

Vessel Reference System, VRS

- What is it?
- Why have it?

VRS Components

- **Motion Reference Unit (IMU), MRU.**
- **Integrated IMU/GPS, Seapath 200.**
- **Helideck Monitoring System, HMS 100.**
- **DGPS Positioning System, Seatex DPS.**
- **Dynamic and Relative Positioning System, Seatex DARPS.**

Inertial Measurement Unit, IMU at center of System

- To determine your exact HPR Transducer Location or GPS Antenna Locations.
- To aid your multibeam or sonar equipment.
- Heave compensation of Offshore Cranes.
- *Seapath 200 Integrated IMU/GPS.*
- *HMS-100 Motion of Helideck.*
- *Motion Reference Unit, Seatex MRU.*

Integrated GPS/Inertial Technology

- Heading Aiding during Offshore Loading.
- Integrated Inertial/GPS system providing Position updates at 100 Hz.
- High Accuracy Gyro Calibration.
- Heading, Roll, & Pitch Accuracy of 0.05 degrees.
- *Seatex Seapath 200.*

Precise Positioning

- **DPS - DGPS Positioning System.**
 - Robust, Reliable and Accurate Position.
 - Multiple DGPS Reference Stations.
 - IALA radio beacons, INMARSAT, FM radio, or any local or wide area reference station meeting the RTCM SC-104 standard.
 - Software tuned to handle dynamics of any vessel in heavy seas or low satellite coverage.
- *Seatex DPS.*

Precise Absolute and Relative Positioning

- **DARPS - Dynamic and Relative Positioning System.**
- **Uses Seatex DPS for multiple Reference Stations.**
 - IALA radio beacons, INMARSAT, FM radio, or.
 - any local or wide area reference station meeting the.
 - RTCM SC-104 standard.
- *Seatex DARPS.*

Helideck Monitoring System

- Utilizes Attitude measurements from the MRU to increase helicopter safety during landing operations on moving helidecks.
- Calculates and Energy Index value according to Wind Direction and Speed, Temperature, and Barometric Pressure.
- Index value dependent on Ship and Helicopter characteristics.
- *Seatex HMS-100.*

Add-ons or Upgrade Options

- Individual Components Easy to Integrate.
- Cost Benefit.
- Upgrade.
- Or Install All Components Initially.

North Sea Customers

- STATOIL FLEET - Oil Loading
- PGS - Seismic
- Supply Vessels
- FPSOs

Conclusion

- The Vessel Reference System is a modular method of integrating your positioning, velocity, and motion measurements.
- This is easily completed by using some of the Seatex products: MRU, Seapath 200, DPS, DARPS, and the HMS-100.
- These can be integrated at first installation or upgraded piece by piece.

Dynamic Positioning Conference: Marine Technology Society

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Seatex Internal Presentation Theme

by: Michael Ingram: Seatex

Session 8: Position, Environment and Attitude Sensors

Seatech Internal Presentation Theme

- This talk to focus on:
 - Ability to add-on many systems
 - ease of integration
 - System as whole or piece by piece
 - Cost
 - Accuracy
 - Reliability
- Have a master system slide where “blank” slides are overlaid with the VRS components. Easy to put on an take off.

Seatech - gives you a Leading Edge



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North Sea Dominance

- Haakon to put something in here.

Overall Picture

This slide to have a picture of a vessel with a helipad, DP, and/or multibeam and possibly offloading oil. It should have a need for all the components of the VRS.