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## 150th anniversary

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### Great weather events: the UK east coast floods of 1953

**The greatest storm surge on record for the North Sea occurred on 31 January and 1 February 1953. The surge height reached 2.74 m at Southend in Essex, 2.97 m at King's Lynn in Norfolk and 3.36 m in the Netherlands.**

#### Across south-east England

- 300 drowned
- 24,000 houses damaged
- 180,000 acres flooded

#### Netherlands

- 1835 drowned
- 46,000 houses damaged
- 322,500 acres flooded

The storm that caused the disastrous surge at the end of January 1953 was among the worst to visit the UK in the 20th century. Hurricane-force winds had blown down more trees in Scotland than were normally felled in a year. A car ferry, the Princess Victoria, on passage from Stranraer in Scotland to Larne in Northern Ireland, sank with the loss of 133 lives - only 41 of the passengers and crew survived. From Yorkshire to the Thames Estuary, coastal defences had been pounded by the sea and given way under the onslaught.

During the afternoon of the 31st, the shingle spit of Spurn Head in Yorkshire was breached. Soon after darkness fell, Lincolnshire bore the brunt of the storm. Sand was scoured from beaches and sand hills, timber-piled dunes were breached, the landward slopes of embankments were eroded, concrete sea walls crumbled, the promenades of Mablethorpe and Sutton-on-Sea were wrecked, and seawater broke through to flood agricultural land.

Because many telephone lines in Lincolnshire and Norfolk had been brought down by the wind, virtually no warnings of the storm's severity were passed to counties farther south until it was too late.

Later that evening, embankments around The Wash were overtopped and people were drowned in northern Norfolk. Fifteen died in King's Lynn and another 65 between there and Hunstanton. At Wells-next-the-Sea, a 160-ton vessel was left high and dry on the quay.

By midnight, Felixstowe, Harwich and Maldon had been flooded, with much loss of life. Soon after midnight, the sea walls on Canvey Island collapsed and 58 people died. At Jaywick in Clacton, the sea rose a metre in 15 minutes and 35 people drowned.

The surge travelled on. From Tilbury to London's docklands, oil refineries, factories, cement works, gasworks and electricity generating stations were flooded and brought to a standstill.

In London's East End, 100 metres of sea wall collapsed, causing more than 1,000 houses to be inundated and 640,000 cubic metres of Thames water to flow into the streets of West Ham. The BP oil refinery on the Isle of Grain was flooded, and so too was the Naval Dockyard at Sheerness.



Almost 100,000 hectares of eastern England were flooded and 307 people died. In The Netherlands, 50 dykes burst and 1,800 people drowned. The flood covered nine per cent of all Dutch agricultural land and three per cent of the dairy country. The sea reclaimed over 200,000 hectares of polder country.

[Flooding in Whitstable](#)

#### Could it happen again?

Although storm-force winds occurring with high tides are a dangerous but rare combination, there is no reason to suppose that the meteorological situation of 1953 could not recur one day. In fact, with the south-east region of the UK actually sinking at the rate of about 1 cm each year, the risk of storm surge damage could increase.

Following on from the events of 1953, the Met Office developed its storm tide warning service to forecast surges. Recently the weather data available at the time of the 1953 event were re-analysed by the Met Office's numerical prediction models, and the results showed accurate predictions of the movement and intensity of the storm surge.

So, the bad news is that a severe surge could happen again - but the good news is that the Met Office will be able to warn of its approach.

#### What is a surge?

Surges are caused mainly by the action of wind on the surface of the sea, with barometric pressure a secondary factor. When pressure decreases by one millibar, sea level rises by one centimetre. Thus, a deep depression with a central pressure of about 960 mb causes sea level to rise half a metre above the level it would have been had pressure been about average (1013 mb). When air pressure is high, sea level falls correspondingly.

Around the UK, the effect of a strong wind coupled with very low pressure can be to raise sea level in eastern England more than two metres. Fortunately, though, large positive surges tend to favour mid-tide. They rarely coincide with high water.

[More from Education about the east coast floods of 1953](#)

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