Spatial data exploration of large-area VHR satellite classification results and derivates through cartographic visualization

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BIOLOG

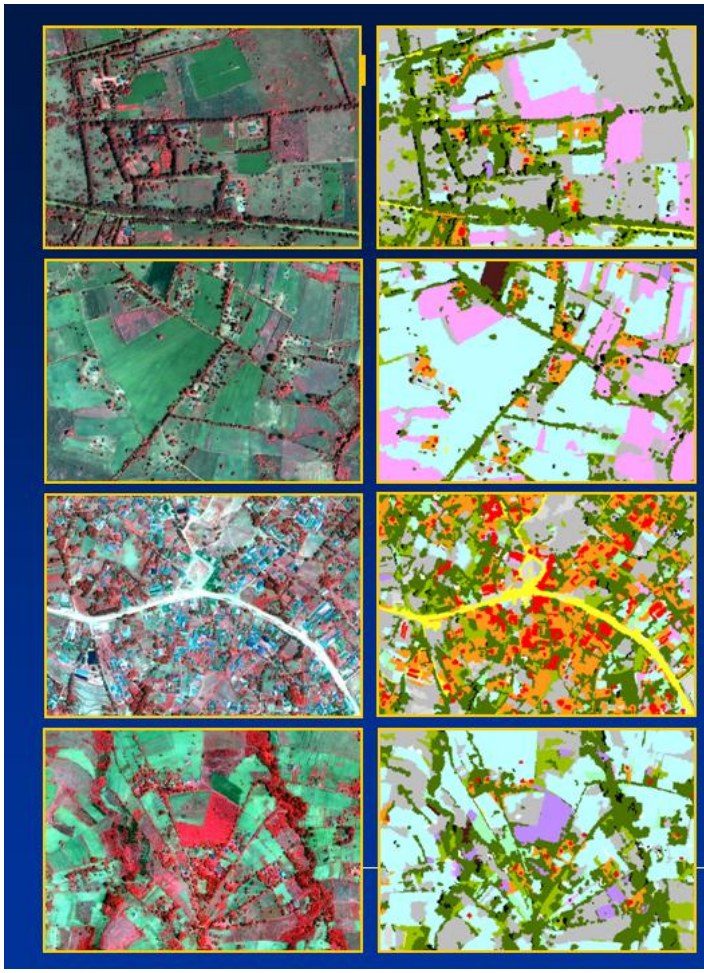
Background – OBIA

- main target of BIOTA research: conflict needs of rural population vs. conservation of biodiversity
- Kakamega Forest area: one of the most densely populated rural areas

→ need to learn about the farmland: land use and structures

QuickBird satellite imagery for 473 km² of farmland

OBIA:
15 LUC classes



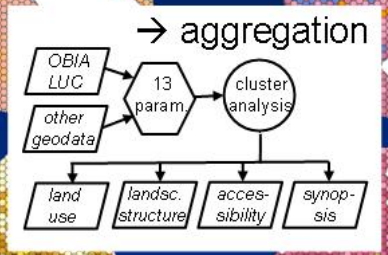
QuickBird satellite imagery
for 473 km² of farmland

OBIA:
15 LUC classes

Typology – Scenarios

Land use

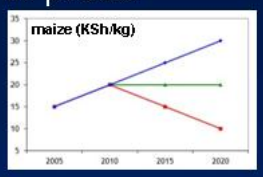
Structures



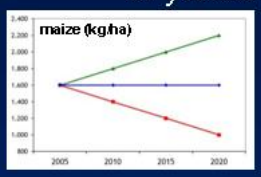
Accessibility

Synopsis
→ Farmland types

Developments
in prizes



in yields



Pop. growth

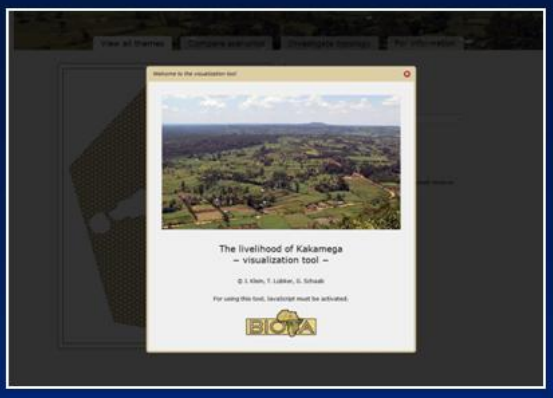
→ 8 scenarios,
4 timesteps,
7 map topics:
175
maps

example

Visualization Tool

- interactive and dynamic
- SVG, XML, JavaScript

→ explorative data analysis



single map view

time series

scenarios

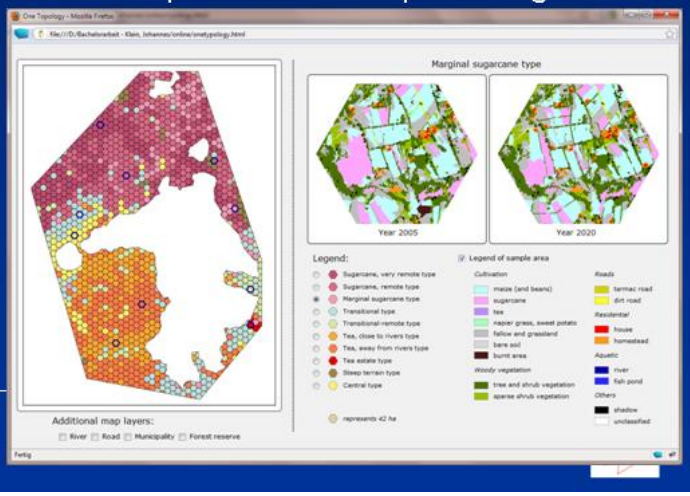
topics

small multiples

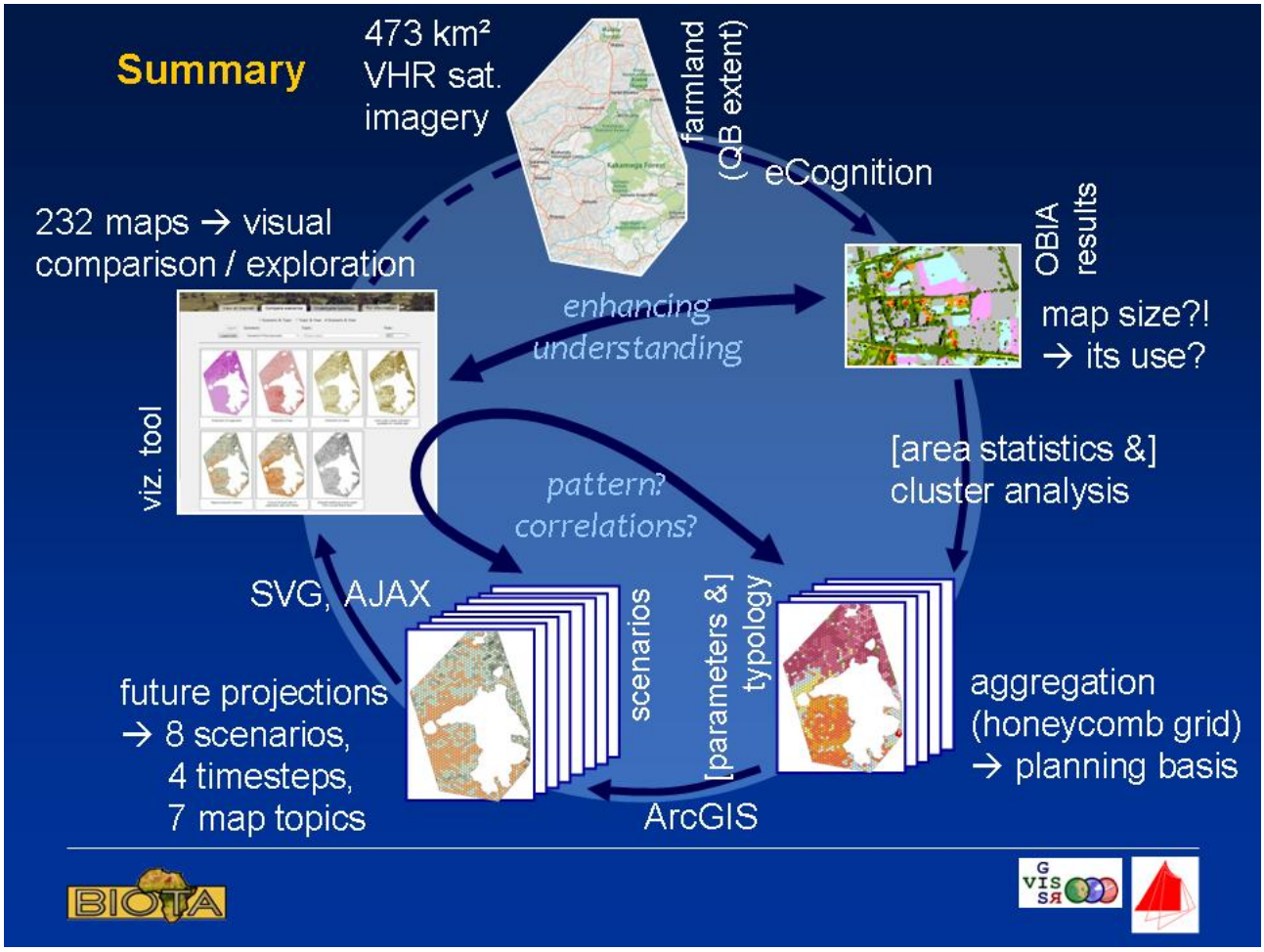
Usefulness?

- OBIA results: >700,000 polygons
  map 1:5k: 7.6 m by 5.4 m, map 1:25k: 1.5 m by 1.1 m
  out-of-date (2005), also true for catastral maps
  → aggregation to gain overview / for comparison
- Target users: us / scientists → patterns?, correlations?
  planning → similar settings?
  local people → … no experience in map reading

→ reducing level of abstractness



farmland types


Summary
473 km²
VHR sat.
imagery
farmland
(QB extent)
eCognition
OBIA
results
map size?!
→ its use?
[area statistics &]
cluster analysis
[parameters &]
typology
aggregation
(honeycomb grid)
→ planning basis
ArcGIS
scenarios
future projections
→ 8 scenarios,
4 timesteps,
7 map topics
SVG, AJAX
viz. tool
232 maps → visual
comparison / exploration
enhancing
understanding
pattern?
correlations?