CaskADES: Cask Analysis and Degradation Evaluation System

Connects Technology To Business….

Improving Reliability Through Health Monitoring and Predictive Maintenance

CaskADES is a modular software tool which combines information from various data streams to assess nuclear waste canister material degradation status for temporary/interim storage and potential transportation.

CaskADES Modules

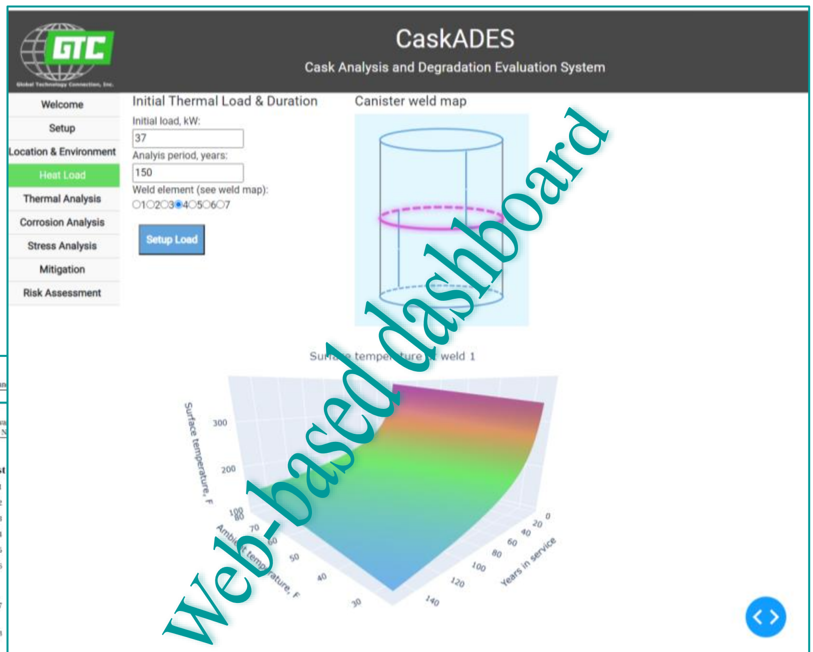
- **Data Preprocessing**
- **Probabilistic material properties**
- **Residual stress analysis**
- **Pit initiation, death, and growth**
- **Maximum pit depth analysis**
- **Crack initiation and growth**
- **Remaining useful life estimation**
- **Fleet health management**
- **Transportation analysis**
- **Mitigation analysis**
- **Sensitivity analysis**

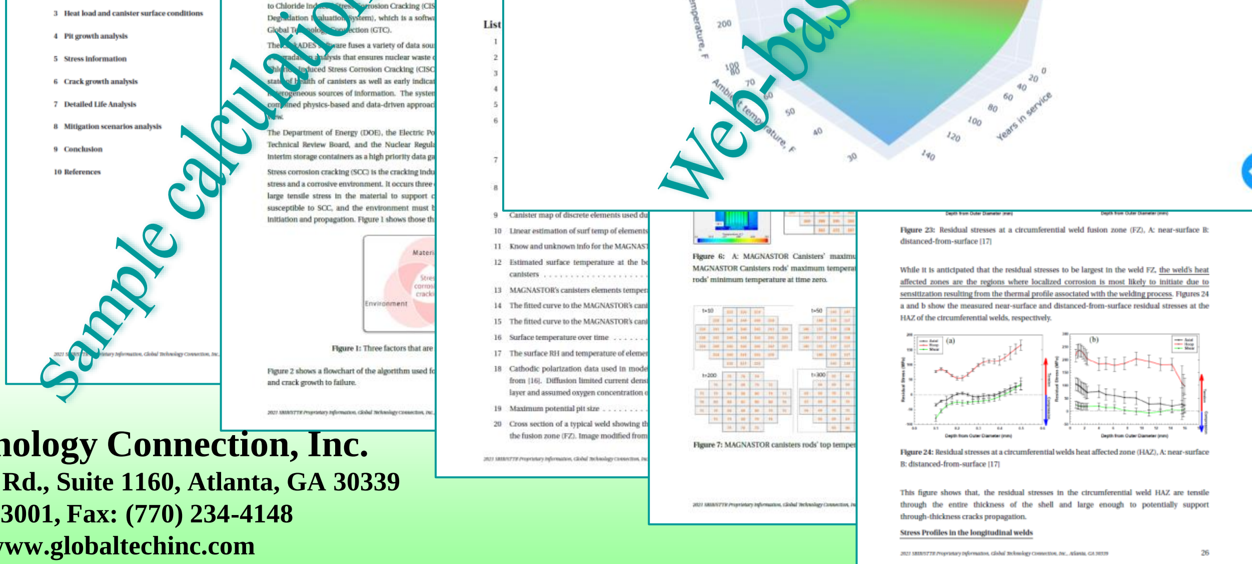
What can CaskADES do?

- **Estimate the risk factor with high confidence for various scenarios (do nothing, moving to CISF, laser peening, shot peening, or cold spray).**
- **Predict the remaining useful life of dry storage systems for various scenarios.**

Which technologies does CaskADES use?

- **Hybrid data fusion (physics-based and data-driven)**
- **Probabilistic fracture mechanics**
- **Bayesian inference**
- **Monte Carlo simulation**





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