



SERVING THE COMMUNITY:

COASTAL AND FLUVIAL FLOOD FORECASTING IN ETHEKWINI (KWAZULU NATHAL, SOUTH AFRICA)

Flood Early Warning
workshop in Durban,
August 2017

eThekini is a coastal municipality in the South African province of KwaZulu Natal. The district includes the city of Durban and has a population exceeding 3 million people. The community has been adversely affected by both coastal and fluvial flooding in the past and it is expected that the frequency and impact of these hazards is likely to increase in the near future due to climate change.

A n operational flood forecasting and warning system has therefore been developed by Deltires and the eTheKwini staff using the Delft-FEWS forecast production system. The system, which is designed to provide decision-makers with timely information when an event is imminent, went fully operational in the eTheKwini municipality in mid-2017.

The project was initiated in 2015 by Deltires and eTheKwini municipality. The design work on the Early Warning System (EWS) was conducted jointly from the very start of the project. During the development phase of the project, the Deltires software was developed further in response to the specific needs of the eTheKwini municipality. Both coastal (Delft3D) and fluvial models (SWMM) were developed and implemented in a Delft-FEWS EWS to run in forecast mode. The forecast models run every six hours in an automated way with a forecast horizon of three days.

The eThekini staff has been extensively trained to the degree that they are currently maintaining the forecasting systems without intervention from Deltires. Although the Deltires product Delft-FEWS is used primarily as a technical solution to integrate various real-time data sources and forecast models, it also proved to be a very effective way of encouraging collaboration between different organisations involved in forecasting and disaster management.

In the summer of 2017, the municipality hosted an event with Deltires in which it displayed its systems to neighbouring South African municipalities, water authorities, and national and regional government. The main objective of the event was to join forces and expand the development and use of forecasting systems and services in other regions in South Africa. The workshop was very well received and participants were willing to share available data and expertise in order to further improve early warning in South Africa.

In the near future, additional components will be added to the early warning system. The present system focuses on fluvial and coastal flooding but it will now be extended to simulate coastal erosion patterns and water quality in Durban Bay in the near future. ↗

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Further reading:

<http://oss.deltares.nl/web/delft-fews/>

http://www.mile.org.za/QuickLinks/News/Pages/news_20170802.aspx



Coastal flooding of the promenade in Durban, March 2017