

Firmware SPAN® Heave Filter



IMPROVE DEPTH MEASUREMENT BY ELIMINATING EFFECT OF WAVE MOTION IN MARINE APPLICATIONS



Photo courtesy: Cheshin Marine

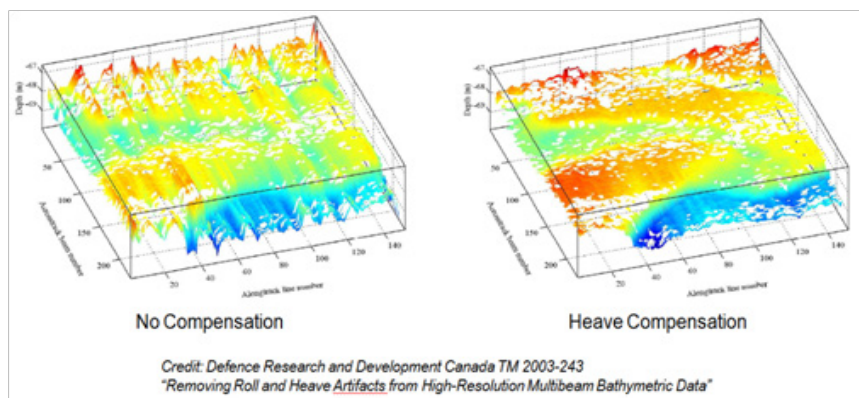
SPAN TECHNOLOGY

SPAN (Synchronous Position, Attitude and Navigation) technology brings together two different but complementary technologies: Global Navigation Satellite System (GNSS) positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (IMU) gyro and accelerometer measurements, combine to provide an exceptional 3D navigation solution delivering full attitude and orientation.

SPAN HEAVE OVERVIEW

The rise and fall movement of a vessel correlates directly to the returning sonar data in marine mapping applications, leading to errors in depth measurement. To compensate for these errors, select SPAN receivers feature the robust heave output option.

The images below show the ocean floor mapped with and without heave compensation. With wave motion eliminated from the data, a much more accurate and coherent image is generated.



TWO SPAN HEAVE SOLUTIONS AVAILABLE

NovAtel® offers real-time and post-processing options for marine application developers.

Real-Time Measurements: SPAN receivers provide accurate, instantaneous and delayed measurements of wave motion under the most difficult marine conditions and vessel dynamics. They offer a full six degrees-of-freedom position and orientation, measuring position, velocity and attitude. The heave filter provides an asynchronous log available at 10 Hz, a synchronous log available up to the IMU data rate and a delayed log up to 10 Hz.

Post-Processed Solution: Inertial Explorer® software from NovAtel's Waypoint® Product Group, post-processes data forward and backward, ensuring the most accurate heave solution.

BENEFITS AND FEATURES

- + Provides instantaneous and delayed heave measurements to compensate for wave effects
- + Configurable heave filter window
- + Inertial Explorer processing offers a post-processed heave filter solution
- + SPAN INS functionality

If you require more information about firmware, visit www.novatel.com/products/firmware-options

SPAN[®] Heave Filter

SPAN HEAVE COMPATIBLE RECEIVERS¹

- » FlexPak6™³
- » OEM615™³
- » OEM628™³
- » OEM638™³
- » ProPak6™²
- » SPAN-CPT™³
- » SPAN-IGM-S1™³

SPAN HEAVE COMPATIBLE IMUS

- » IMU-CPT™
- » IMU-FSAS
- » IMU-IGM-S1™
- » IMU-ISA-100C
- » OEM-HG1900
- » OEM-HG1930
- » OEM-IMU-STIM300
- » UIMU-HG
- » UIMU-LN200

To obtain the latest data regarding this product, visit www.novatel.com/products/firmware-options/span-heave/

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China 0086-21-68882300

Europe 44-1993-848-736

SE Asia and Australia 61-400-883-601

HEAVE FILTER ALGORITHM

Instantaneous Measurements

SPAN heave 5 cm or 5%

Delayed

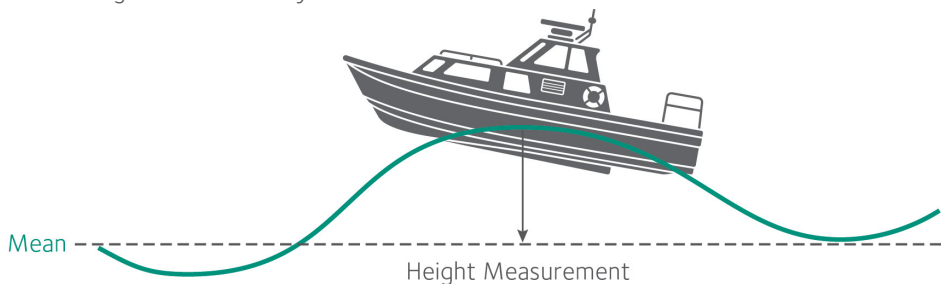
3.5 cm or 3.5%

Post-Processed Solution

Waypoint Inertial Explorer heave 2.5 cm or 2.5%

HEAVE FILTER ALGORITHM

The SPAN heave algorithm estimates the short term, vertical displacement of a vessel, relative to the mean sea state caused by waves or swells. This allows a sonar system to compensate for the range errors caused by these effects.



Version 5 Specifications subject to change without notice.

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1. Consult the product specific technical specifications located at: www.novatel.com/products/products-overviewnovatel-gnss-products/

2. Requires dual antenna ALIGN capable hardware.

3. Requires a second NovAtel receiver to be paired with the SPAN receiver as an ALIGN rover.