



NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Washington, DC

Conti Peridot and Carla Maersk Secondary Vessel Motion Study

December 8, 2015

D.A. Crider

A. ACCIDENT: DCA-15-MM-017

Accident Type: Collision
Location: Houston Ship Channel, Morgan's Point, Texas
Date: March 9, 2015
Time: Approximately 17:30
Vessel: *Conti Peridot* and *Carla Maersk*

B. GROUP IDENTIFICATION:

No group was formed for this activity

C. SUMMARY

see the IIC's accident summary

D. DETAILS OF INVESTIGATION

It was desired to determine the time history of the motion of other vessels that were pertinent to the *Conti Peridot* and *Carla Maersk* collision from VTS data. As recorded latitude and longitude was somewhat noisy, a velocity integration was performed for each vessel. The collision point (29.673 N, -94.978 W) was chosen as the origin for the coordinate system used with East and North defined as positive. For the purpose of this study, the position of each vessel was defined as the position of the GPS antenna.

Karoline N/Stolt Span Encounters

The inbound *Conti Peridot* got into a channel bank to channel bank oscillation as a result of passing the outbound *Karoline N* at 11:35. The oscillation continued as it passed the outbound *Stolt Span* at 11:40. It was desired to determine the motion of these vessels through the encounter.

The integration for the *Karoline N* proceeded forward and backward from the recorded latitude and longitude of the *Karoline N* at 11:35:30. This integration origin position was 4.433231 nm east and -8.61767 south of the collision point. A course offset of 0.5 deg and a speed offset of -0.35 knots were applied to provide a match to the positions from recorded latitude and longitude as shown in figure 1.

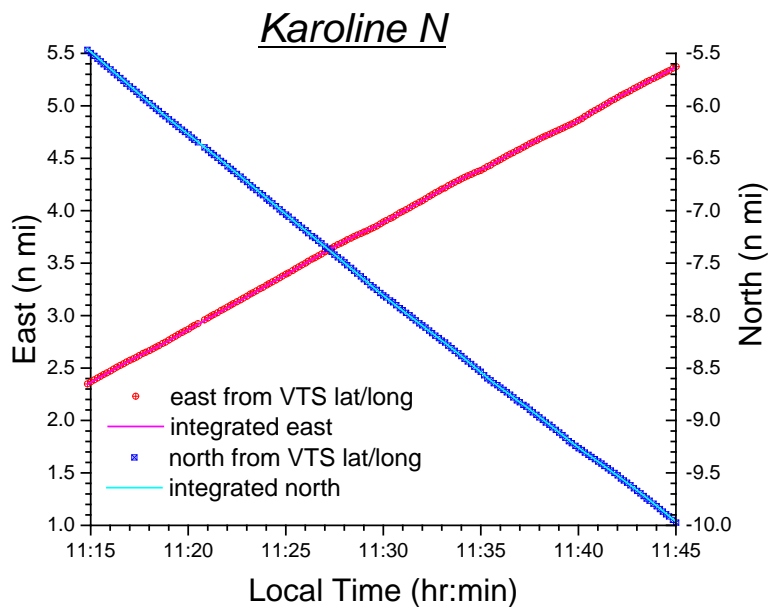


Figure 1 *Karoline N* position time history

The integration for the *Stolt Span* proceeded forward and backward from the recorded latitude and longitude of the *Stolt Span* at 11:40:00. This integration origin position was 3.947307 nm east and -7.938564 south of the collision point. Neither a course offset nor a speed offset was required to provide the match shown in figure 2.

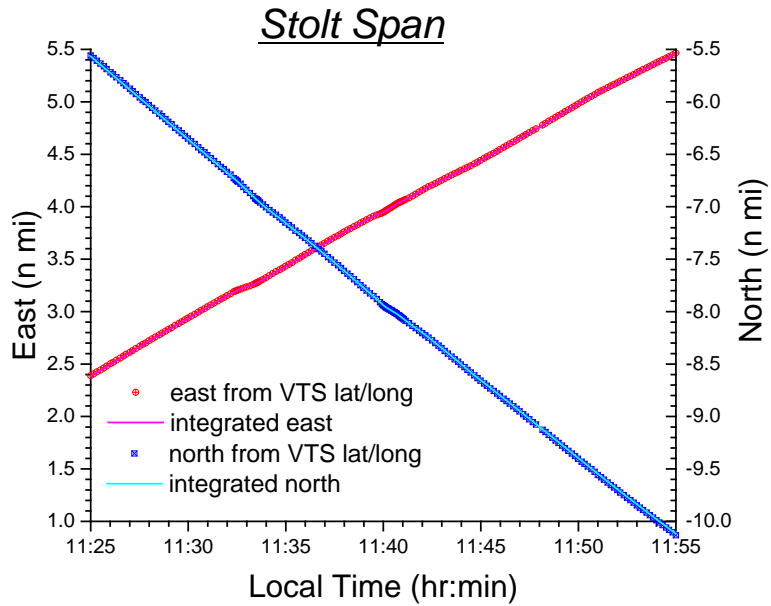


Figure 2 *Stolt Span* position time history

Gaia Leader Encounter

The inbound *Conti Peridot* got into the channel bank to channel bank oscillation that led to her collision with the outbound *Carla Maersk* as a result of passing the outbound *Gaia Leader*. It was desired to determine the motion of the *Gaia Leader* as she passed the *Conti Peridot*.

The integration for the *Gaia Leader* proceeded forward and backward from the recorded latitude and longitude of the *Gaia Leader* at 12:30. This integration origin position was 0.5942 nm east and -1.8237 south of the collision point. A speed offset of 0.05 knots with no course offset was applied to provide a match to the positions from recorded latitude and longitude as shown in figure 3.

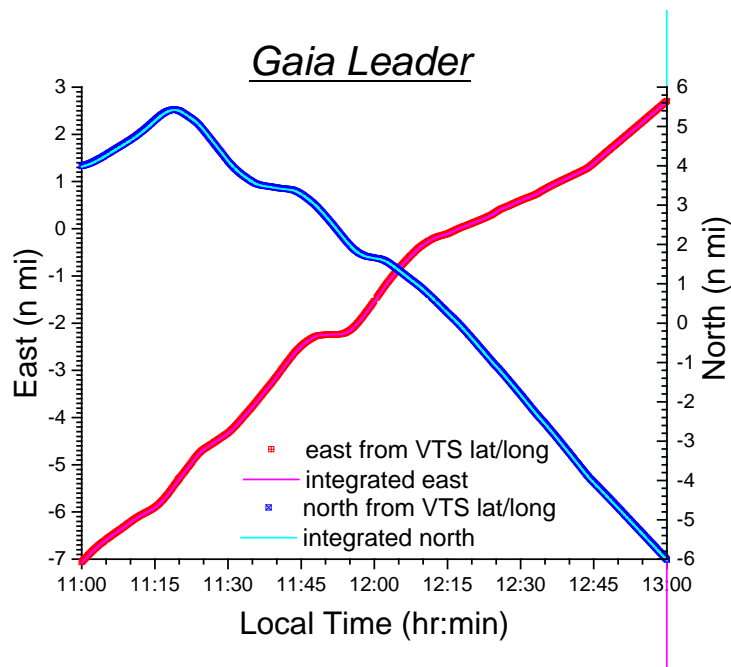


Figure 3 *Gaia Leader* position time history

Lincoln L Encounter

The inbound *Lincoln L* was following the *Conti Peridot* during the period of her channel bank to channel bank oscillation that led to her collision with the outbound *Carla Maersk* as a result of passing the *Gaia Leader*. It was desired to determine the motion of the *Lincoln L* during this period.

The integration for the *Lincoln L* proceeded forward and backward from the recorded latitude and longitude of the *Lincoln L* at 12:30. This integration origin position was

-0.031361 nm east and 0.310437 north of the collision point. No course or speed offsets were required to provide the match in figure 4.

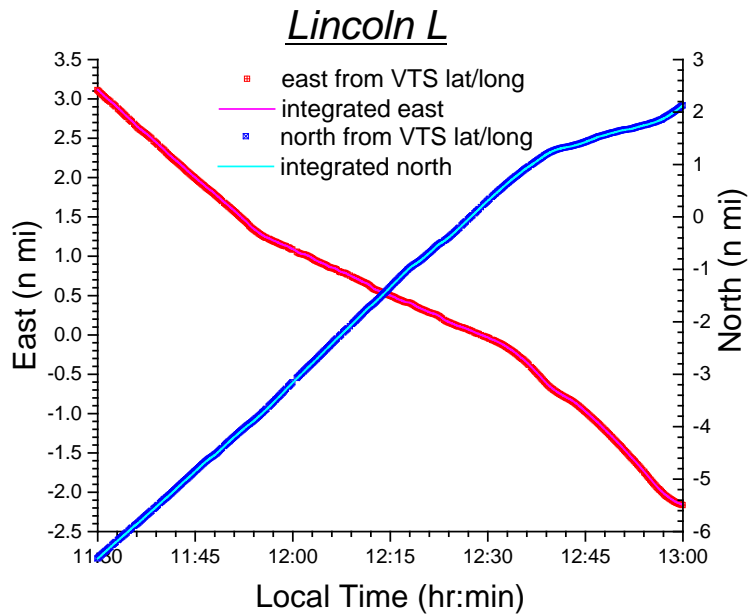


Figure 4 *Lincoln L* position time history

Heading was not recorded for the Lincoln L. A survey of other ship VDR data where sideslip could be calculated as the difference between heading and course showed that sideslip angle was proportional to rate of turn with approximately -5 degree of sideslip for each degree/second of turn rate. Accordingly heading was approximated by calculating sideslip angle as a representative -5 multiplied by the rate of turn (deg/sec) and subtracting the resulting sideslip from the recorded course. The results are shown in figure 5.

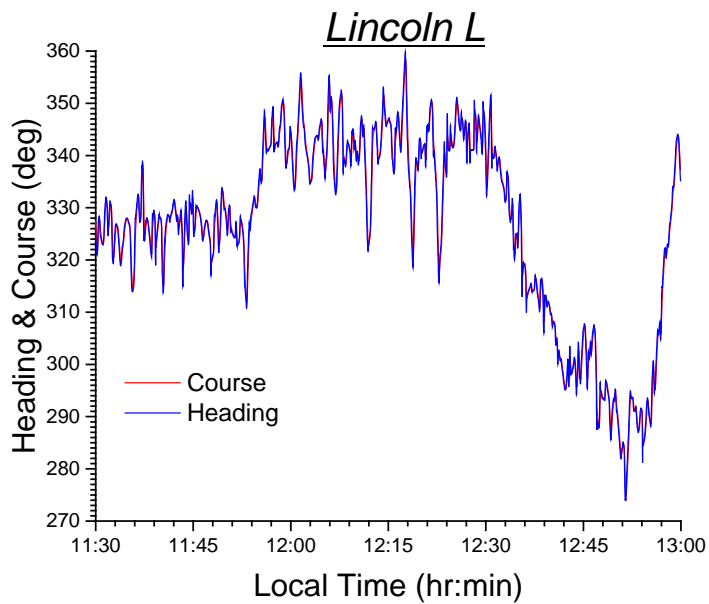


Figure 5 *Lincoln L* heading & course

Nave Capella Encounter

The inbound *Nave Capella* passed the port side of the *Conti Peridot* at approximately 10:25 and led the *Conti Peridot* as it traveled north up the channel. The integration for the *Nave Capella* proceeded forward from the recorded latitude and longitude of the *Nave Capella* at 11:00. This integration origin position was 7.11407 nm east and -13.50509 south of the collision point. A course offset of 0.125 deg with no speed adjustment was applied to provide a match to the positions from recorded latitude and longitude as shown in figure 6.

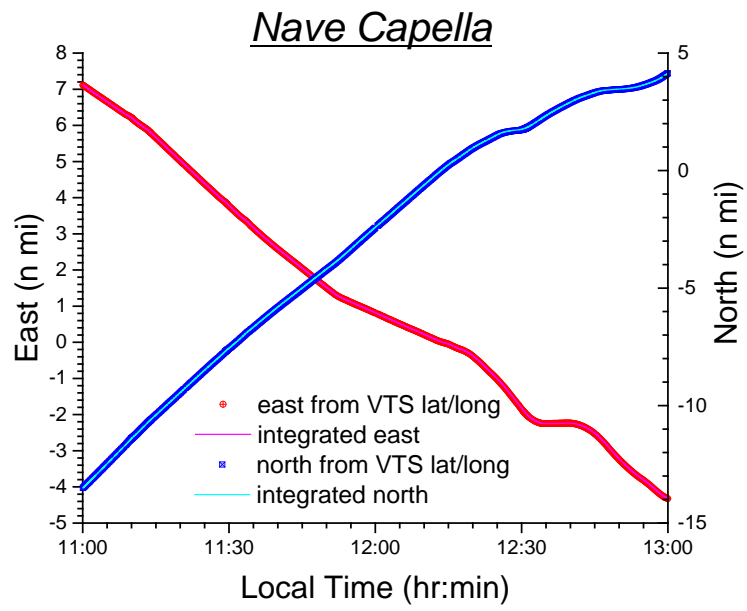


Figure 6 *Nave Capella* position time history