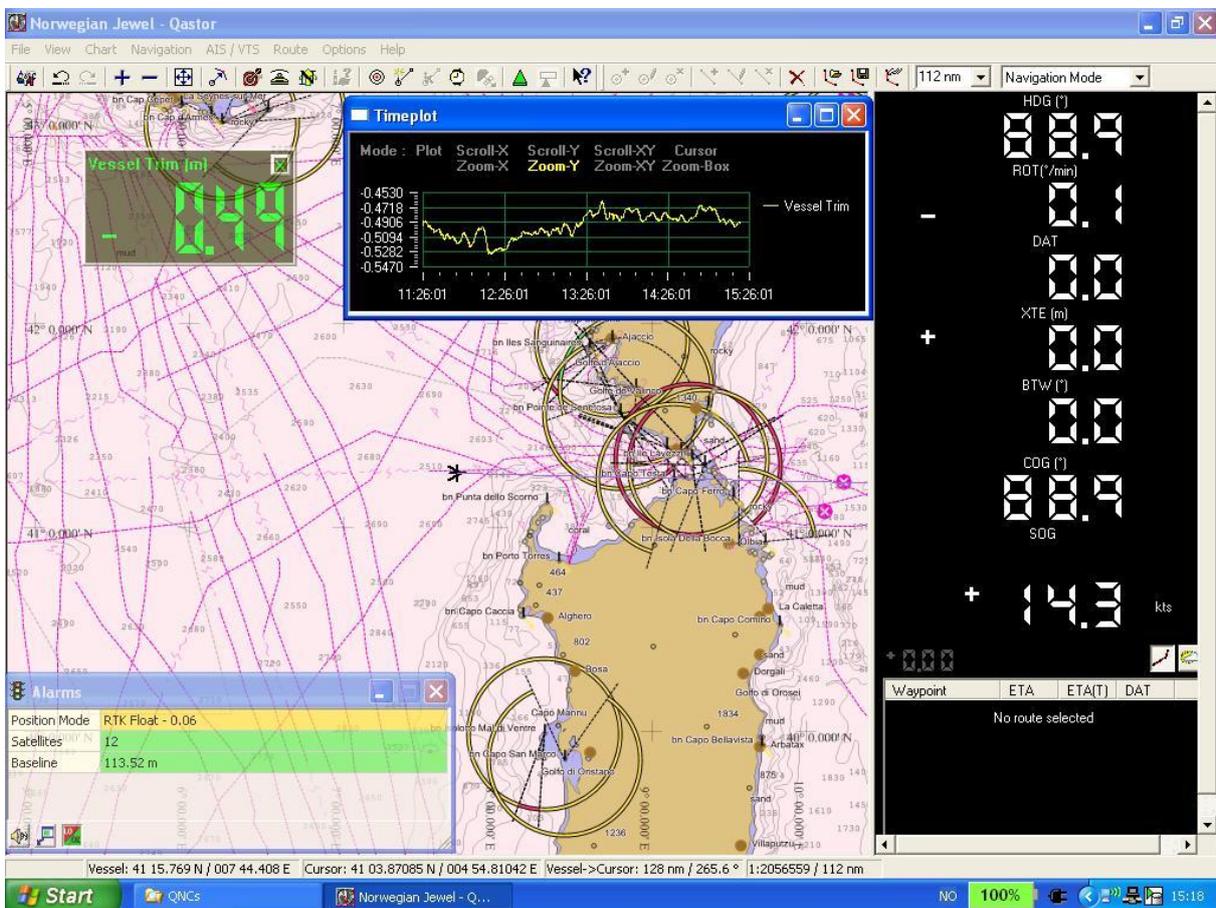


# ADX Trim

The following three pages is the actual test rapport from the cruise ship Norwegian Jewel. In 2007 we installed the system and it has performed perfect since day one. With two GNSS antennas placed with 113 meter separation on the “roof” of the ship the accuracy is very high. The ADX runs as a navigation, docking and trim system on the ship, with the software display shown in picture below.



# Dynamic Trim measurements with the ADX Global system on Norwegian Jewel

## Trim vs SOG performance

As a part of testing the ADX Global system from AD Navigation on the Norwegian Jewel, the following scenario was captured by our system during the trip from Naples to Venice on Thursday September 6, close to the Heel of Italy:

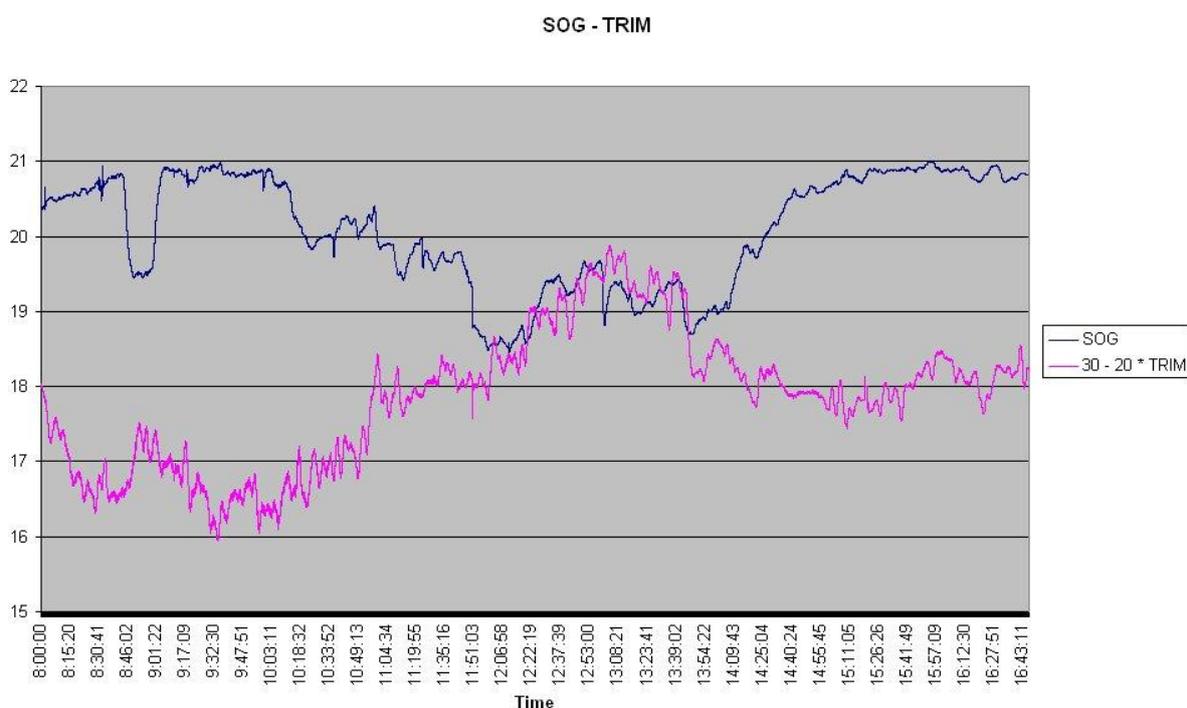
Between approx 10:00 and 13:45 UTC

- SOG dropped from 20.7 kn to 19.3 kn.
- Trim changes approx 15 cm from  $-0.68$  to  $-0.53$  m

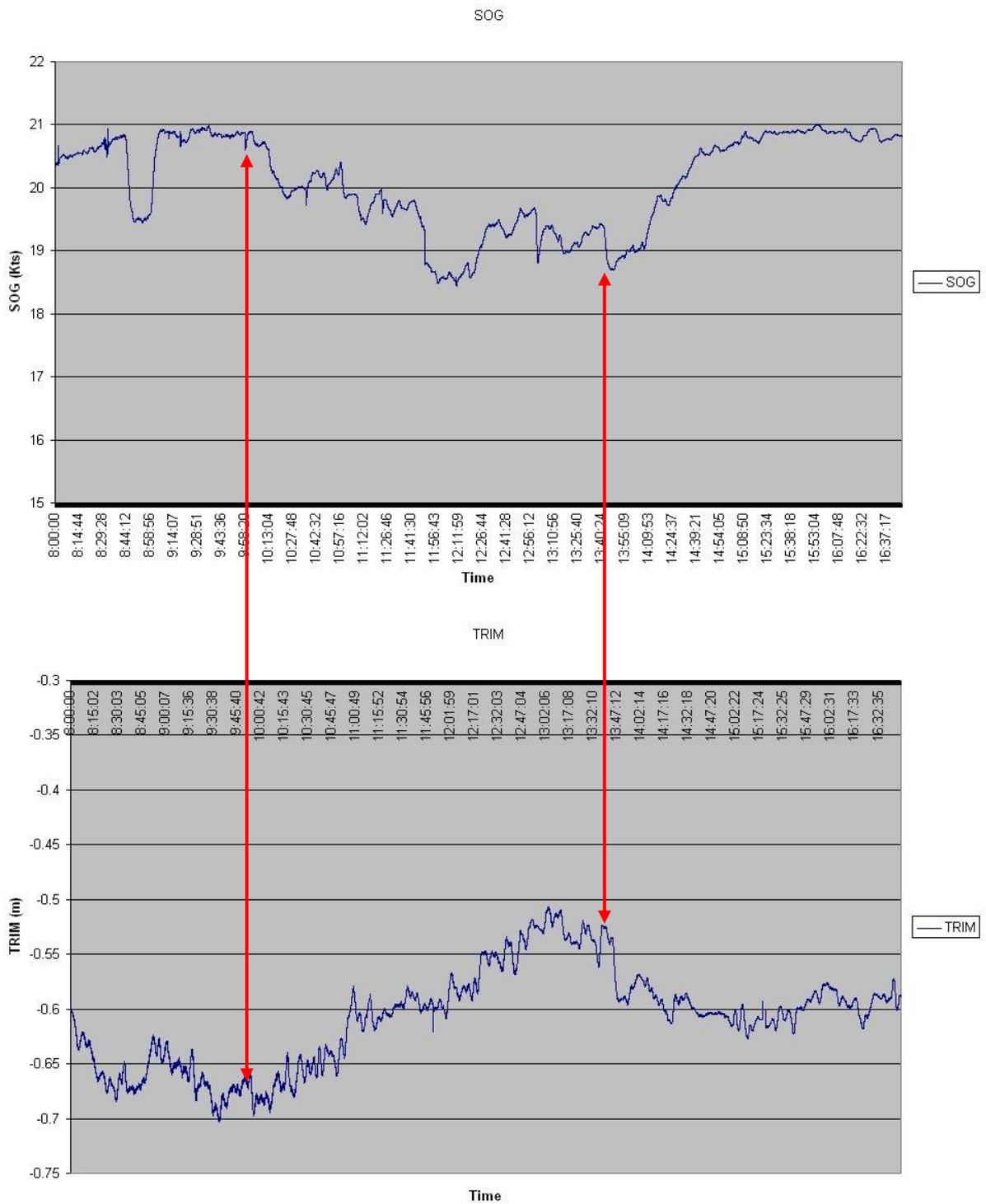
We have no information about the cause of the speed drop except of the fact that it was not intended to.

The plots below (Fig 1 and Fig 2) is showing the clear correlation between speed drop and change of trim.

With the setup on Norwegian Jewel, the ADX Global system is capable of measuring trim with a reliable precision of less than 2 cm under dynamic conditions.



**Fig 1:**  
Correlation between SOG and TRIM collected in one plot

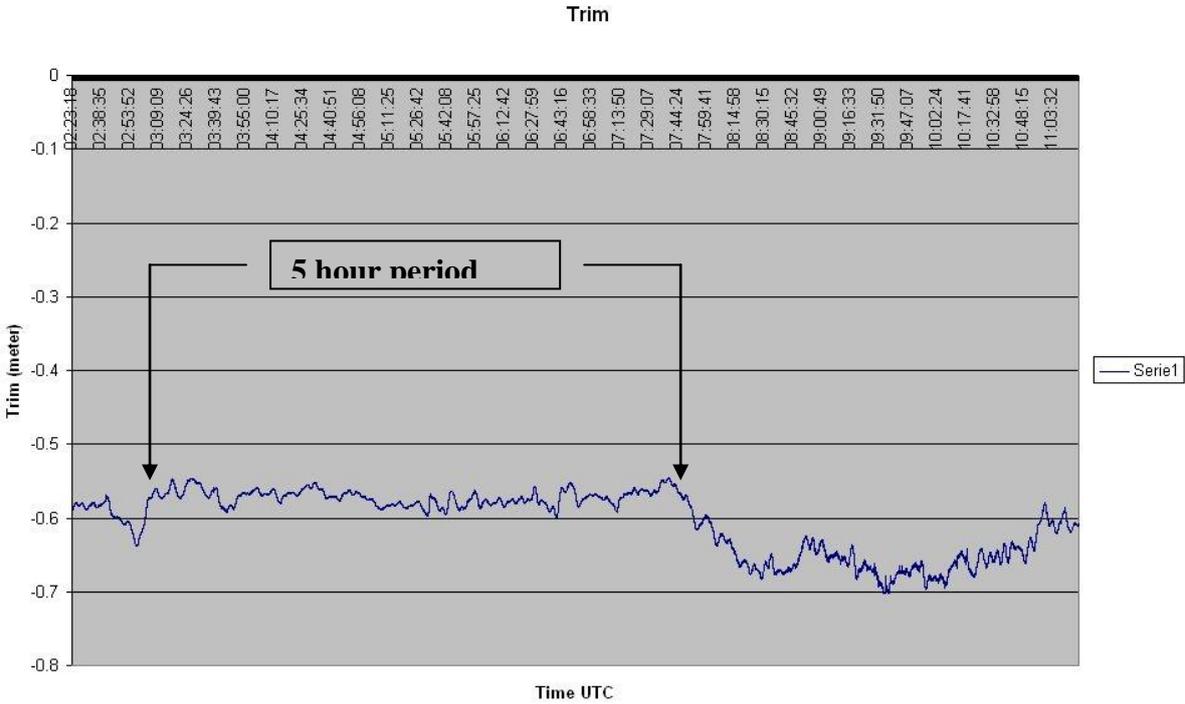


**Fig 2:**  
Detailed plot of SOG and Trim showing the correlation for the same data

# Precision of TRIM measurements

The plot below is showing the stability of the ADX Global trim measurements under dynamic conditions. The data is captured during the trip between Naples and Venice on September 6 between 02:30 and 11:30 UTC.

One can clearly see the measurements varying only within a couple of centimetres for a 5 hour long period (03:00 to 08:00).



**Fig 3: Stability and reliability of ADX dynamic trim measurements**