Interpreting and storing collected data

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What do we already know about...

- Data analysis?
- Archaeological data?
- Analytical data?

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Data

numbers	nominal variables (name, tel. etc.)
words	ordinal variables (rank)
images	interval scale variables (° C)
	numerical variables (+,-,x,:)

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Database

- Structured data
- model: text-based
  - hierarchical
  - relational (RDBMs)

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Database

text-based - string search, Boolean operators

and

or

>

<

typical example: google

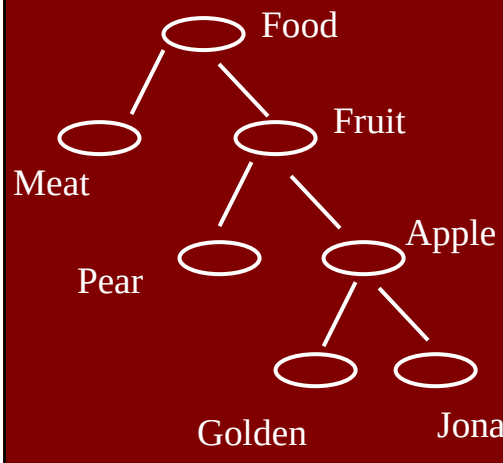
no structure needed

lot of irrelevant data

sensitive to mistakes

Database

hierarchical - networking model



Human brain works this way

excellent for personal databases

not applicable for shared information systems

Database

relational (RDBMs) - data tables connected

simple tables

relations

1 to 1

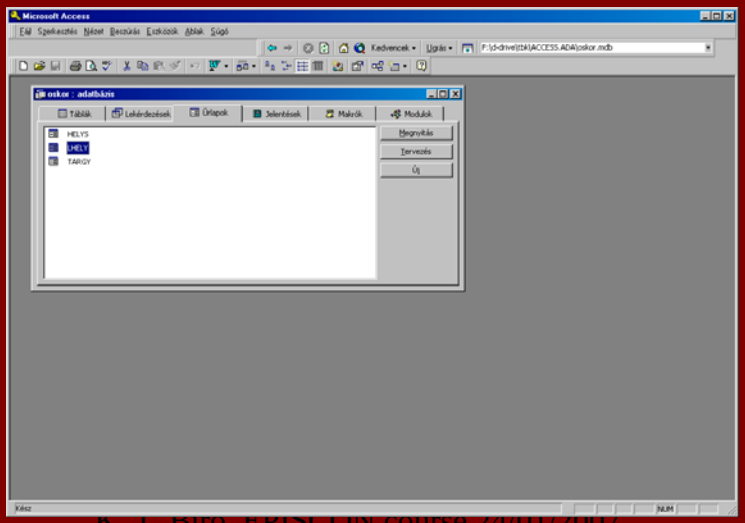
1 to many

many to many

example

Database

relational (RDBMs) - data tables connected



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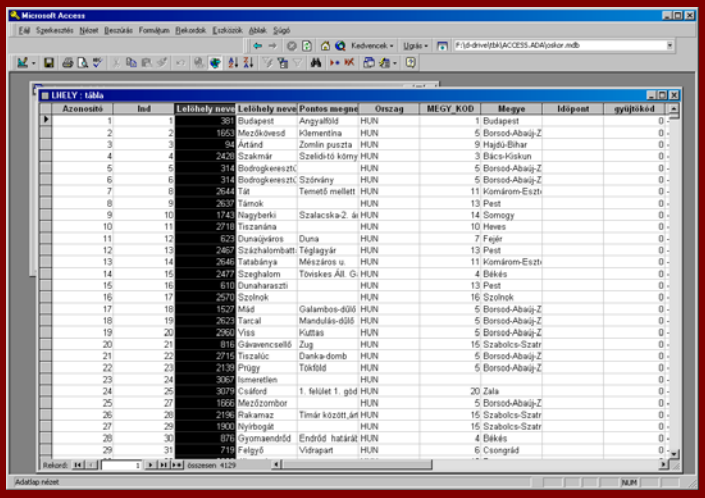
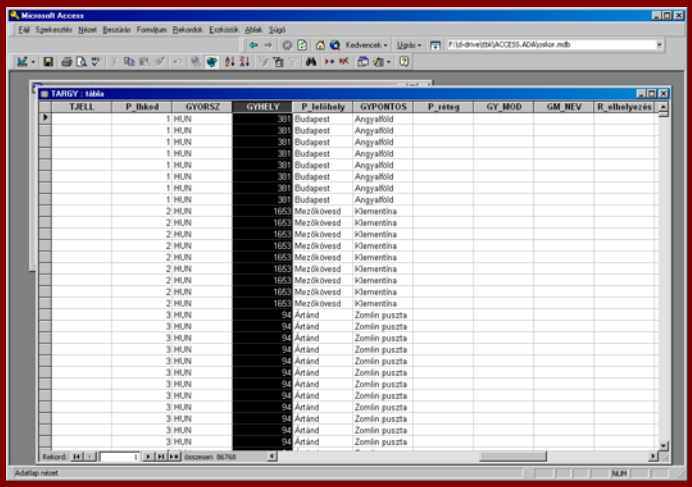
Database

relational (RDBMs) - data tables connected



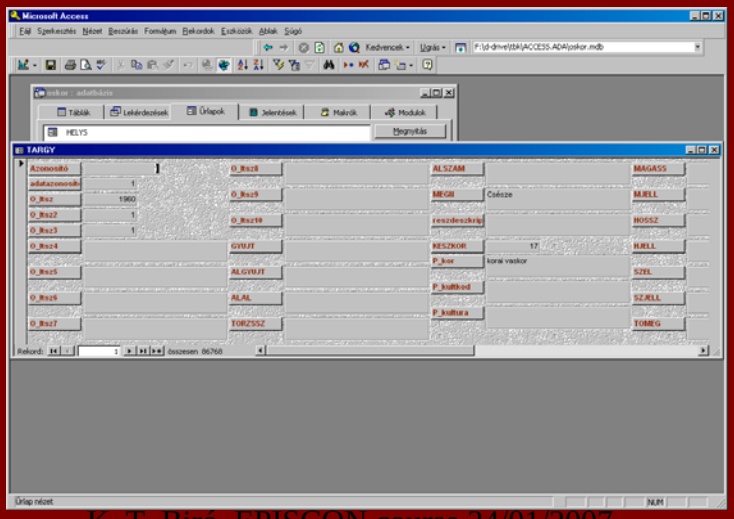
Database

relational (RDBMs) - data tables connected



Database

relational (RDBMs) - data tables connected



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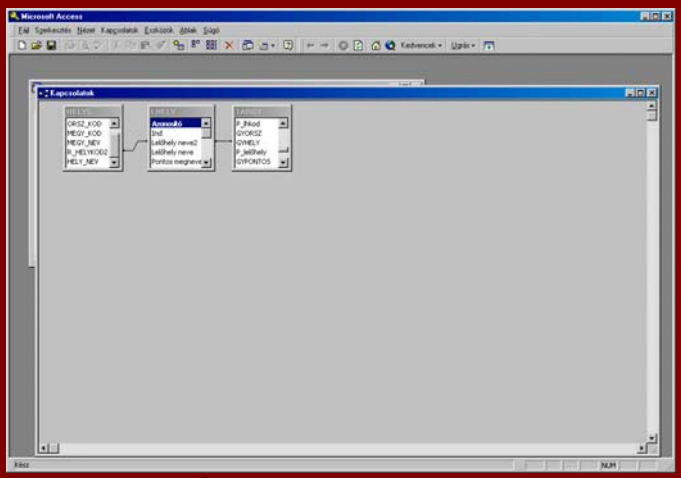

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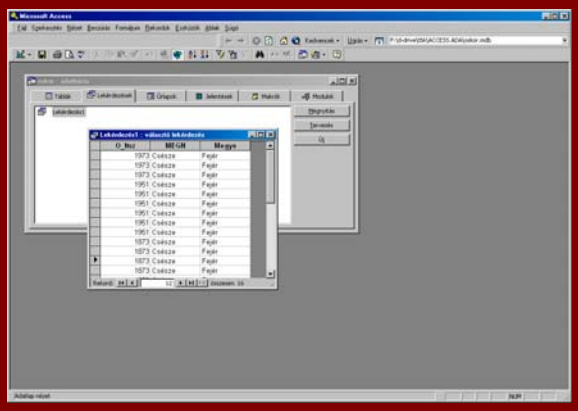
Database

relational (RDBMs) - data tables connected



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Query

SQL: structured query language

Boolean operators

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Statistical evaluation

Basic concepts

- mean
- median
- mode
- variance
- standard deviation

Statistical evaluation

References

THOMAS 1986 Thomas, David Hurst Refiguring Anthropology / First principles of probability & statisticsProspect Heights,Ill. USA Waveland Press Inc. 1986, 1-532

Exploratory Data Analysis. Engineering ststistics handbook (URL)

Statistical evaluation

Tools:

- Excel: the pedestrian way to almost everything
- SPSS
- JMP
- SAS

many more

Spatial distribution

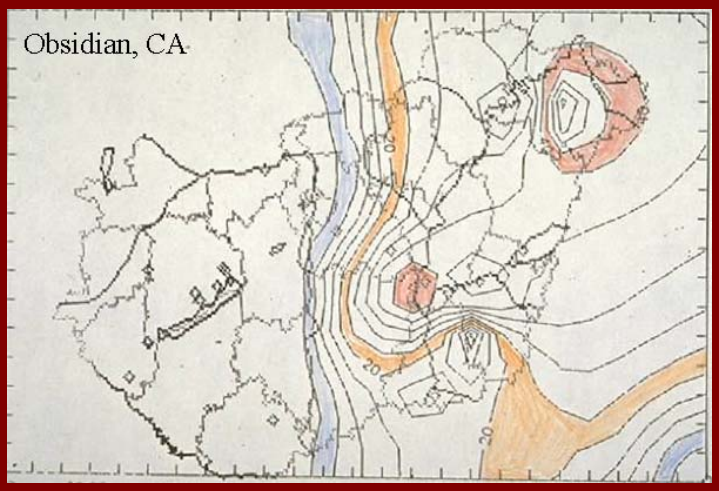
Surfer

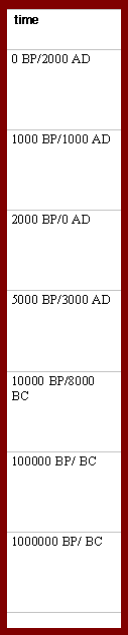
GIS softwares

MAPINFO

Spatial distribution

Archaeological distribution of obsidian in Hungary





Spatial distribution

Archaeological distribution of obsidian in Hungary

Raw data:

- site name
- coord-lat
- coord-long
- chronological phase
- obsidian pieces
- obsidian %
- stones total

Simple techniques

- Histograms
- Stem-and-leaf plot
- Box and whiskers plot
- Crossplots

Multivariate techniques

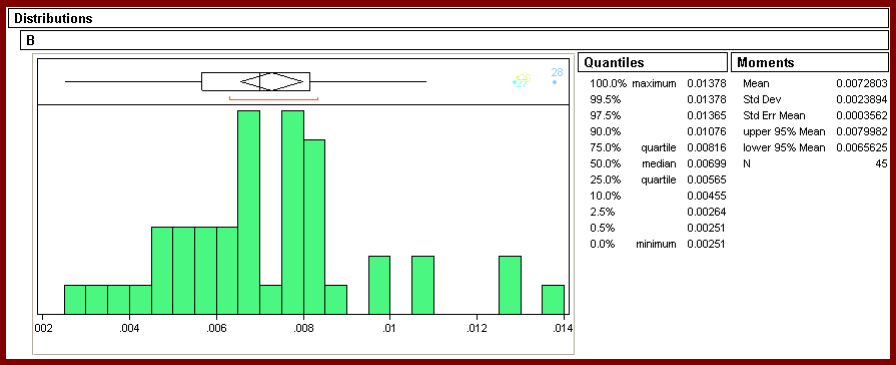
- Principal component analysis
- Cluster analysis

Case study: PGAA of grey flint

original data table

Case study: PGAA of grey flint

histogram with box-and-whiskers

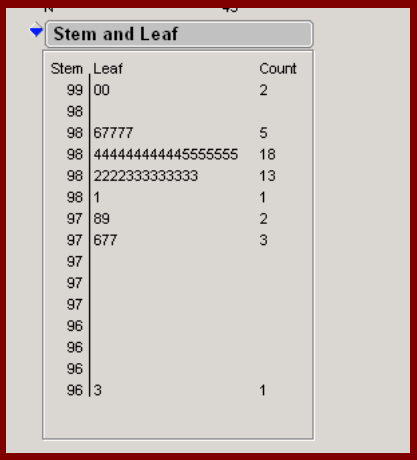


all histograms

Case study: PGAA of grey flint

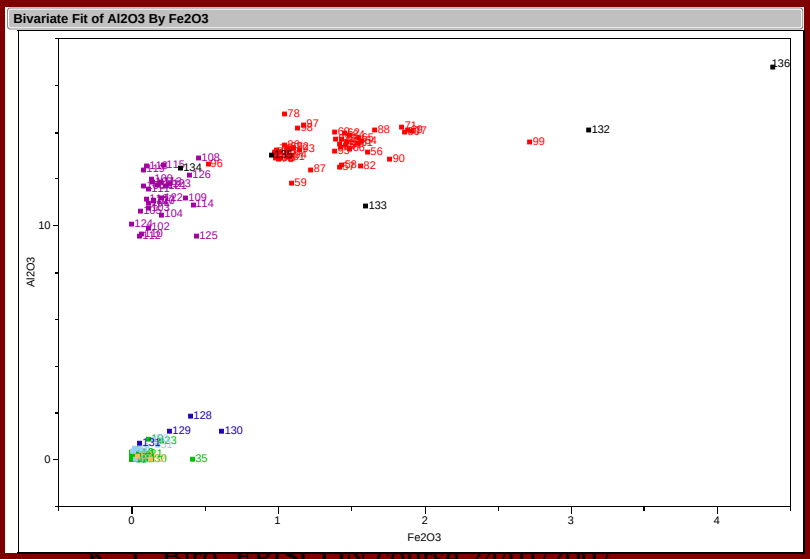
stem-and-leaf plot

SiO_2
98,430061
98,1616863
98,3779764
98,3933189
98,3621029
98,3152068
98,4703701
98,3239508
98,6514208
98,450583
98,5340224
...



Case study: PGAA of grey flint

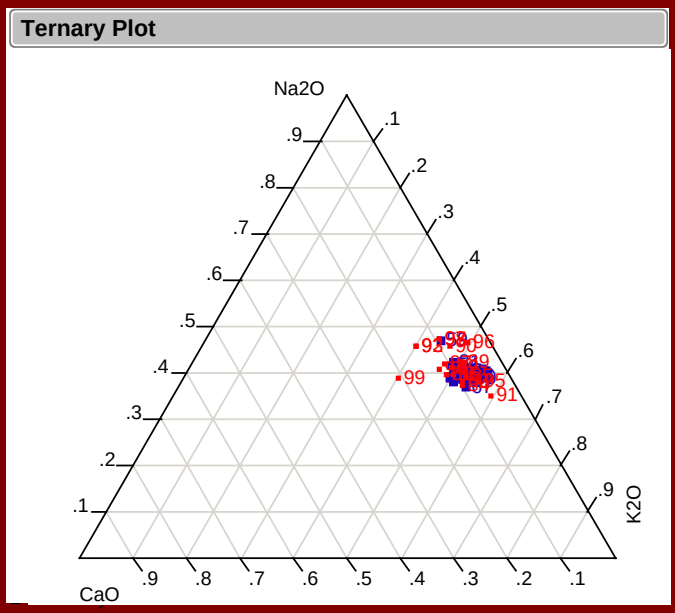
crossplot



Case study: PGAA of grey flint

Ternary plot

(obsidian)



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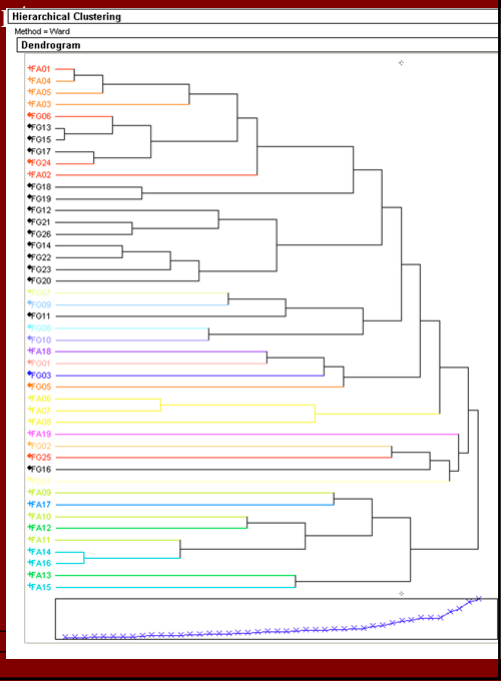
Case study: PGAA of grey fli

Cluster analysis (1)



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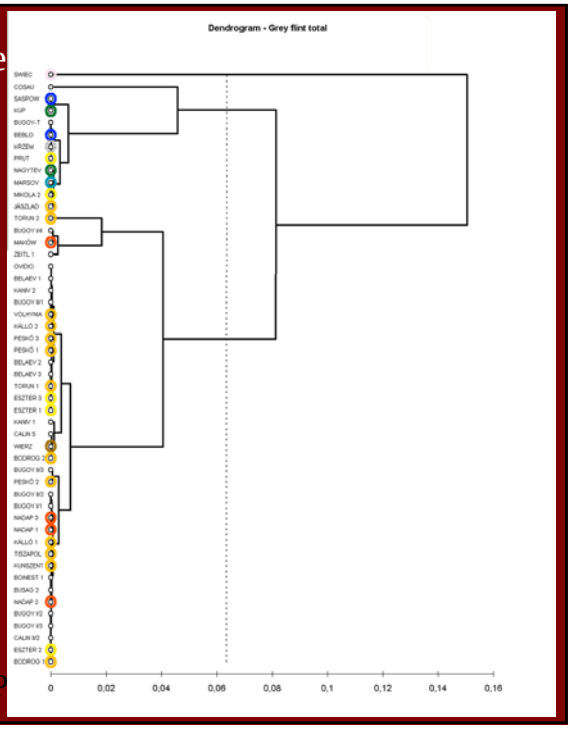
Cluster analysis (2)



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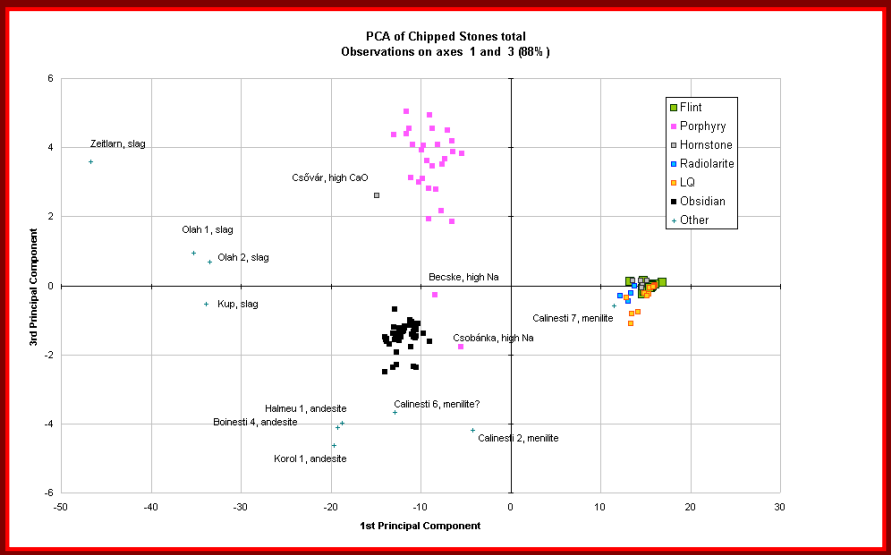

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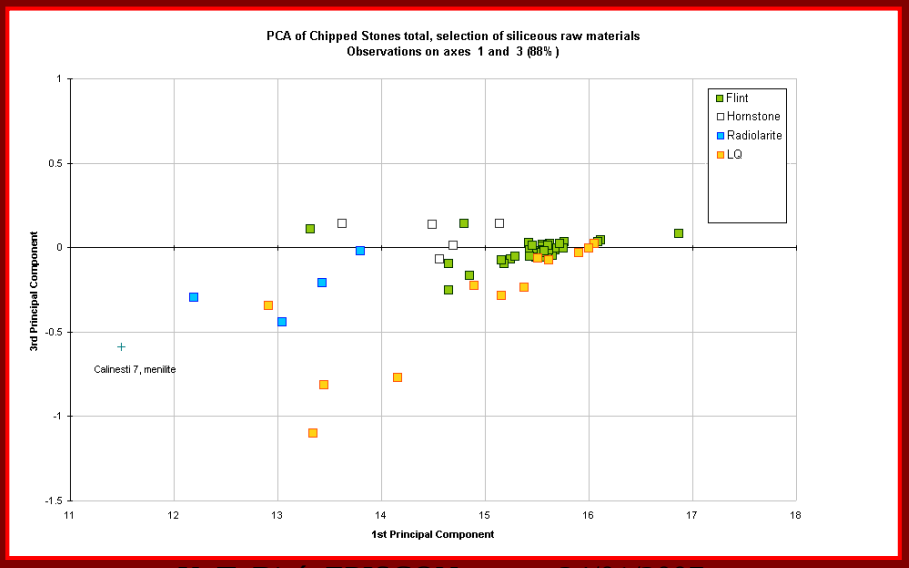

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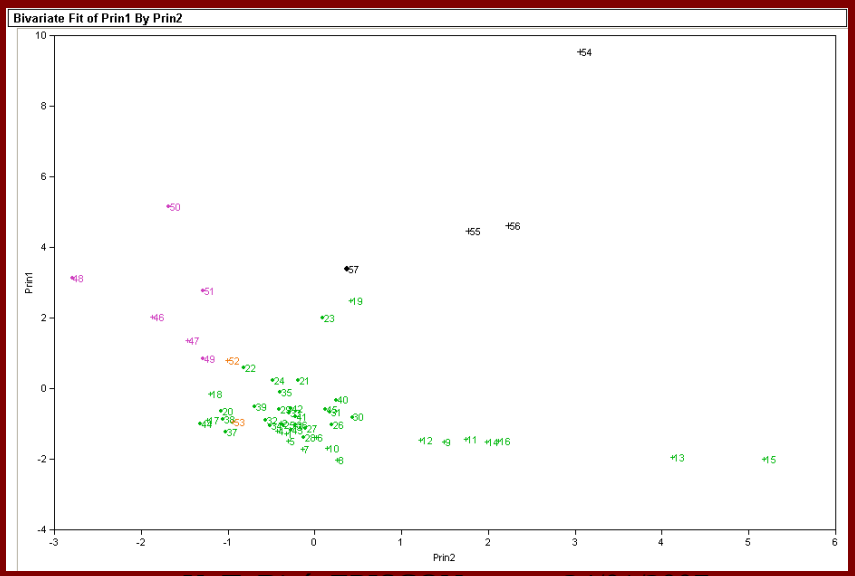
Case study: PGAA of grey flint



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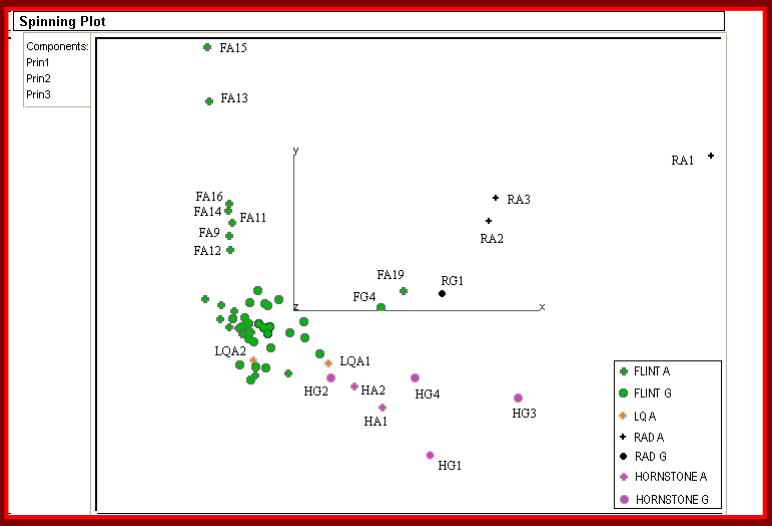

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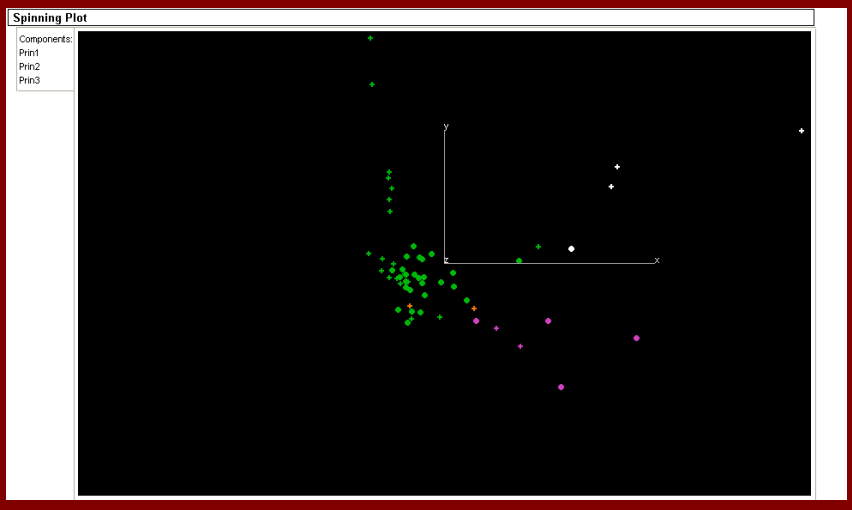
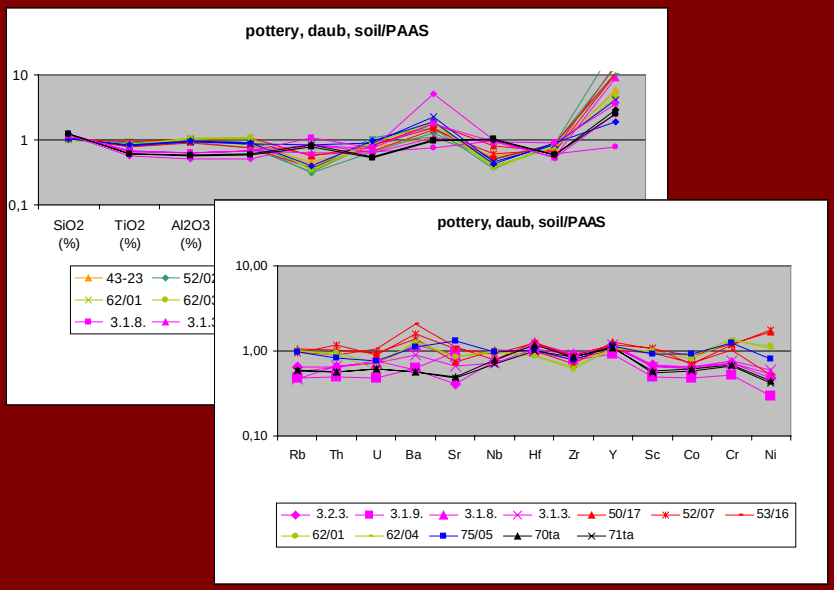


Other graphs



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