



UNIVERSITÀ  
DEGLI STUDI  
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CIVILE, EDILE E AMBIENTALE  
DEPARTMENT OF CIVIL, ENVIRONMENTAL  
AND ARCHITECTURAL ENGINEERING



DEPARTMENT OF  
GEOSCIENCES

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# Signature of Storm-Driven Sedimentation on Marsh Topography

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**AGU** FALL  
MEETING

New Orleans, LA & Online Everywhere  
13–17 December 2021



# MARSHES, COASTAL CITIES AND STORM SURGES

**Salt marshes**

**Coastal urban areas**

Sedimentation

Storm-surge barriers

**Sea Level Rise**



# STORM SURGES DRIVE MARSH SEDIMENTATION

Venice  
Lagoon,  
Italy

3

years

monthly  
sampling  
or after  
storms



30%  
fair-weather

70%  
storm-surge driven



# STORM-SURGE BARRIERS REDUCE MARSH RESILIENCE TO SEA LEVEL RISE

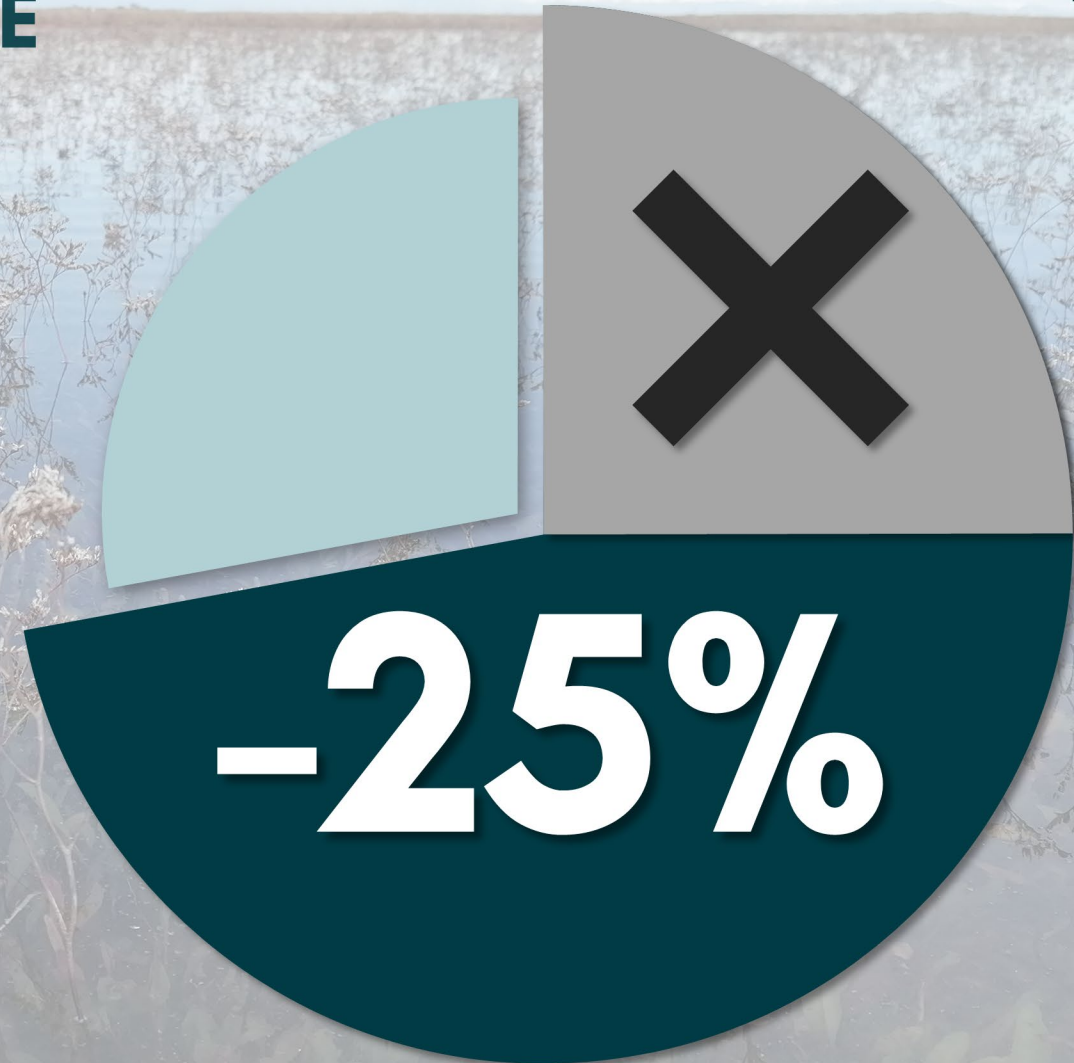
Storm-surge barriers

water levels during surges

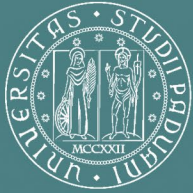
marsh flooding

sedimentation

? marsh future







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# Thank for your attention

## Any questions?

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Further details:

nature  
geoscience

ARTICLES

<https://doi.org/10.1038/s41561-021-00853-7>

Check for updates

## Marsh resilience to sea-level rise reduced by storm-surge barriers in the Venice Lagoon

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