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**Eiffel**  
GEOSS APPLICATIONS  
FOR CLIMATE CHANGE

Revealing the role of GEOSS as the default digital portal for building climate change adaptation & mitigation applications

**2<sup>nd</sup> Stakeholder Meeting Pilot 1**  
WP7 EIFFEL Pilot demonstrations and impact assessment  
Breda, 25 March 2024

**2<sup>nd</sup> Stakeholder Meeting of Pilot 1:**  
Water & Land-Use Management

**Hands on Pilot 1 tools seminar (hybrid)**

**When? March 25, 2024 | 14:00- 17:00 pm**  
**Where? In de Tassenfabriek**


 @eiffel4climate  
eiffel4climate project  
www.eiffel4climate.eu


19 partners 8 European countries


 This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 101003518


**EIFFEL Pilot demonstrations and impact assessment**

**Water and Land Use Management, Aa of Weerijs catchment**

**Province of Noord-Brabant** 

IHE Delft  IHE DELFT

Open University  Open Universiteit


supported by Water Board Brabantse Delta 


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REVEALING THE ROLE OF GEOSS AS THE DEFAULT DIGITAL PORTAL FOR BUILDING CLIMATE CHANGE ADAPTATION & MITIGATION APPLICATIONS


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## EIFFEL PROJECT OVERVIEW

Revealing the role of GEOSS as the default digital portal for building climate change adaptation & mitigation applications



The diagram illustrates the Eiffel project workflow. It starts with 'Other sources, i.e. journals, Wikipedia, policy briefs, scrapped websites' feeding into 'Metadata Augmentation'. This leads to 'Eiffel Data exploration tools' which includes 'GEOSS Augmented Metadata DB' and 'EIFF-O'. 'Eiffel Data augmentation tools' includes 'Temporal resolution augmentation', 'NIMMbus Knowledge elements system', and 'Spatial resolution augmentation (super-resolution, data fusion with in-situ)'. These tools feed into 'Co-design approach' involving 'Decision makers & stakeholders monitoring & implementing PA in local, regional, national, pan-European scales; Leading 5 Eiffel pilots'. The final output is 'Eiffel pilots' which includes 'Food Security and Sustainable Agriculture', 'Water and Land Use management', 'Infrastructure and Transportation Management', 'Sustainable Urban Development', and 'Disaster Resilience'. A central 'CC adaptation & mitigation applications' hub connects these pilots. An 'Explainable AI component tailored to Eiffel pilots' is also shown. The diagram is supported by 'Widiflex in Finland', 'Visualisation Engine', and 'Cognitive Search'.

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## Eiffel project partners



The partners are arranged in four rows:
 

- Row 1: EITEX ICCS, Universitat Politècnica de València, D R A X I S ENVIRONMENTAL TECHNOLOGIES
- Row 2: IHE DELFT, Open Universiteit, Provincie Noord-Brabant, LIBRA AI Technologies, I-BEC INTERBALKAN ENVIRONMENT CENTER
- Row 3: Ports de Balears, UAB Universitat Autònoma de Barcelona, HELLENIC REPUBLIC REGION OF ATTICA, NPA NATIONAL PAYING AGENCY, pmod wrc
- Row 4: ECMWF, S Y K E, RiSA, EDGE

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## Pilot 1: Water and land use Management

**Web-based decision support application to assess the impact of potential climate change adaptation measures focusing on drought-related water management, land use and soil carbon changes within Aa of Weerij's catchment**



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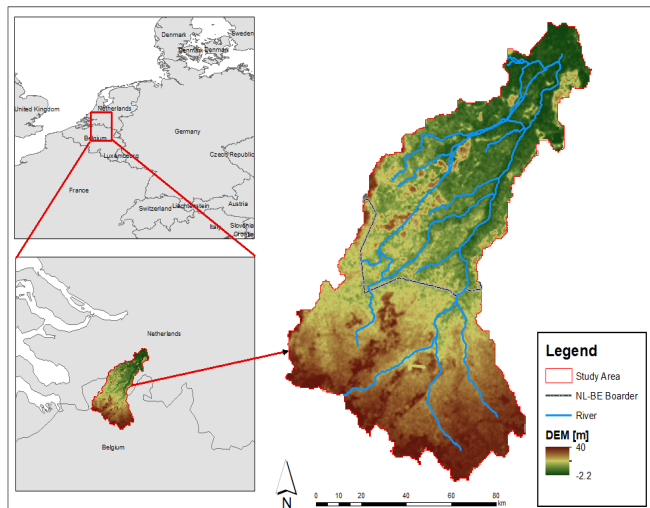
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## Study Area: Aa of Weerij's Catchment

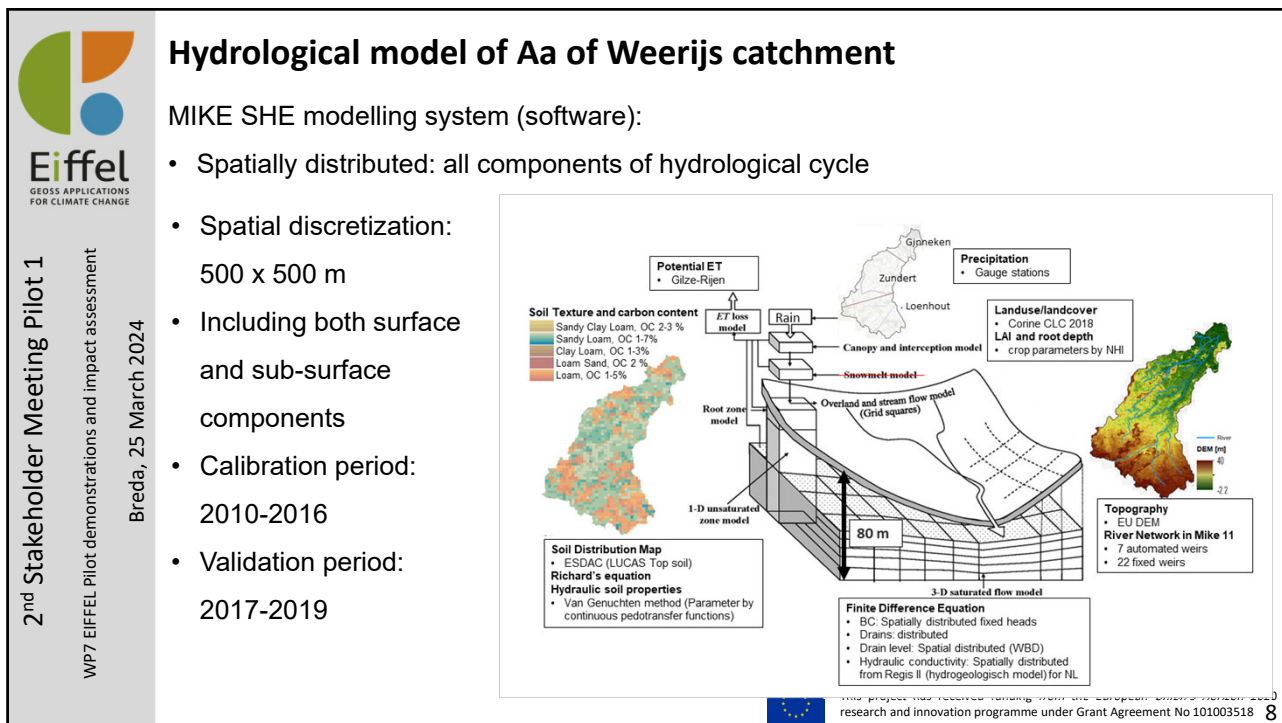
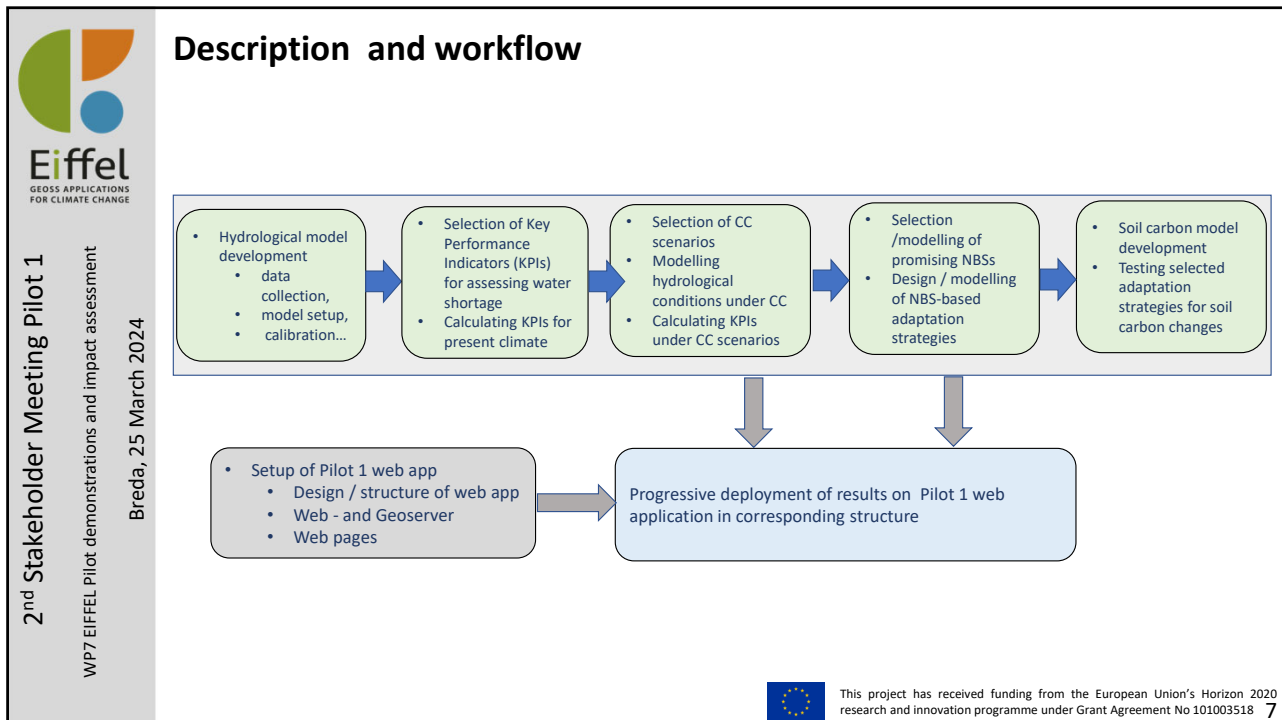
- Source: Brecht, Belgium
- Outlet: Breda, Netherlands
- Total Area: 346 km<sup>2</sup>  
Netherlands: 147 km<sup>2</sup>  
Belgium: 199 km<sup>2</sup>
- Originally a wetland but much of the land use has changed to agriculture.
- Water stressed catchment during summers
- Intensive agricultural activities, need for balance with nature
- Water shortages and drought conditions, need for adaptation measures aimed at water retention and effective water use in the basin
- Diverse stakeholders and actors with different interests



Location and DEM of study area [Source: EU-DEM V1.1, CLMS]



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# Climate change scenarios

## KNMI23 climate scenarios

- Resolution 0.125 x 0.1 degree
- Selected decade: 2050-2059

Scenarios	Wet condition (N)	Dry condition (D)
SSP5-8.5 (H)	HN	HD
SSP1-2.6 (L)	LN	LD

Four scenarios for climate change in the Netherlands



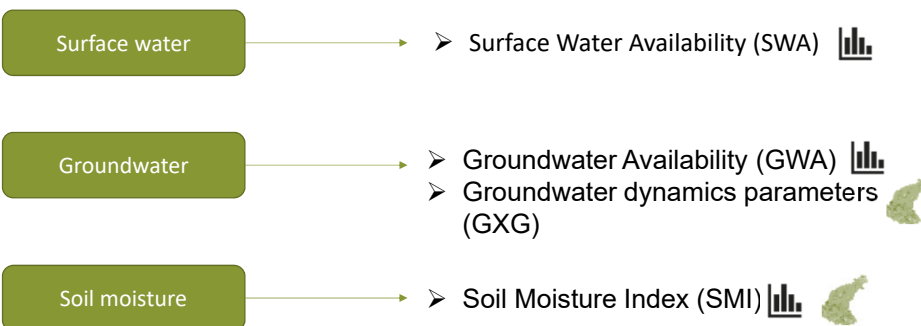
Conceptual representation of the four KNMI climate change scenarios (Source: [User Report KNMI'23 Climate Scenarios](#))



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## Key Performance Indicators (KPIs) for assessing CC impacts and adaptations



KPIs for model run in 3 scenarios:

**Base:** 2010-2019, forcing: historical observations

**CC:** 2050-2059, forcing: the four KNMI '23 scenarios provided by KNMI

**CC + NBS adaptation strategies:** 2050-2059, forcing: the four KNMI '23 scenarios provided by KNMI + Adaptation strategies



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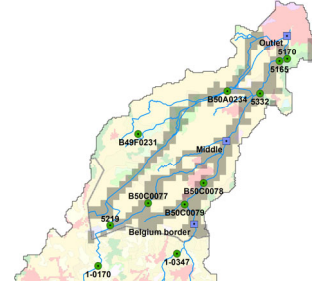
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### Adaptation Strategies: Single type of nature based solution

- Ditch blocking
- Wetlands restoration
- Infiltration ponds
- Heathland restoration
- Tree plantation
- Brook bed barriers



Wetlands restoration

Types of measures and potential locations based on recent projects from Noord-Brabant province, e.g. *Co-adapt*, *Pro-water*



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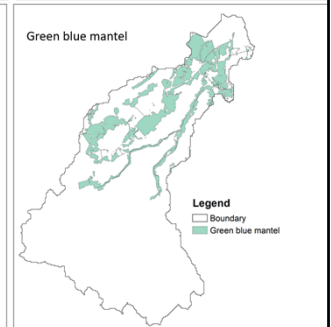
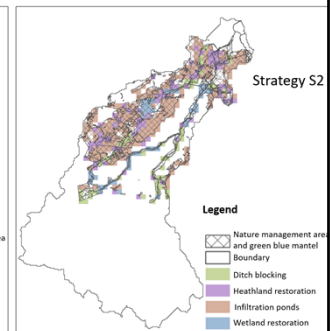
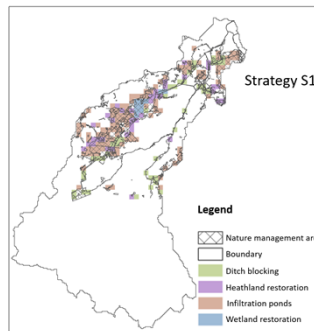
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### Adaptation Strategies: Combined strategies (2)

NBS types selected on basis of positive impact to groundwater availability

- Ditch blocking
- Wetlands restoration
- Infiltration ponds
- Heathland restoration

Spatial distribution guided by Nature Management Plan (NMP) and the Green Blue Mantel (GBM) of the Province of Noord Brabant





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## Looking forward to receiving your feedback


- On the web-app
- On the information and analyses presented there

To the web-app demo:


<https://eiffel.un-ihe.org/EIFFEL-prod/>

Username:     pilot1

Password:     Eiffel\_aa\_adapt



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## Effecten Natuurlijke oplossingen op de hydrologie

➤ Interactieve discussie en werken met de tools:

- Mentimeter questions
- Use the web-app, gebruik de interactieve website
- Provide you answer
- Discuss



Funded by the European Union