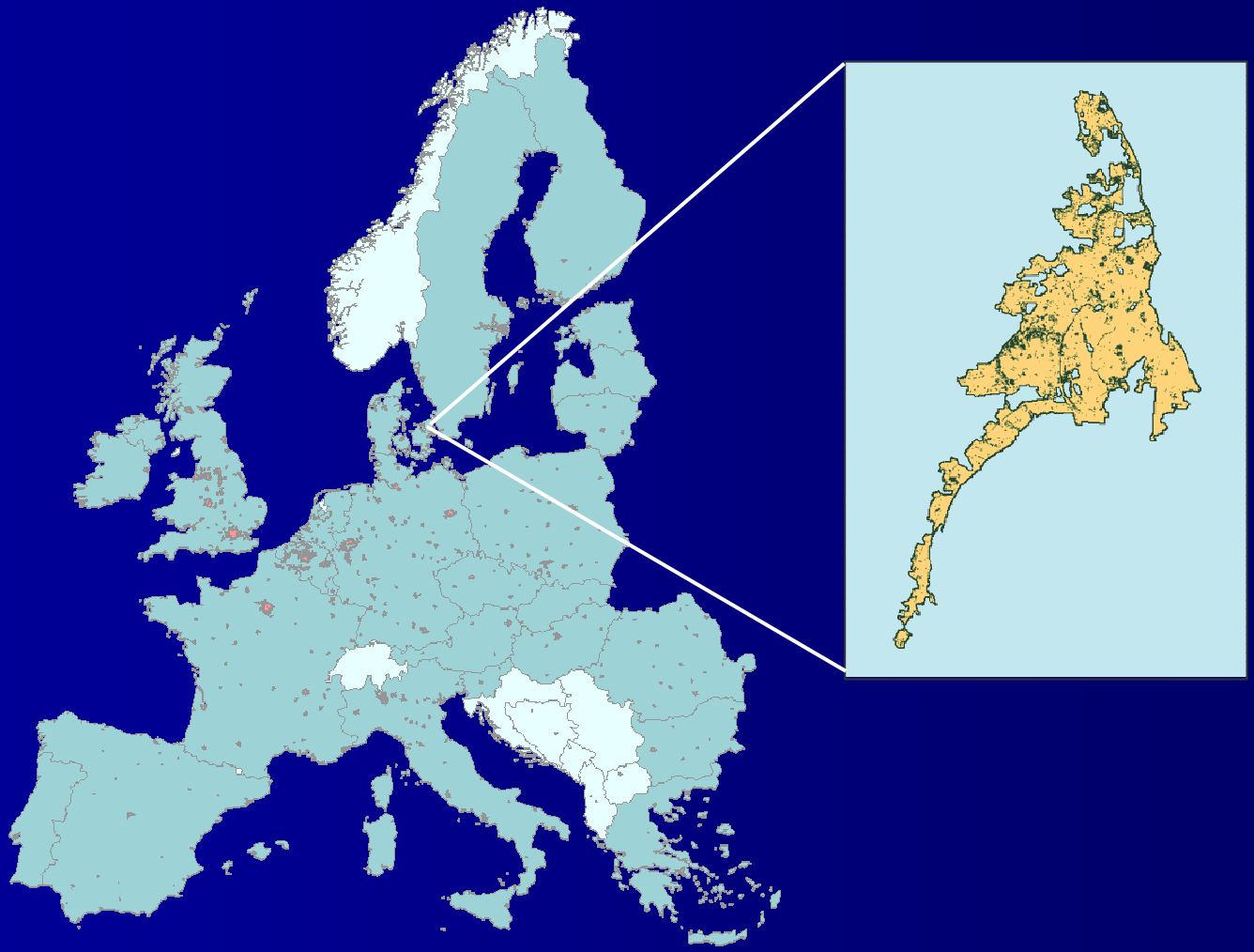
# Green Urban Areas



Work done by ETC/TE partner FÖMI

# Methodology

Input:

- Urban Morphological Zones based on CLC1990 ( > 100 000 inhabitants)
- IMAGE2000 data in national projection.

Work done:

- Re-projection of UMZs to national projection
- Semi-automatic extraction of green urban areas based on NDVI & NDBI
- Interactive-iterative evaluation on screen

Output:

- GIS layer of green urban areas
- Statistical data

# Task scope

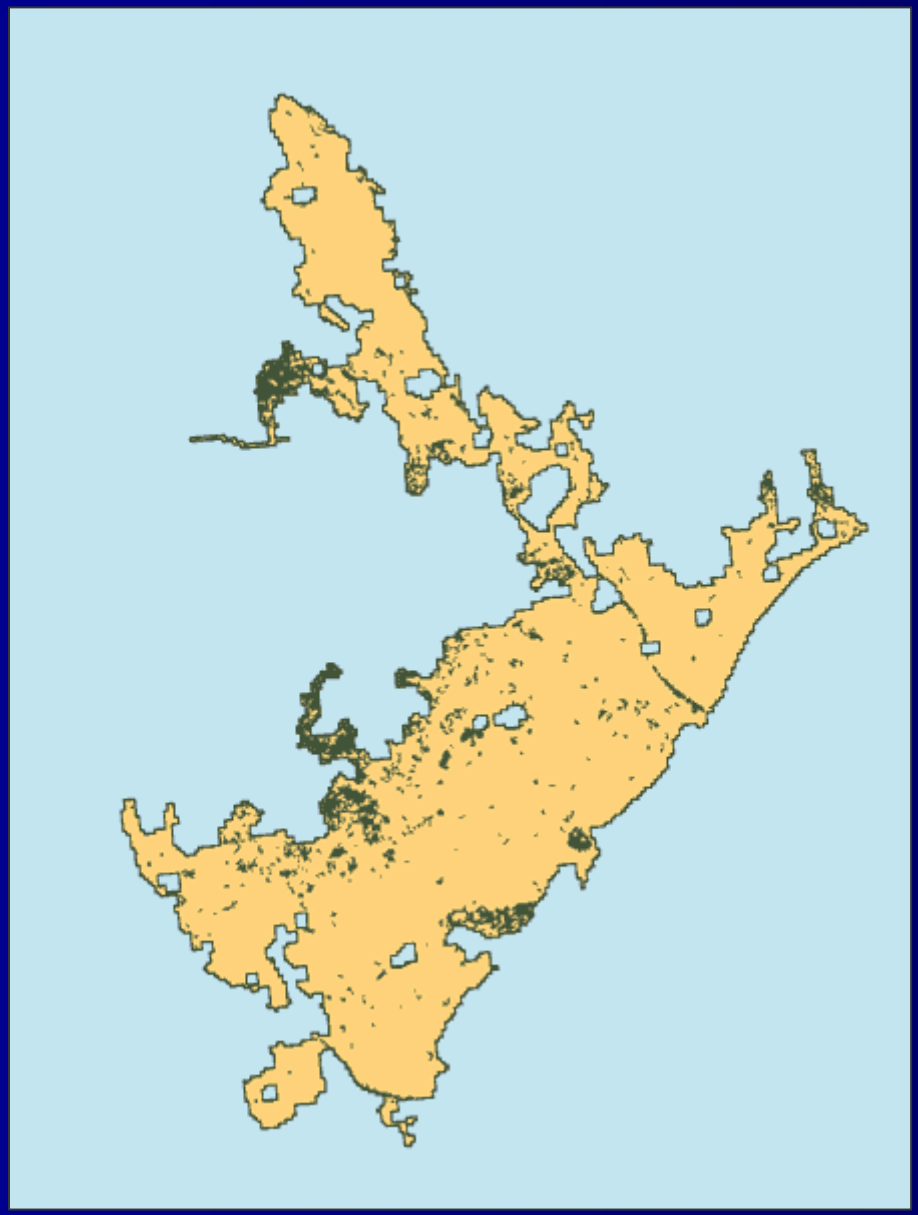
| Countries | Images | UMZs |
|---|---|---|
| Austria | 11 | 5 |
| Belgium | 5 | 5 |
| Bulgaria | 11 | 9 |
| Czech Rep. | 8 | 7 |
| Germany | 32 | 64 |
| Denmark | 9 | 4 |
| Estonia | 10 | 2 |
| Finland | 31 | 5 |
| France | 46 | 54 |
| Greece | 26 | 6 |
| Hungary | 10 | 7 |
| Ireland | 9 | 2 |
| | | |

| Countries | Images | UMZs |
|---|---|---|
| Italy | 36 | 46 |
| Latvia | 8 | 4 |
| Lithuania | 10 | 5 |
| Luxembourg | 1 | 1 |
| The Netherlands | 5 | 16 |
| Poland | 26 | 34 |
| Portugal | 14 | 2 |
| Romania | 20 | 24 |
| Slovakia | 5 | 2 |
| Slovenia | 4 | 2 |
| Spain | 45 | 45 |
| United Kingdom | 29 | 64 |
| **Sum:** | **448** | **422** |

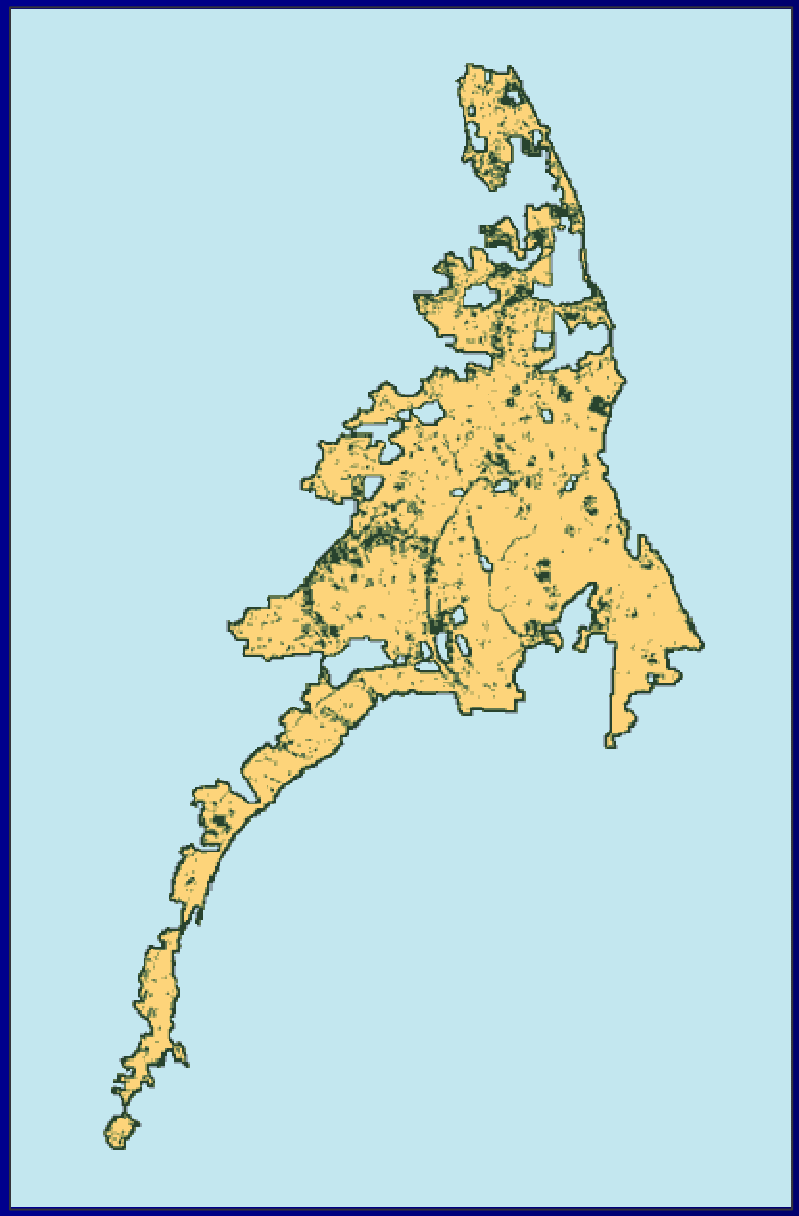
# Difficulties and solutions

- **Correction of UMZs based on known CLC interpretation mistakes**
  - Green areas within the built-up area were interpreted as forest (31x) instead of green area / park (141)
- **Problems with national projection parameters** (confidentiality, lack of software support of certain projections)
- **Limits of image processing (difference in Land Use / Land Cover)**
  - Golf courses: very small biomass → not recognised as green
  - Dry open spaces in the Mediterraneum → not recognised as green

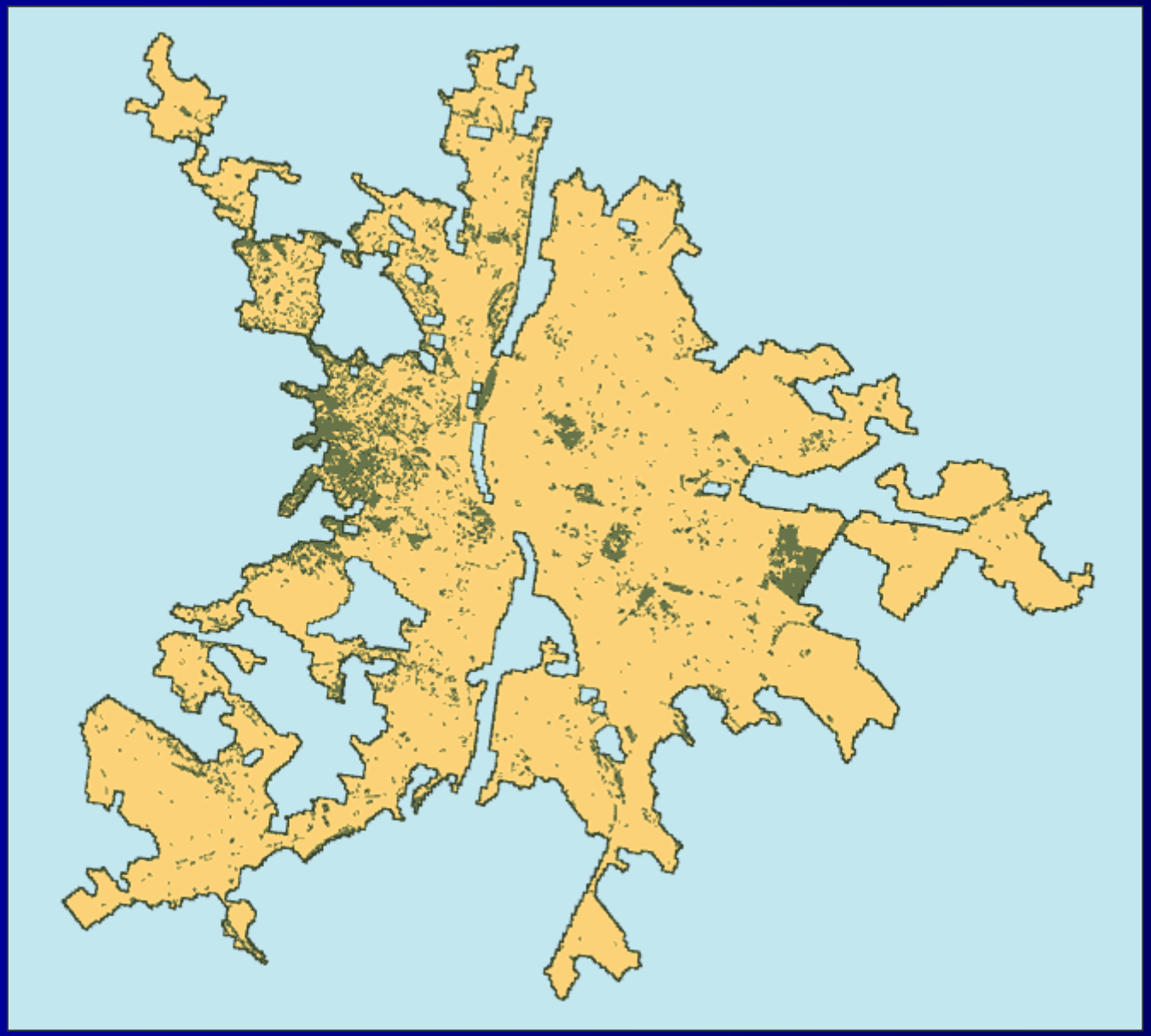
# Results (Barcelona)



# Results (Copenhagen)



# Results (Budapest)



# Results (Athens)