

High precision yield maps

Weekly progress

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June 6th, 2019

In the previous episode...

Checks, fixes & improvements

- ▶ ✓ Check that there is an overall consistency between the observed mass pre and post processing.
- ▶ ✓ So many low mass observations after applying the processing rules...
- ▶ ✓ Large discrepancy at global scale between observed and smoothed mass. Where does it go wrong exactly?
- ▶ [Not started] Improve approximation when creating the vehicle rectangles.
- ▶ ✓ Legends still missing in plots.

Actions

- ▶ ✓ Access to Condo.
- ▶ [Not started] Can Condo do custom libraries? (libgeo, libxml, etc).

No in previous to-do list

- ▶ ✓ Caught a bug in the plot title (number of pixels).
- ▶ ✓ Surprise feature in next slides

Satellite



Boundaries

Basswood 2012



Data as recorded (no moisture adjustment)



Data as recorded (no moisture adjustment)



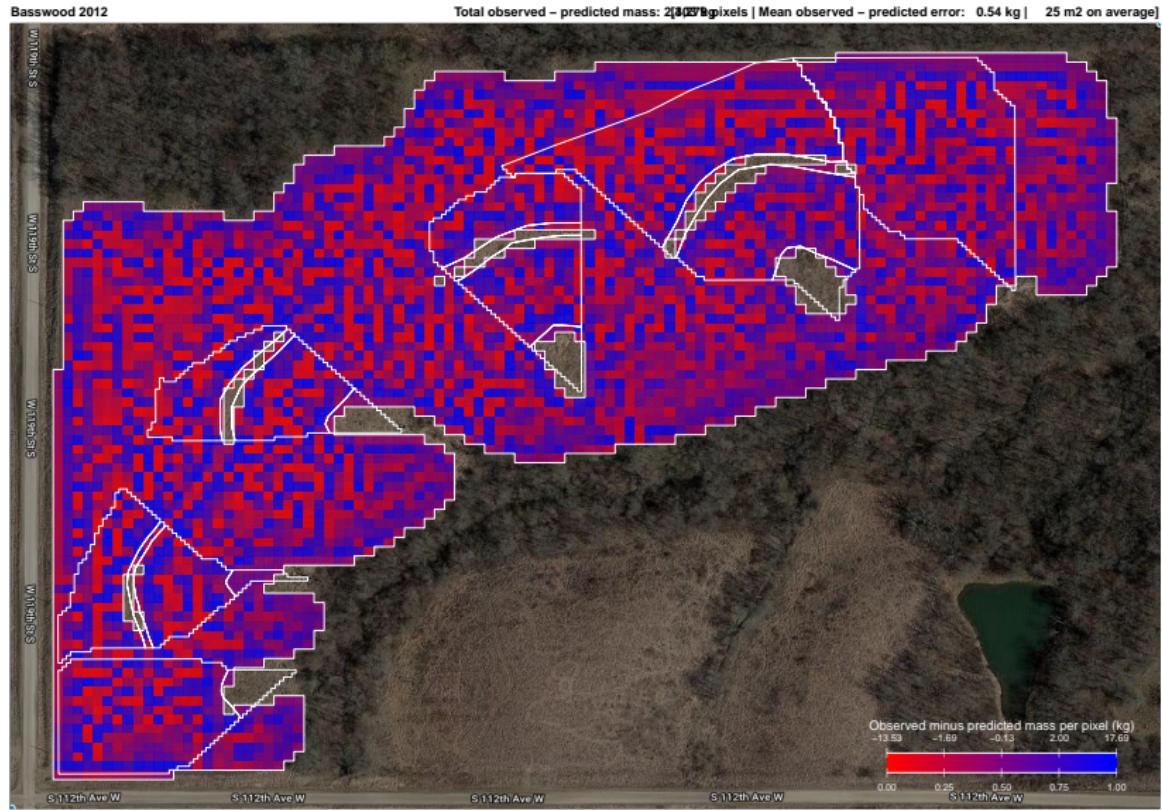
Aggregated data (no moisture adjustment)



Predicted yield map (can't adjust for moisture?)



Prediction residual



Next steps

Checks, fixes & improvements

- ▶ [Not started] Improve approximation when creating the vehicle rectangles.

Actions

- ▶ [Not started] Can Condo do custom libraries? (libgeo, libxml, etc).

New (not in previous todo list)

- ▶ Optimize kappa given all other parameters (profile?).
- ▶ Interpretation of the GP.

Visualizations (some for us, some to share)

- ▶ Plot prediction (smoothing) with raw data versus pre-processed data. How can this help better understand yield?
- ▶ Animation: plot chopped polygons with increasing resolution (as in crime movies).
- ▶ Animation: plot variance estimates with increasing resolution. Is there uncertainty reduction? "uncertainty map"
- ▶ Plot: 10% with lowest predictive performance using another color. This would be where prairies could be planted.
- ▶ Plot: two colors based on Gaussian Mixture.

Writing ???

Appendix

Recap

This is growing old, but let's just go over this step by step one more time...

NOTE: don't look at the titles, they are meaningless.

Satellite



Boundaries

Basswood 2012



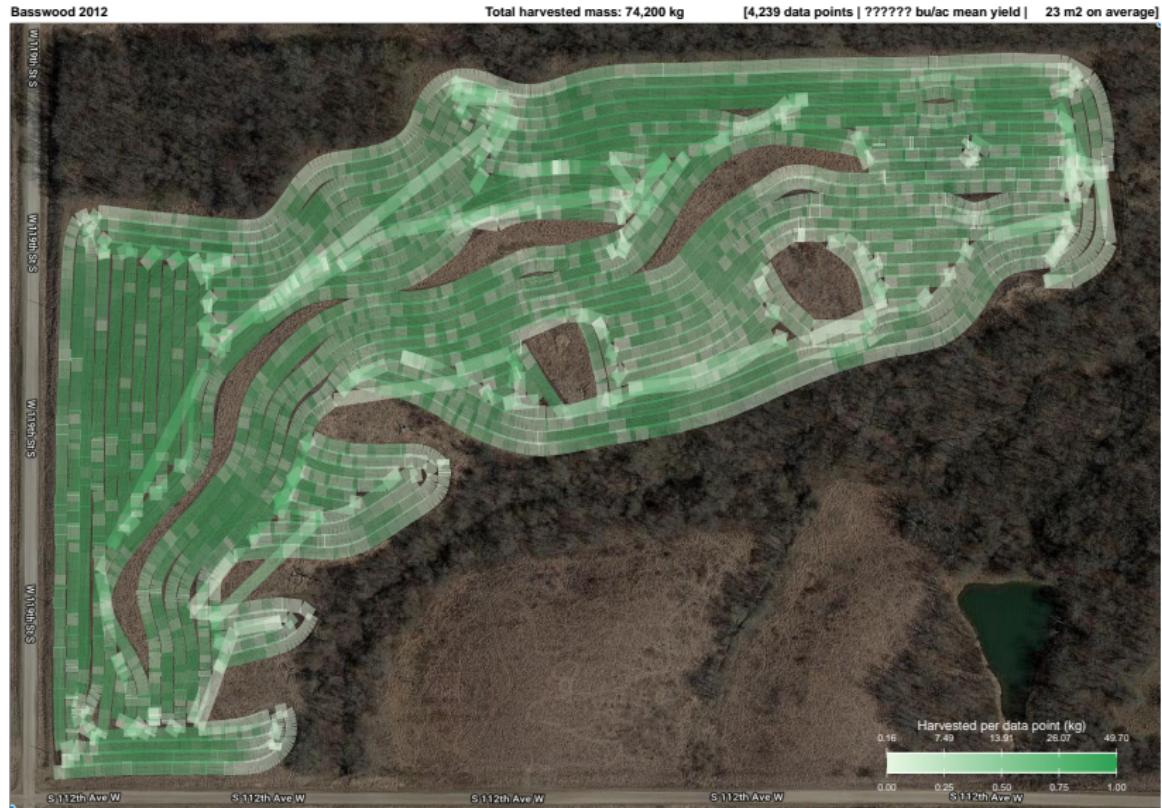
Data as recorded



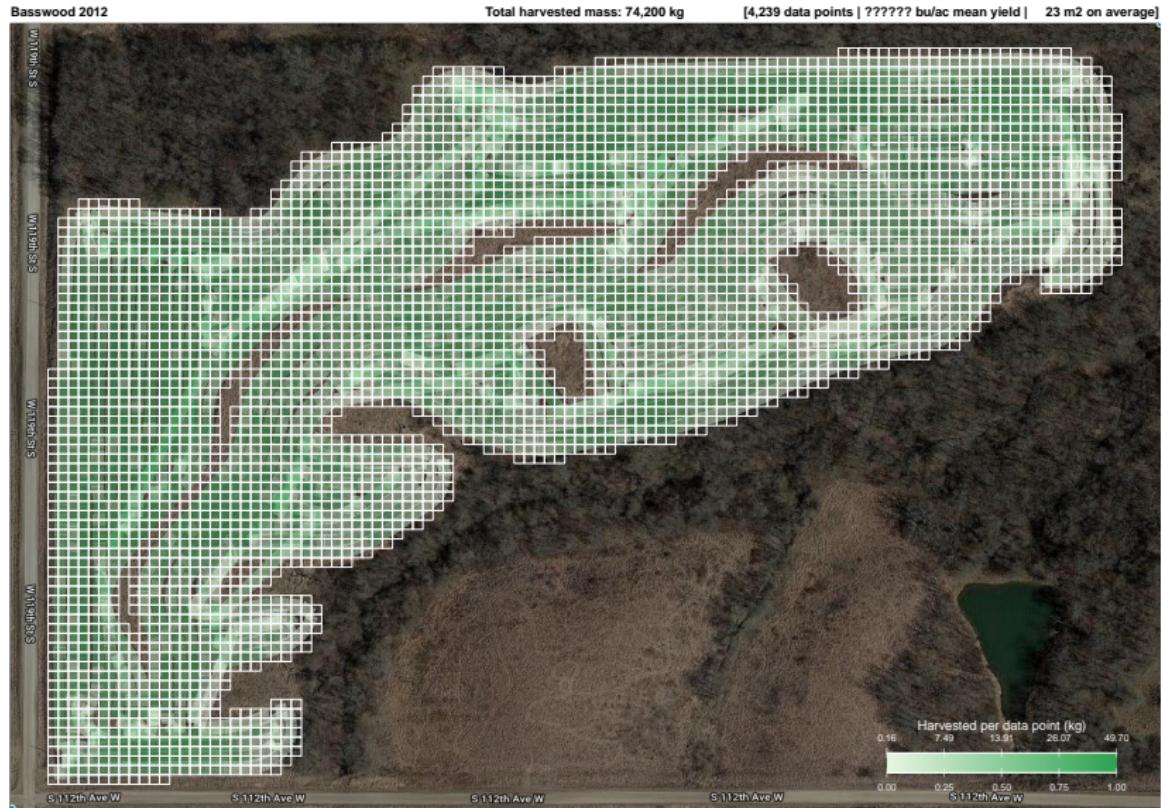
We create the vehicle polygons



Fill it



Overlay a grid



Chop chop!



Aggregate the mass



Log mass



Predicted log mass



Predicted mass



Predicted yield map

Basswood 2012

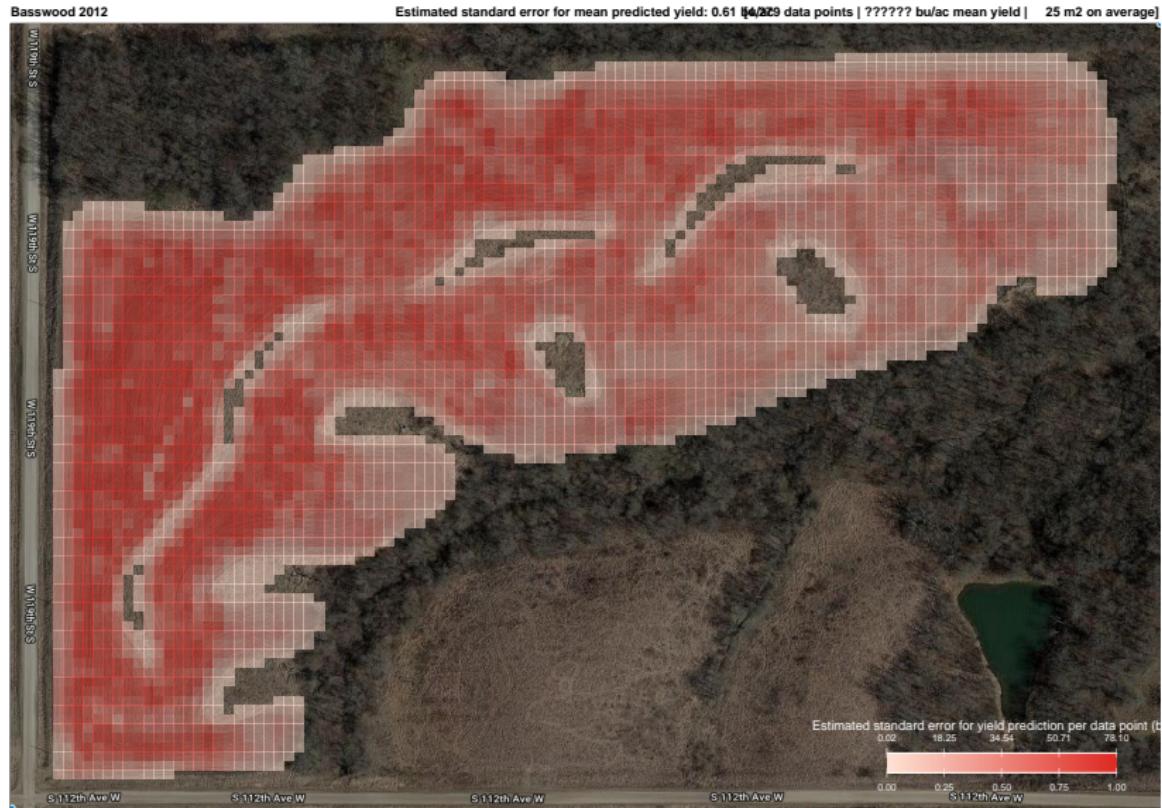
Total predicted yield: 461,916 bu/ac

[4,279 data points | ?????? bu/ac mean yield | 25 m² on average]



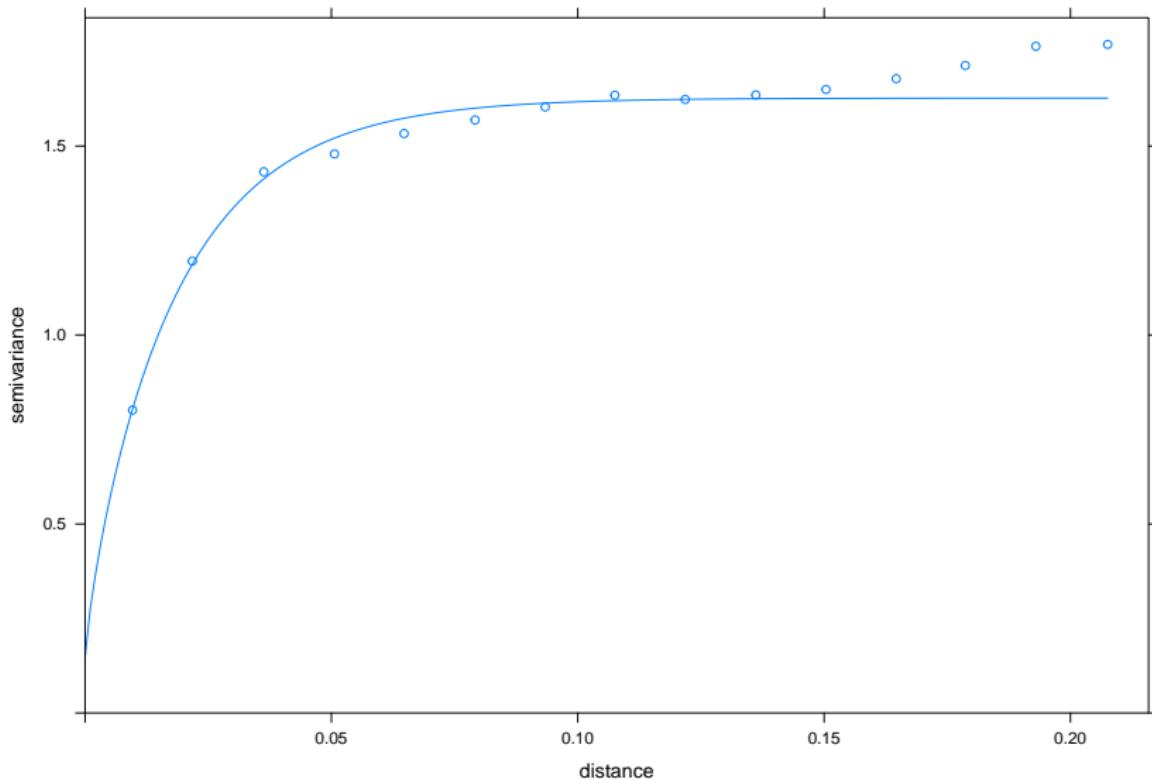
wrong equation

Predicted yield uncertainty map



High resolution log mass map

Variogram



Diags

