

SURFF



Be prepared for flooding during heavy rain – make socio-economic investments

Online warning by **SURFF** has been developed to reduce the damage from heavy rain and the flooding created by these extreme weather events. The earlier the warning, the better protection of citizens, buildings, and infrastructure is achieved.

SURFF ensures that the information from weather forecasts, sewer systems and ground conditions is automatically used for predictions of extreme weather events and the consequences. It is up to the authorities, utility companies and the cities' emergency task force to find a common categorisation and order of priority and to be prepared when the extreme event occurs.



Risk of future flooding



Warning of future flooding



Heavy flooding on the way

The SURFF system warns 6 to 12 hours ahead, but 48-hour forecast can be provided.

SURFF gives you:

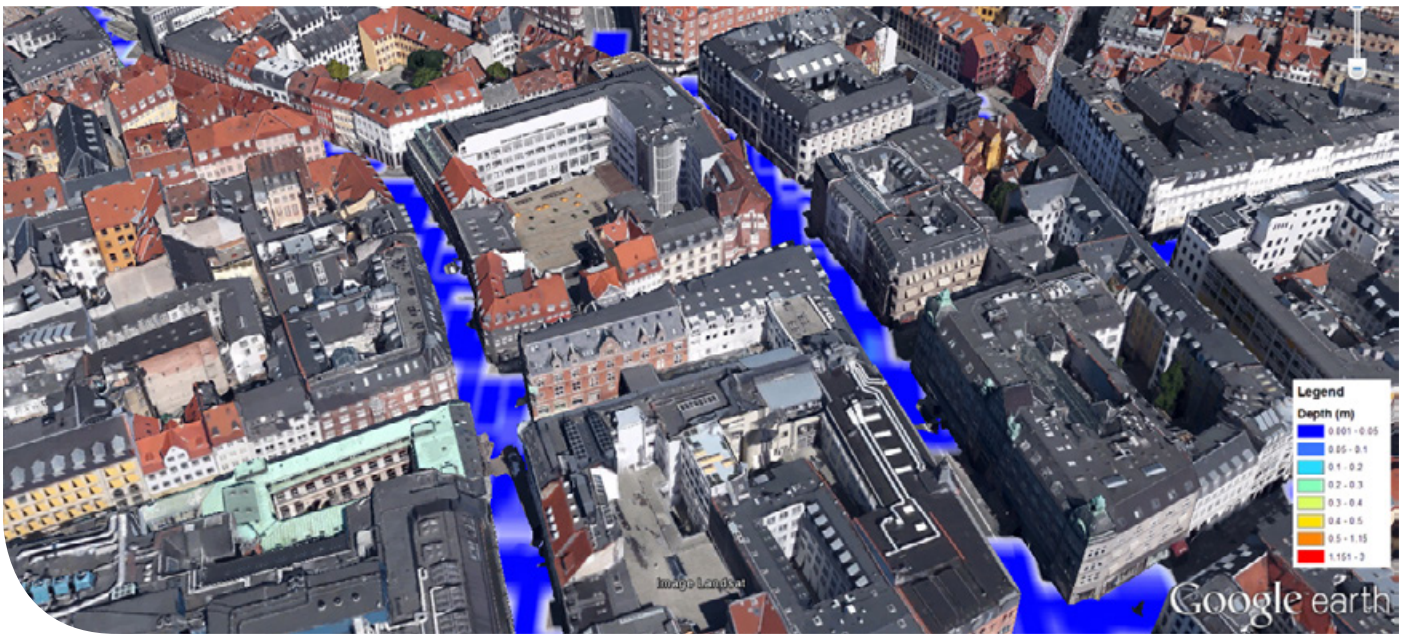
- **Earlier evacuation of citizens.** Evacuation of citizens in areas that are expected to be flooded.
- **More reliable infrastructure.** Possibility of prior traffic diversion at roads or viaducts at risk of flooding.
- **Less damage to furniture and equipment.** Possibility of planning security measures for buildings and furniture/equipment to minimise damage.
- **Many applications.** Warning of extreme weather events and risk of flooding can be used by many stakeholders and for many purposes as it is geographically predicted where the flooding will take place.

How does SURFF perform?

Every hour, SURFF receives the latest updated weather report and calculates the consequences in the sewer system and at ground level.

The results are presented visually on a dynamic map that creates a quick overview for relevant authorities and other stakeholders. The information can also be provided for specific locations, if requested.

SURFF has a built-in quality assurance that will inform you whether the data available is sufficient, and will predict the probability of flooding. Therefore unnecessary and costly emergency measures are avoided. The quality assurance is visually illustrated for easy understanding.

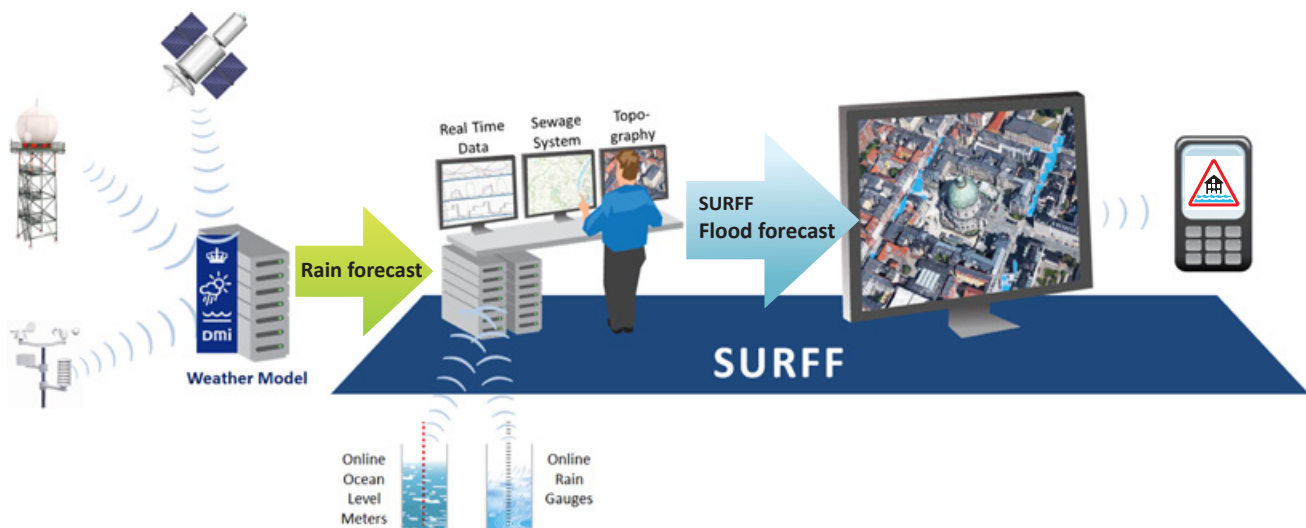


Case: Copenhagen

With the giant rain storm that flooded Copenhagen in 2011 and its unprecedented extent of damage, Krüger facilitated a co-operation with HOFOR, BIOFOS and DMI in 2013. Since then, this group has worked on a development project called OMOVAST. The project includes areas of high and low building density with both combined and separate sewer systems.

The purpose was to develop a tool for a more precise and long-term warning system for rain and flooding in order to set up a more targeted emergency system so that the consequential damages of extreme weather events are reduced. SURFF was created through this development project.

The results are presented visually in dynamic and continuously updated maps. They may also be communicated through text messages, e-mails, social media, or to a SCADA system.



**For further information,
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