Clarity experimentations for cartographic generalisation in production

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First IGN Production

1988 - 2007

Geographic Database:

- BDTopo ®: Resolution 1m
- BDCarto ®: Resolution 10m

Vector data

New versions:

No link between maps and geographic database
Different Updating processes

1945 - 2010

Topographic Maps:

- "Series Top25": 25k – 1800 sheets
- "Series Top50": 50k – 1100 sheets
- "Series Top100": 100k – 76 sheets

Drawing documents, then Raster data

Next editions:
First IGN digital cartographic Production

1993 - 2005

Cartographic preprocessing

1. Geographic Database
   - BDTopo ® (1m)
   - BDCarto ® (10m)

2. Vector data

Cartographic Database

3. Vector data

Printing

Topographic Maps

4. "Series Top25": 25k
   + "Series Top50": 50k
   + "Series Top100": 100k

Some constraints:
* Same “scale”: no generalisation
* 1 dataset = 1 sheet
* Maps Updating: Interactive solution

Impossible to obtain Top100 and Top50
Introduction
Carto2001 Project
New Base Map Project
Conclusion

1st Cartographic Project

Carto2001: Top100

1999 - 2003

AUTOMATION

Generalisation
Name Placement

Vector data

Vector data

Vector data

Evolution Data

Updating

Based on

AGENT prototype

Top100
1st edition

Top100
2nd edition

Cartographic preprocessing

Printing
Top100 : Remaking

Interactively (1997) : 16 months/map

\{ 1200 h generalisation \\
800 h name placement \}

Automatically + Interactively (2003) : 6 months

\{ 150 h generalisation \\
160 h name placement \}
Top100 Next Editions: Revision

BDTop100 first edition + Evolution Data BD Carto®
Interactively (2002): 300 h/map

BDTop100 at t2
Automatically + Interactively (2003): 60 h/map
Back experience

- Roads generalisation
- No buildings generalisation, but solutions at COGIT laboratory
- Complexity of Agent Prototype in LAMPS2
- Agent prototype not enough generic
- …. but Agent usable for production

- MAGNET collaboration (OS, KMS, IGNB, IGNF) for a new Agent system: Clarity
  - Cleaner core of Agent
  - Agent interface
  - More generic system (new constraints, measures, algorithms)
Introduction

Carto2001 Project

New Base Map Project

Conclusion

2nd Cartographic Project

New Base Map: Top25+Top50

2004 - 2008

Cartographic preprocessing

Conflation

Generalisation

Name Placement

Gothic Clarity

BDTopo® at t2 and co

BDTopo® and co

Evolution Data

Updating

Printing

Top50

1st edition

Top25

2nd edition

BDDBaseMap at t2

BDBaseMap

Vector data

Vector data

Vector data

Laser-Scan
Top25+50 First Edition: Remaking

BD Topo®: 1/50000
BD Base Map: 1/50000
Prototype with no additional data
New Base Map Results: Generalisation

- Urban structures (COGIT)
  - Creation
  - Characterisation
New Base Map Results: Generalisation

- **Urban structures** (COGIT)
  - Creation
  - Characterisation

- **Appropriate generalisation** (AGENT + COGIT)
  - Structures = Meso agents
  - One meso agent class = one generalisation sequence (list of constraints)
New Base Map Results: Generalisation

- Generalisation sequence of a SUBURBAN BLOCK
New Base Map Results : Generalisation

- Generalisation sequence of a UNITARY URBAN BLOCK
New Base Map Results: Generalisation

- Urban structures
  - Creation
  - Characterisation

- Appropriate generalisation
  - Meso AGENT
  - One meso agent class = one generalisation sequence (list of constraints)
    - Remove
    - Generalise micros
    - Move
New Base Map Results: Generalisation

- Clarity versus AGENT prototype
  - Friendly user interface
  - Java = interoperability
  - Lull
  - Tuning easier
  - More efficient
Clarity for roads

- Test: to reproduce roads generalisation
  Same conclusions: Friendly user interface, Tuning easier
  Few problems: memory leak
Conclusion

- Agent prototype in production for Top100 (roads)
- Improvement in Clarity
  - Better interface
  - More flexible
  - Easier and quicker for tuning
- Clarity
  - For the New Base Map Project to produce Top50 prototype
  - In production for Top50…. in the future.