

Monitoring of offshore barge motions Validation of external calculations

using

two MétéoMer Octans-3

on board



**ACERGY/Polaris
Nigeria
April-May**

In order to avoid installing an Octans unit on a hardly accessible spot Octans-III is able to calculate the motion of several external monitoring points.

This calculation procedure has been tested on the ACERGY/Polaris barge.

Octans-III provides three RS232/422 serial outputs that are user-configurable. During the operations, the first output was defined at the location of one Octans unit, the second at the location of the other Octans unit and the third output at any point on the barge. Therefore, it was possible to carry out two checkouts :

1. at the locations of the Octans units : are the measured motions parameters identical to those calculated ?
2. at any location on the barge : are the calculated motions parameters identical ?

Data acquisition, storage and display processings are performed with the Barge-A3 software. The duo of softwares Barge-Receiver and Barge-Mission are MétéoMer self-made products.

Figure 1 shows the drawing of the Polaris barge. The first Octans unit (Oct-238) is located in the MétéoMer staff container-office, the second Octans unit (Oct-690) is close to the J-lay tower winch. The external point is located close to the MRU-Jlay box in the central walkway of the Polaris.

Figure 2 shows a comparison of the vertical motion time series (Heave) measured by the Octans-238 unit (blue line) with those calculated by the Octans-690 unit (yellow line) at the location of the Oct-238 unit.

Figure 3 shows a comparison of the Heave time series measured by the Octans-690 unit (blue line) with those calculated by the Octans-238 unit (yellow line) at the location of the Oct-690 unit.

Both signals are identical.

At the location of the MRU-Jlay box, figure 4 shows a comparison of Heave time series computed by both units. The two signals are still identical.

The output protocol selected during this test provides three displacements (Heave, Surge, Sway) and three angles (Roll, Pitch, Heading). At the location of the MRU-Jlay box, figure 5 shows a comparison of Roll time series computed by both units. One can see a bias angular misalignment between the two lines. This bias is the result of the difficulty to install on board both Octans on two strictly parallel planes at a distance of several dozens of meters.

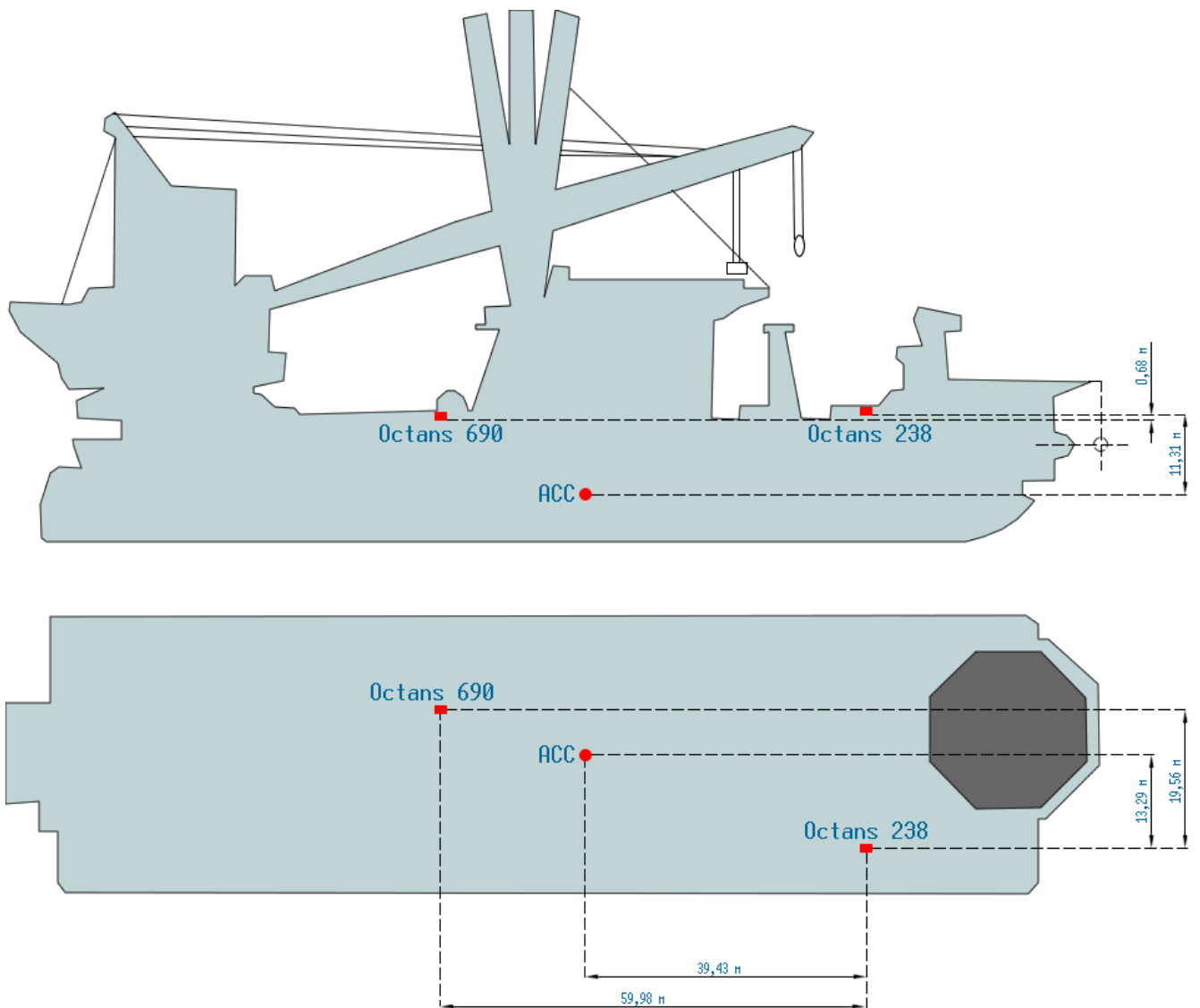


Figure 1 : Octans and MRU-Jlay locations.

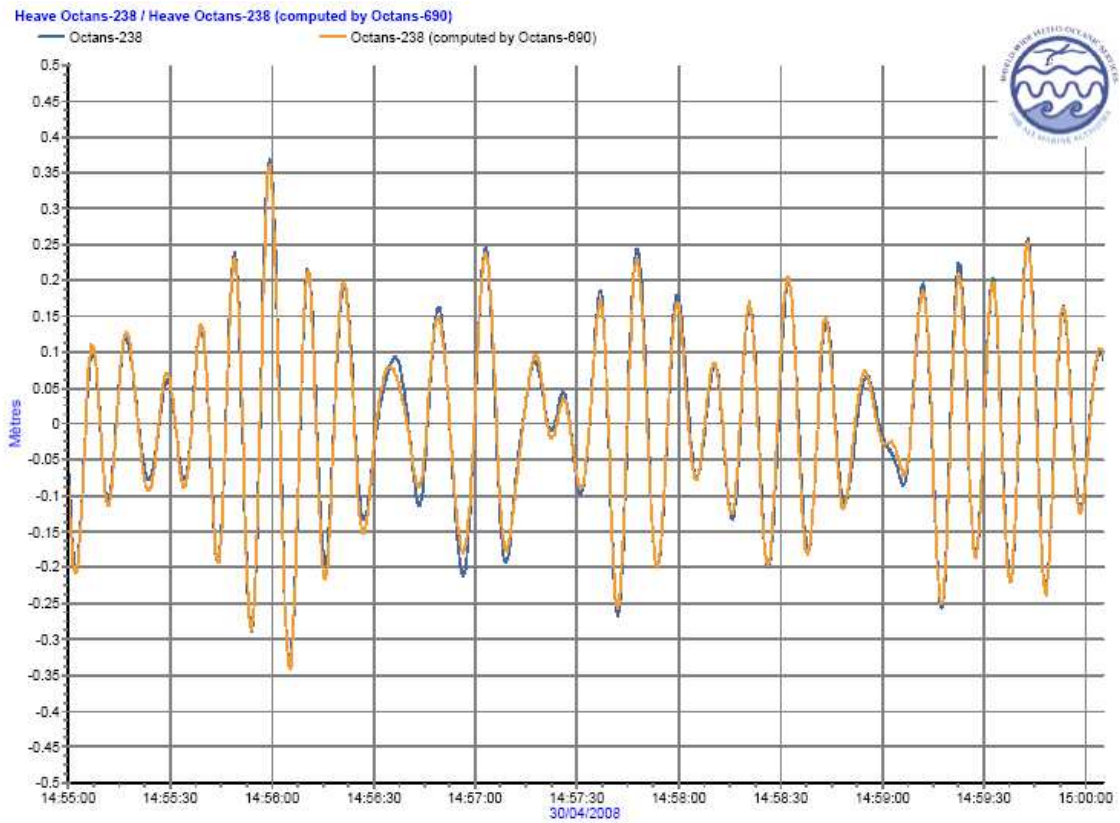


Figure 2 : Heave time series measured by the Octans-238 unit and calculated by the Octans-690 unit.

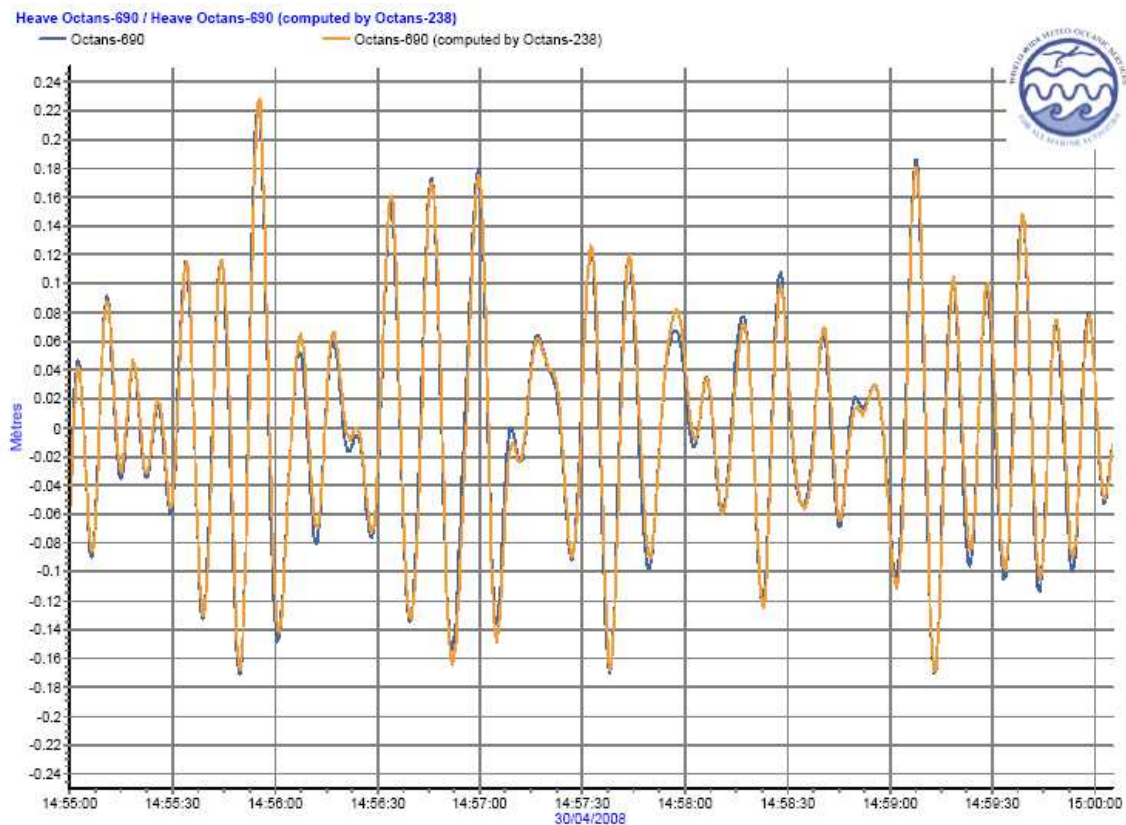


Figure 3 : Heave time series measured by the Octans-690 unit and calculated by the Octans-238 unit.

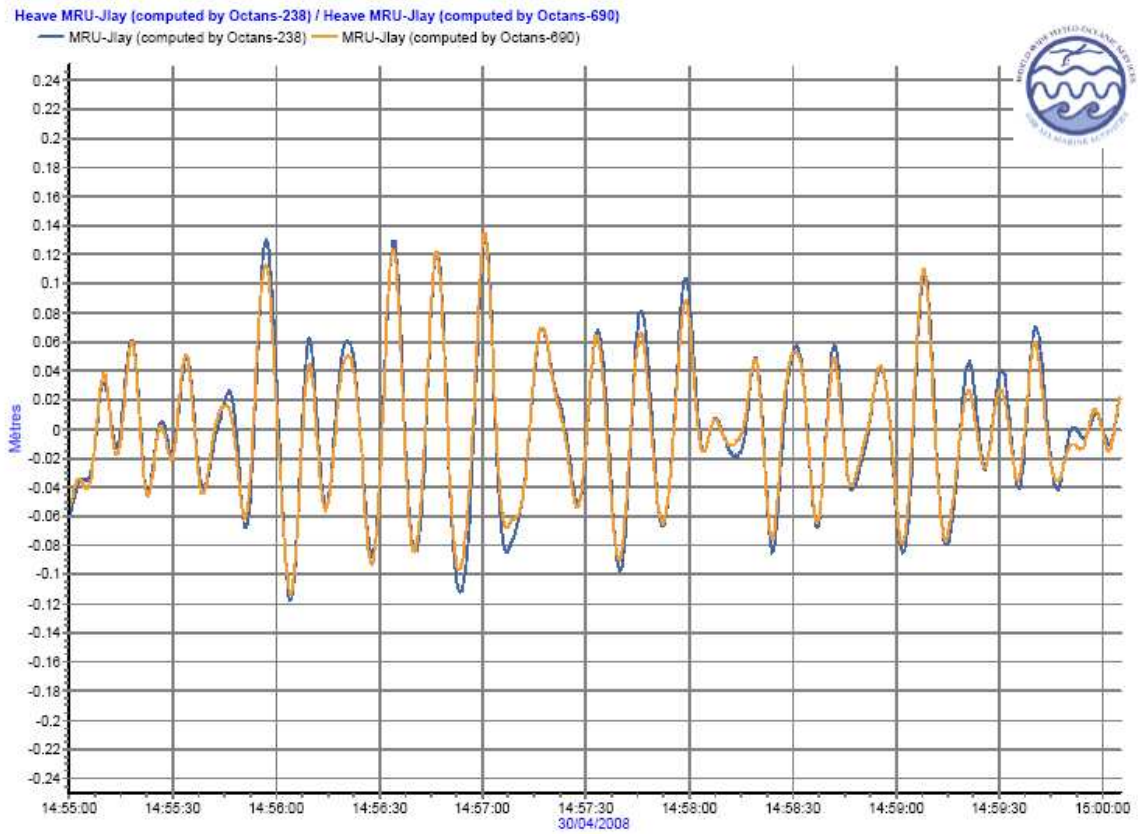


Figure 4 : MRU-Jlay box. Comparison of Heave time series computed by both the units.

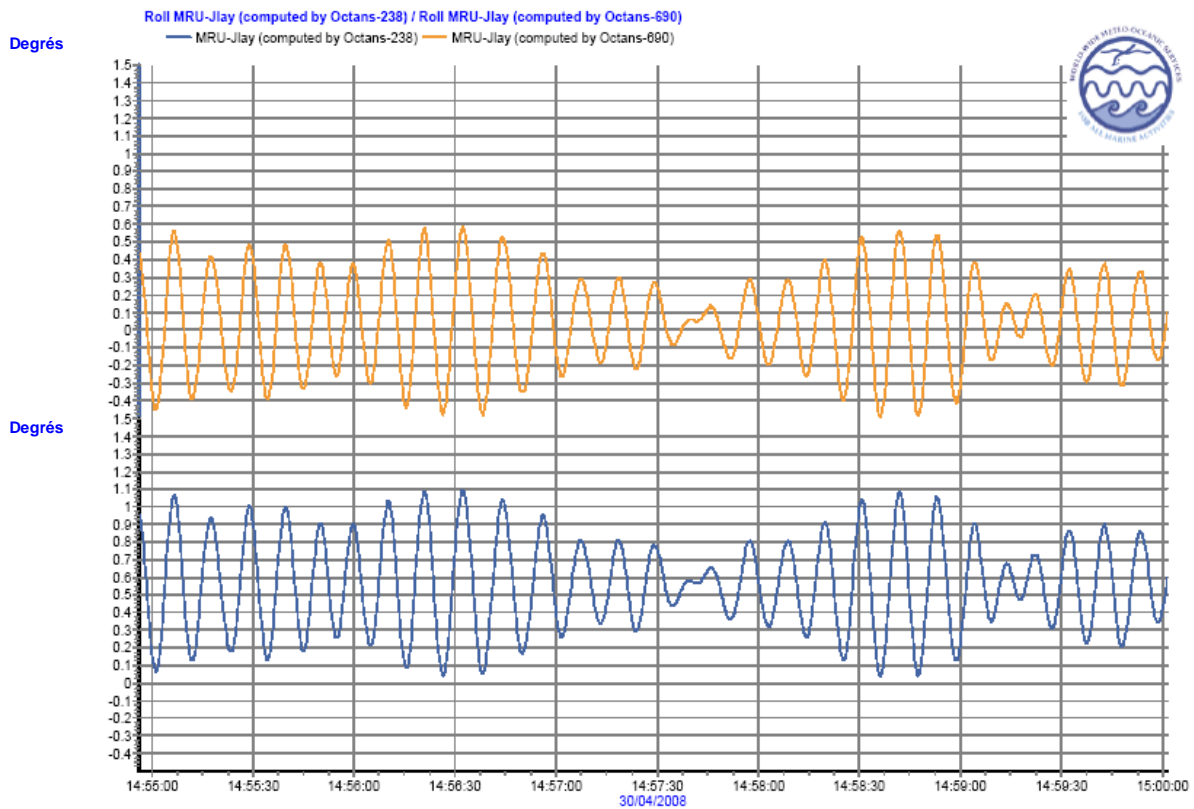


Figure 5 : MRU-Jlay box. Comparison of Roll time series computed by both the units.