

# **Identification of potential areas for AW habitat restoration in Pomerania using satellite images – preliminary results and way forward**

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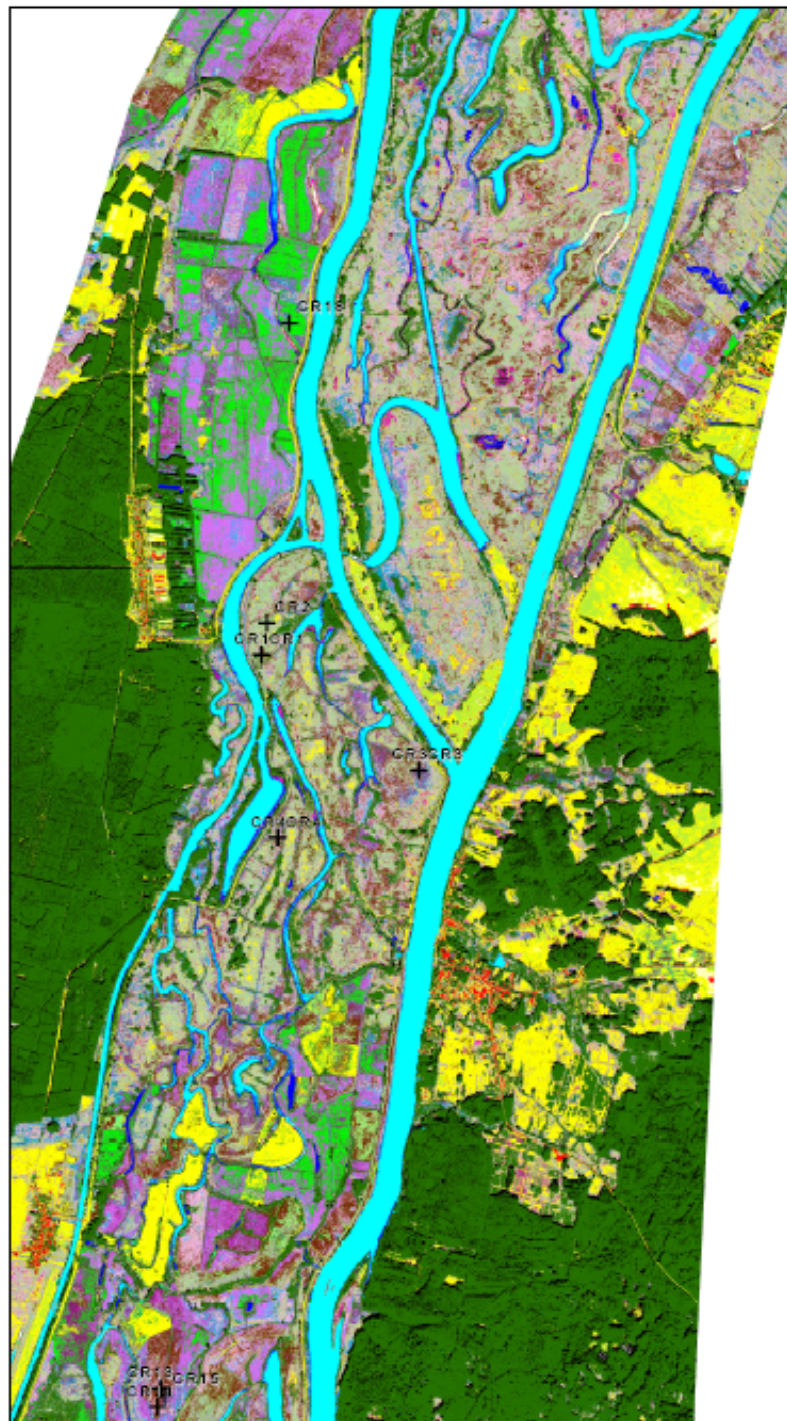
with Annett Frick



# Previous work

- work started in 2006
- with Dr. Annett Frick (remote sensing specialist from Potsdam) and other partners
- several pilot studies using different types of remote sensing data and ground data from Pomeranian PhD study





#### Legend

pc\_tu\_ctufe23\_class.img

Class\_Names

grünland/acker intensiv  
rotkleebertricht

Wasserlinse  
Schilmmilch  
ruderales Hochgras  
Solk  
Grünland gemäßigt  
Schilben  
Grünland mesophil  
Schwimmbblatt  
Hochstauden feucht  
Phalarisdrücht  
Phragmites Wasser  
Großseggen  
Halbtrockenrasen  
Glyceria  
Unclassified

waldmack\_nachbearb3.img

Class\_Names

wald  
ndvi\_stufe1\_nachbearb2.img

Class\_Names

acker\_grünland2\_rotboden  
acker\_grünland\_gras  
acker\_grünland\_rotboden1  
acker\_grünland\_koppel  
beton  
bordensurtees\_dach  
feuchter ackerboden  
graulach  
haus\_bordach\_asphalt  
haus\_dagelach  
haus\_dagelach\_schoben  
haus\_oberstrahl  
moos  
moos\_silbergras  
moos\_silbergras (!)  
offener Boden, Kies  
offener Sandboden  
ruderal trocken  
sand\_sandeggs\_mehr  
sand\_silbergras\_moos\_mehr  
sand\_silbergras\_moos\_wenig  
sandeggs  
schoben  
schwimmbblatt  
staudenfur trocken  
trockenes gras  
Undefined  
wasser\_tief\_klar  
wasser\_tief\_schweb  
zwergstrauchheide trocken

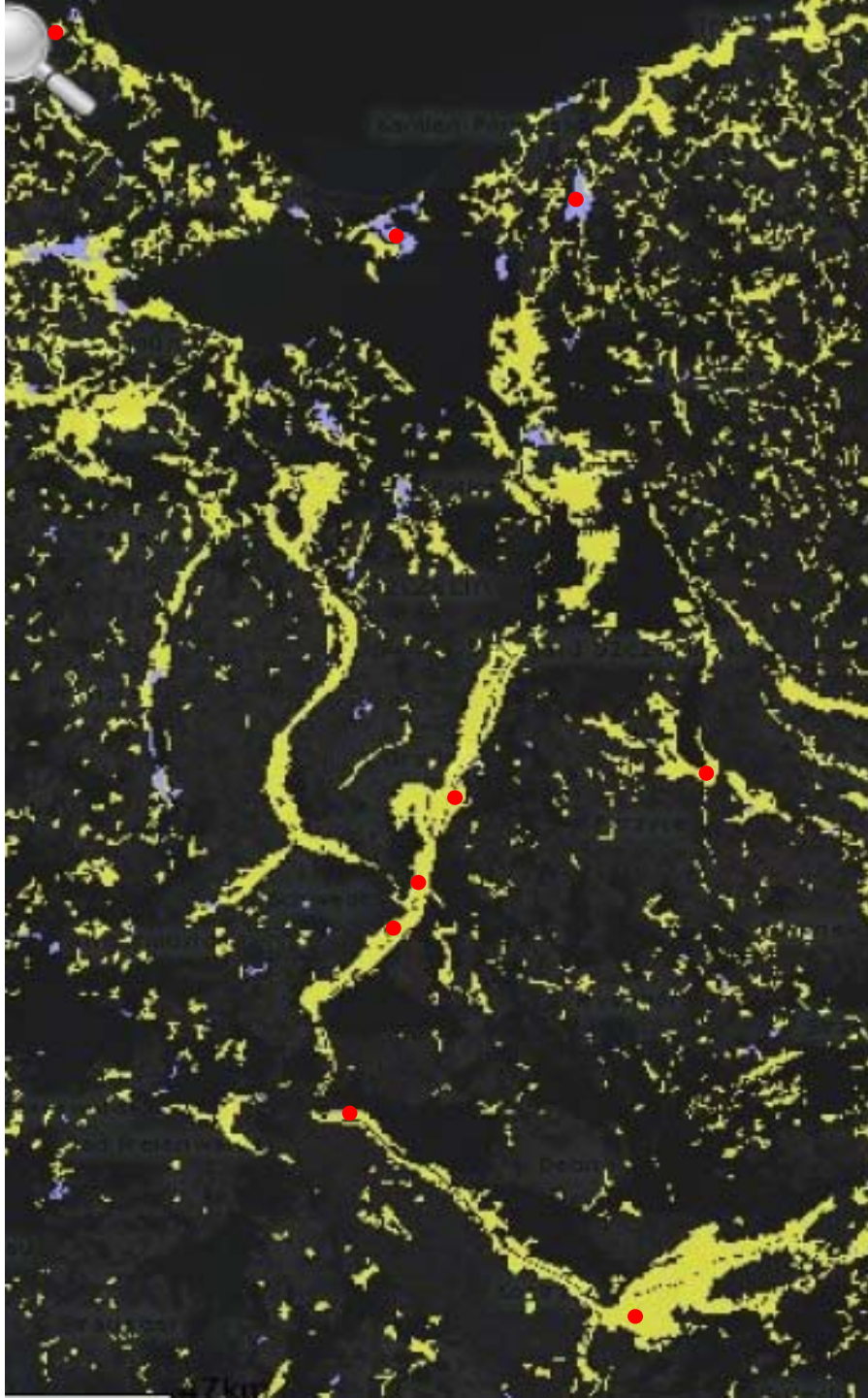
## Quickbird satellite data

- resolution 0.6 m
- can separate between *Phragmites*, *Phalaris*, *Glyceria*, *Carex*,...

→ but: available only for small areas

→ coverage of Pomerania would be extremely expensive...



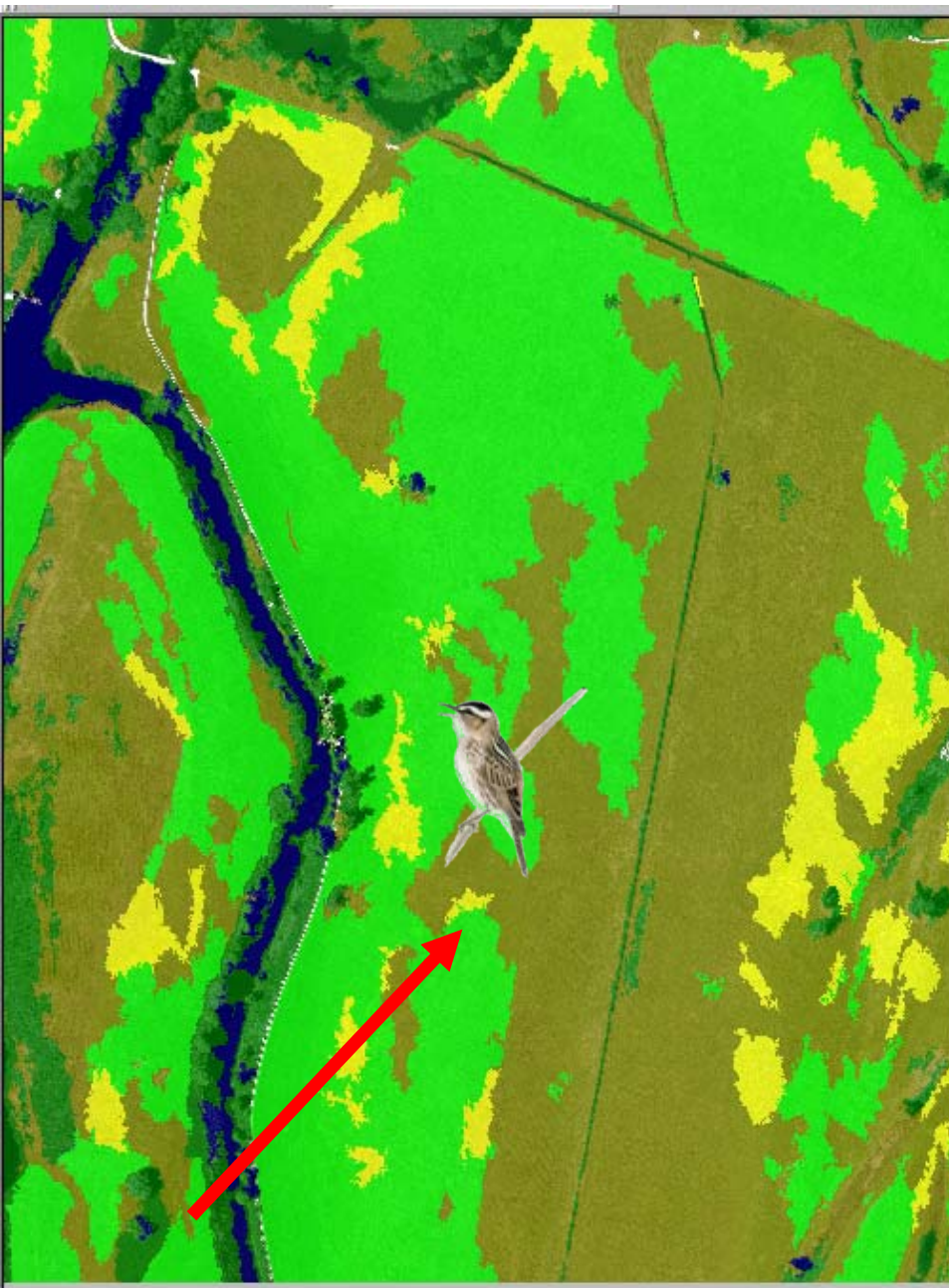


## CORINE land cover data

- 100\*100 m raster
- ‚pasture‘ (yellow) and ‚inland marshes‘ (violet) associated with AW presence
- potentially suitable: large set of areas
  - but: main criterion is current land use...
  - for pre-selection?







## Aerial pictures

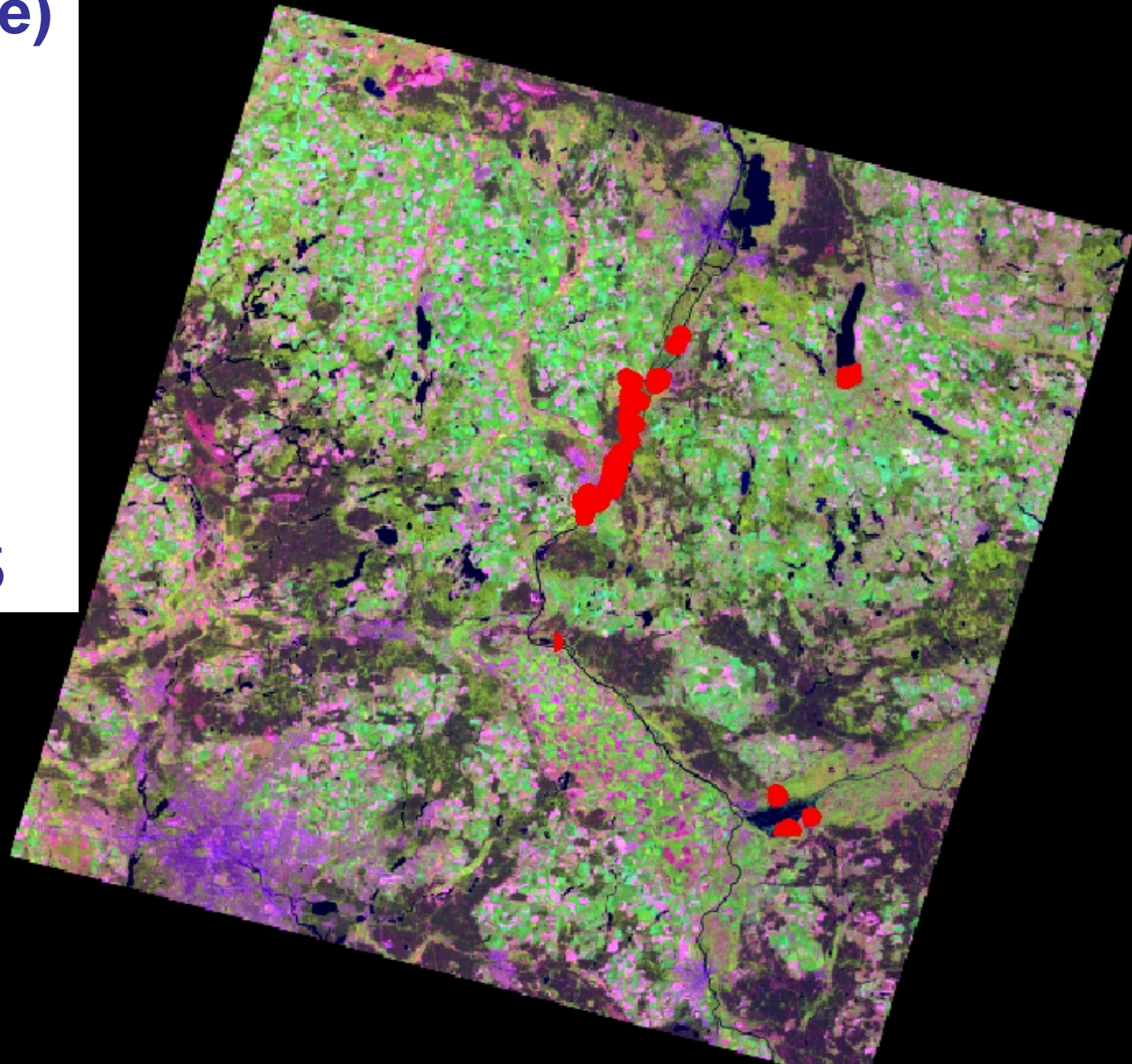
- resolution 0.25 m
  - using ECognition (free)
  - example: AW breeding site in NP Lower Oder Valley
- good to identify mowing edges

# IRS (= Indian remote satellite) data

→ resolution  
5.8 m

→ available for  
large area

→ 1999 & 2005



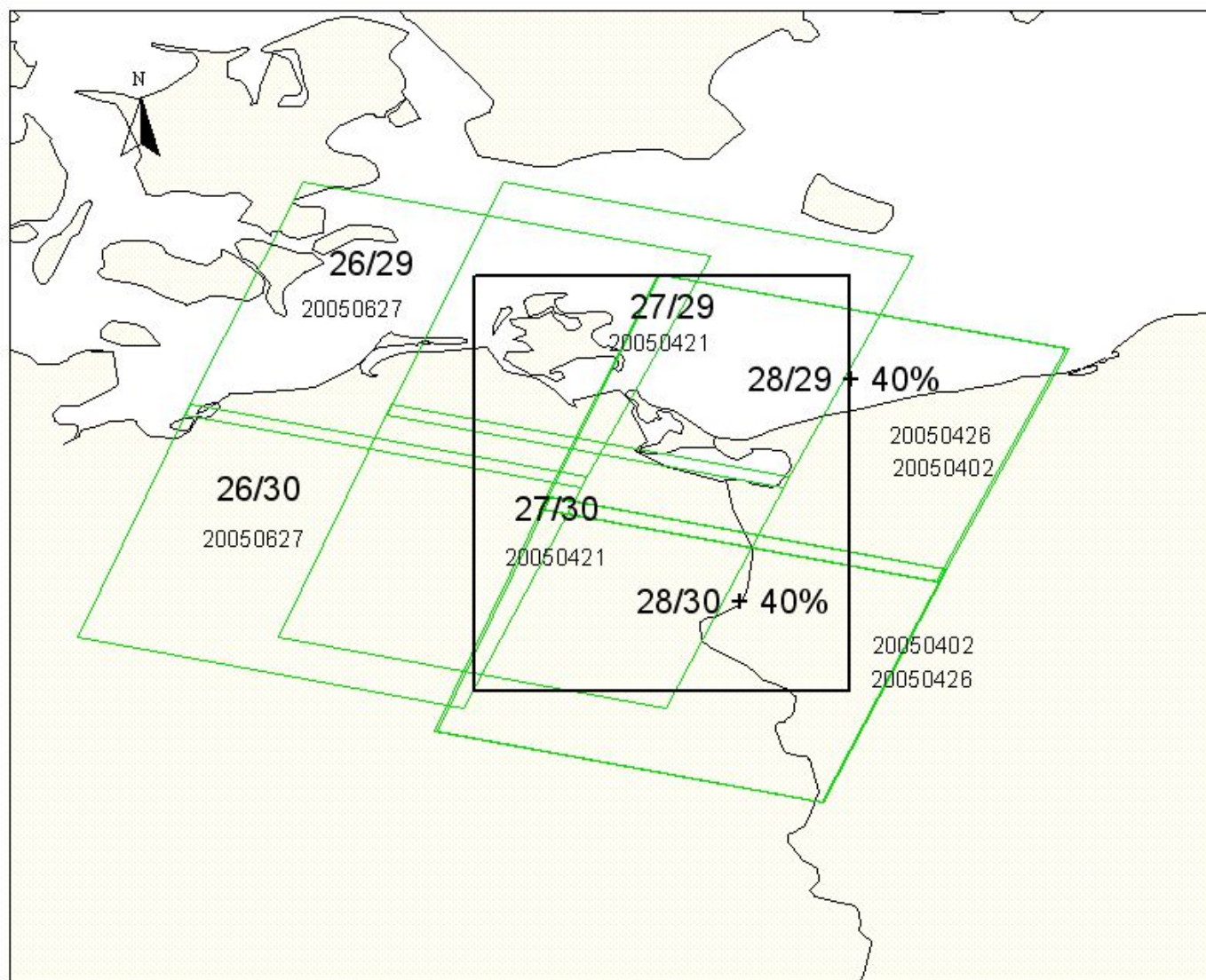
# Preliminary results using IRS data

- boosted regression trees (software: Cubist)
  - 200\*200 m raster and ,moving windows' 3\*3 m
  - 350 parameter included (structure, indices,...)
  - using presences 2005: high goodness-of-fit, but validation impossible because of small number of presences
  - using all presences 1999-2005: high goodness-of-fit, good internal validation, good external validation from NP Lower Oder Valley to NP Warta Mouth
- promising approach, but:
- IRS data needed to cover the full area of presences of the Pomeranian population!






## Selected IRS-P6 LISS-III Data for your AOI



 Area Of Interest

 IRS-P6 LISS-III  
Full Scene

16/39 Scene Reference

20070802 Acquisition Date  
of entire Path  
[yyyymmdd]

0 40 80 120 Kilometers



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→ application to DLR in 07/2007 → waiting... → waiting... → waiting

# Costs...

3 IRS-P6 LISS-IV MonoMode full scenes =  $3 \times 2500$  Euro

1 LISS-III full scene = 2800 Euro

→ total plus VAT: 12,257.00 Euro (single user licence)

→ total plus 40%: 17,159.00 Euro (multi user licence)

→ data will be purchased for the Brandenburg AW SAP ☺

→ if data available in 01/2009: analysis planned to be finished by mid 2009

→ ensemble classification using different methods because of small number of presences (e.g. Mahalanobis + Fuzzy MaxLik + Decision Tree +...)

→ results should be easy to derive also for the whole area of Pomerania → more results to come!

