

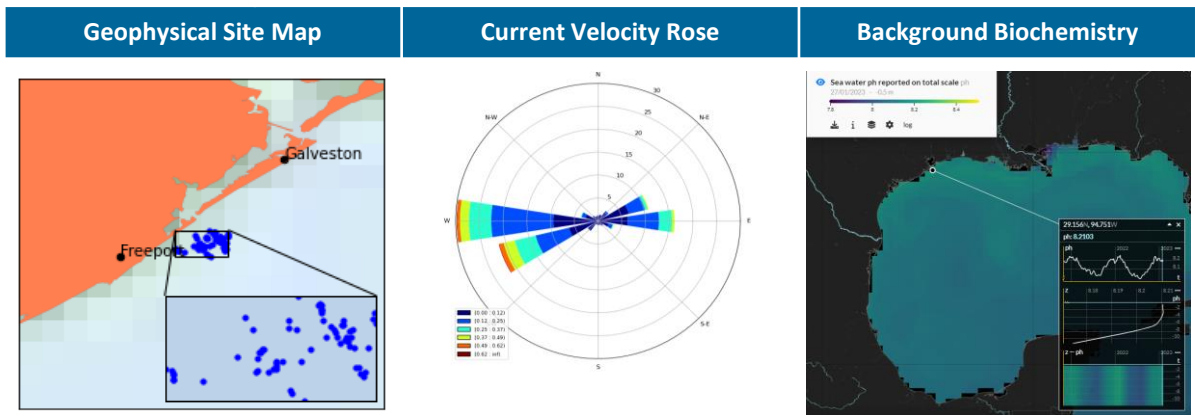
ACTOM Case Study: Gulf of Mexico

DISCLAIMER: These case studies are for demonstrating the ACTOM DST only, and do not use fully optimized site data

Each case study is driven by site specific data describing geological and sea floor features, hydrodynamics and bottom water biochemistry

Site specific data

Geophysics	Positions of exploratory wells taken from the data portal for the Railroad Commission of Texas
Hydrodynamics	Velocity fields extracted from a hindcast circulation model.
Biochemistry	Biogeochemical data is taken from the GOMECC 1 and 3 cruises in 2007 and 2017



The user is then able to select options describing the size of hypothetical leak scenarios, and a set of specific thresholds of chemical change for monitoring.

User Choices	Footprints and monitoring designs	
Leakage rate: 0.03 kg/s		
Anomaly thresholds ΔpH -0.01; -0.1		
Summary		
Dominated by the circulating currents of the Gulf of Mexico and large freshwater inputs from the Mississippi causing stratification and highly variable sea floor chemistry, nevertheless with a sensor sensitivity of 0.01pH units, only 6 fixed sensors are needed to cover the storage complex.		
Link to full report	Background illustrates the area of hypothetical impact for given thresholds Recommended sensor positions to detect the given threshold, indicating how many features are detectable by each sensor	