



National Oceanography Centre Southampton  
University of Southampton and  
Natural Environmental Research Council

UNIVERSITY OF  
**Southampton**

# E-Rise: Detecting sea-level rise acceleration to improve UK coastal flood defences November 2017

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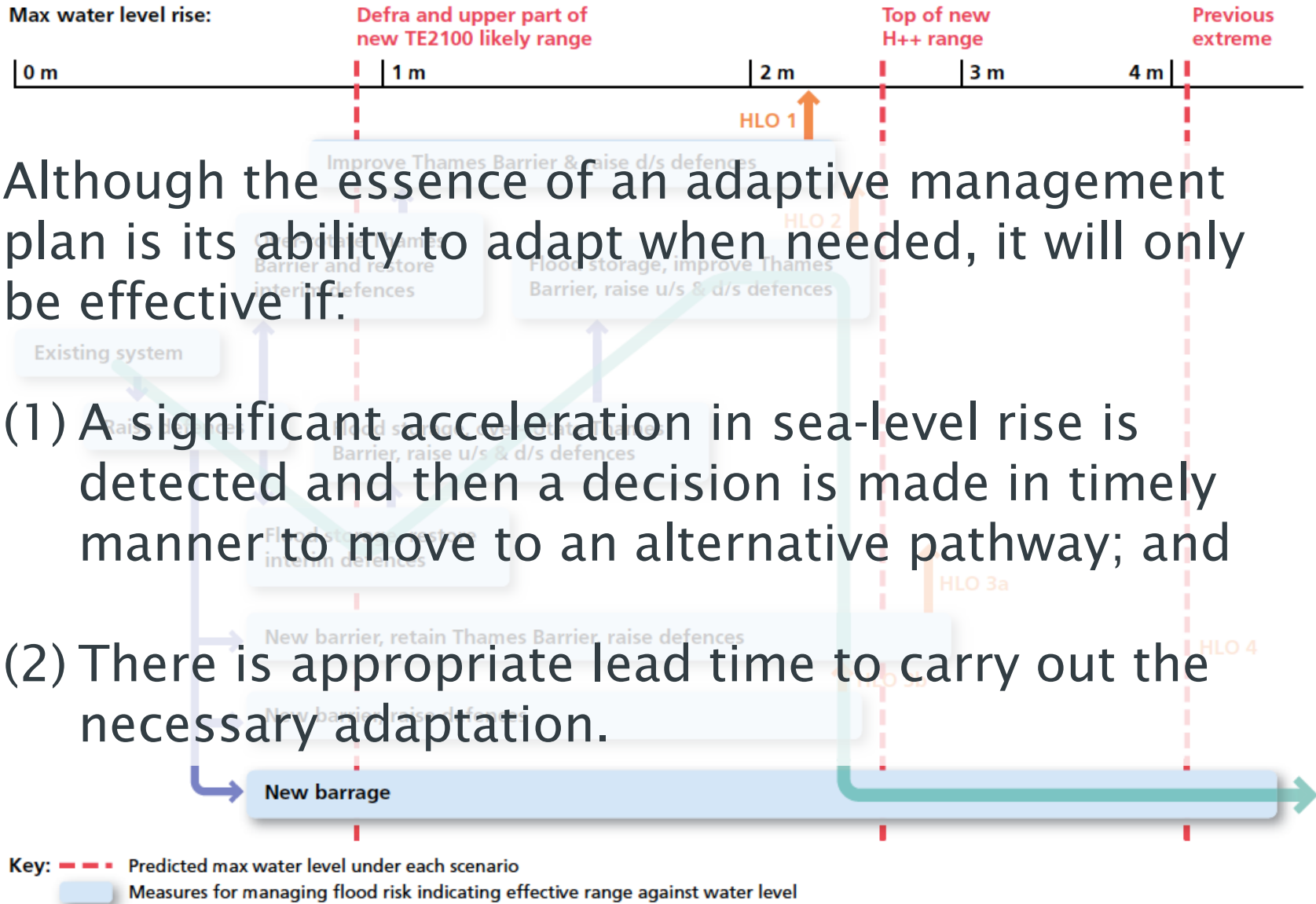


# 1. Introduction (Sea Level)

In the UK, £150 billion of assets are potentially exposed to coastal flooding at present



# 1. Introduction

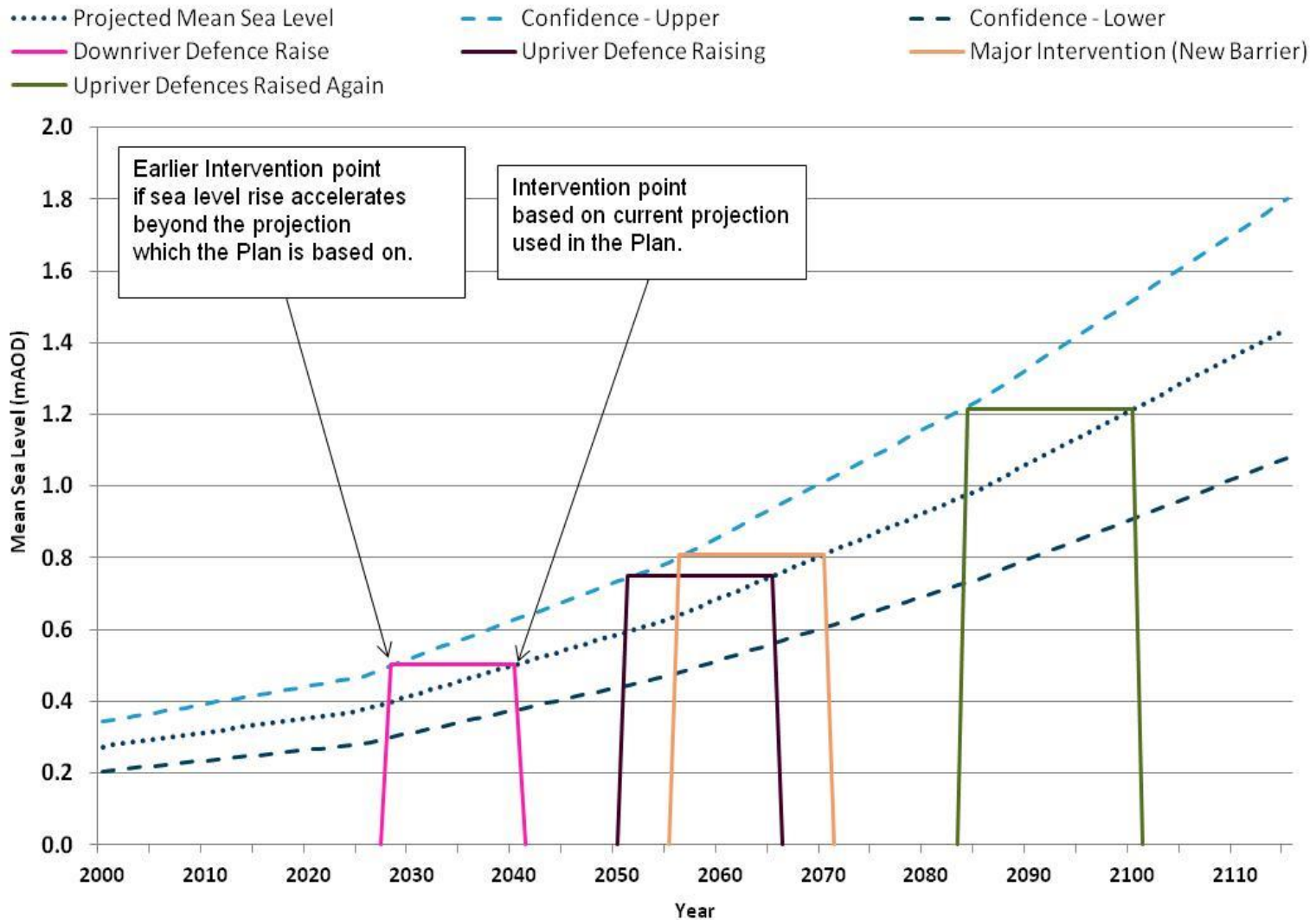


Although the essence of an adaptive management plan is its ability to adapt when needed, it will only be effective if:

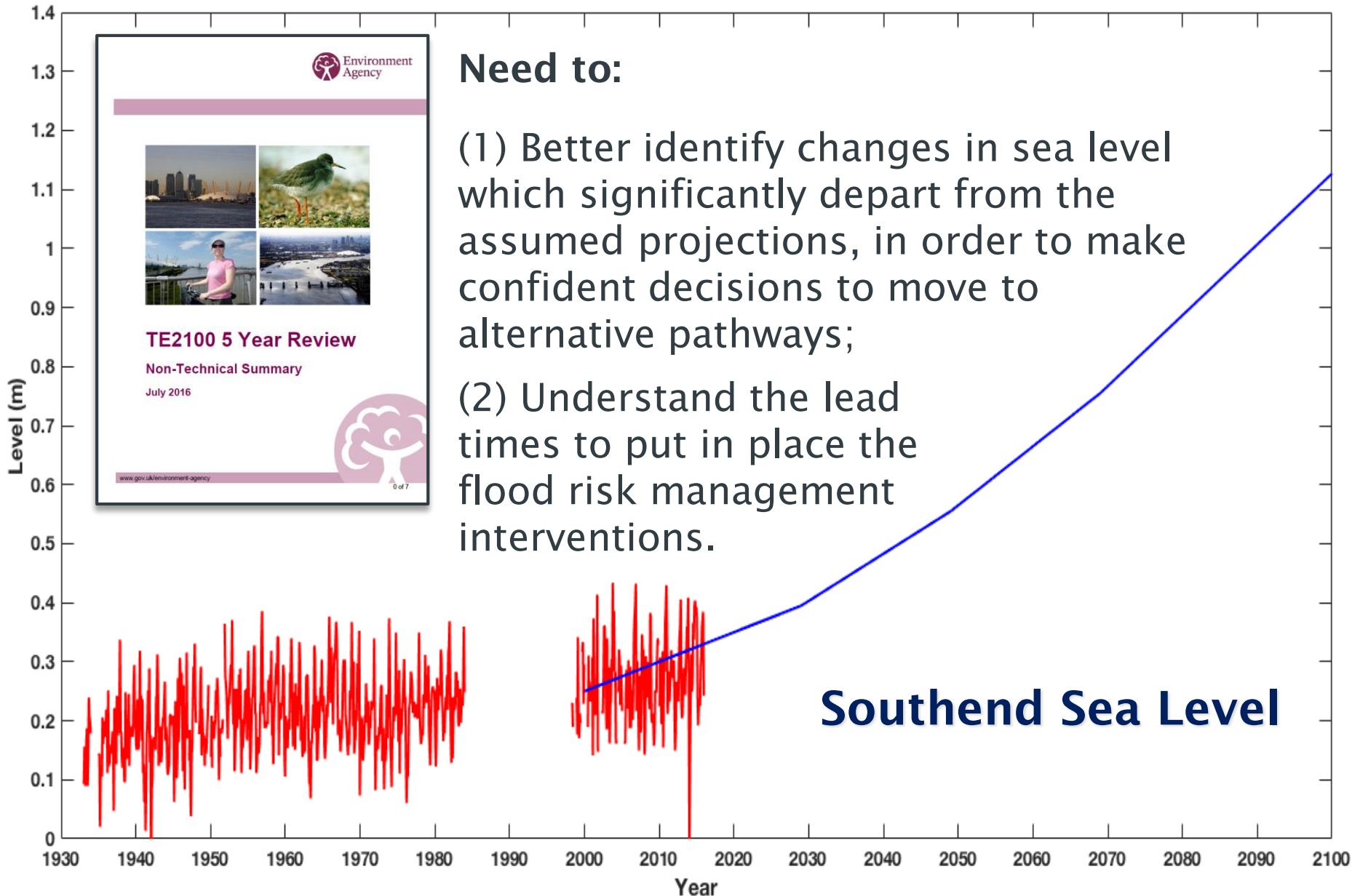
- (1) A significant acceleration in sea-level rise is detected and then a decision is made in timely manner to move to an alternative pathway; and
- (2) There is appropriate lead time to carry out the necessary adaptation.

# 1. Introduction

## TE2100 Projection with Intervention Points

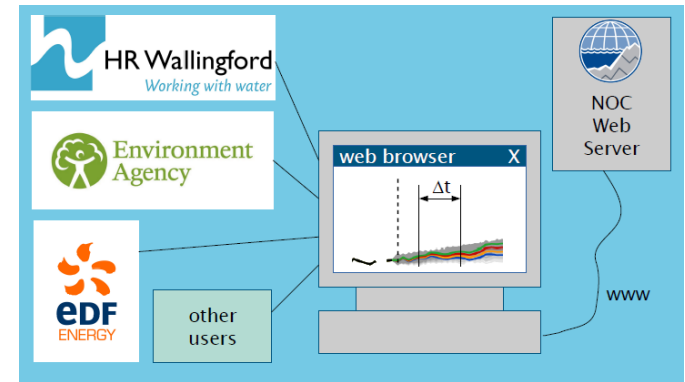


# 1. Introduction



## 2. Toolbox

Our toolbox (developed in 'R') has two elements:



**Historic element:** Uses supplementary datasets (wind and atmospheric pressure) to explain the variability and hence reduces noise in the time-series – making it easier to detect accelerations.

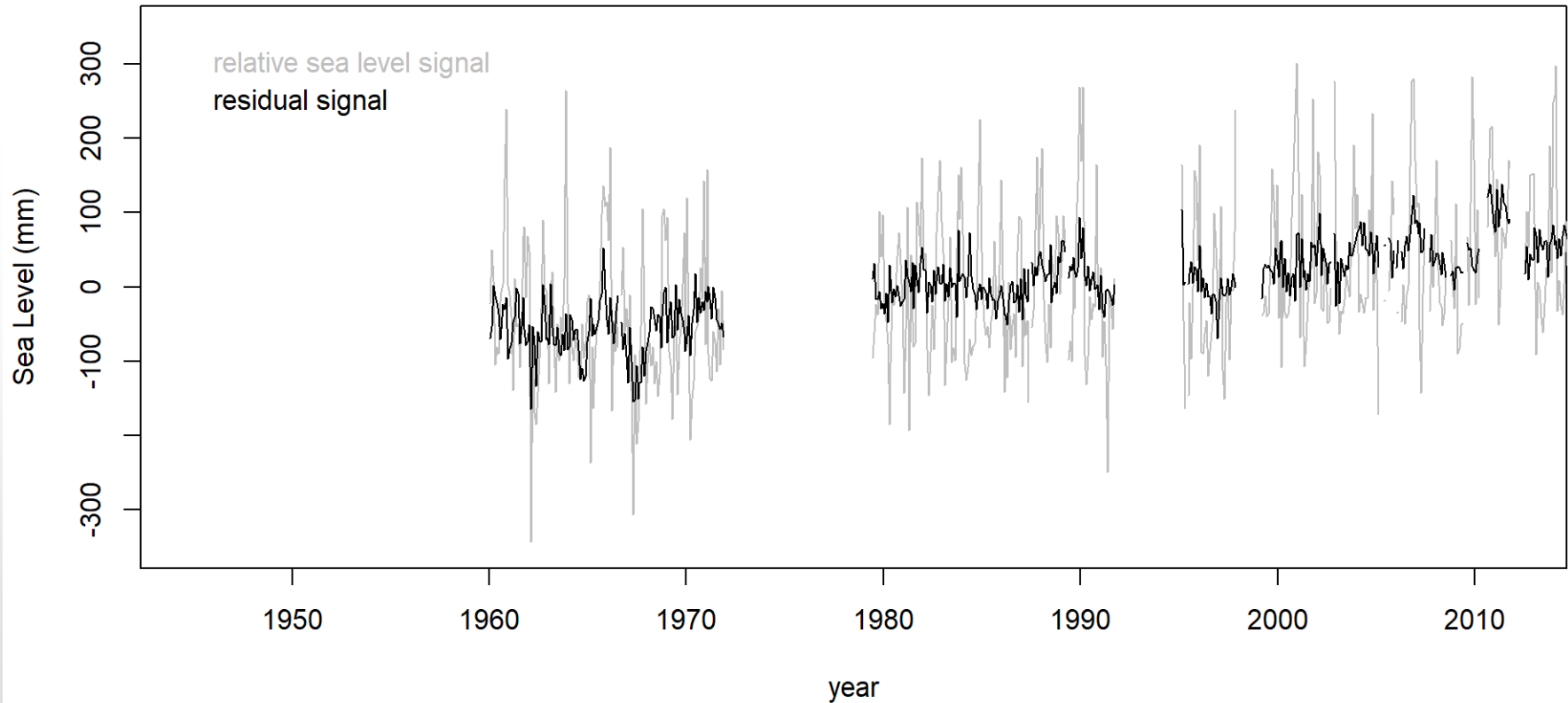
**Future element:** allow us to: (a) identify the timings (with uncertainties) at which accelerations in sea-level rise might first be recognized; and (b) to estimate the lead times; for a wide range of sea-level projections.

Toolbox will be available early next year. Can be used for any tide gauge site around the UK (eventually globally) and a wide range of sea level projections.

# 2. Toolbox

**Historic element:** Uses supplementary datasets (wind and atmospheric pressure) to explain the variability and hence reduces noise in the time-series – making it easier to detect accelerations

Holyhead



# 2. Toolbox

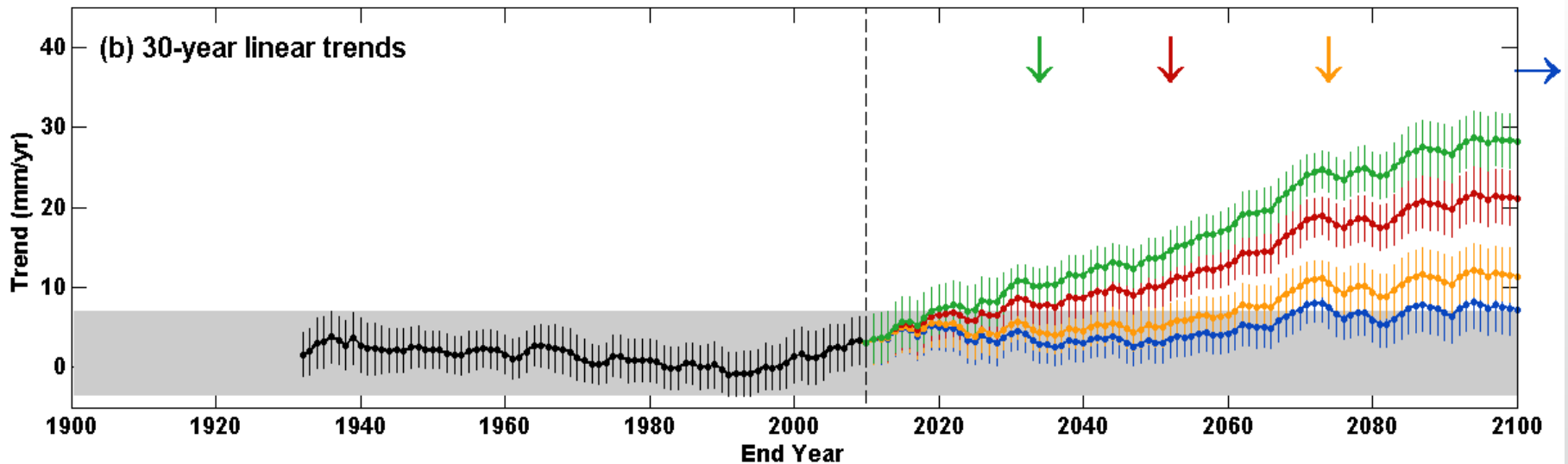
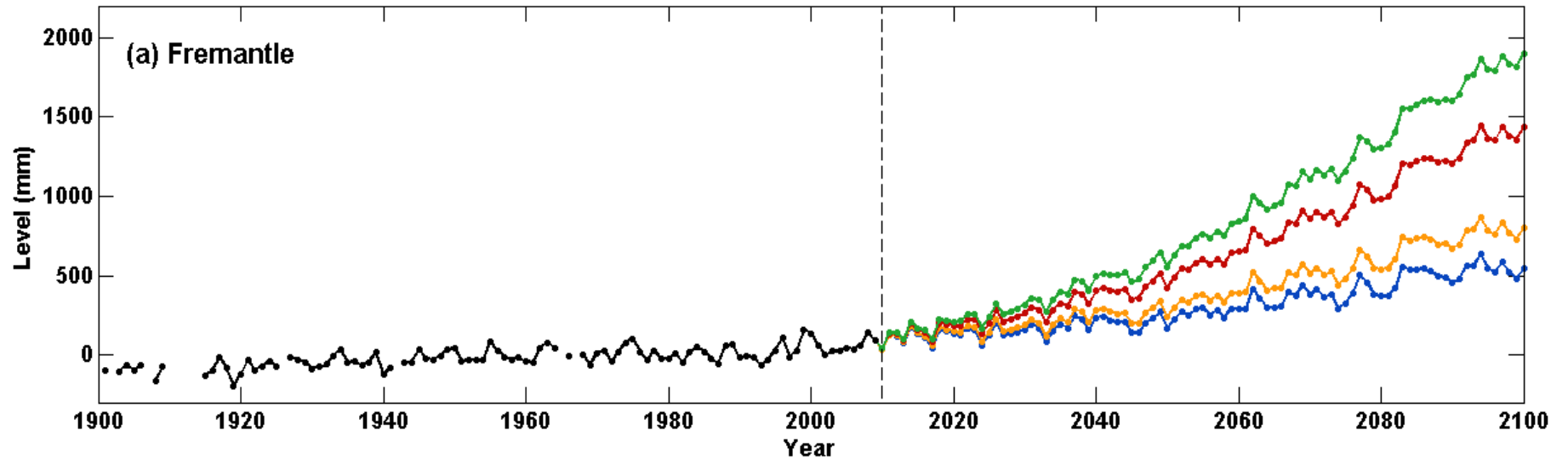
Future element:

0.54m (50% A1FI)

0.81m (95% A1FI)

1.5m

2.0m







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