

# Salt-marsh sedimentation affected by storm surges and anthropogenic impacts

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GEOSCIENCES

# MARSHES, STORM SURGES AND BARRIERS

Sea Level Rise

Sedimentation

Storm-surge barriers

Salt marshes

Coastal urban areas

# MARSHES, STORM SURGES AND BARRIERS

**? Which is relative contribution of tide and storm surges to marsh sedimentation?**



**? How do storm-surge barriers affect salt-marsh sedimentation?**

# FIELD MEASUREMENTS IN THE VENICE LAGOON, ITALY



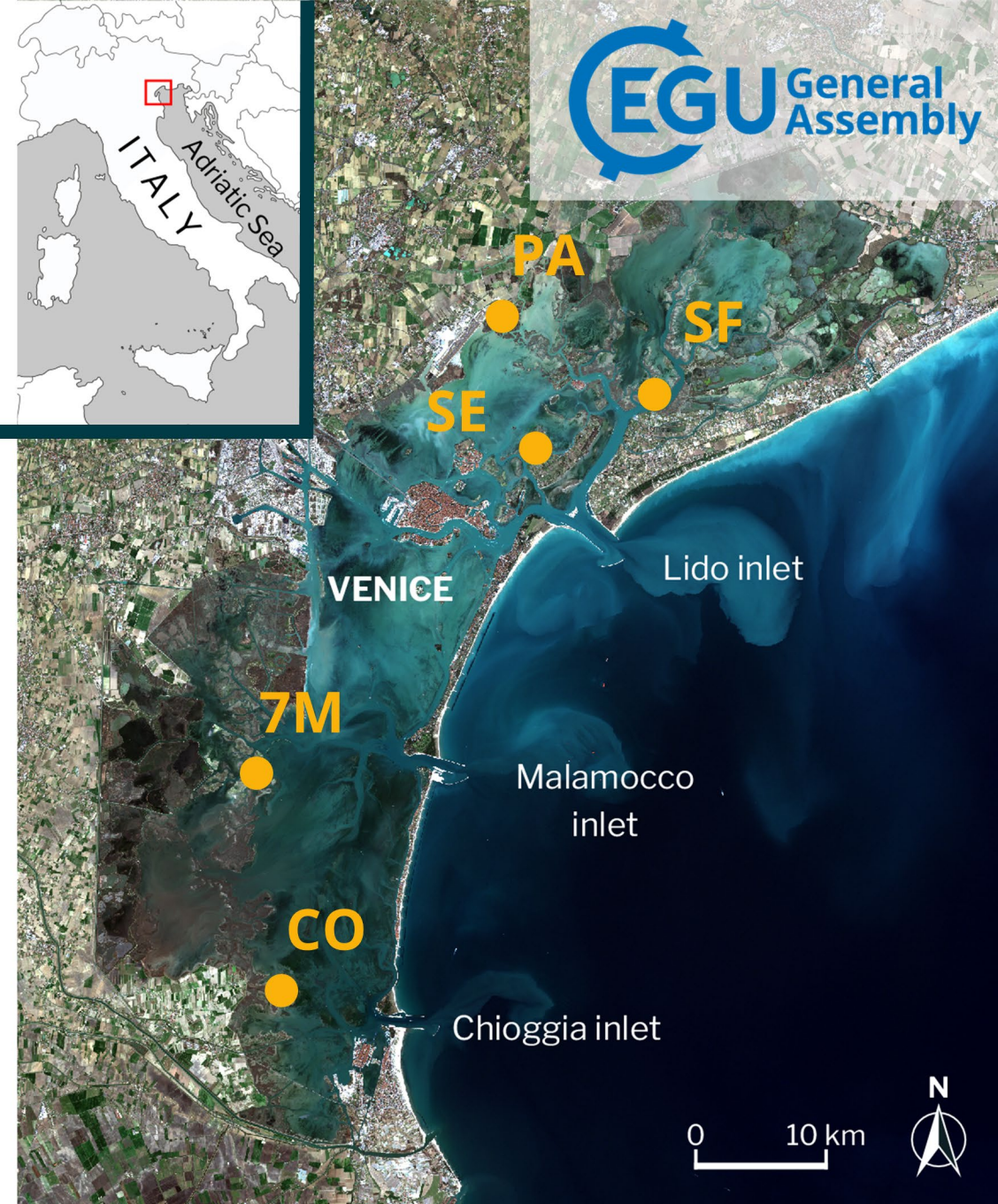
**5** study areas



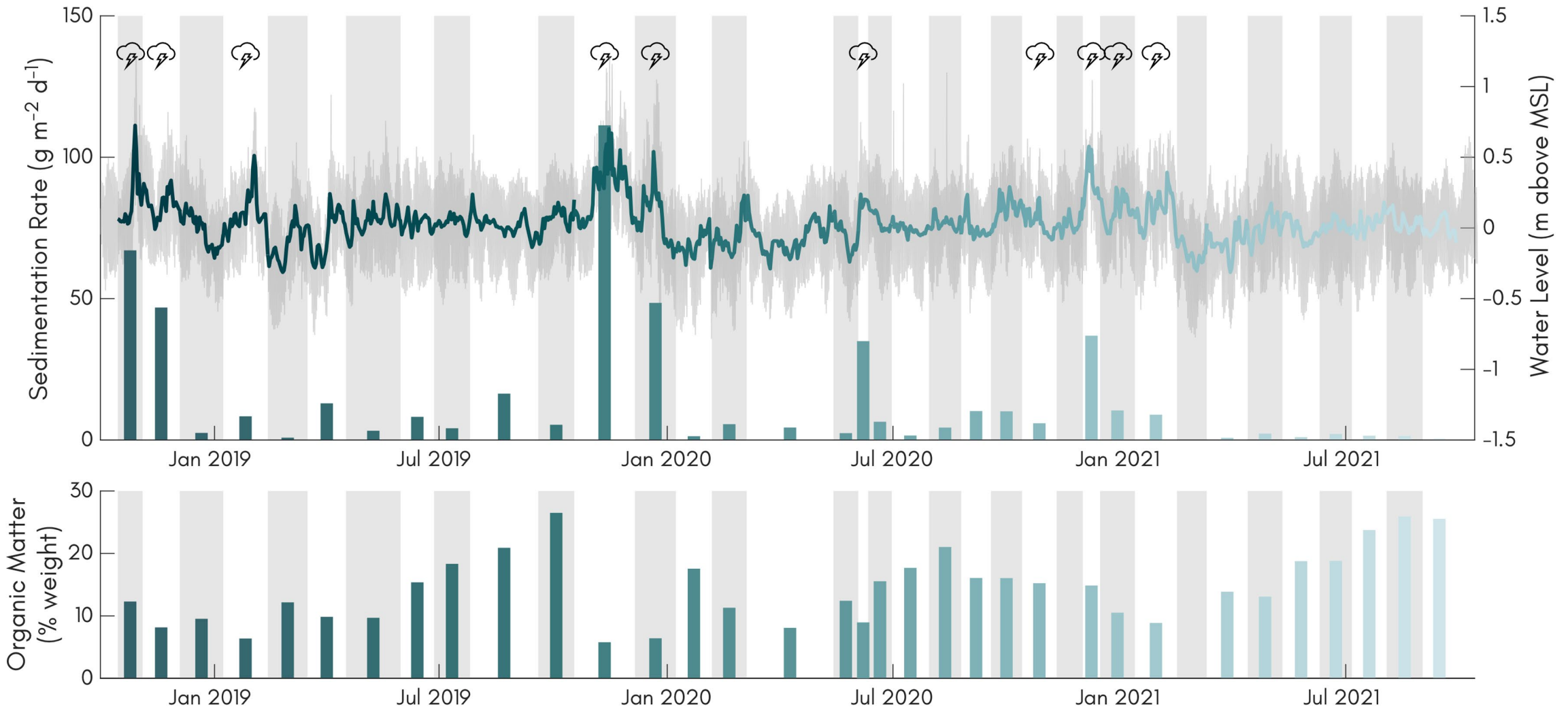
**3 years** (Oct-2018 – Oct-2021)  
monthly sampling or after storm surges



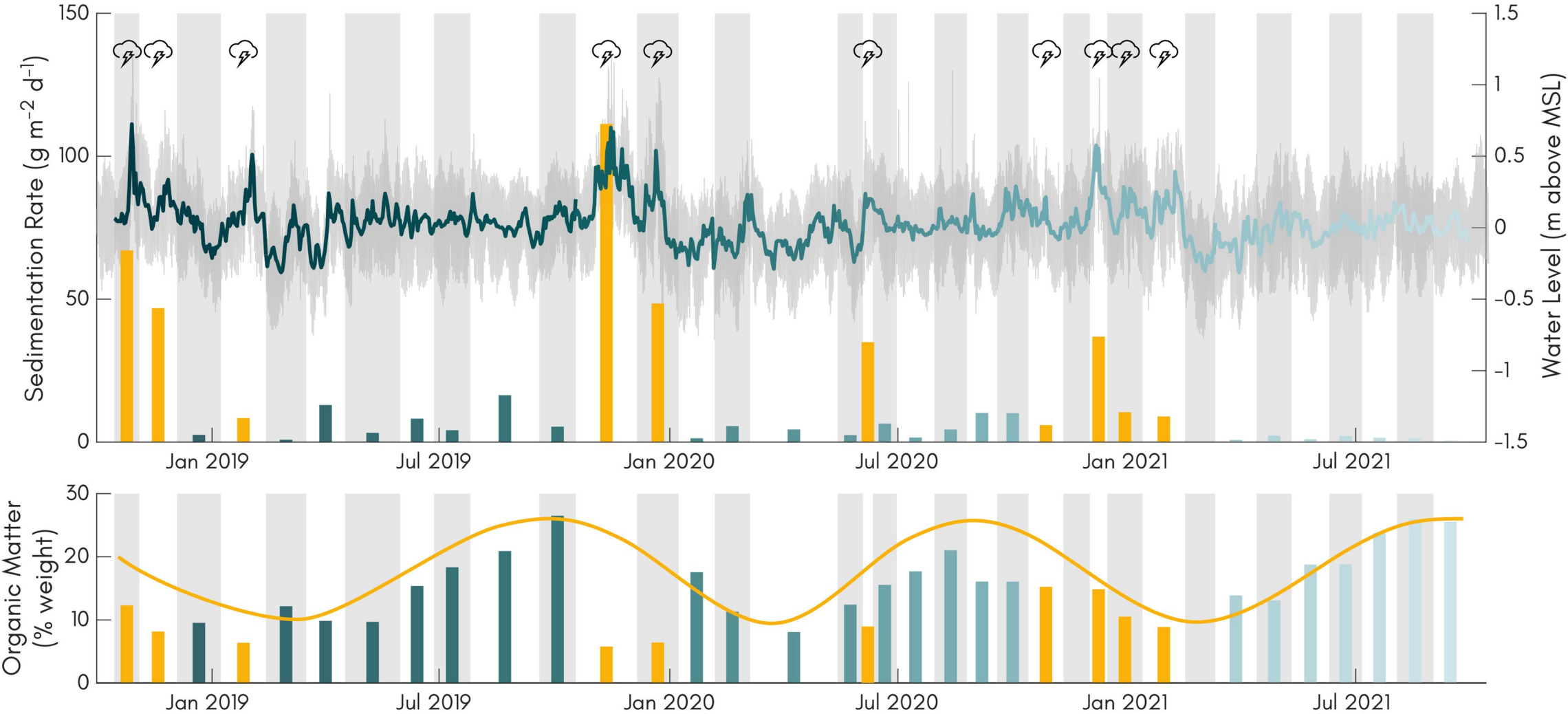
**2556** samples



# SEDIMENTATION VARIES OVER TIME



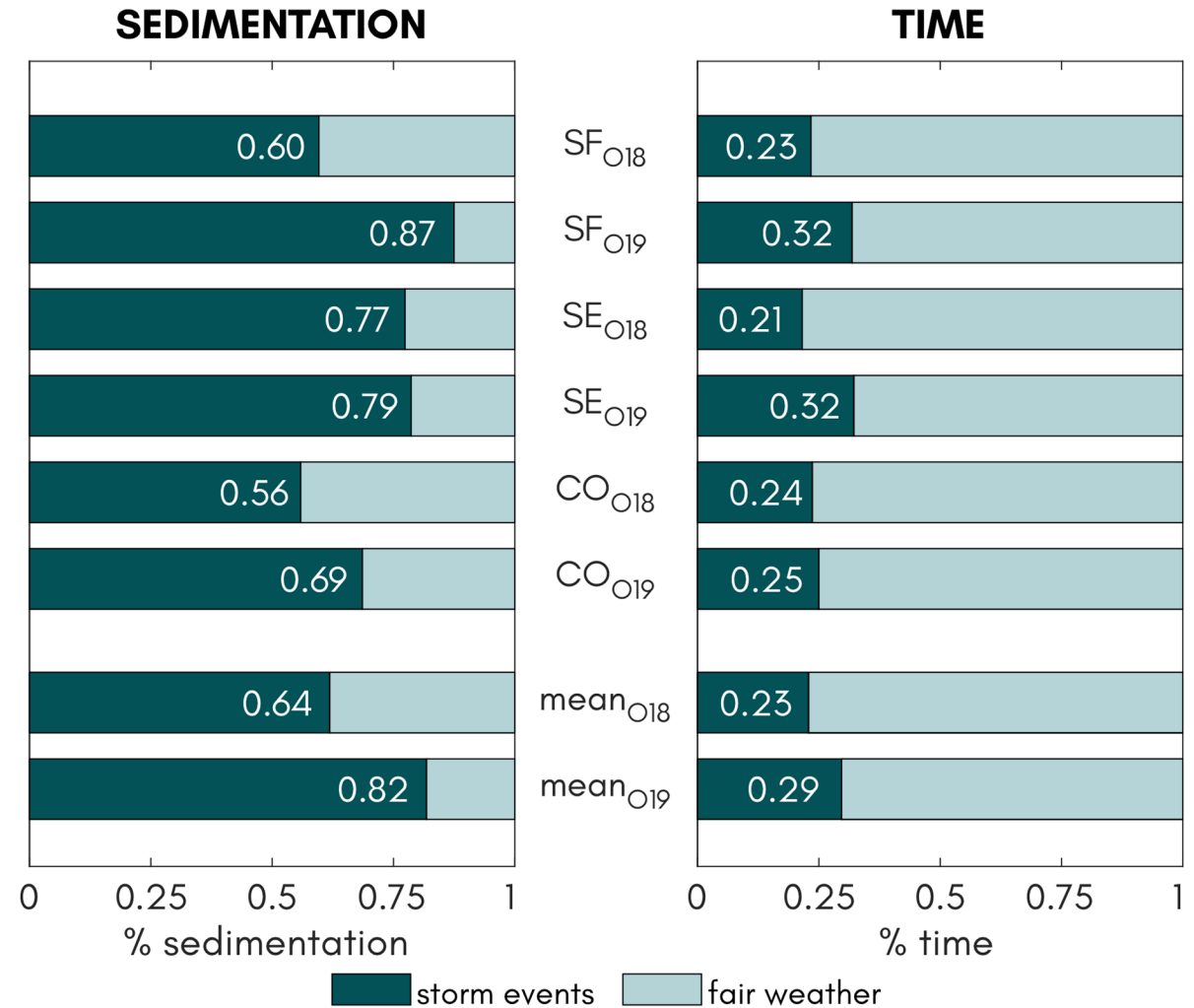
# SEDIMENTATION VARIES OVER TIME



# IS MARSH SEDIMENTATION STORM-DRIVEN?

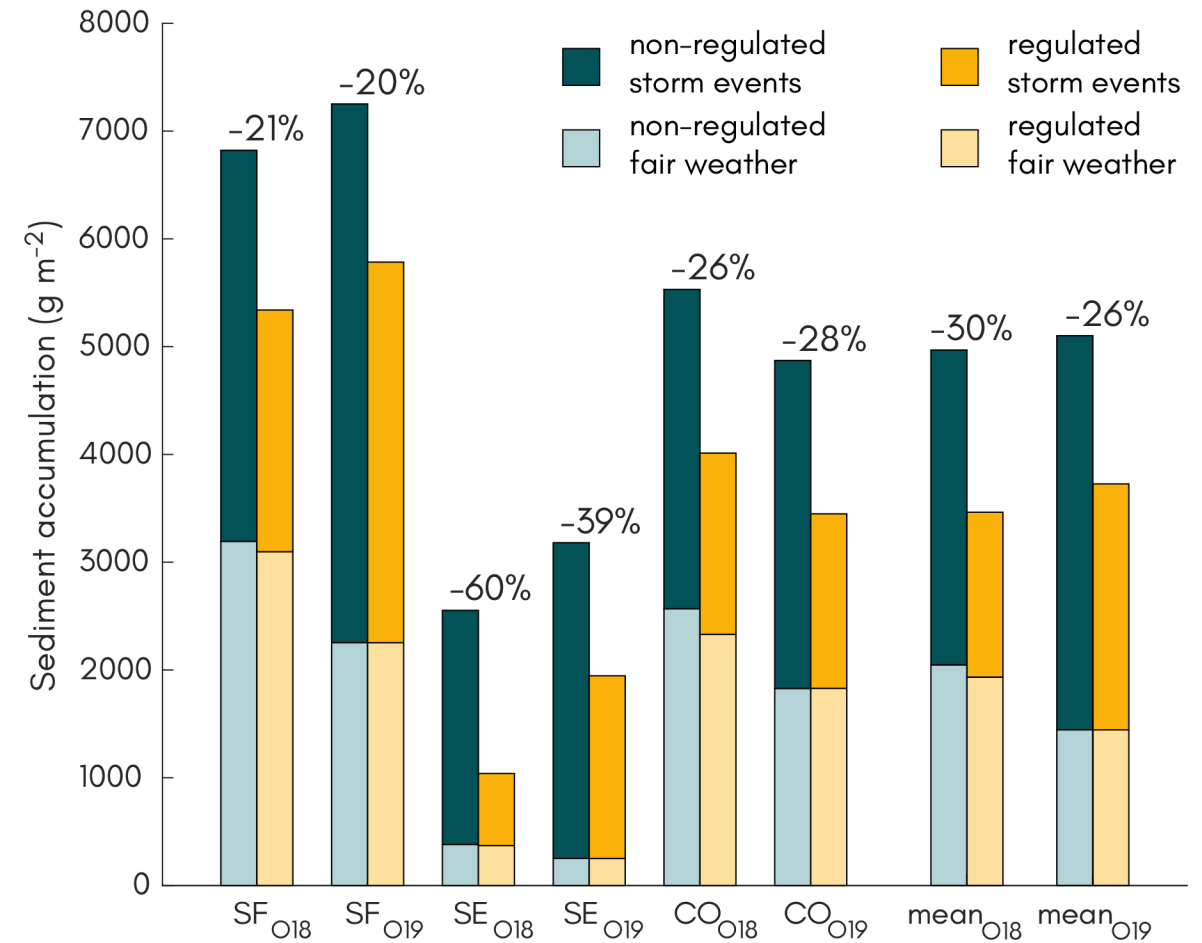
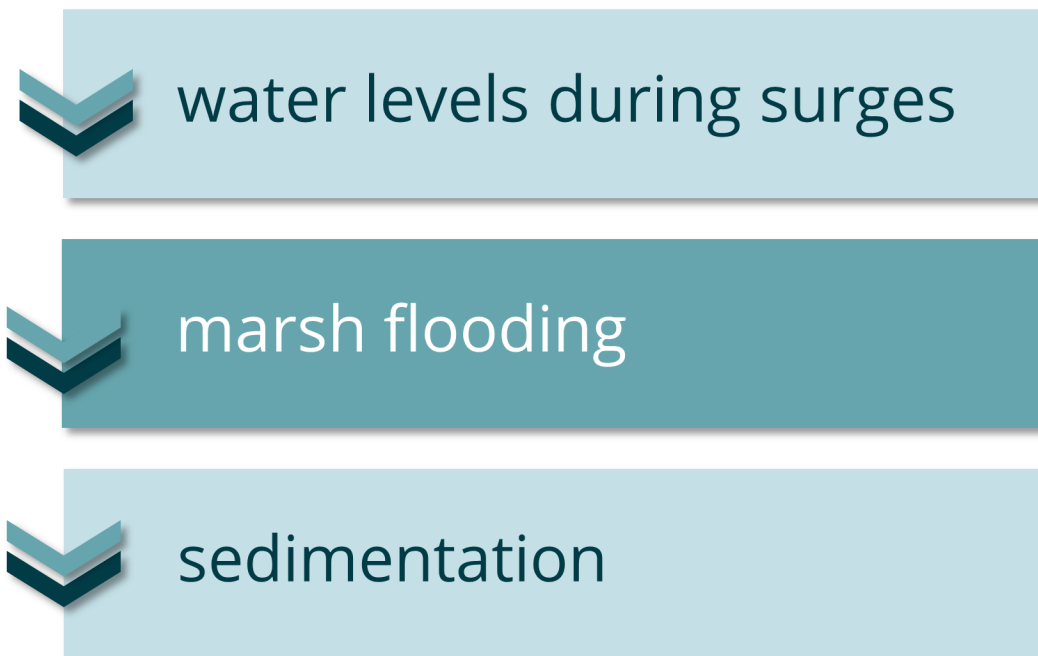
# 70%

of yearly sedimentation  
occurs during storms



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

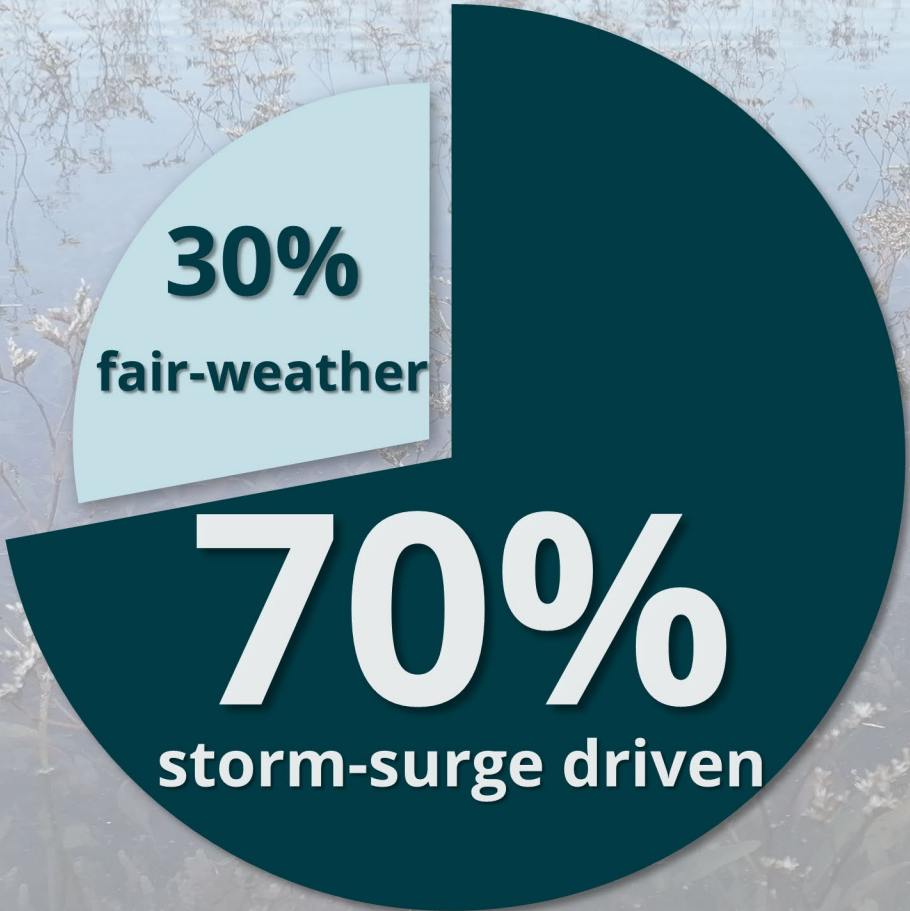
## Storm-surge barriers



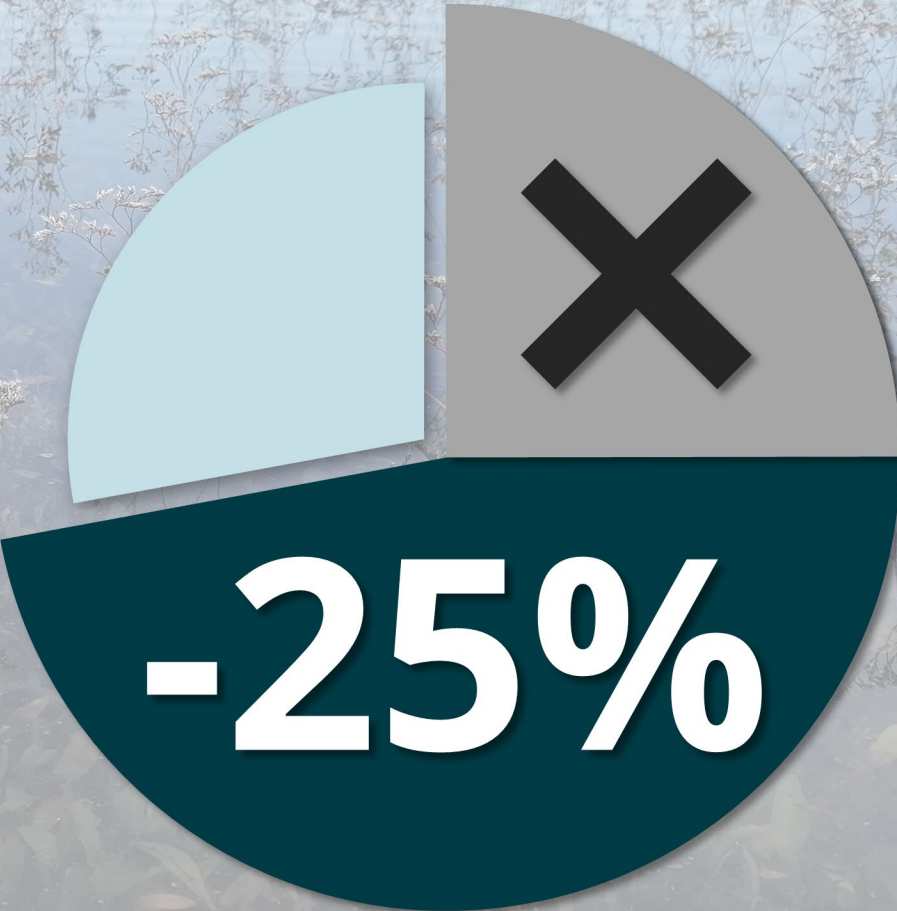


# TAKE-HOME MESSAGES

**Non-regulated**



**Flood-regulated**



Thank you for your attention  
Any questions?

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Further details:

nature  
geoscience

ARTICLES

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

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