# HURRICANE IRMA: IMPACT-BASED FORECASTING PUT TO THE TEST

The Sustainable Development Goals are clear. We need to move from water level or discharge forecasting to methods that inform decision-makers about the possible impact of the imminent flooding: inundation, disruption of vital services such as electricity supplies or communications.

Decision-makers also need that information in real time, and early enough to take action. Deltares has the ambition to provide our clients with this service but it was pure theory until 1 September 2017. As Hurricane Irma approached the Caribbean and Florida, we launched 'the experiment': modelling the storm surge and flooding caused by Hurricane Irma and, on that basis, modelling and estimating the impact on urban areas in Florida. We were able to use our global forecasting systems GLOSSIS and GLOFFIS but inundation and impact models had to be set up manually in a very short time. We managed to complete a memo with the initial results 24 hours before the landfall of the hurricane, including results for the official forecast of the track of the hurricane and for a different possible track. With the approval of our board of directors, we sent the results to some of our contacts in the region and they were happy to receive additional information from us. The next day, Saturday, 2 September, we updated our results with the latest weather information and sent it again to our contacts.

The experiment was a test to determine whether we could develop impact information in a real-time case that is valuable for local decision-makers. Although we have learnt a lot, both about our models and tools as about the process, the clear answer is: yes, we can! The R&D programme 'Early Warning' will continue to work on improving our methods, models and tools so that we can support local crisis management authorities with impact-based forecasts and warnings in the future. 🌀
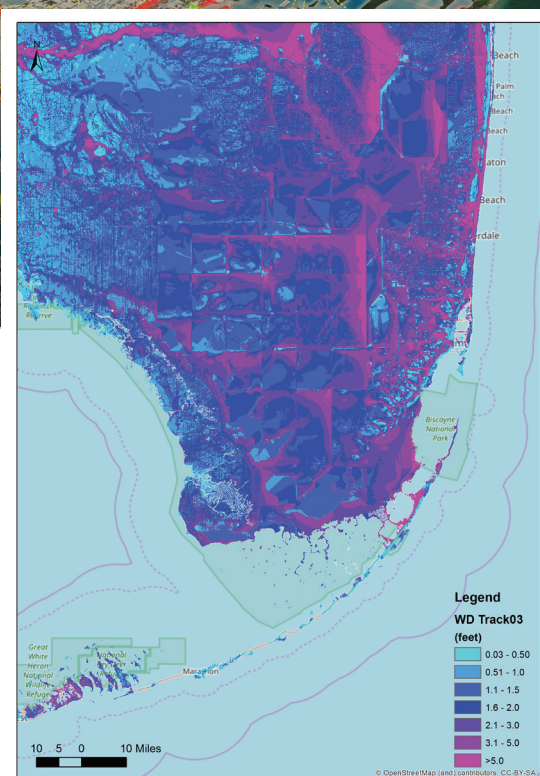
Flood depth and extent calculated using Sfincs on the basis of the modified hurricane track forecast using the latest information from NHC (07-09-2017 06:00).
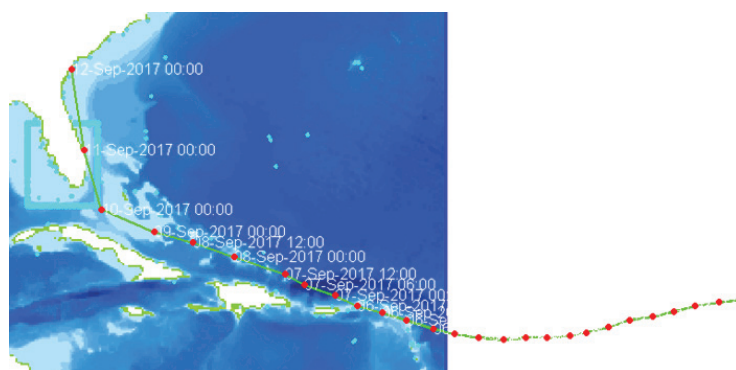
Original track of Hurricane Irma predicted by NOAA on Thursday, 7 September, 2017.

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