

DEPLOYING AN URBAN DRAINAGE MODELLING FRAMEWORK ON THE DAFNI PLATFORM

The project aims to deploy a state-of-the-art modelling system on the DAFNI platform to simulate urban drainage and flood risk across any UK town or city under various storm scenarios. A key innovation is the development of an optimisation tool that enables users to determine optimal nature-based intervention strategies via the implementation of Blue-Green Infrastructure.

Key stakeholders: Newcastle City Council, Environment Agency, Northumbrian Water, Reece Foundation, and community groups.

SOFRAMODE

SEWER OVERFLOW FLOOD RISK ANALYSIS
MODEL DAFNI ENABLED



LESSONS LEARNT

- ✔ Data sharing is a contentious issue and stakeholders are more easily convinced to share derived, as opposed to raw, datasets.
- ✔ Fostering a shared vision and highlighting mutual benefits are key to encouraging engagement.
- ✔ Transforming data from restrictive formats to accessible databases with appropriate metadata is crucial.

RECOMMENDATIONS

- ❑ Future funding should focus on bridging other key data gaps such as engaging with insurance analysts to enable the validation and improvement of flood damage estimates.

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CONTACT INFORMATION

Vassilis Glenis, Claire Walsh and James Mckenna
Newcastle University, School of Engineering
vassilis.glenis@newcastle.ac.uk, claire.walsh@newcastle.ac.uk,
james.mckenna@newcastle.ac.uk

The modelling system enables users to assess flood and combined sewer overflow risks while exploring cost-effective mitigation strategies. By integrating visualisation tools for surface flow and pipe networks, the system enhances stakeholder engagement, supports informed decision-making, and improves flood resilience planning.

DATA SHARING

BENEFITS

- Improved feature representation
- Robust, stakeholder informed, decision making
- Enhanced access to hydrodynamic modelling capabilities
- Detailed, efficient and economical design of flood risk mitigation strategies
- Enhanced validation practices

BARRIERS

- Commercially sensitive datasets
- Limited metadata
- Inter-organisational competition and distrust
- Lacking interoperability and standards
- Limited data reliability