SR/Carto2001

Generalisation Process for Top100:

Research in Generalisation brought to Fruition

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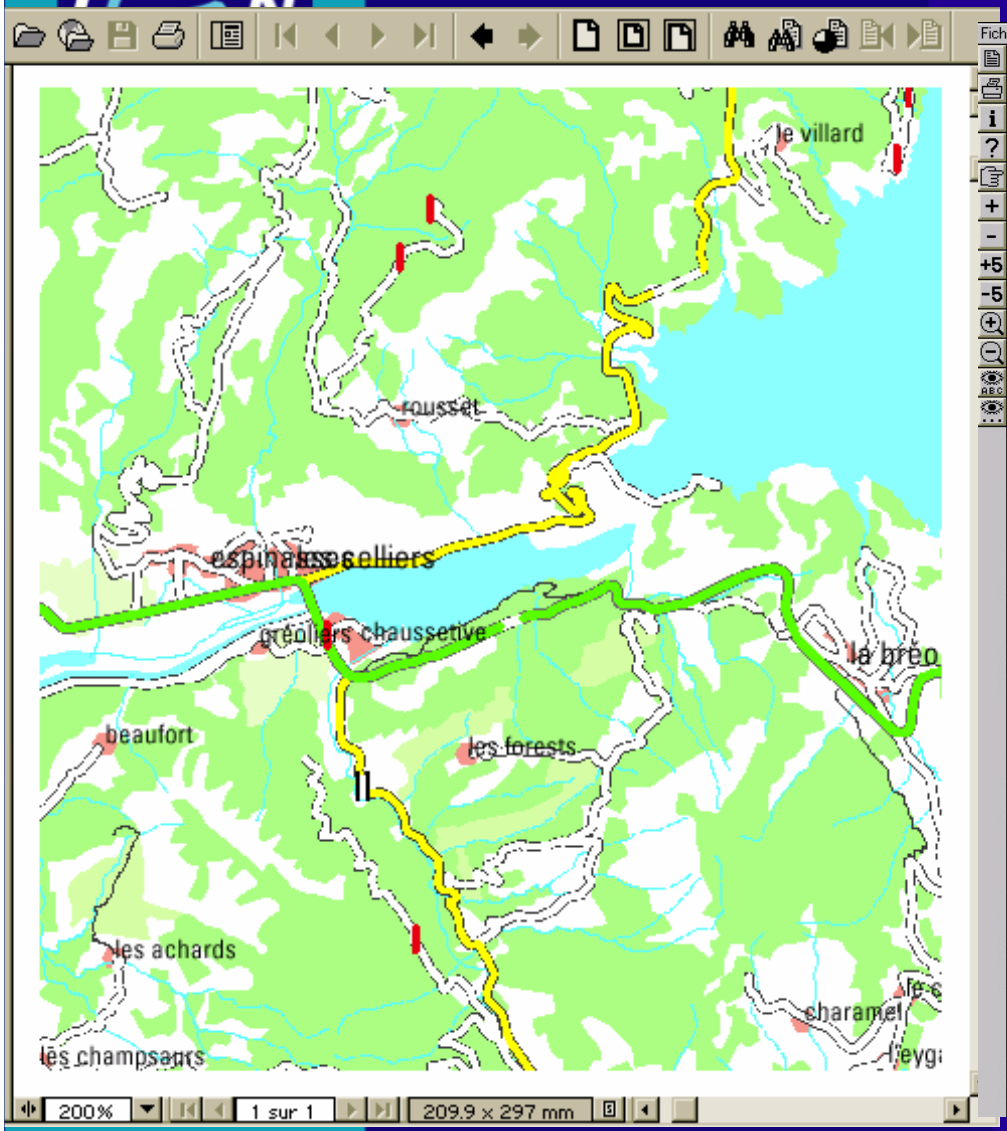
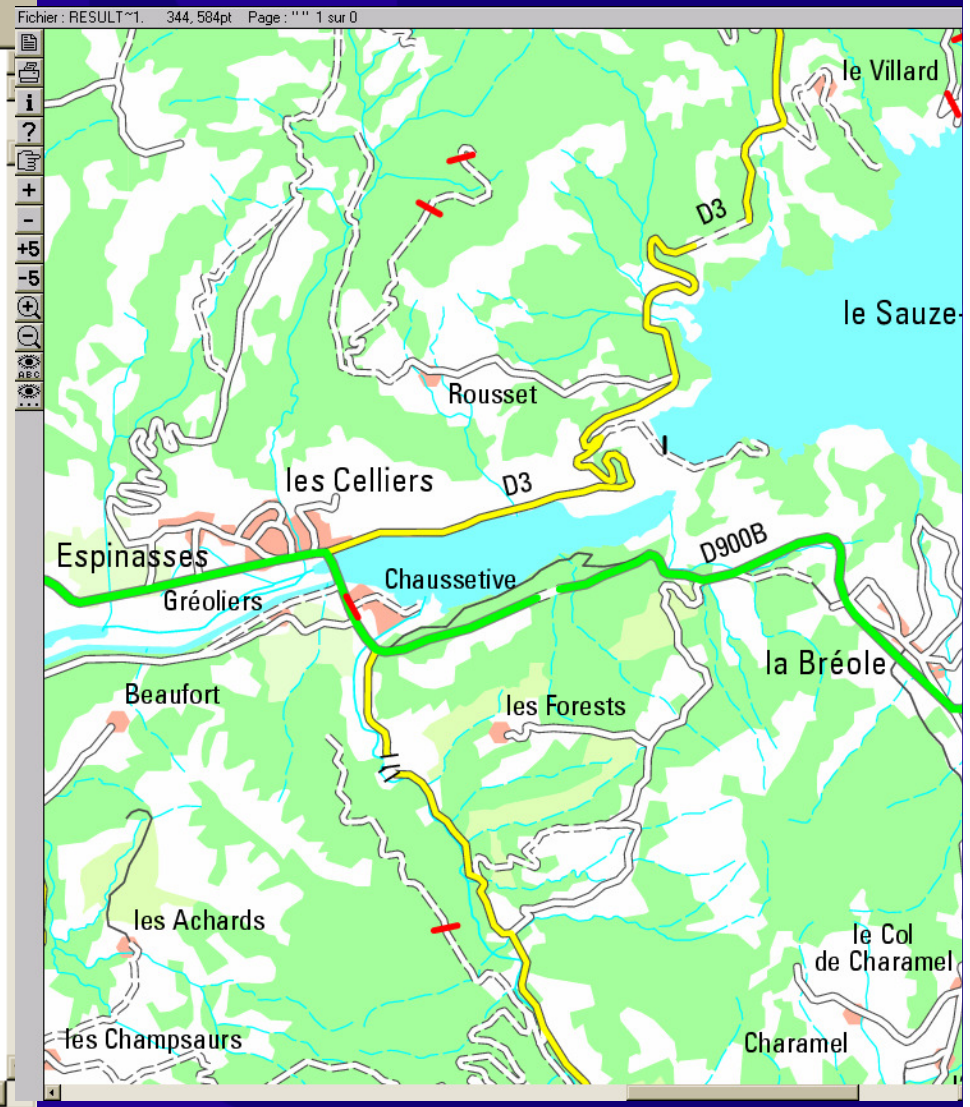
Carto2001 PROJECT

IGN

Generalisation process for Top100

- Carto2001 project : Context and objectives
- Carto2001's needs in generalisation
- The automatic generalisation process
- The guided interactive part
- Conclusion and outlooks





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BDCarto DB

Top100 DB

Generalisation context

- Previous project aborted : 95-98
  - Too expensive : 60 000 ∈ / 18 months by map
- Maturity of research in automated generalisation
  - COGIT experience
  - AGENT project
- New Platform : LAMPS2
  - 1 DB covering the whole French Territory
- Cooperation between IGN and LSL

Carto2001's needs

- No buildings
- Tools for network generalisation
  - Rivers, roads, railway
  - «Independent» generalisation for roads
  - Network displacement
- Tools to maintain data consistency
  - Connectivity of network
  - Geometry sharing
  - Relative positions of objects
  - Displacement has to be contained

Production constraints

- High degree of automation
- Automated process
  - Robustness
  - No data alteration
- Interactive process
  - Guided : conflicts detection tools
  - Ergonomy
  - Smart tools : semi-automatic tools

Automated generalisation

- 3 main steps
  - Displacement of rivers
  - Bending generalisation of roads
  - Network displacement of roads and railway
- 2 techniques
  - AGENT for bending generalisation
  - BEAMS for network displacement
- Data consistency mechanism
  - Diffusion
  - Frozen objects

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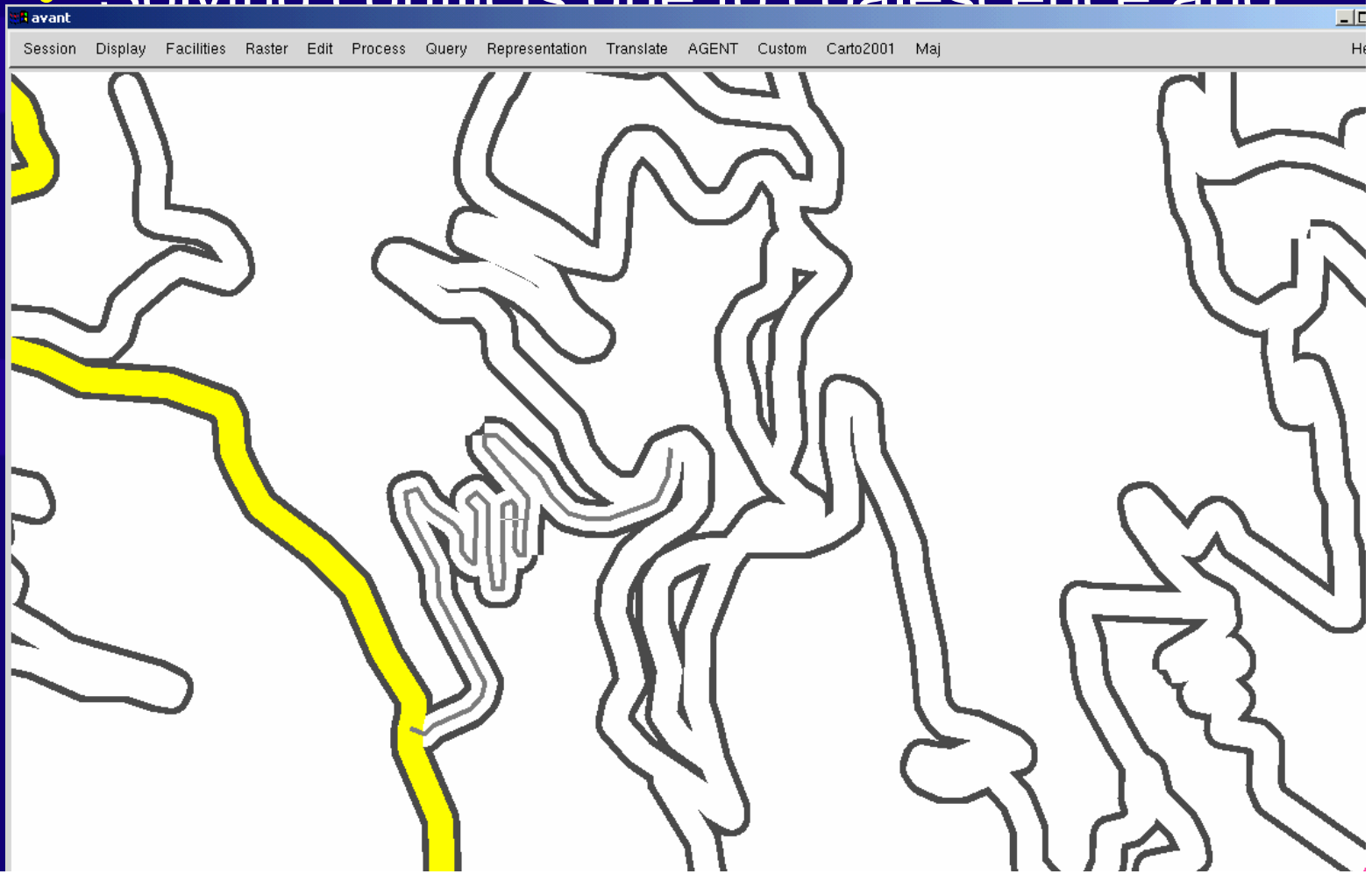
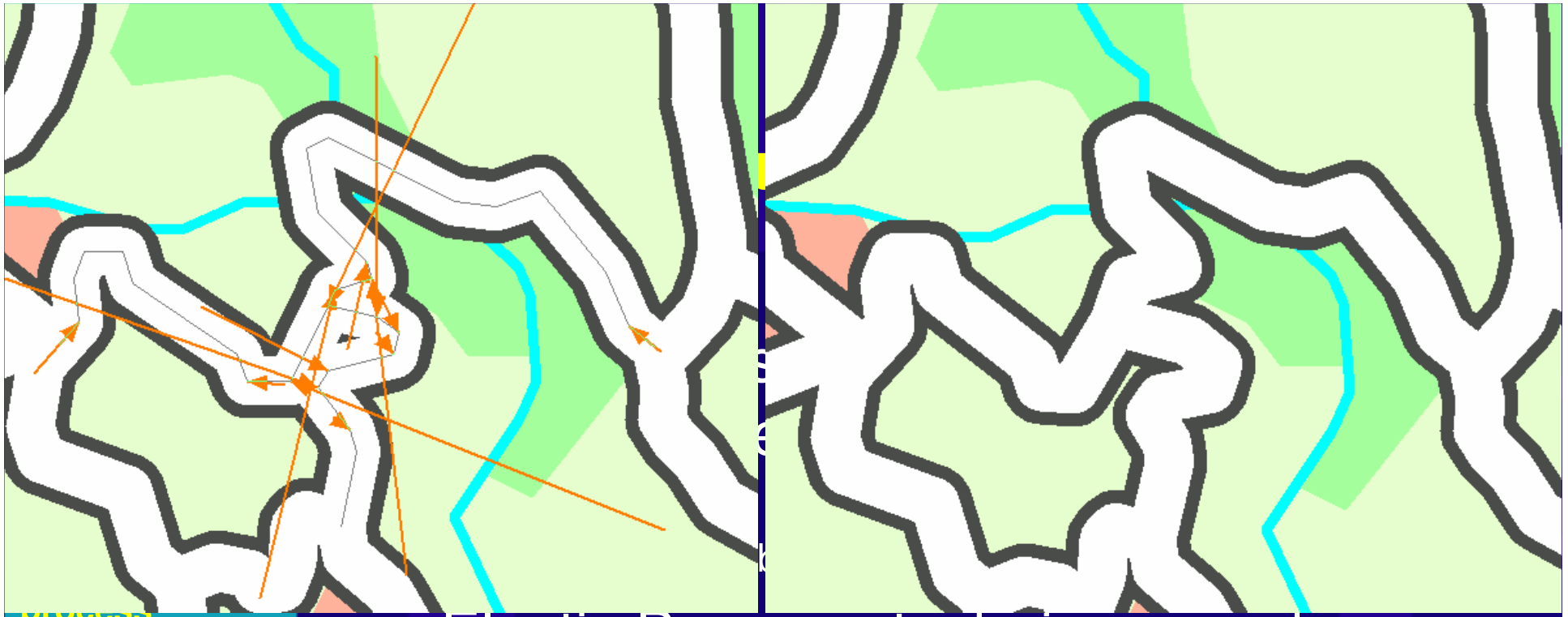
Bending generalisation

- Solving conflicts due to coalescence and





process

Conclusion

- « Elastic Beams » technique used
  - M. Bader PHDThesis (University of Zürich)
  - Presented in ICA Workshop in Beijing
  - Available in LAMPS2 since march 2002
  - Principle : optimisation approach
    - Internal and external forces on each vertex of the line ~ conflicts
    - Definition for each object of an ability to be distorted, compressed or extended

process

Conclusion

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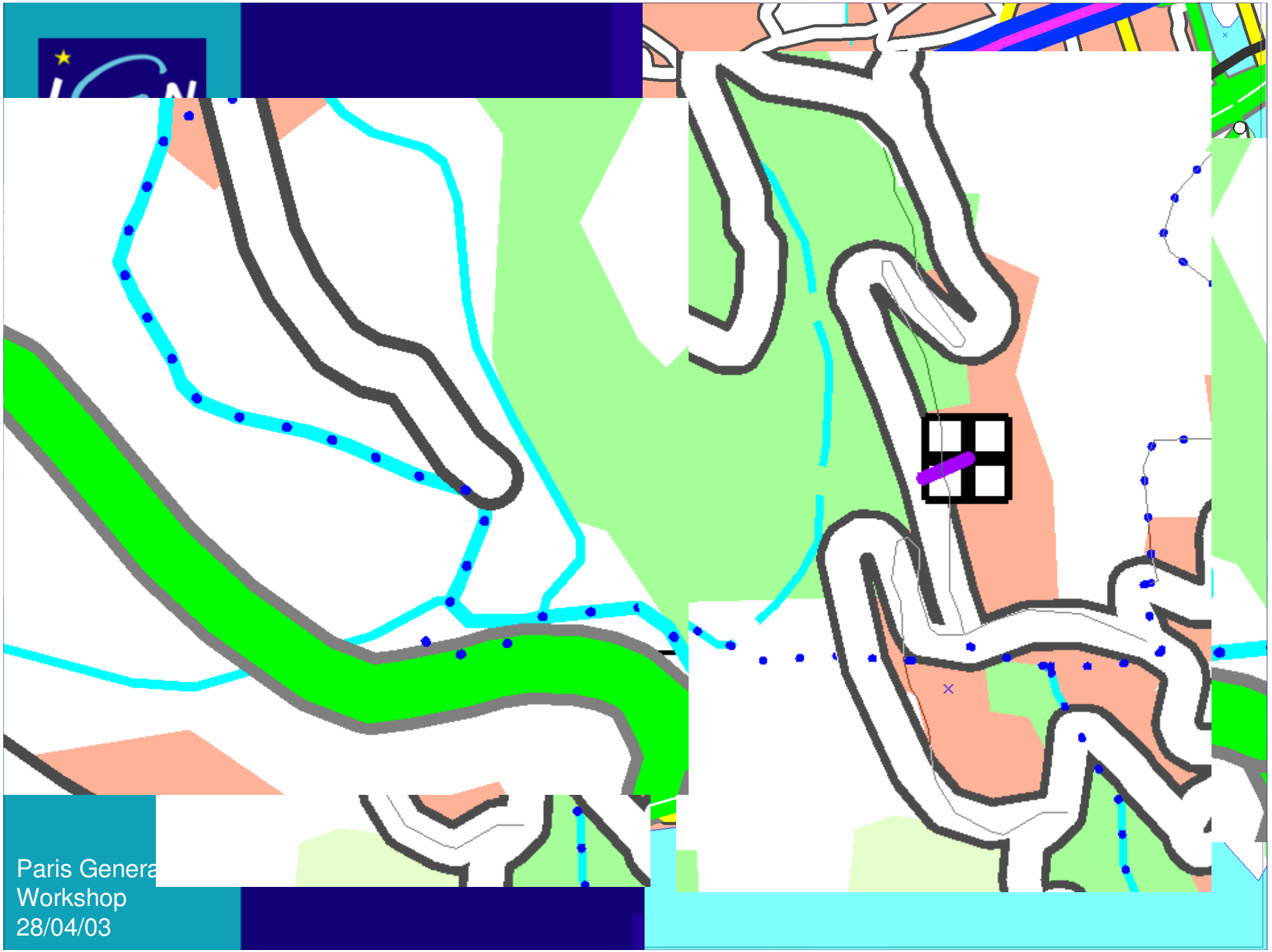
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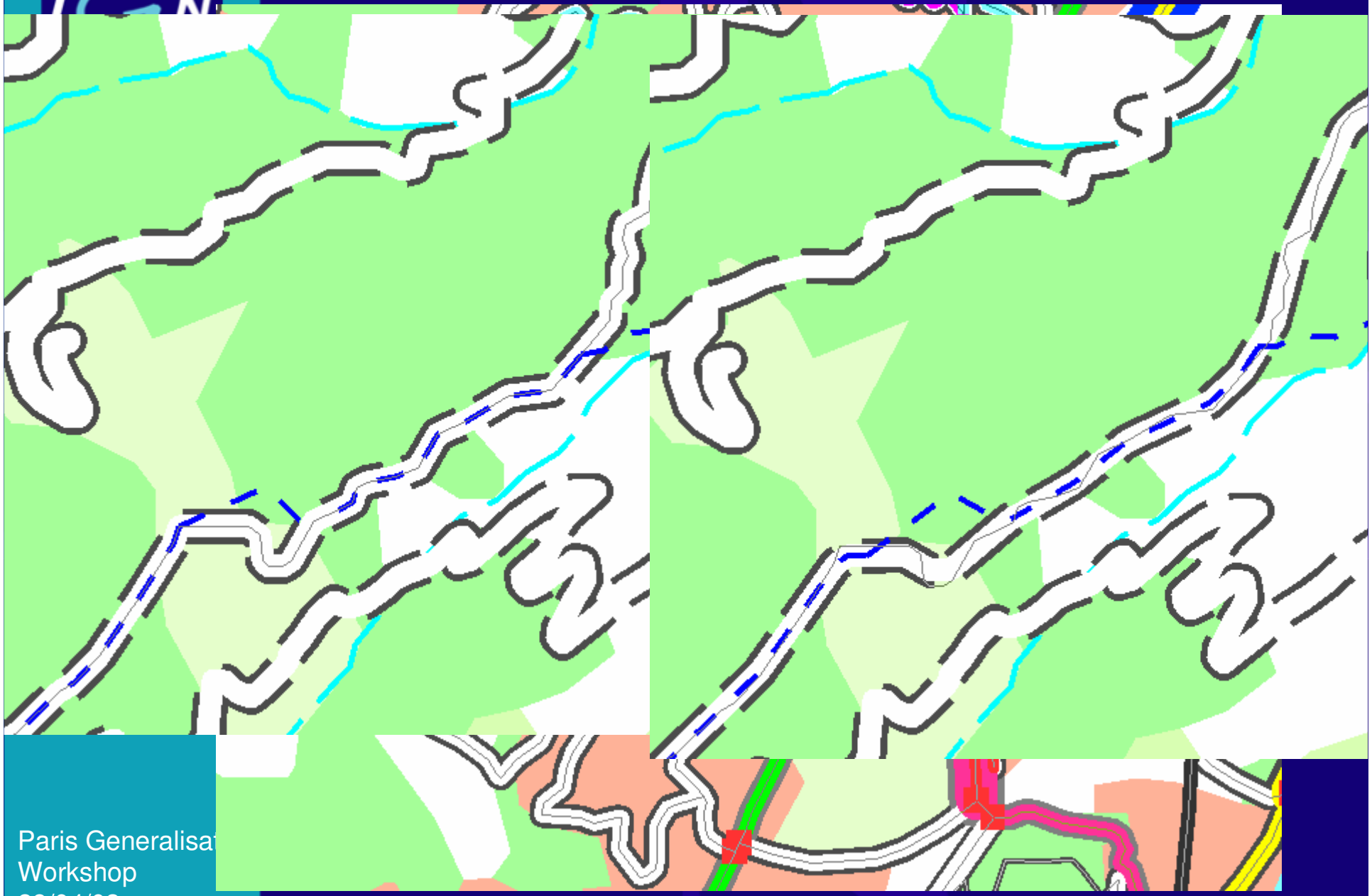
Carto2001 automated generalisation process

- 1 – river displacement
  - BEAMS
  - Roads are frozen
- 2 – Generalisation of bending roads
  - AGENT
- 3 – Roads and railway networks contextual generalisation
  - BEAMS



Results and outlooks

- Automated generalisation : 50 h / map
- Interactive part ~100 h /map
  - previous project : 1000 h / map
- Adaptability of research work to production
- Future work :
  - interface generalisation tools with updating process
  - integration of generalisation tools in other similar production line : departmental maps
  - extension to buildings : 1:50000

Carto2001 project's challenge

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