

CS519 Project

Geo Vis for Precision Agriculture

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Web Soil Survey (WSS)

<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

USDA United States Department of Agriculture
Natural Resources Conservation Service

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Area of Interest (AOI) | **Soil Map** | Soil Data Explorer | Download Soils Data | Shopping Cart (Free)

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Map Unit Legend

Marion County, Iowa (IA125)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8B	Judson silty clay loam, 2 to 5 percent slopes	621.5	0.2%
8C	Judson silty clay loam, 5 to 9 percent slopes	629.0	0.2%
11B	Colo-Ely silty clay loams, 2 to 5 percent slopes	9,490.4	2.6%
13B	Nodaway-Vesser silt loams, 2 to 5 percent slopes	3,999.3	1.1%
24D2	Shelby loam, 9 to 14 percent slopes, moderately eroded	5,646.3	1.5%
24E2	Shelby loam, 14 to 18 percent slopes, moderately eroded	2,243.8	0.6%
43	Bremer silty clay loam, 0 to 2 percent slopes	1,341.0	0.4%
51	Vesser silt loam, 0 to 2 percent slopes	1,387.9	0.4%
53	Riverwash	139.6	0.0%

Soil Map

8B: Judson silty clay loam
8C: Judson silty clay loam
11B: Colo-Ely silty clay loams
...

Marion County, Iowa (IA125)

Summary of Spatial Data Delivered by WSS

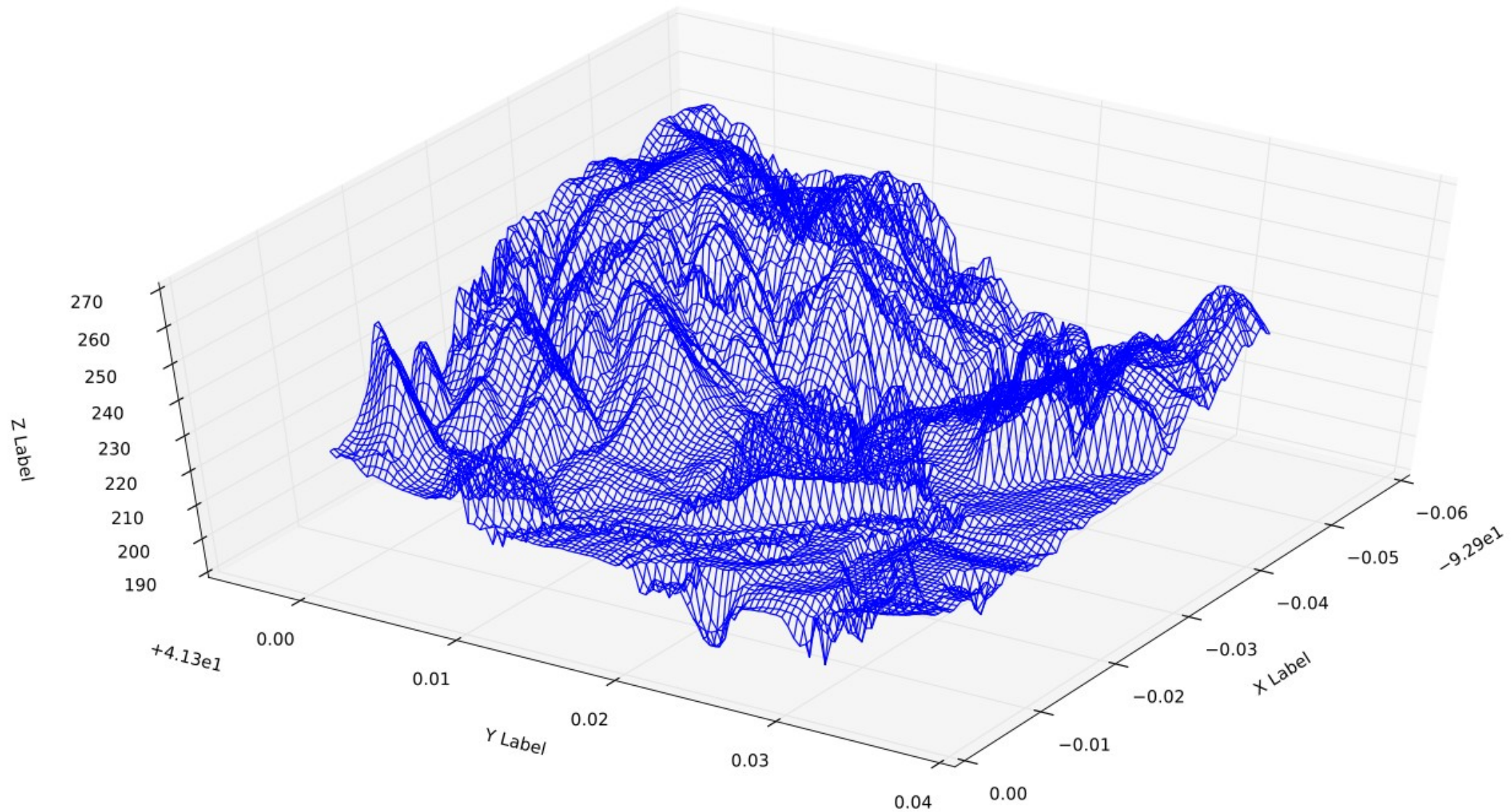
aoi_a_aoi	Polygon	Boundary of AOI
Soilmu_a_aoi	Polygon	Soil mapping unit boundaries
soilmu_l_aoi	Line	Line feature of soil mapping units
^a soilmu_p_aoi	Point	Location of core collection for characterization
^a soilsf_l_aoi	Line	Special feature noted during survey
^a soilsf_p_aoi	Point	Special feature noted during survey

^a Data set may not be populated depending on AOI.

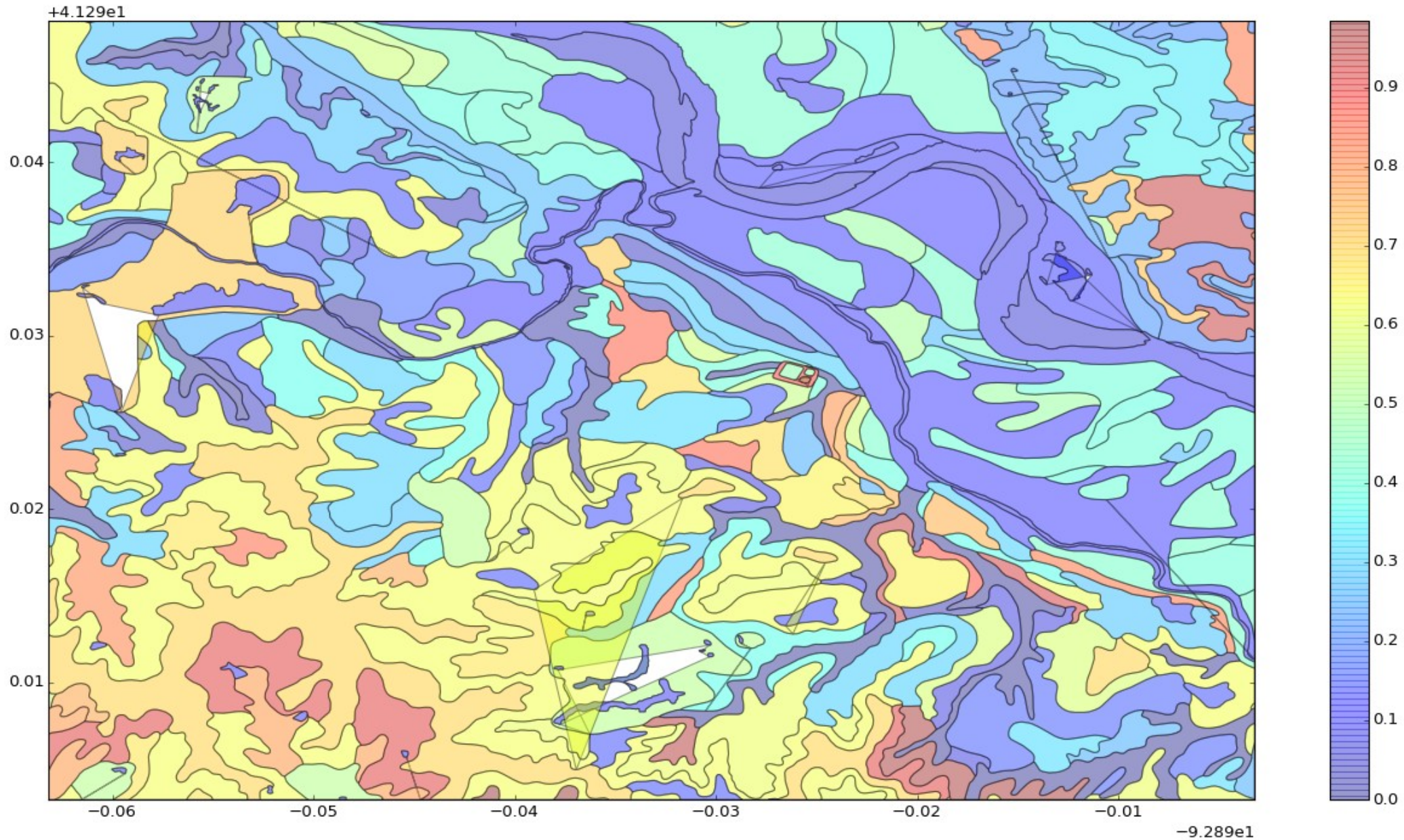
What we did ...

- pyproj: coordinates conversion
- pyshp: shapefiles I/O
- matplotlib: plot
 - mesh down sampling
 - mesh reconstruction from cloud points
 - interpolate 3d polygons on surface
 - ...
- pandas: query soil units based on key properties
- To do:
 - shading, alpha, ...
 - interactive, GUI, ...

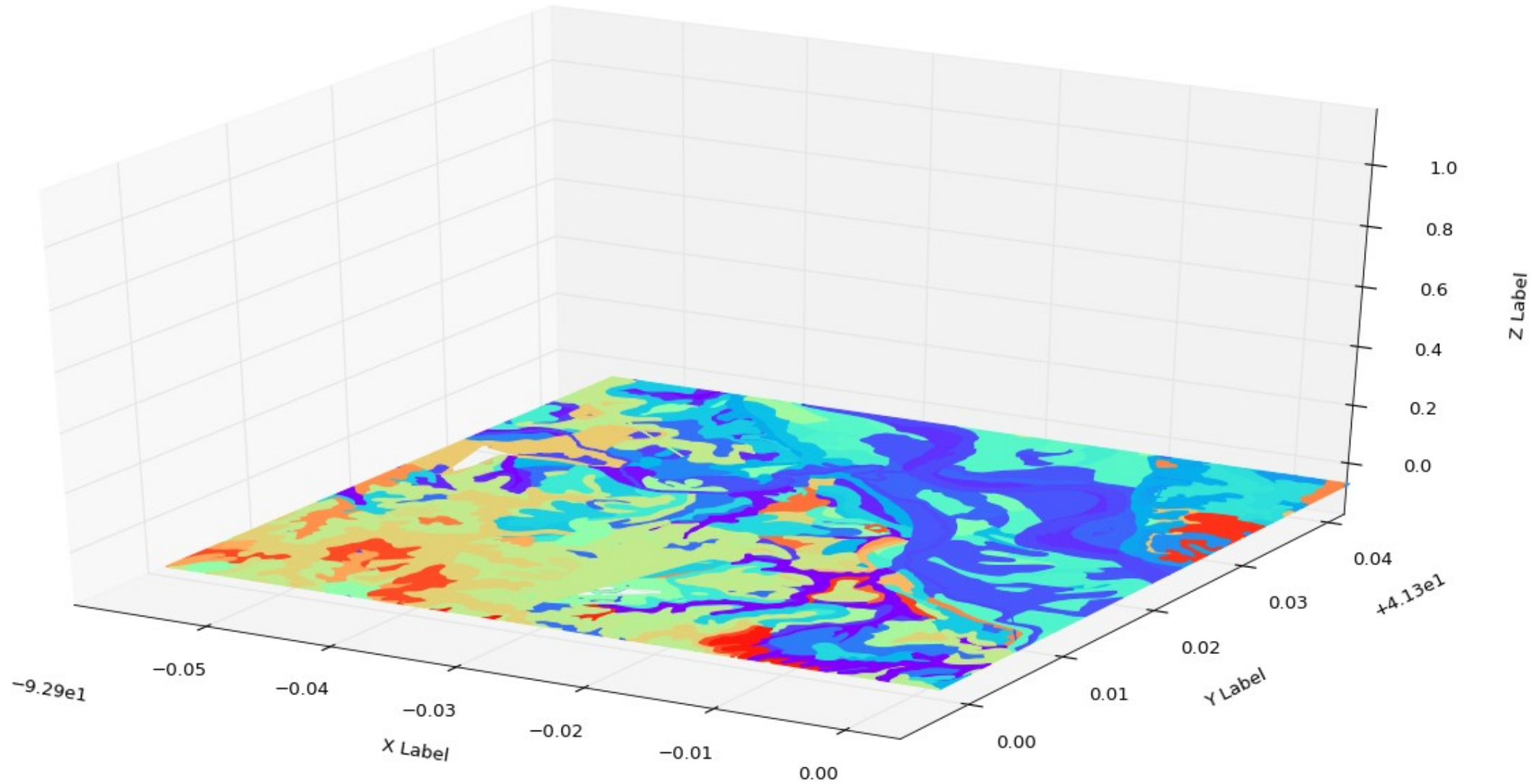
LIDAR



Soil Information



Soil Information



Soil Unit Overlaid on 3d Surface

