

# FLOODMAP

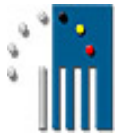
An operational system to support  
Flanders flood prevention policy



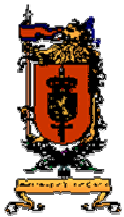
9 May 2003, DWTC meeting day, Namur

**The Support Centre is a division of the Flemish Land Agency**

# Project framework

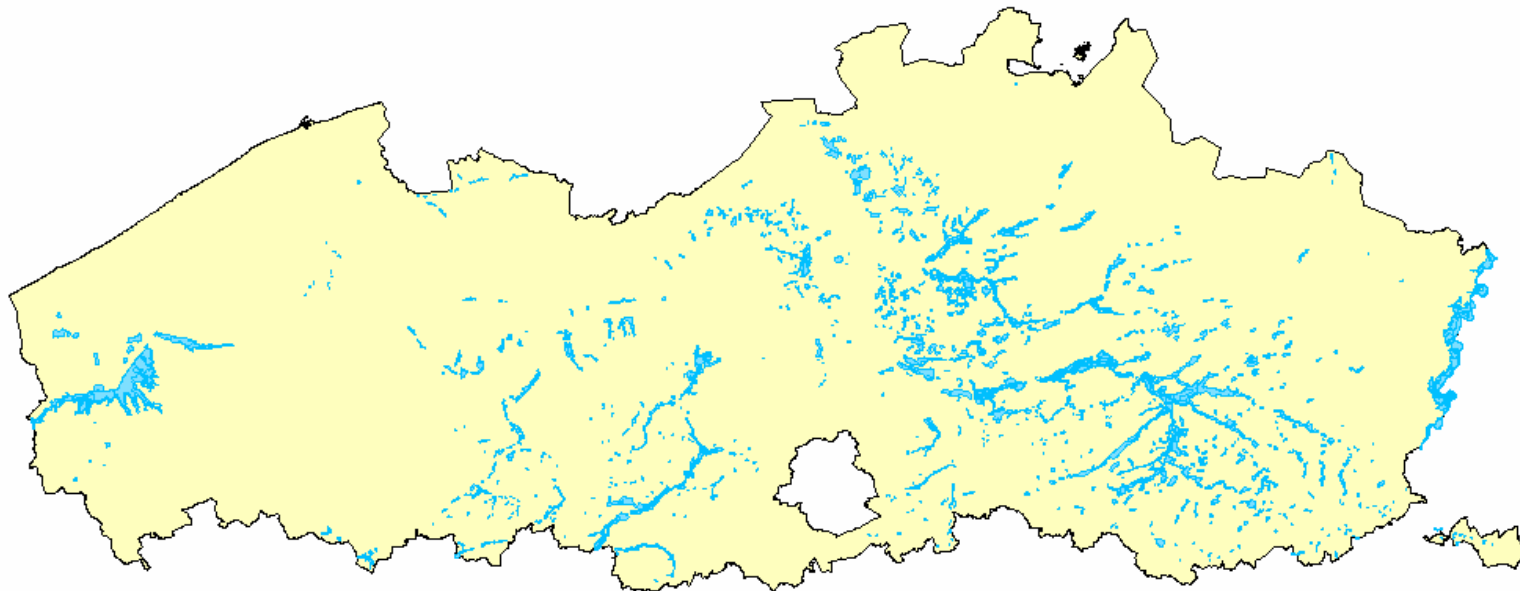


- STEREO
- Partnerships OSTC – governments
- Consortium
  - Support Centre GIS-Flanders (VLM)
  - Signal and Image Centre (RMA)
  - End users
    - Water managers of the Flemish Region
      - AMINAL, Division Water
      - Waterways and maritime affairs administration
- Project duration: 1 year

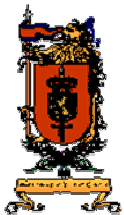


# End users needs

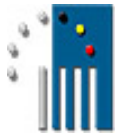
- AMINAL, Division water



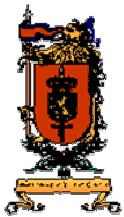
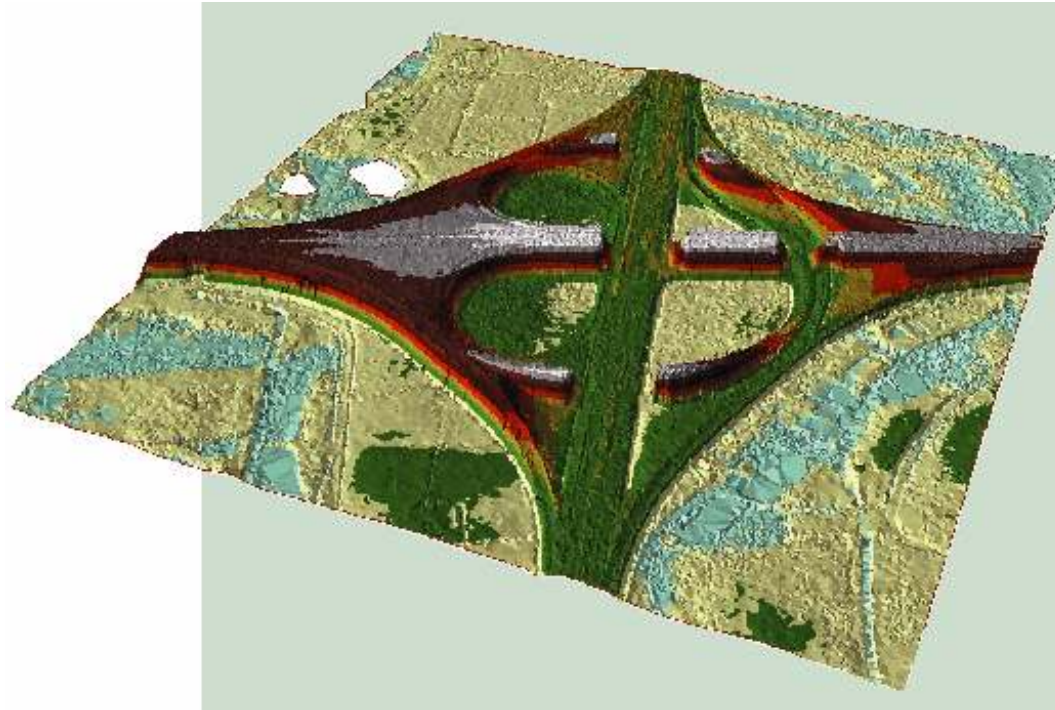
- Recently flooded areas (1988 – 2000). Updating?



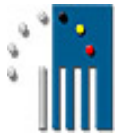
# End users needs



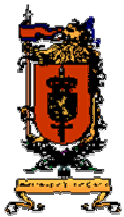
- Waterways and maritime affairs administration
  - Hydrological modelling
  - Digital Elevation Model Flanders
  - Validation of the models



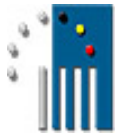
# Objectives



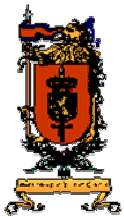
- Flood contour extraction using SAR imagery
  - Why SAR imagery?
    - Insensitive for clouds
    - Floods are clearly delineated
- Interactive geo-forum
  - Refinement
  - Complementary tools
- With this system
  - Update data bases
  - Provide reference information for validation



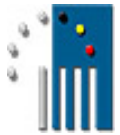
# Module I: processing chain



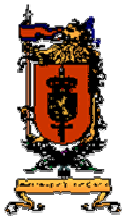
- Improve
  - Georefencing
  - Image quality (speckle)
  
- Link with
  - STEREO project SR/00/04: ASARTECH



# Module II: flood contour extraction

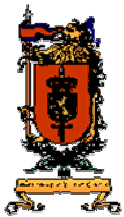
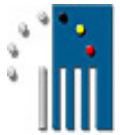


- Several approaches
  - Pixel based classifications
  - Object-oriented feature extraction
    - Active contours
    - eCognition



# Flood contour extraction

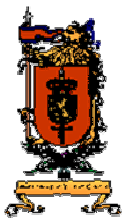
- Active contours (step 1)



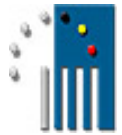


# Flood contour extraction

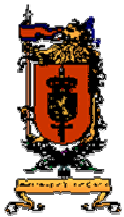
- Active contours (step 2)



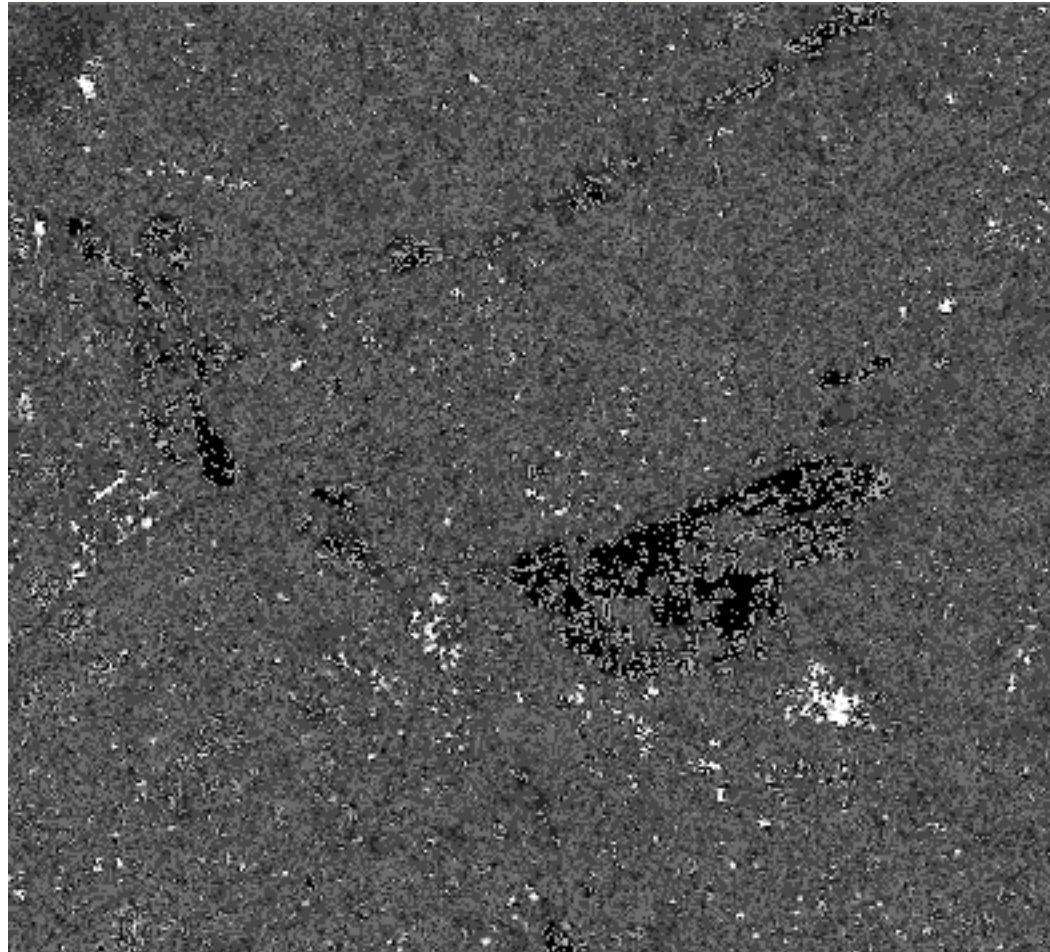
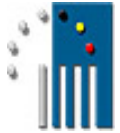
# Flood contour extraction



- Active contours (result)
- Iterative procedure (3)
- Multiple contours at a time

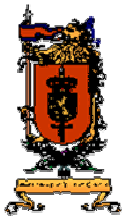
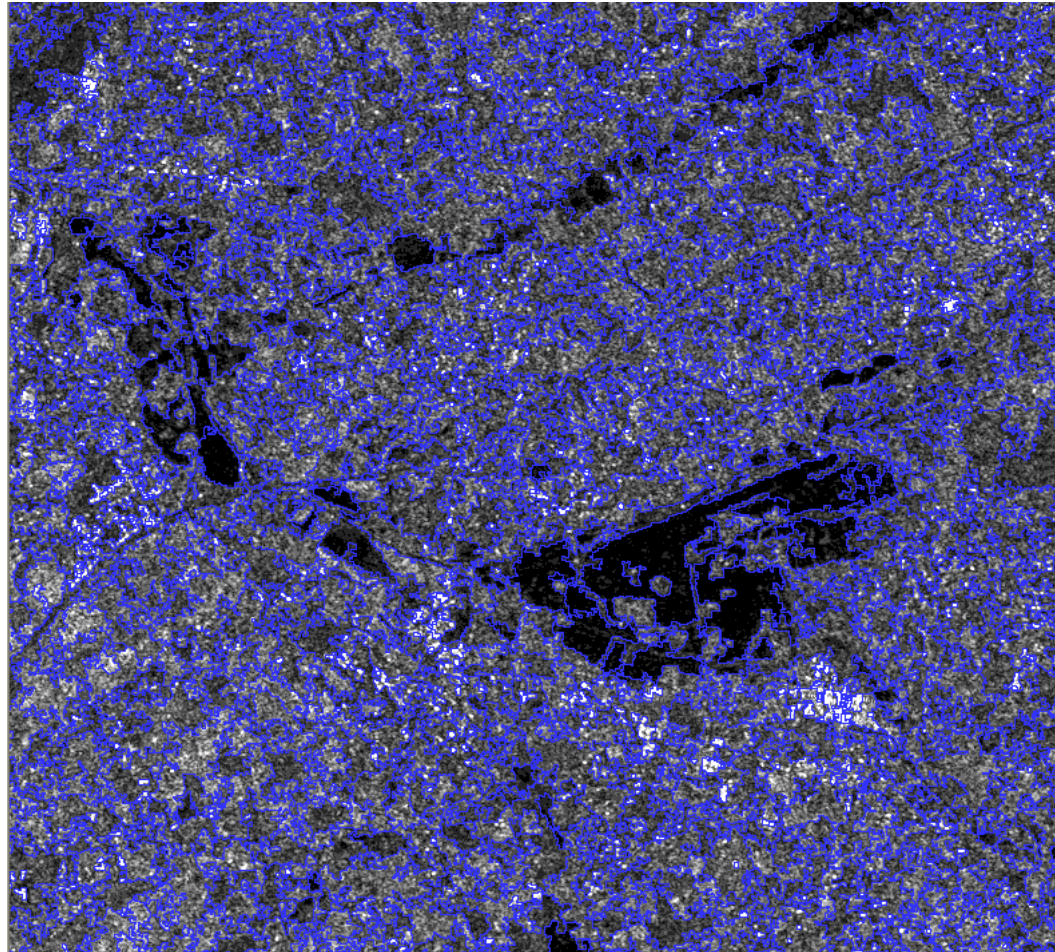
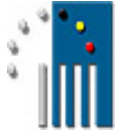


# eCognition



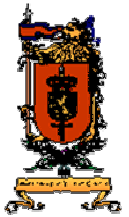
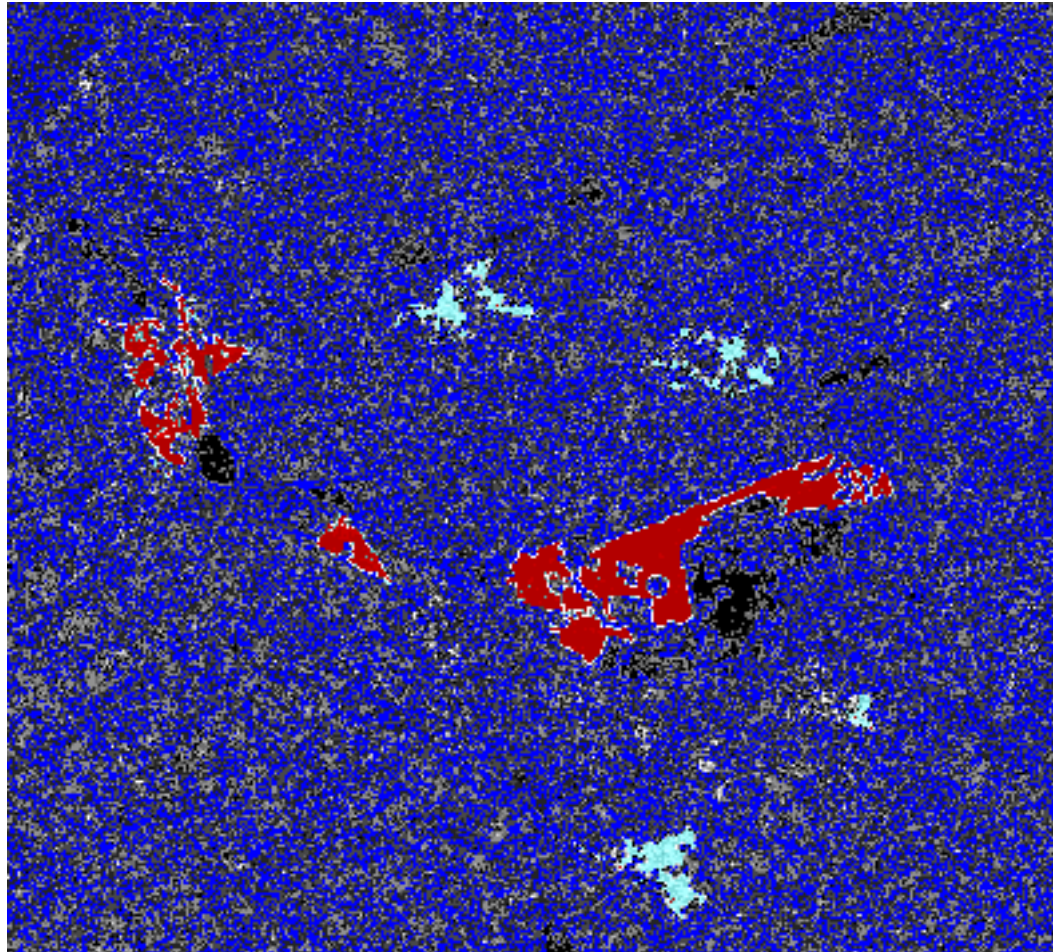
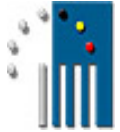
The Support Centre is a division of the Flemish Land Agency

# eCognition (segmentation)



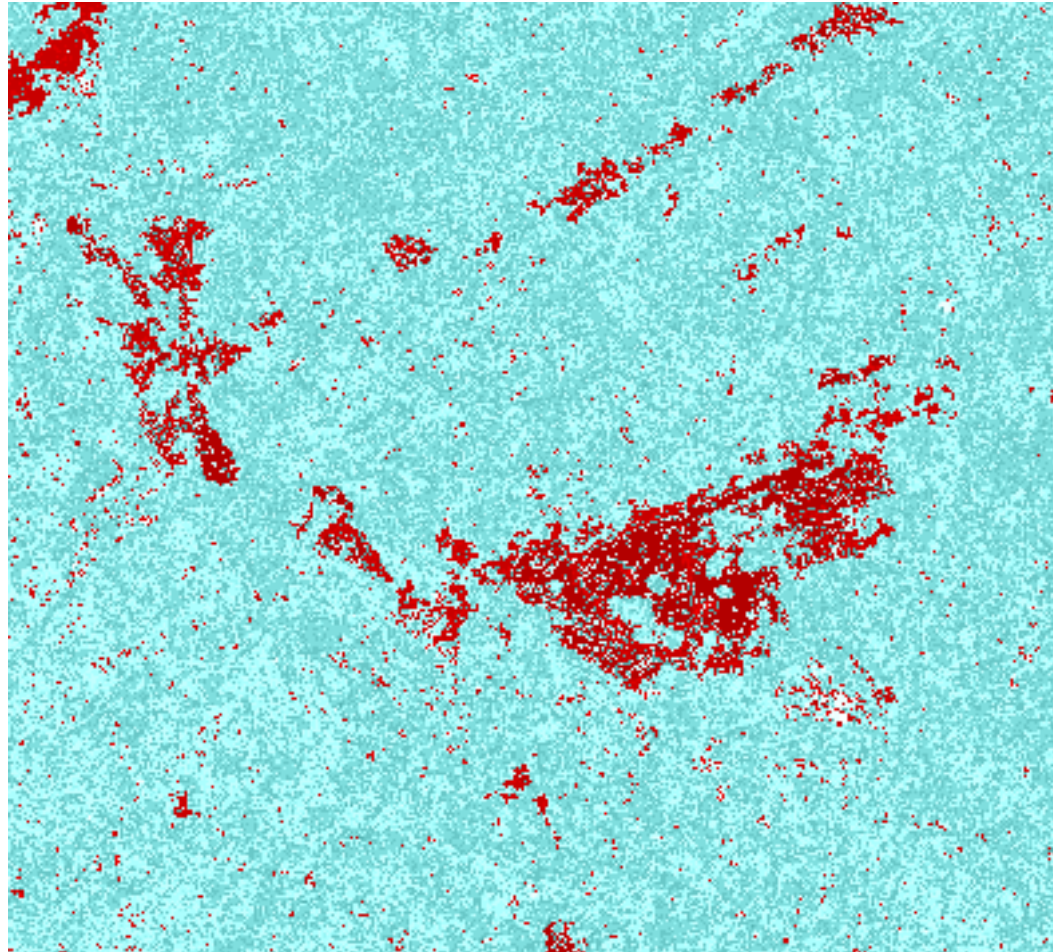
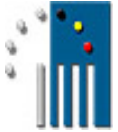
The Support Centre is a division of the Flemish Land Agency

# eCognition (training)



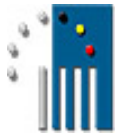
The Support Centre is a division of the Flemish Land Agency

# eCognition (classification)



The Support Centre is a division of the Flemish Land Agency

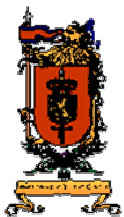
# Module III: Interactive geo-portal



## ■ Geo-Vlaanderen: 7 topics

- Administration & statistics (3)
- Cultural inheritance (1)
- Agriculture (1)
- Environment (5)
- Streets and geographic positioning (2)
- 'recht van voorkoop' (1)
- Spatial planning (2)

■ <http://www.gisvlaanderen.be/geo-vlaanderen/nl/loketten.asp>

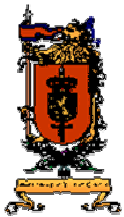


# Interactive geo-portal

- Geo-Vlaanderen: topic environment

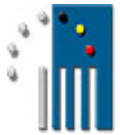


<b><u>Boskartering &amp; Speelzones in bossen</u></b>	De boskartering 1990 bevat naast een geografische component (de bospolygonen met hun respectievelijke georeferentie) ook een beschrijvende component (de kenmerken: boomsoort, eigenaarsklasse, gemeente, houtvesterij, e.d.). In dit Geoloket vind je ook een overzicht van de speelzones in de Vlaamse bossen.
<b><u>Waterkwaliteit</u></b>	Dit geoloket geeft een geografisch overzicht van de meetpunten van de Vlaams Milieumaatschappij, AMINAL - Afdeling Water en de visdatabank van het Instituut voor Bosbouw en Wildbeheer en het Instituut voor Natuurbehoud.
<b><u>Bodemkaart</u></b>	Dit geoloket toont de digitale versie van de bodemkaart voor Vlaanderen. Het geoloket werd opgebouwd in samenwerking met de afdeling Land van het departement Leefmilieu en Infrastructuur van het Ministerie van de Vlaamse Gemeenschap.
<b><u>Natura 2000</u></b>	Dit geoloket toont de digitale afbakeningen van de speciale beschermingszones in uitvoering van de Europese Richtlijnen 92/43/EEG (Habitatrichtlijn) en 79/409/EEG (Vogelrichtlijn): de habitatrichtlijngebieden (SBZ-H) en de vogelrichtlijngebieden (SBZ-V).
<b><u>Biologische Waardering</u></b>	Dit geoloket toont de Biologische waarderingskaart van het Instituut voor Natuurbehoud. Bij het klikken op een punt verschijnt in het rechterframe de waardeing voor het geklikte gebied.

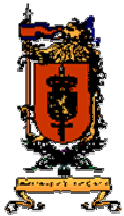




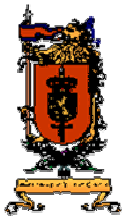
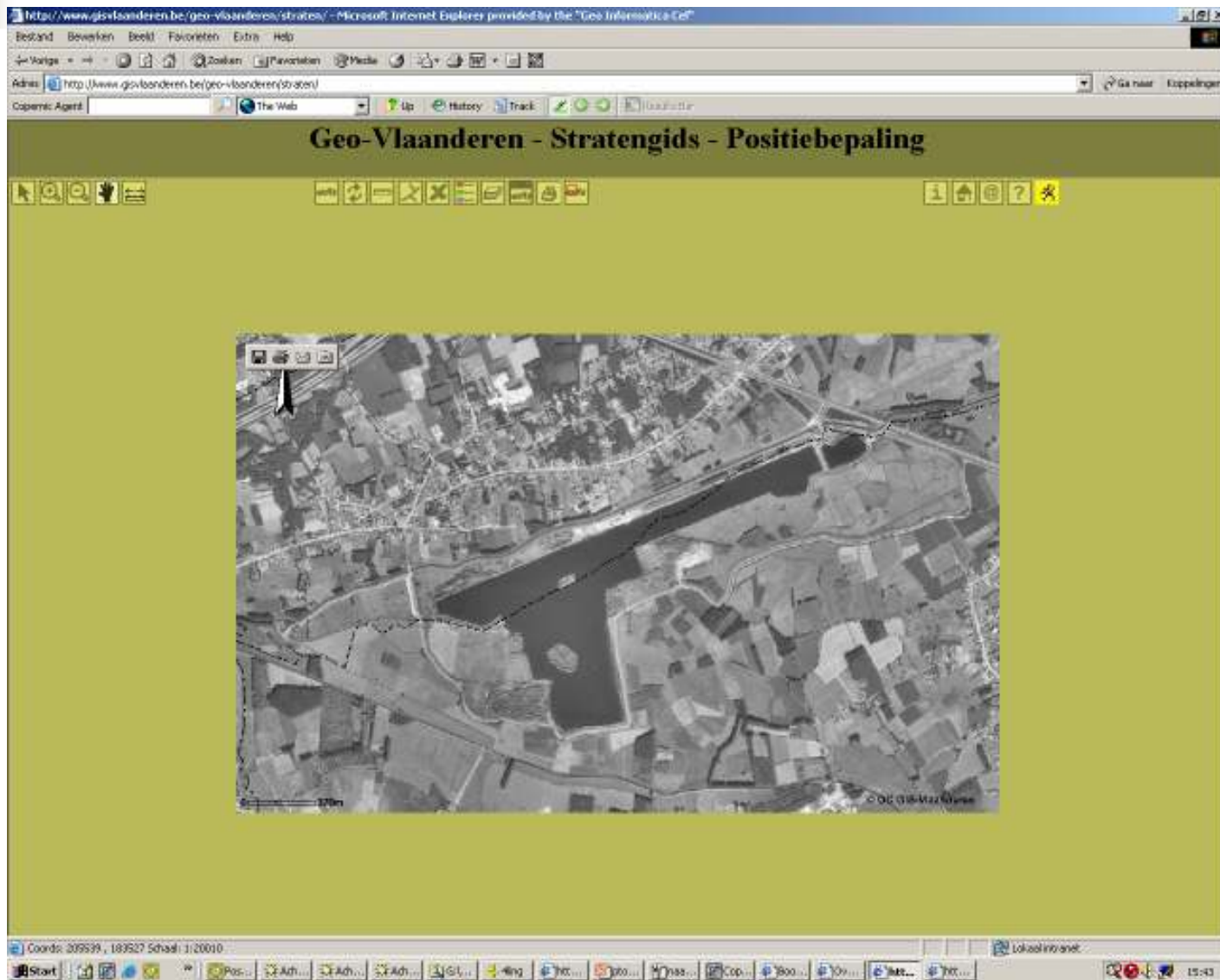
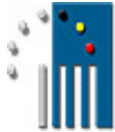
# Interactive geo-portal



- What's innovative
  - Layer editing
  - Access policy + passwords

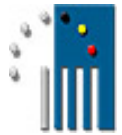


# Interactive geo-forum



The Support Centre is a division of the Flemish Land Agency

# Conclusion



- Specific need
- Double integrated strategy
  - Flood contour extraction
  - Geo-ICT

