

# Performance of CEMS Global Flood Monitoring (GFM) during the Odra flood 2024 in Germany

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Germany

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©Voigt, Lower Oder Valley National Park

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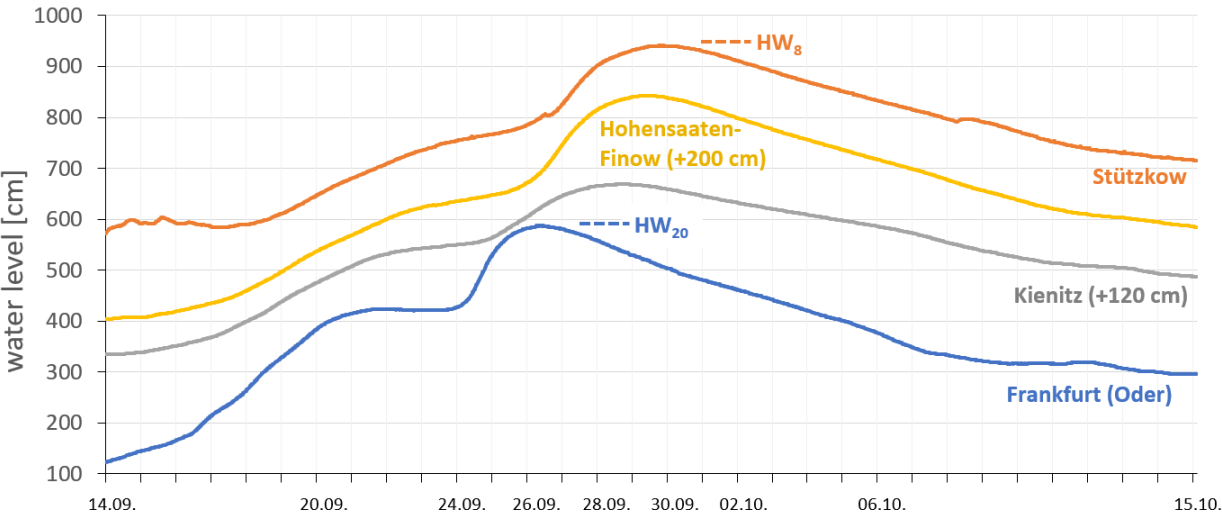


gauge station Ratzdorf at flood peak © LfU Brandenburg

1. Odra flood Sep-Oct 2024

Odra flood Sep-Oct 2024, Germany

- Severe rainfalls in Czech Republik, Poland and the Odra catchment



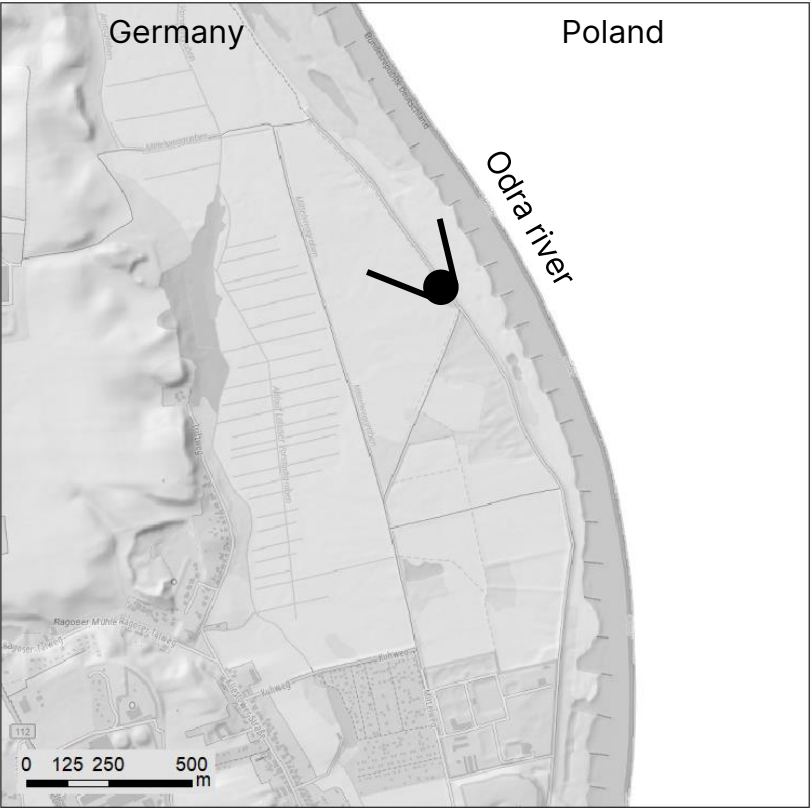
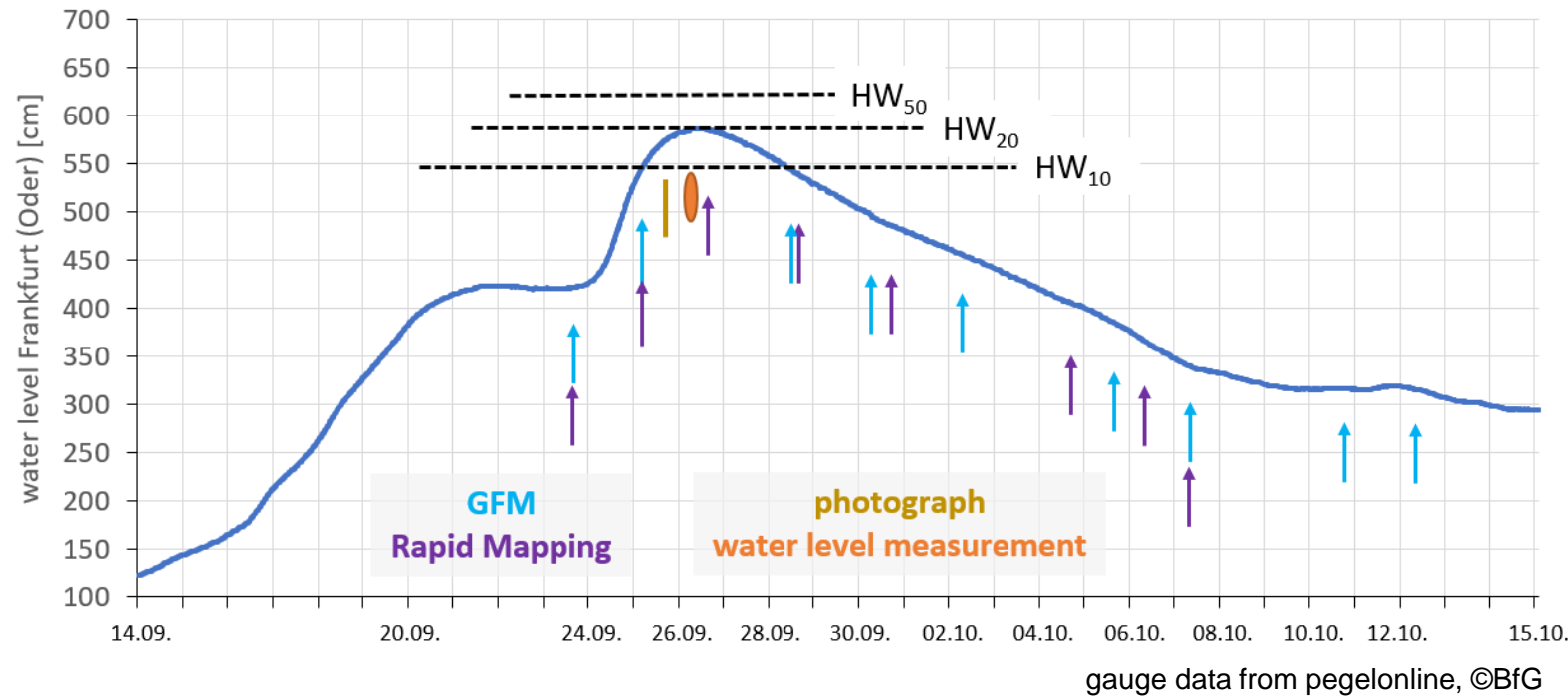
gauge data from pegelonline, ©BfG





2. GFM results area 1: Odra near Frankfurt Oder

GFM results area 1:  
meadow near Frankfurt (Oder)

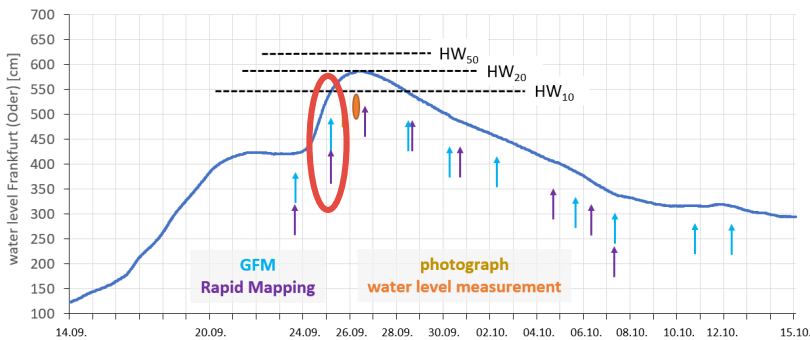


background: basemap ©BKG 2025

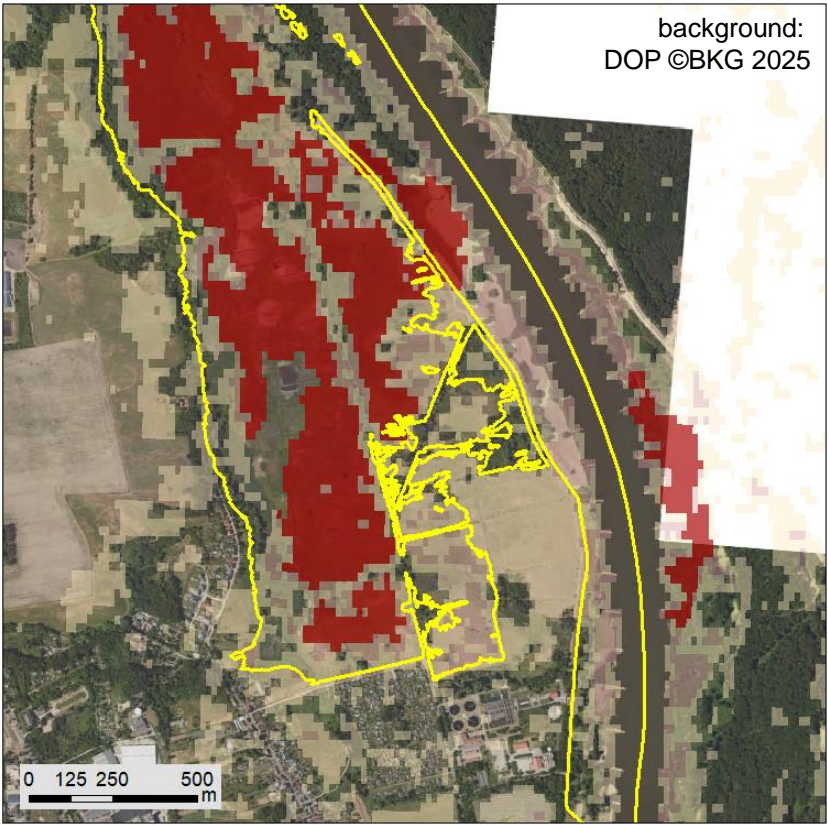
Water level at gauge station Frankfurt (Oder)  
with marked timing of GFM and Rapid Mapping products, ©BfG

2. GFM results area 1: meadow near Frankfurt (Oder)

GFM and Rapid Mapping close to flood peak



GFM 25.09.24 05:17



GFM flood probability (uncertainty layer)

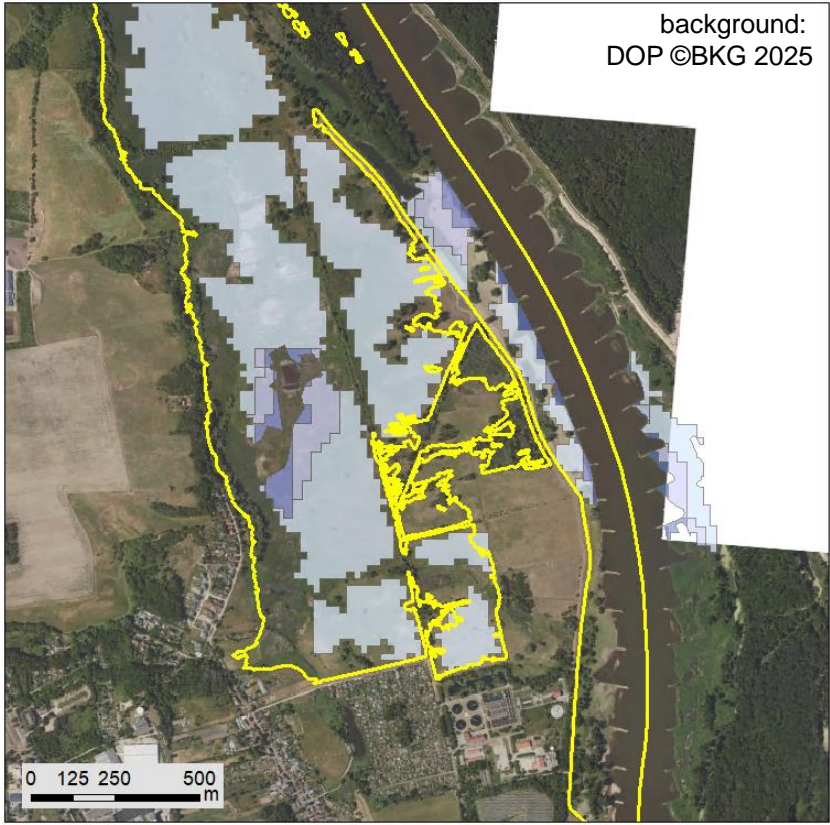
- Low likelihood of flood classification
- 10-40 %
- 40-65 %
- High likelihood of flood classification
- GFM flood layer

Flood depth © CEMS Rapid Mapping

- Below 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- 2.00 - 4.00
- 4.00 - 6.00

hazard map HQ<sub>10</sub>  
(LfU Brandenburg)

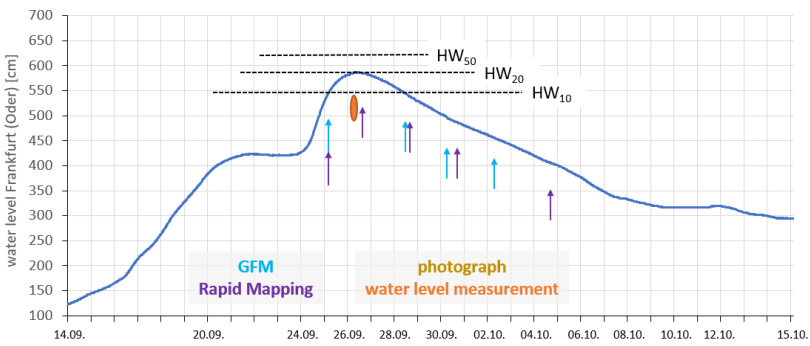
Rapid Mapping 25.09.24 05:17



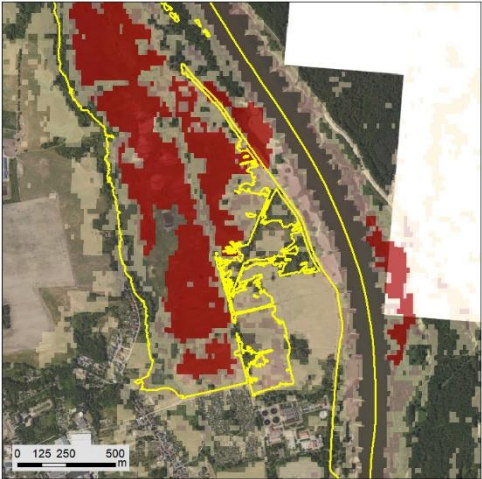


2. GFM results area 1: meadow near Frankfurt (Oder)

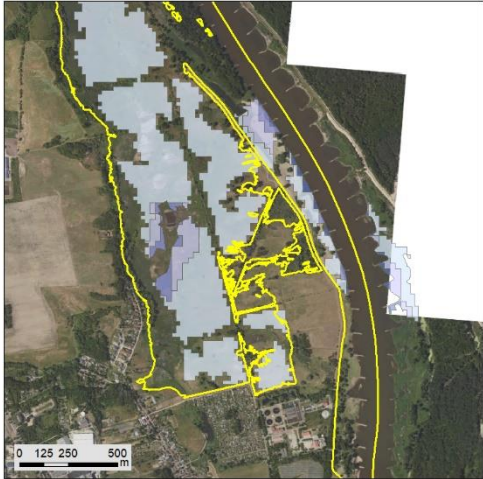
Odra near Frankfurt: monitoring



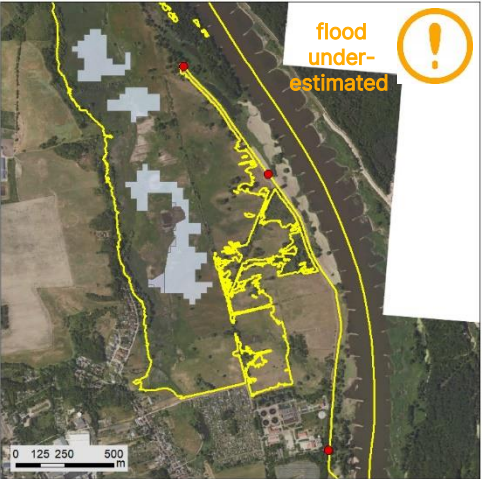
GFM 25.09.24 05:17



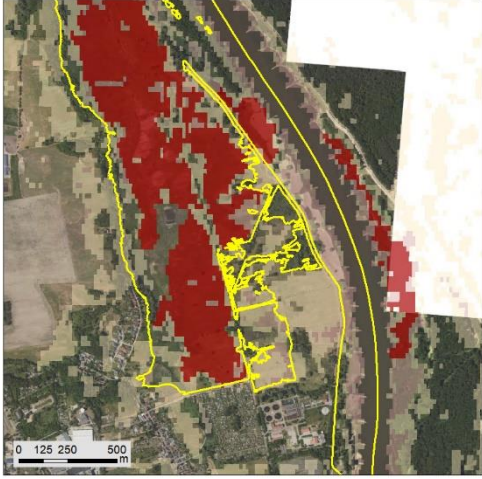
Rapid Mapping 25.09.24 05:17



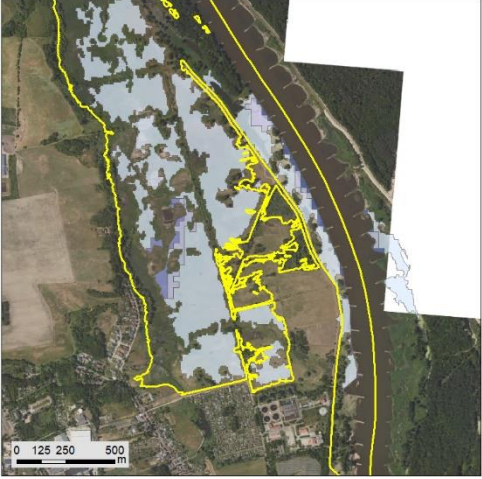
Rapid Mapping 26.9.24 16:42



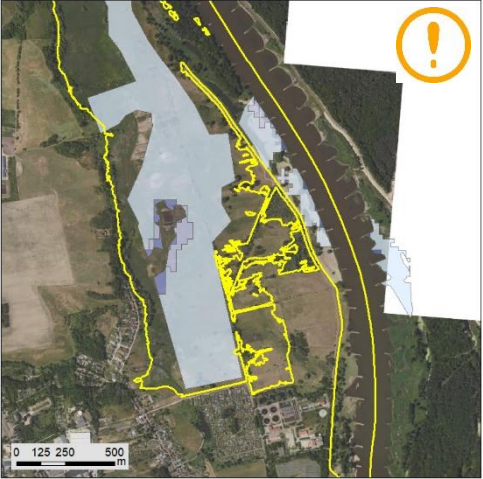
GFM 28.9.24 16:52



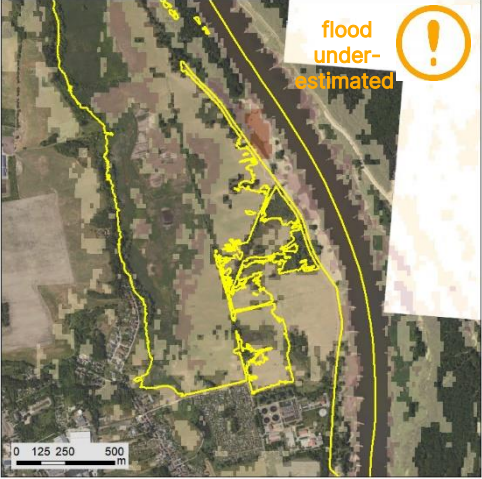
Rapid Mapping 28.9.24 17:01



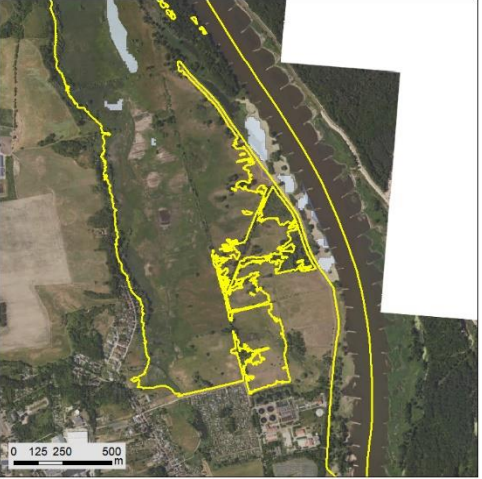
Rapid Mapping 30.9.24 16:53



GFM 02.10.24 18:52 MESZ



Rapid Mapping 04.10.24 16:52



GFM flood probability (uncertainty layer)

- Low likelihood of flood classification
- 10-40 %
- 40-65 %
- High likelihood of flood classification
- GFM flood layer

Flood depth © CEMS Rapid Mapping

- Below 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- 2.00 - 4.00
- 4.00 - 6.00

hazard map HQ<sub>10</sub>  
(LfU Brandenburg)

- water level measurements  
at flood peak, 26.9.25  
(LfU Brandenburg)



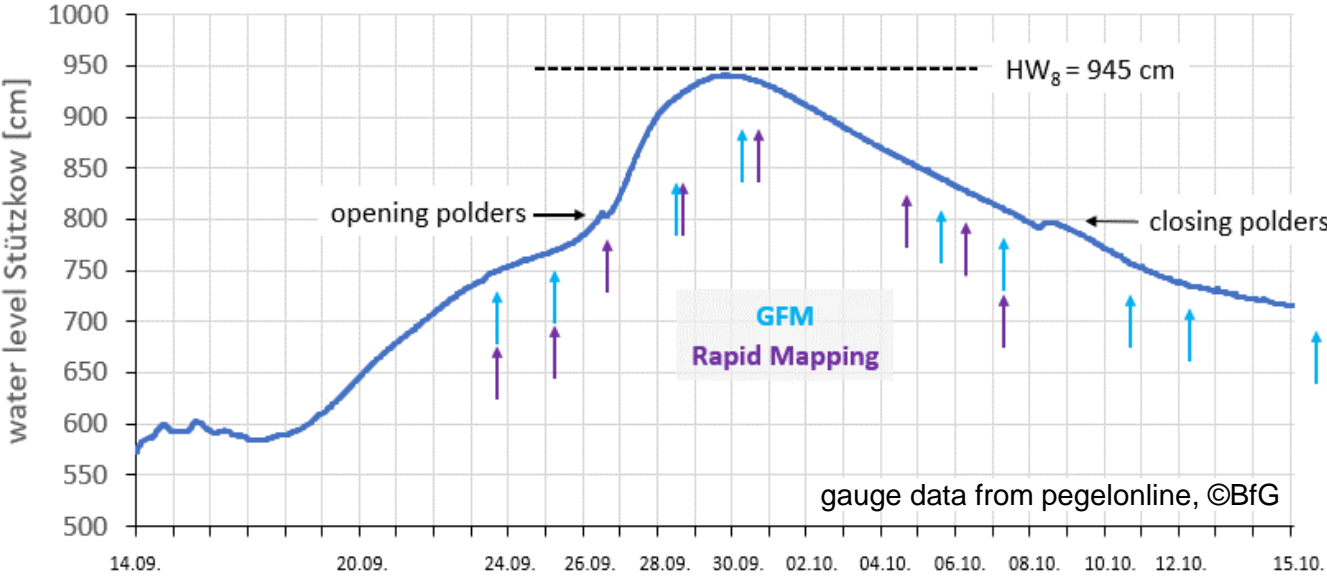
### 3. GFM results area 2: Odra Polders

## Example area 2: Odra Polder Impressions at flood peak

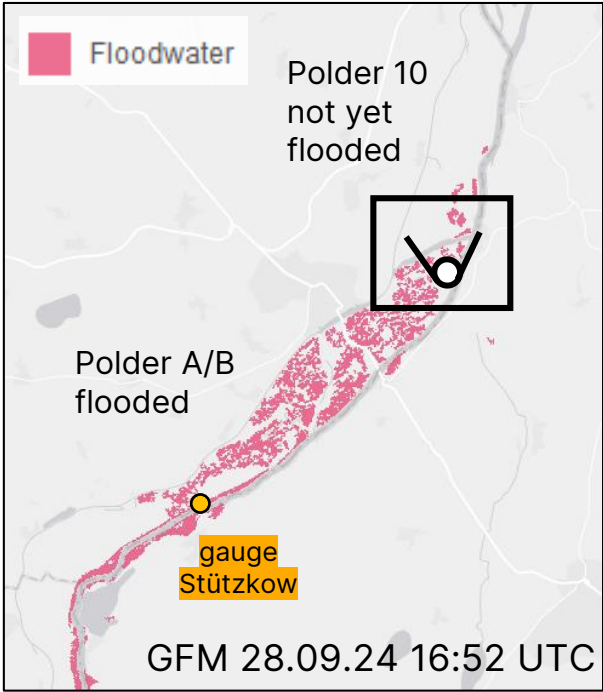


3. GFM results area 2: Odra Polders

GFM example area 2: Odra Polder



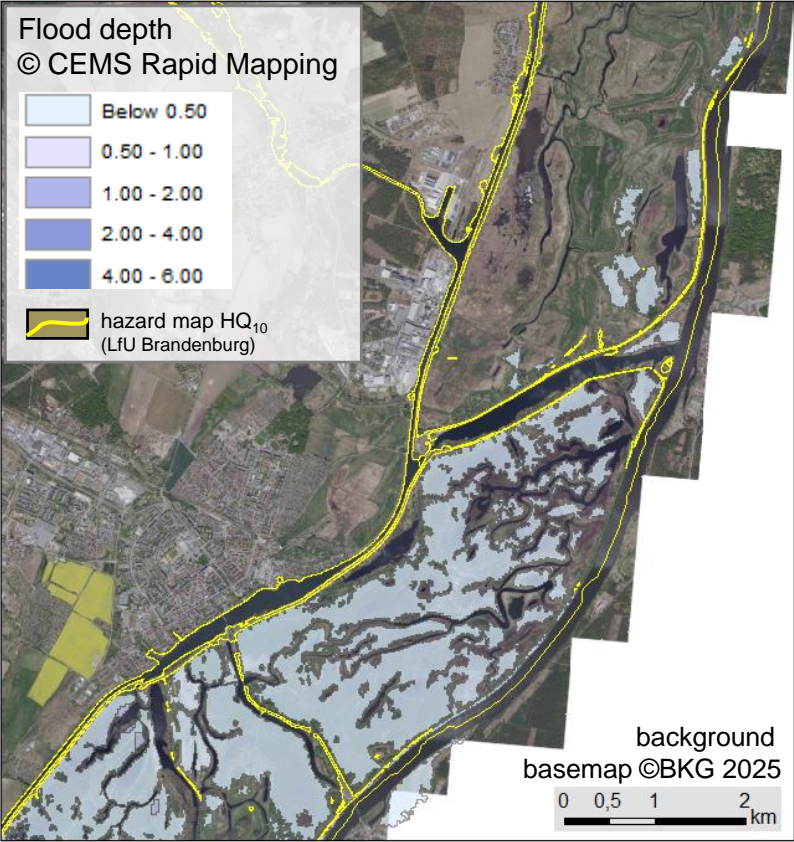
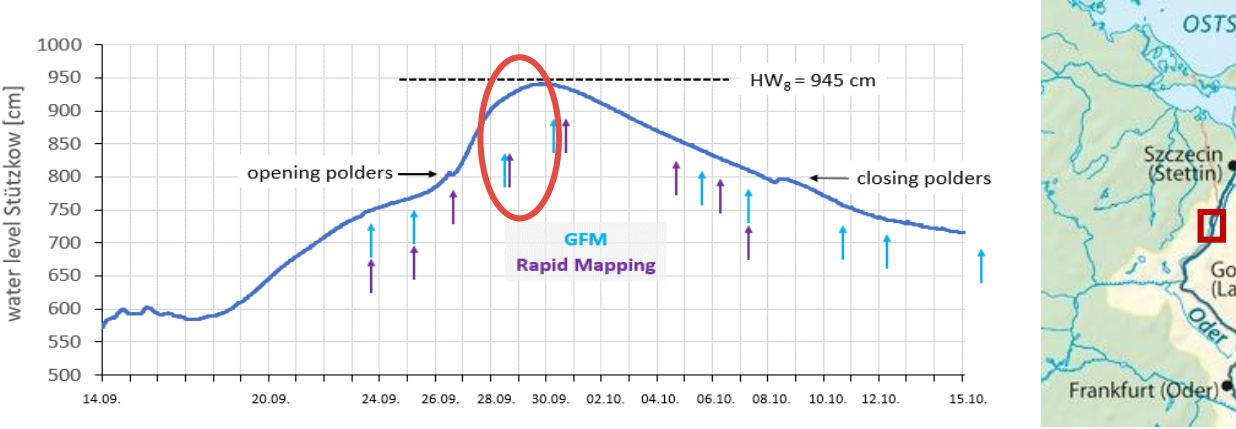
Water level at gauge station Stützkow (Oder)  
with marked timing of GFM and Rapid Mapping products, ©BfG



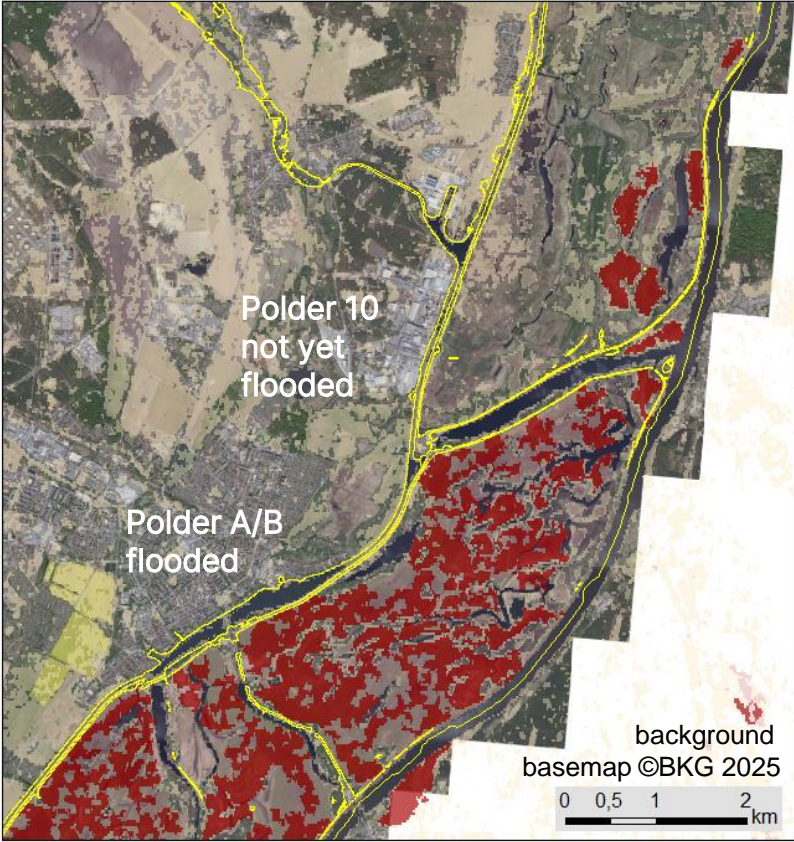


3. GFM results area 2: Odra Polders

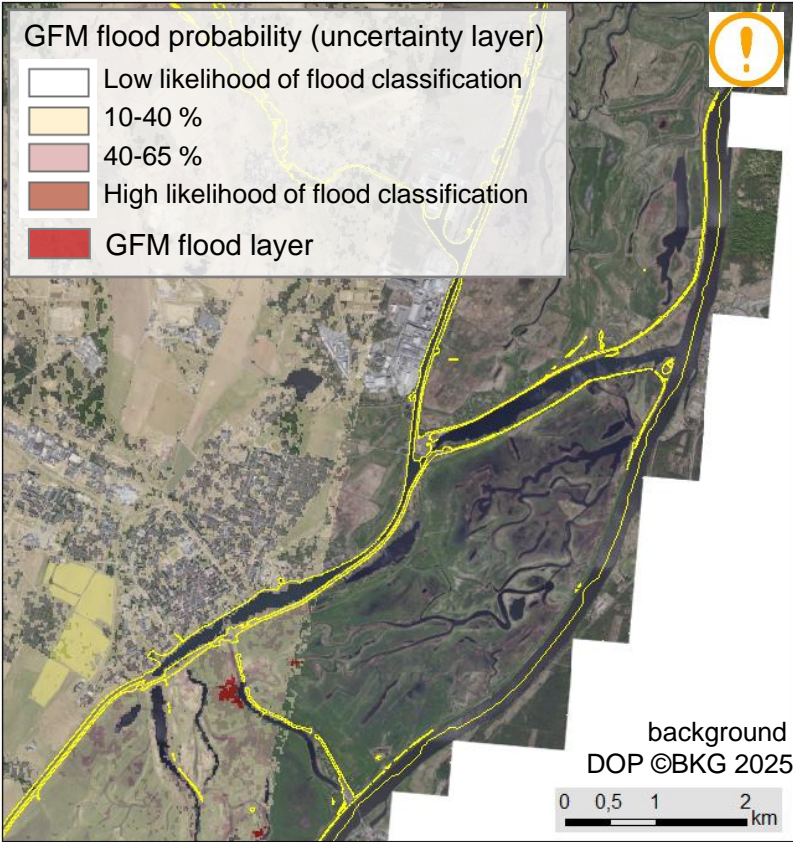
GFM and Rapid Mapping results close to flood peak



EMSR763: PAZ, 18.5 m GSD  
28.09.24 17:01 UTC



GFM: Sentinel-1, 20 m GSD  
28.09.24 16:52 UTC

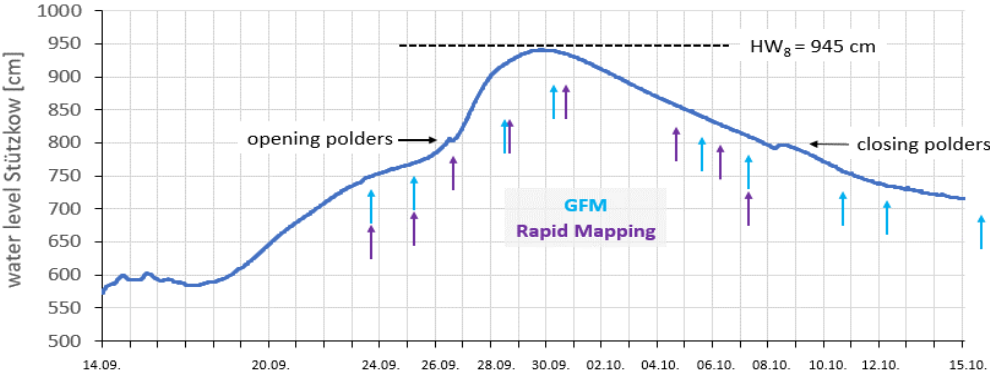
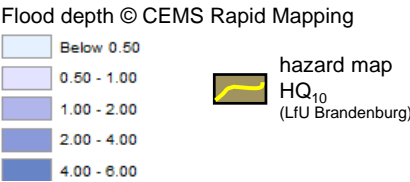
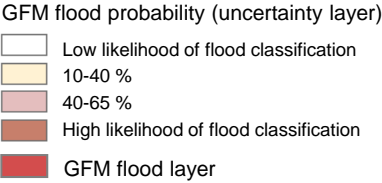


GFM: Sentinel-1, 20 m GSD  
30.09.24 05:25 UTC

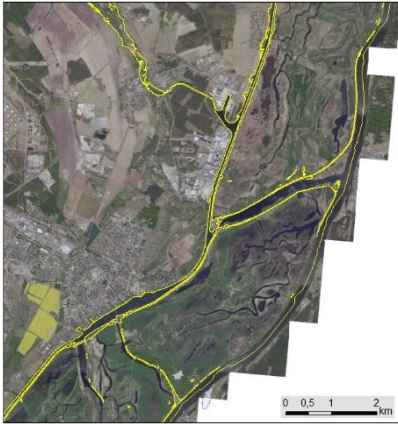


3. GFM results area 2: Odra Polders

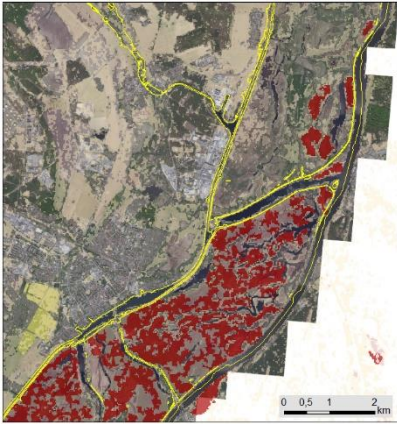
GFM and Rapid Mapping Monitoring



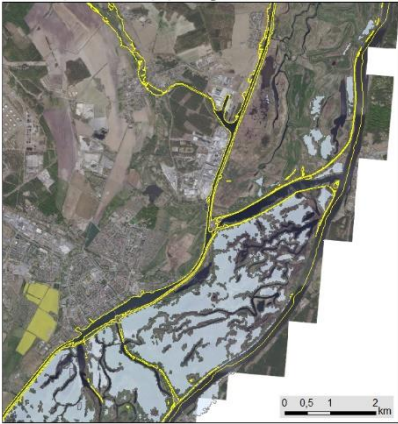
Rapid Mapping 26.9.24 16:42



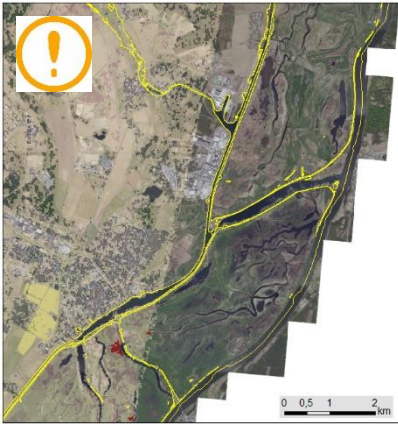
GFM 28.09. 16:52



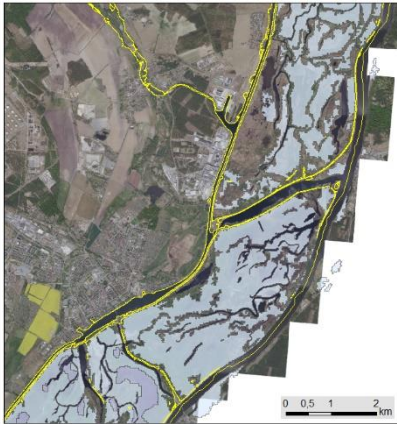
Rapid Mapping 28.09. 17:01



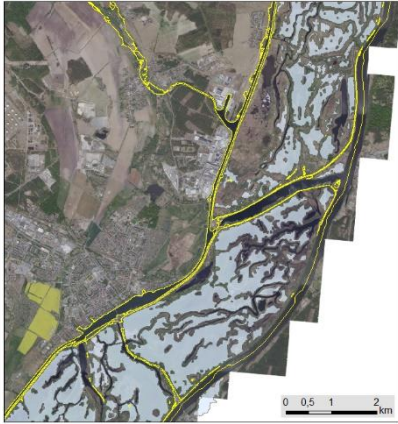
GFM 30.09. 05:25



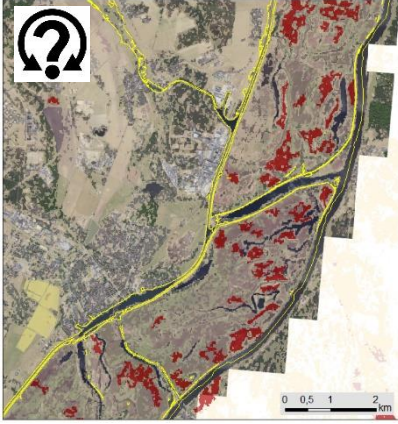
Rapid Mapping 30.09.24 16:53



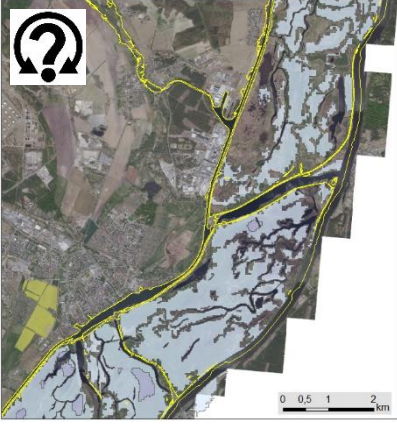
Rapid Mapping 04.10.24 16:52



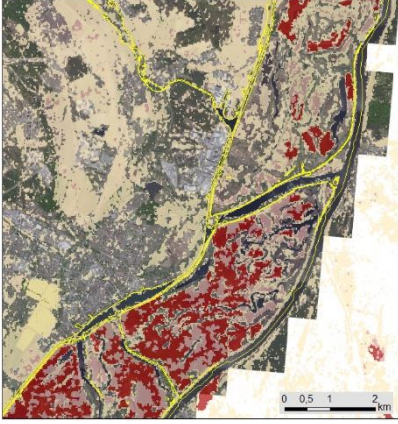
GFM 05.10.24 16:44



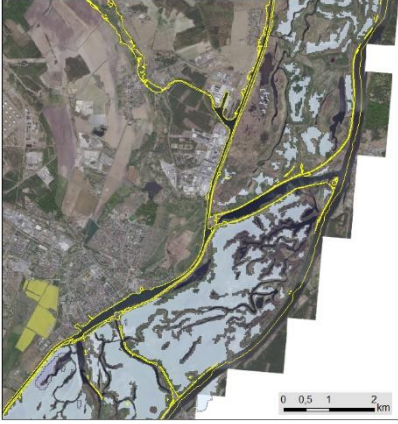
Rapid Mapping 06.10.24 04:36



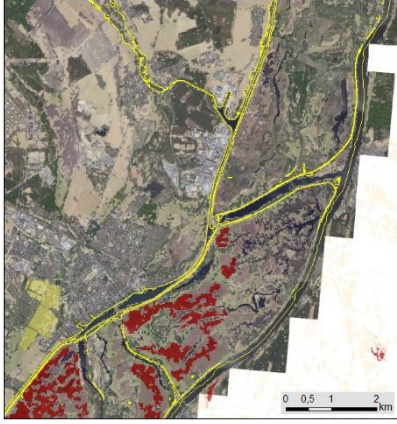
GFM 07.10.24 05:17



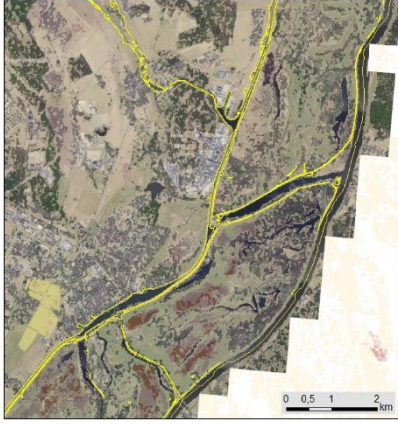
Rapid Mapping 07.10.24 05:17



GFM 10.10.24 16:52



GFM 17.10.24 16:44



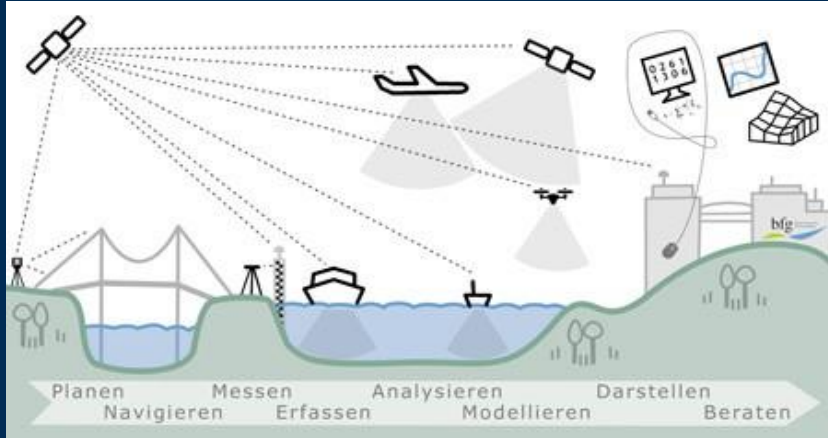


#### 4. Conclusions

## Conclusions

- ⊕ GFM products are well accessible, clear descriptions of product derivation
- ⊕ GFM results were partly better than Rapid Mapping
- ⚠ GFM products are partly not fully plausible (e.g. underestimation polder flooding 30.9.24)
- ⚠ No marked flood doesn't mean "no flood" (due to exclusion areas)

# Thank you for your attention.



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