

Weather Impact

Precipitation and flood forecasting system

31 March 2023



Hoogheemraadschap van
Rijnland



Gemeente Breda



ZUID
FIELDLAB - IGV



HOOGHEEMRAADSCHAP
DE STICHTSE
RIJNLANDEN



Waterschap

Brabantse Delta



Rijksdienst voor Ondernemend
Nederland



Amersfoort



GEMEENTE TILBURG



Waterschap
Aa en Maas



waterschap

**vallei en
veluwe**



waterschap
limburg

met de omgeving, voor de omgeving

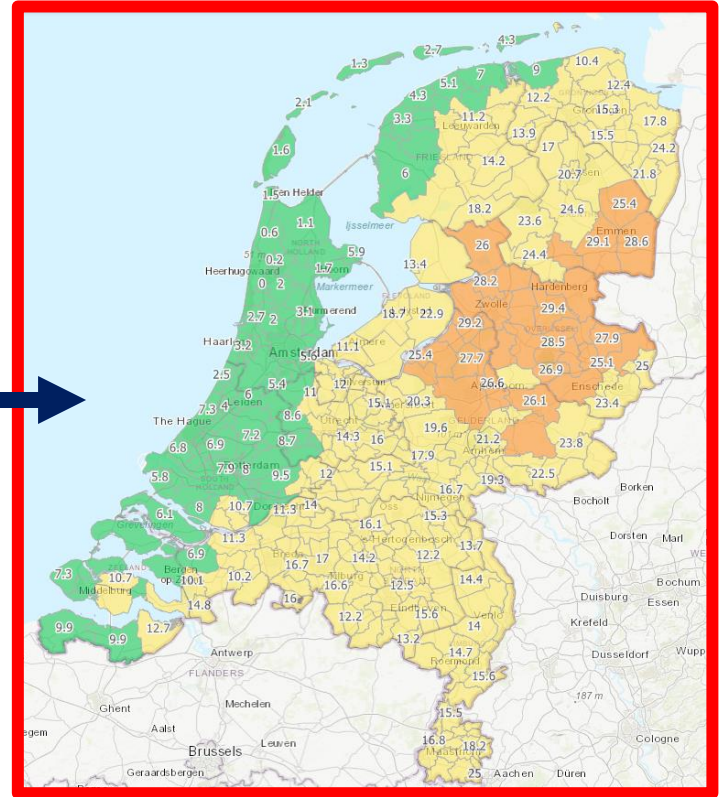
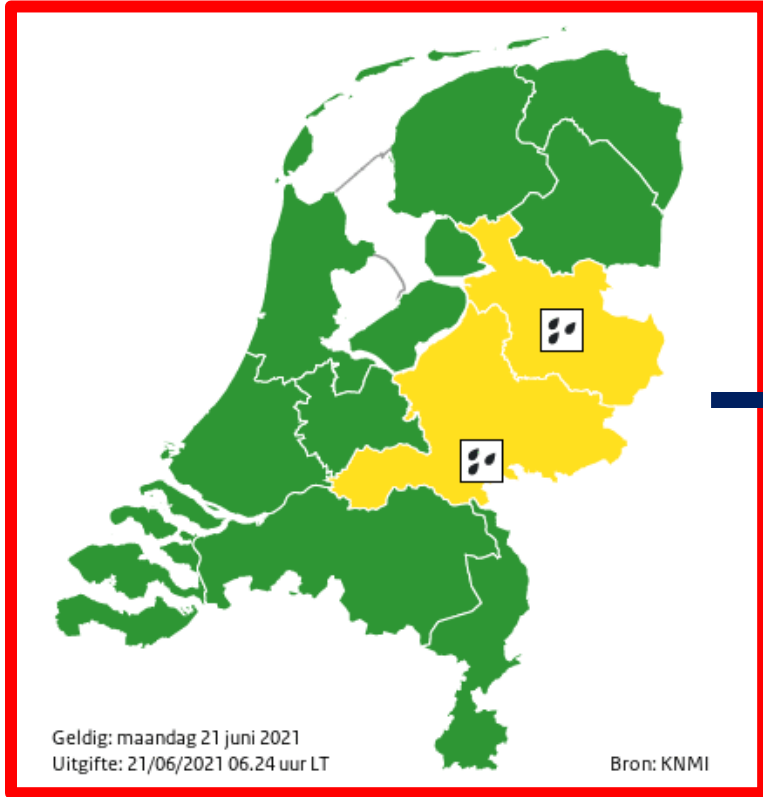
HydroLogic

“Zware Buien”

- “Verbeteren verwachting extreme neerslag”
“Improve the extreme precipitation forecast”
 - Weather Impact & KNMI
 - Ministry of Infrastructure & Water
- Goal: improved forecast in ...
 - Location
 - Time
 - User-oriented
- 2019-2020: User survey and development of warning system
- 2020-2021: Pilot of 1 year with ca. 15 users
- Oct. 2021: End of project



“Zware Buien”



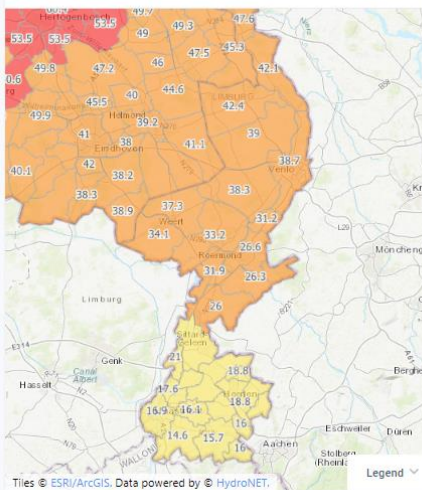
DASHBOARDS

- Overzicht - Limburg
- Komende 2 uur - Limburg
- 0-24 uur - Limburg
- 24-48 uur - Limburg
- Rest van de week - Limburg
- Historische neerslagsom - Nederland
- TOOLS
- Chart Tool
- Dashboard Manager
- Map Tool
- OTHER
- Support

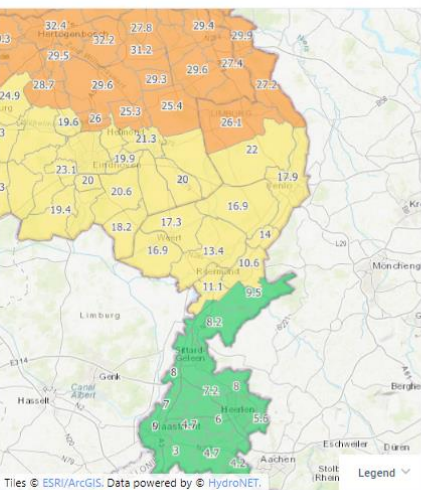
0-24 uur - Limburg

27-09-2021 15:32 to 30-09-2021 03:32

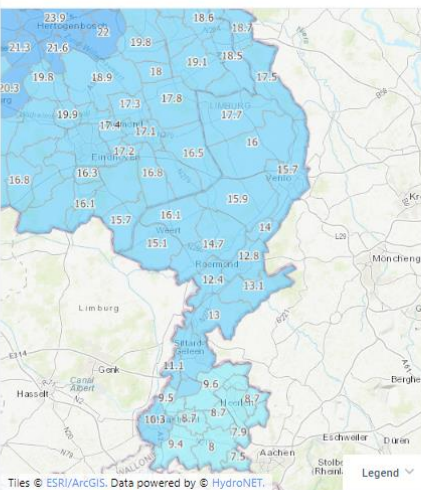
Kans op >20 mm/dag (in %) 0-24 uur



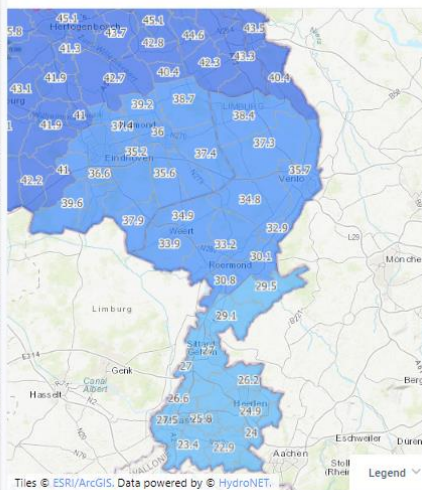
Kans op >30 mm/dag (in %) 0-24 uur



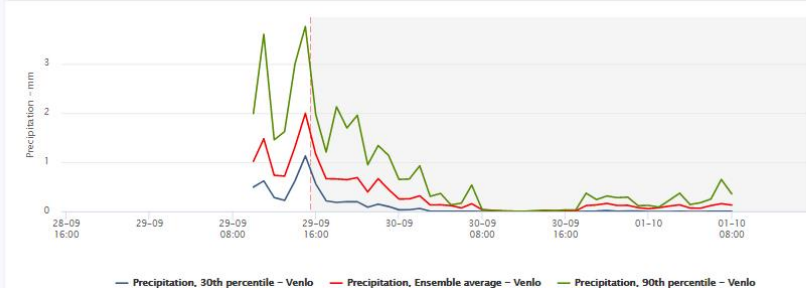
Grootstalghe neerslaghoeveelheid (in mm) 0-...



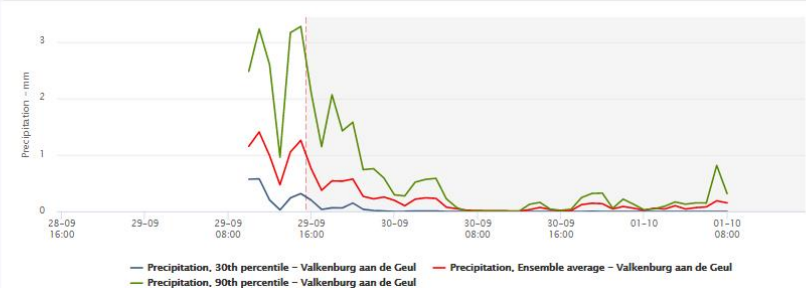
Potentiële piekhoeveelheid (in mm) 0-24 uur (...)



Grafiek vandaag en morgen - Venlo



Grafiek vandaag en morgen - Valkenburg



— Precipitation, 30th percentile - Venlo — Precipitation, Ensemble average - Venlo — Precipitation, 90th percentile - Venlo

— Precipitation, 30th percentile - Valkenburg aan de Geul — Precipitation, Ensemble average - Valkenburg aan de Geul — Precipitation, 90th percentile - Valkenburg aan de Geul

Summary “Zware Buien”

Positive outcomes “Zware Buien”:

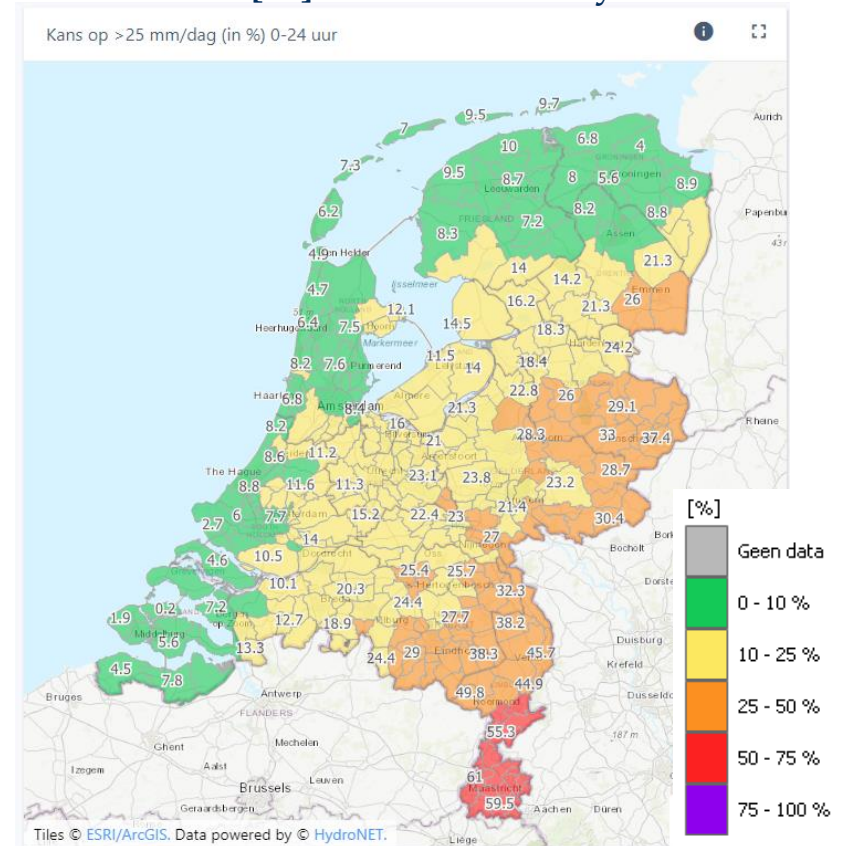
- Improved forecast in location, time en user-oriented
- Probabilistic forecasts → Action perspective

Feedback “Zware Buien”:

- Precipitation ≠ flooding
- High expert level

Need for operational flood warning system

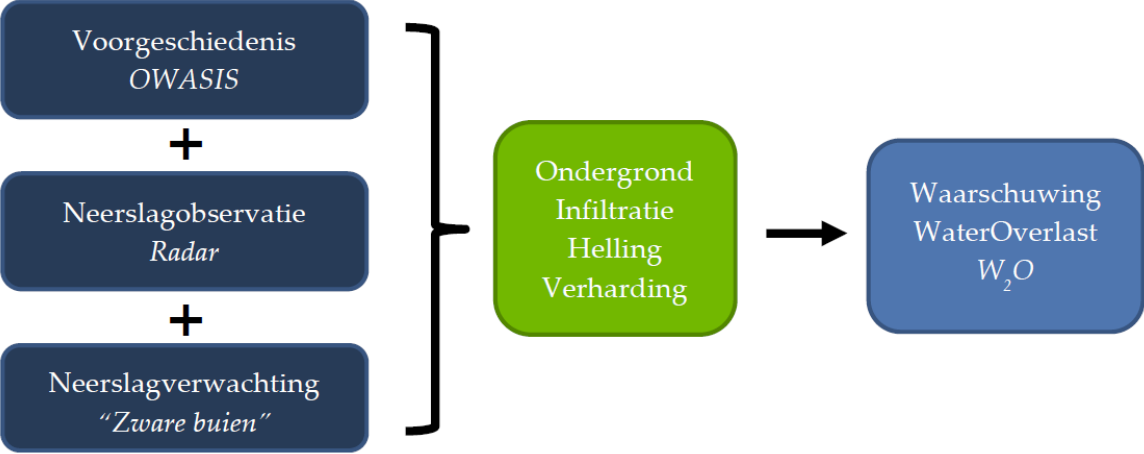
Likelihood [%] on >30 mm/day



Generic “W20” for NL

Flood risk is a combination of:

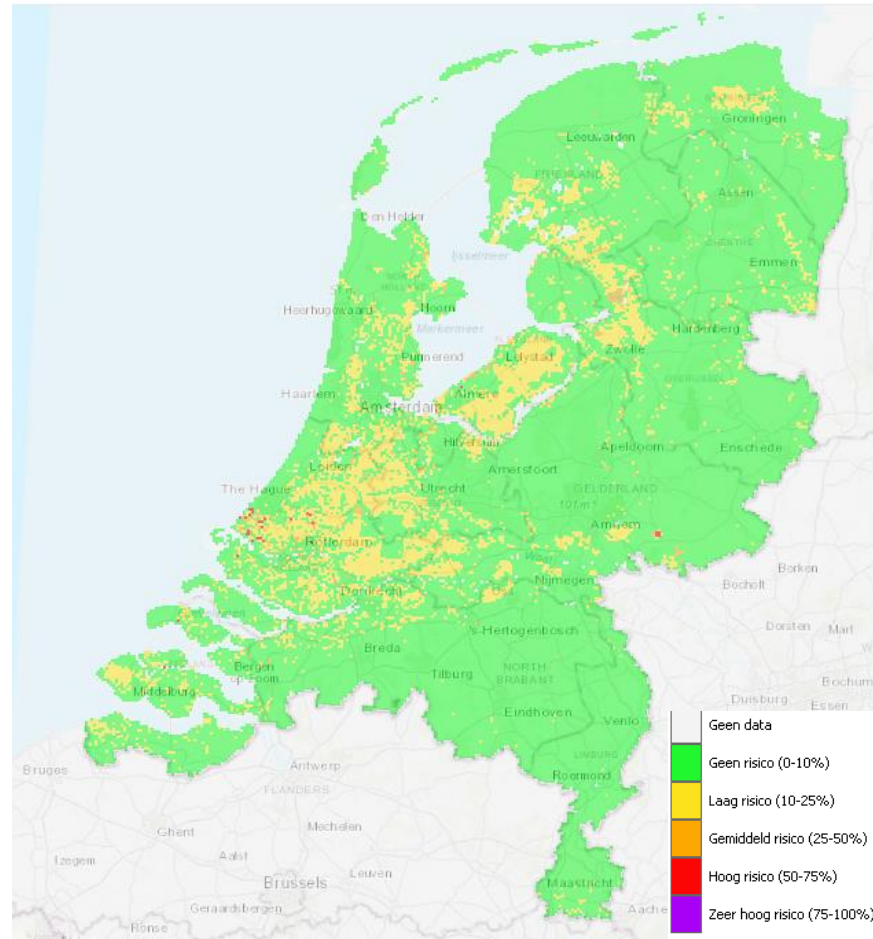
- Precipitation
- Previous period (wet/dry)
- Environmental factors; satellite-based information: e.g., infiltration, orography, urbanization



Example

- Generic product
- 1x1 km
- Quick calculation

Risico op wateroverlast (+48 uur - NL)



Innovation traject



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 waterschap
limburg
met de omgeving, voor de omgeving

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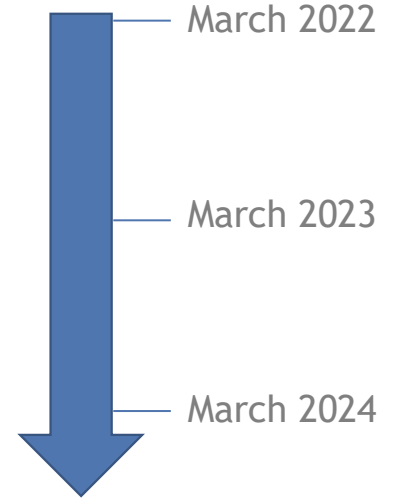

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Targets innovation trajet

Further development → innovation with users!

- Operationalisation and implementation
- Improvement of existing products (*Zware buien* and *W20*)
- Development and testing of alternative solutions
- Goal: broadly tested and broadly accepted product



Improvements W20

Improvement of flow
accumulation

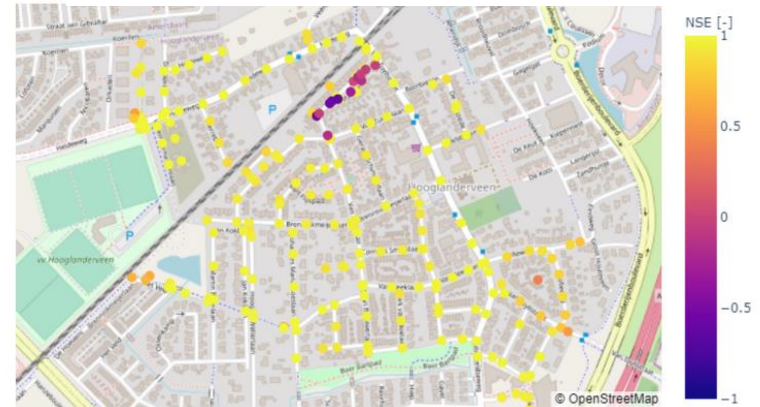
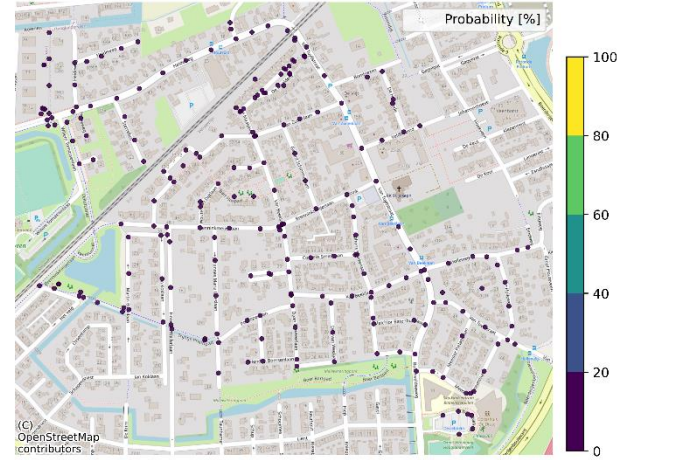
Research for higher resolution

Extra component for open
water and sewage system

Variable infiltration capacity

Alternative solution example

- Case Amersfoort (Hooglanderveen & Soesterkwartier)
- Model of sewage system
- Machine learning model build on Infoworks Integrated Catchment model



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