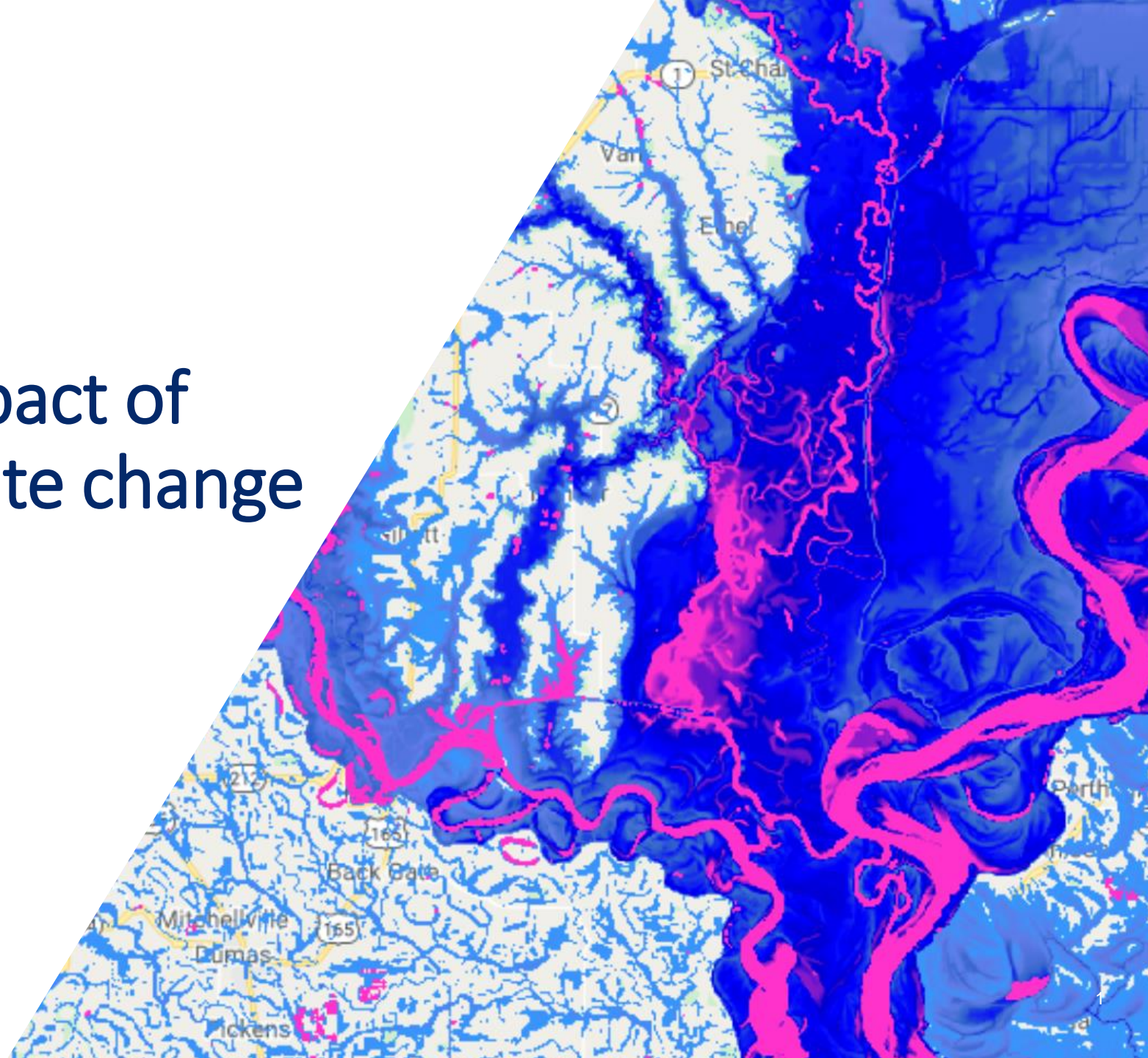


F  
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O

# Understanding the impact of flood hazard and climate change on infrastructure

7<sup>th</sup> February 2023





# All flooding is local

fathom.global



© Fathom



Human  
greenhouse  
gas emissions

Warmer  
oceans

Thermal  
expansion

Sea level rise

More coastal  
flooding

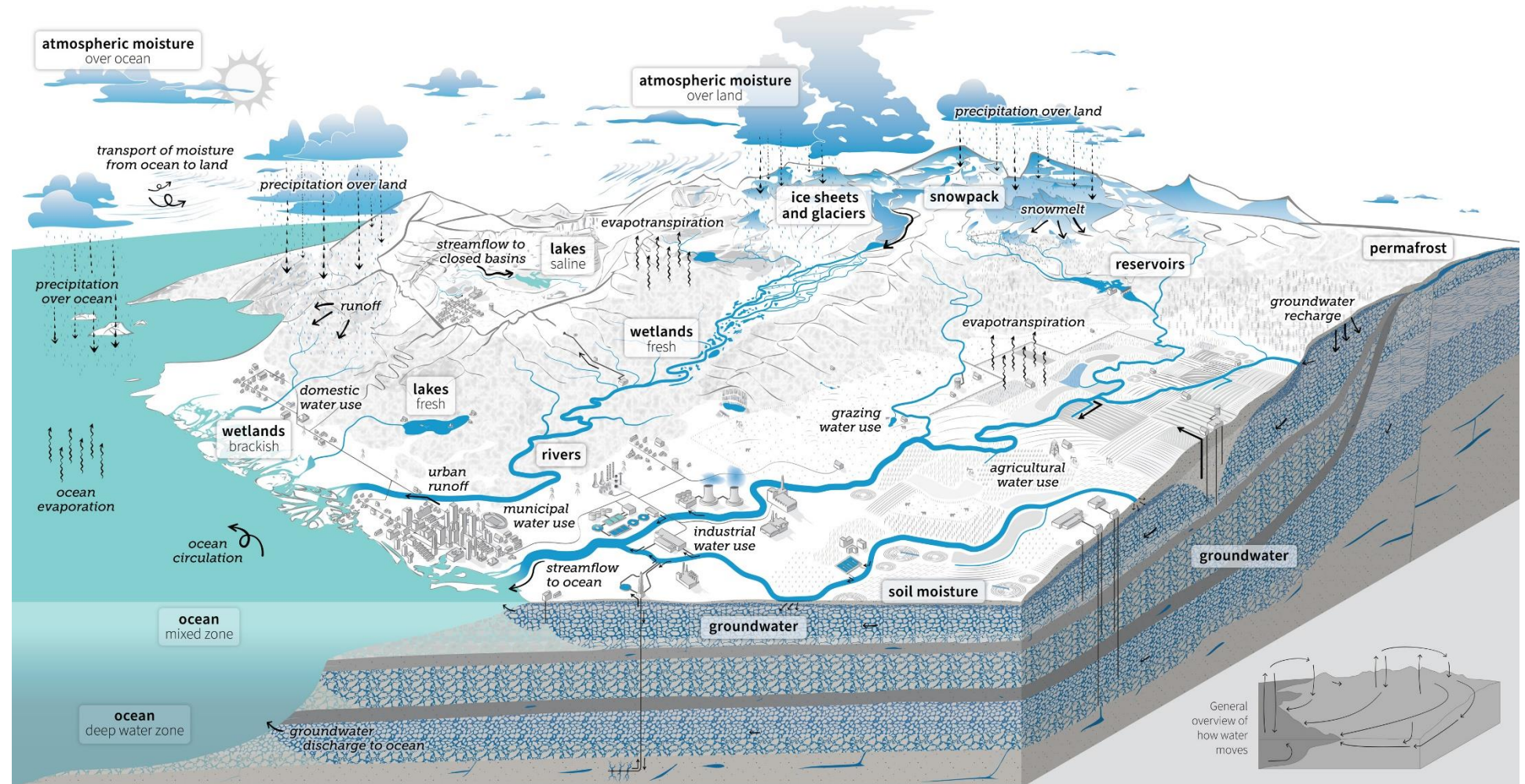
Land  
ice melt

Warmer  
atmosphere  
(~1°C)

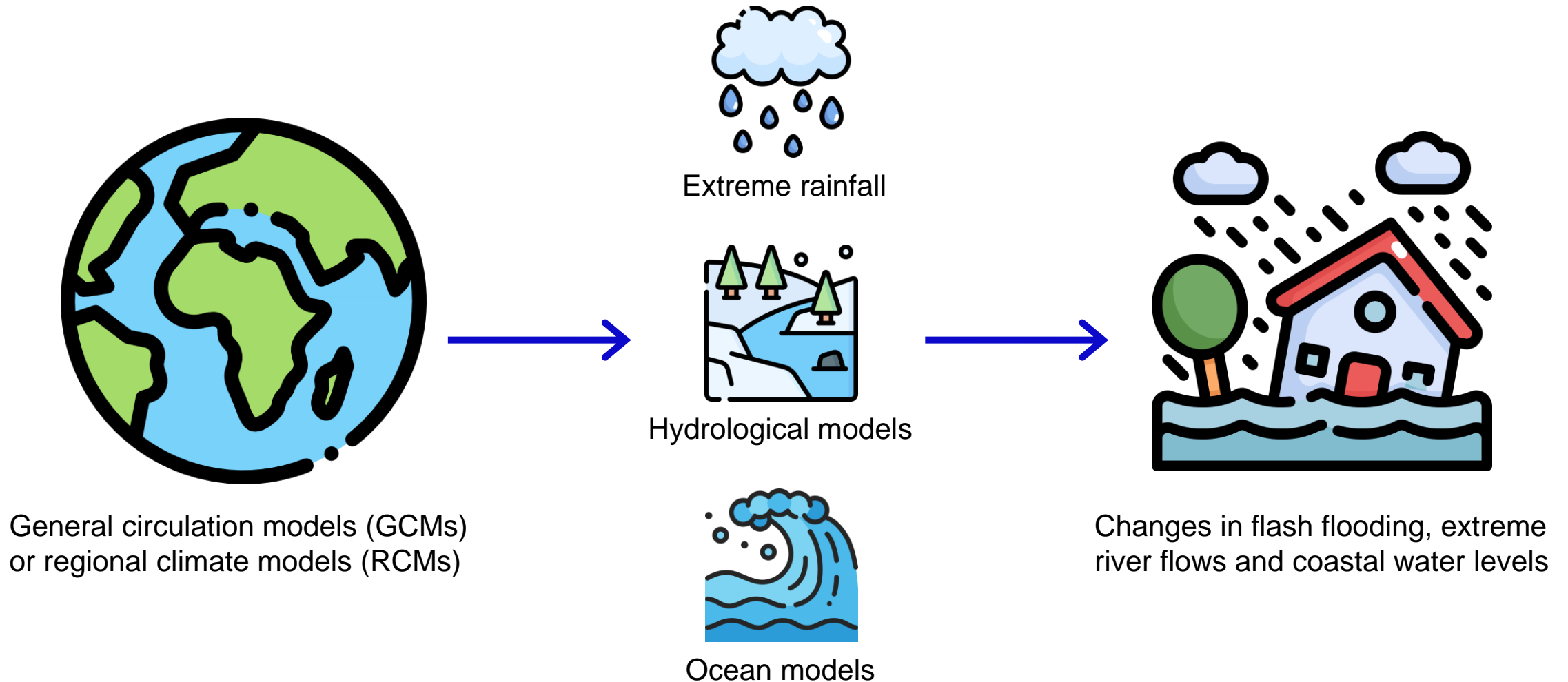
More atmospheric  
moisture  
(Clausius Clapeyron 7%/°C)

Larger rainfall  
events and flash  
floods

Larger river  
floods?



# Models to anticipate future changes



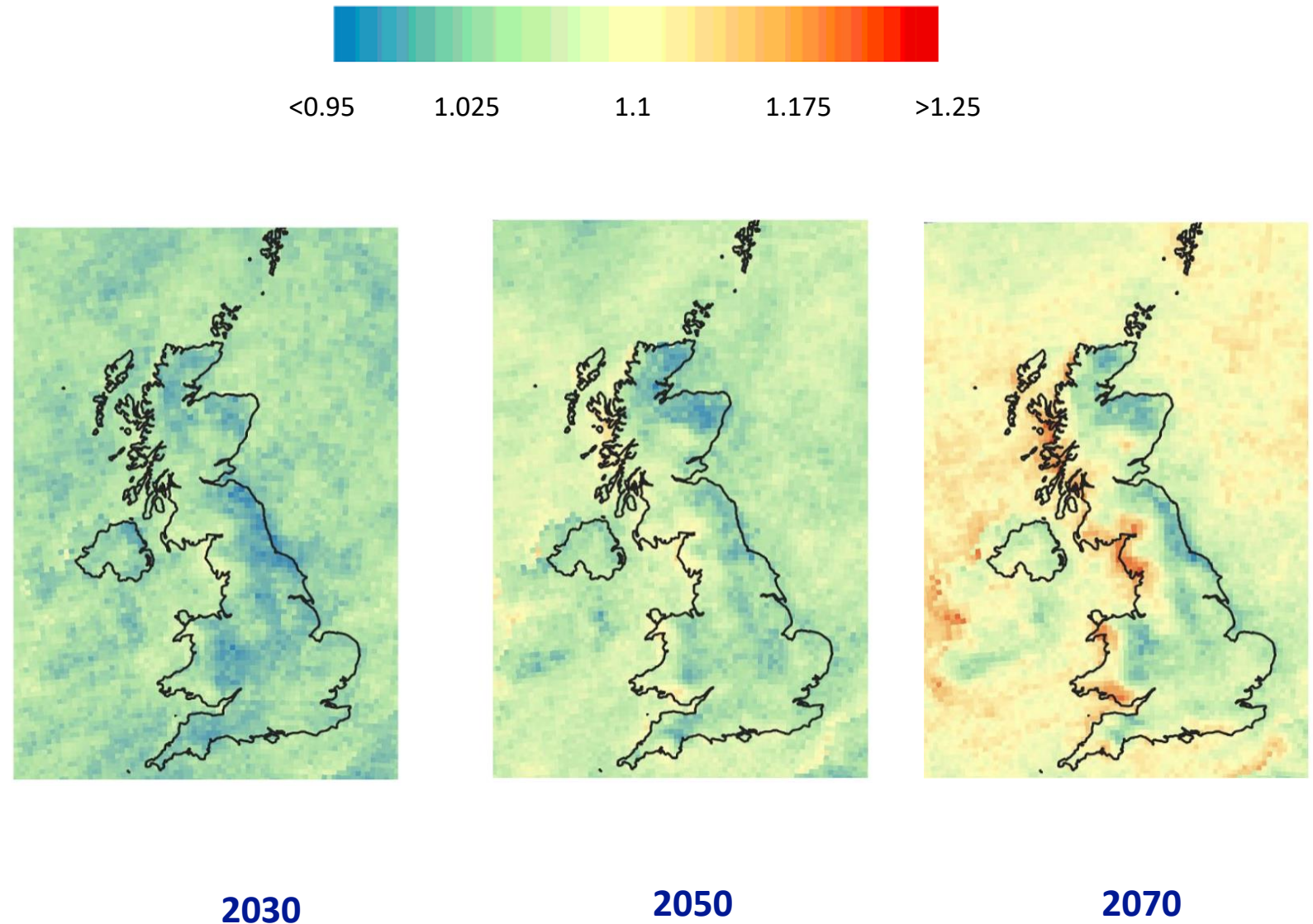


# Flooding & Climate Change



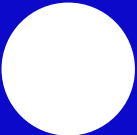
Fluvial and pluvial climate change simulations based on UKCP18 future climate projections

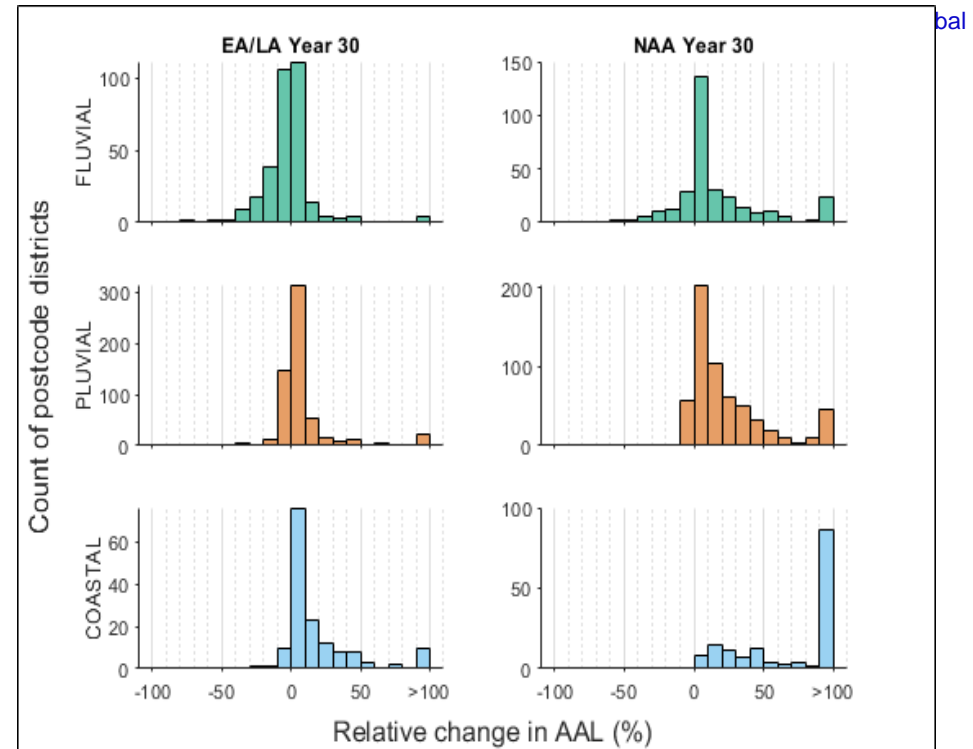
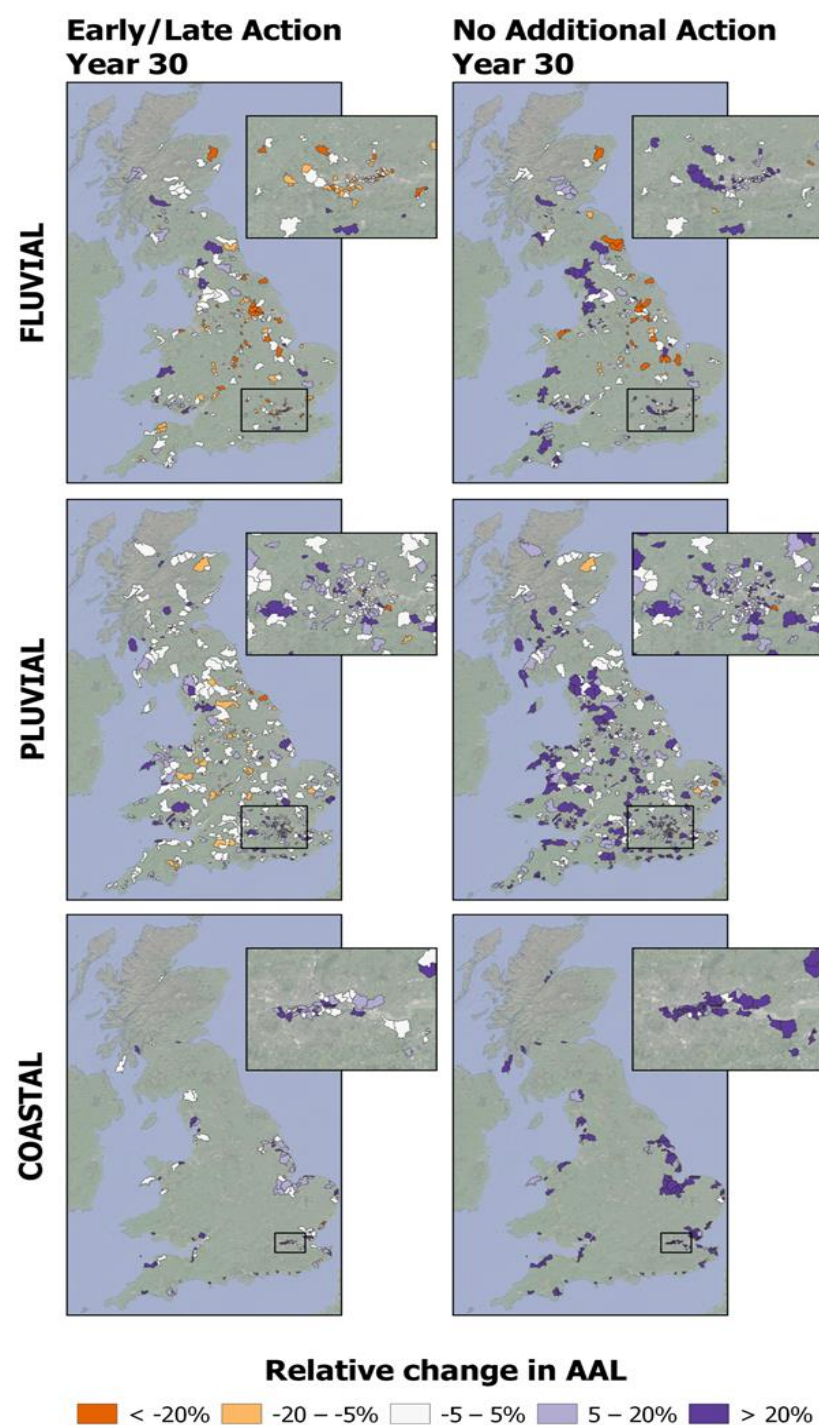
Coastal climate change simulations incorporate sea level rise changes as outlined in Kopp et al. (2014)

Change in extreme rainfall from present day for RCP8.5 future time horizons



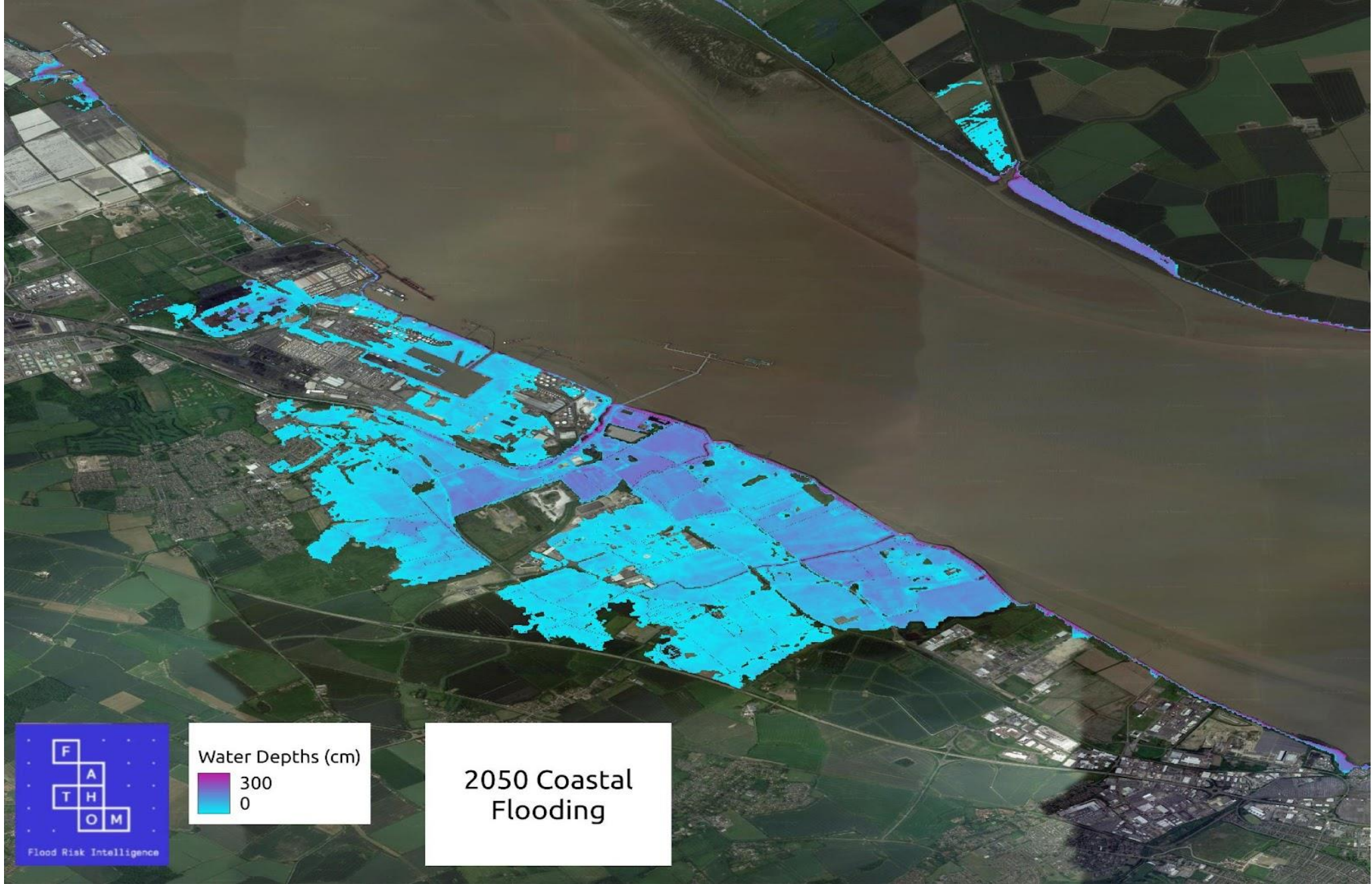
# Fathom-UK Future

-  - Fluvial
-  - Pluvial
-  - Coastal



Explicit physical models are required to fully understand changing climate risks.

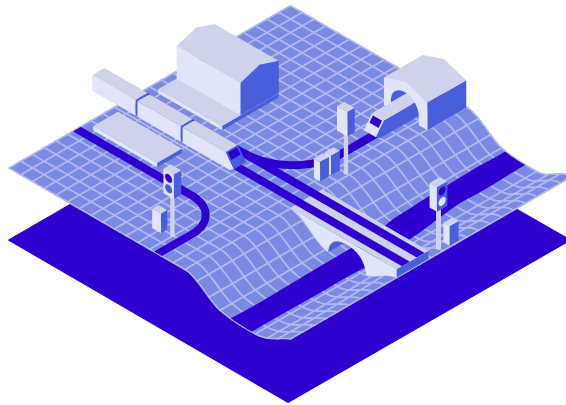




# Use cases



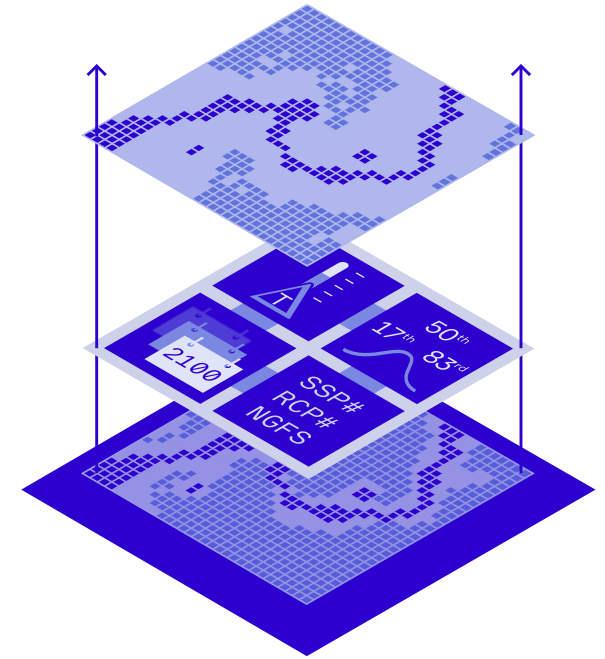
Site selection



Linear assets



Critical infrastructure

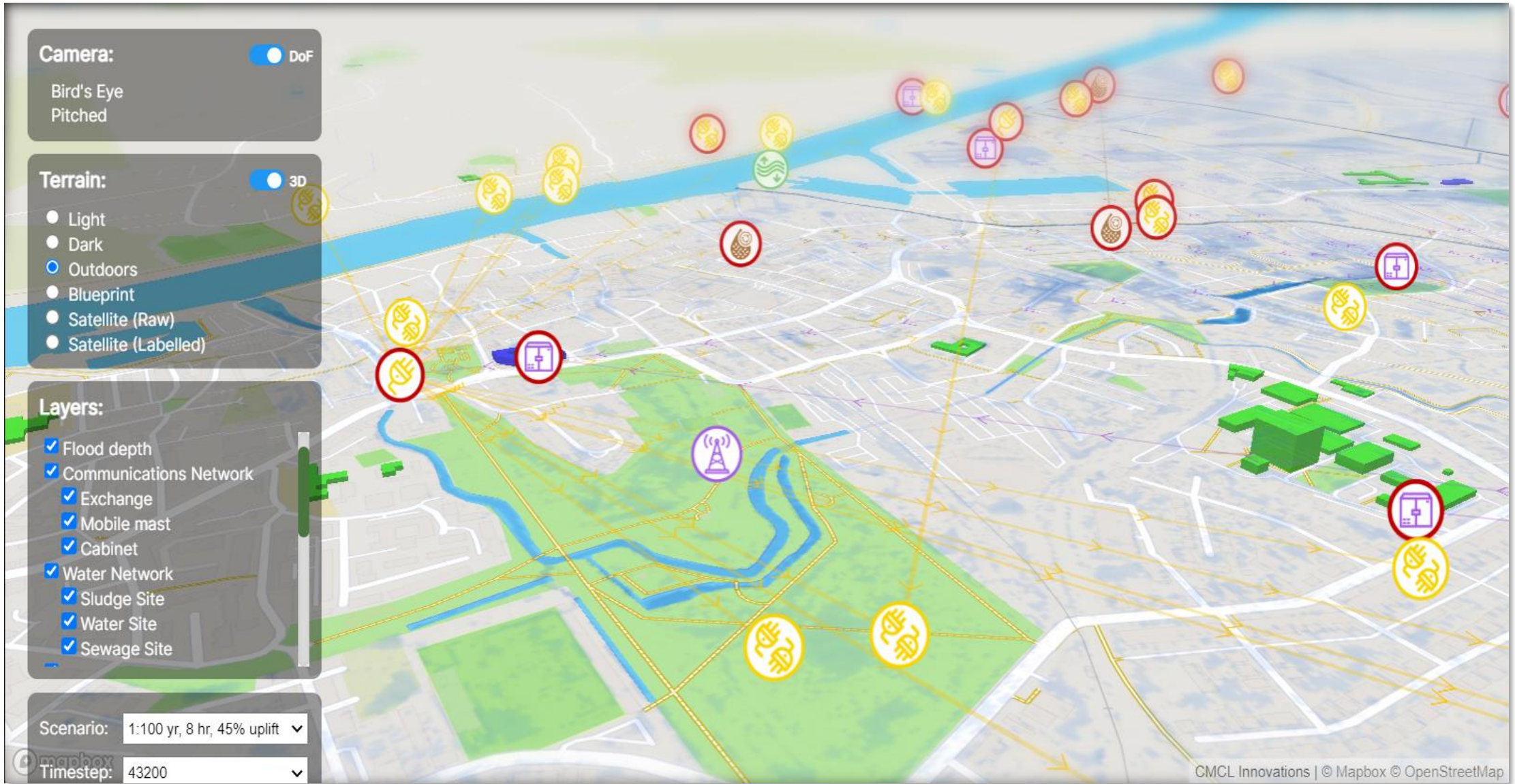


Climate analytics

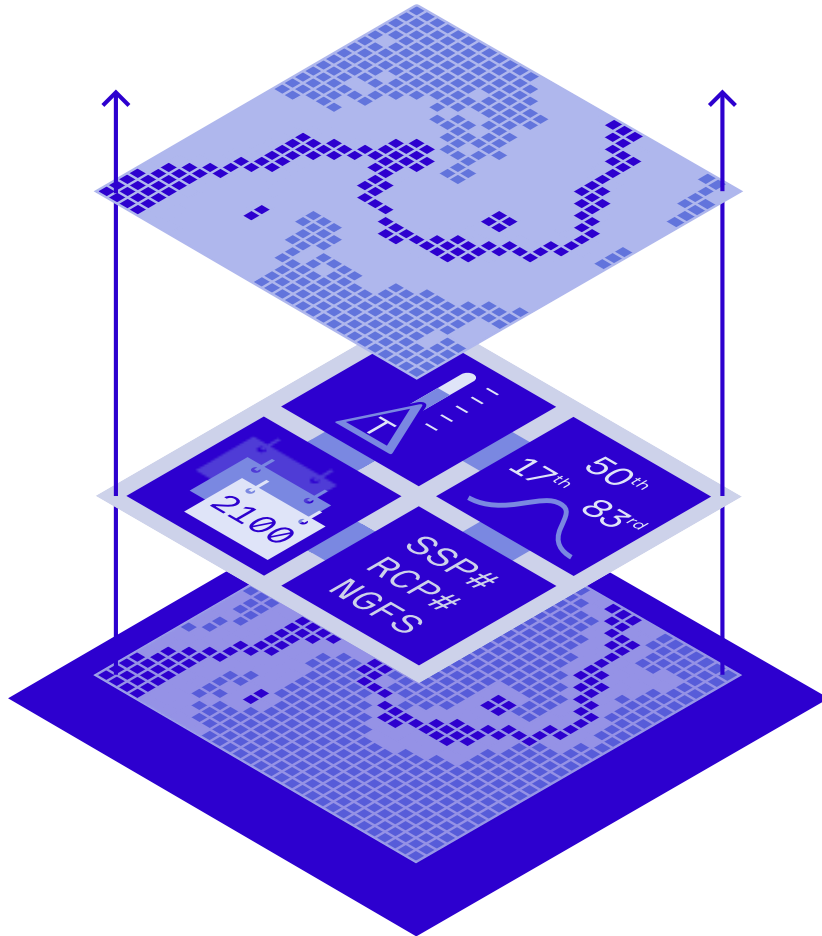


# Critical assets









- Climate Dynamics Framework
- Based layer is Flood Map for current climate state
- Flexibility on the parameters:
  - Climate scenarios
  - Time horizon
  - Percentiles
- Output is a climate conditioned flood map
- Delivers ultimate flexibility for defining future flood risk
- Portfolio screening or detailed climate resilience assessment

# Thanks! Any questions?

Contact us: [g.lewis@fathom.global](mailto:g.lewis@fathom.global)



Catch up on our launch and CPD webinars:

- Access them at [fathom.global/events/](https://fathom.global/events/)

Meet us at:

- World Water-Tech Summit, London, February 2023
- NCE Flood Resilience, London, April 2023
- Flood & Coast, Telford, June 2023

