

# The Flood Mapping Project



# Bad News for Homeowners and Businesses

- Approximately 10% of the population of England live within areas potentially at risk from flooding [DEFRA]
- Property worth over £220 billion is located within these areas potentially at risk [DEFRA]
- Around 5 million people, in 2 million properties, live in flood risk areas in England and Wales [Environment Agency]
- The Environment Agency has predicted there will be a ten-fold increase in the risk of flooding over the next century
- Between 950,000 and 1.2 million properties are built on inland floodplains in the UK [ABI]
- October 2000 floods cost the UK insurance industry £1bn and NU £200m [ABI & Norwich Union]

## Bad News for Insurers

- Flooding is bad news for insurers
- Norwich Union don't want to turn business away by increasing premiums in potential flood risk areas or imposing excesses
- Previously Norwich Union had to make decisions based primarily on postcodes
- Whole streets of properties were penalized because of their proximity to a river
- The OS maps that were used are only accurate to 10 meters. Yet half a meter can make a difference between dry riverside property and flooded riverside property
- In the past insurers have had to assess all riverside properties as high risk - this isn't fair or accurate and does not make good business sense

# The Norwich Union Flood Map

- Two-year mapping project has now been completed - original data acquisition area 203,720km<sup>2</sup>
- Resulting in the largest and most accurate digital map in the UK specifically for insurance purposes
- First privately financed national map of this type - multi million pound investment from Norwich Union
- Enabling accurate positioning of individual homes & commercial buildings
- Independently validated by hydrologists HR Wallingford



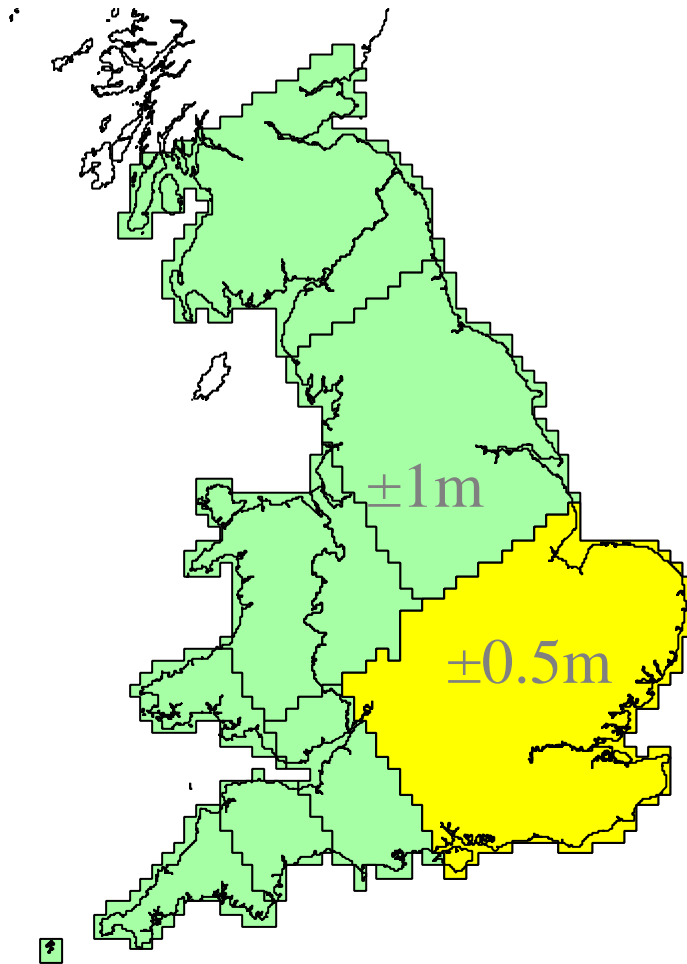
# Benefit to Homeowners and Businesses

- Norwich Union will be able to use the information generated from the flood map to accurately evaluate flood risk for individual customers
- More than 600,000 properties in flood risk areas will be able to obtain insurance from Norwich Union or lower premiums
- Better understanding of flood risk to individual's property
  - The depth of flooding
  - The expected frequency of flooding
  - How floods can spread and how far they can extend

# The Mapping Process

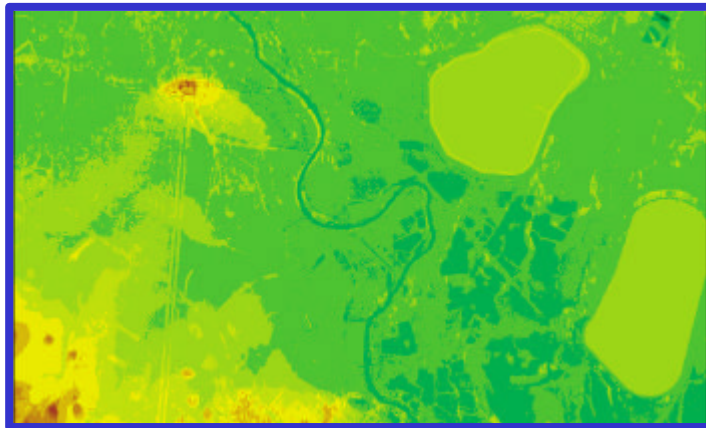
- Data for the flood map was collected by an airborne radar system to produce a Digital Elevation Model showing the height of the ground above sea level
- This data is combined with a software model which produces information on where floods will occur, how they can spread and how they will extend
- Norwich Union worked with the leading height mapping and digital terrain modelling company - Intermap to produce the digital elevation model, and JBA Consulting to develop the software model

## The Map



- Data acquisition area 203,720km<sup>2</sup>
- Elevation Model postings every 5m
- 8 billion data points
- Image resolution 1.25m
- Total image pixels 130 billion
- Approximately 320,000 km of rivers in the UK have been mapped

# Intermap STAR-3i



Elevation Model



Radar Images

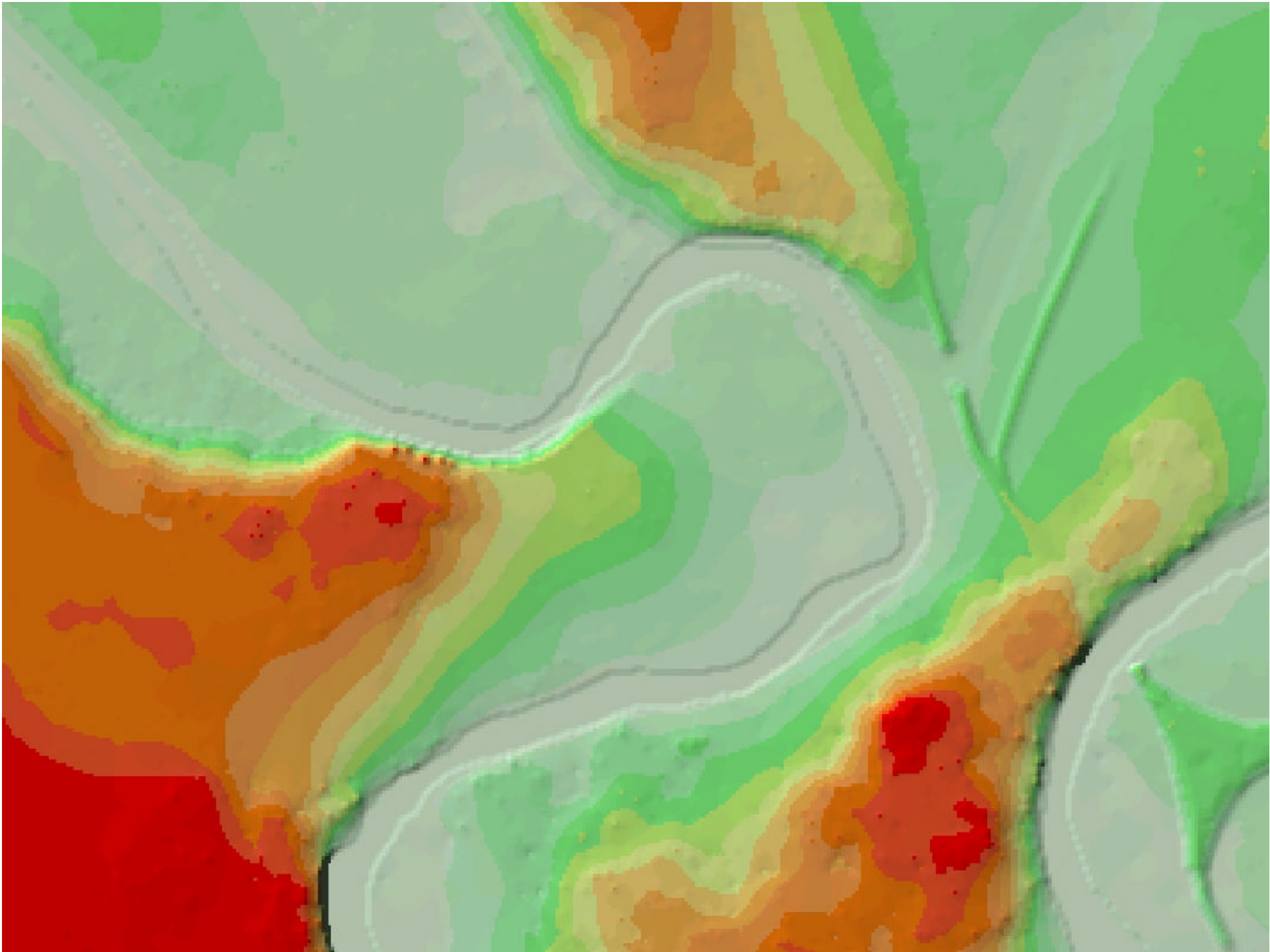


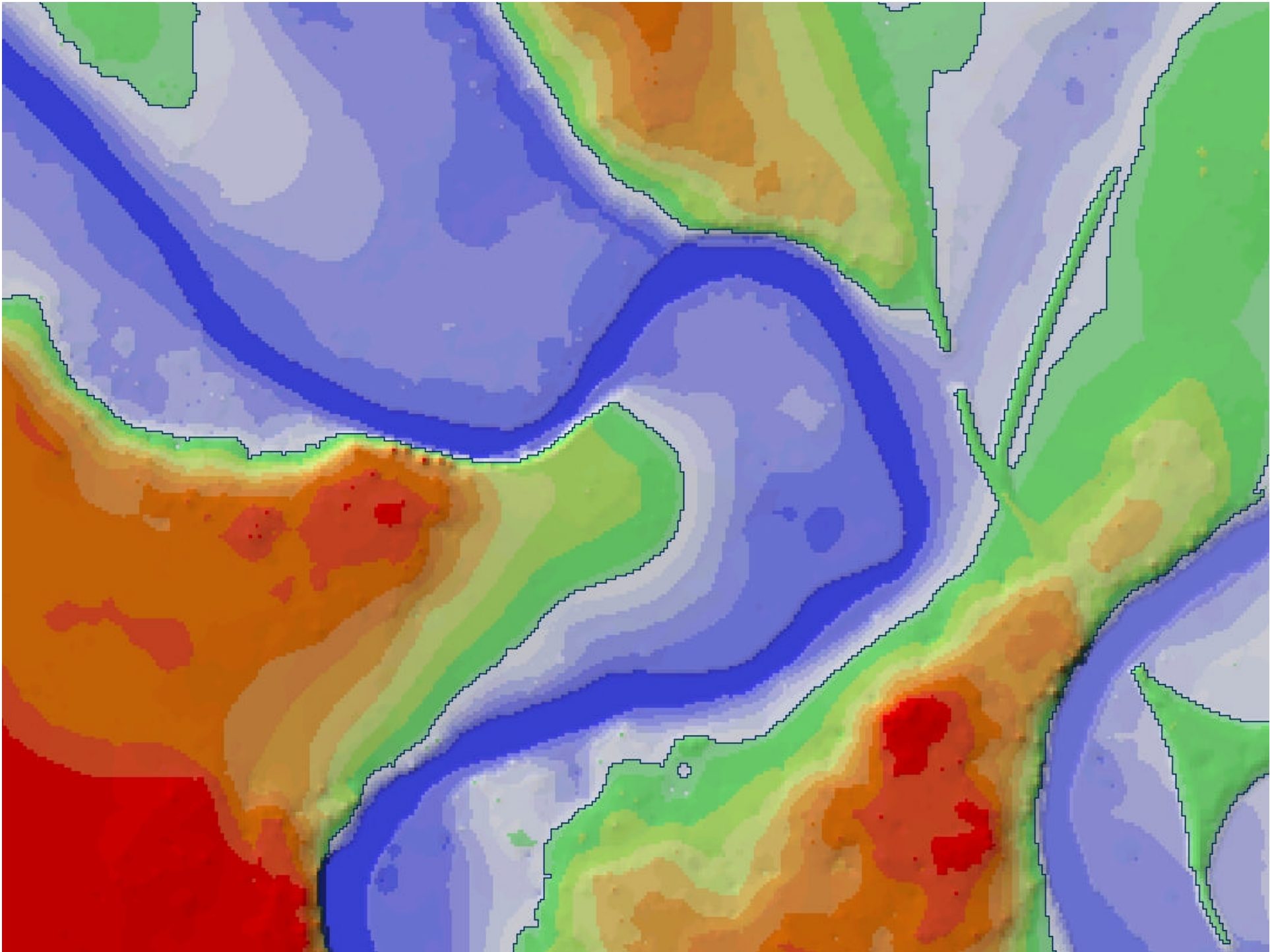
# Diagrammatic Explanations

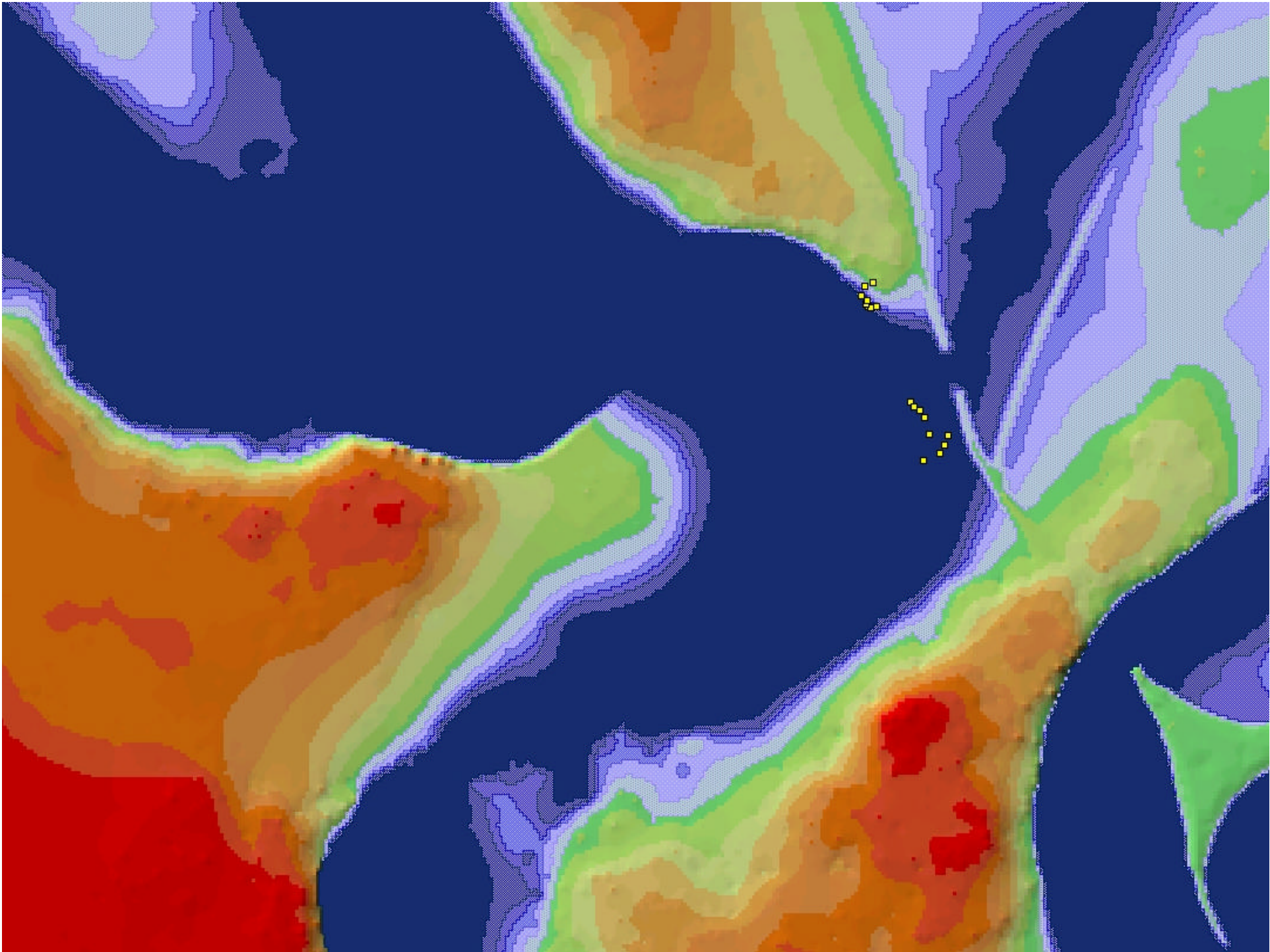
**The following slides will assist your understanding:**

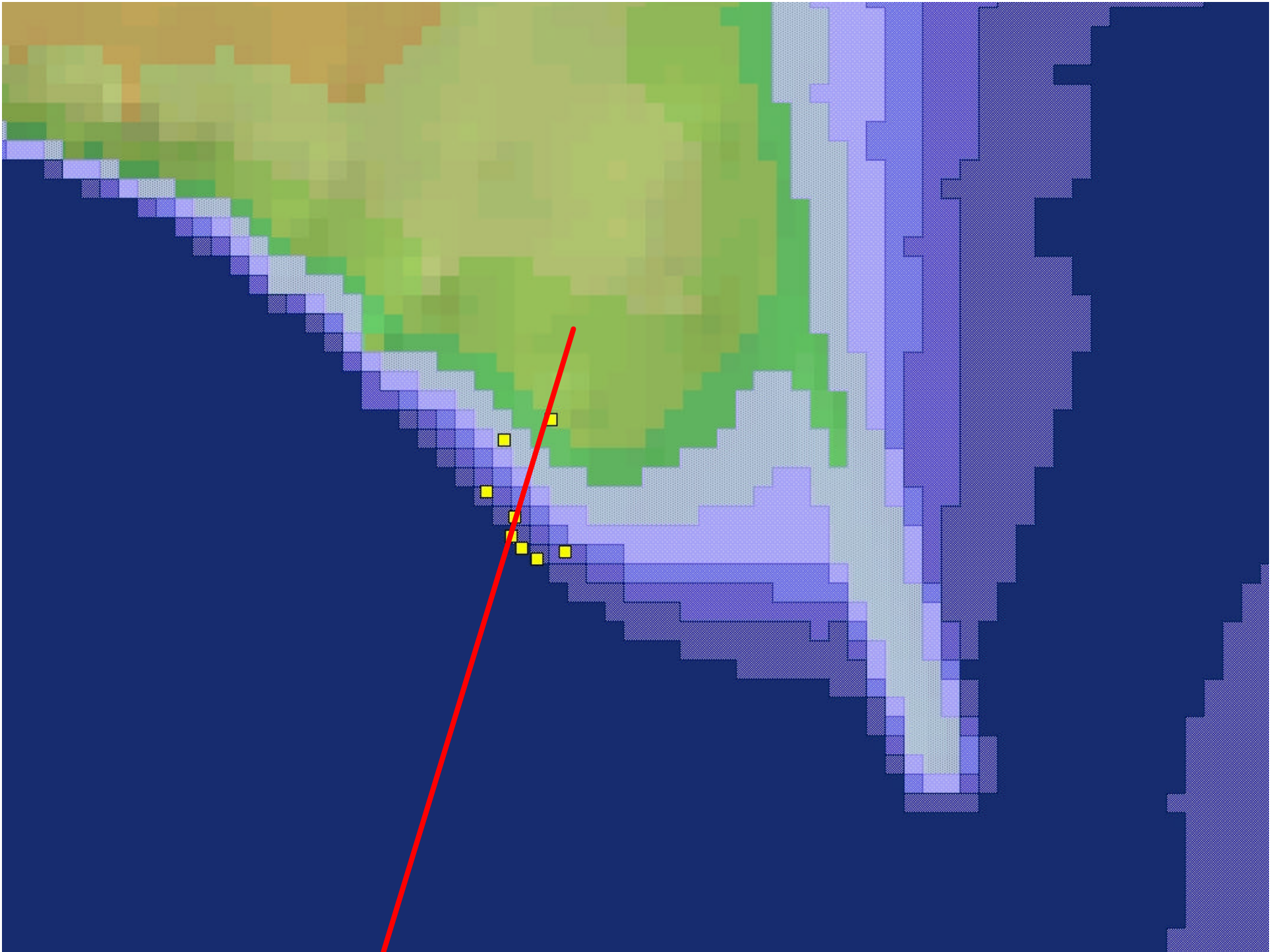
- **Slide 6** – Radar Image of Shrewsbury Castle area
- **Slide 7** – Height map around Shrewsbury Castle – shows height of land
- **Slide 8** – 1 in 100 year flood shown over height map (Shrewsbury)
- **Slide 9** – Selected houses shown within different levels of flood risk
- **Slide 10** – Cross-section showing selection houses through different levels of flood risk
- **Slide 11** – View across flooded valley (selected houses in Shrewsbury)





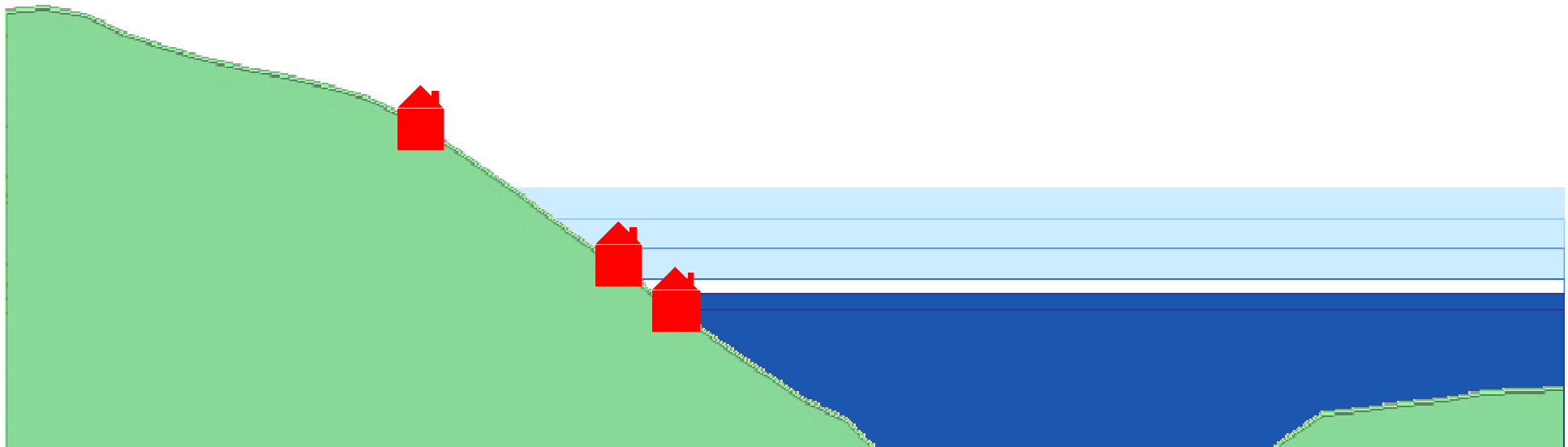








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## The Launch

- Launch will focus on two areas: Shropshire and Norfolk
- These areas have been chosen because they have both been hit by serious flooding in recent years
- The areas are affected by different types of flooding: Shropshire has an ongoing flood risk and Norfolk because of the risk to properties on low lying land
- The flood map will be rolled-out shortly to other high risk areas throughout the UK
- The project is expected to be completed by the end of 2004



## Moving forward

- The flood risk model will be updated to incorporate new data regarding flood defences
- Showing results of flood mapping project to MPs
- The flood map will be extended to include coastal flooding risk in due course
- Norwich Union will look at how mapping techniques can be used for other purposes in the future for example subsidence and wind storms
- Where flooding is inevitable and where flood defences are not possible, Norwich Union will work with homeowners and businesses to help make their properties more flood resistant

Any Further Questions?

