



Challenges and innovations in uncrewed cone penetration tests (CPT) for offshore geotechnical acquisition

Oceanology International 2024

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OCEAN INFINITY®

March 2024

“With our technology, we will deliver **conventional services, unconventionally**, bringing benefits of reduced environmental impact and reduced risk to workers. .”

Standardized geotechnical platforms providing :

- Improved safety and risk mitigation
- Enhanced speed and efficiency
- Data quality and precision
- Scalability

Key challenges:

- Risk perception and acceptance
- Technological reliability
- Operational transition



Infinity CPT - Product Roadmap

Challenges &
Future
Developments



ConOP



Engineering &
Onshore
Testing



RCC & Armada
A78 Integration



Offshore Trials



Product
Improvement
Cycle



Over-the-horizon
Connectivity



Commercial
Operations



ConOP



Armada 78 Series

- Lean crewed
- Moon pool launched
- Bespoke LARs
- Remotely Operated Systems
- Data handled onshore



Engineering & Onshore Testing



Infinity CPT Series



Infinity CPT 100



Infinity CPT 250

Key System Components:

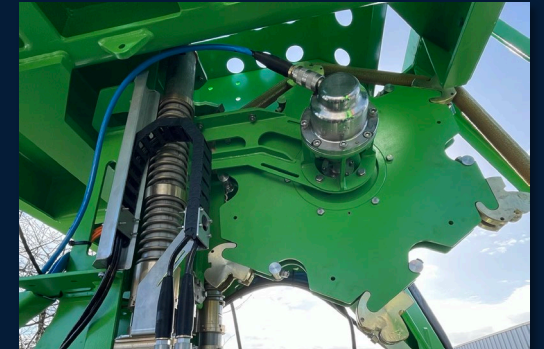


1. ST Folder

2. ST Sprocket



3. ST Twister

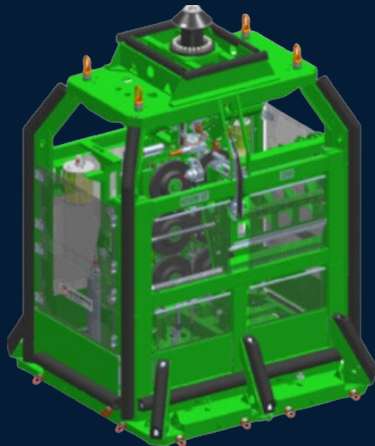


Infinity CPT Build

2022

JAN

Manufacturer selection



250kN Render

MAY

Infinity CPT 250
Concept design completed

MAY

Infinity CPT 100
assembly commenced

2023

DEC

Thrust testing and
system build



Thrust Test Frame

NOV

Infinity CPT 100
units testing completed

JAN-MAR

CPT 250 hardware
and software testing



Seismic Testing

FEB

CPT 100
commercial
operations

APRIL

CPT 250 ready for
offshore trials



Infinity CPT 250



Offshore Trials



Offshore Trials

2023

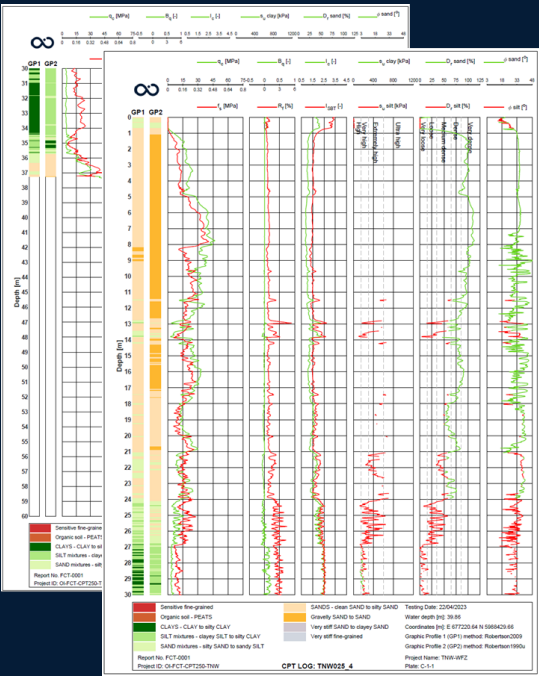
APRIL



TNW Mobilisation



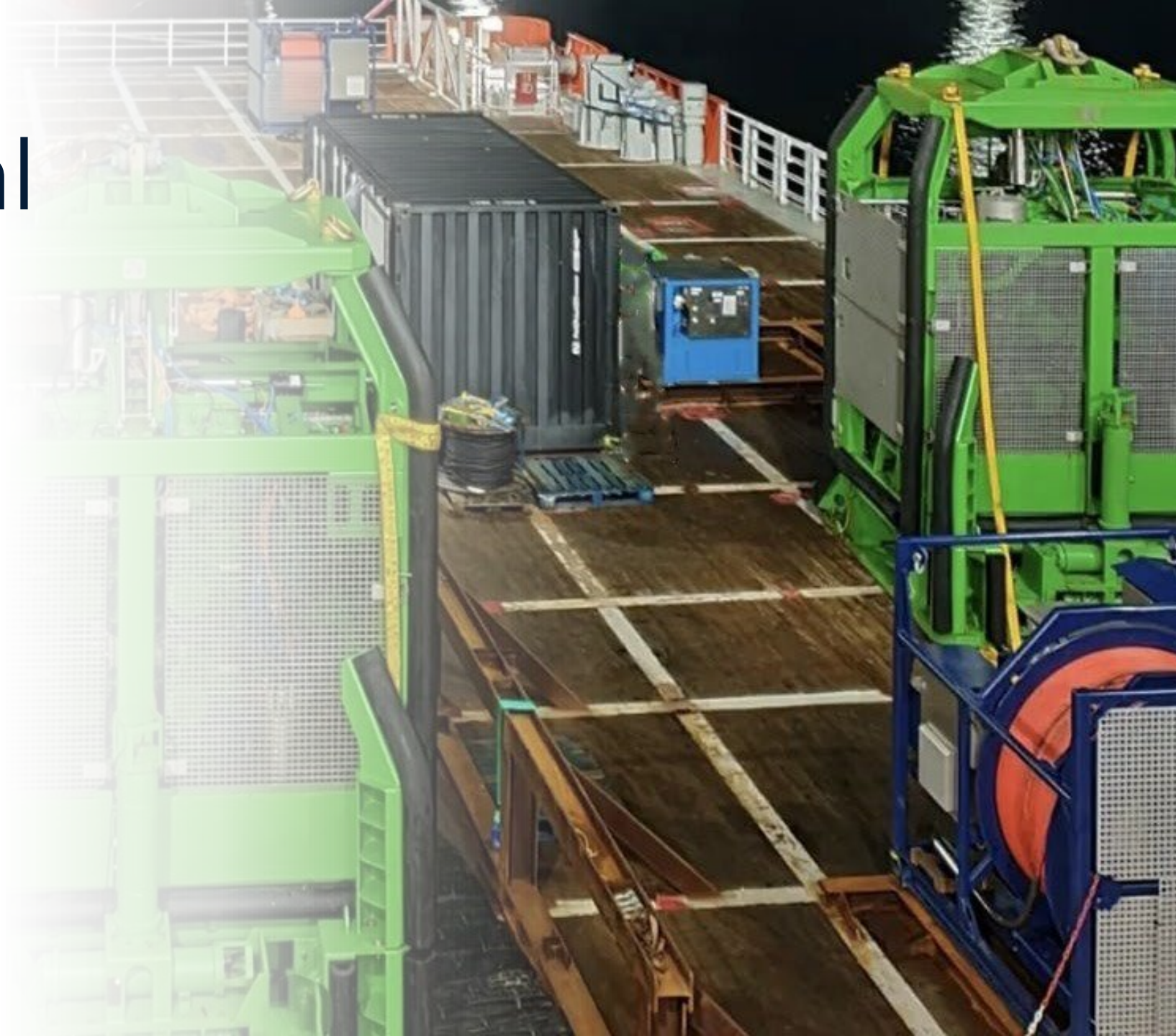
TNW Mobilisation



First Infinity CPT Deep Push



Commercial Operations



Commercial Operations

2023

FEBRUARY

CPT 100 Mobilisation



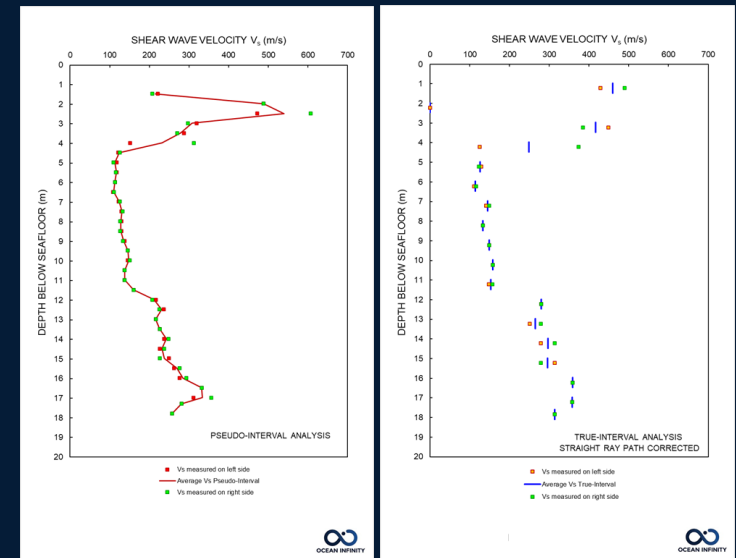
MAY

CPT deployed across 6 projects on the North Sea



NOVEMBER

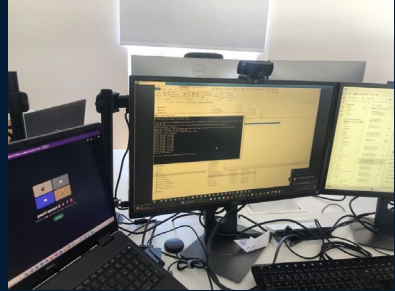
SCPT Results Example



Over-the-horizon Connectivity



Over-the-horizon connectivity & functionality

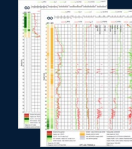


Initial remote
connectivity
setup

MARCH

Autonomous CPT
processing &
Interpretation

NOVEMBER



2024

DECEMBER
Digital Twin validation

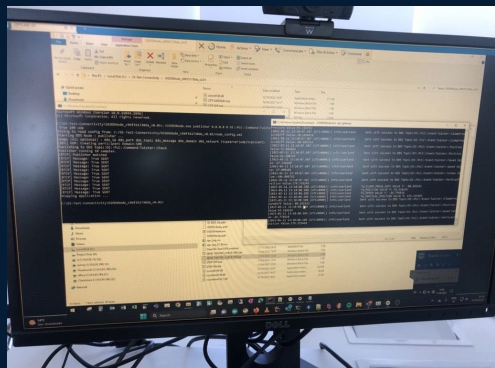


OCTOBER

Development of our
Infinity CPT Control
Software

MAY

Completed our first
over the horizon
remotely controlled
CPT push initiation



2023



Product Improvement Cycle



1st Product Improvement Cycle

2023

2024

JULY & AUGUST

Implementation and completion of
the 1st Product improvement plan



RCC & Armada A78 Integration



Operation Centre & Armada Integration

2023

2024

DEC

JAN

FEB

Geotechnical payloads (CPT included) were integrated onto the Armada fleet.

MAR

Sea trials start with fully integrated CPT systems and combined deck systems.



Ocean Infinity Control Bridge & Infinity CPT GUI



Challenges & Future Developments



Challenges & Future Developments

Risk Perception & Acceptance

ONGOING

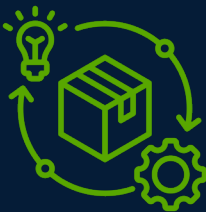
2024

MAY
ONWARDS



Commercial operation of Armada 78 system & integrated CPT spread.

NOV



2nd Product Improvement Cycle – System Robustness

2025

FEB



Cone Technology

JULY



Intervention Technology





Thank you



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