



THE H3O-PROJECT: CLOSING THE GAP BETWEEN OUR NATIONWIDE (HYDRO)GEOLOGICAL MODELS

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Provincie Noord-Brabant

provincie limburg

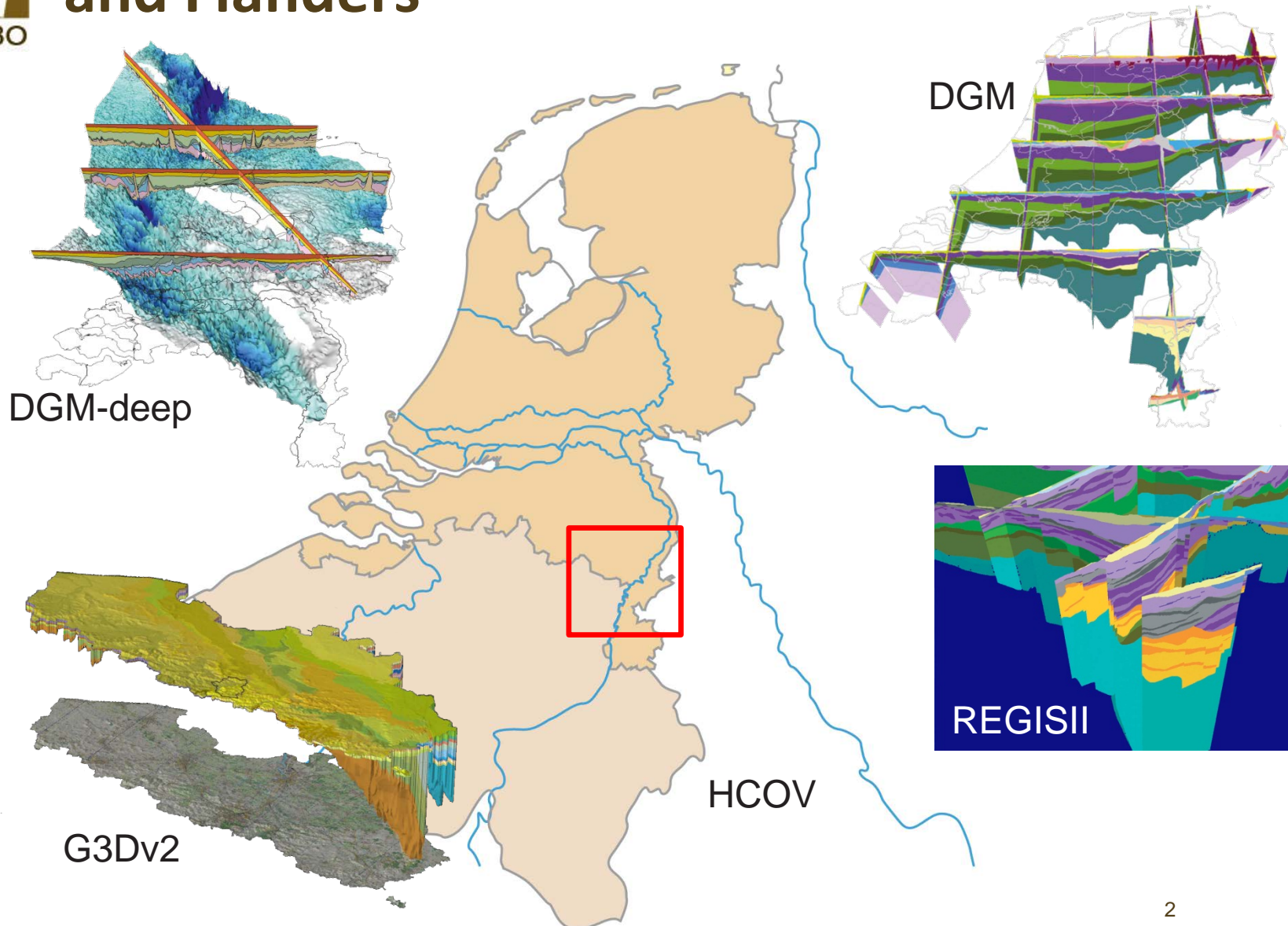


Geologischer Dienst
Nordrhein-Westfalen
– Landesbetrieb –





Models of the subsoil of the Netherlands and Flanders









Roer Valley Graben & H3O project areas



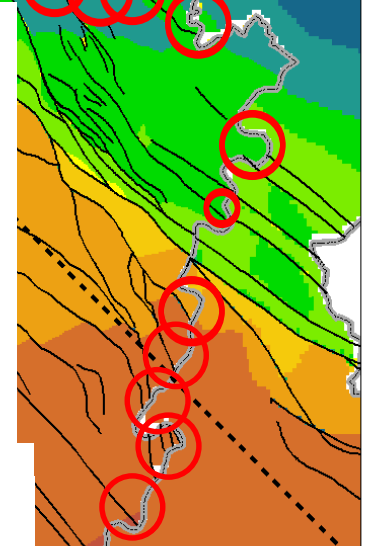
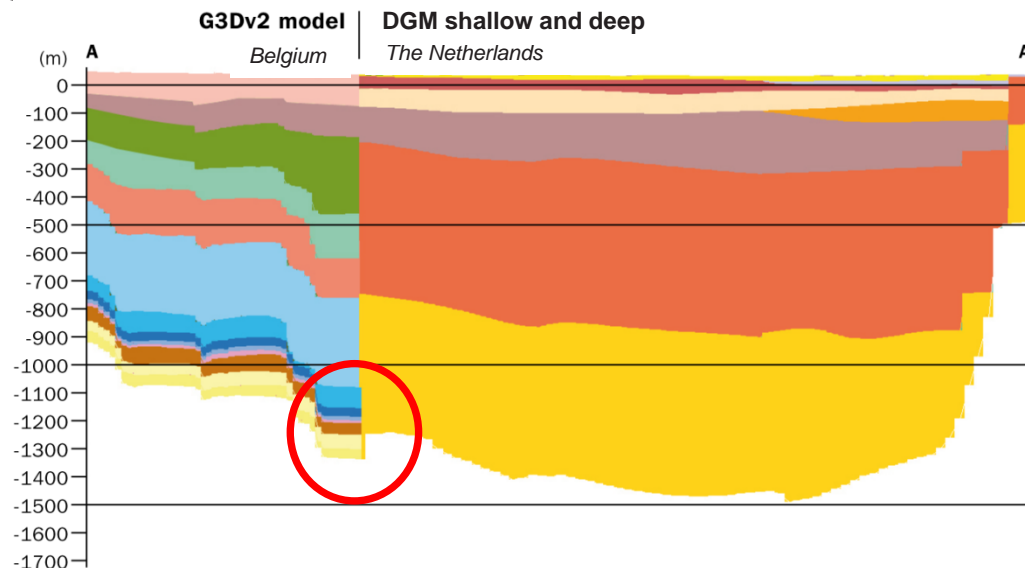
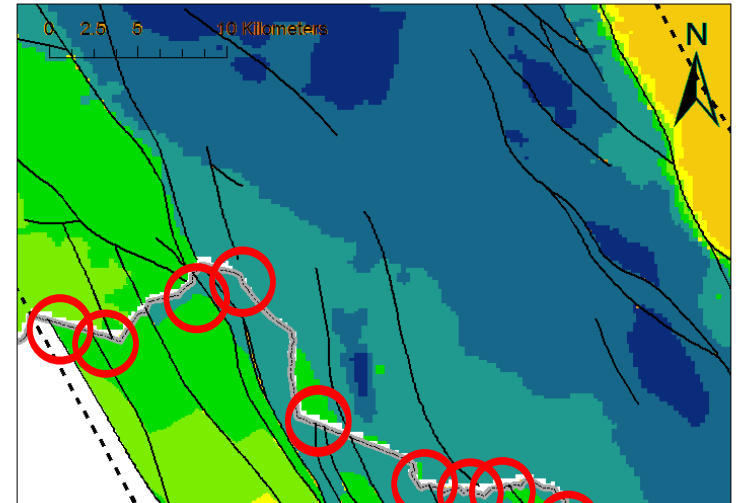
Model areas

-  H3O - Roer Valley Graben (finished June 2014) *Model area = 1950 km²*
-  H3O - De Kempen *Model area = 1295 km²*
-  H3O - ROSE *Model area = 858 km²*
-  Fault zones



Inconsistencies between models along the frontier

- » Different (hydro)geological classification systems (i.e. nomenclatures)
- » Non-matching of faults
- » Jumps in depth and thickness of (hydro)geological units
- » Differences in detail between (hydro)geological models





Goals H3O-project

Main goal

“To attune jointly the geological and hydrogeological models of the Netherlands, Flanders & Germany along the frontier”

Specific goals pilot project H3O-Roer Valley Graben

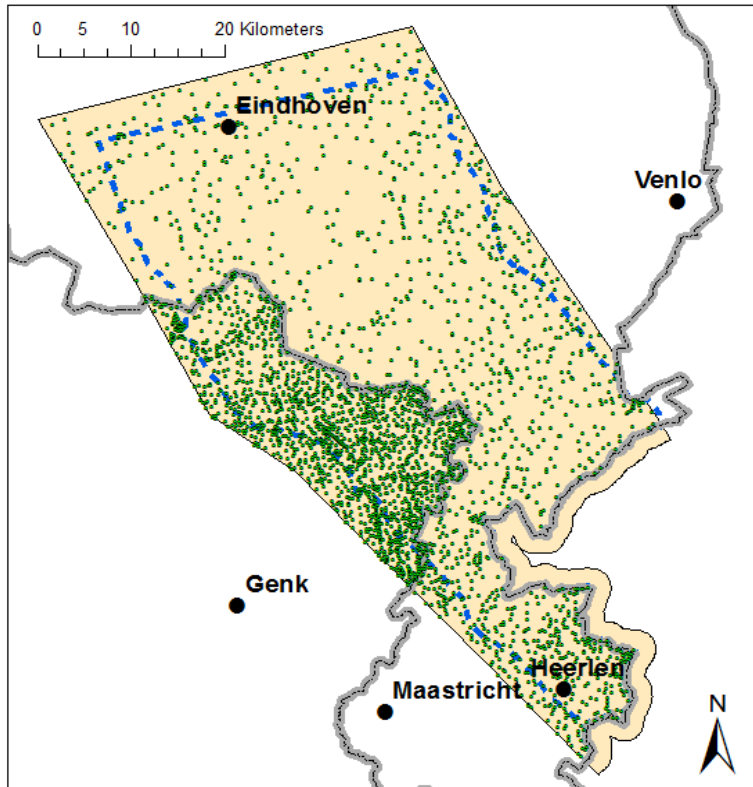
- › *One cross-border 3D **geological and hydrogeological layer model***
- › *Of the **Cenozoic** (to about 1800 m depth)*
- › *Of the **Roer Valley Graben** in Southeast Netherlands and Northeast Flanders*
- › *Based on existing raw data*



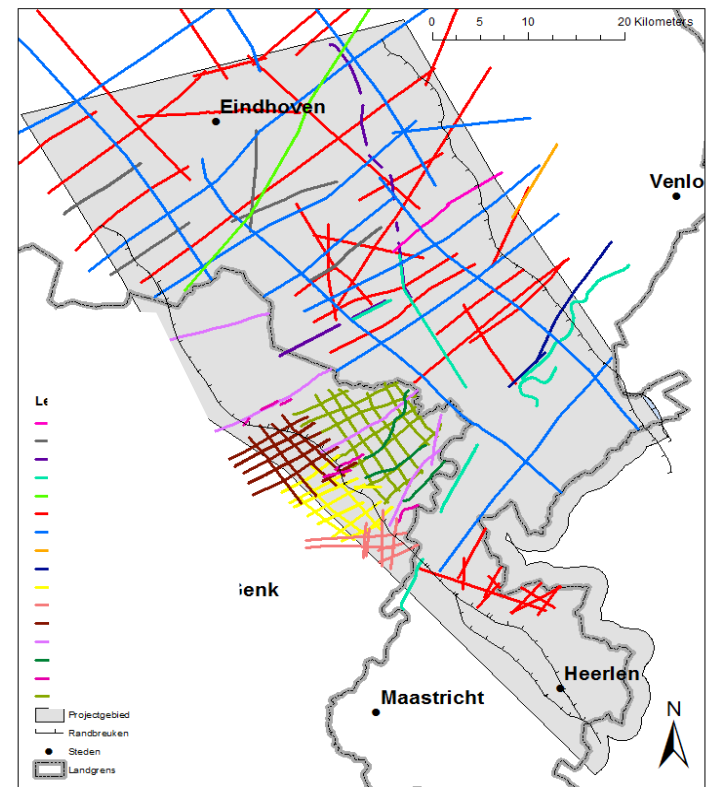
Methodology H3O-Roer Valley Graben and H3O-De Kempen

- » Data inventory and collection - the main primary data

Well data



2D Seismic data





Methodology H3O-Roer Valley Graben and H3O-De Kempen

» Correlation of Dutch and Flemish (hydro)geological units - some examples

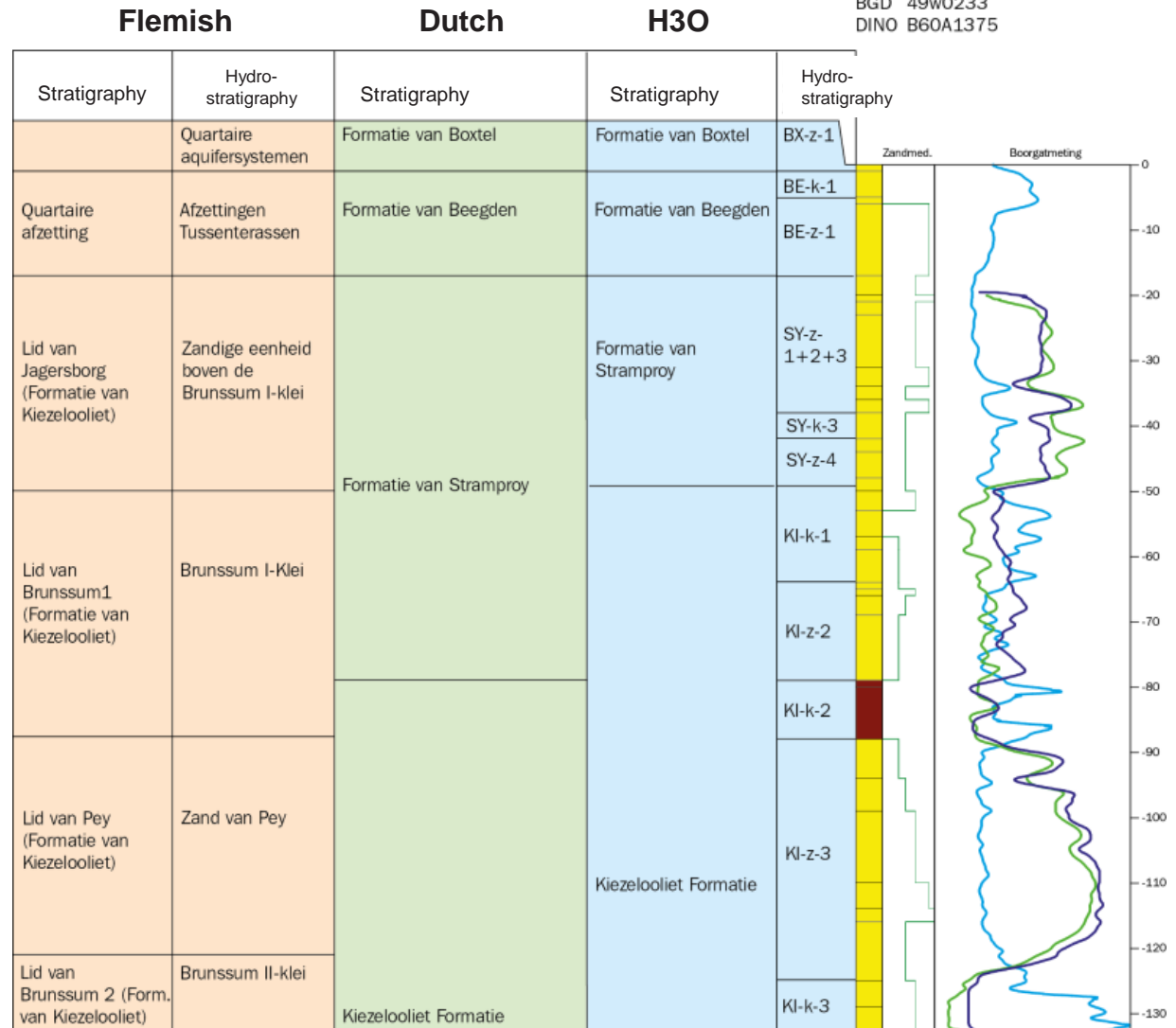
Dutch		Flemish			H3O				
Dutch stratigraphic unit (Formation - Member)	Dutch hydrogeological unit (cf. REGIS II.2)	Flemish stratigraphic unit (Formation - Member)	Flemish hydrogeological unit (cf. HCOV)		Resulting H3O unit Geological model	Resulting H3O Unit Hydrogeological model			
Waalre undifferentiated	PZWA-z-1	Kempen Group	0220	0221-0223	Waalre	PZWA-z-1			
	WA-k-1					WA-k-1			
	PZWA-z-2					PZWA-z-2			
	WA-k-2					WA-k-2			
	PZWA-z-3					PZWA-z-3			
WA-k-3	WA-k-3								
PZWA-z-4	PZWA-z-4								
Maassluis	MS-z-1				MS-z	0200	0210	Kieseloolite	MS-z
	MS-k-1								MS-z
	MS-z-2								MS-z
	MS-c	MS-z							
	MS-k-2	MS-z							
MS-z-3	MS-z								
Kieseloolite - undefined	KI-z-1	Kieseloolite - Jagersborg (from Reuver clay on)	0200	0210	Kieseloolite	KI-z-1			
Kieseloolite – Brunssum	KI-k-1					KI-k-1			
	KI-z-2					KI-z-2			
	KI-k-2					KI-k-2			
Kieseloolite - Waubach	KI-z-3					Kieseloolite - Brunssum I	0212	0215	KI-z-3
	KI-k-3	Kieseloolite - Pey	0213	KI-k-3					
Kieseloolite - Brunssum	KI-z-4	Kieseloolite - Brunssum II	0214	0215	Kieseloolite	KI-z-4			
	KI-k-4	Kieseloolite - Waubach	0215			KI-k-4			
	KI-z-5	Kieseloolite - Waubach				KI-z-5			
Oosterhout	OO-z-1 + OO-z-2				Oosterhout	OO-z-1 + OO-z-2			
	OO-c					OO-c			
Inden undifferentiated	IE-z-1	Inden (+ reworked Breda (new))	0210/0230	0234/0215	Inden	IE-z-1			
	IE-k-1					IE-k-1			
	IE-z-2					IE-z-2			
	IE-k-2					IE-k-2			
	IE-z-3					IE-z-3			



Methodology H3O-Roer Valley Graben and H3O-De Kempen

» (Re)interpretation
existing well data

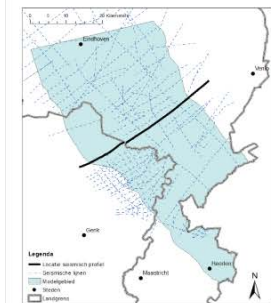
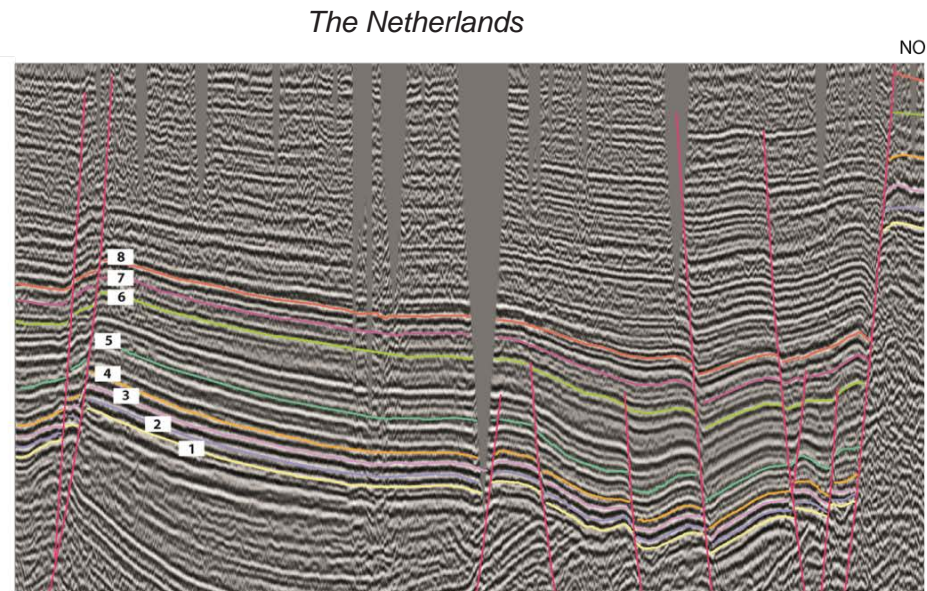
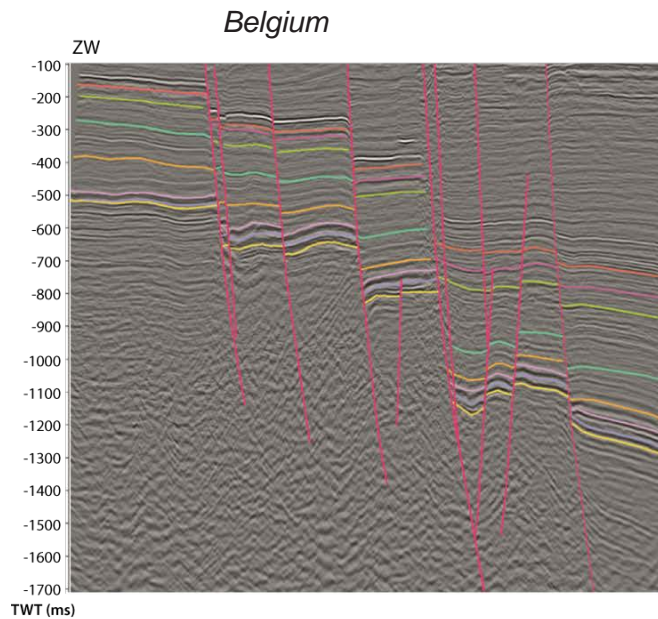
DOV kb18d49w-B232
BGD 49w0233
DINO B60A1375





Methodology H3O-Roer Valley Graben and H3O-De Kempen

» (Re)interpretation of existing seismic data



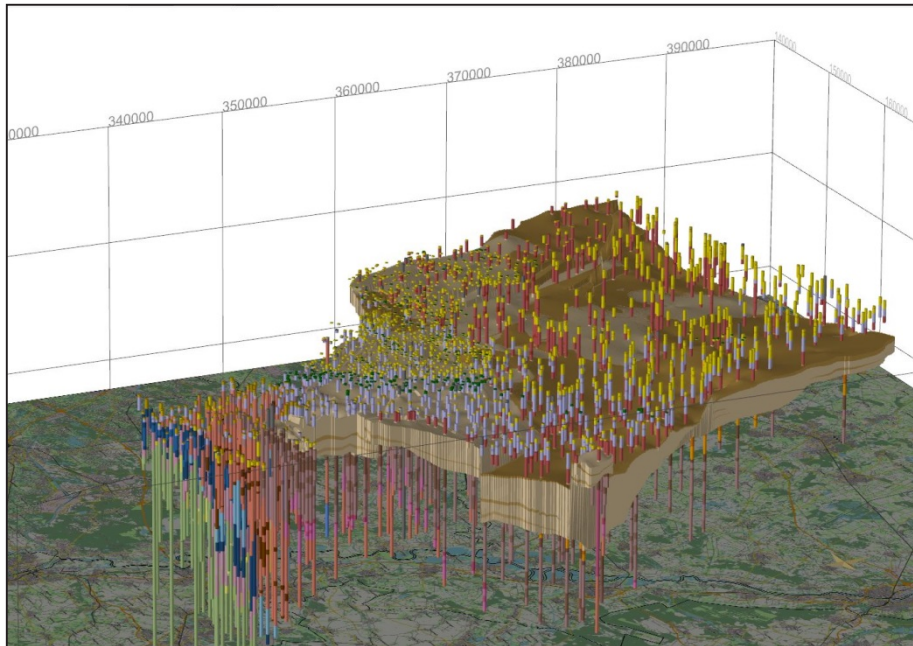


Methodology H3O-Roer Valley Graben and H3O-De Kempen

» 3D modelling - Combining two methods

Shallow Units

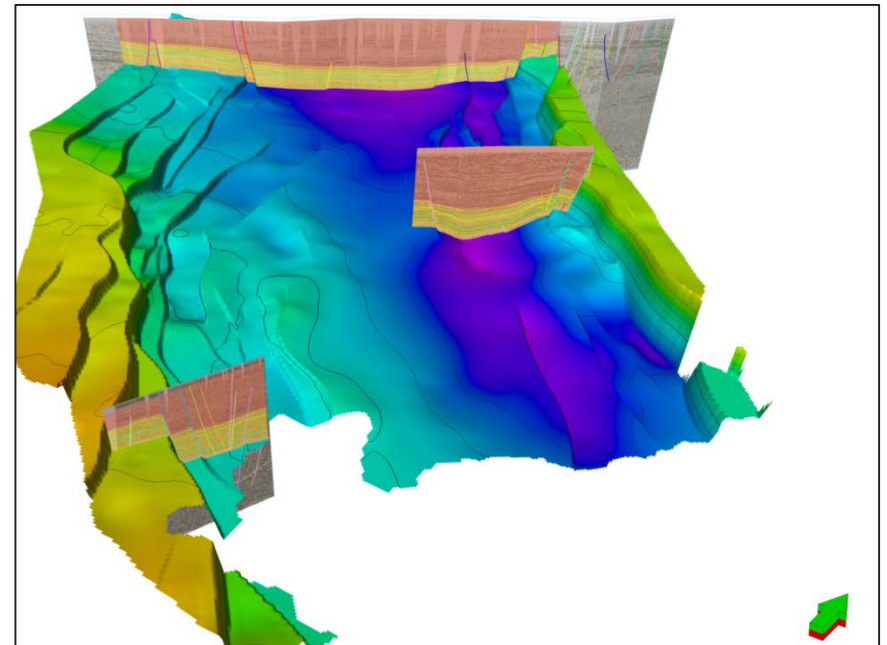
- Late Miocene to Holocene units
- Well data
- Vertical fault planes
- Isatis



3D model of the Stramproy Formation

Deep Units

- Paleocene to Late Miocene units
- 2D seismic data + few well data
- 3D fault planes
- Petrel

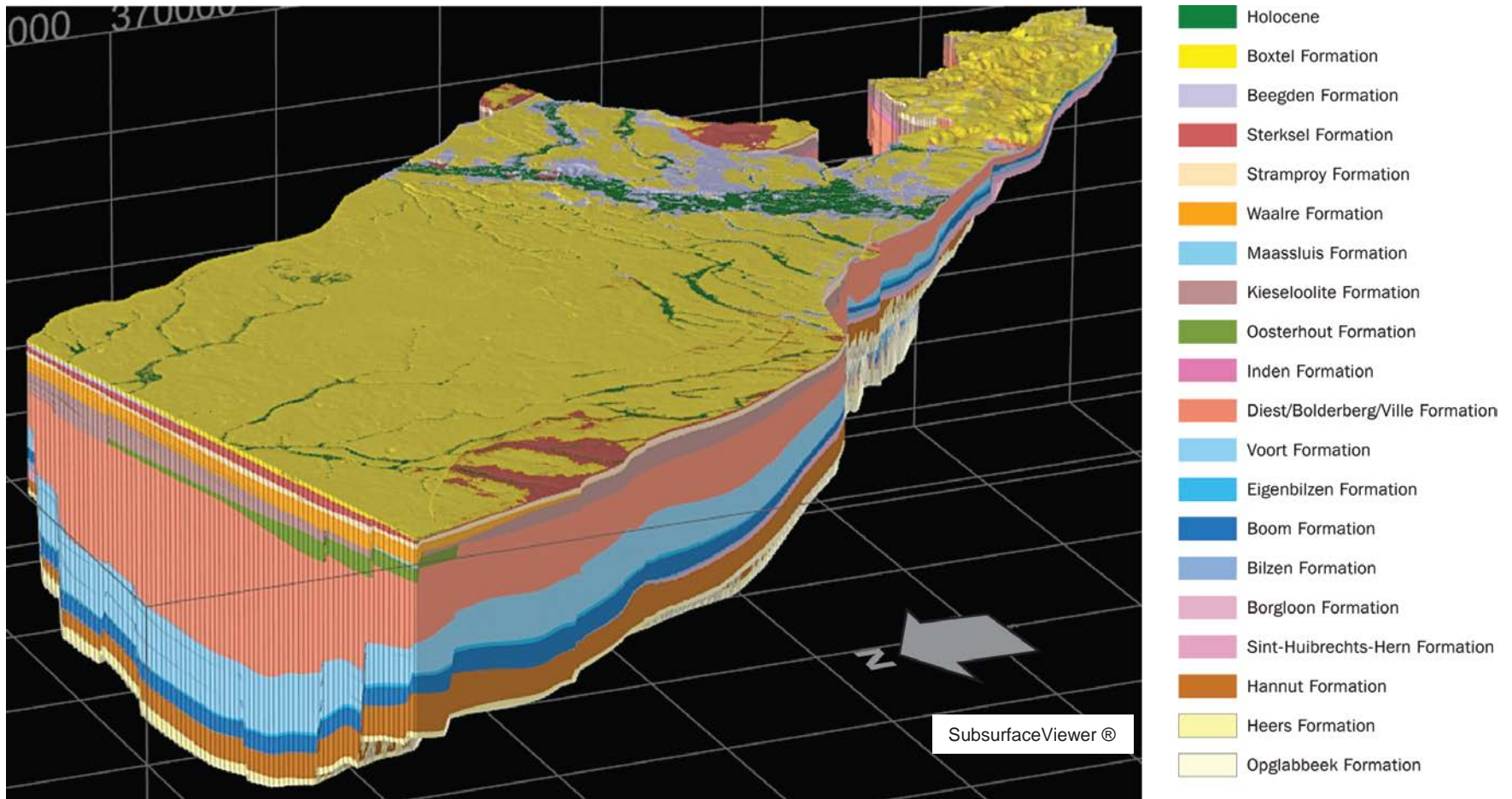


Base of the Opglabbeek Formation



Results H3O-Roer Valley Graben

» 3D Geological Model

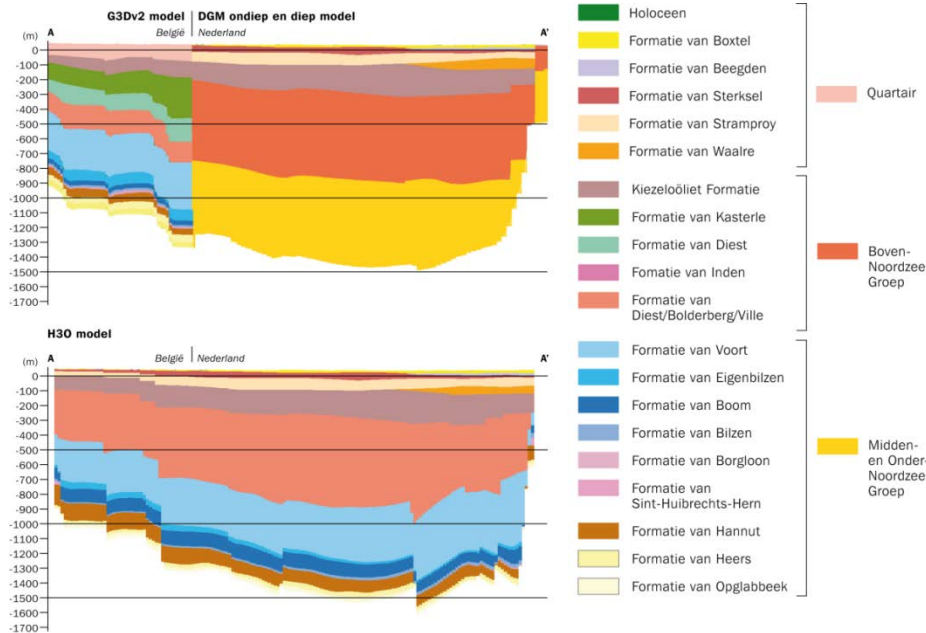




Results H3O-Roer Valley Graben

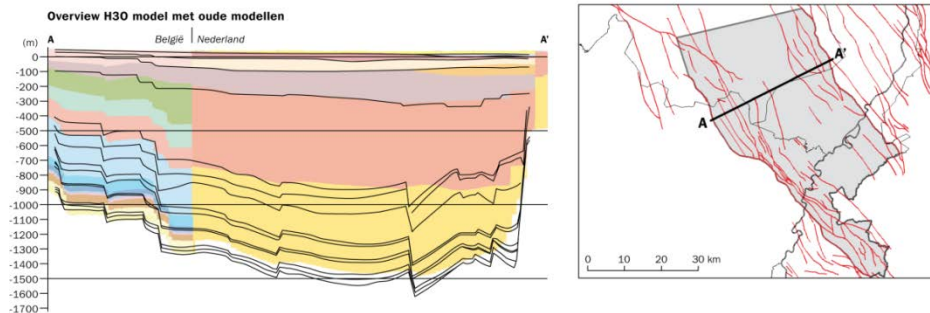
» Old versus new geological models

Old models



New model

Improvements





Results H3O-Roer Valley Graben

» Availability

Netherlands

Flanders

DINOloket Data en Informatie van de Nederlandse Ondergrond

dov.vlaanderen.be
Welkom bij de Databank Ondergrond Vlaanderen

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H3O-Roerdalslenk

Algemeen	DATA
<ul style="list-style-type: none">> Wat is H3O-Roerdalslenk?> Studiegebied: Topokaart, fence diagram, Roerdalslenk in 3D> Problematiek, doelstelling en project-organisatie> Resultaten> Referentie> Voorstelling H3O-project 13 maart 2014 te Maastricht	<p>Resultaten in Belgisch coördinatenstelsel:</p> <ul style="list-style-type: none">> Overzicht databestanden> Databestanden: MXD, GIS-bestanden, rapport> Correlatietabel H3O-modeleenheden> Rapport <p>Resultaten in Nederlands coördinatenstelsel:</p> <p>Website DINOloket</p> <p>Voorzien in 2015:</p> <ul style="list-style-type: none">> DOV-services> DOV-metadata> H3O-Roerdalslenkmodel in de 3D SubsurfaceViewer ©

 **H3O-Roerdalslenk** is een (hydro)geologisch 3-dimensionaal model van de ondergrond van de Roerdalslenk. Het grensoverschrijdende karakter van de modellering staat centraal. Daarbij werden de Cenozoïsche (Quartaire, Neogeen) Brabantse en het Vlaamse deel van de Roerdalslenk gemodelleerd.

De resultaten van H3O-Roerdalslenk werden opgeleverd in zowel het Nederlandse als het Belgische coördinatenstelsel en (Tweede Algemene Waterpassing)en voor Nederland in RD en NAP (Nieuw Amsterdams Peil).

Het H3O-Roerdalslenk-project werd in 2012 opgestart en gepubliceerd in juli 2014.

Downloads project H3O Roerdalslenk

In het kader van dit project is een grensoverschrijdend, up-to-date, driedimensionaal geologisch en hydrogeologisch model van het Limburgse, Zuidoost-Brabantse en Vlaamse deel van de Roerdalslenk gemaakt. Hier kunt u de resultaten van dit project downloaden. Deze resultaten bestaan uit het eindrapport en de digitale datasets van beide modellen (in het Nederlandse RD-coördinatenstelsel en NAP-referentieniveau). Beide modellen zijn op de website van de Databank Ondergrond Vlaanderen (DOV) ook beschikbaar in het Belgische Lambert-coördinatenstelsel en TAW-referentieniveau. Daarnaast kunt u op deze pagina het programma en de presentaties downloaden van de op 13 maart 2014 in het Gouvernement te Maastricht gehouden eindpresentatie van het project.

Eindrapport

- [Eindrapport \(9.98 MB, Pdf\)](#)

Datasets

- [Datasets geologische en hydrogeologische model in RD en NAP \(297 MB, ZIP\)](#)
- [Datasets geologische en hydrogeologische model in Lambert en TAW \(website DOV\)](#)

Eindpresentatie 13 maart 2014

- [Programma \(196 KB, Pdf\)](#)
- [Presentatie "Een geologische verkenning van de Roerdalslenk" van Michiel Dusar, BGD \(14.08 MB, Pdf\)](#)
- [Presentatie "H3O - Roerdalslenk" van Ronald Vernes, TNO en Jef Deckers, VITO \(4.81 MB, Pdf\)](#)
- [Presentatie "H3O nuttig voor Limburgs drinkwater" van Maria Juhász-Hollerman, vml WML, Juhász Advies \(2.48 MB, Pdf\)](#)

<https://dov.vlaanderen.be/dovweb/html/2H3ORoerdalslenk.html>

<https://www.dinoloket.nl/downloads-project-h3o-roerdalslenk>



Main conclusions H30 - Roer Valley Graben

- » Workable correlation between Belgian and Dutch (hydro)geological units.
- » Workable modelling approach resulting in one geological and one hydrogeological model of the Cenozoic of the entire model area.
- » Without inconsistencies along the frontier.

Input for new versions/updates of nationwide models (DGM, REGIS, G3Dv3)



Acknowledgements

Flanders

- » Natural Resources Service of the Flemish Government
- » Flemish Environment Agency
- » VITO
- » Belgian Geological Survey

Germany

- » Geological Survey of North Rhine-Westphalia

The Netherlands

- » TNO Geological Survey of the Netherlands
- » Province of Limburg
- » Province of North-Brabant
- » Programme office Meuse Region, water quality and –supply
- » Brabant Water
- » Waterleiding Maatschappij Limburg



Thank you for your attention