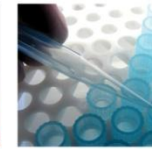
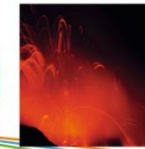
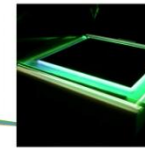
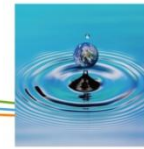




**vito**

vision on technology



10/09/2012

# RE-LEARN - RE-using field reference data in space and time for vegetation mapping: the potential of semisupervised and active LEARNing techniques

*Birgen Haest, Jan-Pieter Jacobs, Stefan Livens, Guy Thoonen, Paul Scheunders, Devis Tuia and Gustavo Camps-Valls*

[www.ua.ac.be/relearn](http://www.ua.ac.be/relearn)

# Re-Learn – Administrative details

» Project Period: Feb 2012 – Dec 2013

» Partners:



» Spin-off project



# Re-Learn – Project background

» Spin-off HABISTAT (BELSPO STEREO II, 2006-2011)



Development of a methodological classification framework for NATURA 2000 habitat mapping and quality assessment using hyperspectral imagery

<http://habistat.vgt.vito.be>

» One of the implementation questions that arose..

Research



Operational scenario

A lot of good quality reference data

Little reference data

# Re-Learn – Project objectives

- » So the question is...

How to close this gap?

- » Recent developments in the field of pattern recognition..

Semi-supervised learning

Active learning

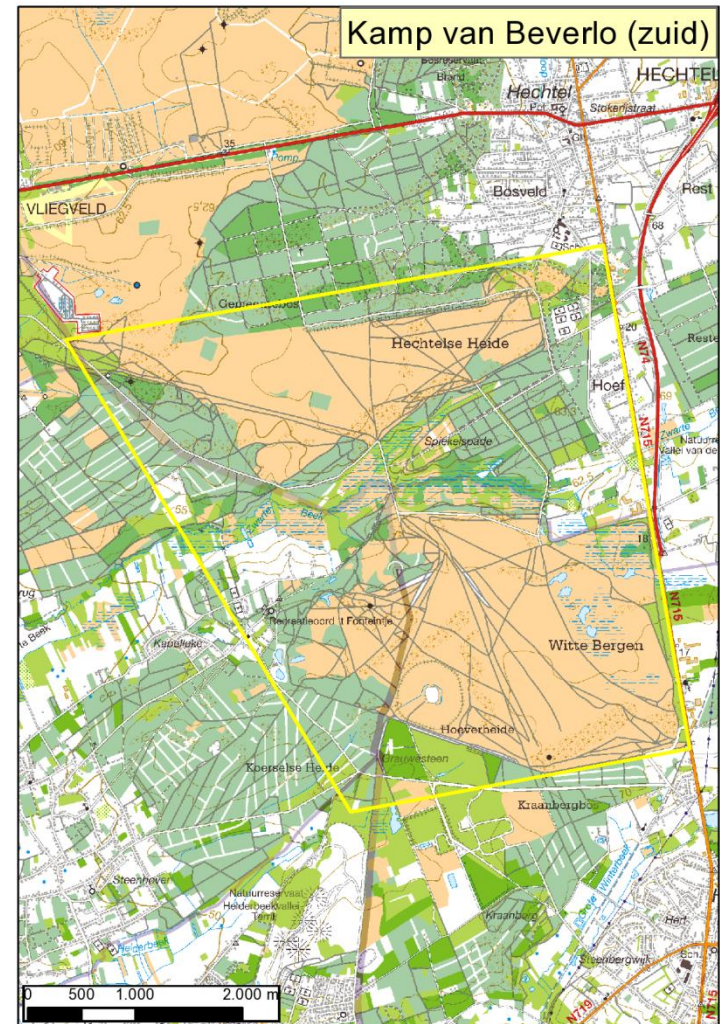
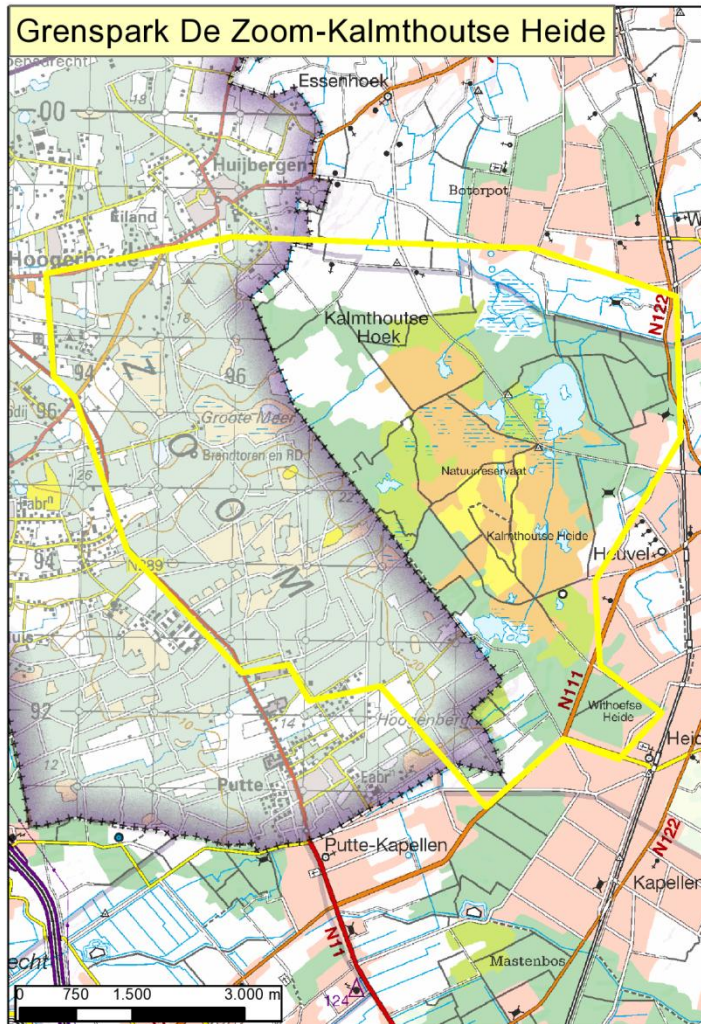
- » Project Objective:

Further develop and apply these techniques, specifically in the context of vegetation mapping, to enable the *re-use* of ground *reference data* in *space* and *time*

# Re-Learn – Project approach – Study areas

Re-Use in *TIME*

Re-Use in *SPACE*



# Re-Learn – Project approach – Data sets

Re-Use in *TIME*

Grenspark De Zoom – Kalmthoutse Heide

» Acquired images:

- » 2007 June 2 – AHS
- » 2010 June 28 – APEX
- » 2011 June 2 – APEX
- » 2012 July 2 – APEX

» Field data:

- » 2007
- » 2009

Re-Use in *SPACE*

Kamp van Beverlo

» 2012 June 30 – APEX

» 2012

# Re-Learn – Current activities

- » TOPIC 1: Machine-based tree learning vs knowledge-based trees
- » TOPIC 2: Manifold learning by invariant feature selection
- » TOPIC OUT-THERE: Real-time active learning in 2013 at the kalmthoutse heide or kamp van beverlo

# Time for Questions..

[www.ua.ac.be/relearn](http://www.ua.ac.be/relearn)