

Advanced Visualisation Methods for Data Mining of Precision Agriculture Data

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Precision Agriculture

- intersection of computer science and agriculture
- from large-scale, uniform treatment to small-scale, precise treatment
- large data collections
- one of the first steps in data mining: visualise the data

Visualisation

- visualise data components
 - use self-organising maps
 - use Sammon's Mapping
- find hidden correlations
- recover data interdependencies
- → gain insights into data sets

Data Attributes

- three fields
- seven input attributes: YIELD05, EM38, N1, N2, N3, REIP32, REIP49
- target attribute: YIELD06

Illustration

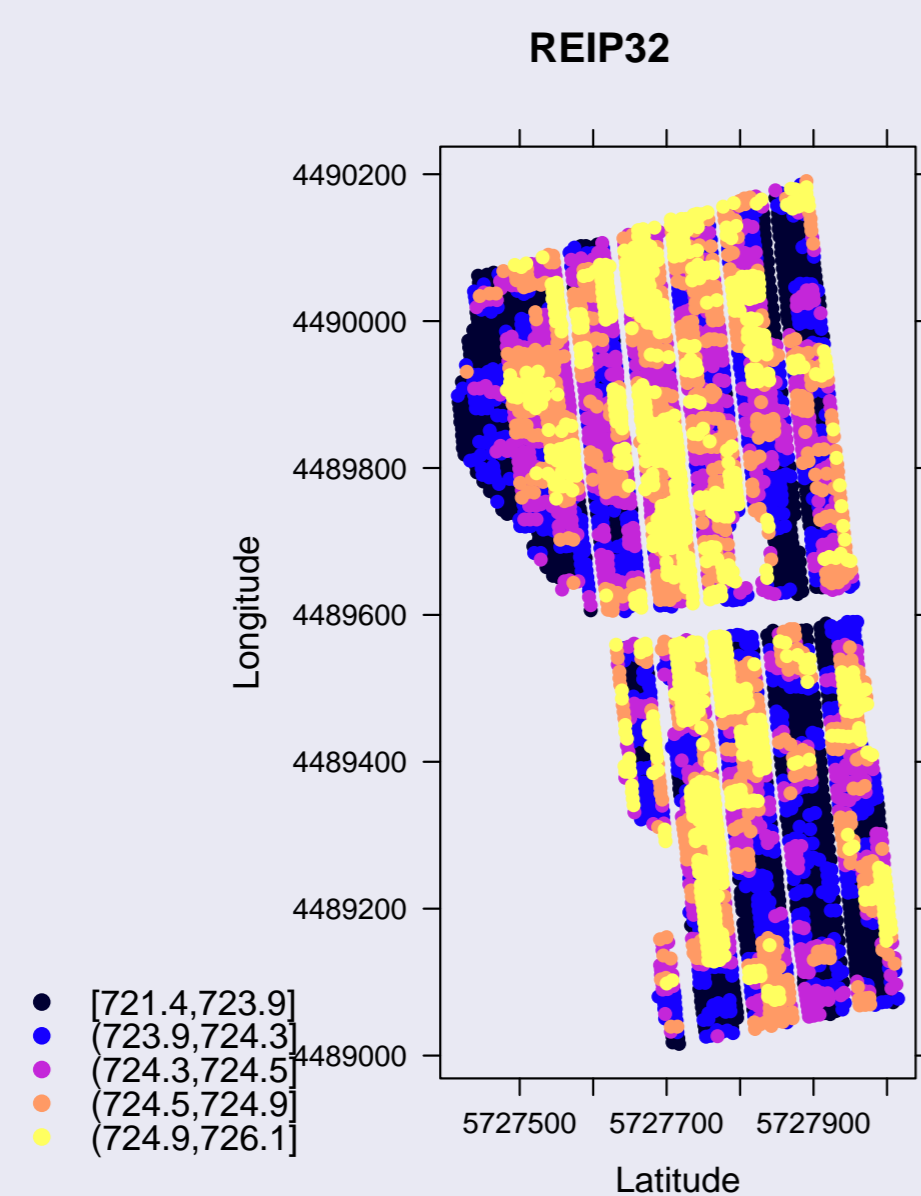


Figure: REIP32 value distributed on the field

Yield Prediction

- try to predict current year's yield from
 - vegetation indicators
 - sensor readings
 - aerial photography
 - etc.

Keywords:

Precision Agriculture, Data Mining, Multidimensional Scaling, Self-Organising Maps

SOMs on F330

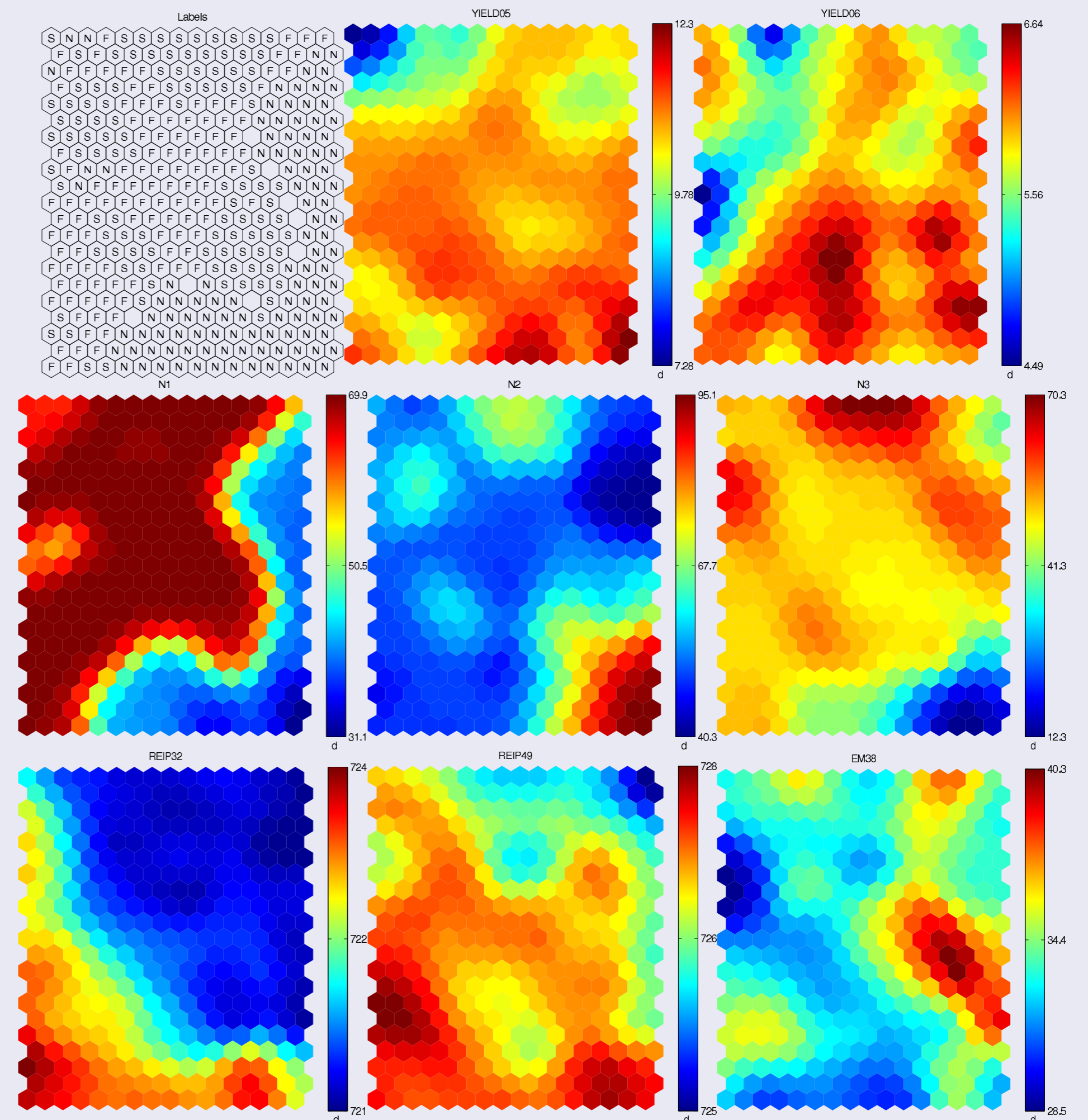


Figure: Labels, YIELD05, YIELD06, N1, N2, N3, REIP32, REIP49, EM38

Sammon's Mapping on F330 and F131

