Submission code: Q8LYQ4NZDL

See this and other abstracts on our website: https://home.sbgf.org.br/Pages/resumos.php

Eight Years of Offshore Seismic Supervision in Brazil: Operational Insights from Vessel Timing

Felipe Marques (Toveri), Priscila Favalessa (Toveri), Luigi Roncone (Toveri)

Eight Years of Offshore Seismic Supervision in Brazil: Operational Insights from Vessel Timing

Introduction

In the context of offshore seismic acquisition, operational performance is crucial not only for cost-efficiency but also for compliance with environmental regulations and stakeholder expectations. Over the last eight years, TOVERI has supporting seismic acquisition in Brazil, providing client rep for different players. A structured approach has been applied to assess the performance of seismic surveys through a detailed classification of vessel activity time. This work presents a eight-year analysis of 20 offshore seismic projects in Brazil, focusing on operational time metrics, with particular emphasis on the influence of cetacean presence, technical downtime and adverse weather conditions.

Method and/or Theory

The seismic vessel time was categorized into one of four main groups: Operational, Standby (STB), Downtime (DT), and Non-Chargeable Standby (Non-Chargeable STB). Within these groups, we tracked detailed activity codes, allowing us to isolate the impact of specific operational interruptions such as weather, fauna sightings (via PAM and MMO), and equipment-related issues.

The dataset comprises:

- 20 projects between 2017 and 2025, with 5 projects using Streamer and 15 projects using Ocean Bottom Nodes (OBN).
- 3,294 vessel days, totaling more than 72,000 hours of operational data.
- Acquisition coverage in Santos, Campos, and Pelotas basins.
- Collaboration with acquisition companies including PXGEO, ShearWater, and others.
- Majority of the surveys were conducted for Petrobras, with additional work for Equinor and Searcher.

Results and Conclusions

This eight-year analysis of offshore seismic acquisition performance in Brazil emphasizes the critical role of structured time monitoring in complex field operations. Two of the most prominent performance constraints were weather conditions and marine fauna. Weather accounted for 13% of total time, while cetacean-related activity, including PAM and MMO detections, represented 11.2%. The main contributor to downtime was air gun source-related issues, representing almost 5% of total time. This highlights the need for robust source system reliability and preventive maintenance strategies. There is also a notable prevalence of OBN surveys over streamer acquisitions in Brazil, particularly in the Santos Basin, where OBN has become the dominant technology due to geological and logistical advantages. The integration of PAM and MMO observations into real-time operations improved compliance and mitigated risks but introduced time penalties. Weather, while inherently uncontrollable, underscores the importance of seasonal planning and regional risk assessment. This ongoing analysis also aims to compare downtime between dual and triple source operations, contrast mitigation time related to environmental constraints between OBN and streamer surveys and evaluate shooting time relative to total vessel time (including mobilization, demobilization, and off-hire) to determine the overall efficiency of seismic surveys conducted in Brazil.