Model Calibration Update

Stephen Hundt

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Discussion Points

My Questions for You

How Close (or Far) are We?

- How far are we from a model that meets (or can be adapted to meet) the objectives of this project
- Are there areas that need to be improved?
- Are there types of observation targets that need to be improved?
- Are there specific observation locations that need to be improved?
- Do parameter distributions need to change?
- Is this malleable for further purposes?

What do you want to see in emailed updates over next few months?

- Plot types
- Tables
- Specific results (such as your favorite well)
- Frequency

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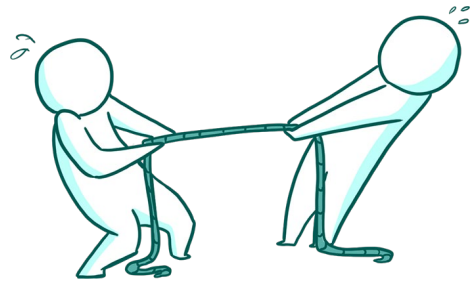
Keeping in mind…



One Observation ↔ **Another Observation**
(multi-objective model is a compromise)

Model Fit ↔ **'Agreeable' Parameters**
(avoid overfitting)

Model Fit ↔ **Model Clarity**
(keep it usable)

Improving Fit ↔ **Documenting Model**

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Jumping Right In…

	Observation Type
✓	Water Levels
✓	Drain Flows
✓	Lowell Seepage
✓	River Seepage
✓	Temporal Differences
✓	Vertical Water Level Differences
✗	Net Water Budget Values*
✓	Preferred Parameters (simplified)

	Weighting Schemes
✓	Measurement error
✓	~ Equalize group phi
✓	# Measurements at location
✓	Spatial density
✓	Temporal density
✗	“Events”
✓	Structural error
✗	Overall budget
✗	Others???

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Model Parameters

Hydraulic Parameters (~material properties)

Lumped Hydraulic(ish) Parameters (~material properties & geometry)

Leakage Estimation Parameters

Irrigation Parameters: Leakage and infiltration estimation

Parameter	Spatial Scale	# Parameters	
		initial	expandable
Hydraulic Conductivity – horizontal	Grid: 1 every 5-10 cells * # layers	~50	easily to 400+
Hydraulic Conductivity – vertical	Grid: 1 every 5-10 cells * # layers	~50	easily to 400+
Storage Coefficient	Grid: 1 every 5-10 cells * # layers	~50	easily to 400+
River conductance	Gaged river reaches	2	to gaged reaches
Drain conductance	Gaged drain --	~5	18
Lowell conductance	Lake	1	-
NY Canal leakage factor	Canal	1	-
NY Canal leakage distribution	Canal	1	-
Canal leakage factor	Irrigation entity	1	70
Canal leakage distribution factor	Irrigation entity	1	70
Irrigated lands infiltration factor	Irrigation entity	1	70
Semi-irrigated infiltration factor	Irrigation entity	1	70
Tributary underflow multiplier	3 values	3	
ET multiplier	1 value	1	-

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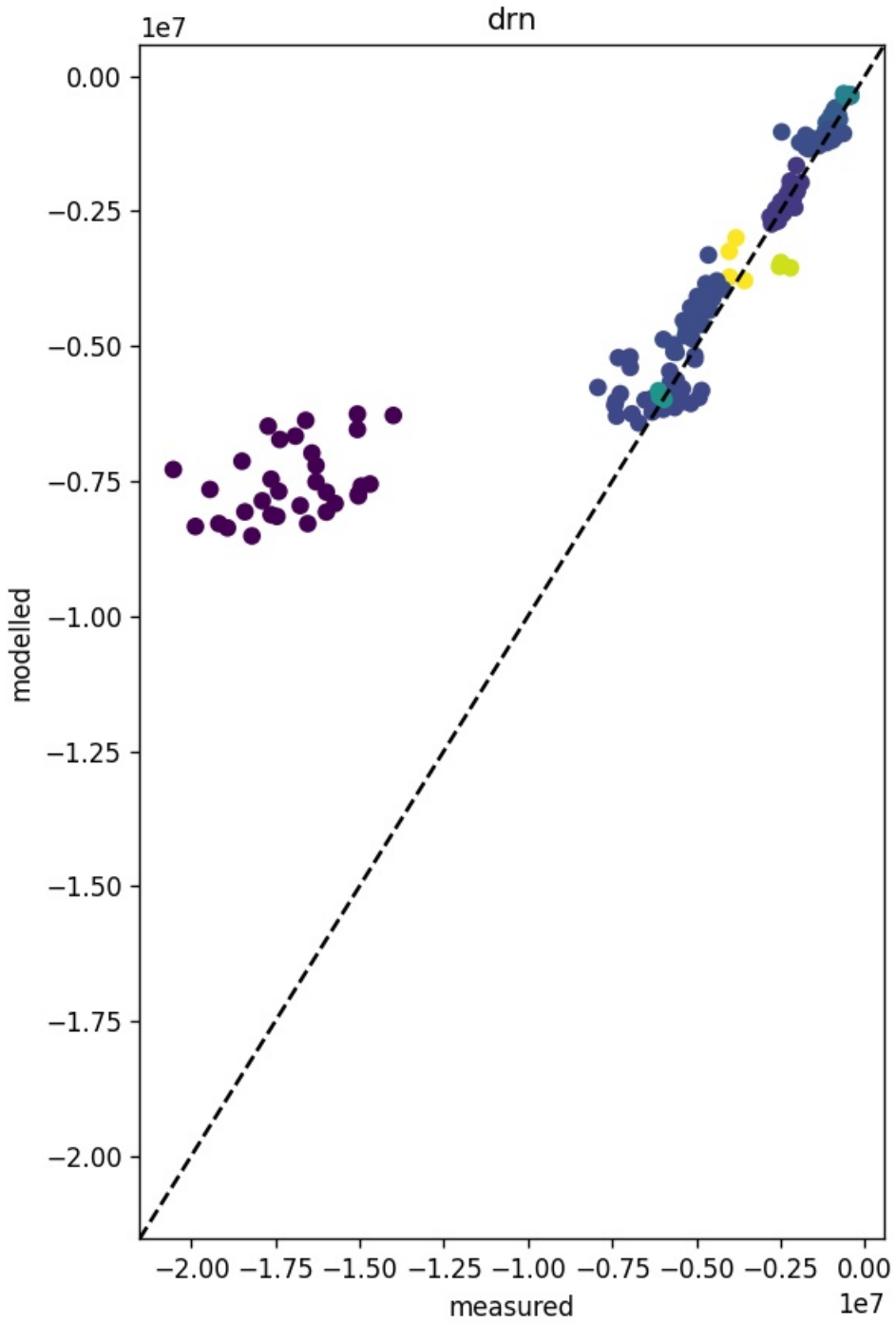

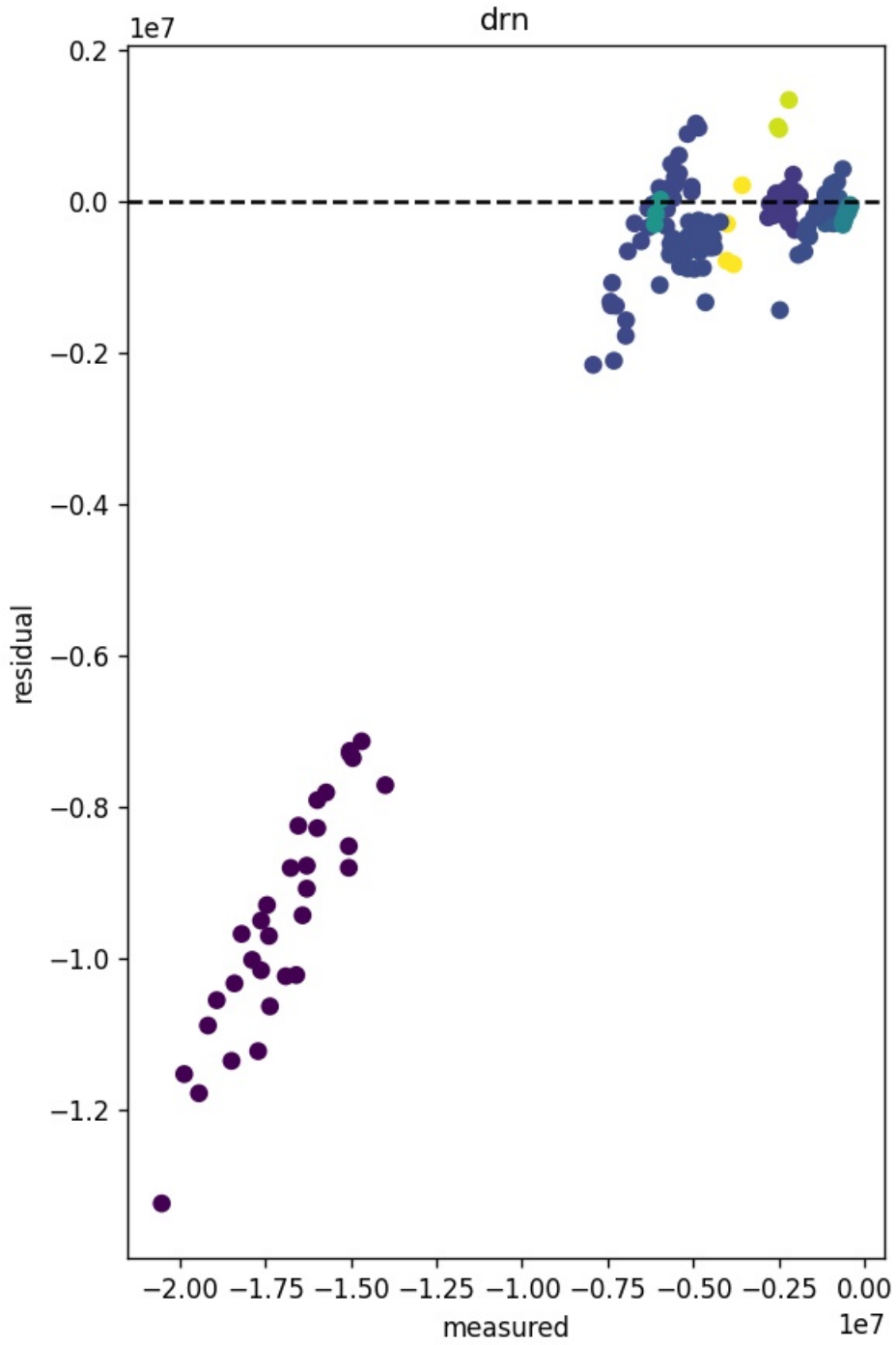

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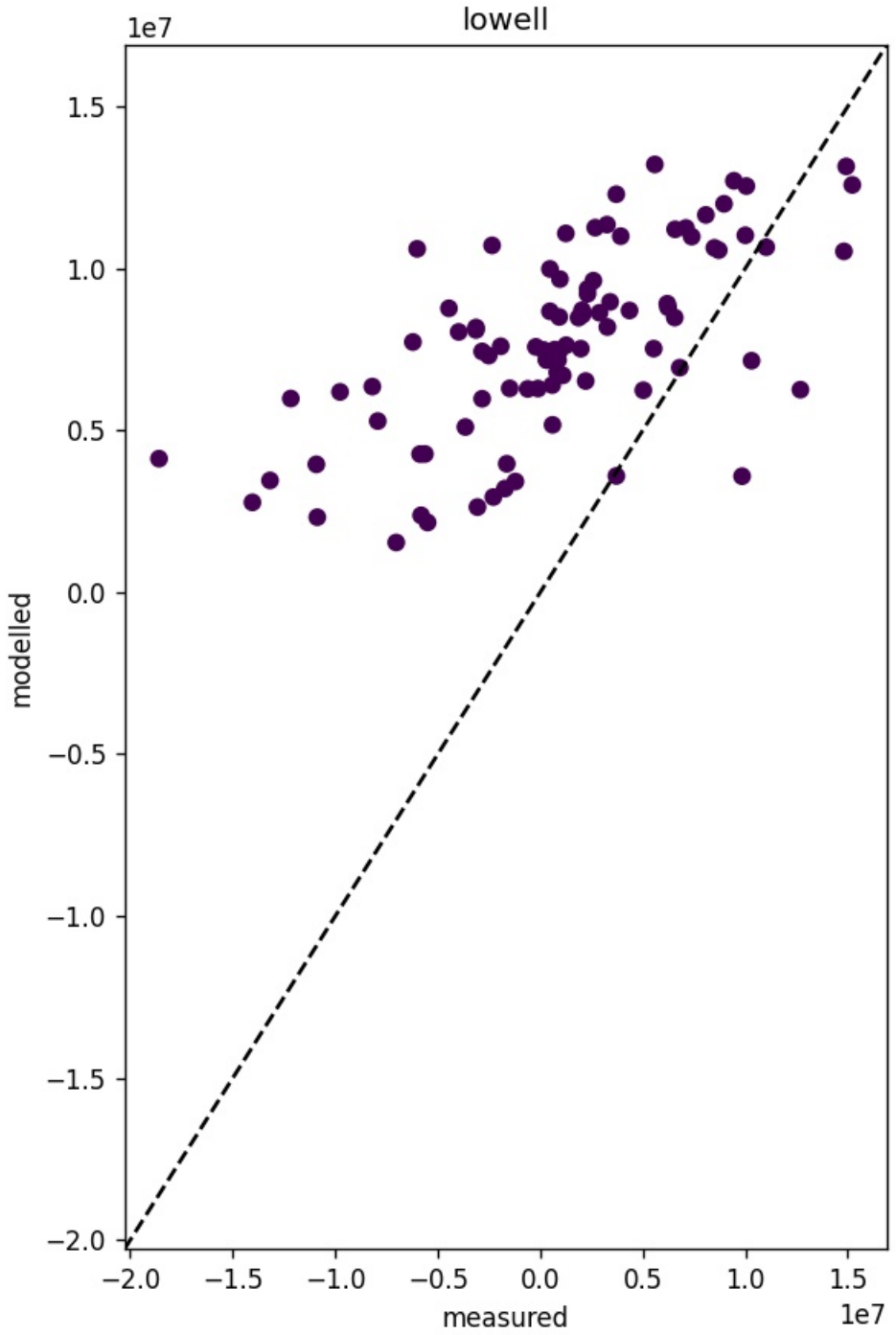

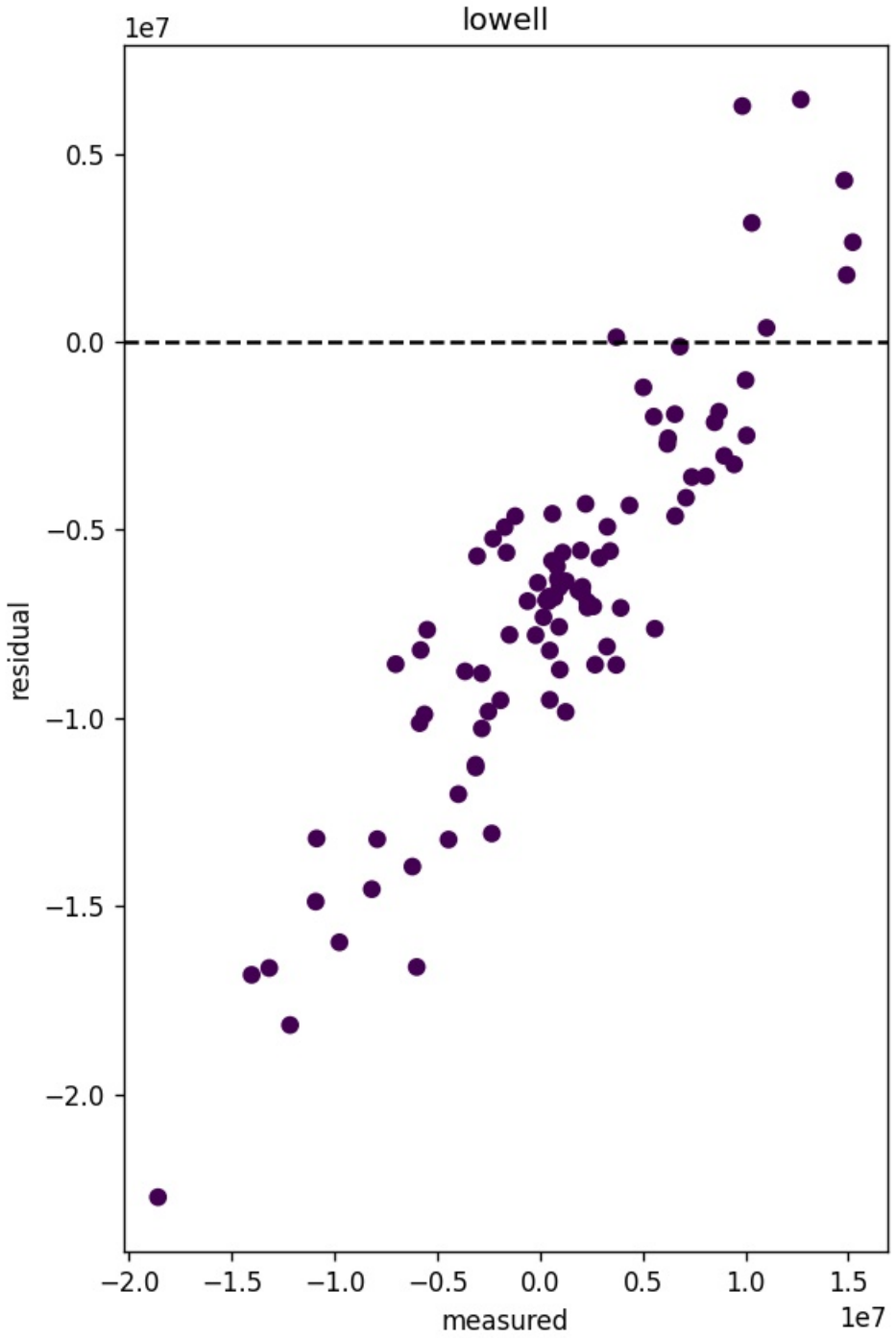

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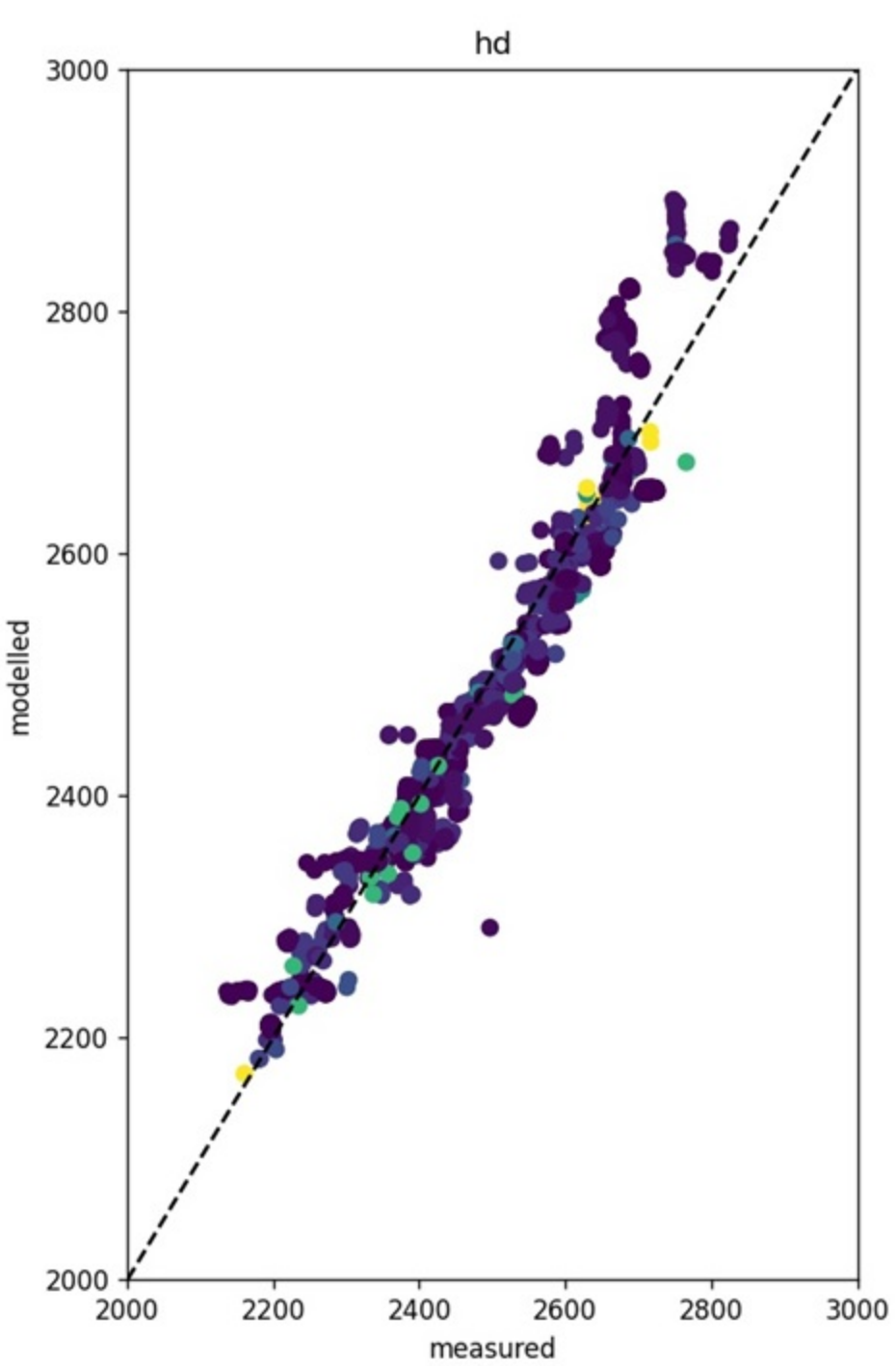

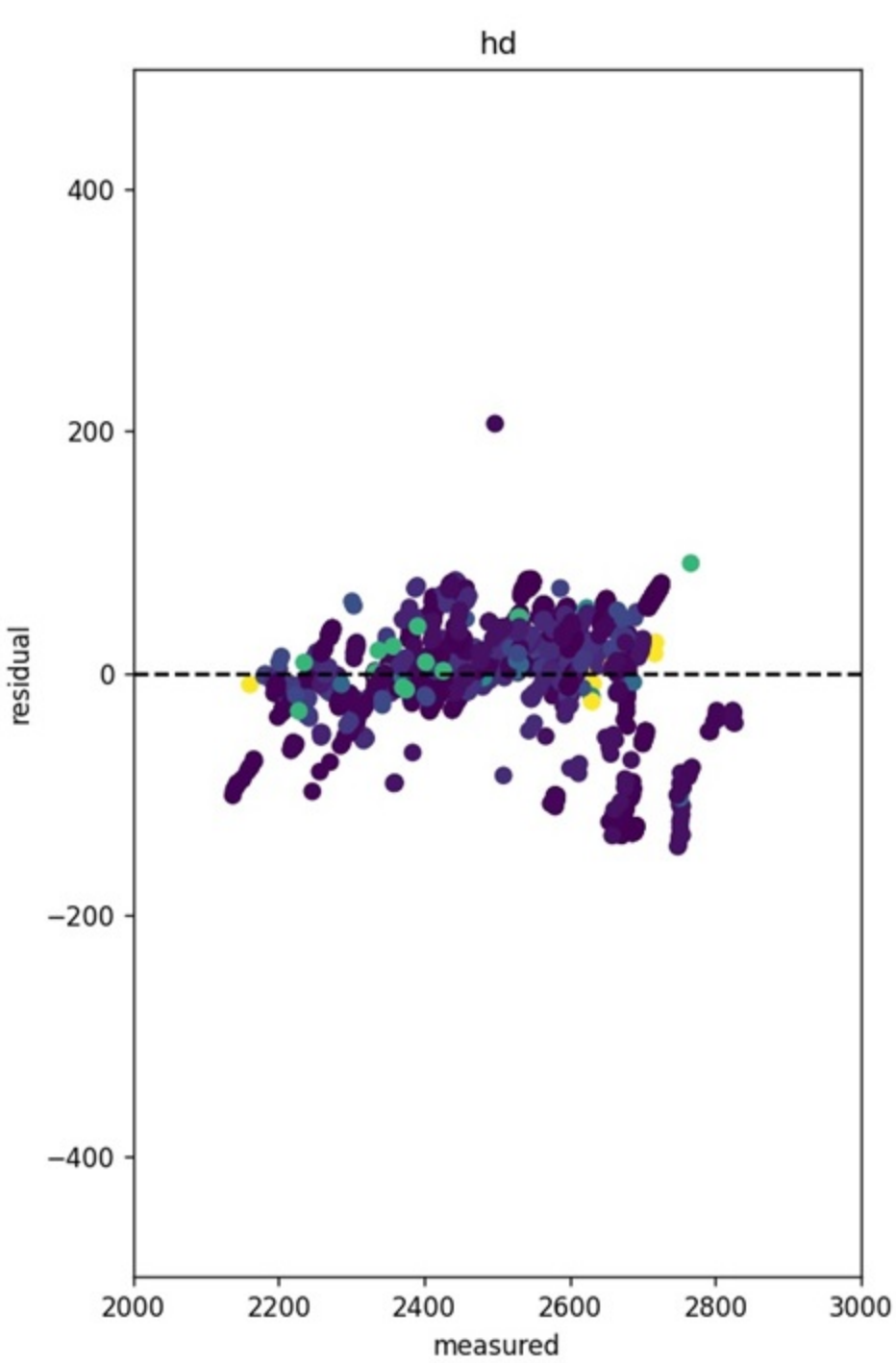

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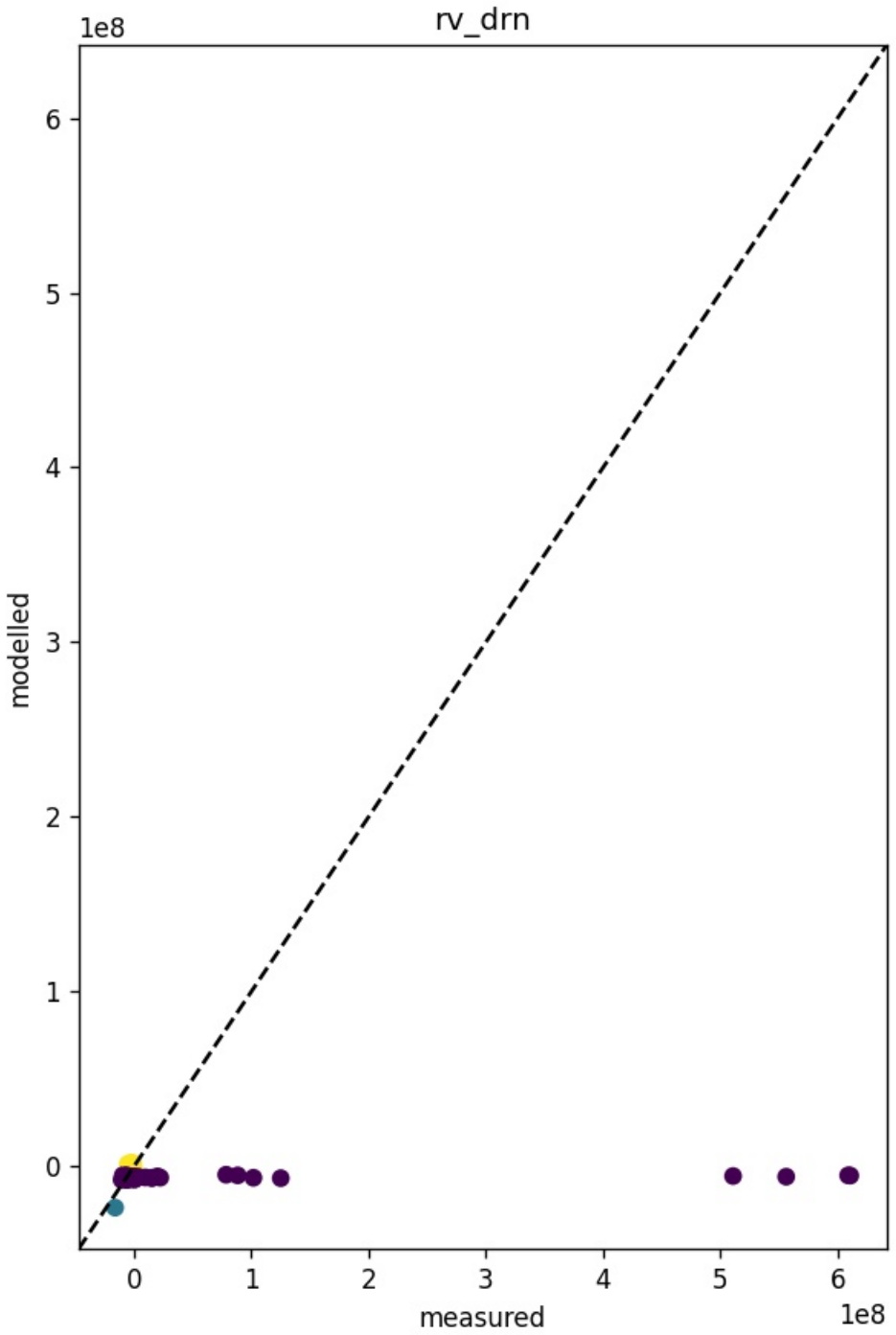

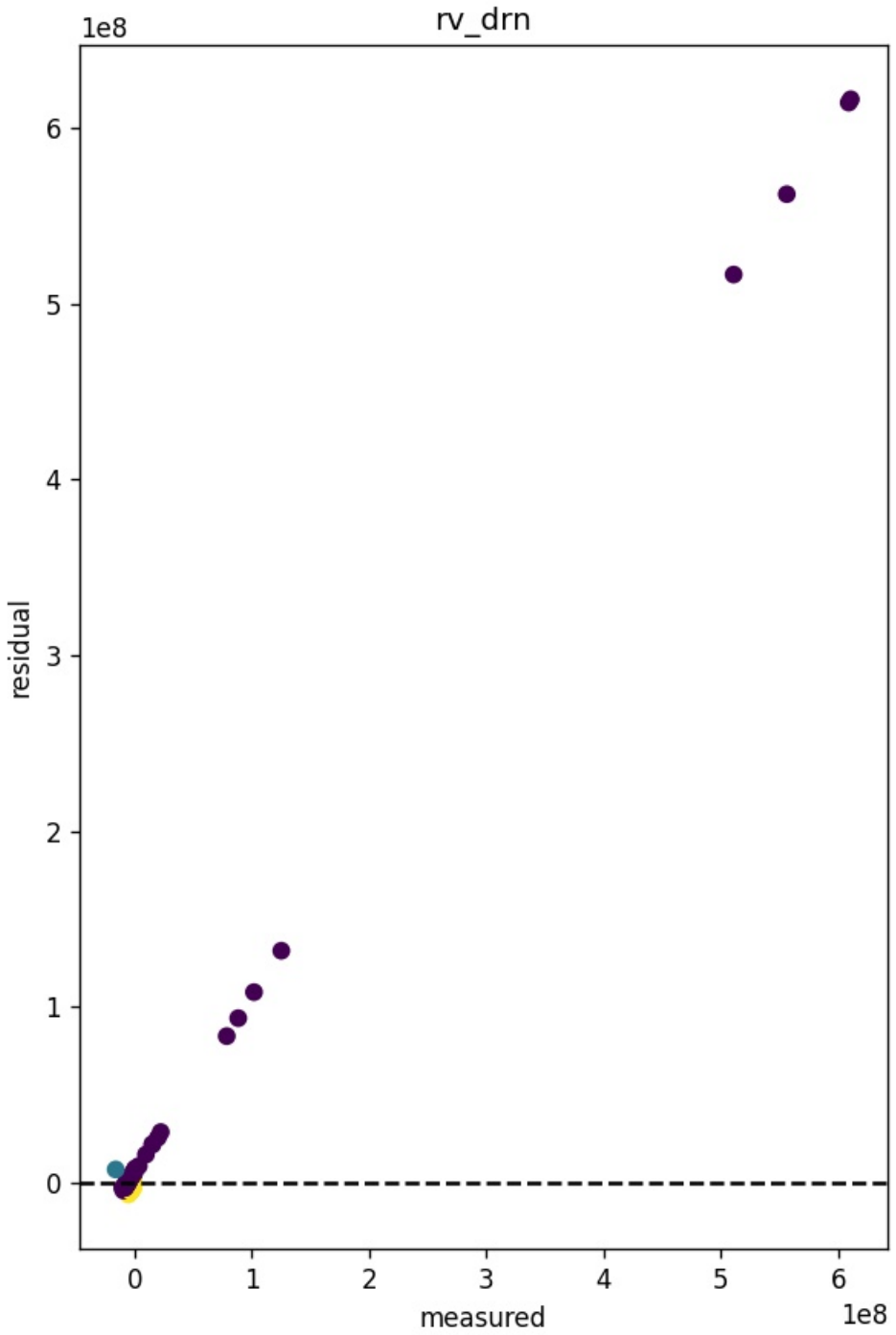

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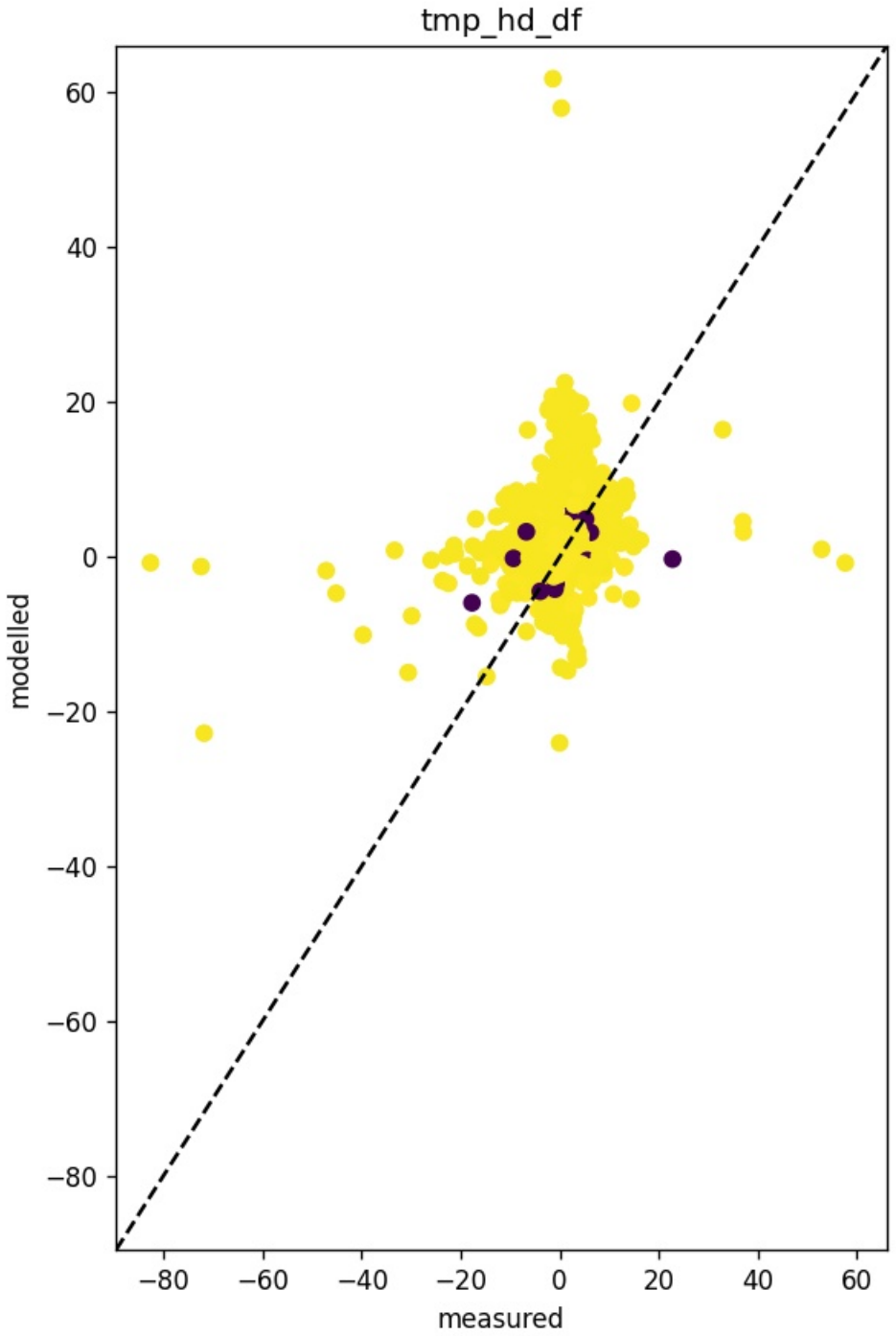

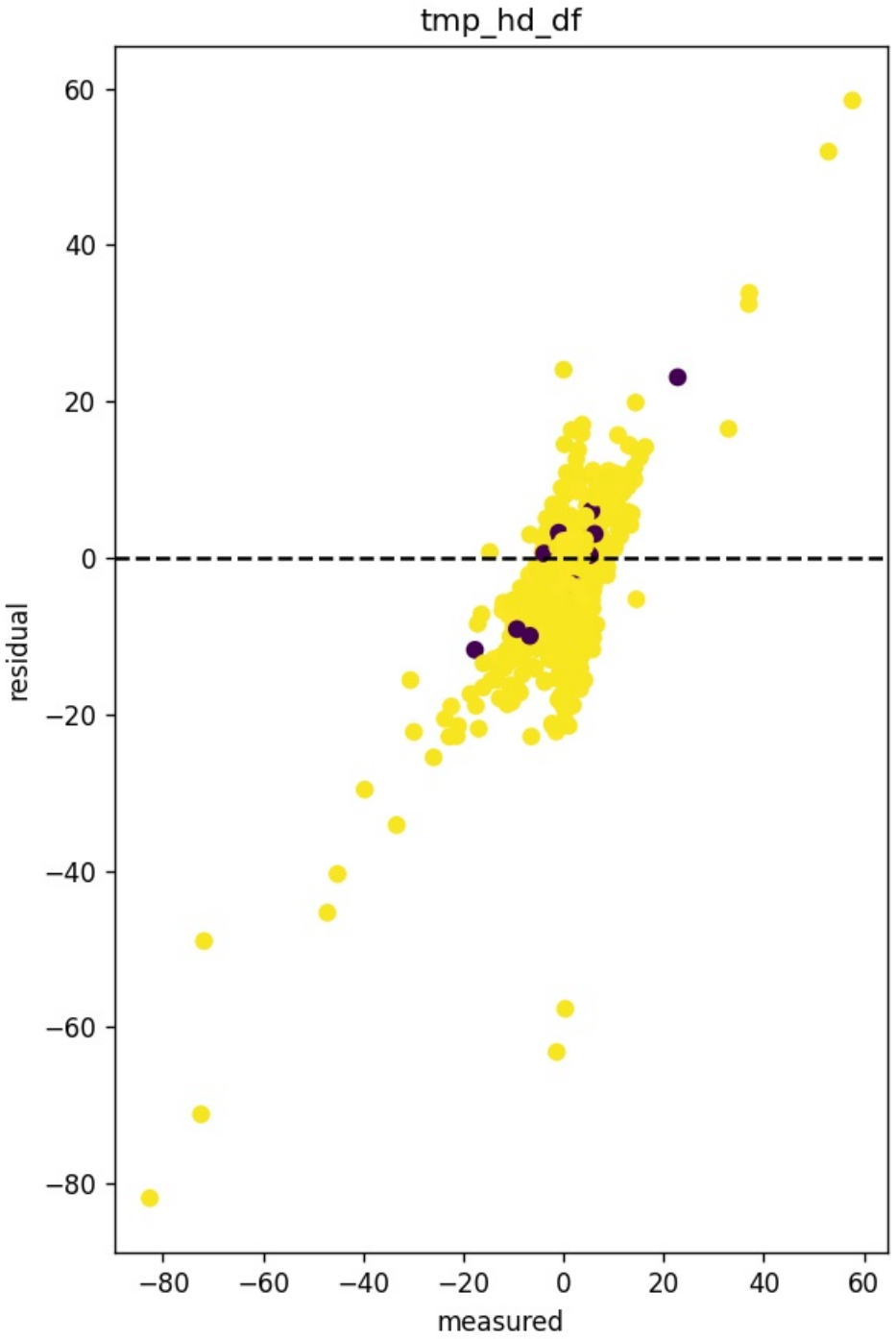

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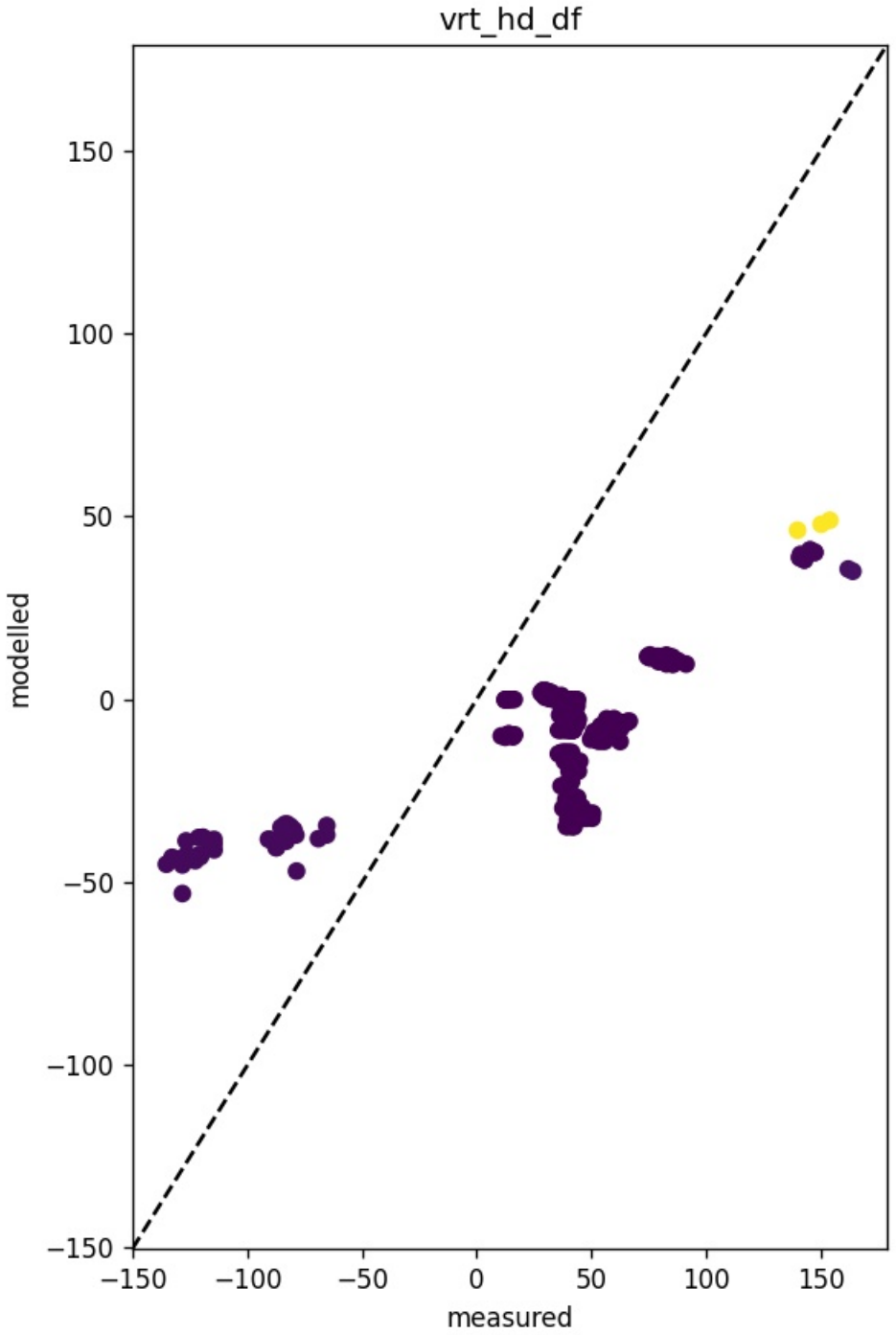

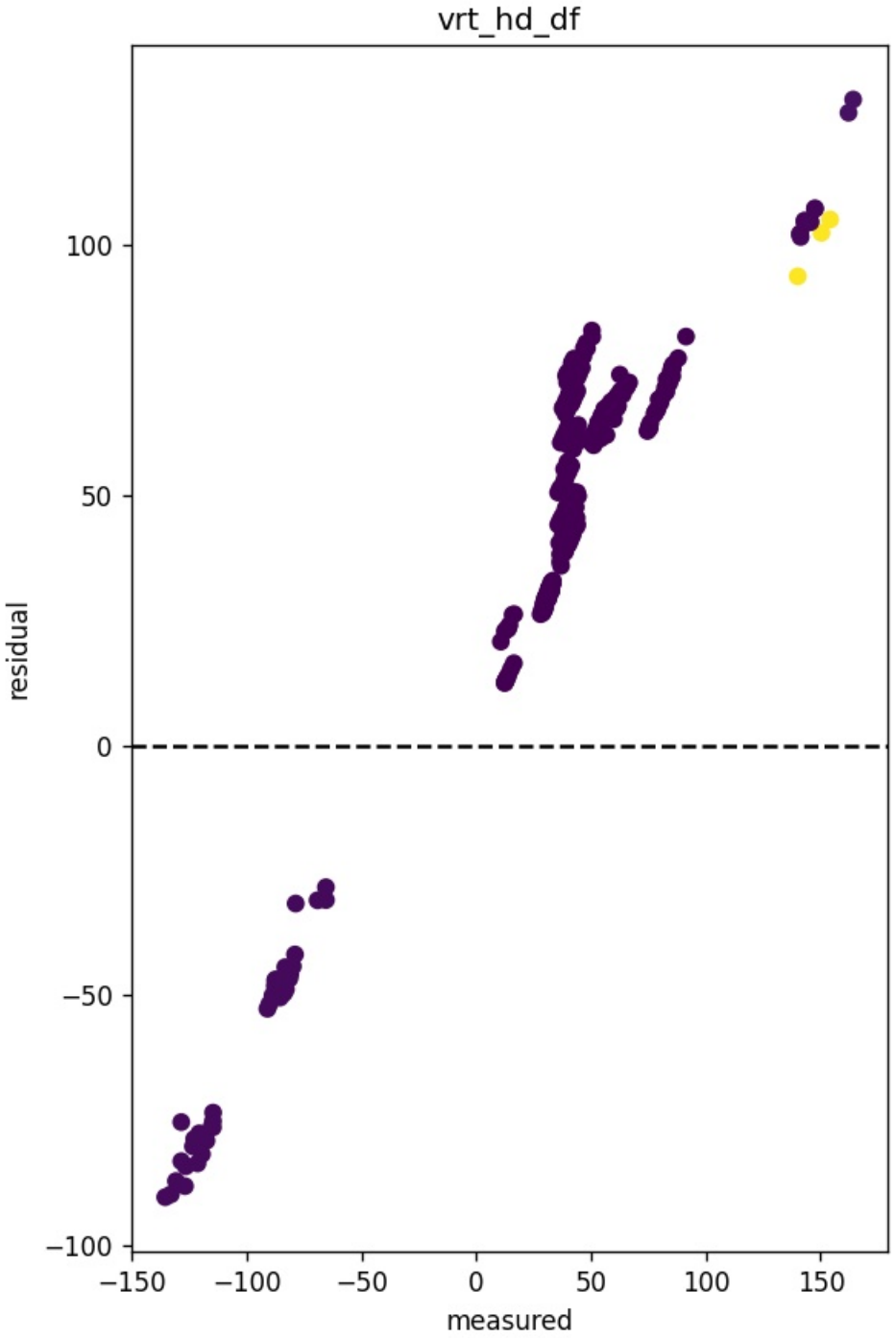

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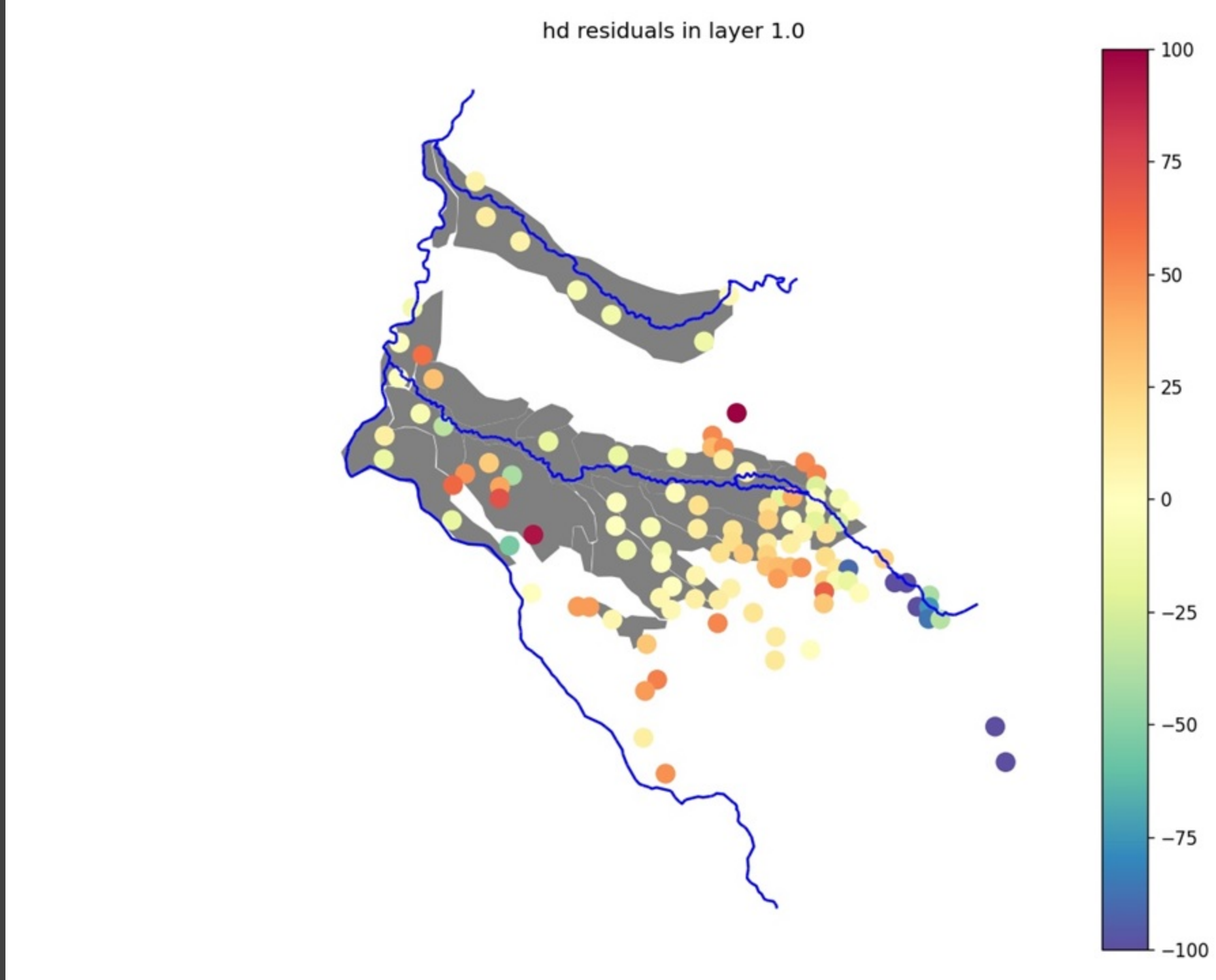

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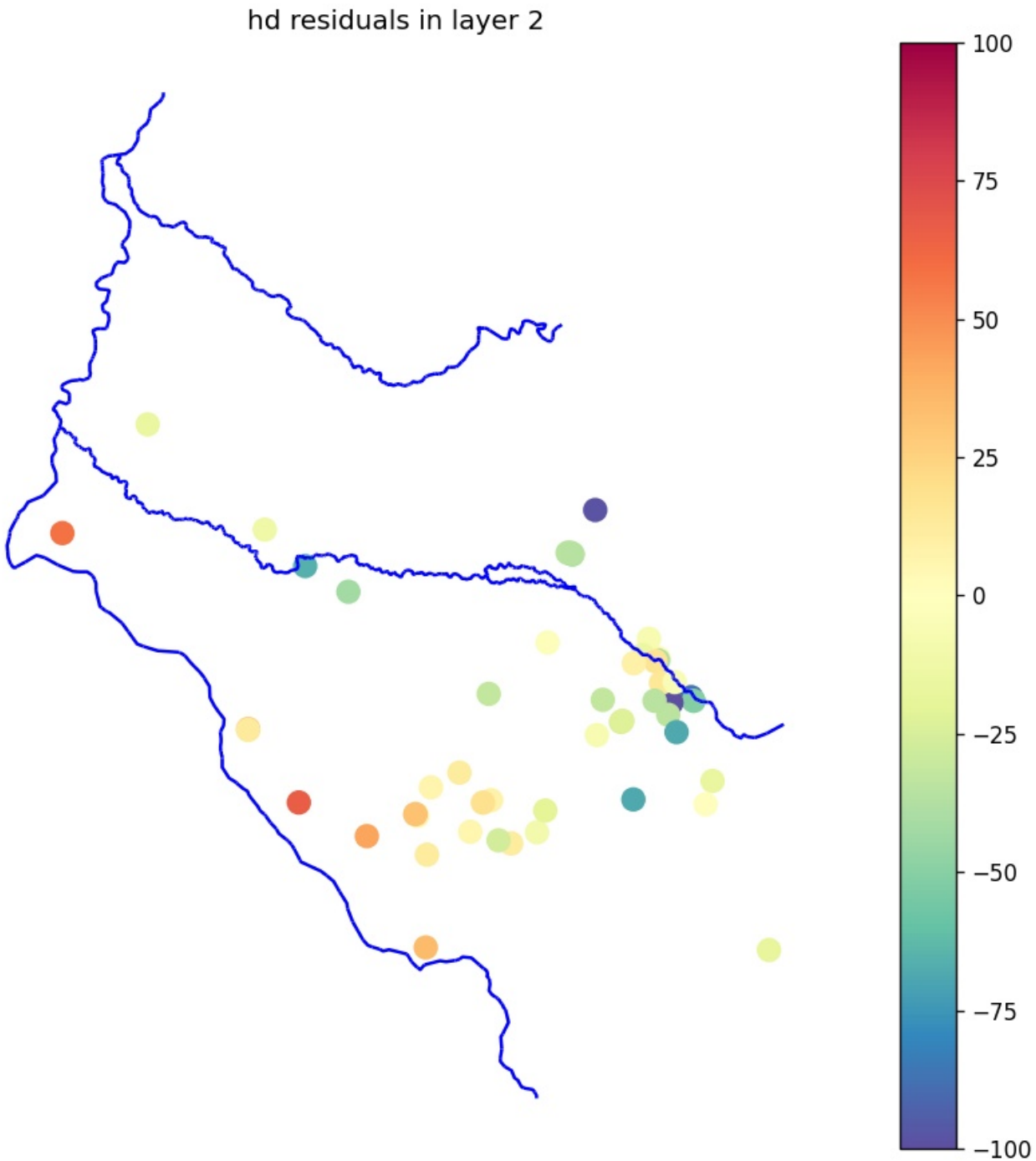

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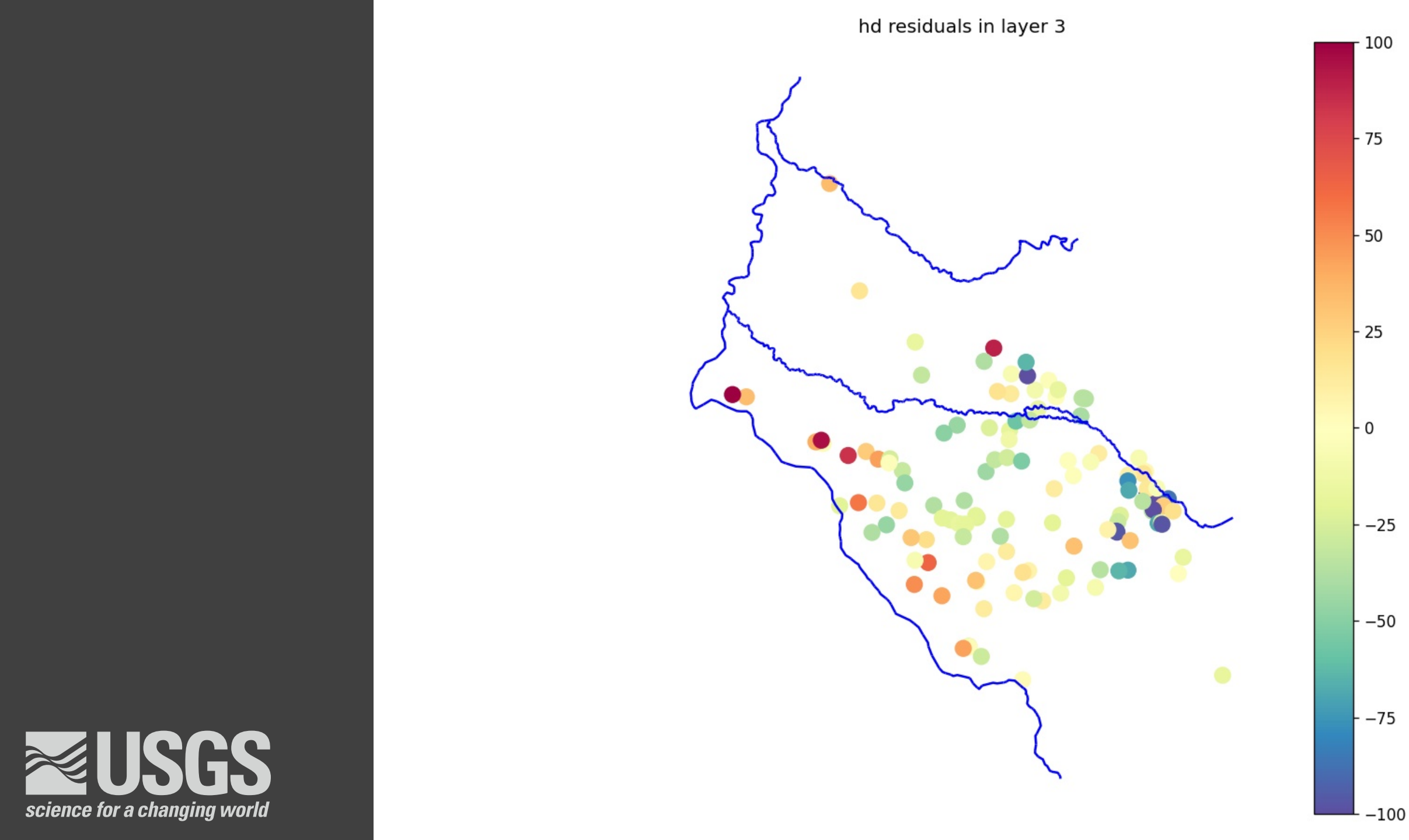

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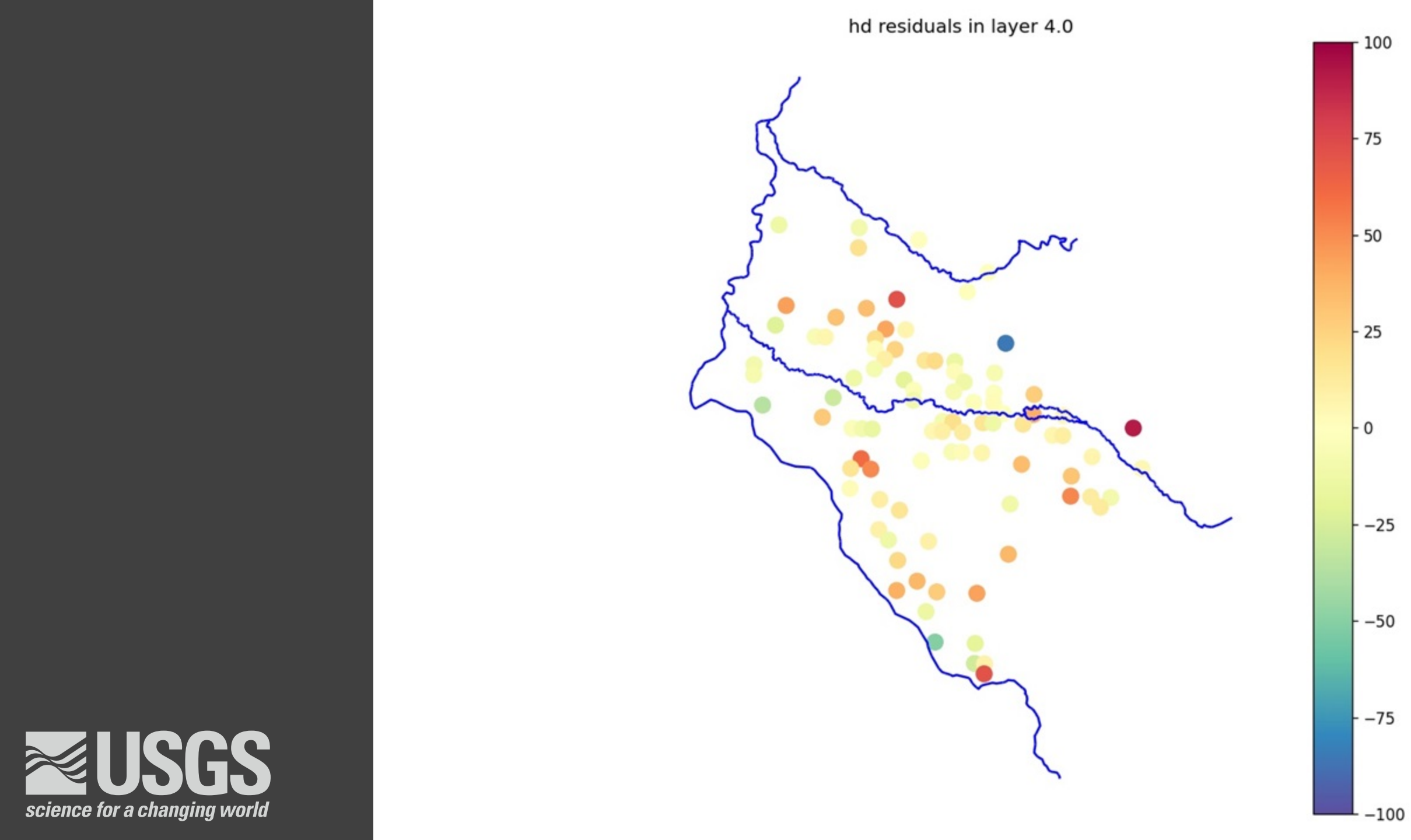

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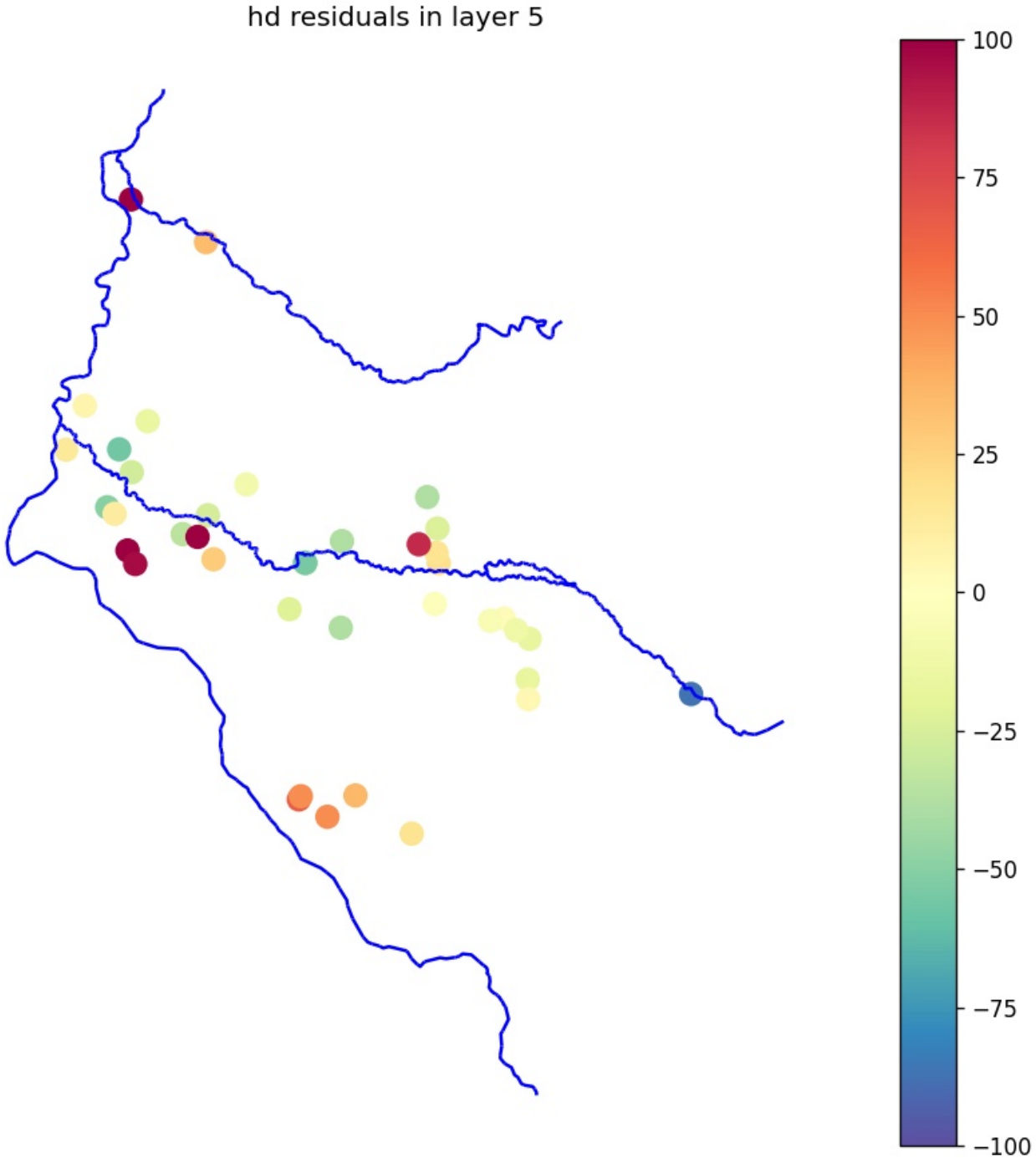

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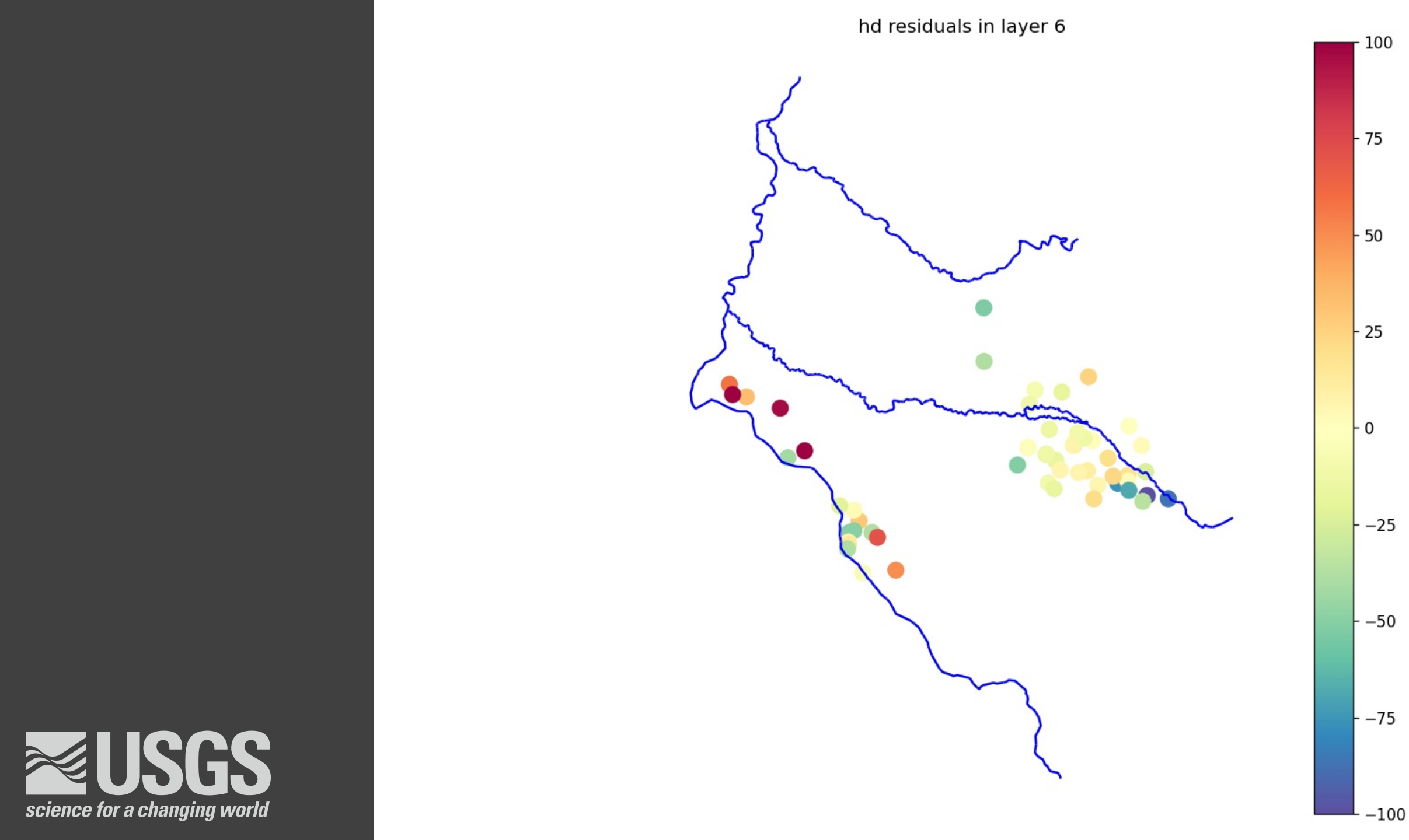

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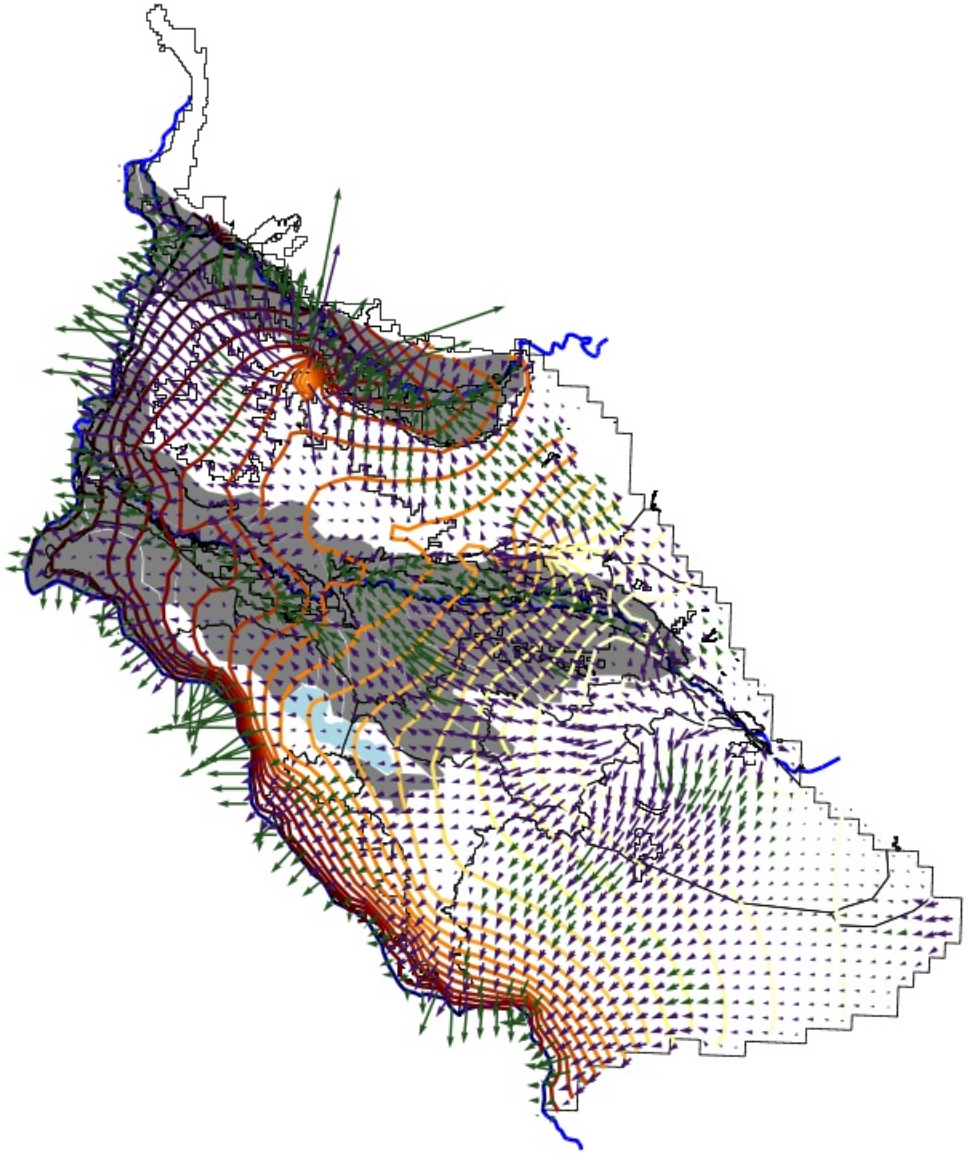
Layer 1
green: upward component
purple: downward component



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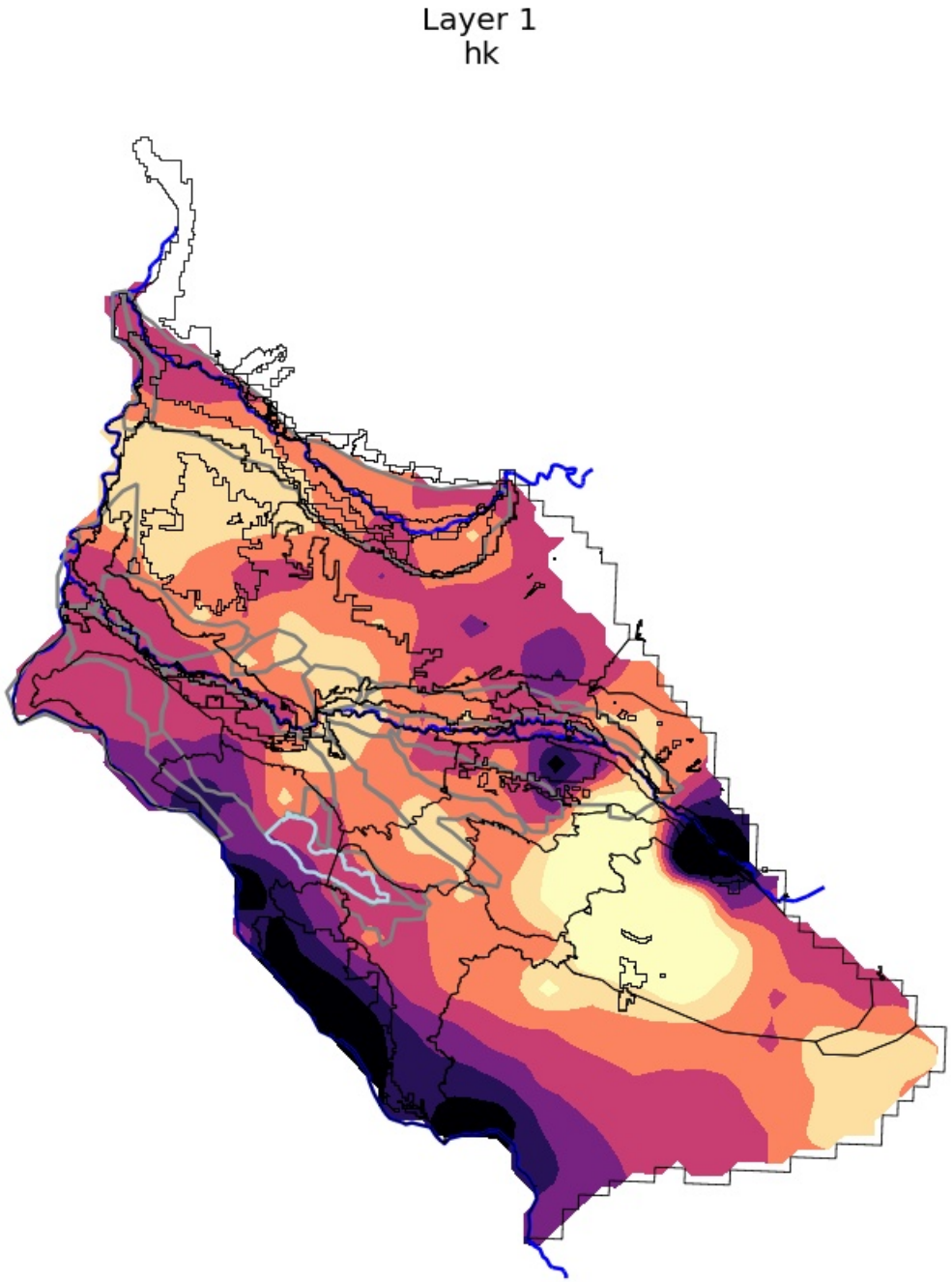

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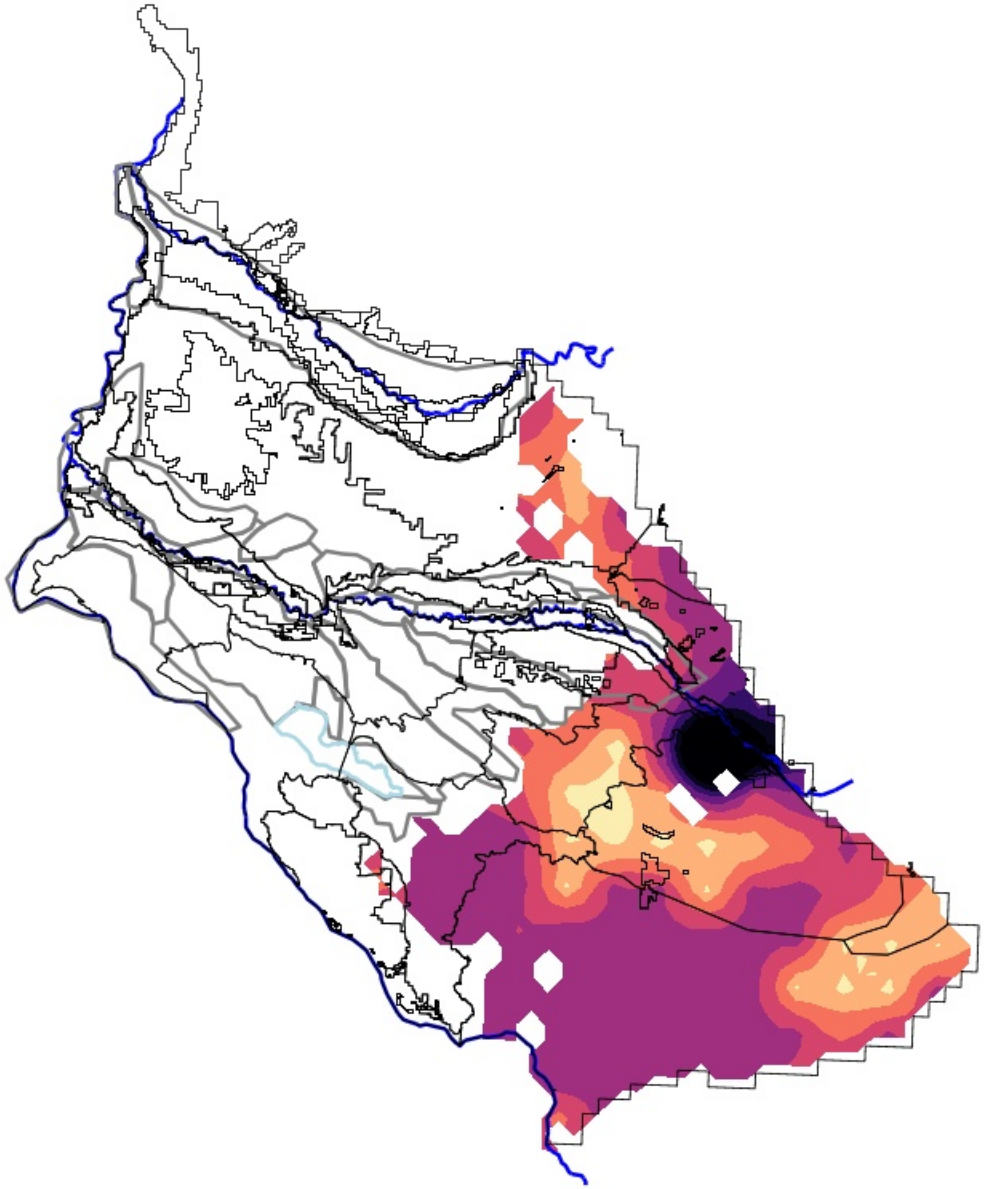
Layer 2
hk



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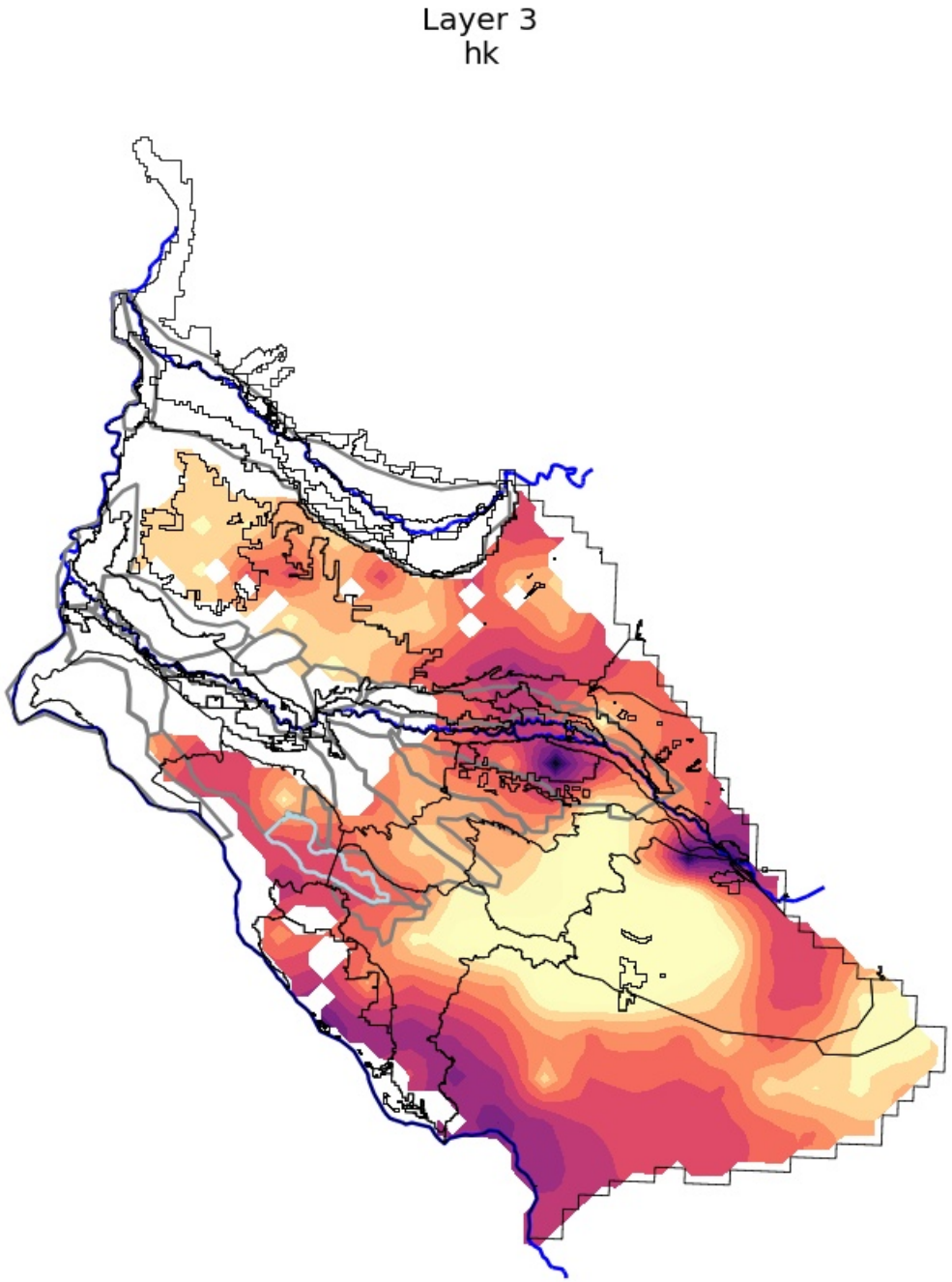

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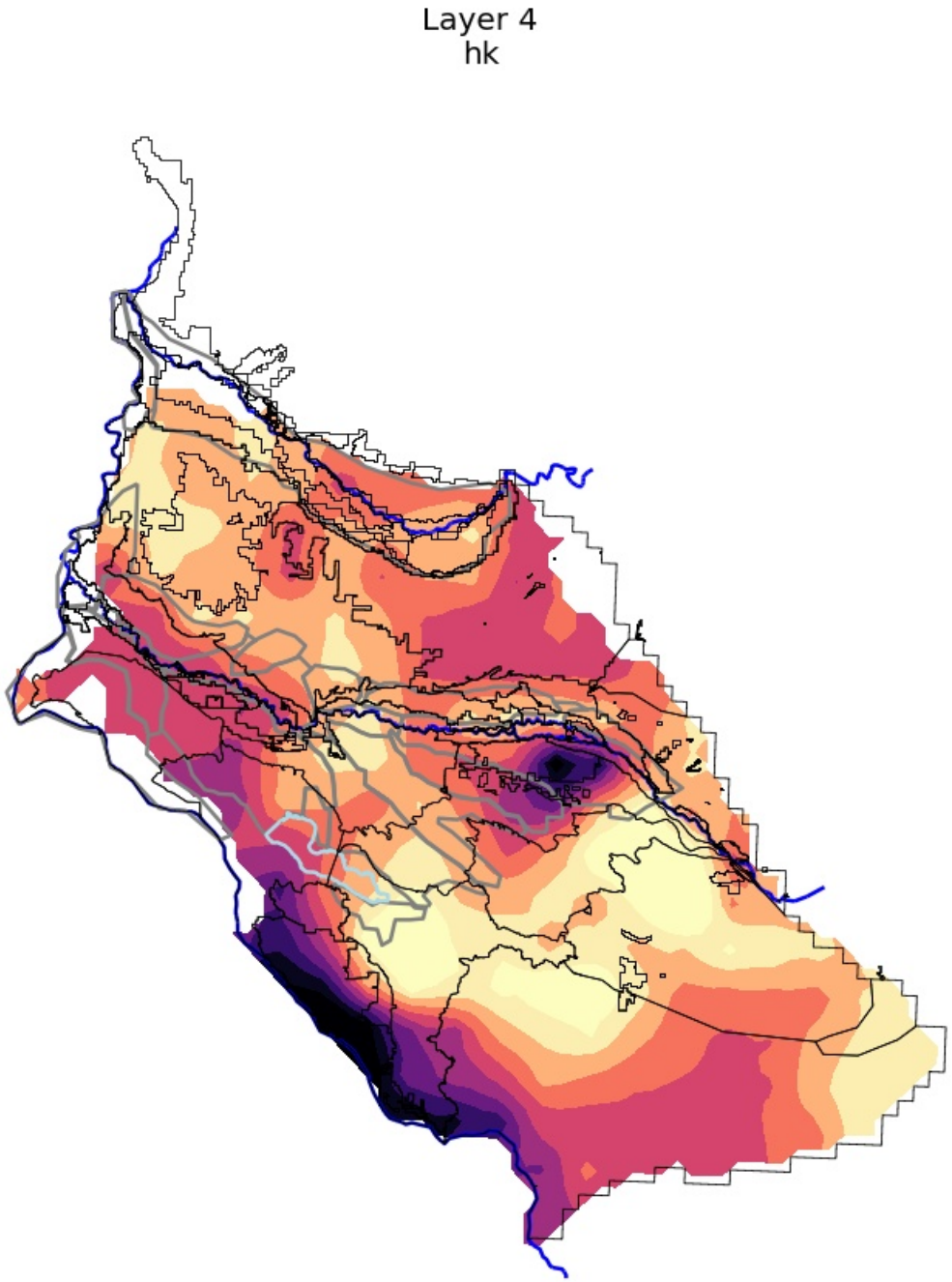

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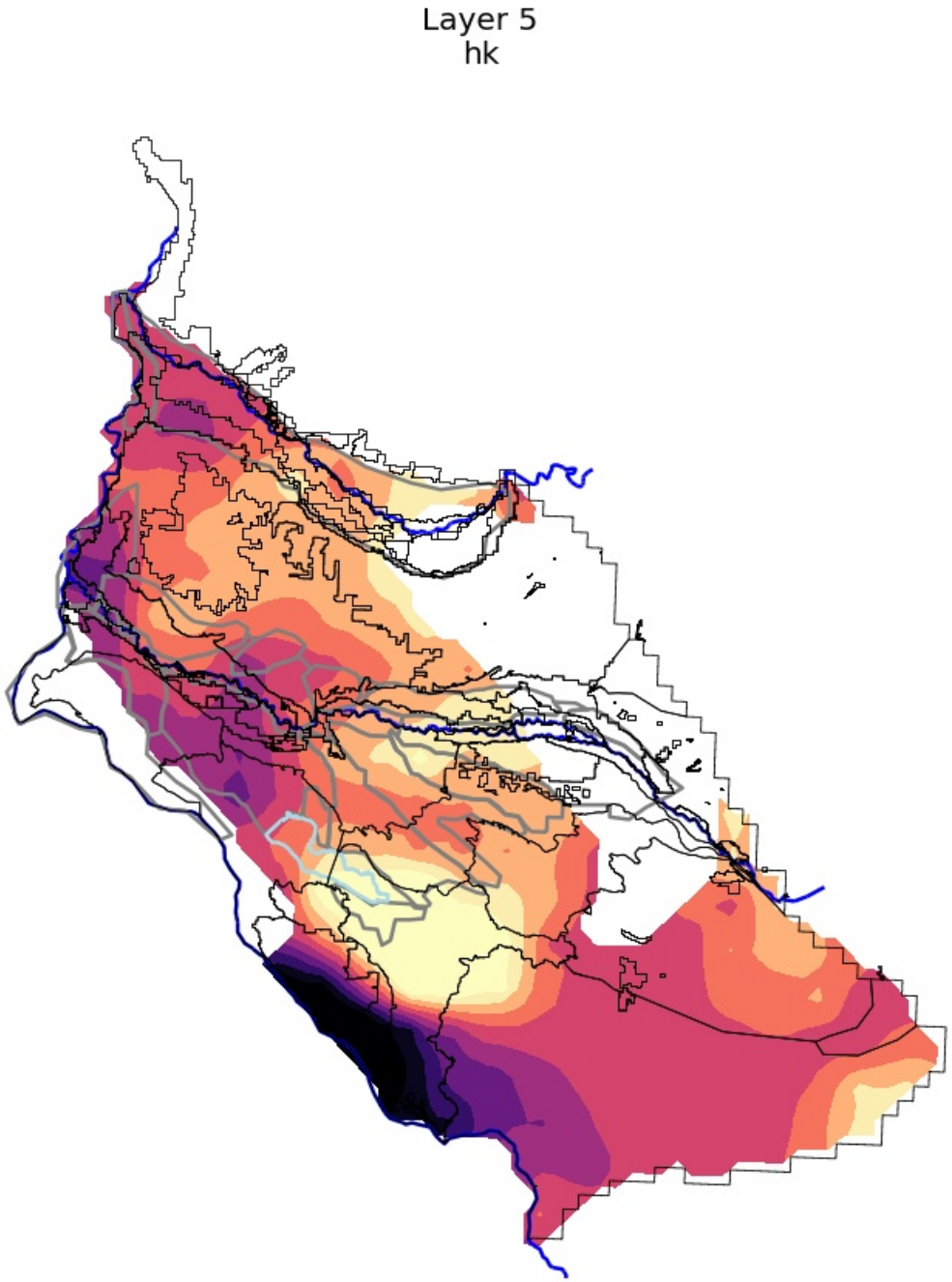

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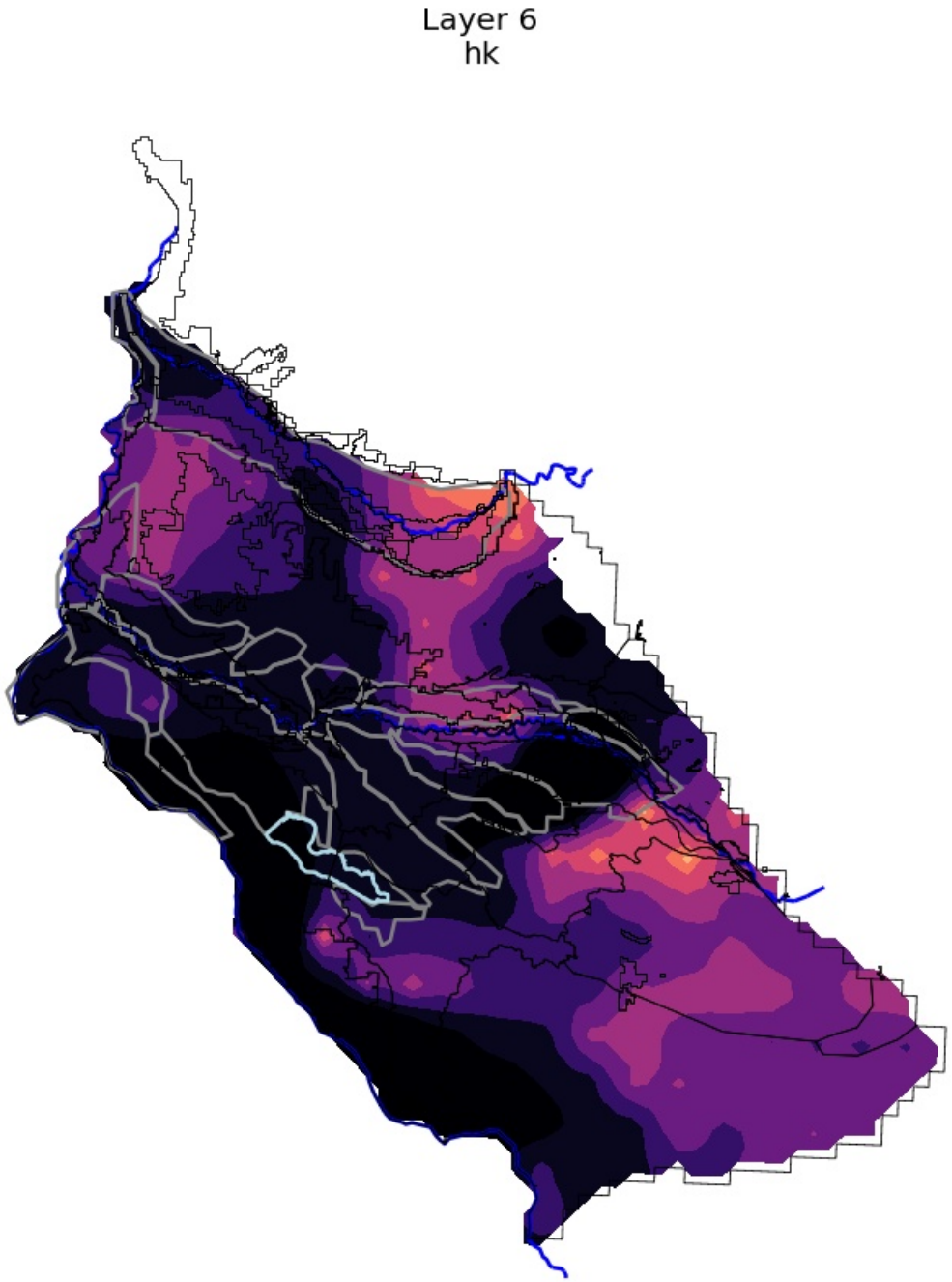

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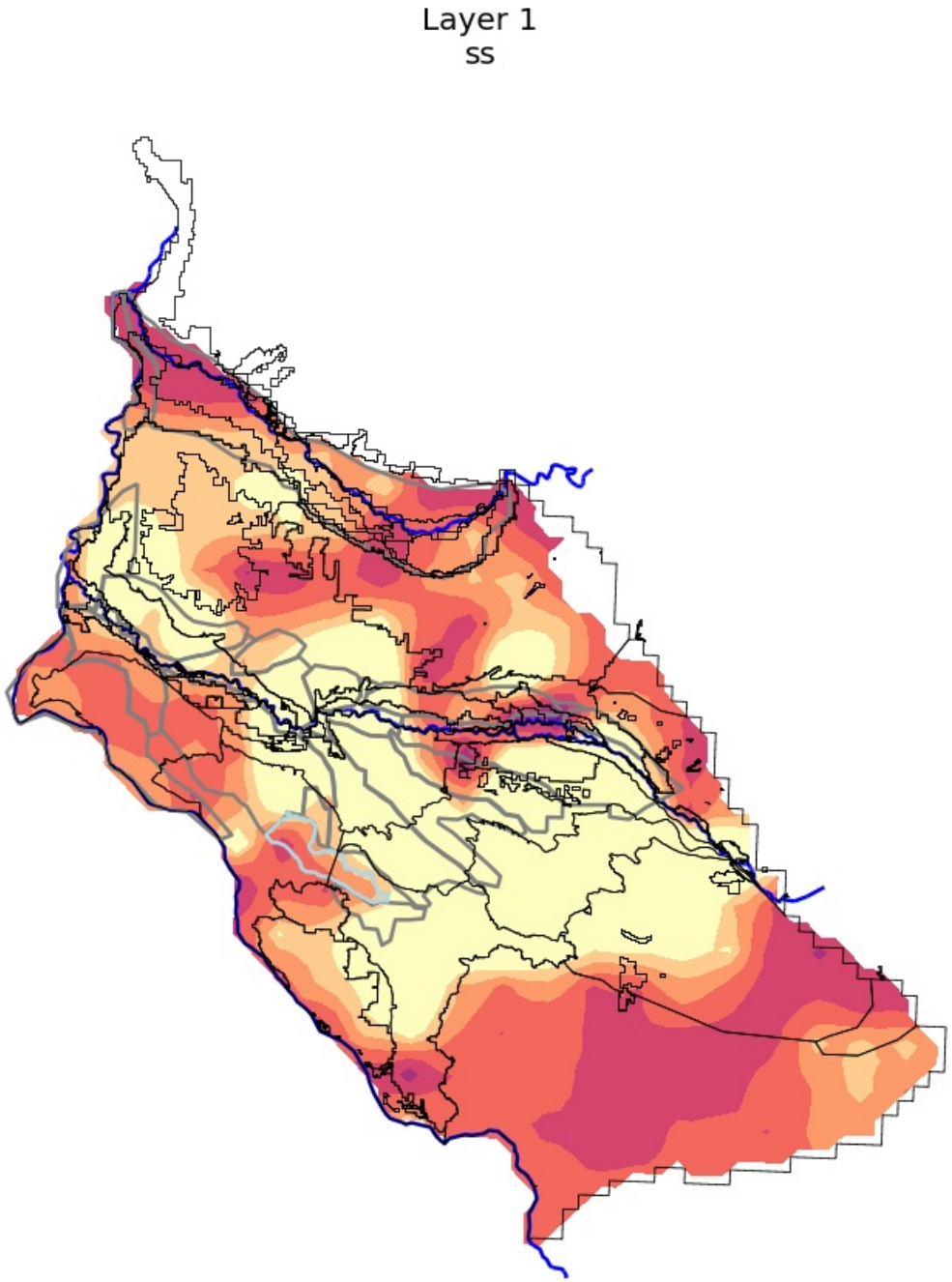

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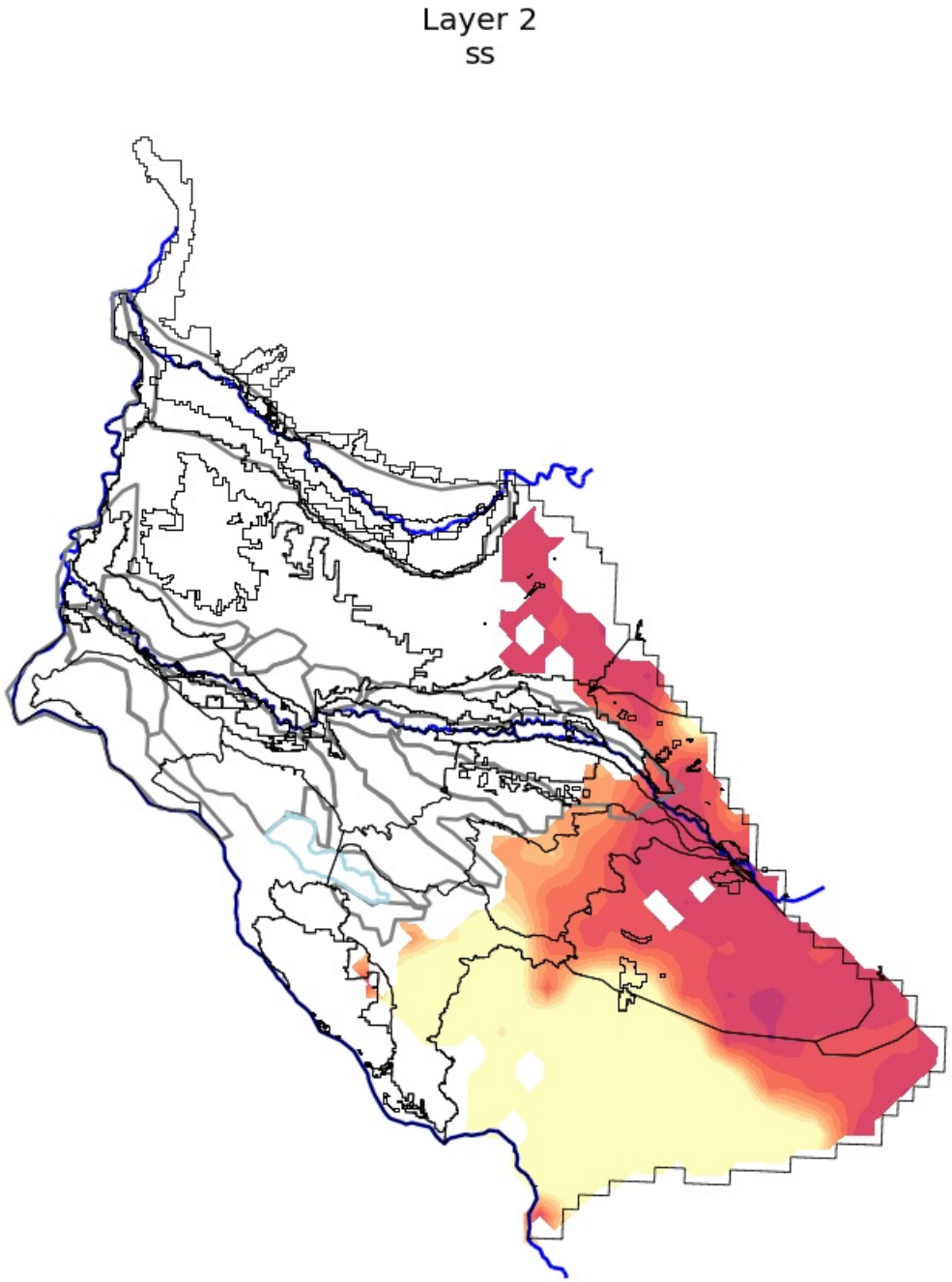

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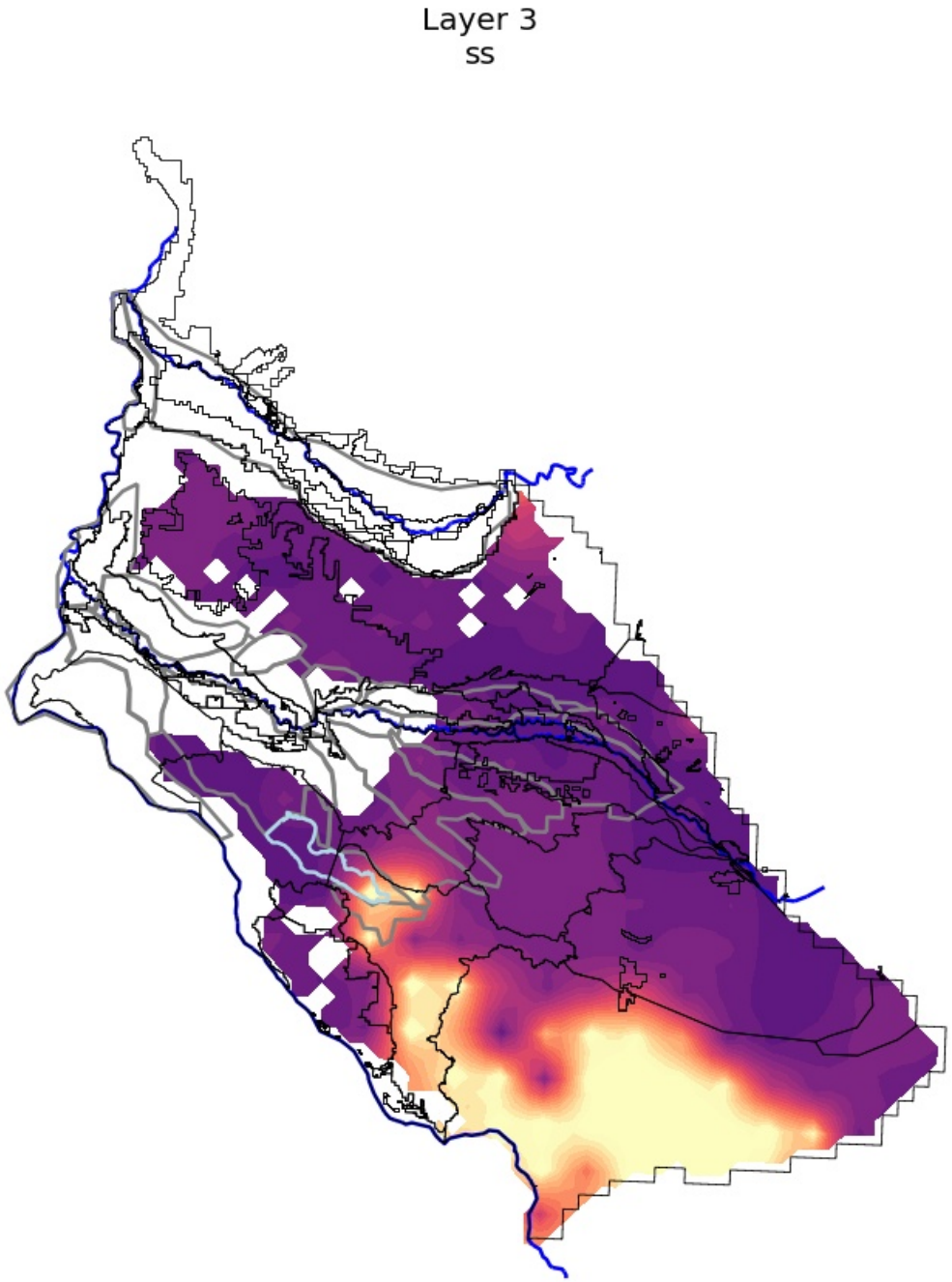

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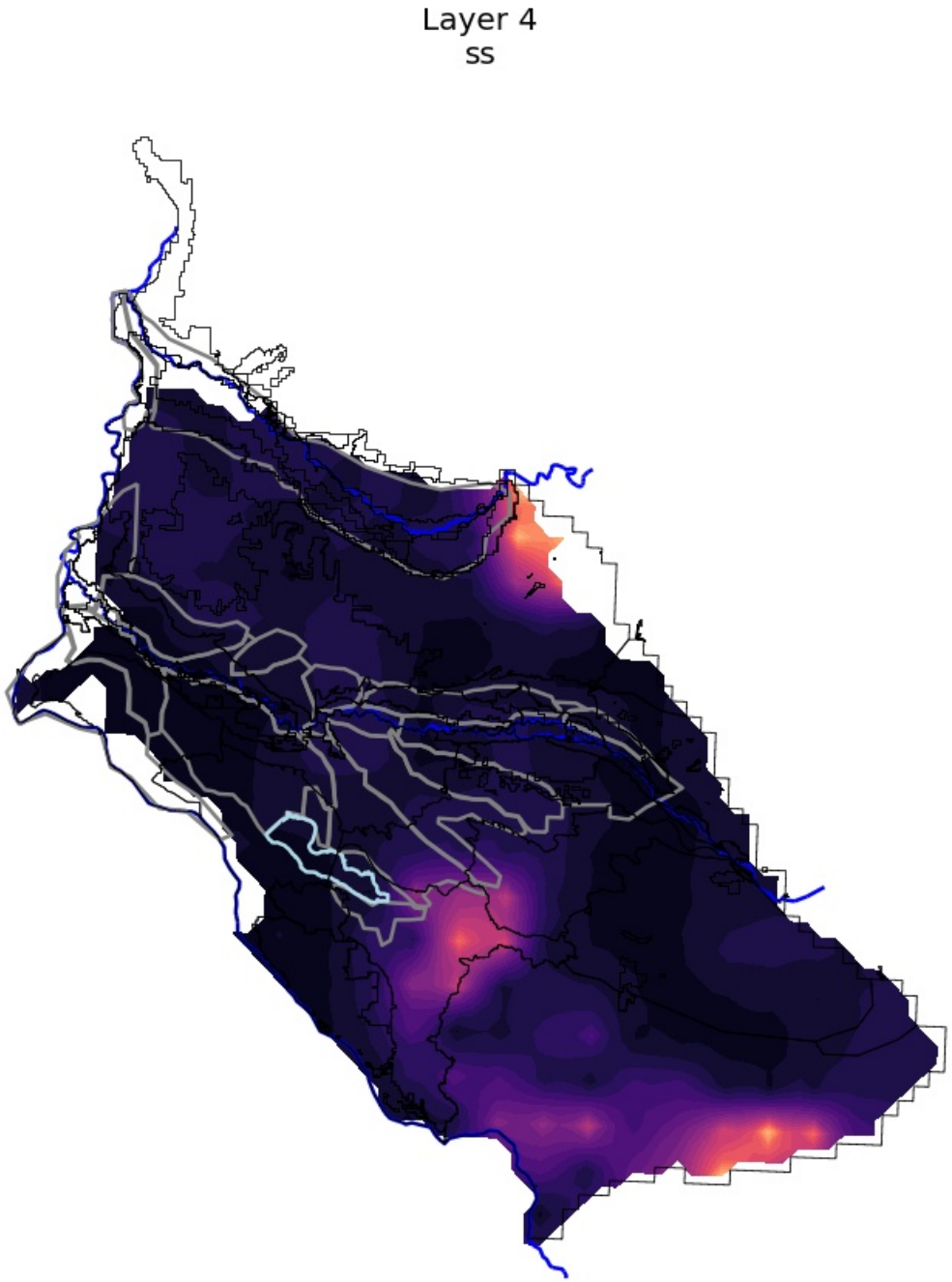

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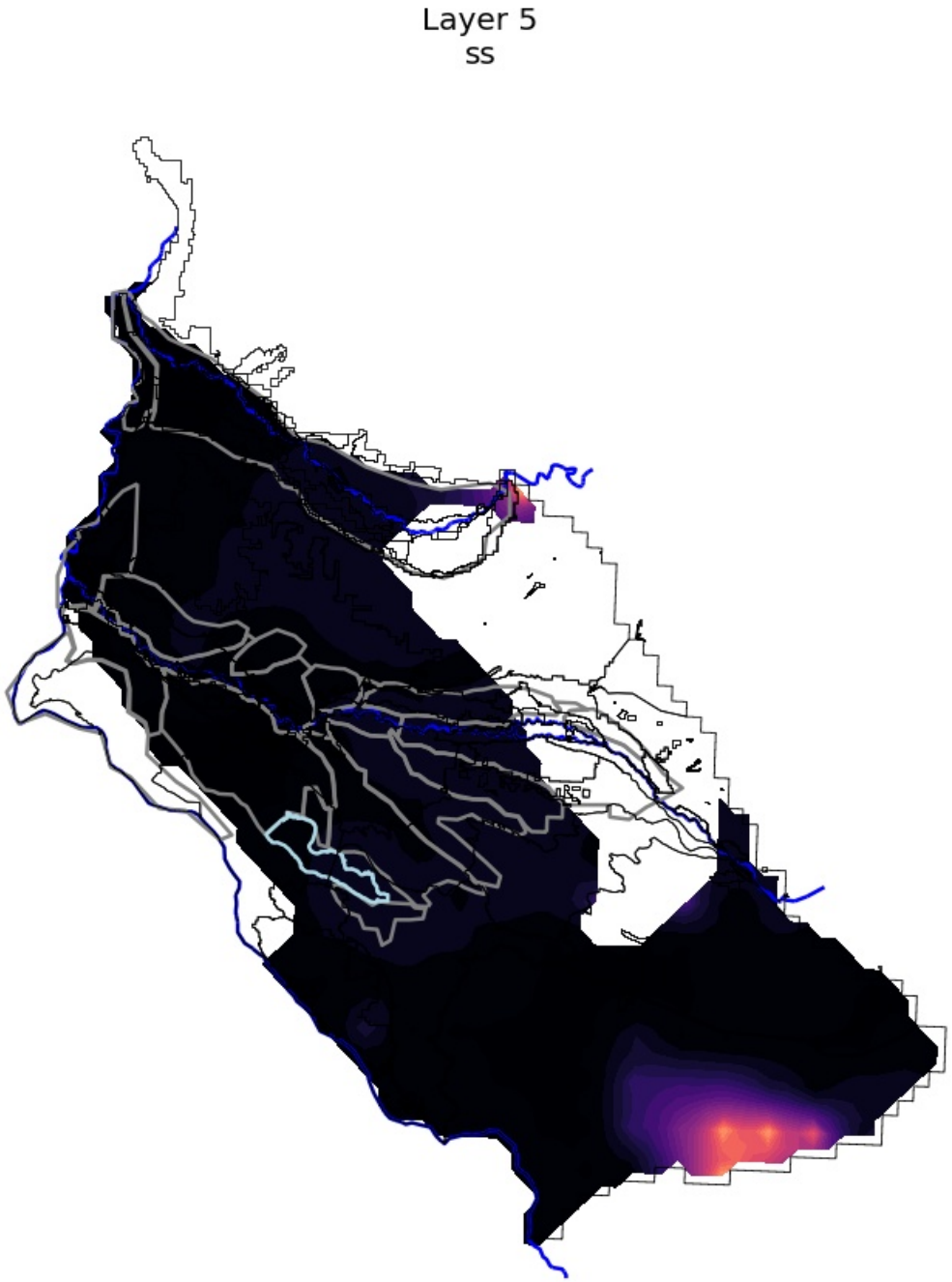

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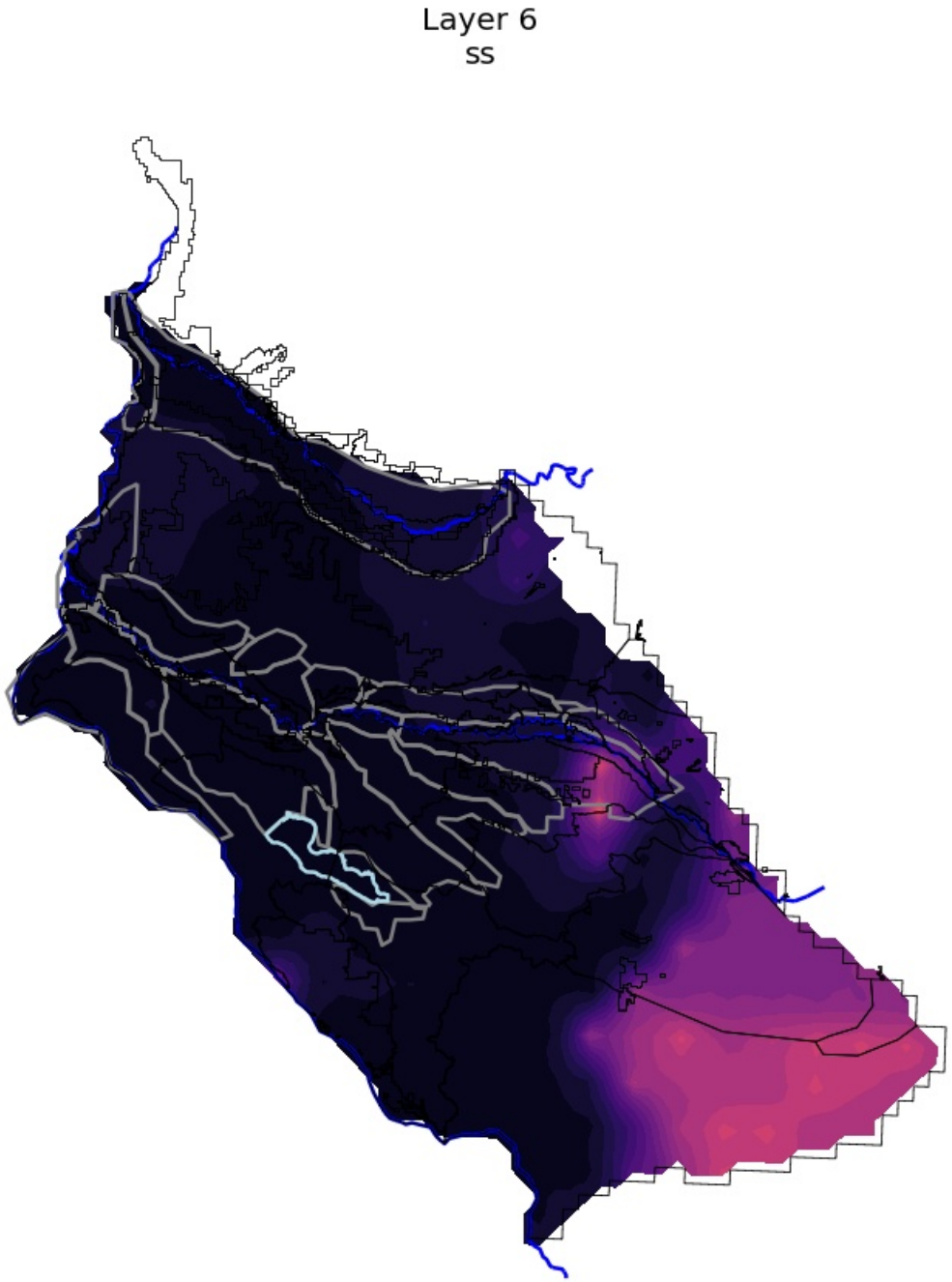

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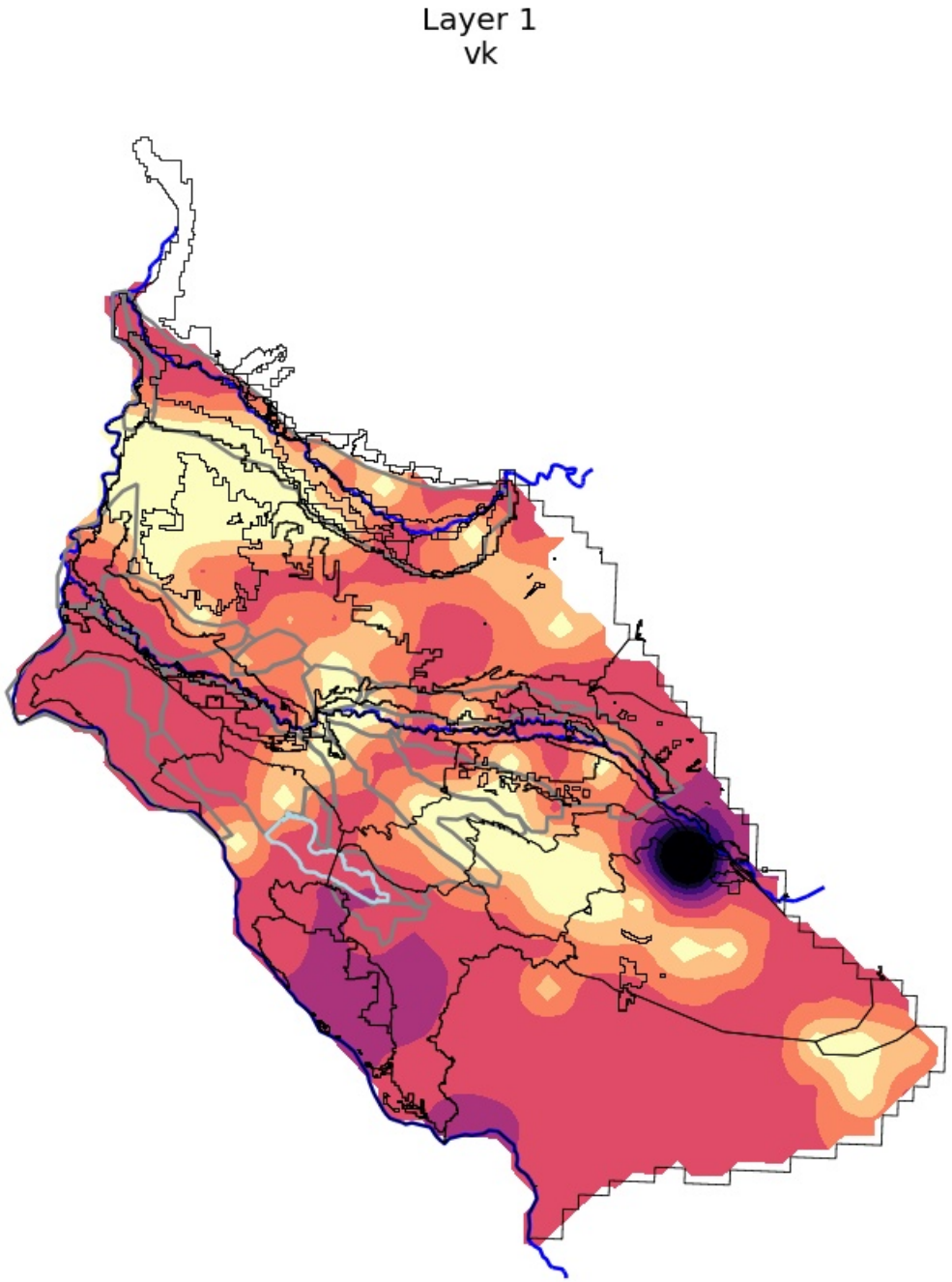

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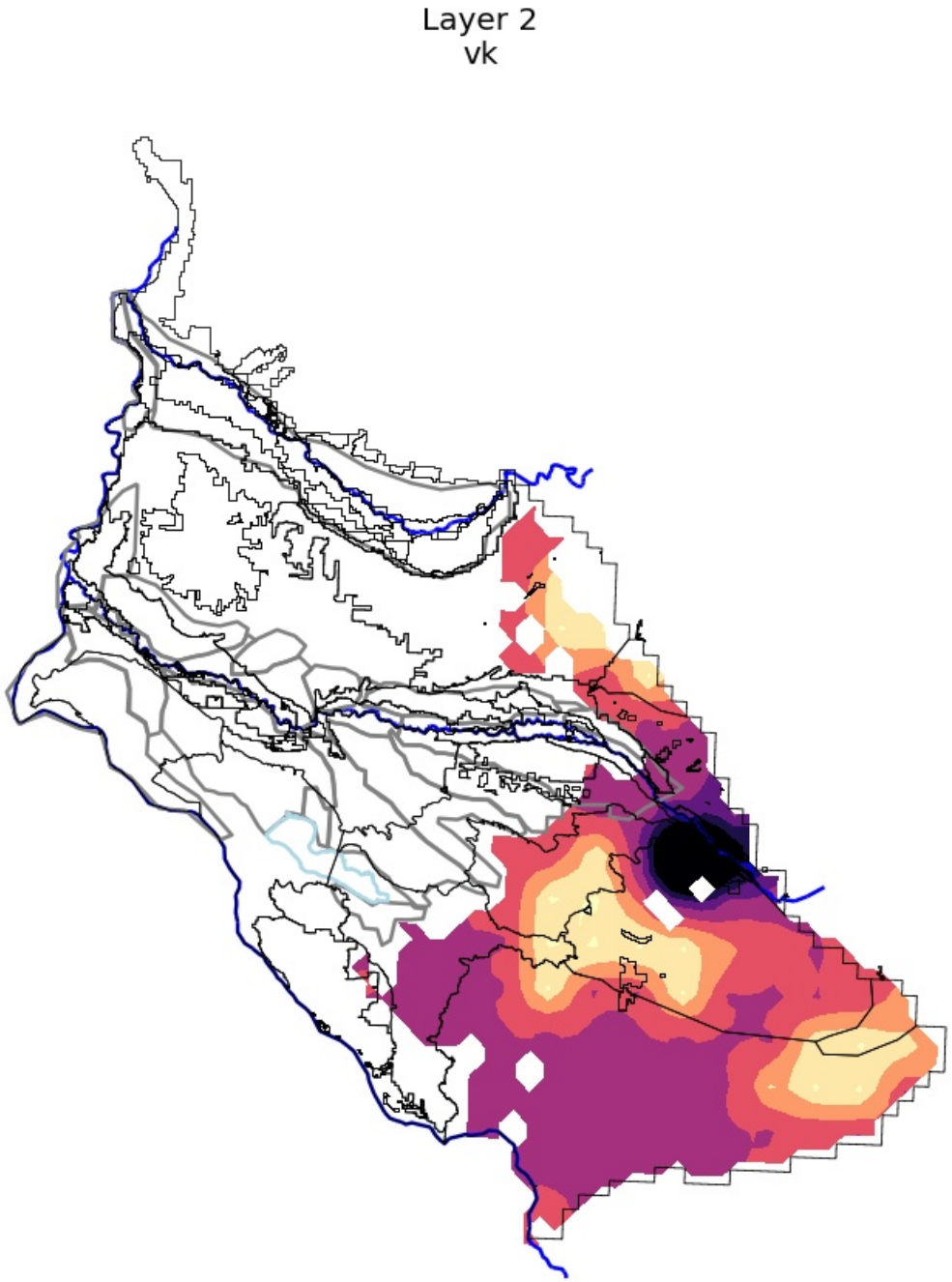

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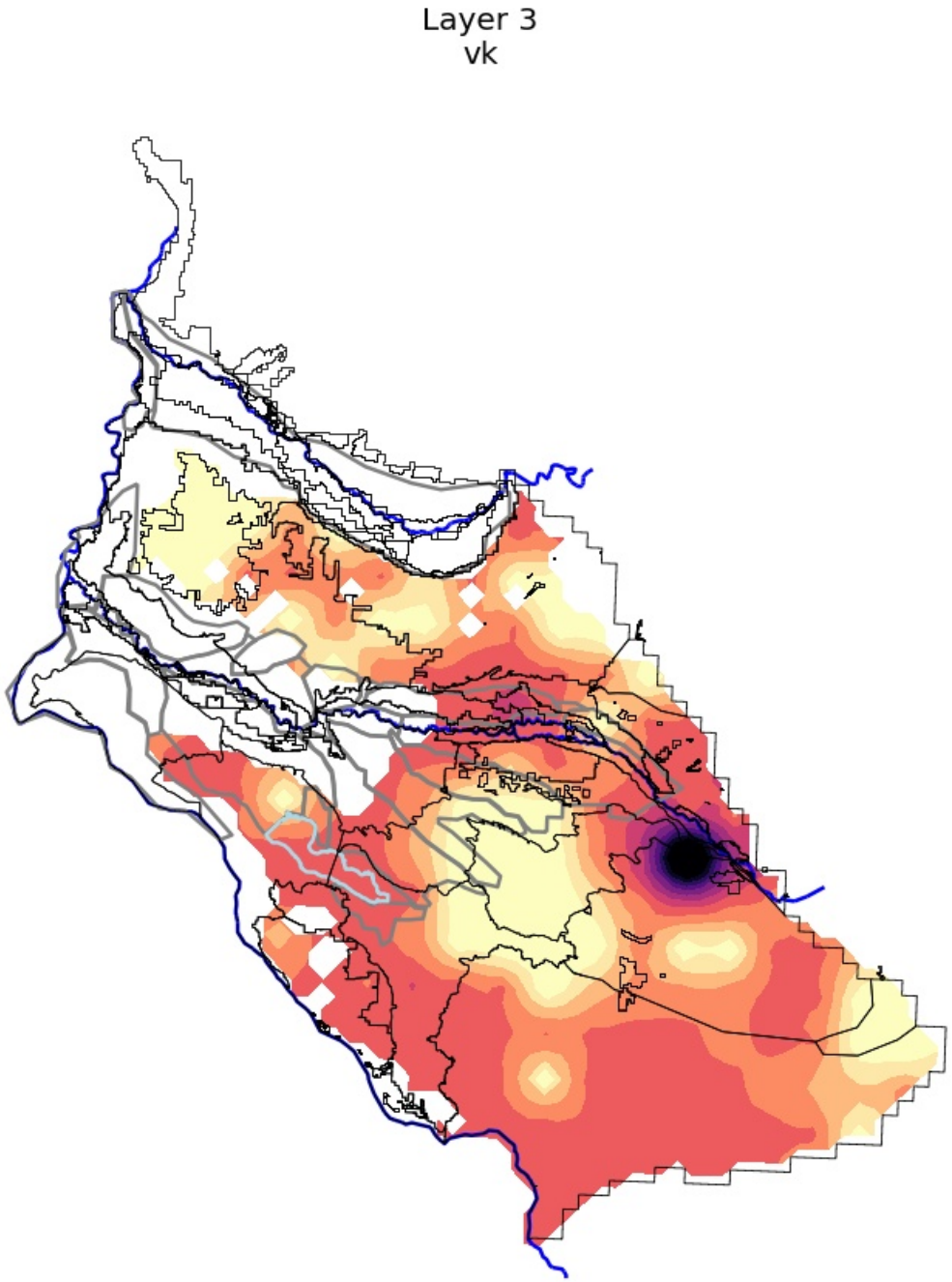

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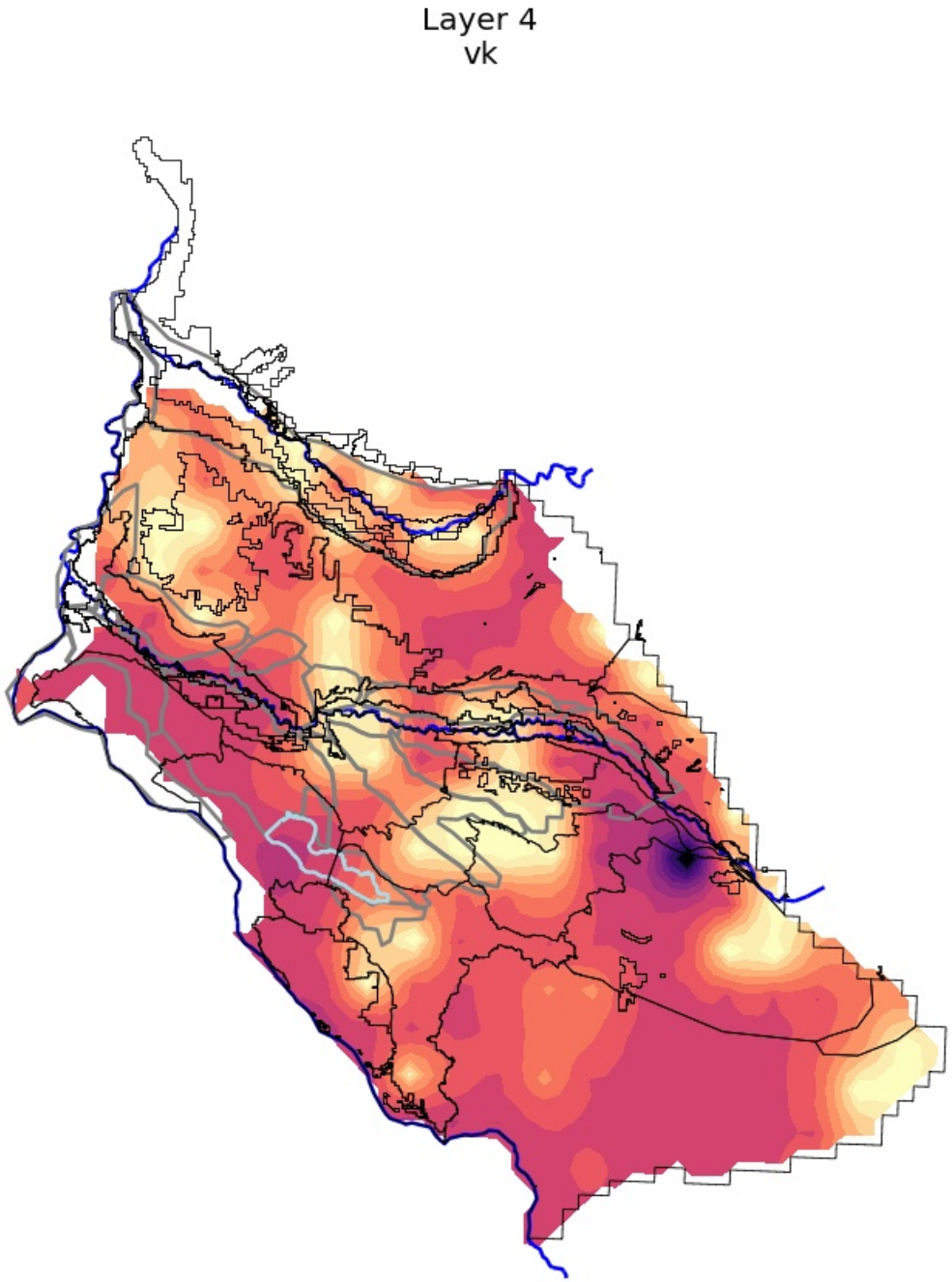

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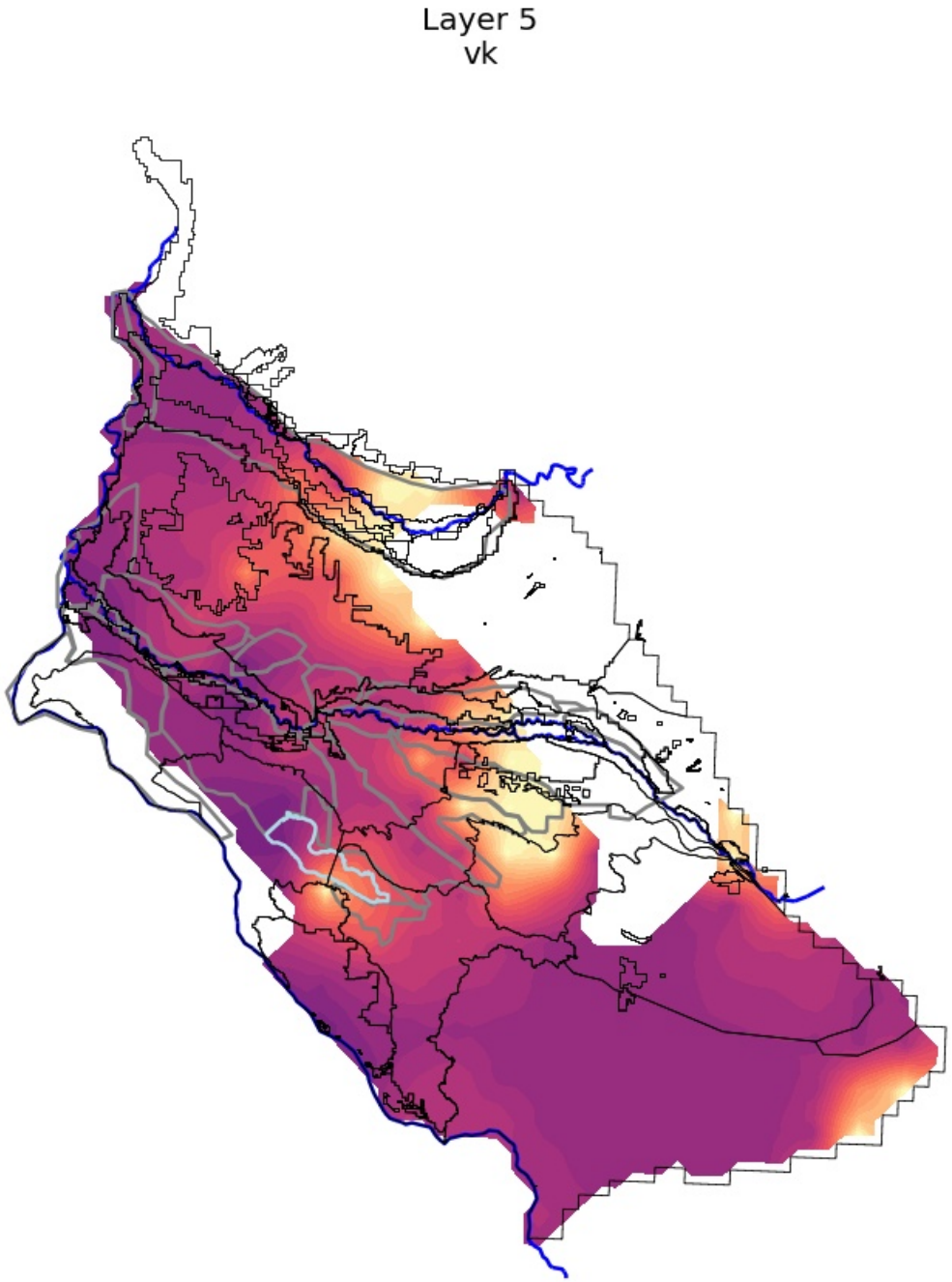

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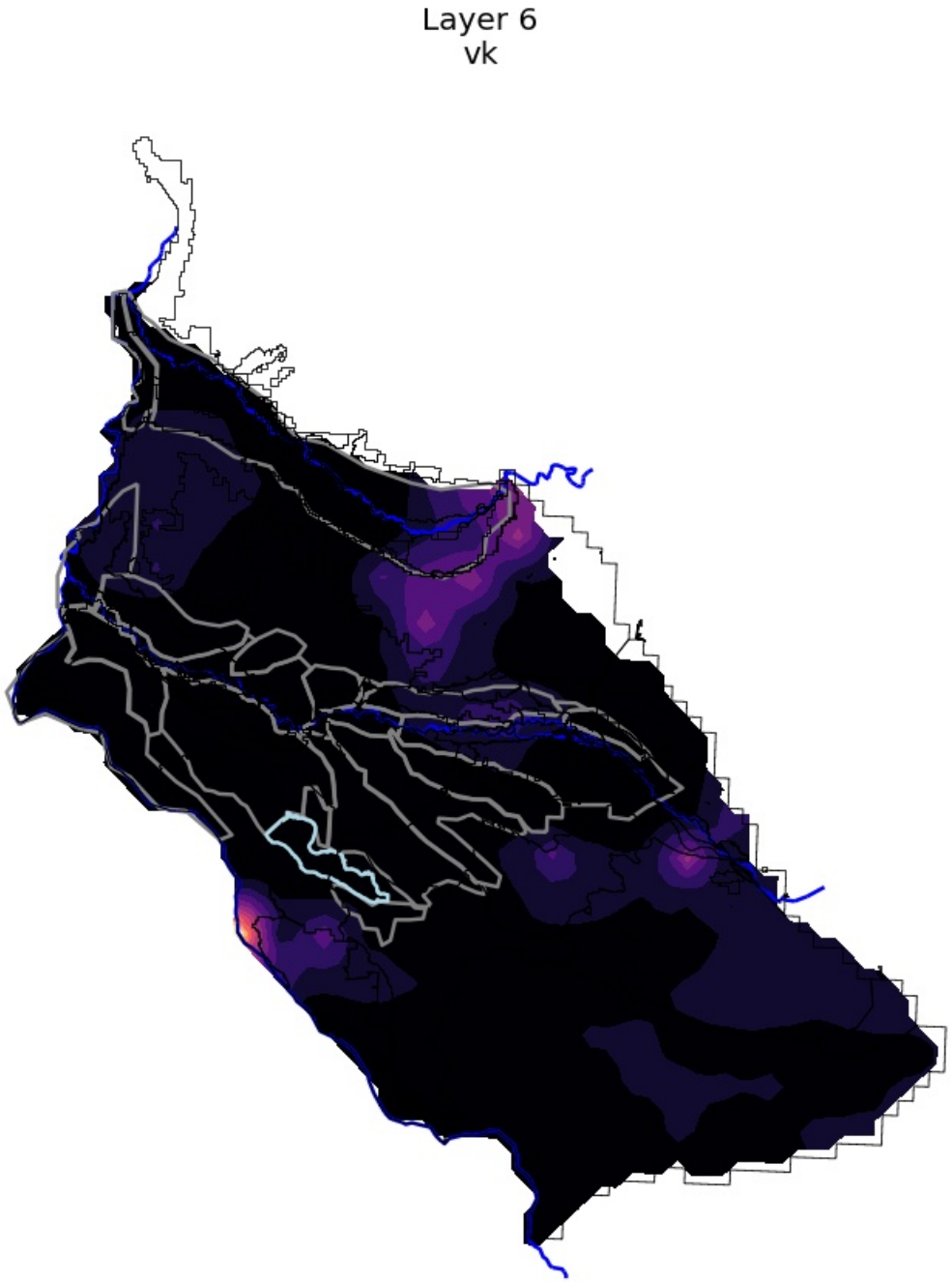

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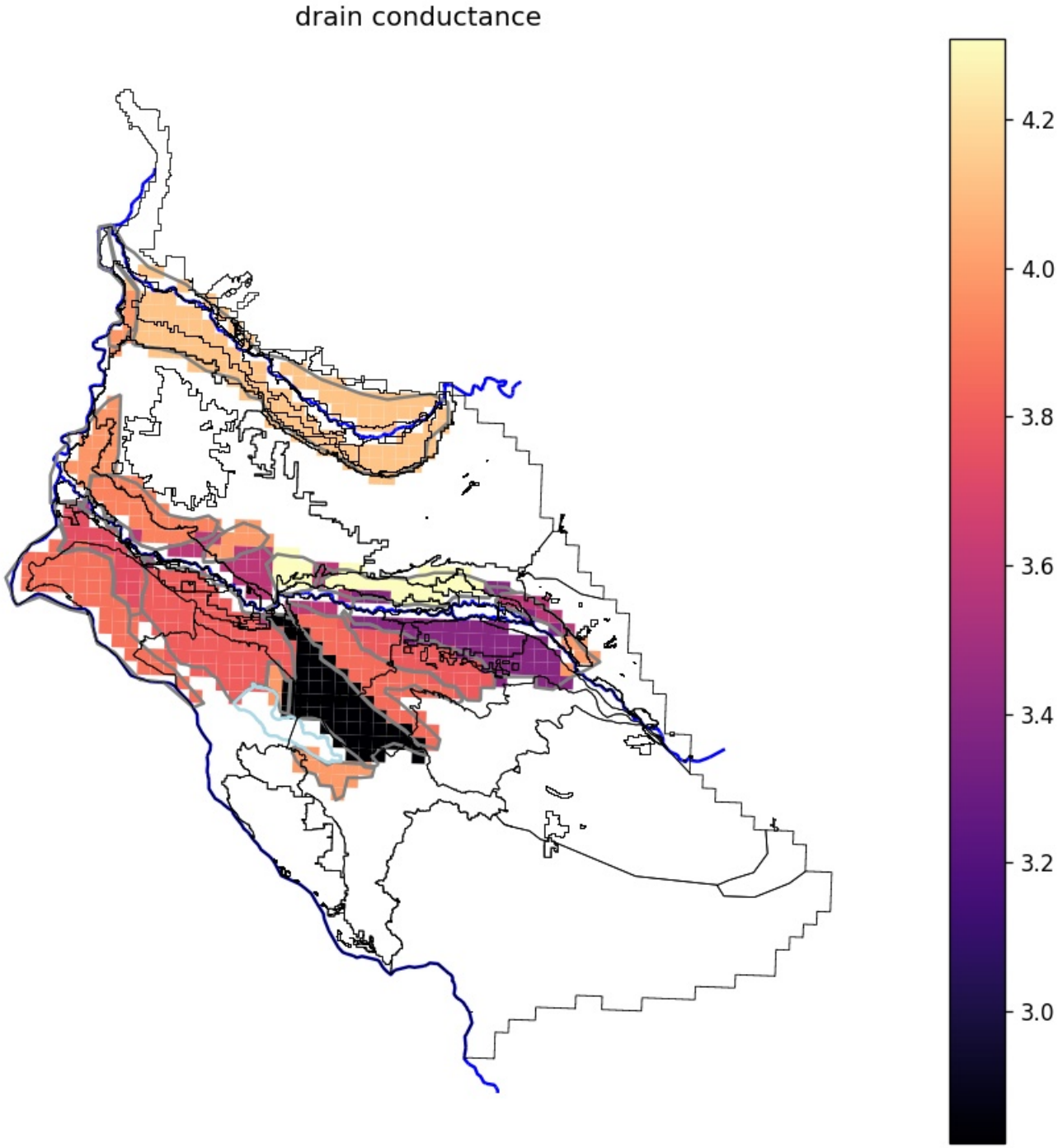

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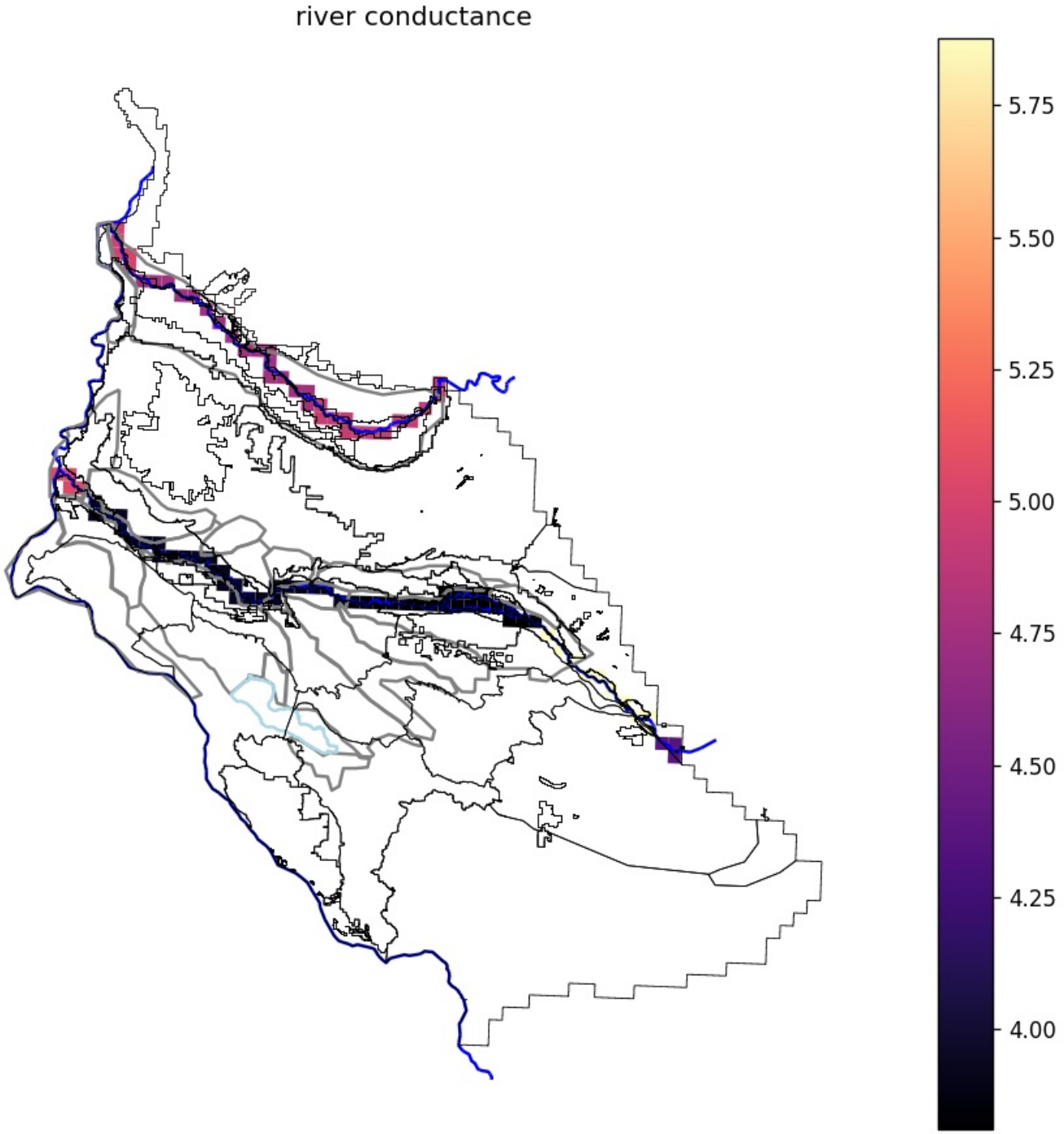

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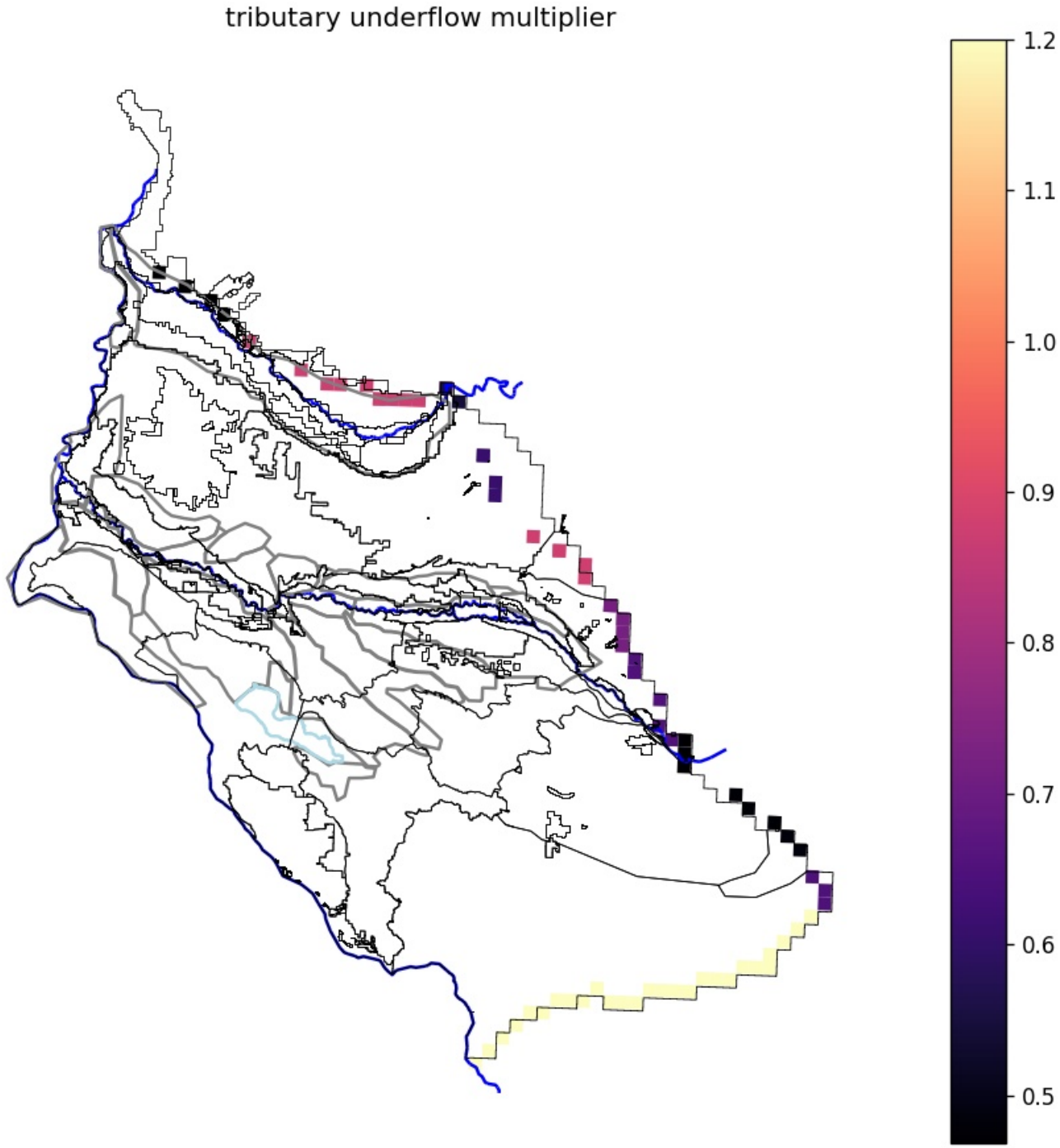

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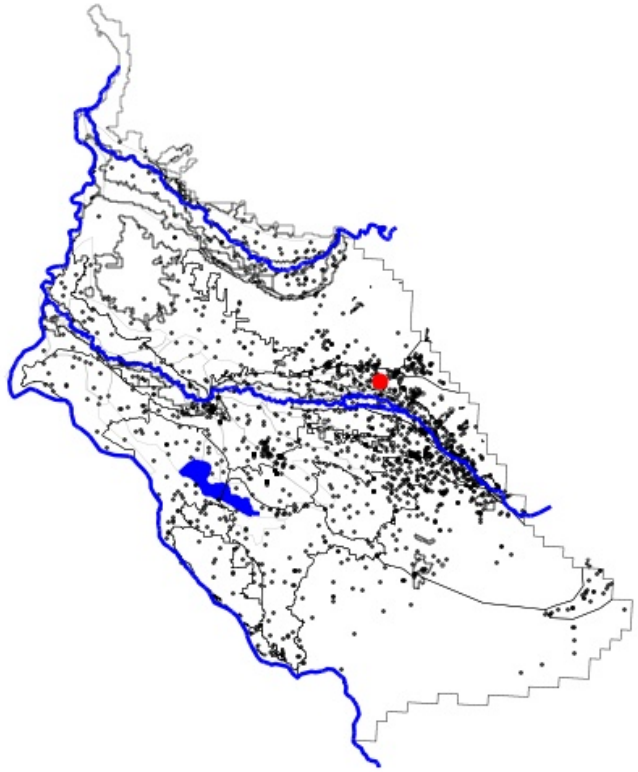
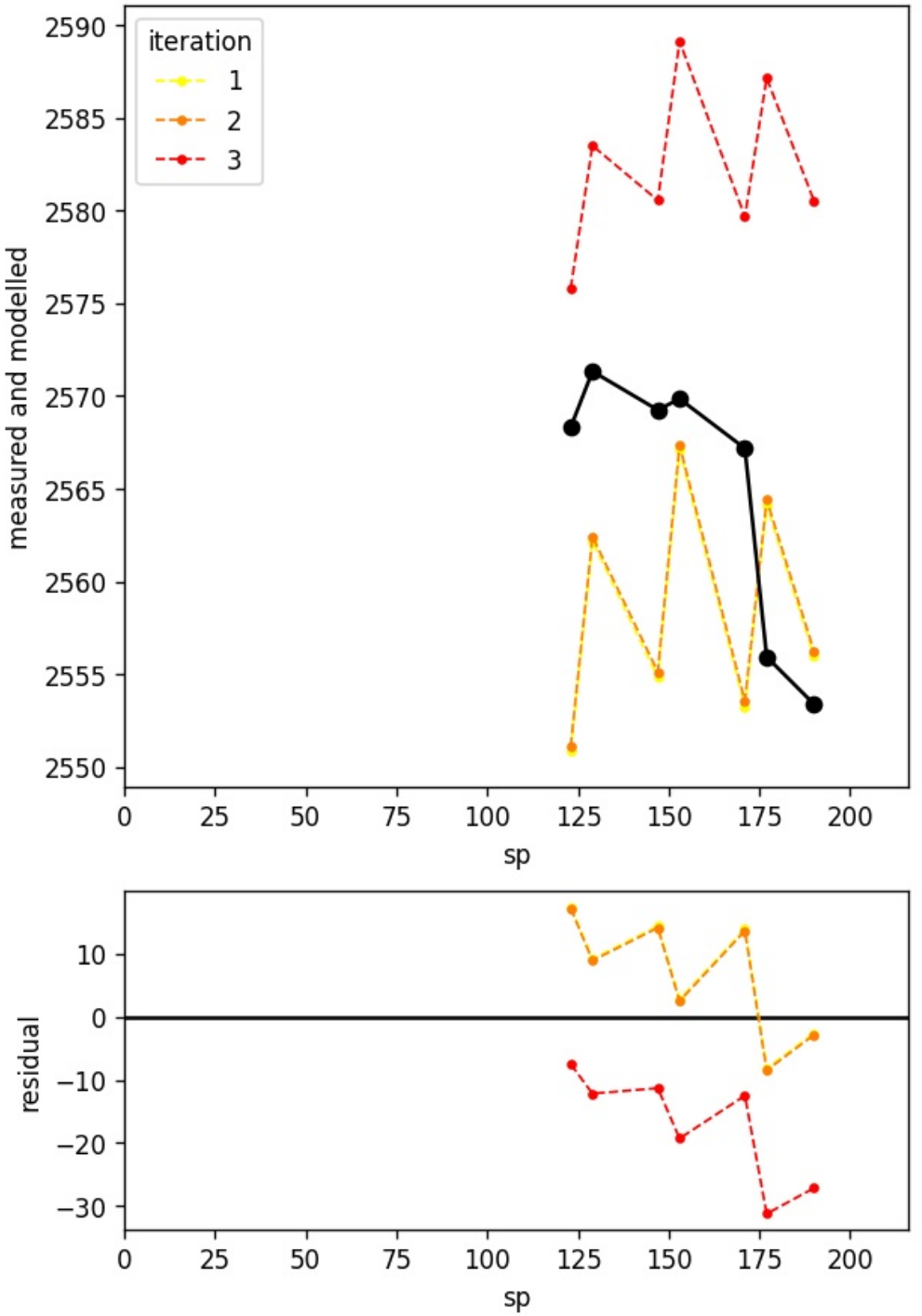
Observation name: idwr_other-lds_church_eagle_stake_well





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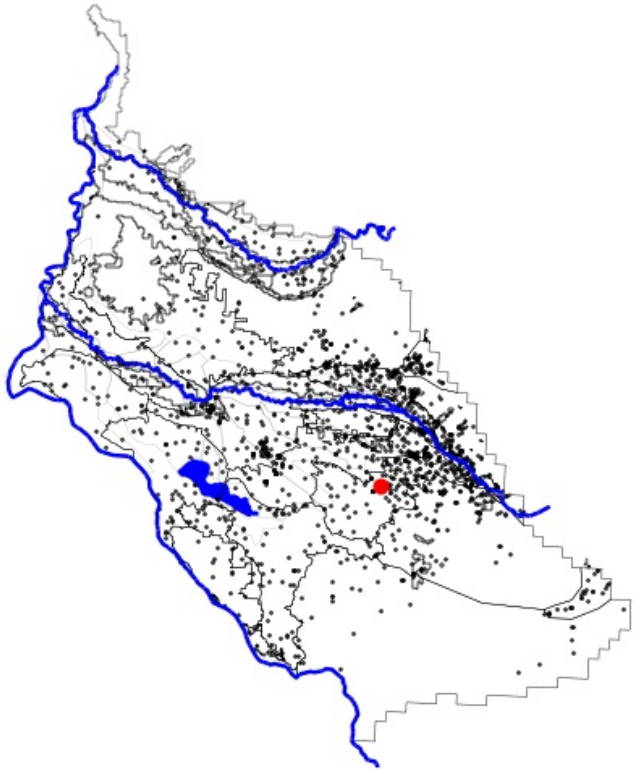
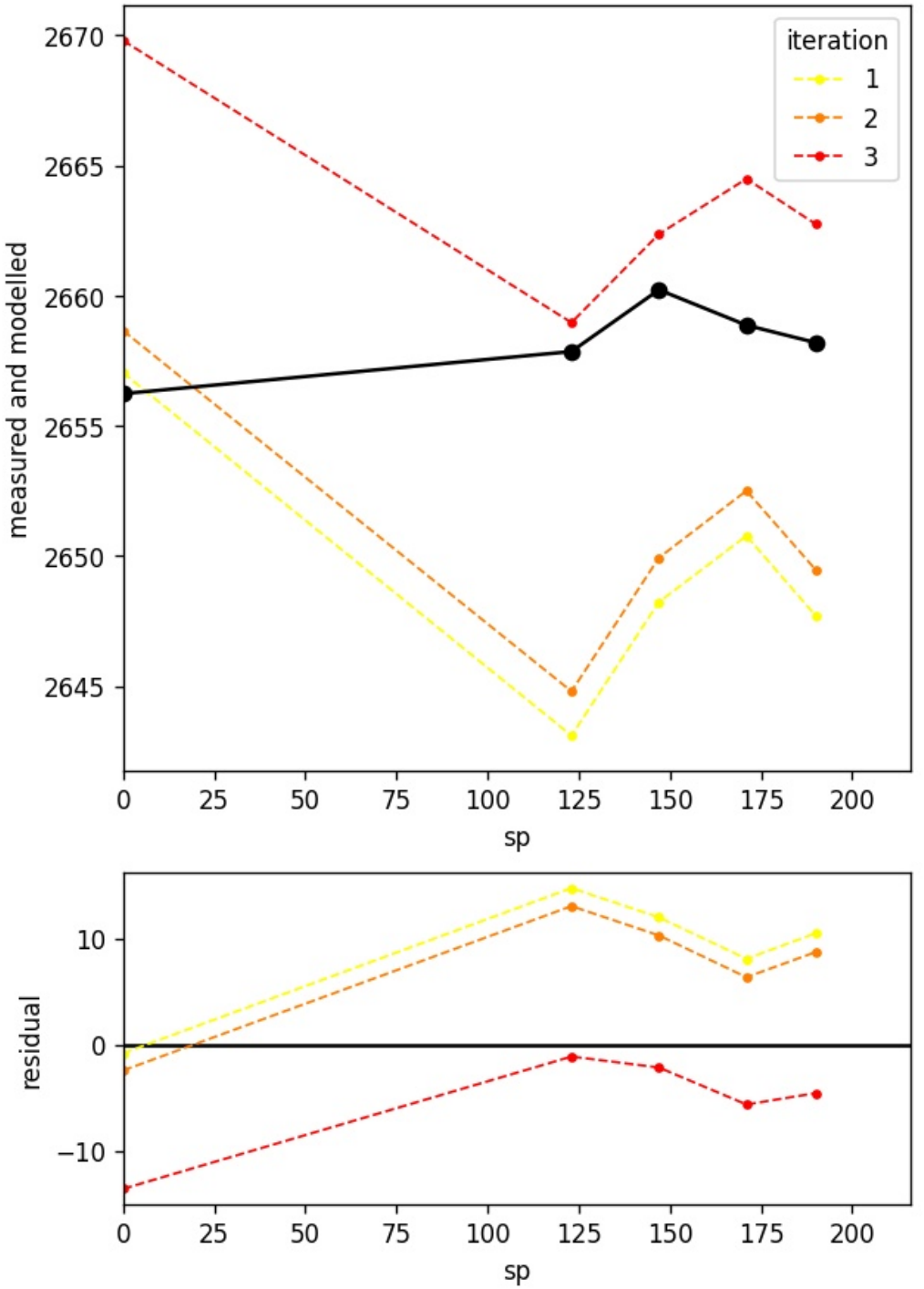
Observation name: idwr-tv_bunch-kirkwood_well





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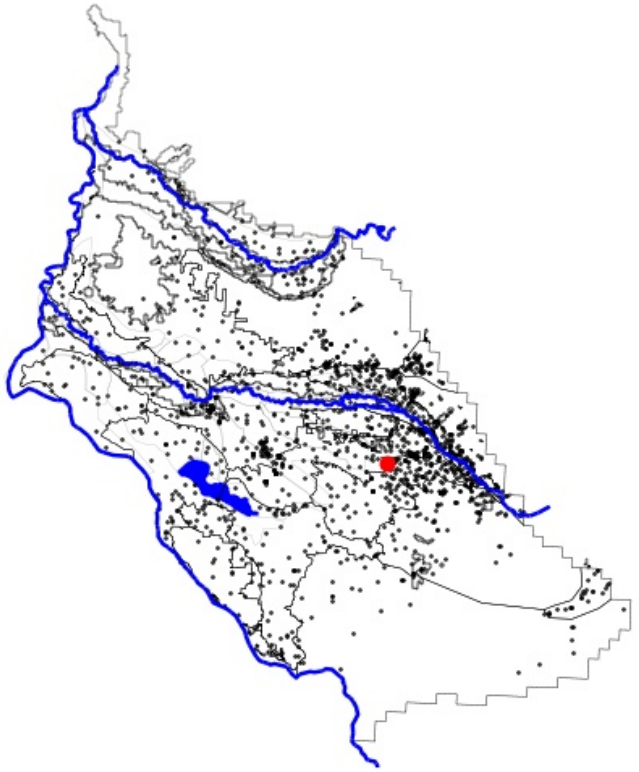
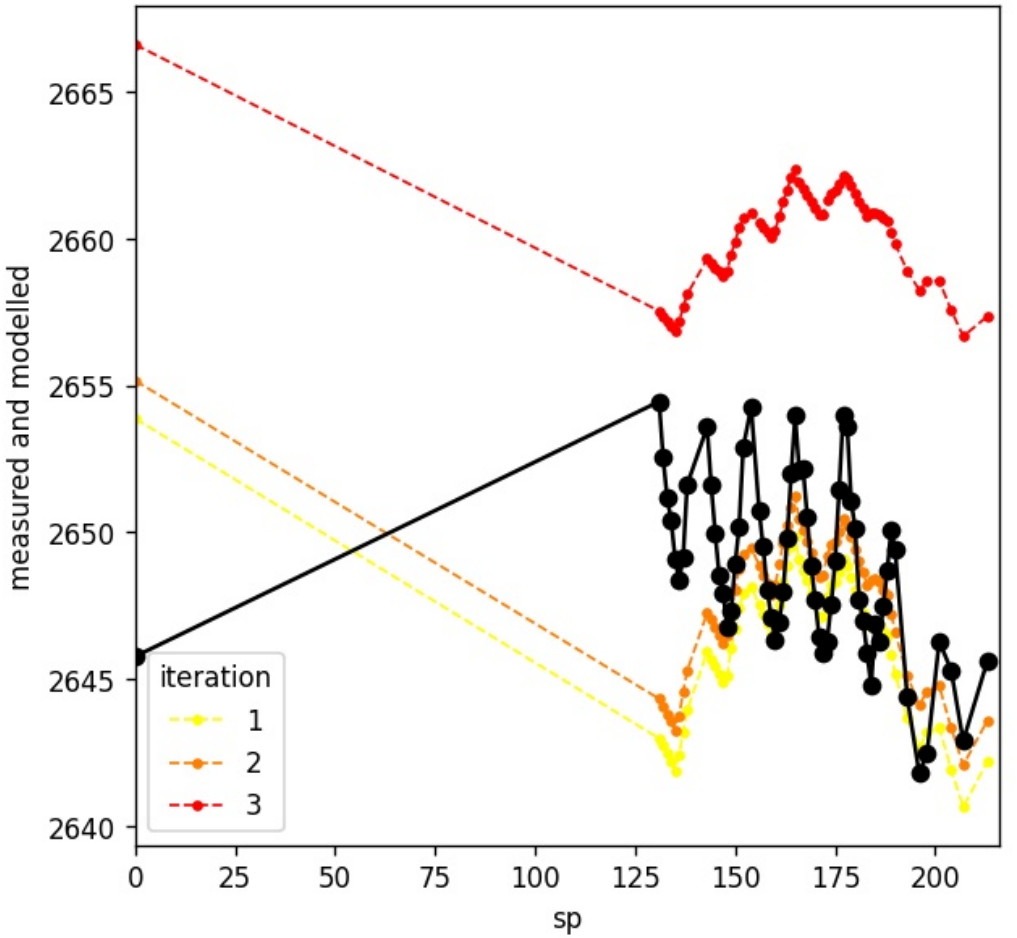
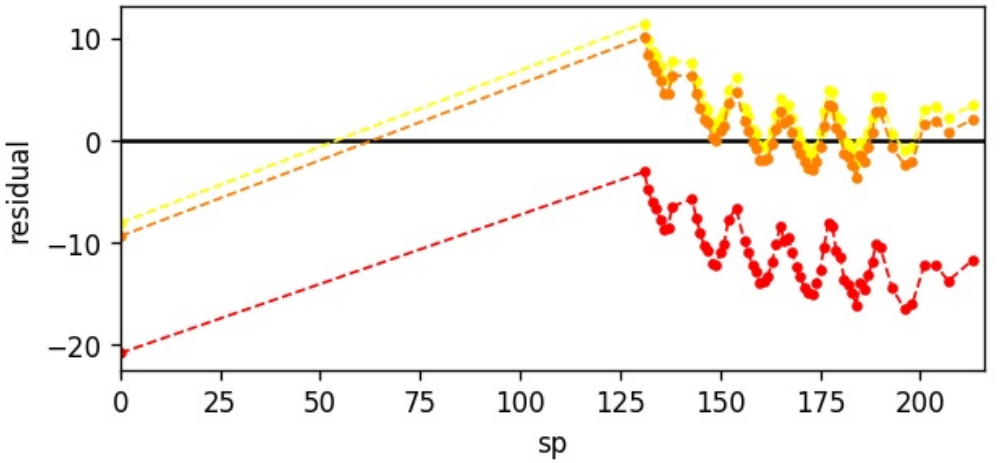
Observation name: idwr-tv_camas_st_well







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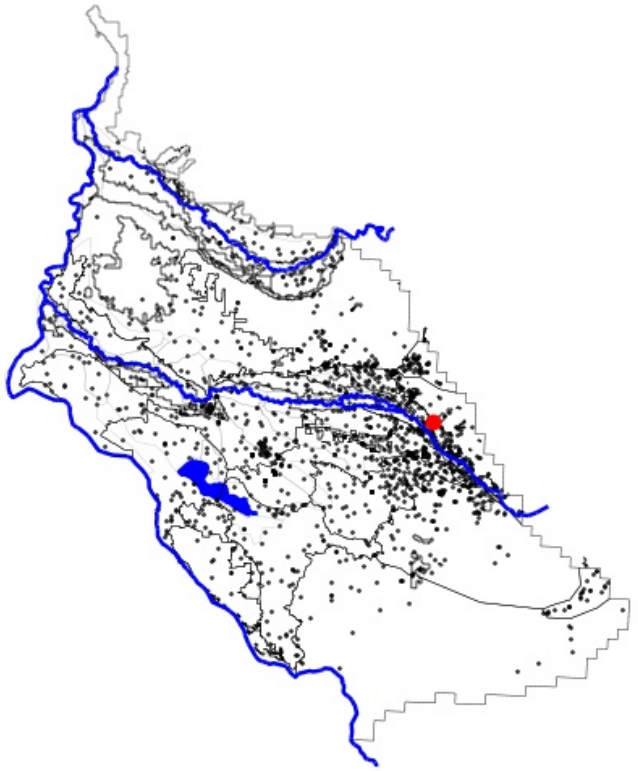
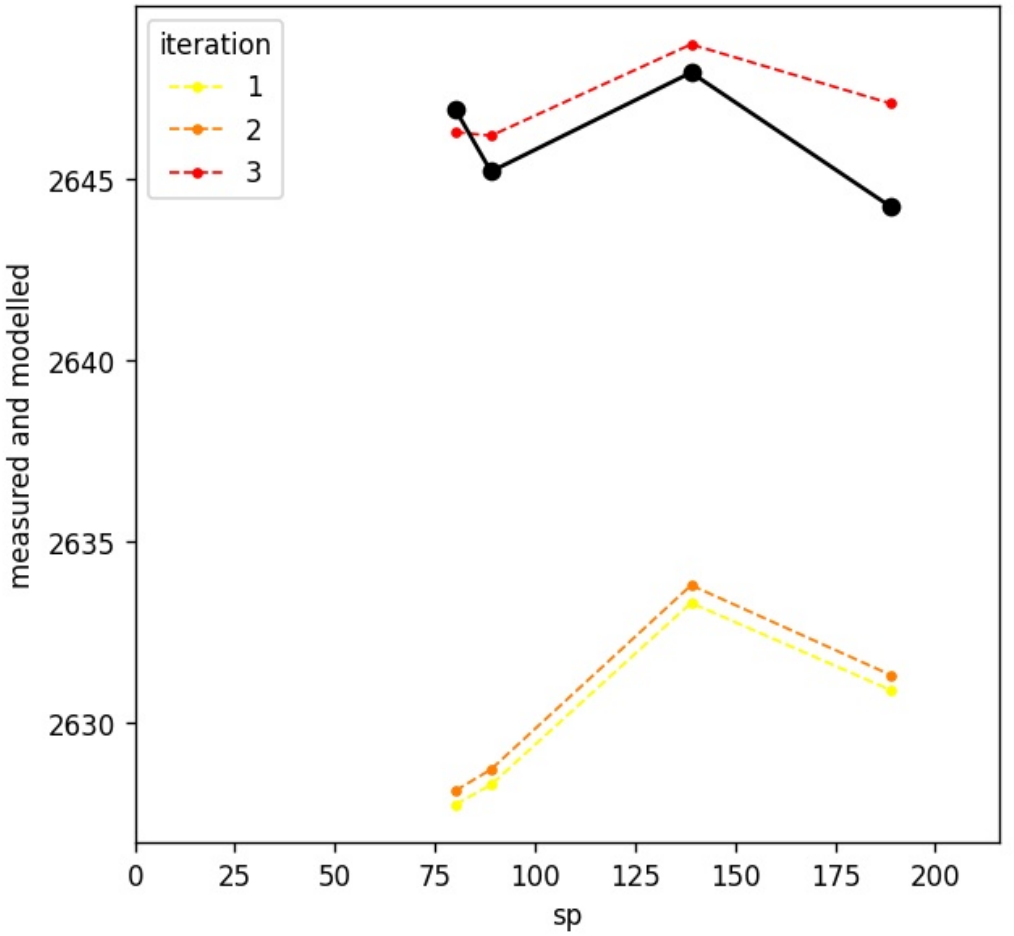
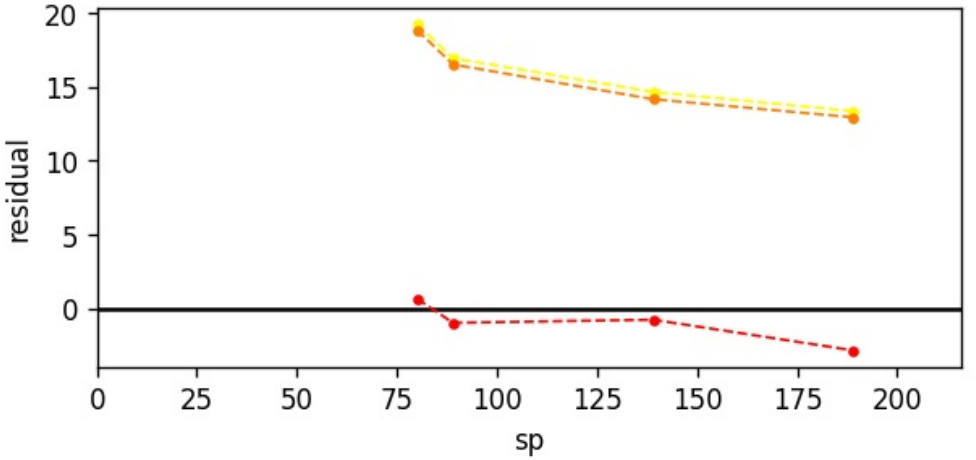
Observation id: ow0051
Observation name: idwr_other-04n_02e_29aca1







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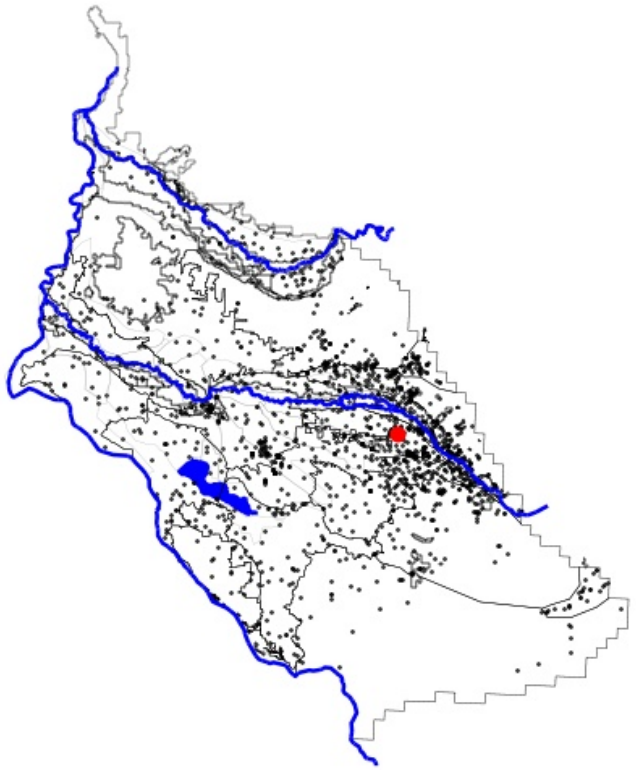
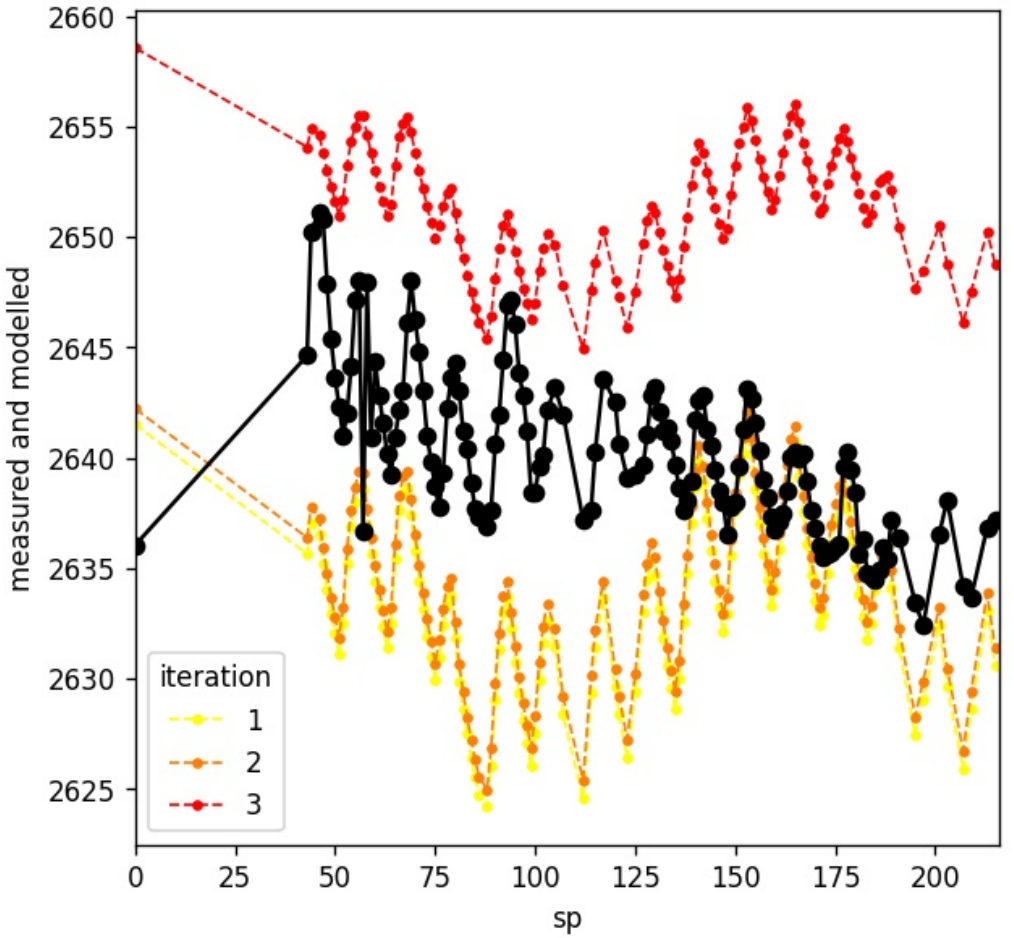
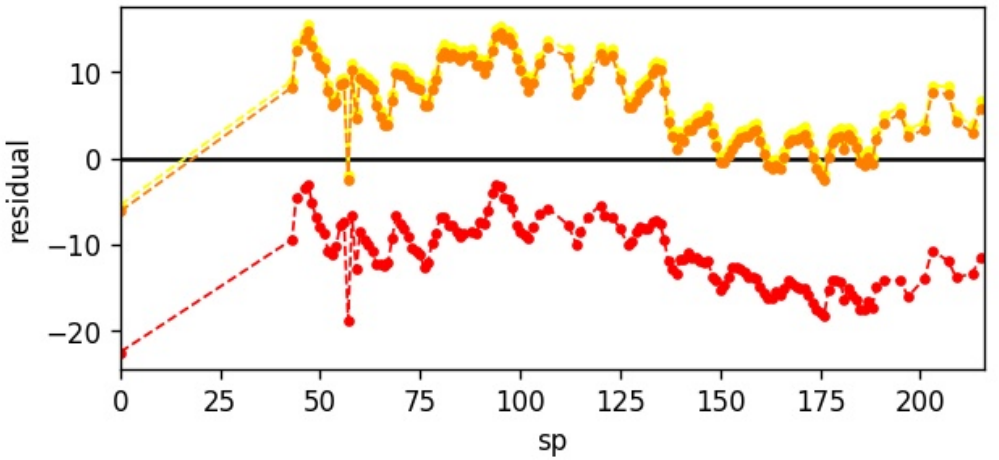
Observation id: ow0064
Observation name: idwr-tv_country_squire_well







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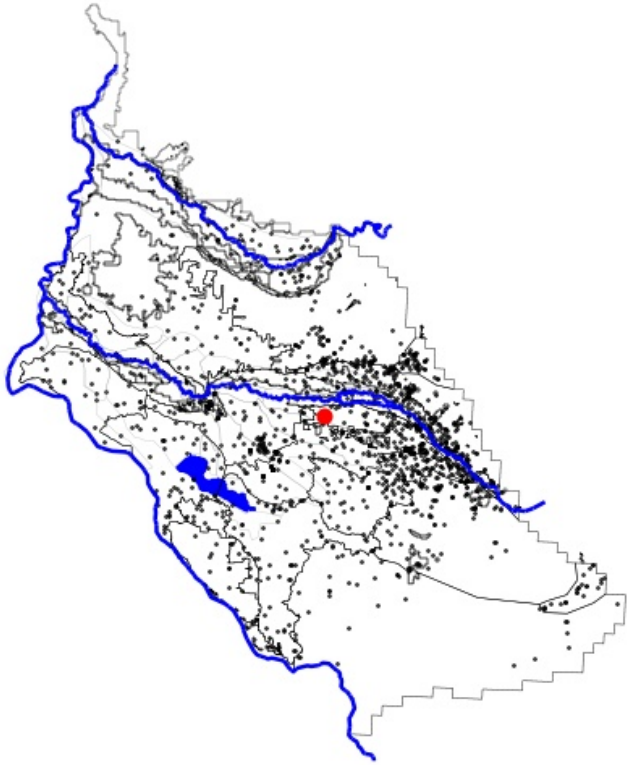
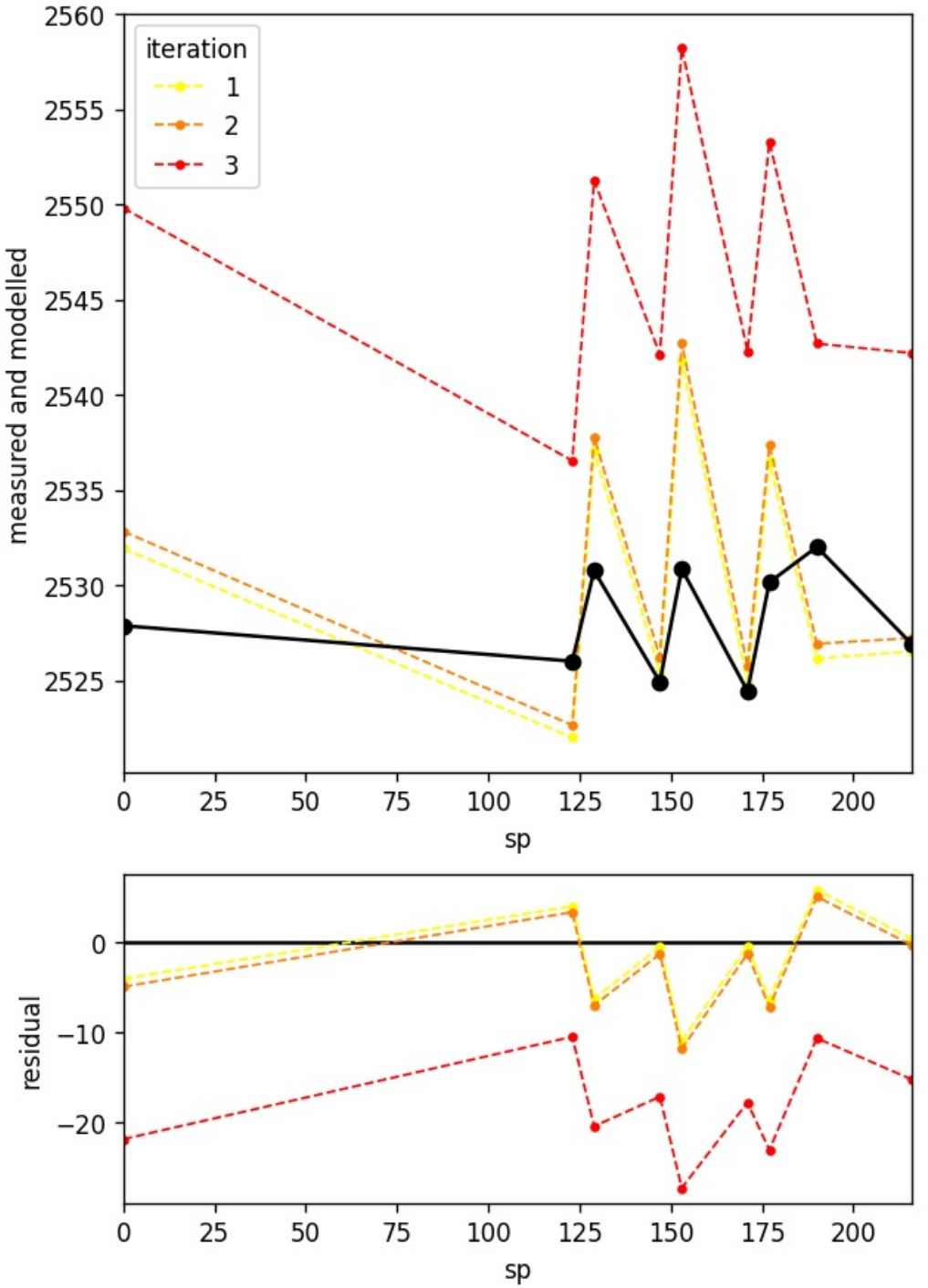
Observation id: ow0143
Observation name: idwr-tv_n_blackcat_well





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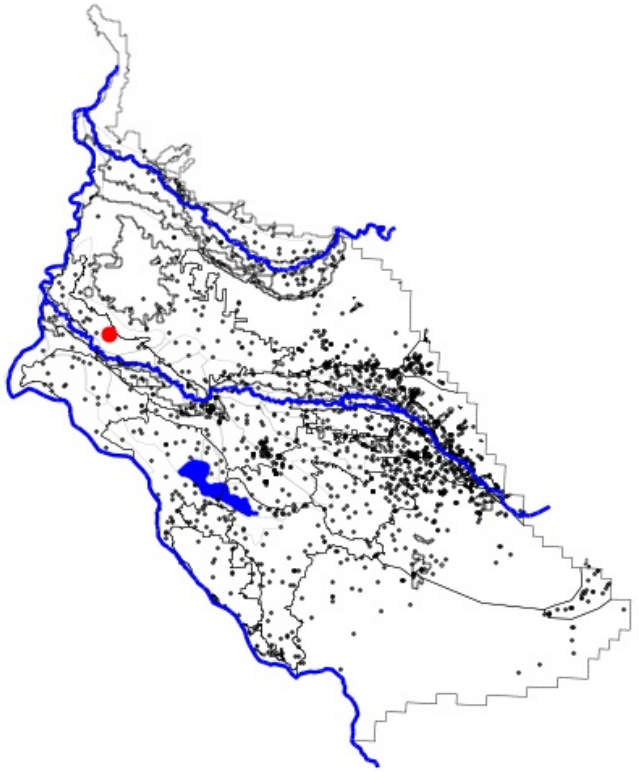
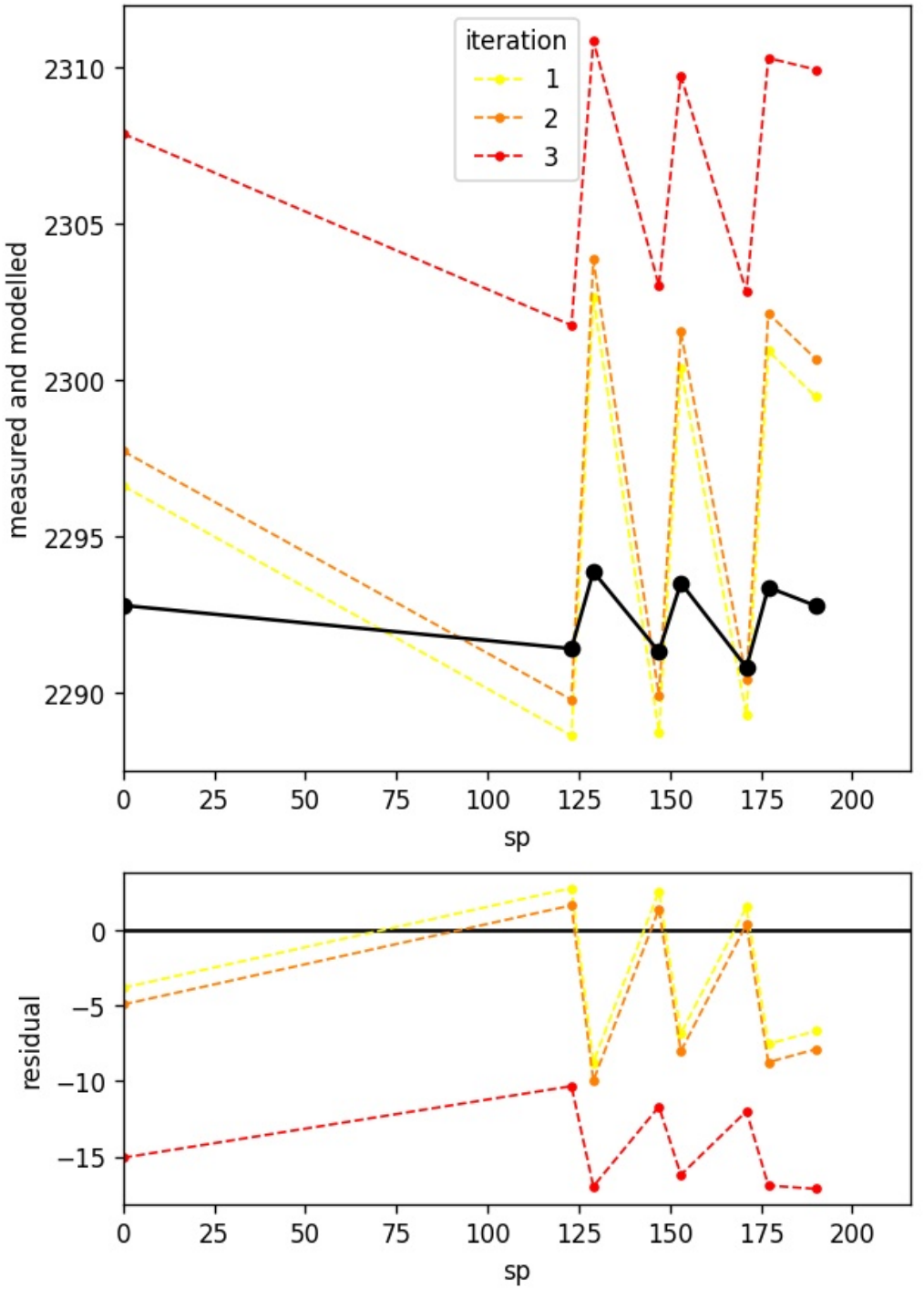
Observation id: ow0166
Observation name: idwr-tv_sabin_rd_well





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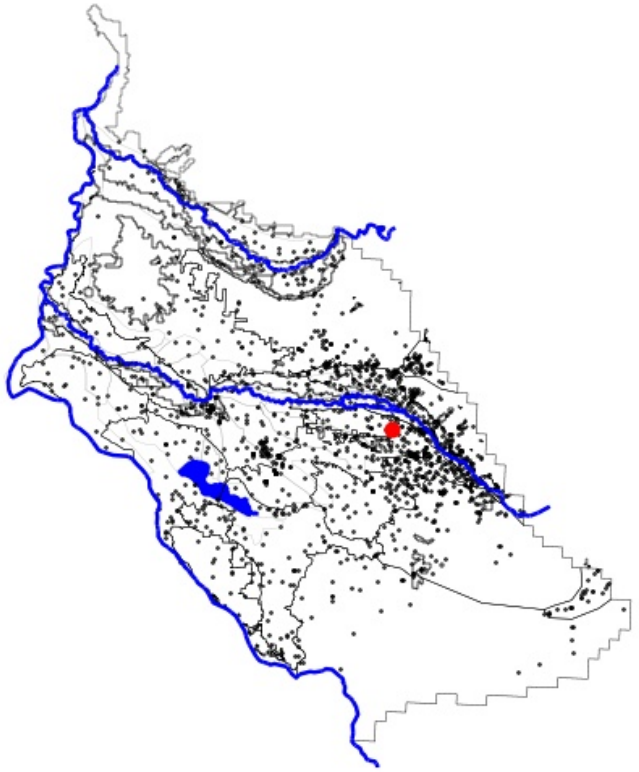
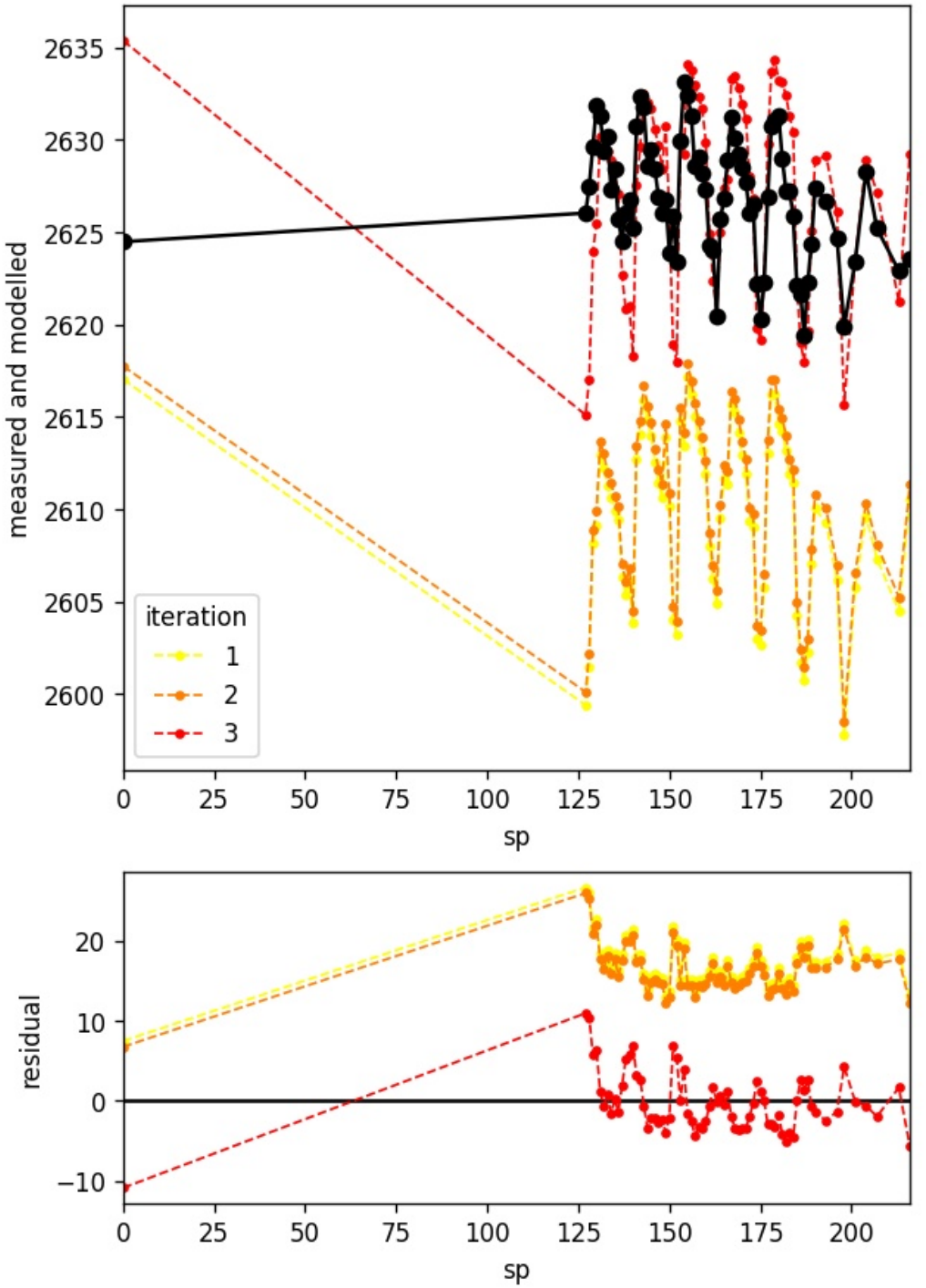
Observation id: ow0169
Observation name: idwr-tv_shamrock_well





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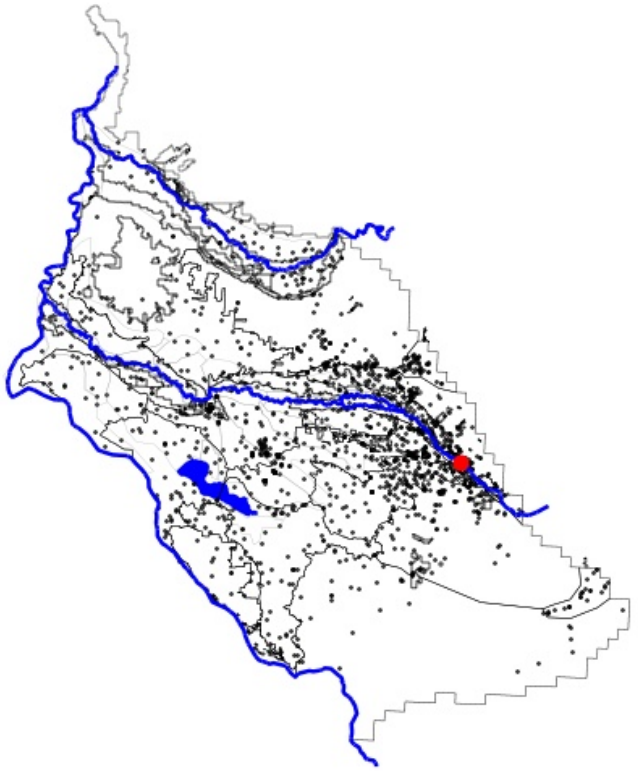
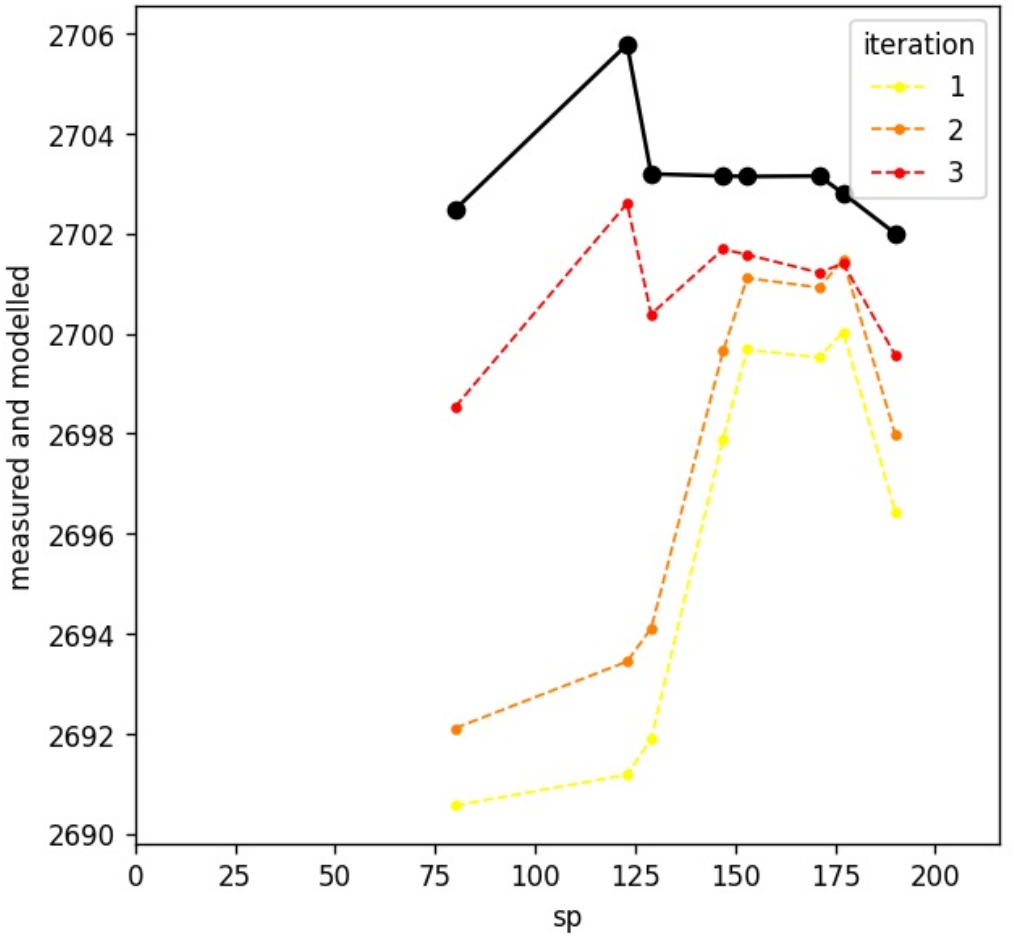
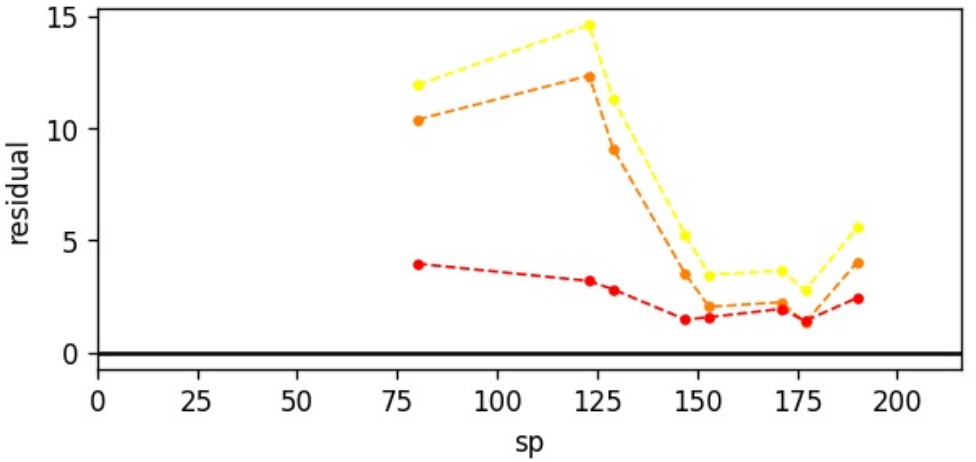
Observation id: ow0224
Observation name: idwr_other-03n_02e_14acb2







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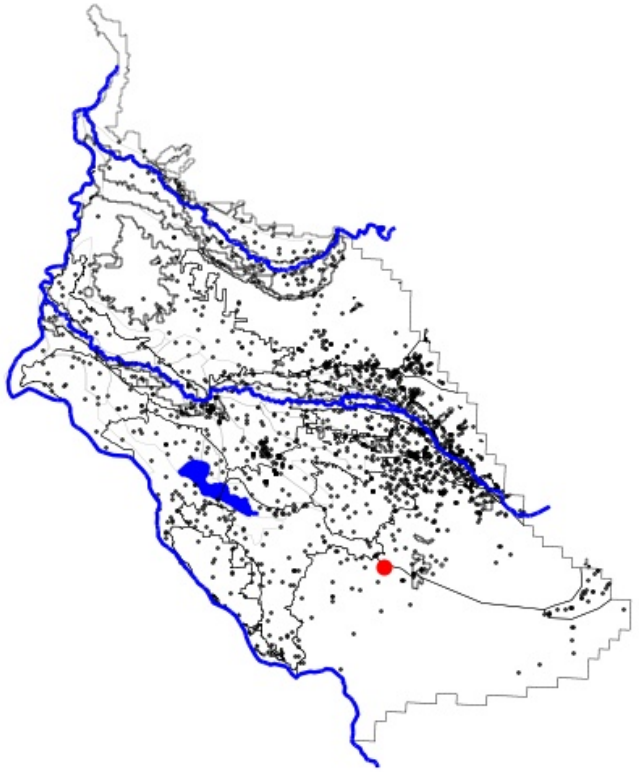
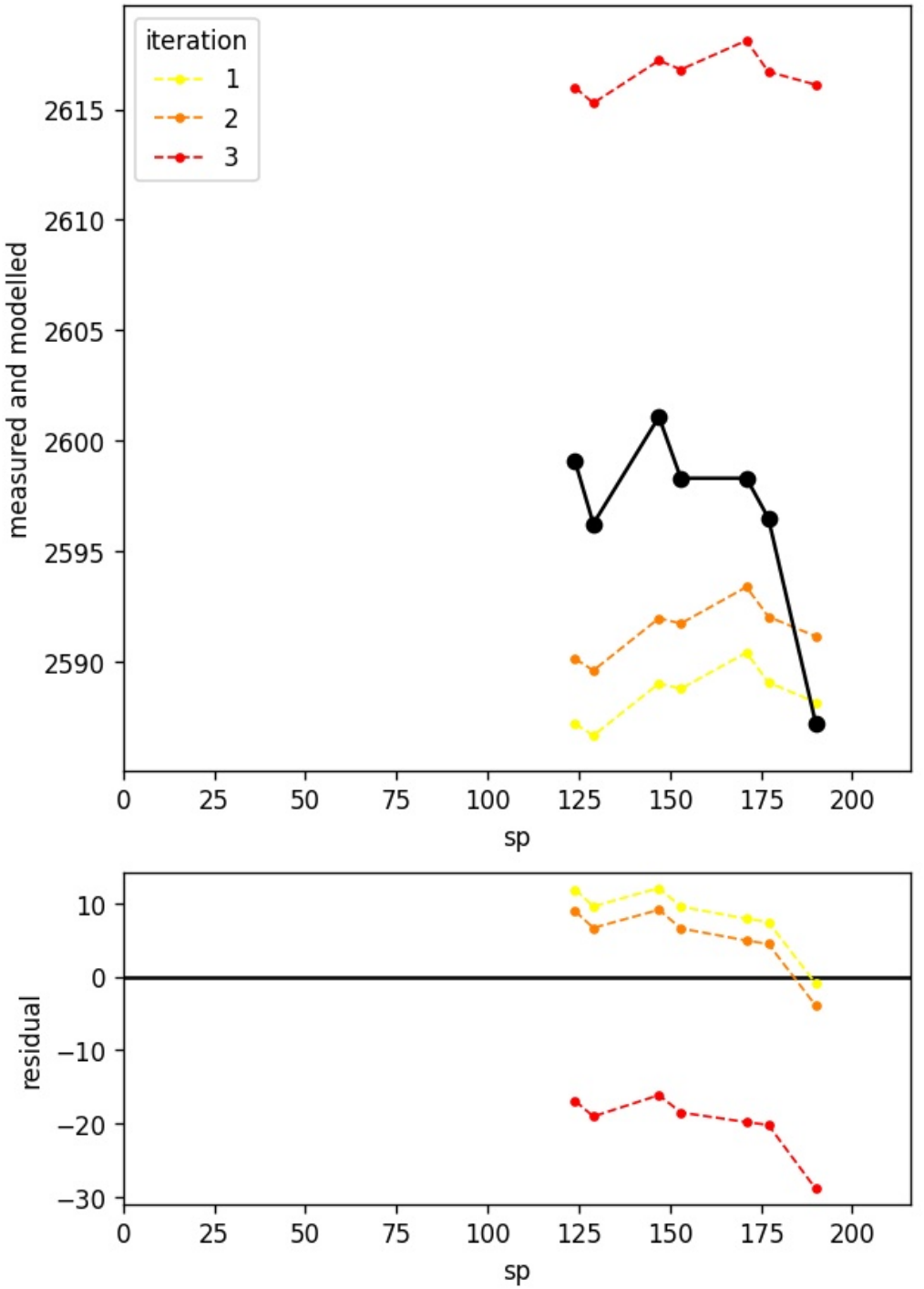
Observation id: ow0226
Observation name: idwr_other-01n_01e_03ccc1





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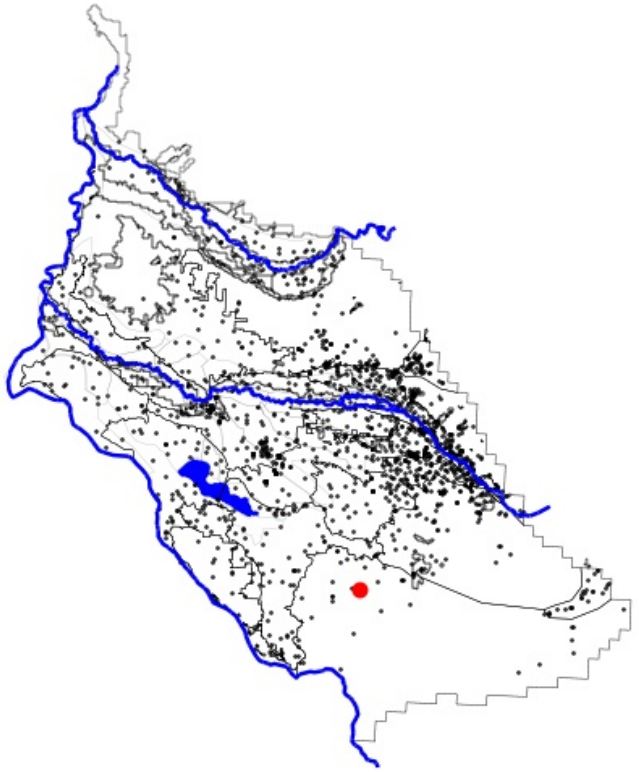
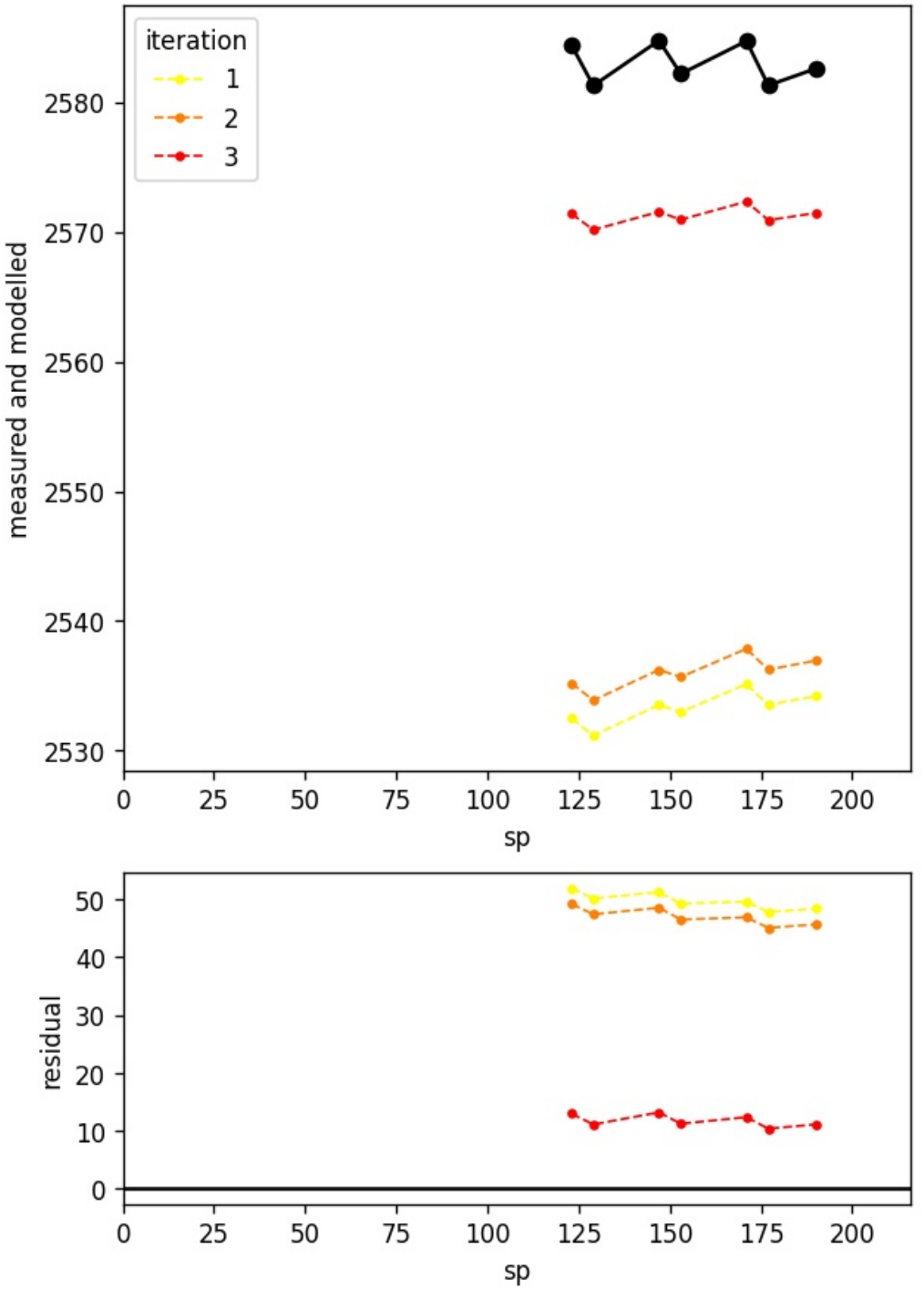
Observation id: ow0227
Observation name: idwr_other-01n_01e_19adb1





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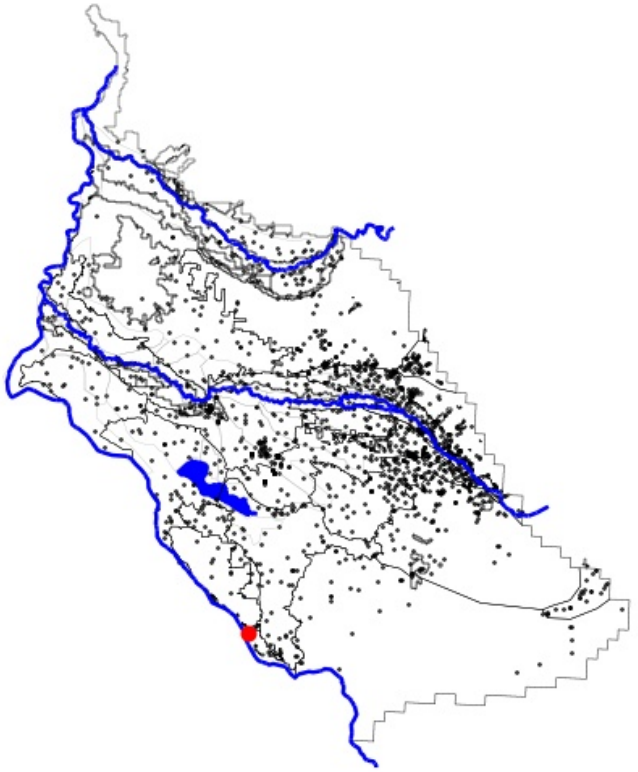
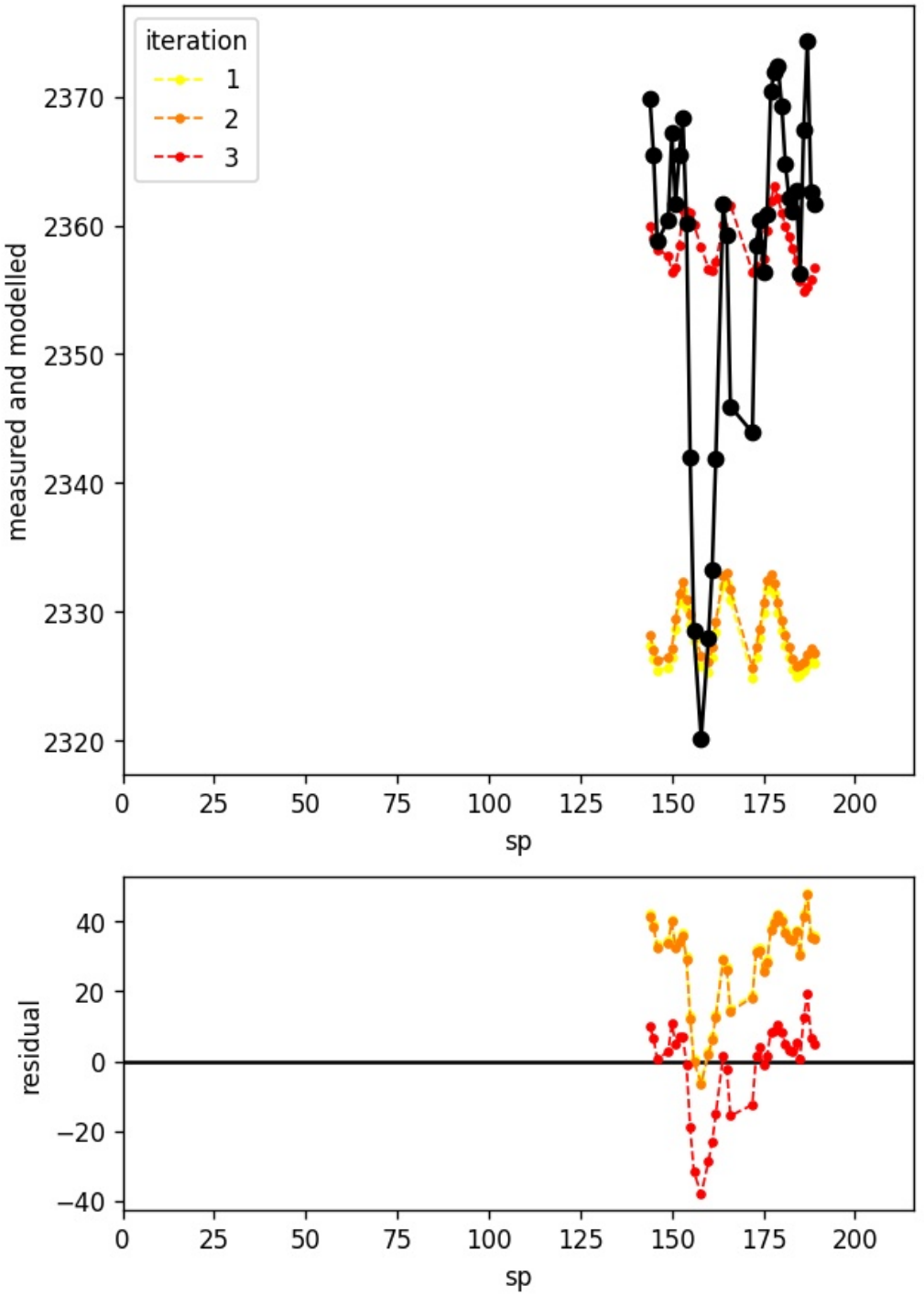
Observation id: ow0280
Observation name: idwr_other-01s_01w_30bab1





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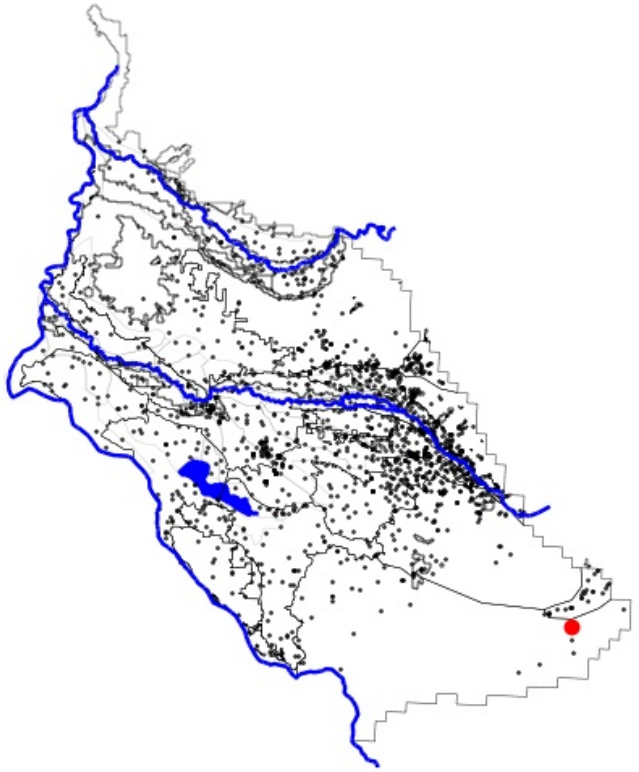
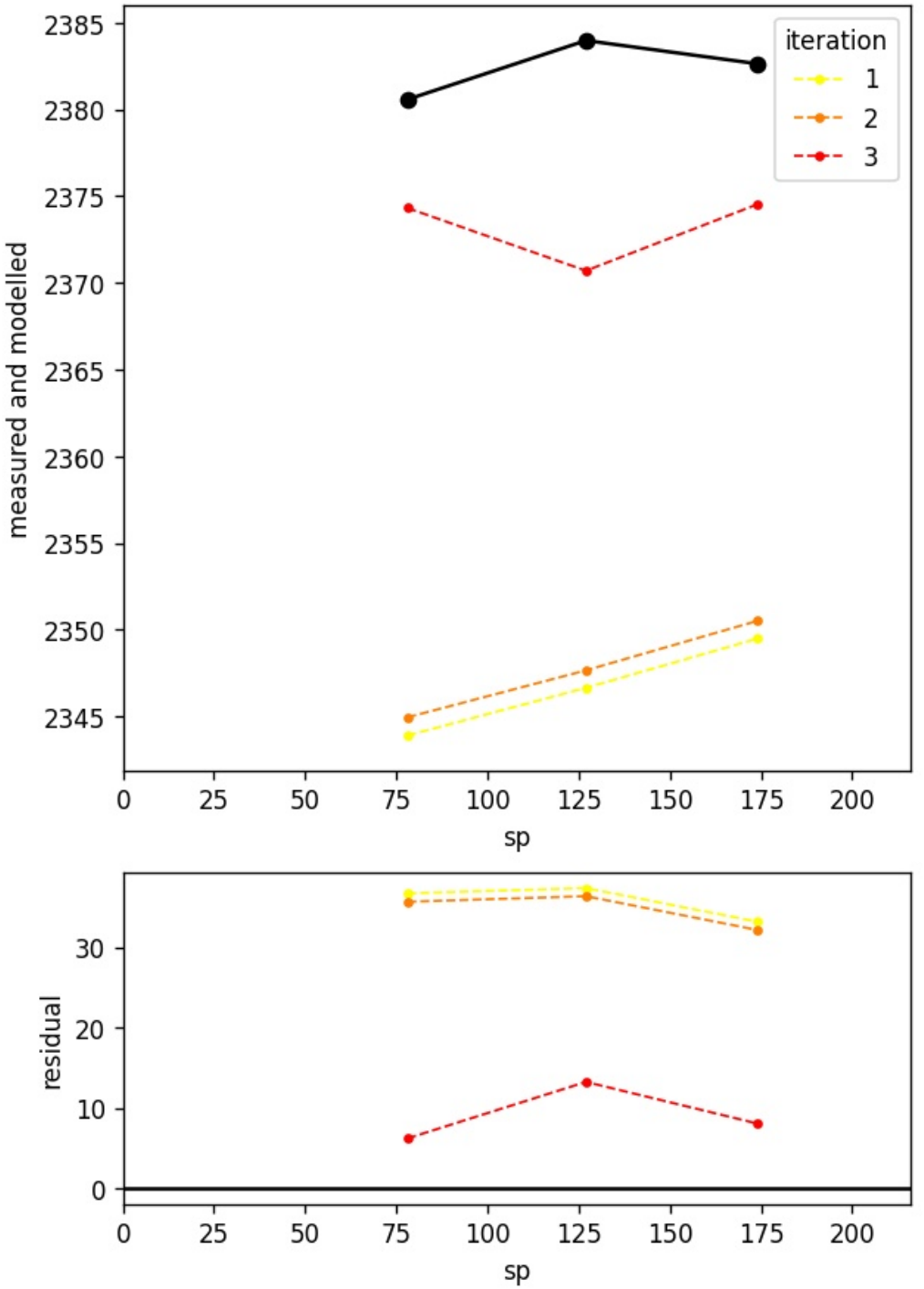
Observation id: ow0283
Observation name: idwr_other-01s_02w_14adad1





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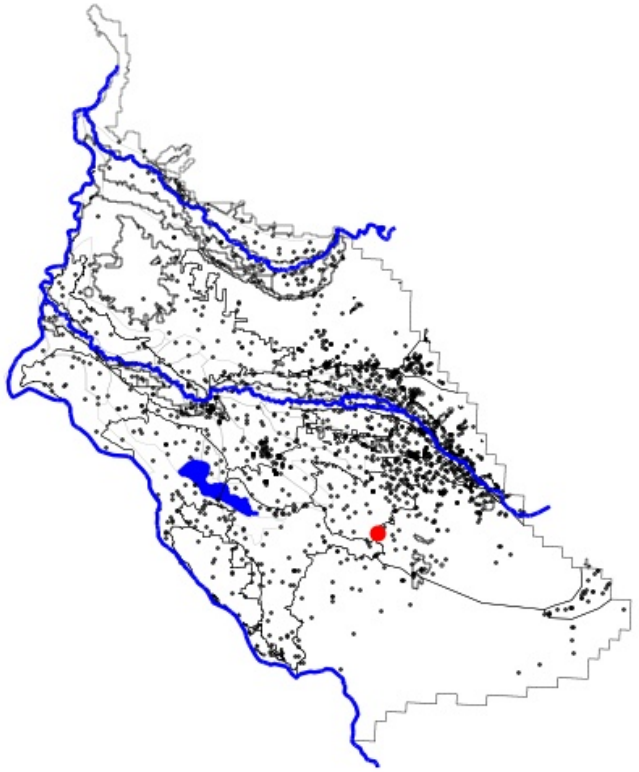
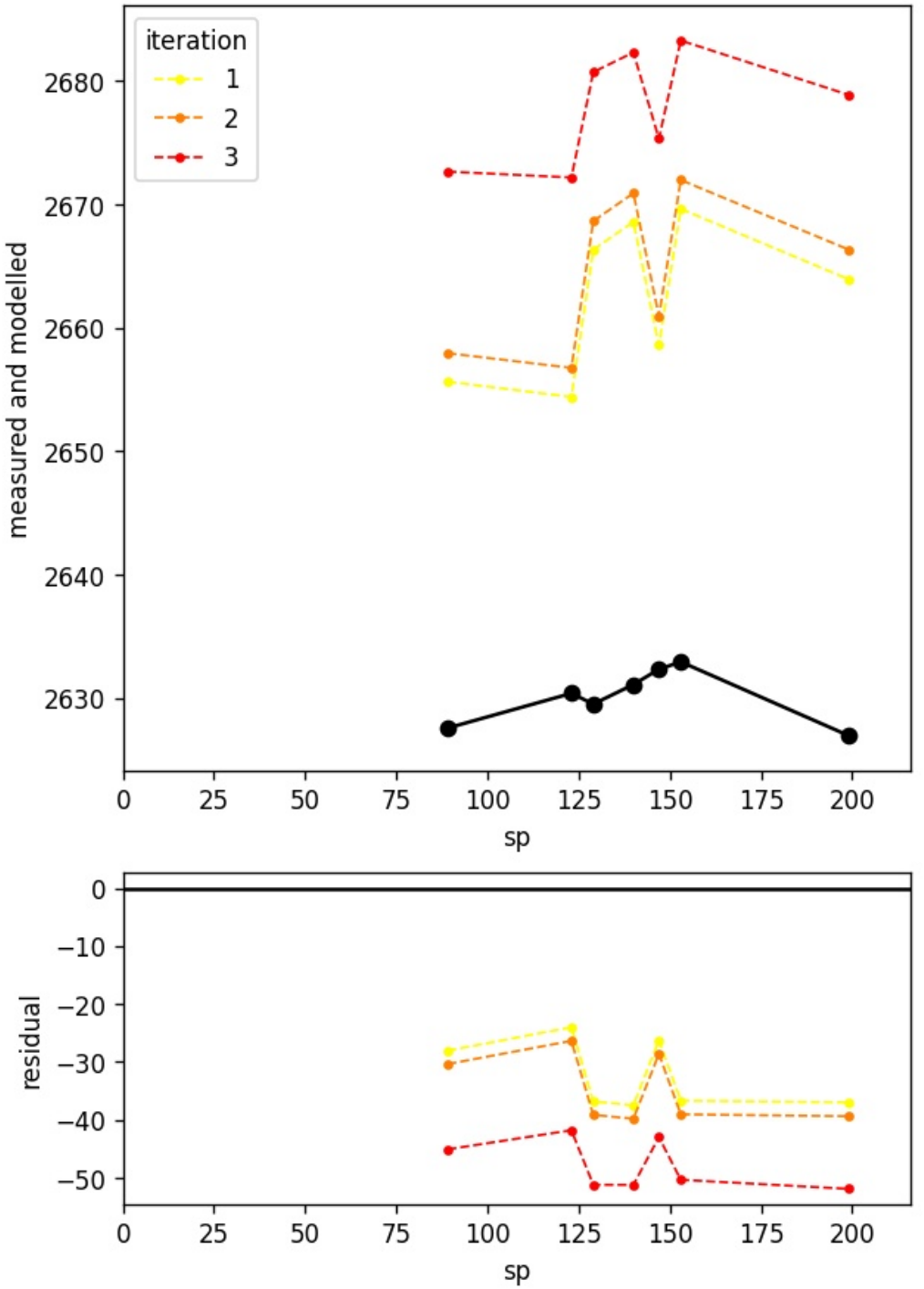
Observation id: ow0299
Observation name: idwr_other-02n_01e_15aba1





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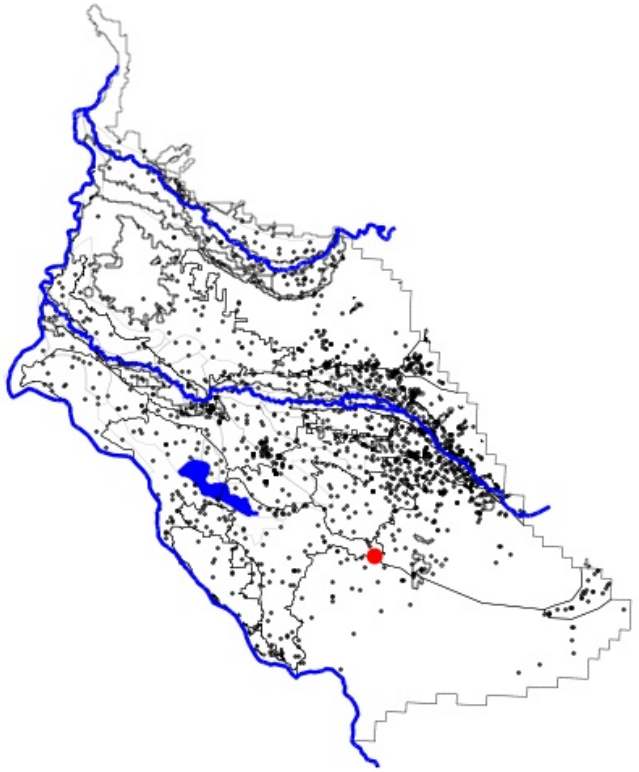
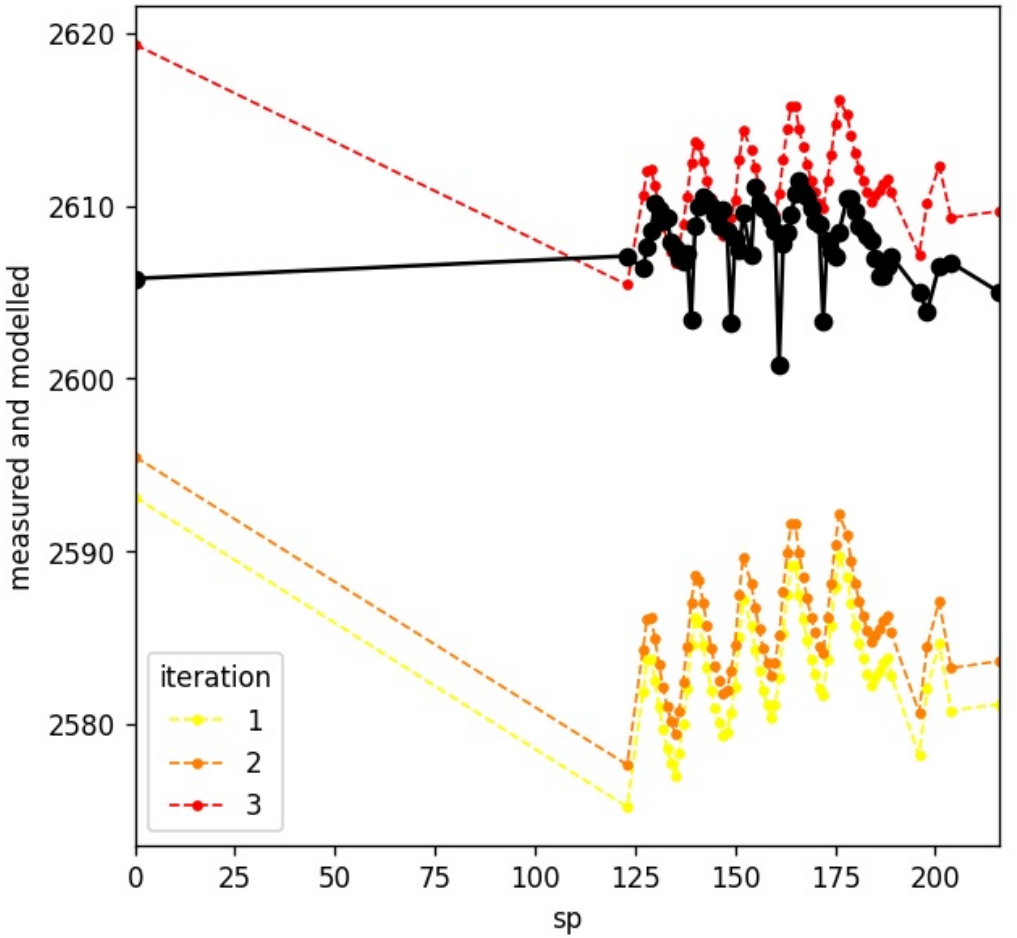
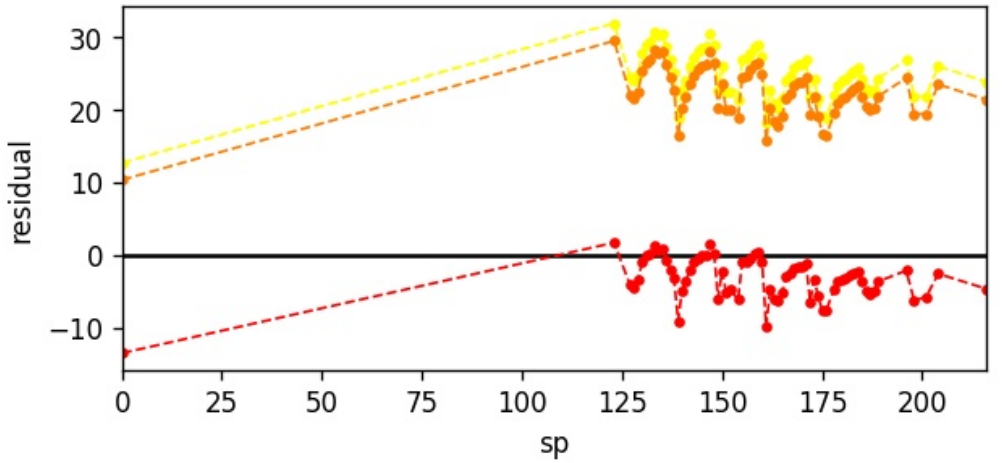
Observation id: ow0302
Observation name: idwr_other-02n_01e_31ddc1







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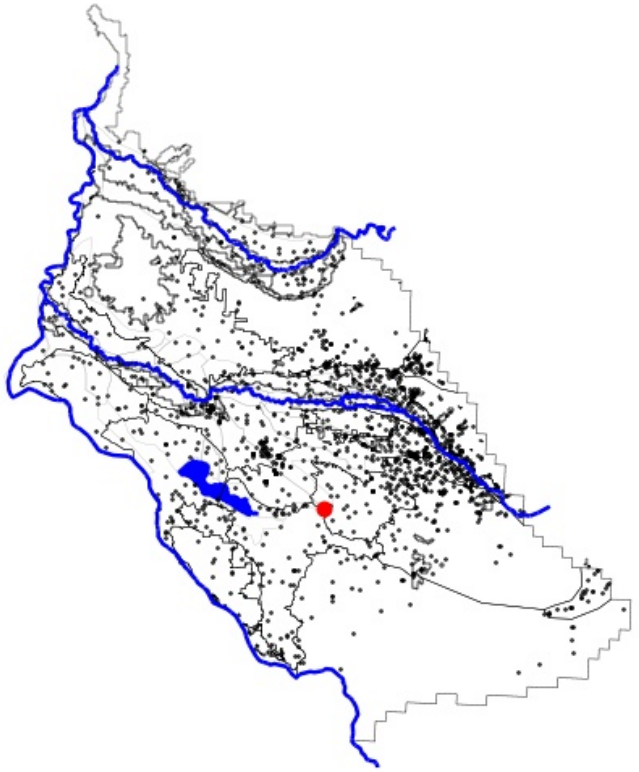
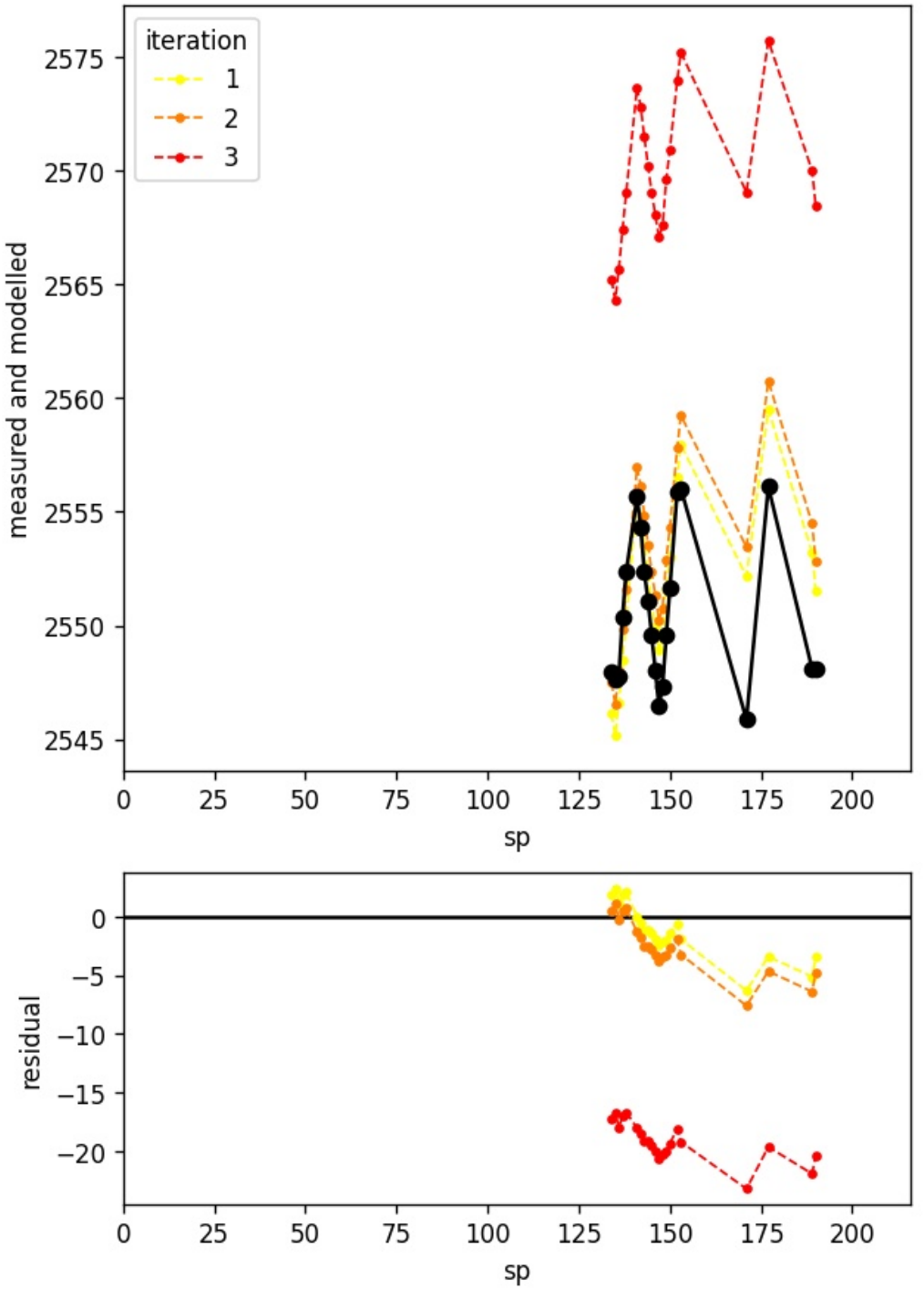
Observation id: ow0311
Observation name: idwr_other-02n_01w_08bbba1





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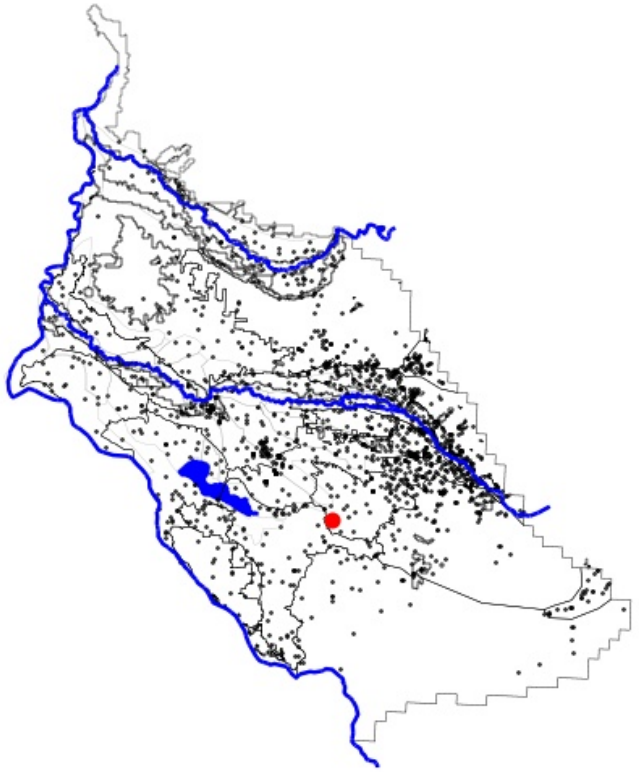
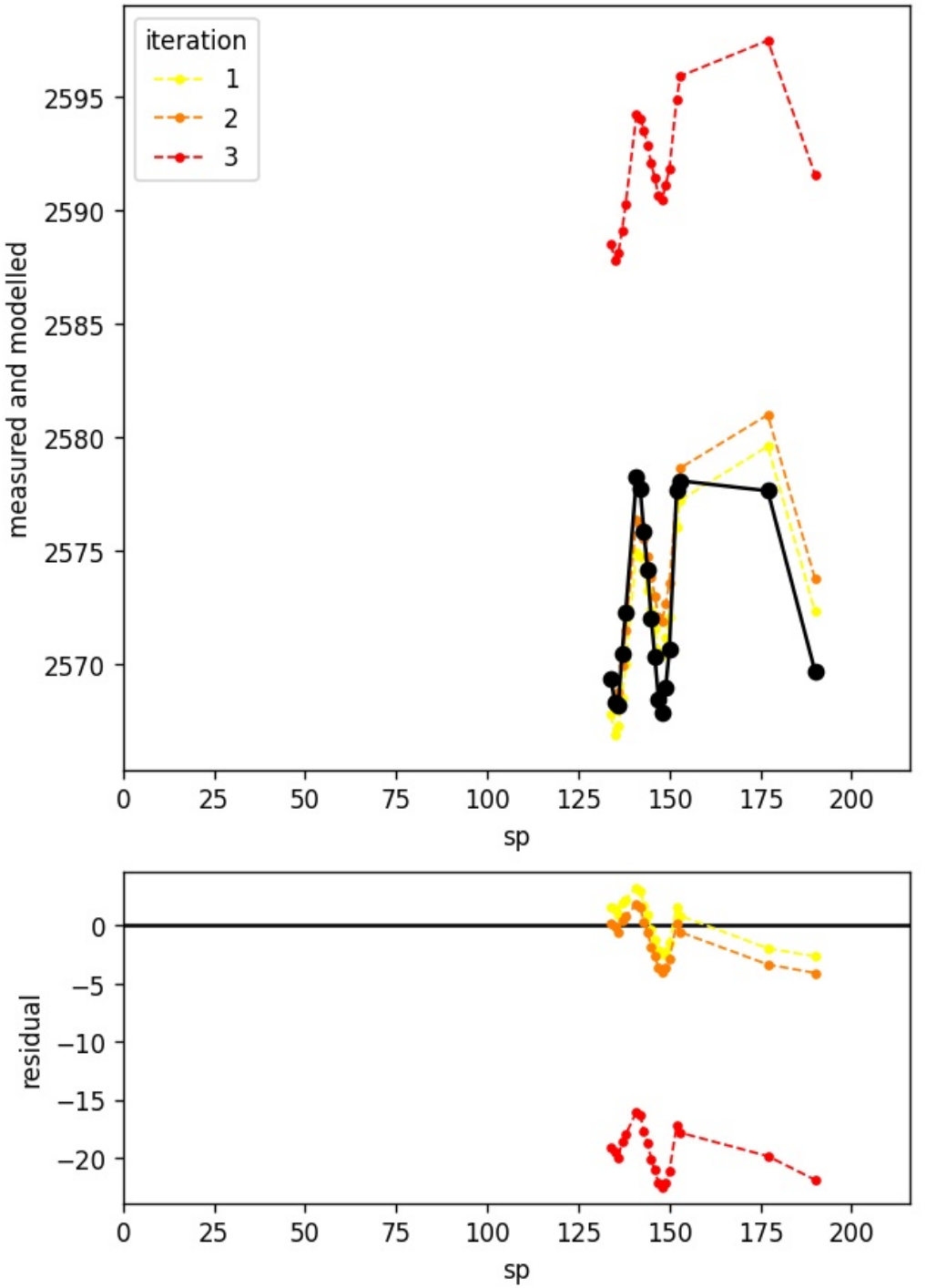
Observation id: ow0313
Observation name: idwr_other-02n_01w_09ada2





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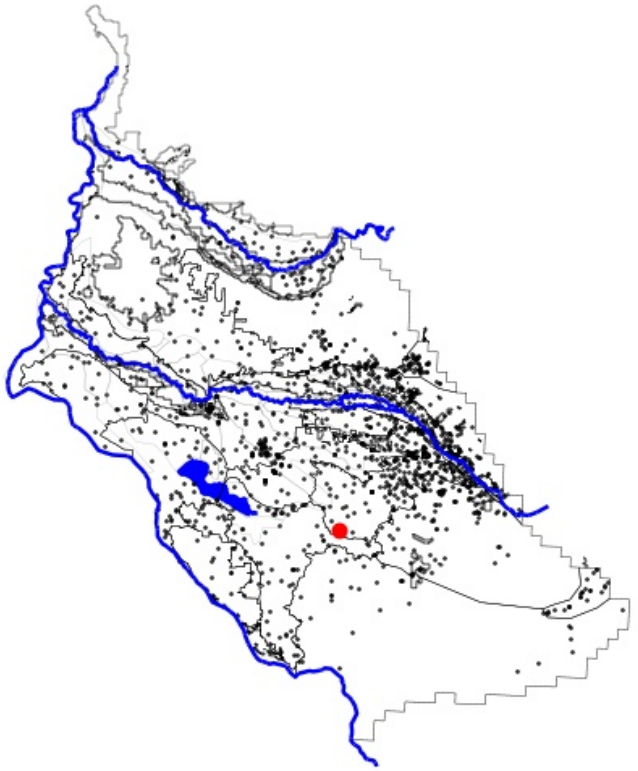
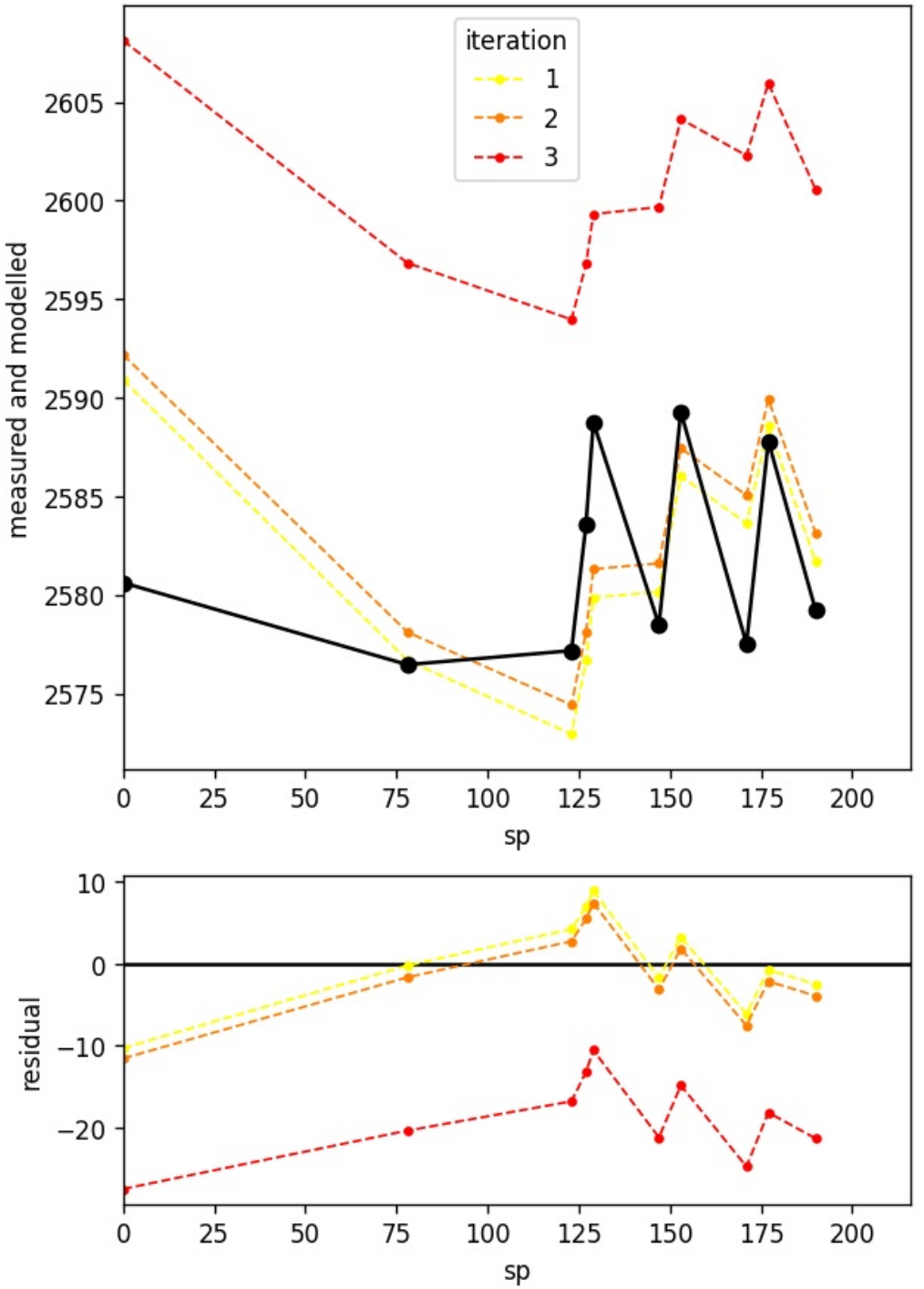
Observation id: ow0314
Observation name: idwr_other-02n_01w_10abb1





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Discussion

My Questions for You

How Close (or Far) are We?

- How far are we from a model that meets (or can be adapted to meet) the objectives of this project
- Are there areas that need to be improved?
- Are there types of observation targets that need to be improved?
- Are there specific observation locations that need to be improved?
- Do parameter distributions need to change?
- Is this malleable for further purposes?

What do you want to see in emailed updates over next few months?

- Plot types
- Tables
- Specific results (such as your favorite well)
- Frequency

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Thanks for listening!

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