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

October 21 - 22, 1997

Seatex Internal Presentation Theme

by: **Michael Ingram: Seatex**

Session 8: Positon, Environment and Attitude Sensors

Seatex 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 overlayed with the VRS components. Easy to put on an take off.

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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 mulitbeam and possibly offloading oil. It should have a need for all the components of the VRS.