

SLOSHING VIRTUAL SENSOR / *by GTT*

# Predict and monitor cargo tank fatigue with confidence

Sloshing Virtual Sensor applies GTT's LNG containment system expertise (including its Mark III and NO96 membrane systems), and physics-based models to predict cargo tank fatigue and monitor structural integrity over time, supporting safer operations and optimised inspection strategies.





# LNG Tank Fatigue Monitoring and Lifetime Prediction

## From sloshing loads to actionable fatigue insight

LNG cargo movement generates sloshing loads that accumulate into structural fatigue over time, yet their variability makes accurate assessment challenging and often leads to conservative assumptions. Sloshing Virtual Sensor by GTT addresses this by providing continuous, model-based insight into actual tank fatigue, enabling shipowners and operators to better understand structural impact, optimise inspection strategies and ensure safety and compliance with confidence.

## Key Features

- **Continuous fatigue monitoring:** Tracks cumulative structural fatigue over time based on vessel motion and cargo conditions.
- **Alternative Survey Plan (ASP) support:** Provides the technical basis to support extended inspection intervals under ASP regimes.
- **Early detection of abnormal conditions:** Identifies deviations in loading patterns and operating conditions impacting tank integrity.
- **Integration with onboard and analytical systems:** Leverages vessel data to deliver continuous and reliable structural monitoring insight.

## Key Benefits

- **Enhanced containment system safety:** Anticipate structural risks before they impact tank integrity.
- **Optimised inspection and maintenance planning:** Extend inspection intervals while maintaining full confidence in asset condition.
- **Improved confidence in structural integrity:** Gain clear visibility into cumulative fatigue and structural behaviour.
- **Confident compliance with classification requirements:** Support survey strategies with validated, model-based evidence.
- **Preserved containment system lifetime and asset value:** Preserve containment system integrity across the vessel lifecycle.

## A global leader powering GTT Marine solutions

GTT Group is the world leader in cryogenic membrane containment systems for LNG carriers, with over 60 years of experience and unmatched innovation. GTT Marine builds on this unique expertise, leveraging deep knowledge of LNG behaviour and containment technologies to develop advanced digital solutions that enhance operational performance, safety and efficiency across LNG operations.

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