

measure analyse optimise



## Early Warning For Heavy Rain And Flash Floods



**FloodLead**



**Heavy Rain Monitoring**  
powered by Okeanos



**Overflow of  
Flowing Waters**



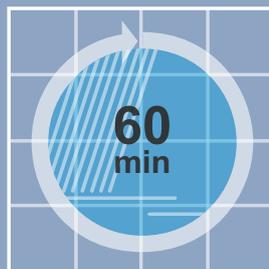
**Sewer System  
Overload**

**Preserving Values and Protecting Lives**

**What if you could reliably announce the next heavy rain up to 60 minutes in advance? And with street-level accuracy.**



**With us, that is possible!**



**Give protection from heavy rain a new priority!**

FloodLead enables you to reliably forecast heavy rainfall to initiate protective measures against the event.

The reliable forecast is high-resolution and street-level accurate.

A 60-minute head start enables the emergency services to properly prioritise the impending missions.

Citizens and local industry can initiate individual protective measures earlier.

### FloodLead Benefits:

#### Municipal responsibility bodies

- Effective damage prevention of the municipal infrastructure such as public transport and public buildings
- Enabling data-based follow-up measures for flood protection
- Possibility to validate hydrodynamic models
- Documentation of heavy rainfall events, e.g. for insurance purposes

#### Early information to emergency services

- Emergency services in the right place at the right time
- Reduction of the chaos phase
- More effective alarm and deployment planning

#### Better crisis management for residents and industry

- Early information on heavy rainfall to residents and industry at risk
- Increased feeling of security
- Earlier start of individual countermeasures e.g. clearing grounds/cellars or sealing doors



### Precise Precipitation Information

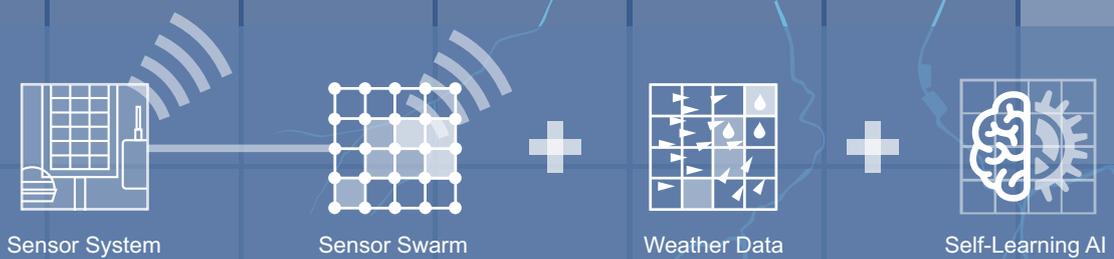


**Up to 60 minutes ahead**  
Minutes that are crucial

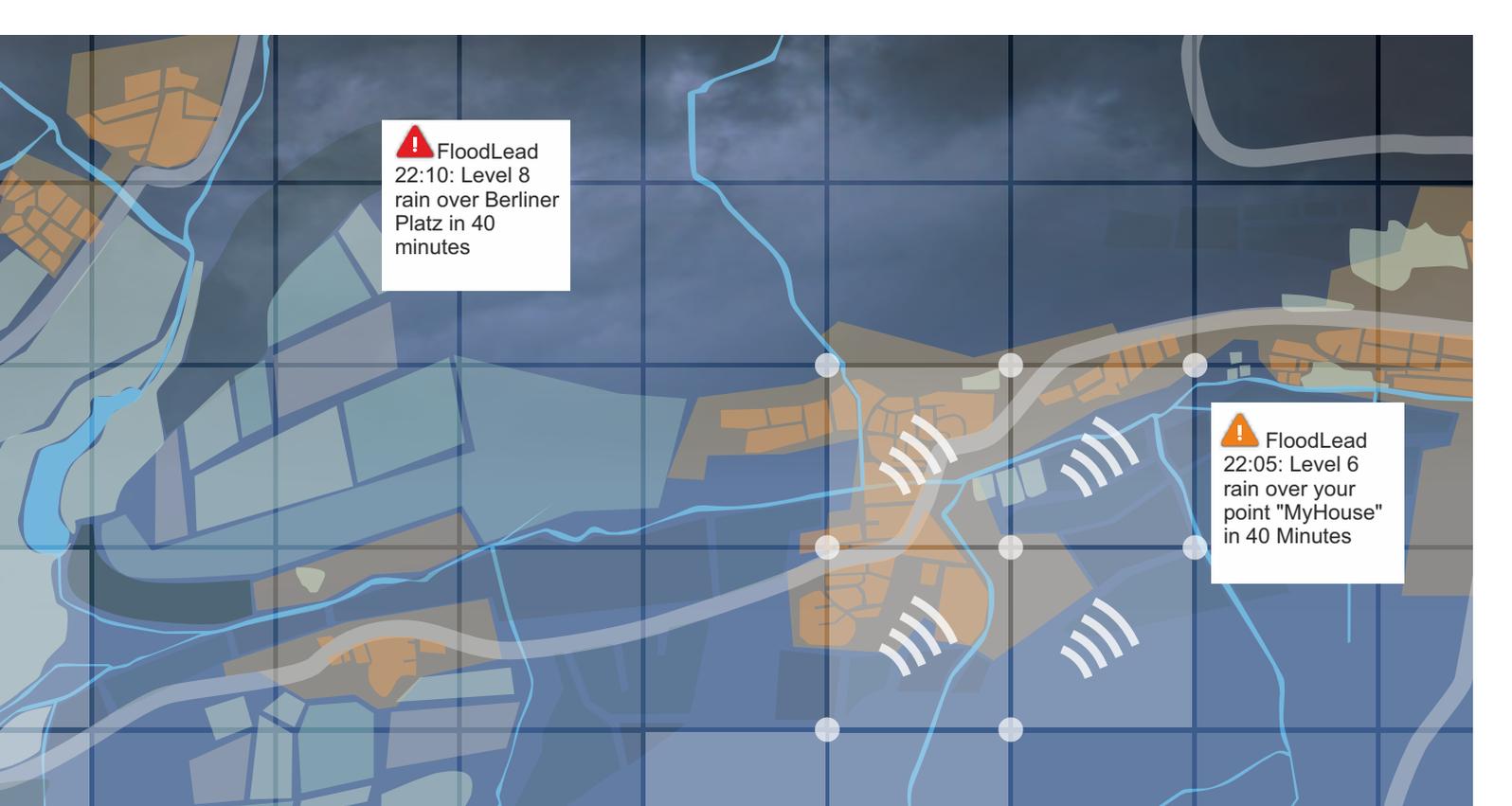
## How does FloodLead work?

FloodLead enables the various user groups to define points to be monitored independently online in a portal. The users can then determine in which form they would like to be notified when there is a threat of danger.

The system generates this forecast information by combining DWD (German Weather Forecast Service) weather data and data from sensors for precipitation, water levels and sewers distributed in the area to be monitored. This data is processed by an intelligent, self-learning algorithm, which generates the forecasts.



- System trains itself
- Steadily increasing alarm quality
- Annual inspection by AI experts



**FloodLead**  
22:10: Level 8  
rain over Berliner  
Platz in 40  
minutes

**FloodLead**  
22:05: Level 6  
rain over your  
point "MyHouse"  
in 40 Minutes

## Example procedure until the system is running:

### 1 Location Analysis

A municipality has already prepared heavy rainfall hazard maps and has carried out the hazard analysis. In a guided process, the system is then designed for its optimal performance: A location analysis deals with the topographical conditions, an analysis of past events and an analysis of the possible discharge processes. This is the basis for the deployment of the sensor technology. The existing measuring network of the municipality is included as far as possible.

### 2 Data Infrastructure Analysis

This is followed by a review and evaluation of existing measurement networks with regard to their usefulness for heavy rainfall monitoring. The data availability and quality as well as the connection possibilities via the local LoRa WAN network or public LPWAN structures are checked.

### 3 Implementation Planning

As a conclusion of the planning phase, the implementation planning and the exact elaboration of the offer to the municipality are carried out. Offers for citizens and industry are defined. The accompanying marketing measures are discussed.

### 4 System Implementation

Installation and commissioning are discussed together with the municipal responsible bodies. A project manager coordinates all activities, which are carried out by us as the operator. After completion of the activities, the central user groups receive training in the use of FloodLead.

Extensions of the area or merging with other already networked areas are very easily possible at a later date.

**Reliable heavy rainfall monitoring and forecasting**

# Heavy rain early warning as a complete service

With FloodLead, you receive a complete system from a single source "as a service". We take care of the installation and maintenance of all components of the warning system, the set-up of the necessary data infrastructure as well as the set-up and operation of the access options for the different user groups.  
**Your advantage: You can take care of your actual tasks.**

Heavy rain early warning information via SMS, call, etc.

Online portal for rescue services for tracking of the danger situation

Full-service operation of all components of the warning system

Operation of an industry and citizen portal possible

**Flood Lead as a Service**

No further personnel requirements on your side

Only one contact person for you

We support your funding applications

Full cost control



## Multi-Stage and Timely

### Alarming and Monitoring

Emergency and rescue services as well as authorities are alerted at an early stage and with zonal accuracy. Depending on the requirements, the danger message is sent directly to the responsible persons or directly to the control centre via SMS, phone call or CB radio. In addition, the danger zones can be viewed visually on the map-based online portal.

Citizens are informed after registration in a citizen portal. The danger message can be sent via defined channels such as phone call or SMS. Further digital interfaces are available for industrial companies.

Prioritisation of information channels is possible. Thus, rescue services can be informed first. Alarm releases by authorities or rescue services are also possible.



Heavy Rain Forecast



Overflow of  
Flowing Waters



Sewer System  
Overload

## Comprehensive System

### Flood Warning

In addition to the heavy rain forecast, other data sources or supplementary warning systems can be included for an extended flood warning. Networked level measurements in the sewer system indicate impoundage in good time. Energy-autonomous level measurements at defined watercourse points offer protection against imminent flooding due to overflowing.

### Reliable Flood Warning through

- ➔ Heavy rain forecast
- ➔ Level measurements in the sewer system
- ➔ Water levels at water bodies



## FloodLead

Heavy rain early warning system against heavy rain hazards as well as overflow and river flooding caused by heavy rain



Complete service offer - you receive the early alarms



Street-precise definition of alerts by citizens possible



Self-learning weather radar and sensor-based early warning system



Easily scalable system - functional with as few as 10 sensors



**Use the innovative heavy rain alarm for your municipality!**

**Arrange a pilot project with us for your area and get to know FloodLead!**

Call us: **+49(0)7262 9191-791**

or write us: **floodlead@nivus.com**

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