

Venice flood barriers threaten to cut off sea

After centuries of flooding, Venice is using MOSE – a \$5bn system of seawall structures – more than expected as it faces the realities of climate change and rising sea levels

MOSE - 78 flood barriers located at entrances to lagoon

Venice

Lido

Malamocco

LAGOON

SEA

Chioggia

Hollow barriers attached to sea floor lowered to allow boats to pass, raised to protect city from 3-metre high tides

Flood barrier

Compressed air released into floodgate to expel water – barrier floats

Floodgate filled with water sinks into recessed bay

Foundations in bedrock

Operations gallery

RATE AT WHICH CITY IS SINKING

A combination of settling of tectonic plates over millenia and extraction of groundwater for industrial needs in the 20th century, caused city to sink

1953-73: 5mm

2003-10: 1.0mm ± 0.7

2008-20: 1.7mm ± 0.5

1992-2002: 0.8mm ± 0.7

40cm RELATIVE SEA LEVEL

Global sea levels are rising – but rise at Venice has exceeded that of nearby city of Trieste

Venice

Trieste

Designed to be raised five times per year for tides over 1m, barriers have been used almost 50 times in two years

Sources: MOSE Venezia, European Geosciences Union

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