



Applying research to benefit our environment and economy

Real-Time Coastal Flood Forecasting

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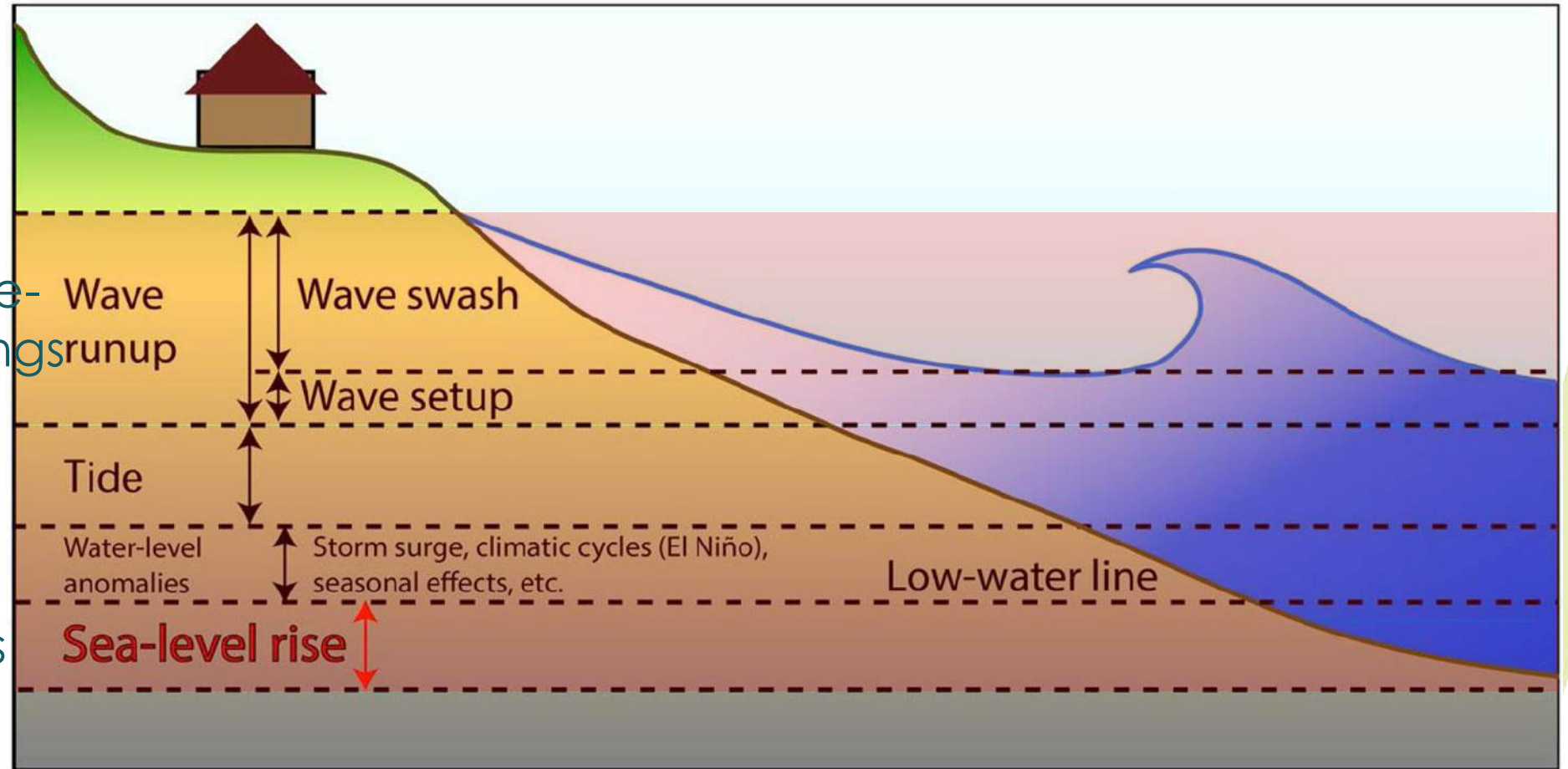


What drives coastal flooding?

Required in wave-dominated settings

Most coastal flood models

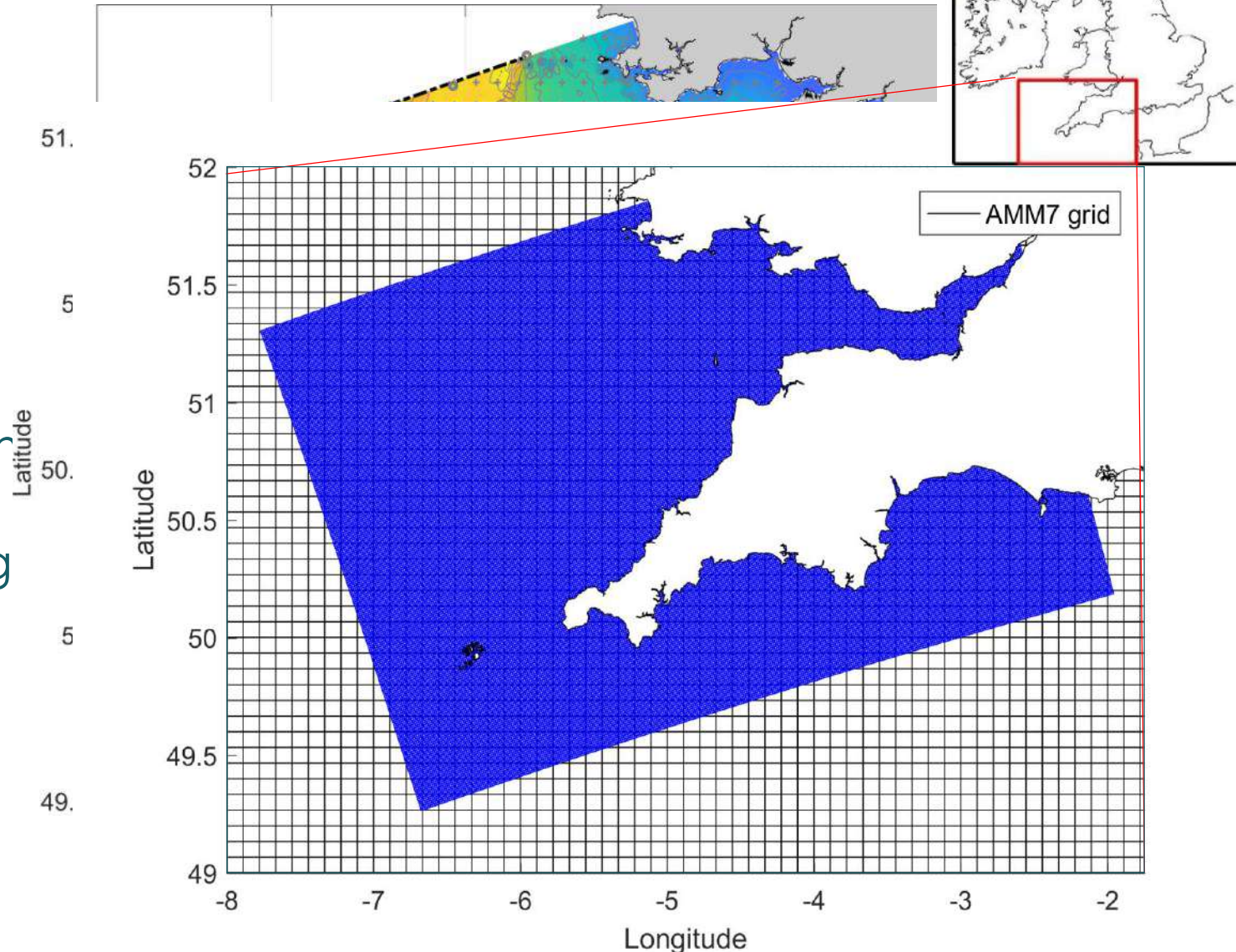
Strategic models





Overview of the model set up

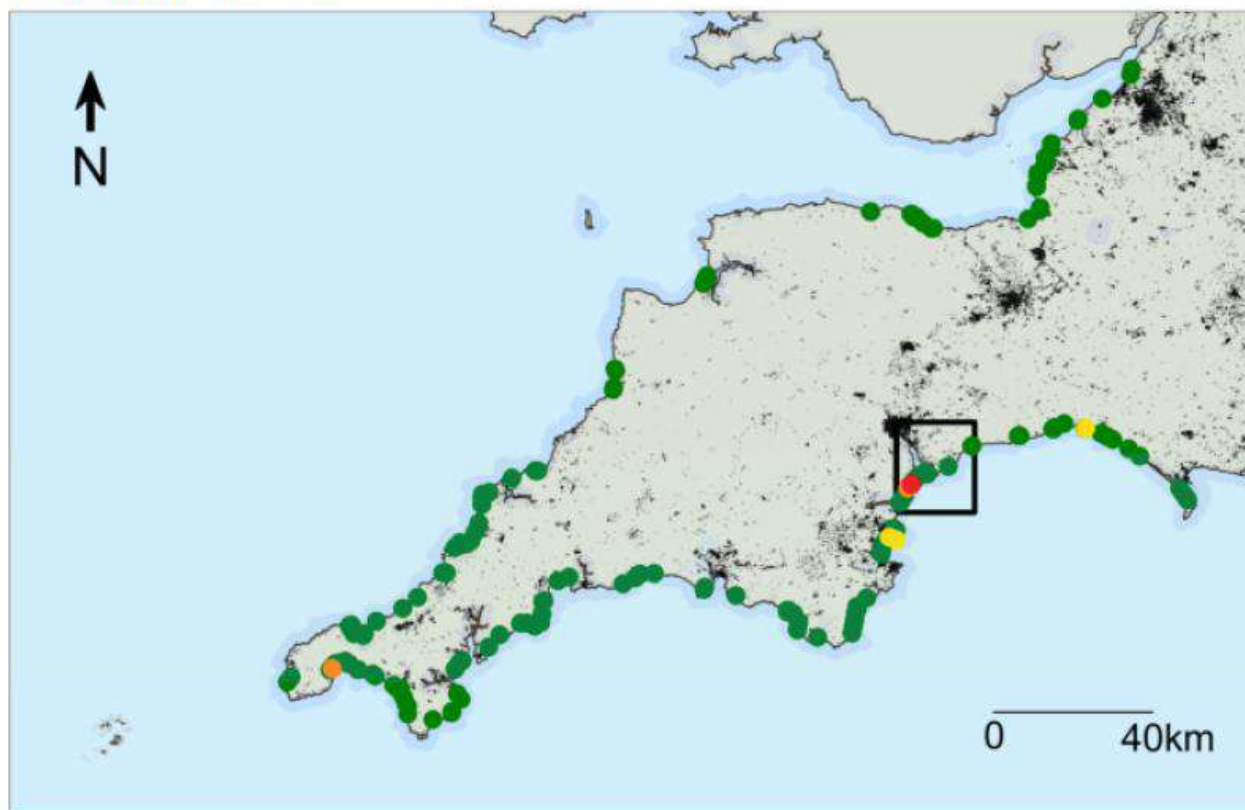
- 1-km wave and water-level model (DELFT3D)
- UK Met Office boundary data
- Automatically runs a 3-day forecast
- Model output at 10,15, and 20-m contours
- Empirical, depth-limited shoaling into the shore
- Monitored coastal profiles used to predict runup and overtopping at 186 locations



Coastal Flood Forecast

3-day forecast from 04-Feb-2019 12:00:00

Generated: 0:38 5 Feb 2019

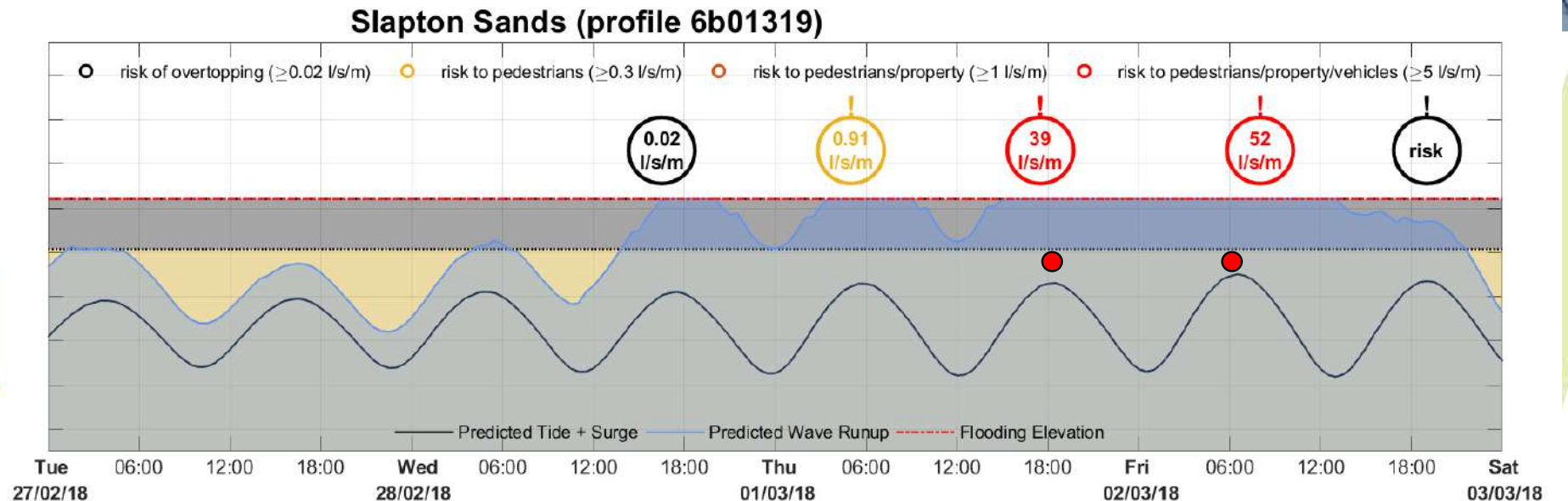
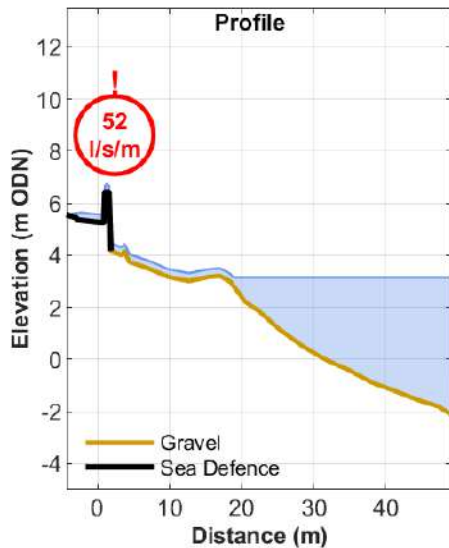
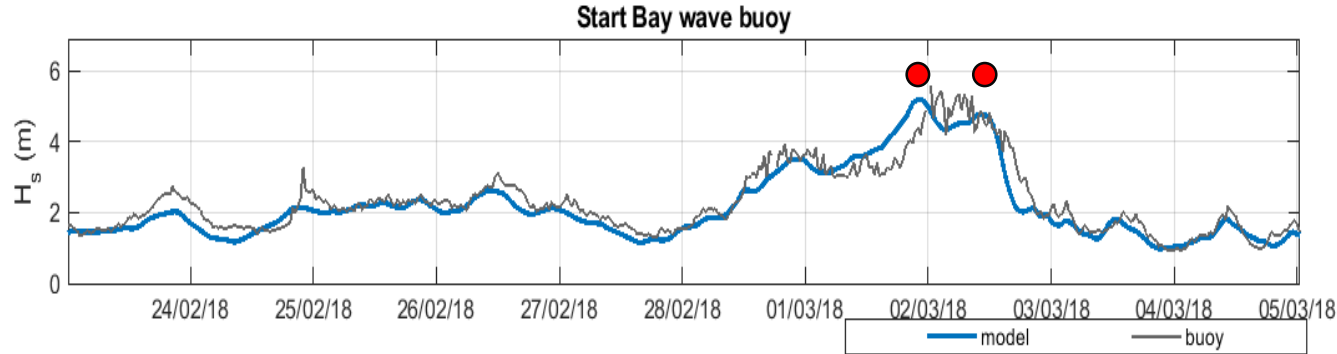


Coastal Flood Risk Level:

-  Risk to Pedestrians/
Property/Vehicles
-  Risk to pedestrians
/property
-  Risk to pedestrians
-  Risk low

Model validation: 'Beast from the East'

Torcross seawall



Model validation: winter 2018-2019

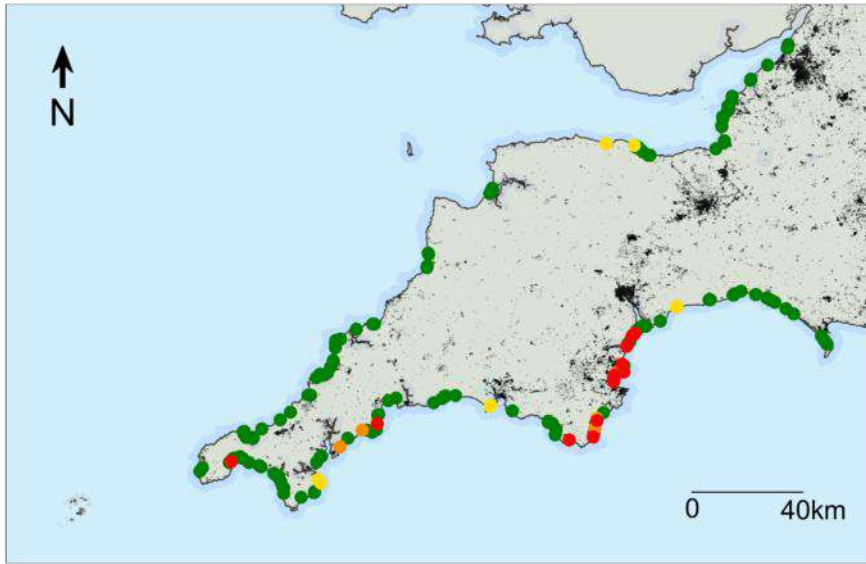
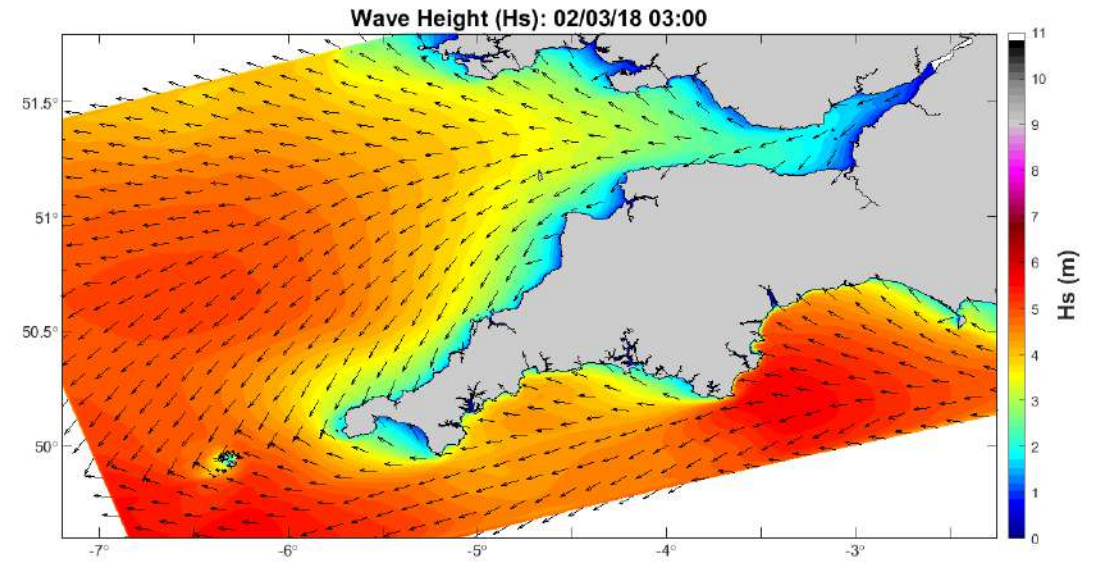
6/12 sites overtopped

94% hit rate

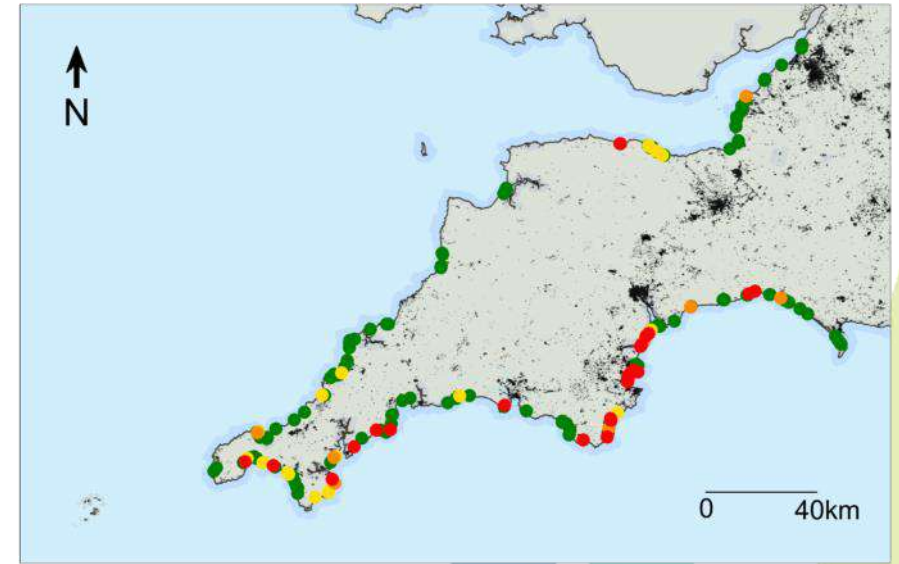
**90%
correctly
ranked**



Strategic modelling: climate change scenarios



Current
situation



1 m increase in sea level (UKCP09 100 yr, high
emissions)