

WLNG FST Engineering Completion

WLNG FST Extreme Weather Analysis

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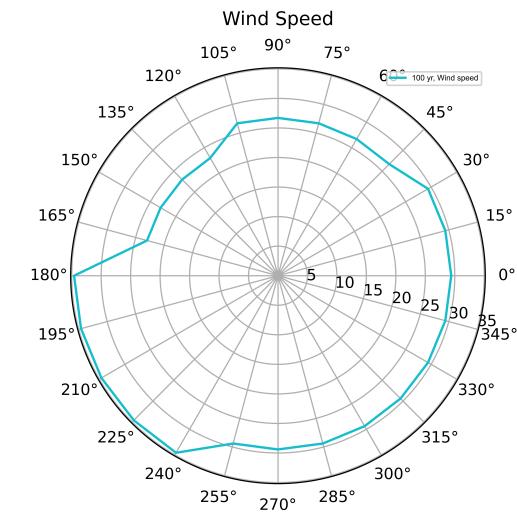
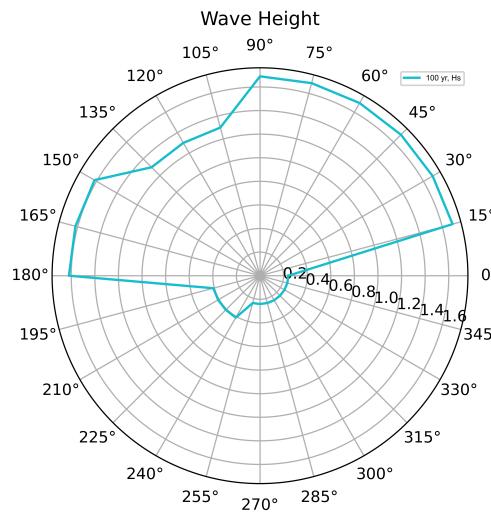
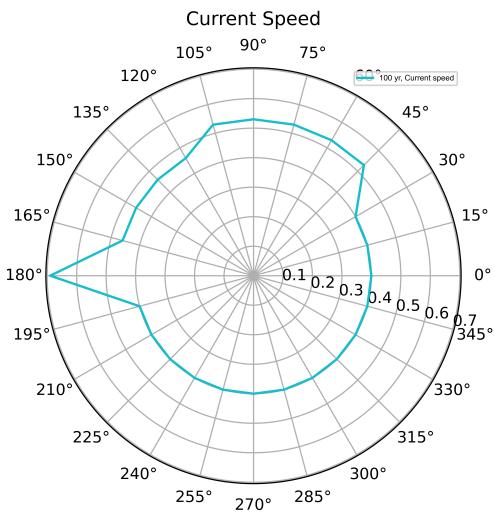
Introduction

- FST analysis for WLNG

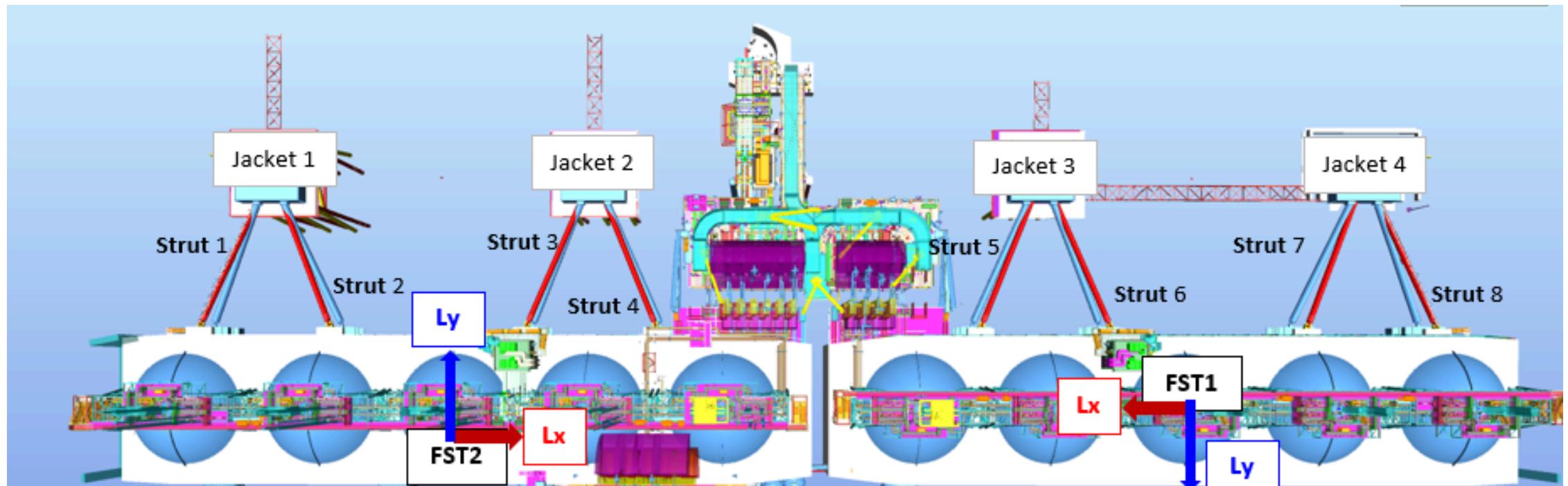
Design Data

Analysis Methodology

Design Data - Environment



FST Axis Definition



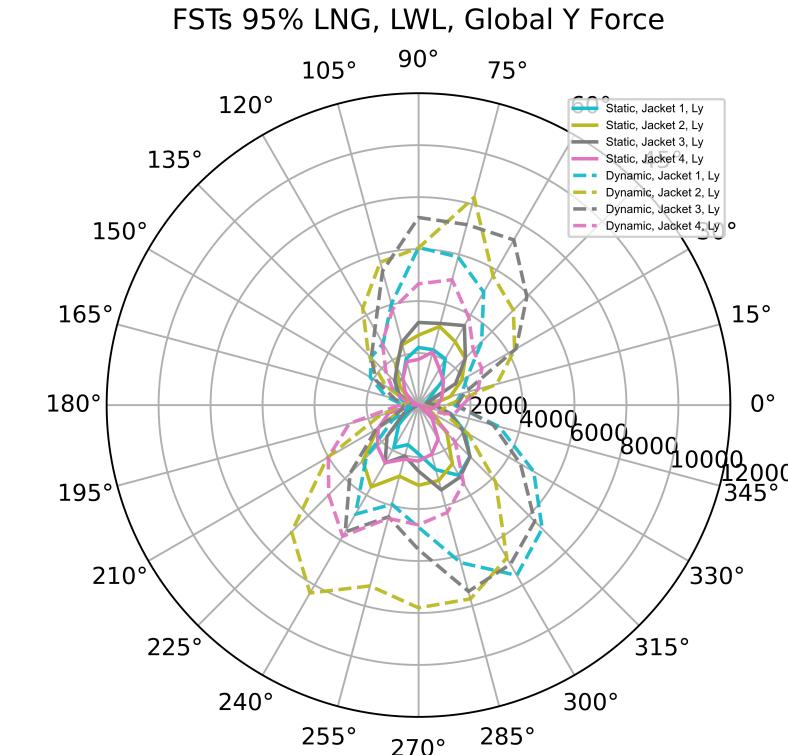
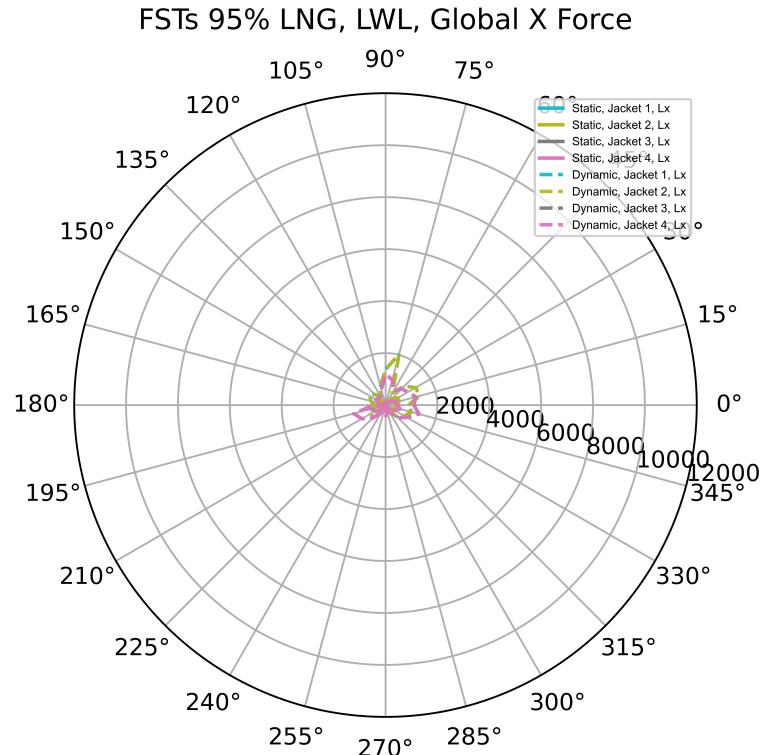
Methodology

- TBA

100 year Analysis Results

FSTs 95% LNG, 100yr, LWL - Max Jacket Loads, Directional Response

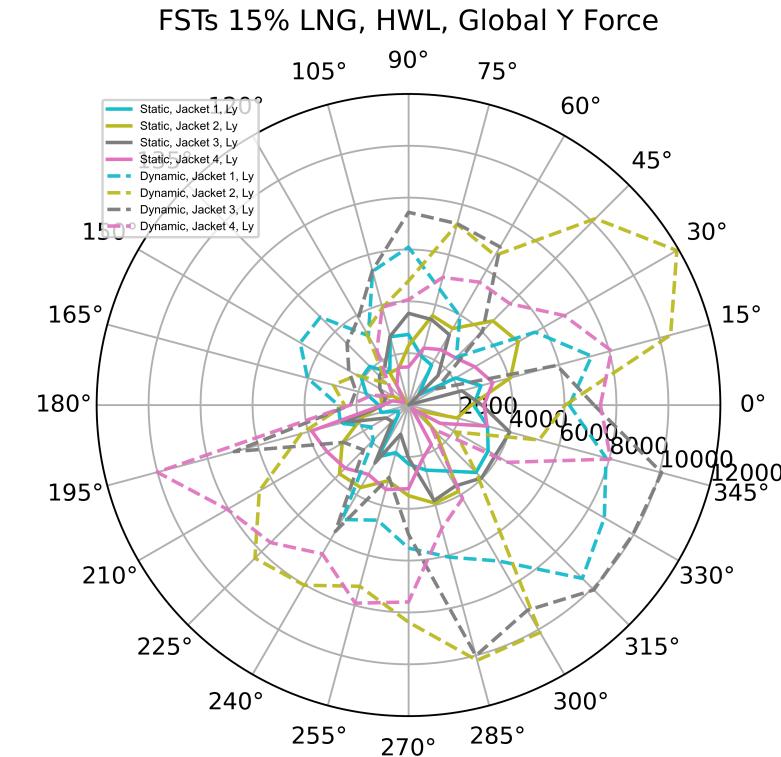
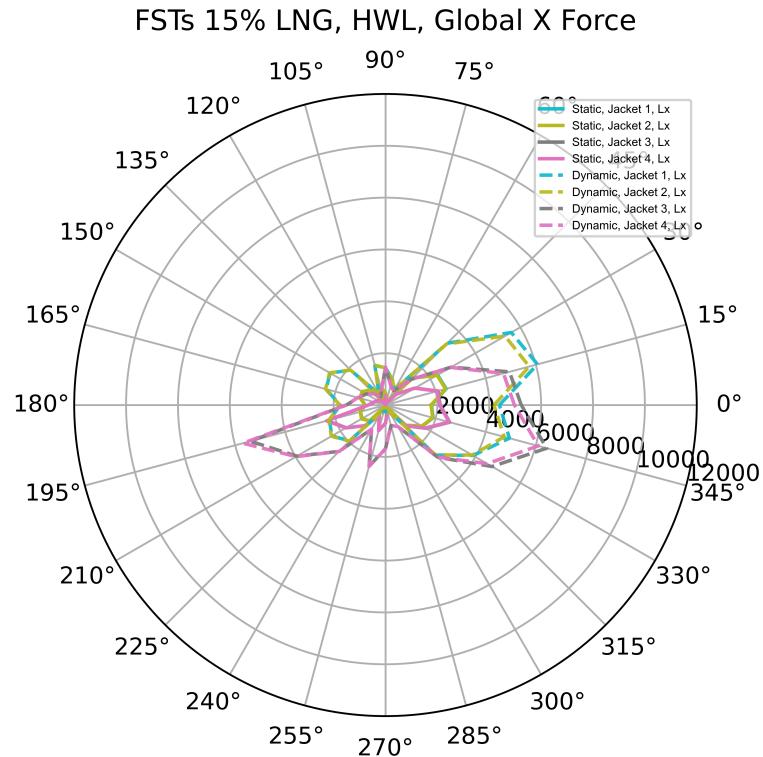
- LWL, Jacket Global forces in X and Y direction are shown
- Two (2) struts contribute to each jacket global force



- Y loads are significantly higher than X loads

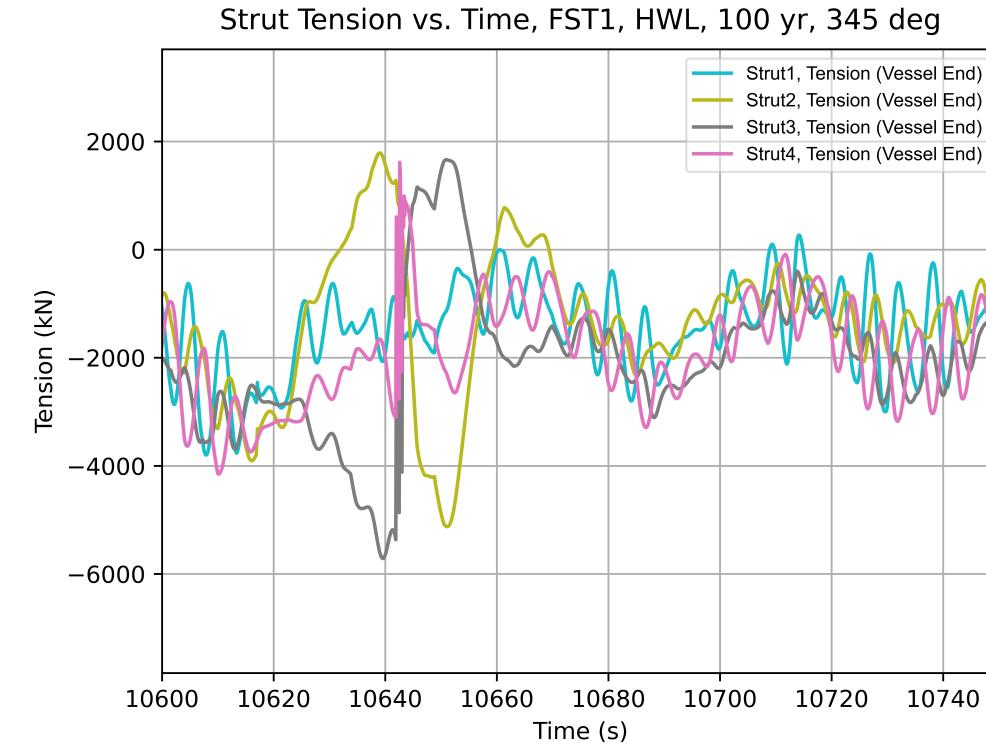
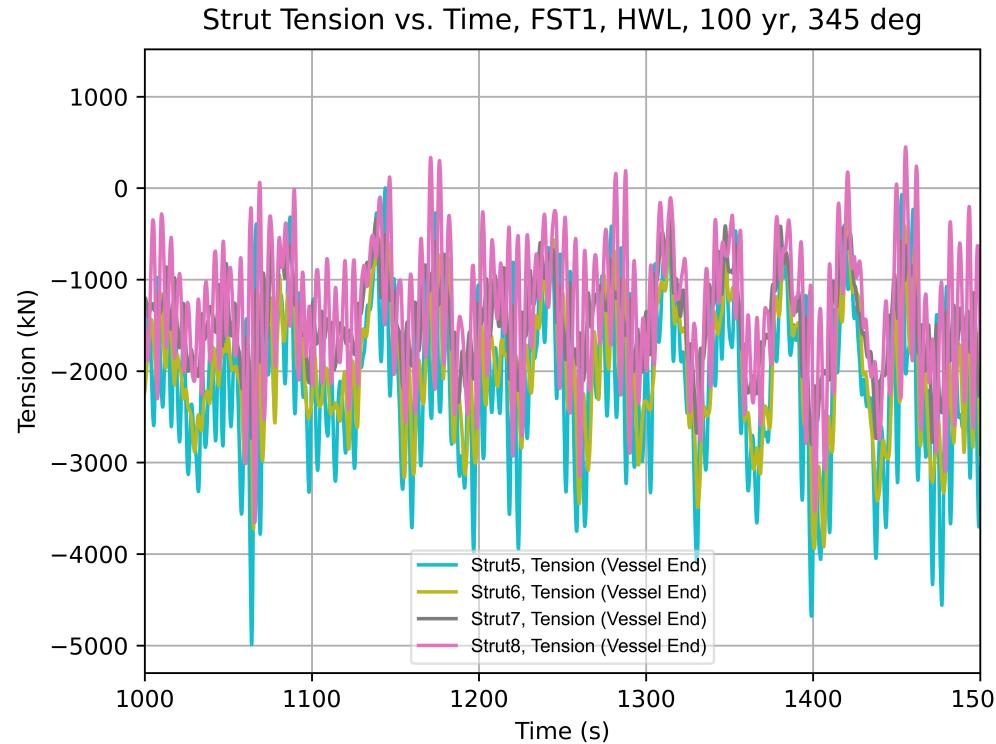
FSTs 15% LNG, 100yr, HWL - Max Jacket Loads, Directional Response

- HWL, Jacket Global forces in X and Y direction are shown



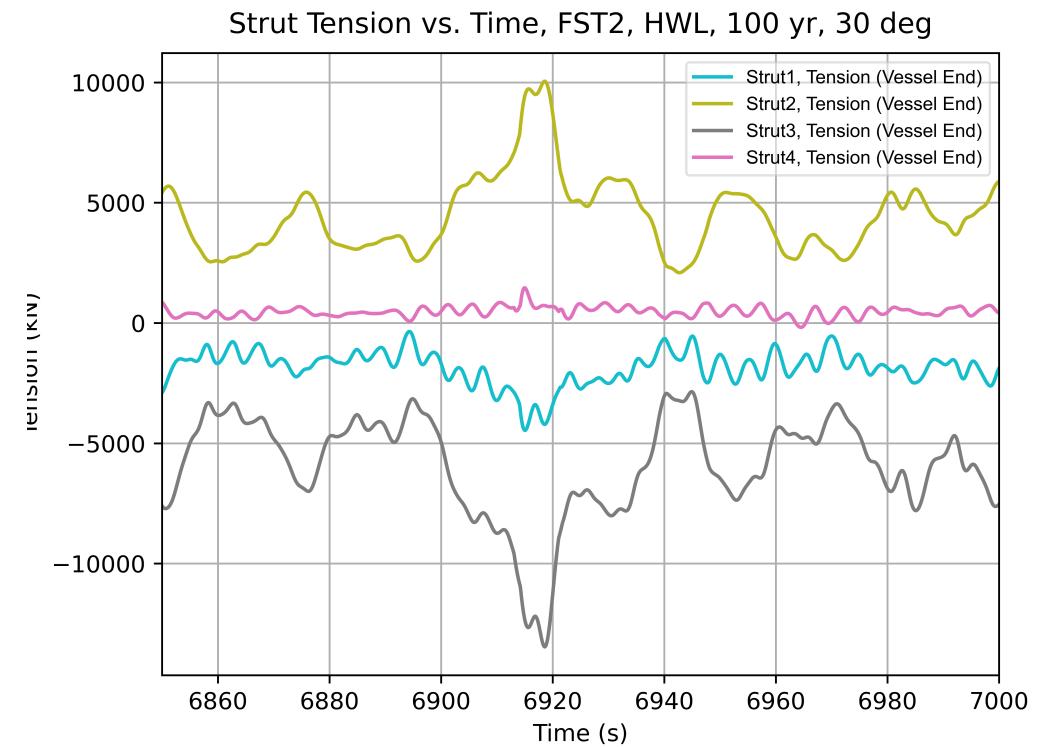
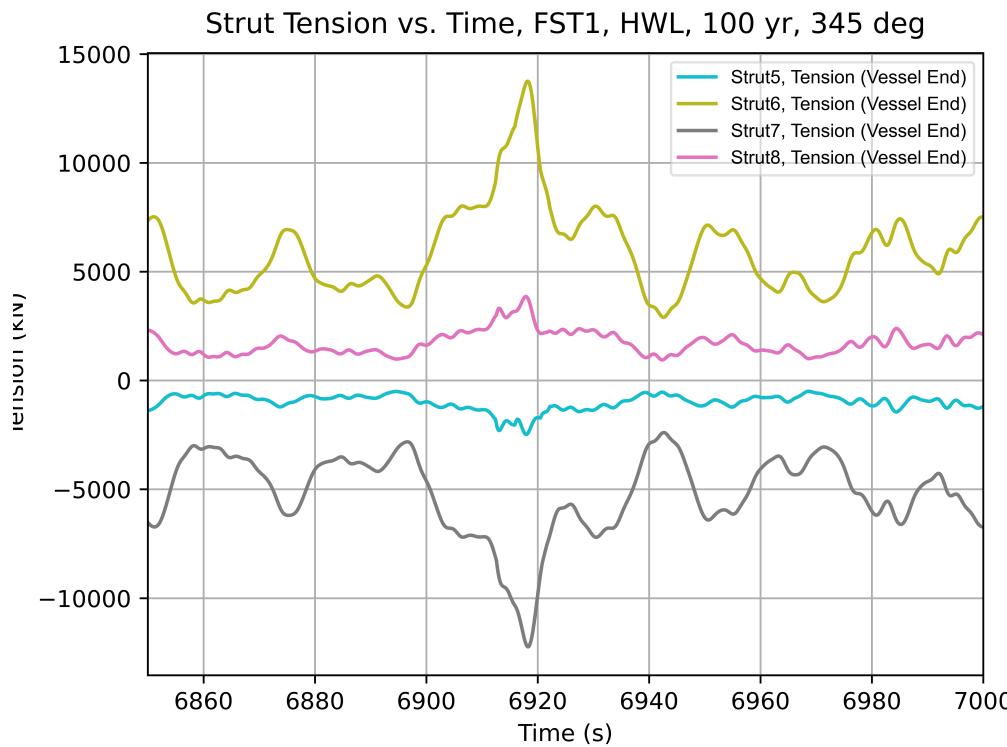
- The HWL static & dynamic forces are significantly higher than those of LWL.
- The 15% LNG & LWL needs to be investigated further.

FSTs 95% LNG, 100yr, LWL - Force Timetrace



- The struts are in sync
- Results in lower strut forces when compared to HWL results

FSTs 15% LNG, 100yr, HWL - Force Timetrace



- The 2 struts are locked FST in yaw position
 - Results in high forces
 - Low roll compared to LWL response
 - Comparable heave motions with LWL response
- This yaw-locking result trend is similar to what was obtained in AQWA

FSTs, 100yr Discussion

- 100yr, HWL has yaw-locking effect potentially due to force coefficients used
- Perform sensitivity analysis on force coefficients with $\text{yaw} = 0$
- Determine whether yaw-locking effect is realistic due to prevailing external non-dynamic forces (e.g. wind, current, wave etc.)

Way Forward

- 100 yr FSTs only
 - Perform sensitivity
- 5 yr FSTs with LNGC
 - Will get this running after few more insights in 100 yr analysis

Conclusions

- TBA