FLOODING FROM STORM DENNIS IN SHREWSBURY, UK

FLOOD BRIEFING SERIES
WITH ICEYE SAR SATELLITE CONSTELLATION DATA

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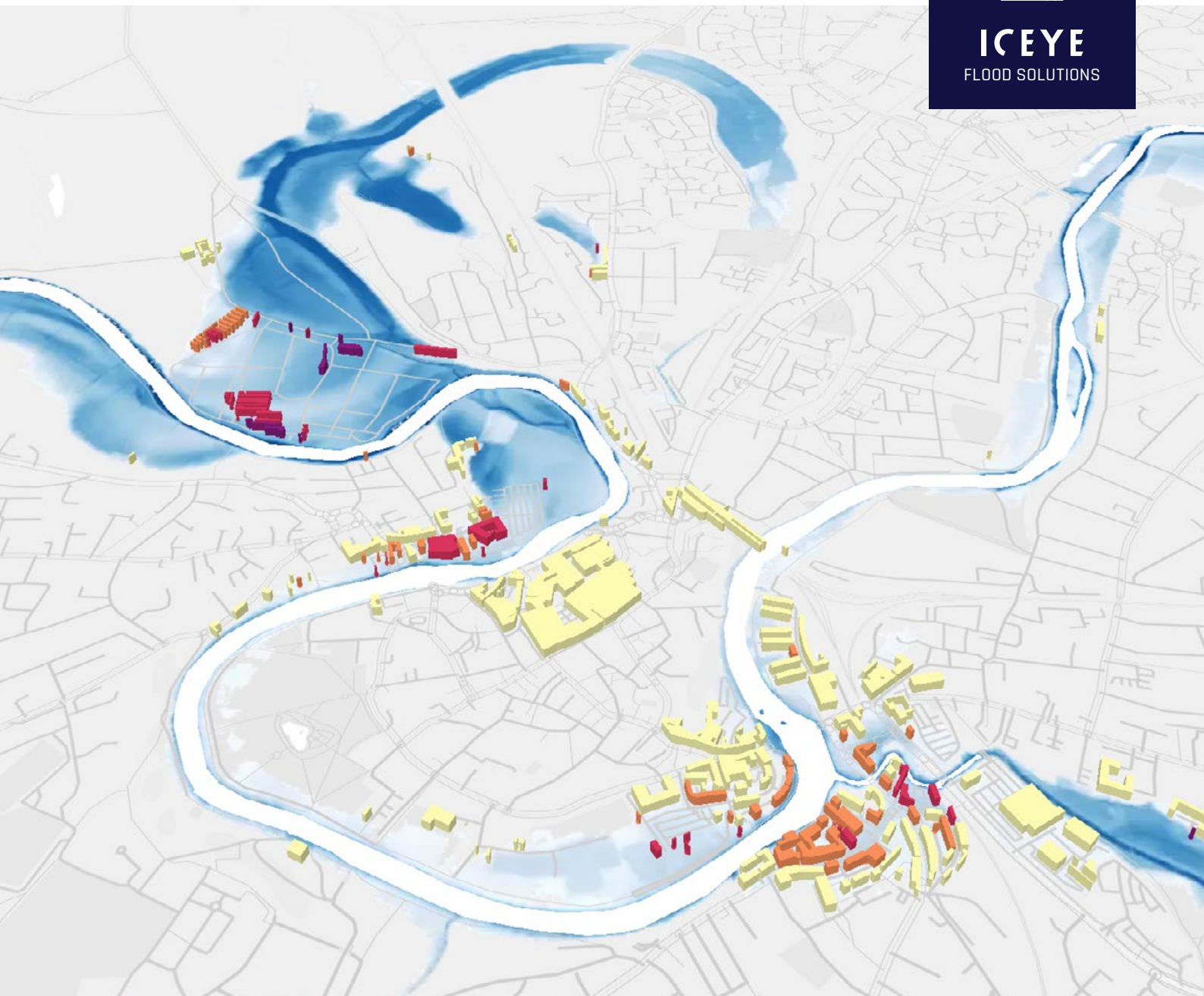
ICEYE
FLOOD SOLUTIONS



EXECUTIVE SUMMARY

- In February 2020, storm Dennis caused severe floods along the entire River Severn affecting the West Midlands in England and Wales. **7 fatalities** were recorded. ICEYE generated flood extent and flood depth information from SAR satellite data focusing on Shropshire.

- **Over 450 buildings** in Shropshire were flooded with up to **3 meters** of water. The average flood depth was estimated to be **0.45 m**.

- ICEYE's flood analysis results show that more than **200 km²** of the observed area were inundated during the analysis period.

EVENT OVERVIEW

MAJOR FLOODING IN WALES AND ENGLAND CAUSED BY STORM DENNIS

A record breaking Storm Dennis ravaged the UK in February 2020. The storm, following right on the heels of Storm Ciara, dumped heavy rains on the already saturated grounds and swollen rivers of England and Wales. The result was a massive amount of flooding, including along the country's longest river, the River Severn. The storm event triggered a record number of flood warnings from the UK's Environment Agency [1,2].

In some areas, the River Severn, normally not wider than 50 - 100 m, swelled to the width of several thousand meters. **7 fatalities were recorded in England and Wales**. The Environment Agency reported **1600 properties flooded in England and 1000 in Wales**[3]. Storm Dennis's economic impact was massive, with estimates of 225 m in insured losses.[4]

The flooding was widespread across the West Midlands of England and Wales. One heavily affected area was Shropshire in England, including its second most populated town, Shrewsbury, where over 70,000 people reside. The flooding was also a long duration event. Even 10 days after the heavy downpours, the town of Shrewsbury was still significantly affected.

Track map of Storm Dennis of the 2019-20 European windstorm season.
(Source: Created by DarkShadowTNT using WikiProject Tropical cyclones/Tracks. The background image is from NASA. Tracking data is from OPC and Met Office using charts archived by Wetter3)

References

[1] *The Weather Channel. https://weather.com/news/international/news/2020-02-12-bomb-cyclone-dennis-rival-most-intense-north-atlantic-storms*

[2] *EXPRESS. https://www.express.co.uk/news/weather/1243023/storm-dennis-flood-warning-food-alert-met-office-warning-EA-environmental-agency-uk-weathe*

[3] *FloodList. http://floodlist.com/europe/united-kingdom/1600-homes-flooded-storm-dennis-february-2020*

[4] *The Guardian. https://www.theguardian.com/business/2020/feb/20/storm-dennis-damage-could-cost-insurance-companies-225m#:~:text=The%20severe%20weather%20brought%20heavy,%C2%A3175m%20and%20%C2%A3225m.*

ANALYSIS

MORE THAN 200 KM²

of the entire observed area were flooded during the analysis period

OVER 450 BUILDINGS

in Shropshire were flooded

APPROX. 3 METERS

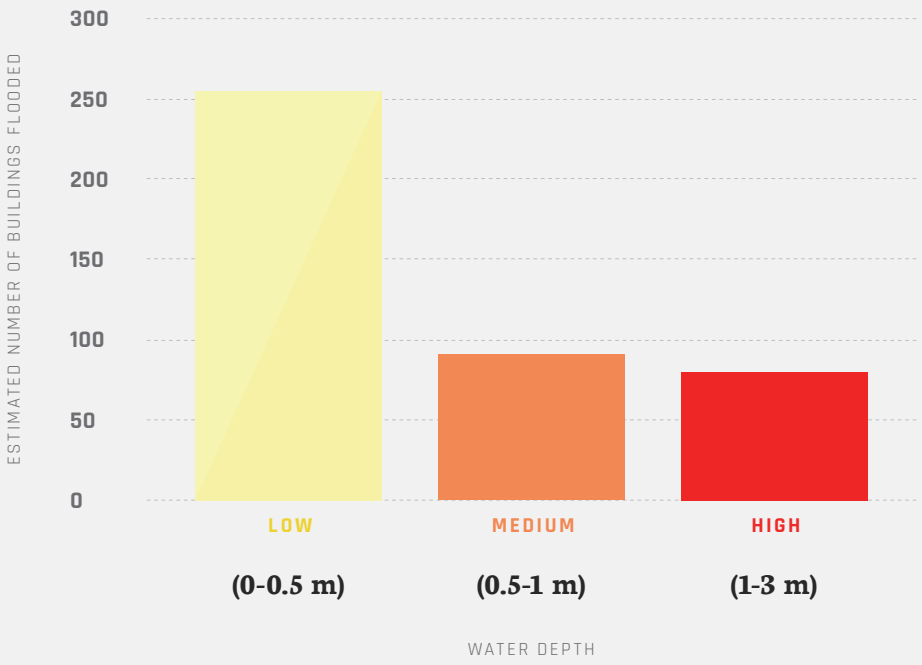
max. depth of flood over the observed area

ICEYE's flood analysis provides our clients with near-real-time extent and depth data for actionable insights. This allows our insurance partners to direct field resources with confidence, size event-level damage efficiently and accurately, proactively encourage claims and even process them immediately after an event, and open up new product/territory opportunities to better serve the community.

FLOOD IMPACT TO BUILDINGS

ICEYE performed the flood analysis in retrospect of Storm Dennis in Shrewsbury, UK. The analysis includes the calculation of the flood extent and the flood depth.

The impact of the flood analysis was quantified by using building footprint information. Large parts of the Shropshire County were flooded; more than **200 km²** of the observed area were inundated to a depth of up to 5 m. According to the building footprint information, **over 450 buildings** in Shropshire were affected. 220 buildings were flooded with more than a half meter of water. The maximum building flood depth was approx. **3 m**. The average depth of the flooded coverage was about **0.45 m**.



FLOODED BUILDINGS IN SHREWSBURY

The image illustrates the flooded area observed by ICEYE in Shrewsbury between February 21st and 25th, 2020. The flooded buildings are grouped into 3 different classes by the depth levels: low (0-0.5 m), medium (0.5-1 m) and high (>1 m).

THE VALUE ICEYE BRINGS TO THE INSURANCE INDUSTRY

- ICEYE offers the Insurance industry transformative capabilities with a world-leading constellation of synthetic aperture radar satellites. Our Flood Monitoring Solution provides the industry with near real-time flood extent and depth data at building level.
- The data enables those involved in insurance claims to pay policyholders faster, proactively encourage claims, direct field resources, and reduce their damage assessment costs.
- ICEYE's flood footprints are available 24 hours after a flood peaks. This allows for overall flood losses to be estimated faster than using modeling alternatives.
- Our flood hazard data supports portfolio growth in territories where there is a lack of models and data. Our flood depth measurements are also used as parametric triggers, offering a lower basis risk compared to gauges and rainfall.
- ICEYE is the first and only satellite constellation that is entirely focused on the Insurance industry. Together, we can help insurers get back on their feet faster when they are most in need.

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www.ICEYE.com/flood