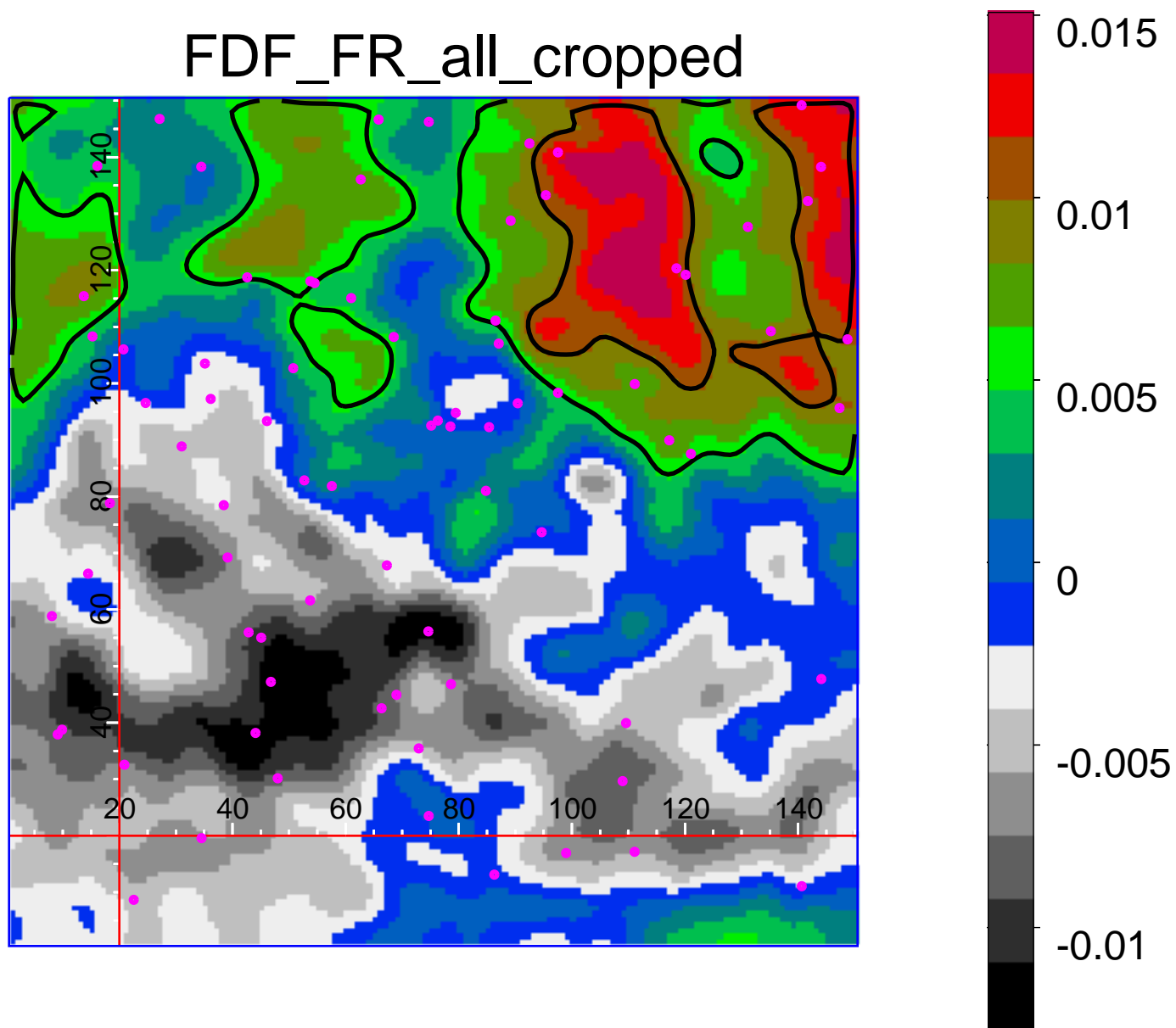
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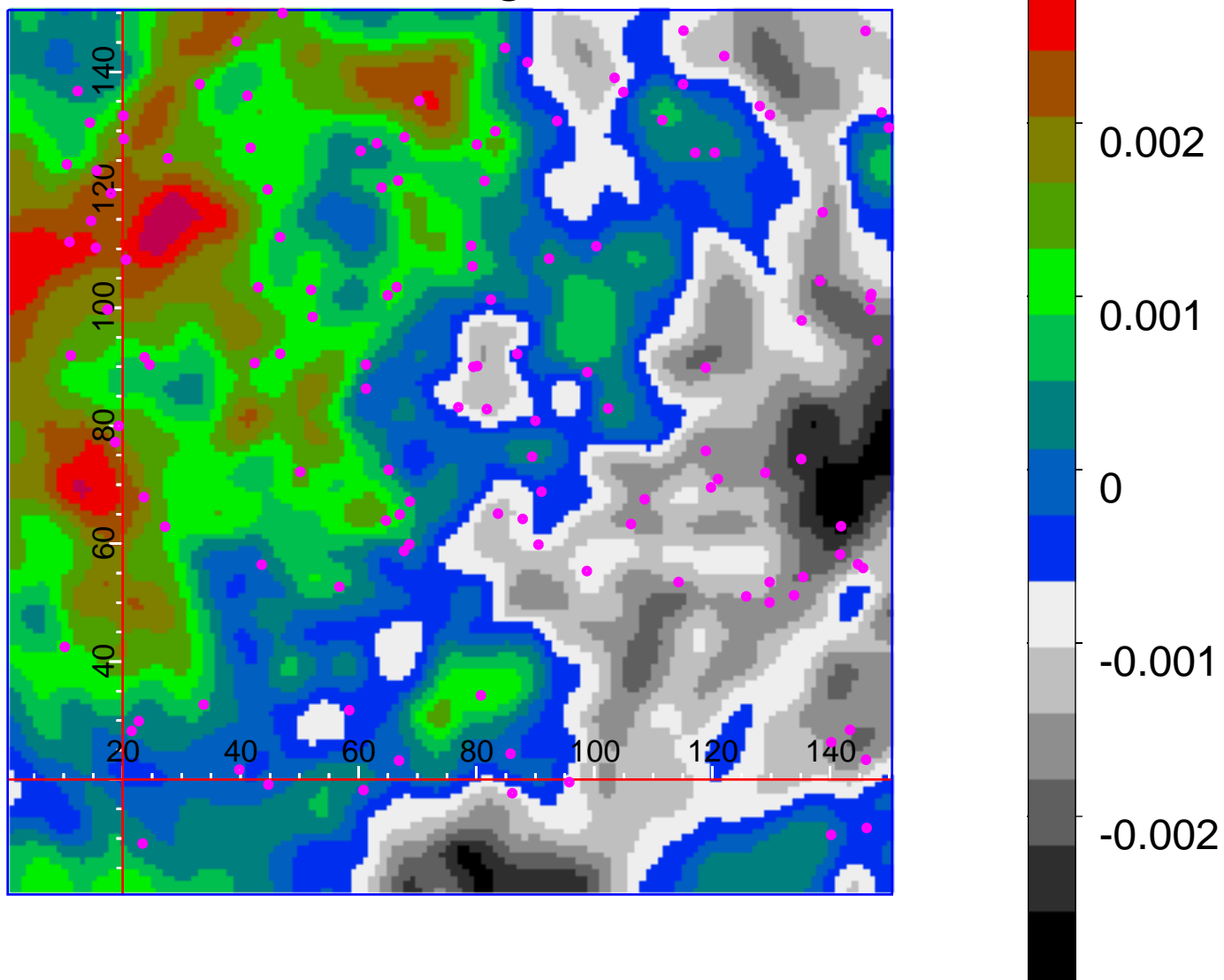
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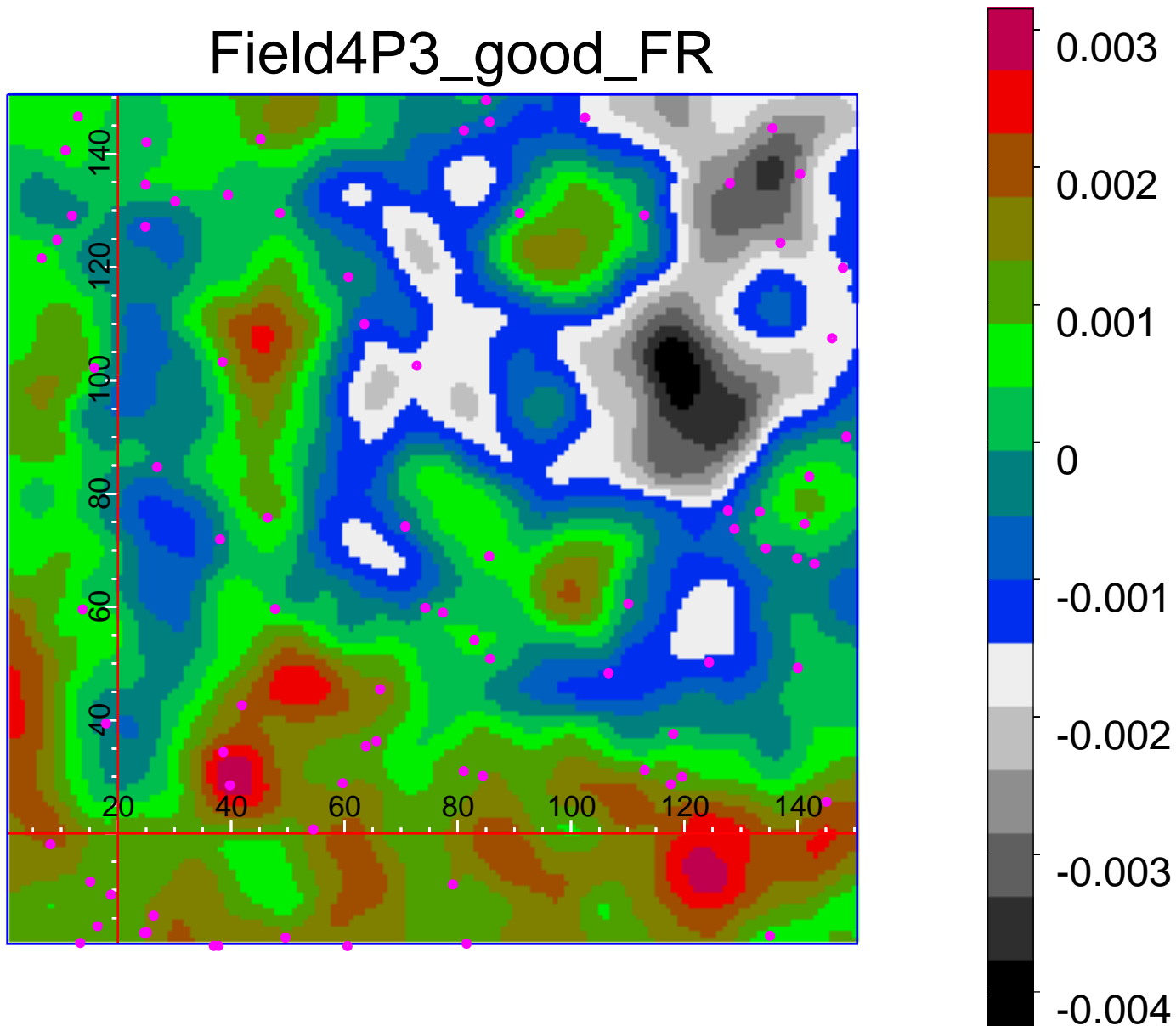
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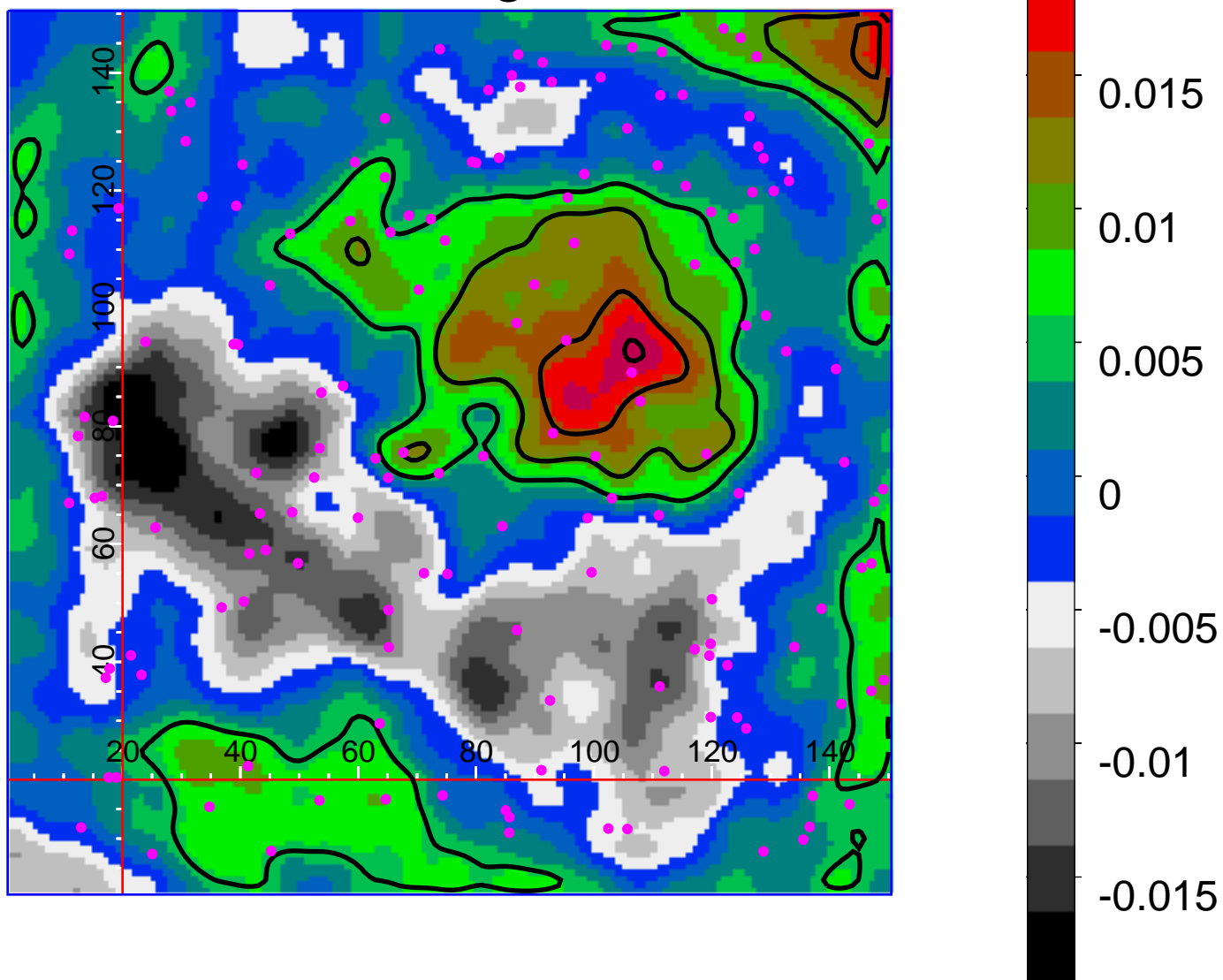
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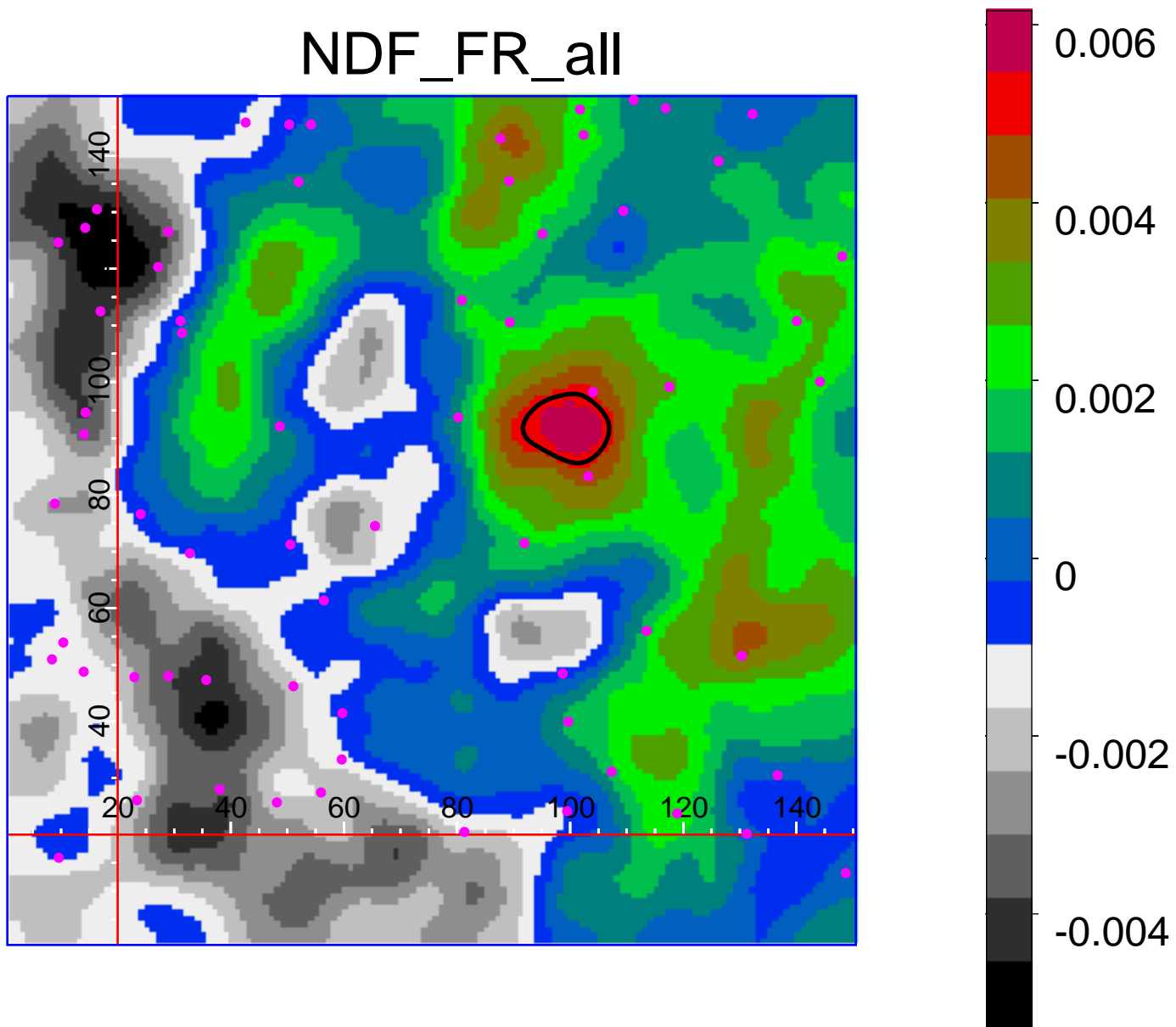
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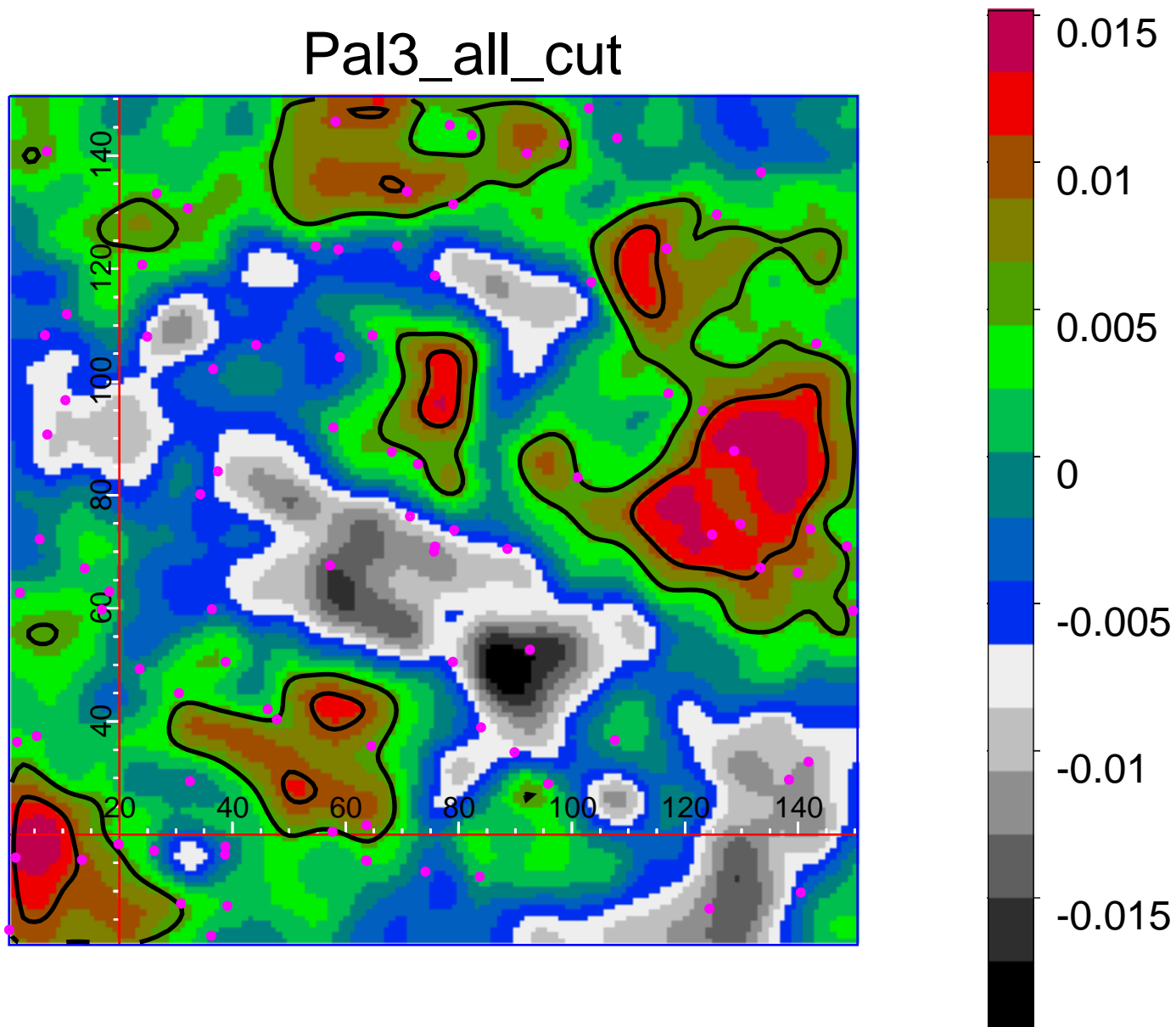
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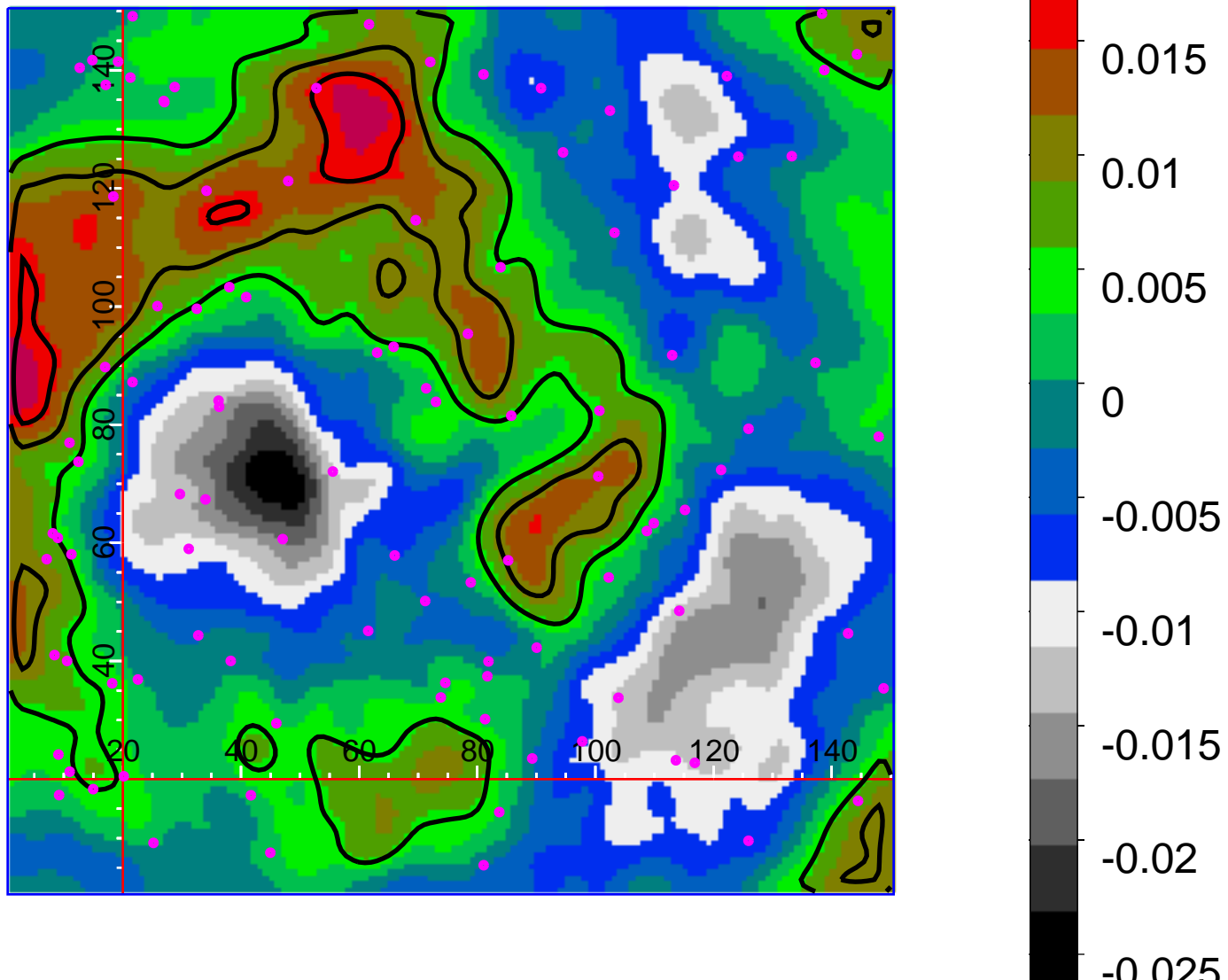
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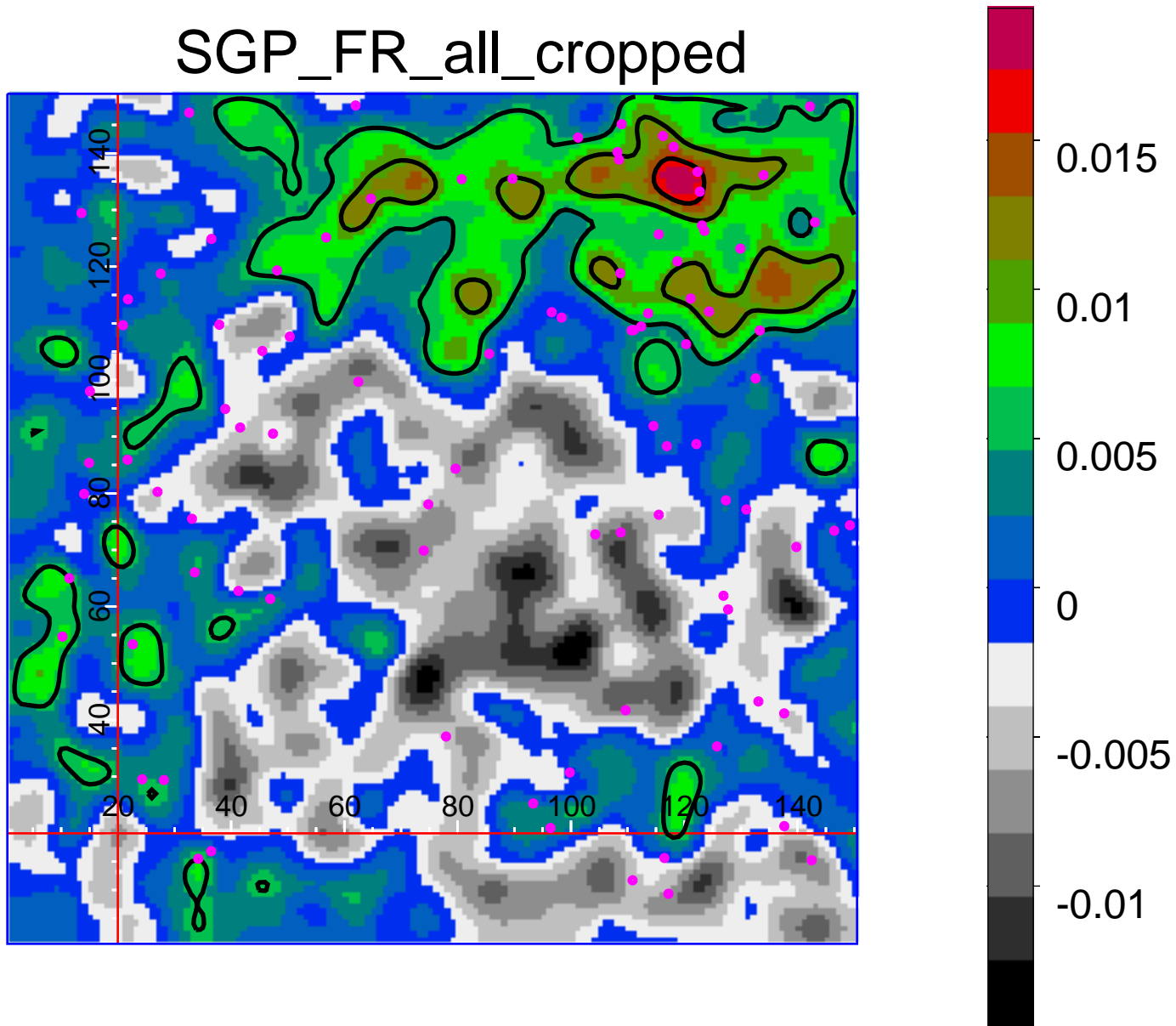
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SHARC2_FR

