



Rijksdienst voor het Cultureel Erfgoed  
Ministerie van Onderwijs, Cultuur en  
Wetenschap

## MAPPING THE UNKNOWN

LancewadPlan Strategy: a follow up on the  
Sylt Declaration  
Amersfoort, January 18th



1. An short introduction to Dutch archaeology (Jos Bazelmans)

2. Predictive modelling and the Dutch Indicative Map of Archaeological Values (IKAW) (Bjorn Smit)

3. The impact of the Dutch IKAW on archaeology and spatial development (Gerda de Bruin)

4. Mapping the Holocene coastal development of the Netherlands (Henk Weerts)

5. Mapping the early modern en modern development of the western Wadden Sea (Menne Kosian)

6. The known and the unknown: MACHU and the development of a new maritime IKAW (Martijn Manders)

7. Discussion

8. Towards a trilateral indicative map for the Wadden Sea?

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TODAY'S PROGRAMME

[www.cultureelerfgoed.nl](http://www.cultureelerfgoed.nl)





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**THE CULTURAL HERITAGE AGENCY, AMERSFOORT, PART OF THE MINISTRY OF EDUCATION, CULTURE AND SCIENCE**

3 **THE CULTURAL HERITAGE AGENCY, AMERSFOORT**





***Het Koninkrijk der Nederlanden***  
**The Kingdom of the Netherlands**

- \* ca 16.500.000 inhabitants (UK: ca 58.800.000)
- \* 41.526 square kilometers (18% water)

compare  
 UK: 242.900 km<sup>2</sup>, 1,3% water  
 Flanders: 13.521 km<sup>2</sup>  
 Nordrhein-Westfalen: 34.080 km<sup>2</sup>)

- \* economy: de facto G20



4 **THE NETHERLANDS: SOME FACTS AND FIGURES**

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***Governmental structure***

**Strongly decentralised unitary state**

- \* 1. Staat der Nederlanden (“Het Rijk”); state
- \* 2. Provincies (n=12); provinces
- \* 3. Gemeenten (n=441); municipalities

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THE NETHERLANDS: GOVERNMENTAL STRUCTURE

www.overheid.nl
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**1. Monuments Act**  
**Monumentenwet**  
**23-12-1988**

Ratification of  
 ‘Malta’: 1997

Policy rules pertaining  
 to perform excavations,  
 2001

De wegwijzer naar informatie en diensten van alle overheden

overheid.nl

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Monumentenwet 1988  
 Geldend op 18-11-2009

**2. Amendments to the Monuments Act**  
**Wet op de archeologische monumentenzorg**  
**d.d. 21-12-2006**

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Wet op de archeologische monumentenzorg  
 Geldend op 16-11-2009

ARCHAEOLOGY AND LAW



### **Monuments Act and archaeology (as of the end of 2006)**

- archaeology: a responsibility at the level of the municipality (acting as the local planning authority)
- archaeology part of municipal land regulation plans (*bestemmingsplan*), revised every ten years
- archaeology has to be dealt with in the context of the acquisition of a building permit
- developer pays
- license to do excavations (open to commercial firms)
- excavations done according to quality standards (e.g. basic research report published within two years, in open domain)

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MONUMENTS ACT AND ARCHAEOLOGY, 2006




### **The Dutch quality system addresses three issues:**

- \* *who is allowed to perform excavations?*
  - state-issued license to do excavations
  - chief actor: senior archaeologist, professional register
- \* *how should excavations be performed?*
  - quality standards (KNA)
- \* *what is the purpose of excavations?*
  - national research agenda

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QUALITY SYSTEM IN DUTCH ARCHAEOLOGY



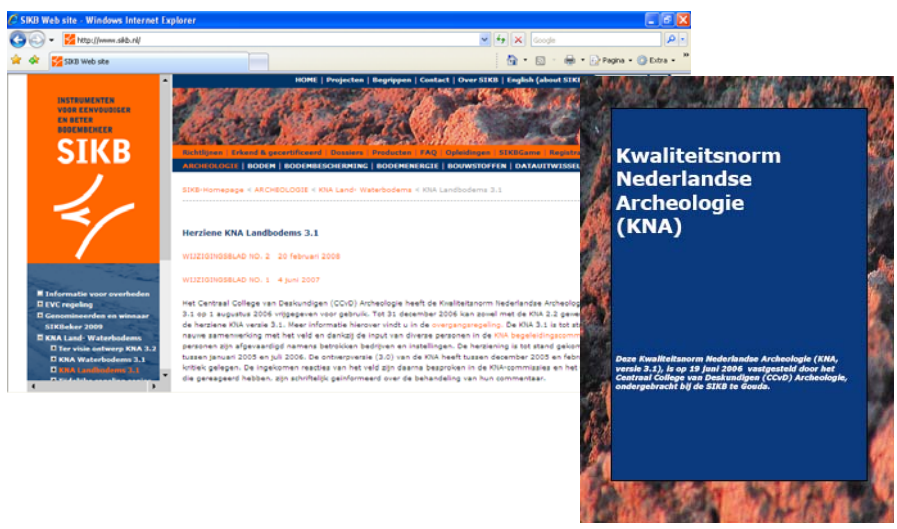
**Permit to do excavations (today)**

- \* 27 commercial firms (one from Flanders)
- \* 3 commercial firms, coring only
- \* 23 municipalities
- \* 2 groups of municipalities
- \* 5 universities (one from Flanders)

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**STATE PERMIT TO CONDUCT EXCAVATIONS**

www.sikb.nl



**Kwaliteitsnorm Nederlandse Archeologie (KNA)**

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**QUALITY STANDARDS (KNA)**

www.noaa.nl

De NOaA Inhoud Lezingen

### De Nationale Onderzoeksagenda Archeologie (NOaA)

Een bundeling van kennis en actuele onderzoeksvragen.  
Voor een beter beeld van ons verleden.



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Contact Collecties

NATIONALE ONDERZOEKSAGENDA ARCHEOLOGIE

Bijzondere voor het Cultuur- & Erfgoed Ministerie van Onderwijs, Cultuur en Wetenschap

NWO  
Nederlandse Organisatie voor Wetenschappelijk Onderzoek

ARCHON

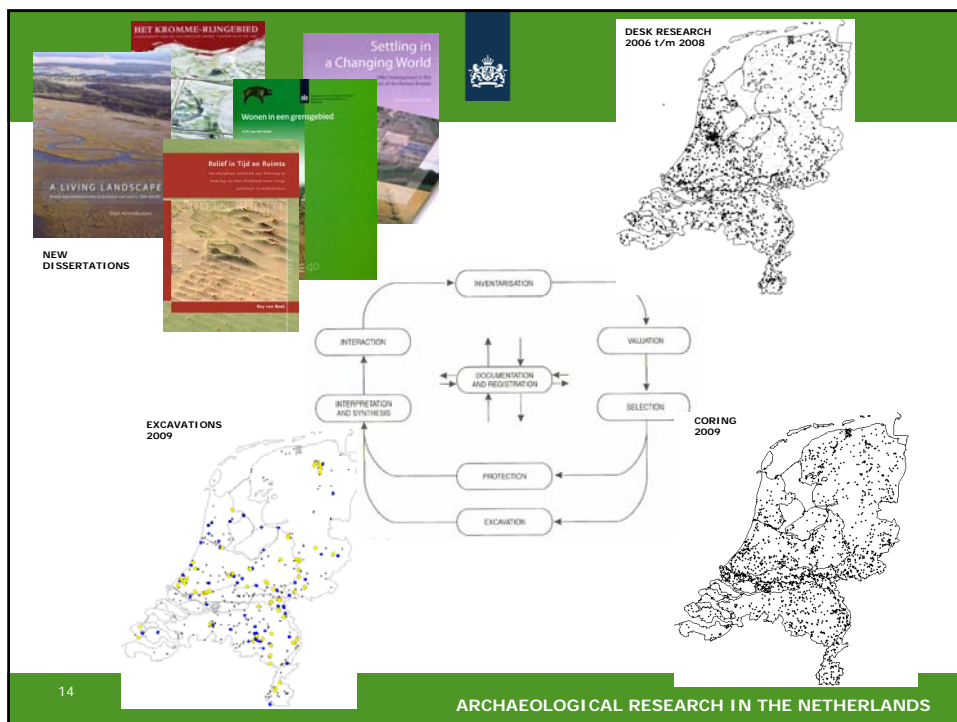
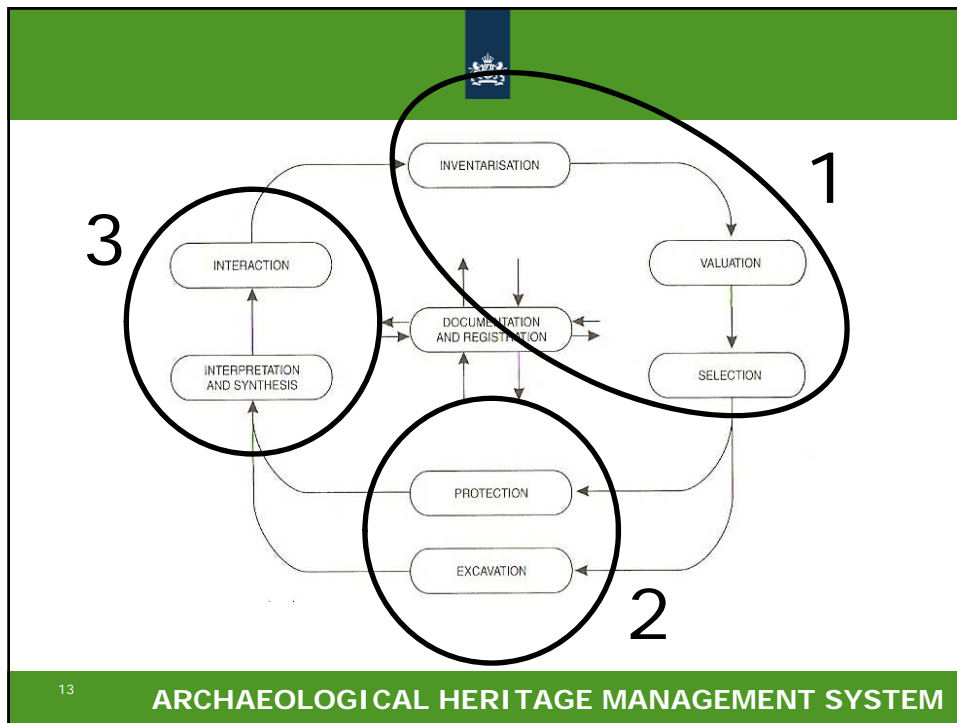
Vereniging van Ondernemers in Archeologie

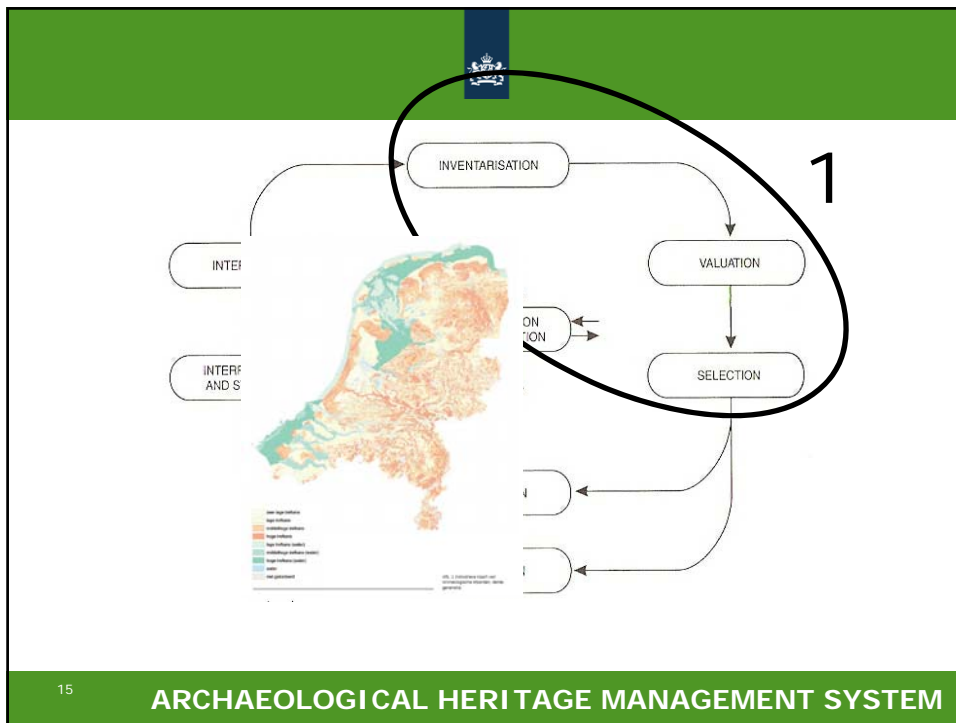
g a

11 NATIONAL RESEARCH AGENDA (NOAA)



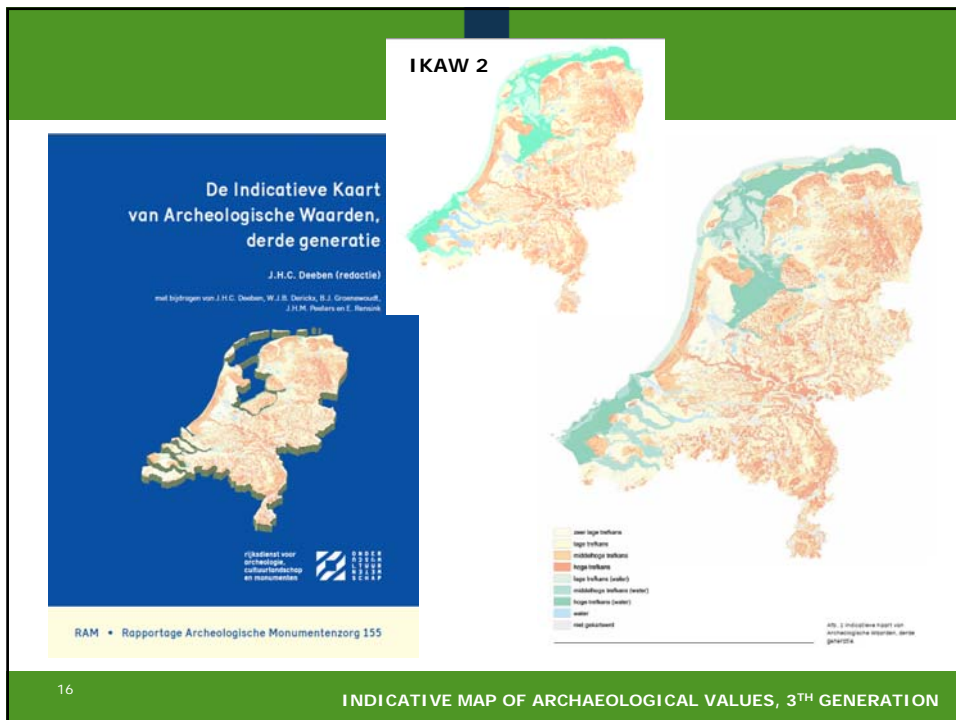
12 DE ARCHEOLOGISCHE MONUMENTENZORG





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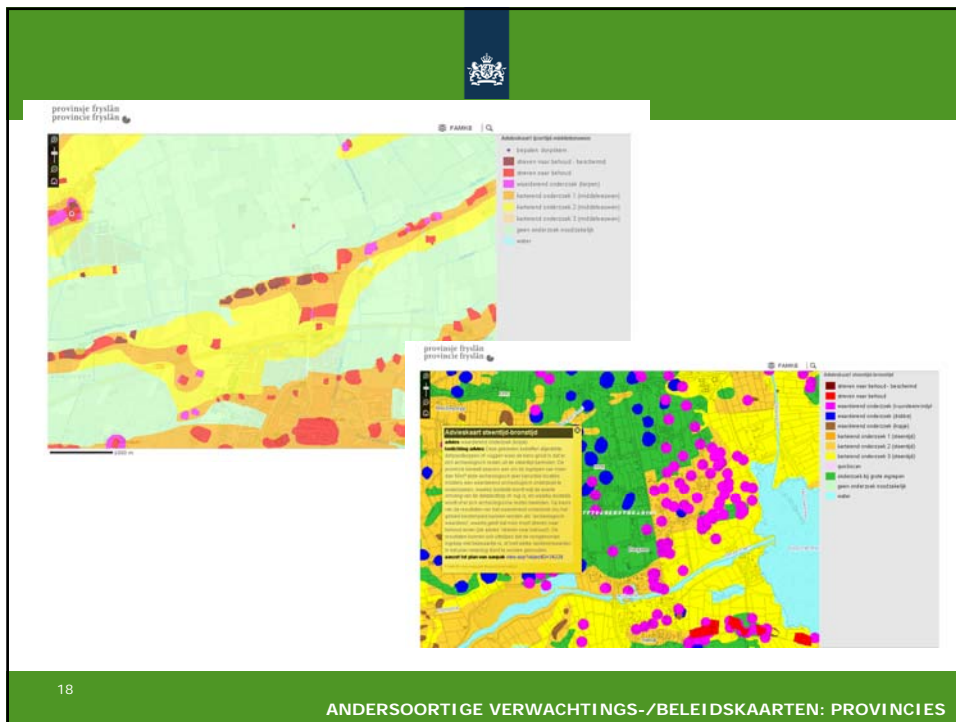
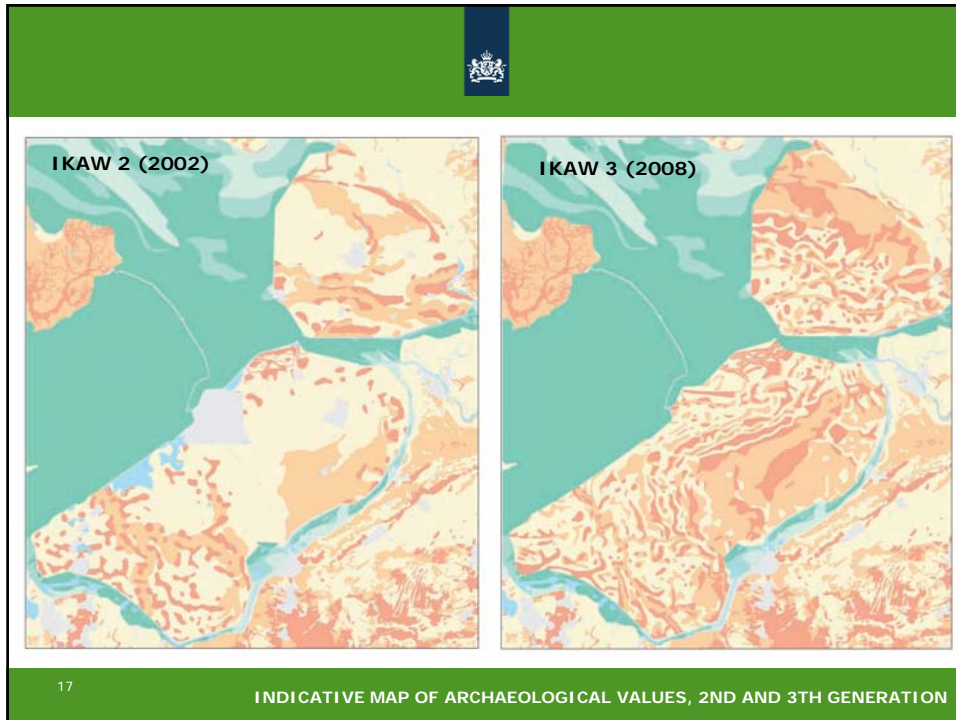
ARCHAEOLOGICAL HERITAGE MANAGEMENT SYSTEM

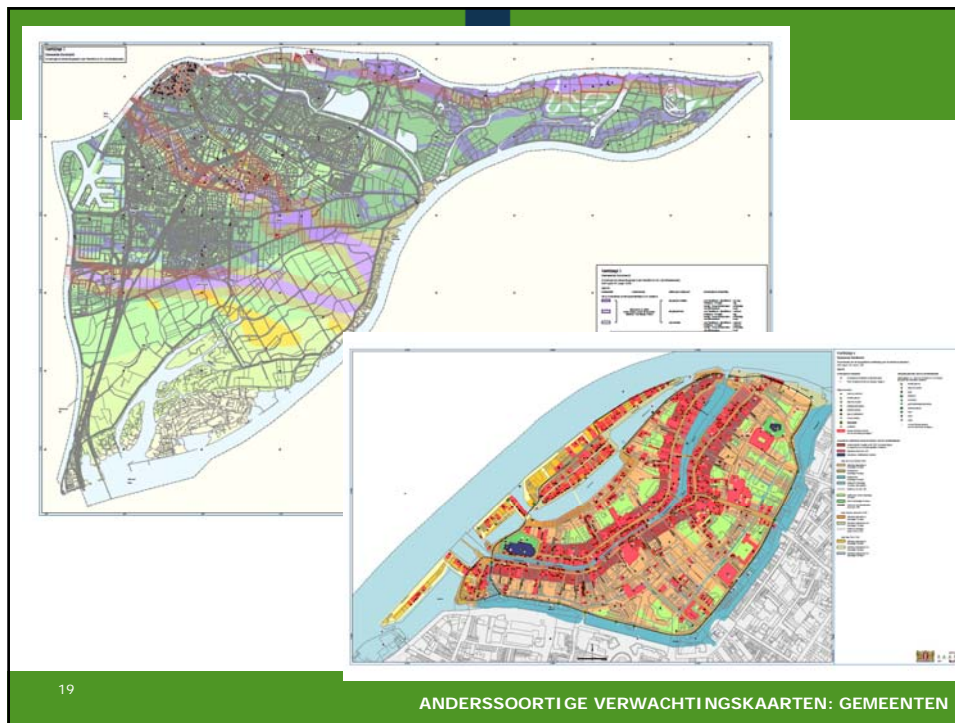



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INDICATIVE MAP OF ARCHAEOLOGICAL VALUES, 3<sup>TH</sup> GENERATION



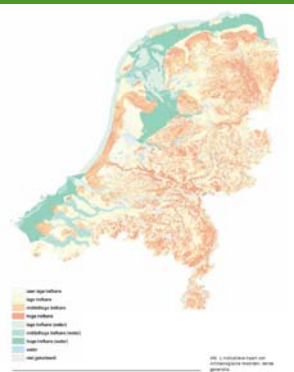




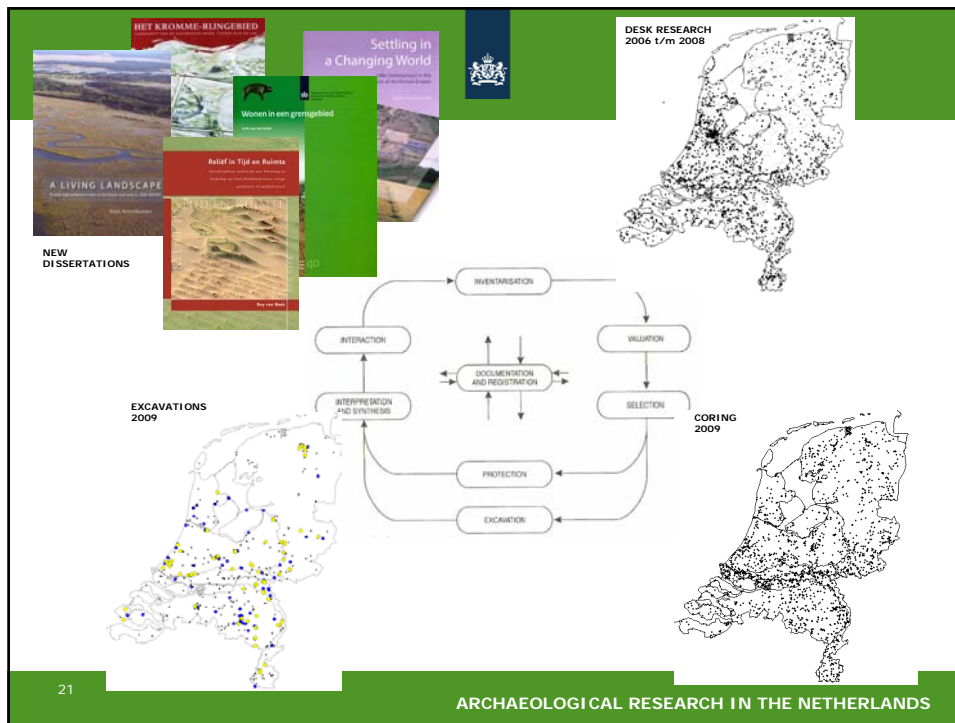


**TOWARDS A NEW INDICATIVE MAP?**

- NEW ARCHAEOLOGICAL DATA
- USE OF NEW GEOLOGICAL MODELLING OF SUBSURFACE: 'GEOTOP' (TNO)
- USE OF OLD MAPS
- USE OF LIDAR



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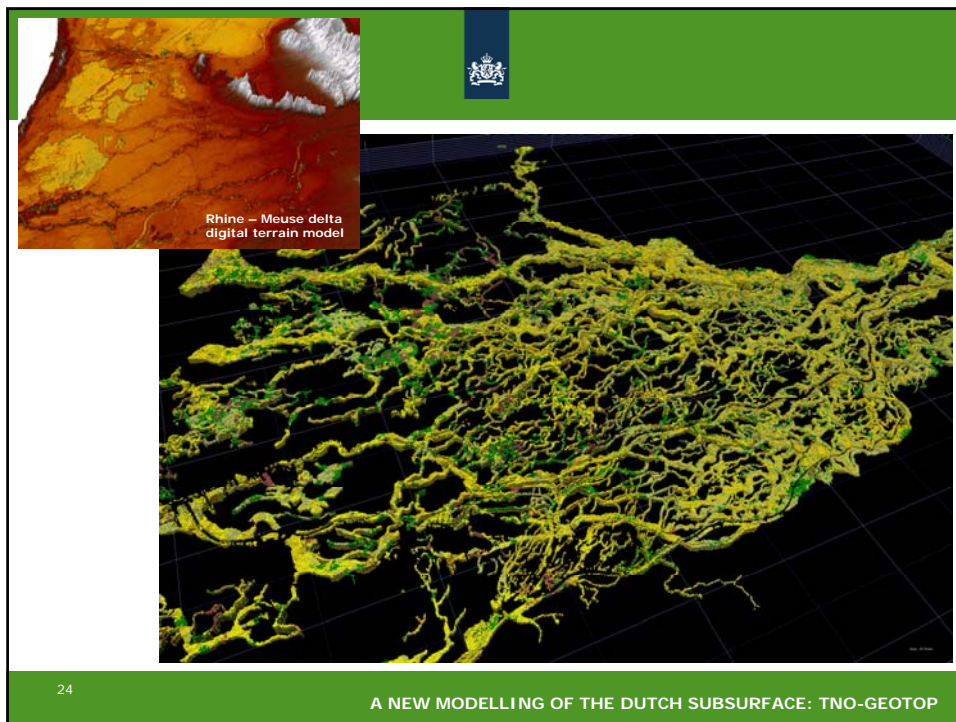
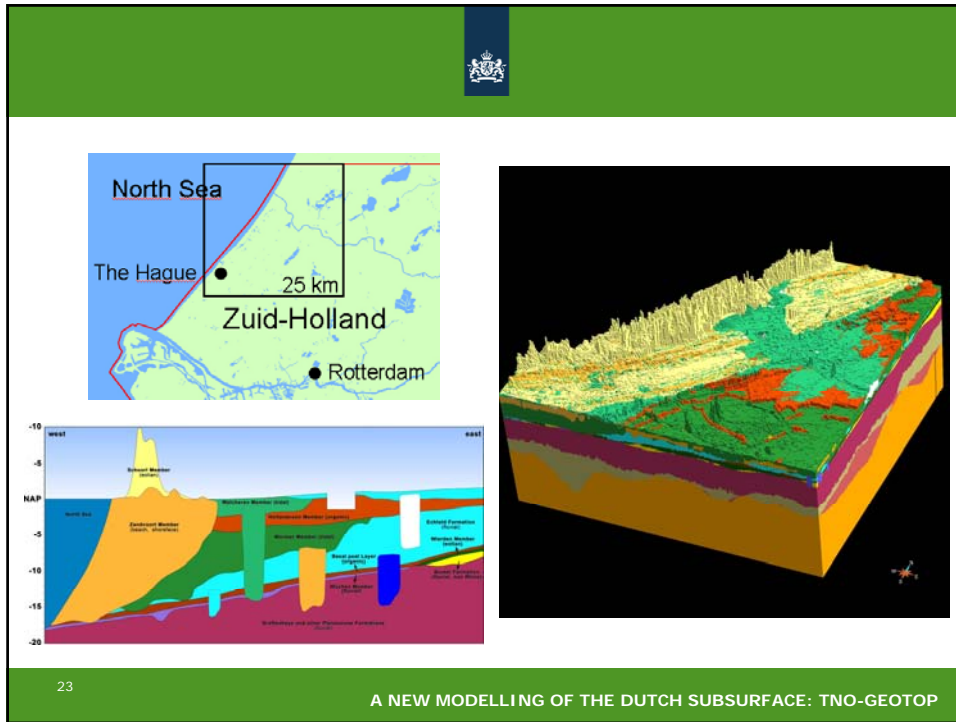
## GeoTOP

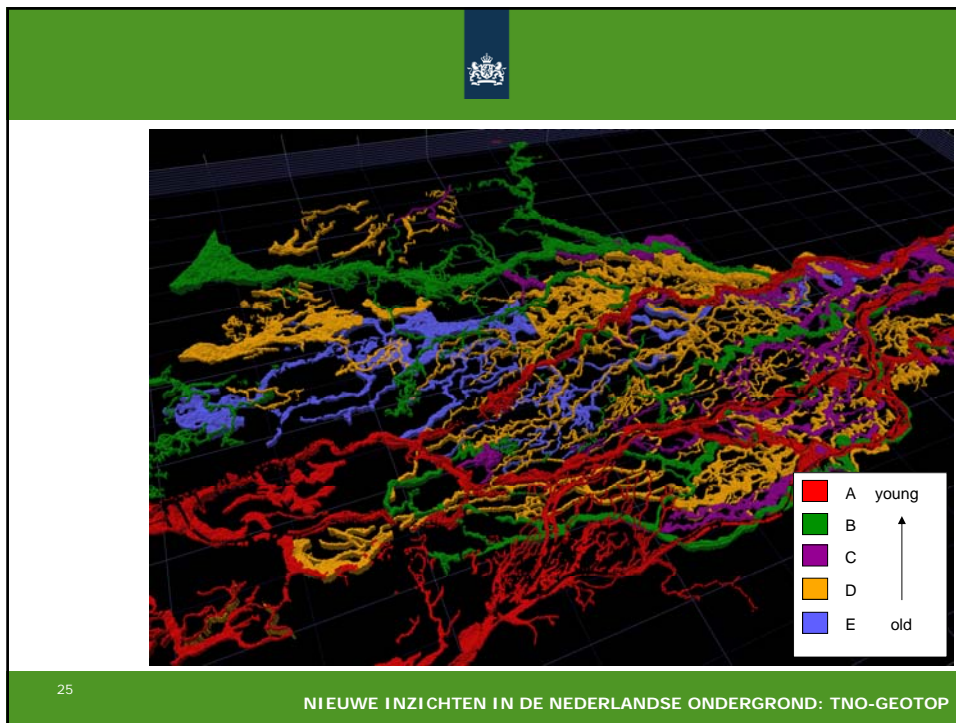
3D model of the Dutch subsurface

- model covering the Netherlands (~ 41,000 km<sup>2</sup>)
- top of 30 meters
- voxels 100 x 100 x 0.5 meters
- every voxel includes (uncertainty specified):
  - lithostratigrafical unit
  - lithology
  - hydrological, fysical and en chemical characteristics
  - archaeology?

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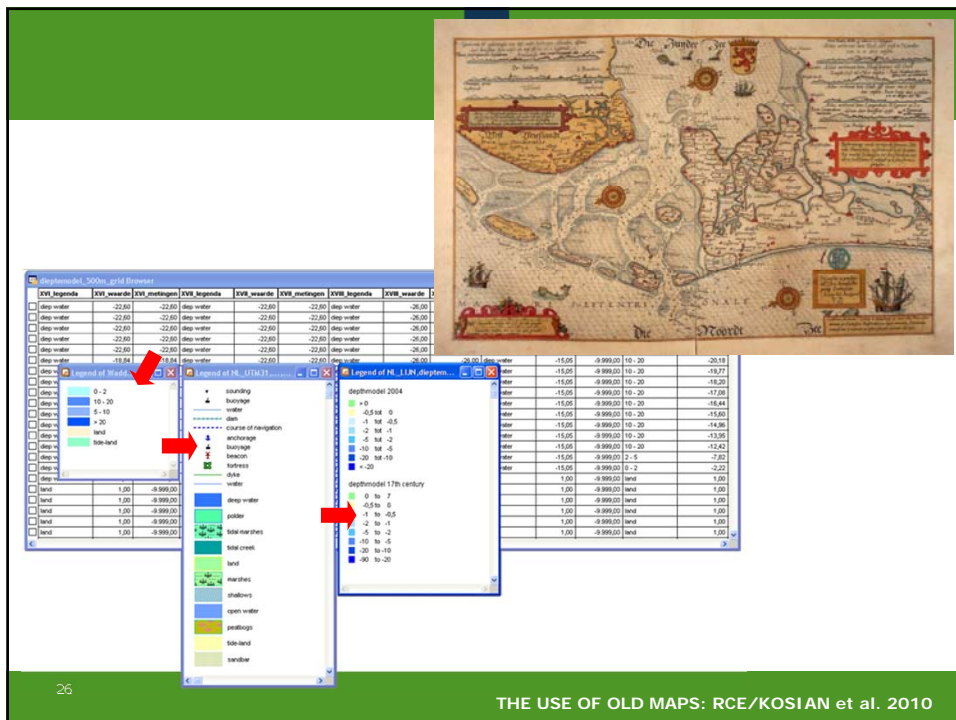
A NEW MODELLING OF THE DUTCH SUBSURFACE: TNO-GEOTOP





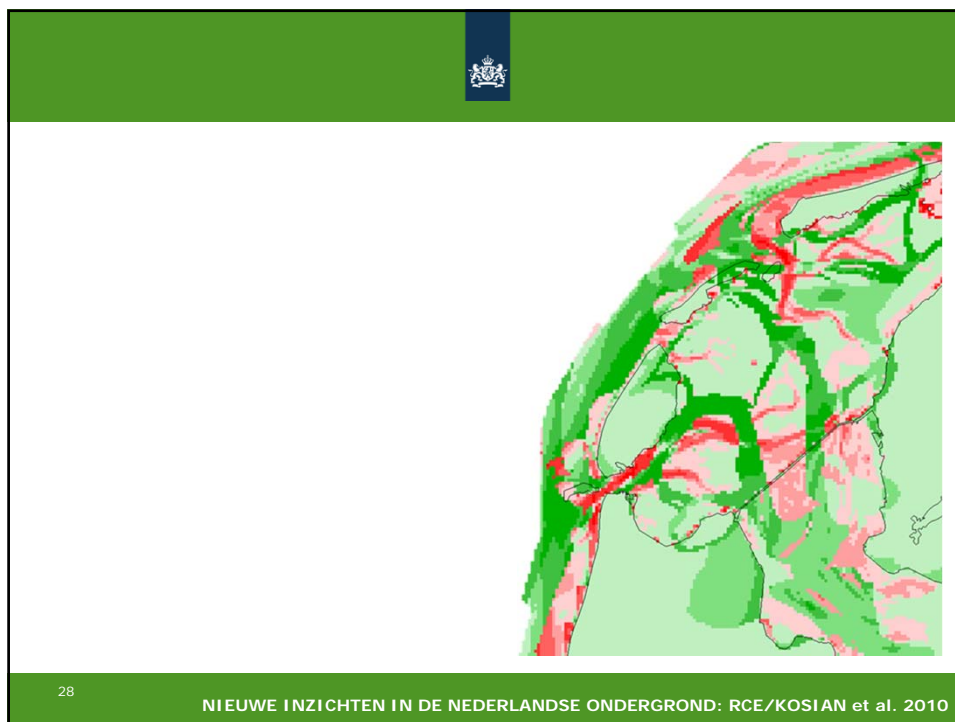
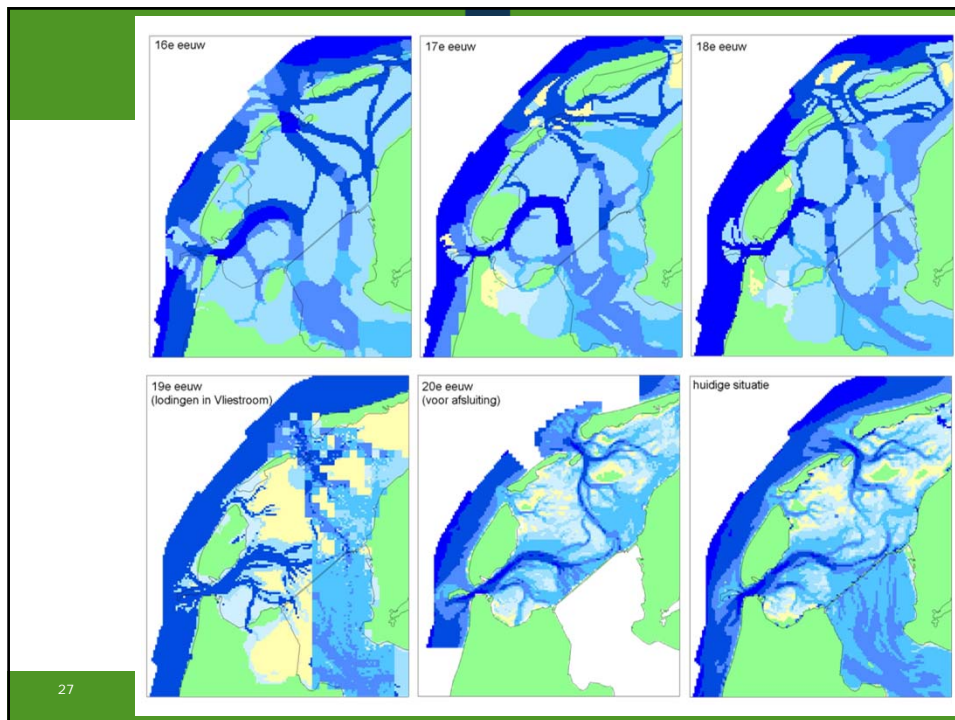
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NIEUWE INZICHTEN IN DE NEDERLANDSE ONDERGROND: TNO-GEOTOP



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THE USE OF OLD MAPS: RCE/KOSIAN et al. 2010







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ARCHAEOLOGY AND THE USE OF LIGHT DETECTION AND RANGING



GOAL

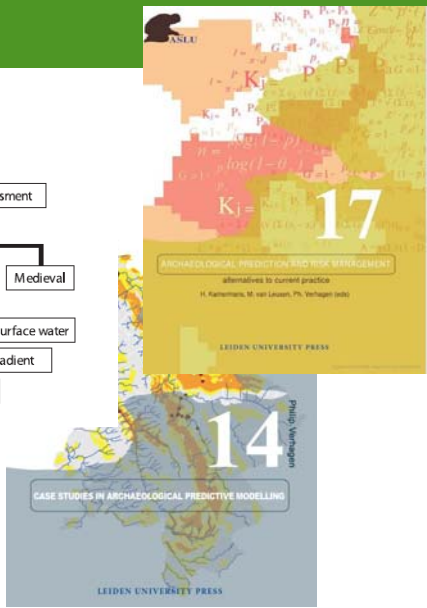
OBJECTIVE

OBJECTIVE

ATTRIBUTE

```

graph TD
    A[prediction of archaeological potential] --> B[site density assessment]
    A --> C[site survival assessment]
    B --> D[Palaeo-Mesolithic]
    B --> E[Bronze Age]
    B --> F[Iron Age]
    B --> G[Roman]
    B --> H[Medieval]
    C --> I[distance to dry valleys]
    C --> J[distance to surface water]
    C --> K[groundwater table]
    C --> L[distance to gradient]
    C --> M[soil type]
    C --> N[geomorphology]
            
```



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THEORETICAL, METHODOLOGICAL AND TECHNICAL DEVELOPMENT OF INDICATIVE MAPPING



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**Thank you  
for your attention !**

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