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

***Conti Peridot* and *Carla Maersk* Motion Study**

August 19, 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 the *Conti Peridot* and *Carla Maersk* prior to the collision. As recorded latitude and longitude was somewhat noisy, a velocity integration was performed for each vessel backwards from the position of each vessel at the time of the collision (12:30:43 local). Recorded GPS track for both ships is shown in figure 1.

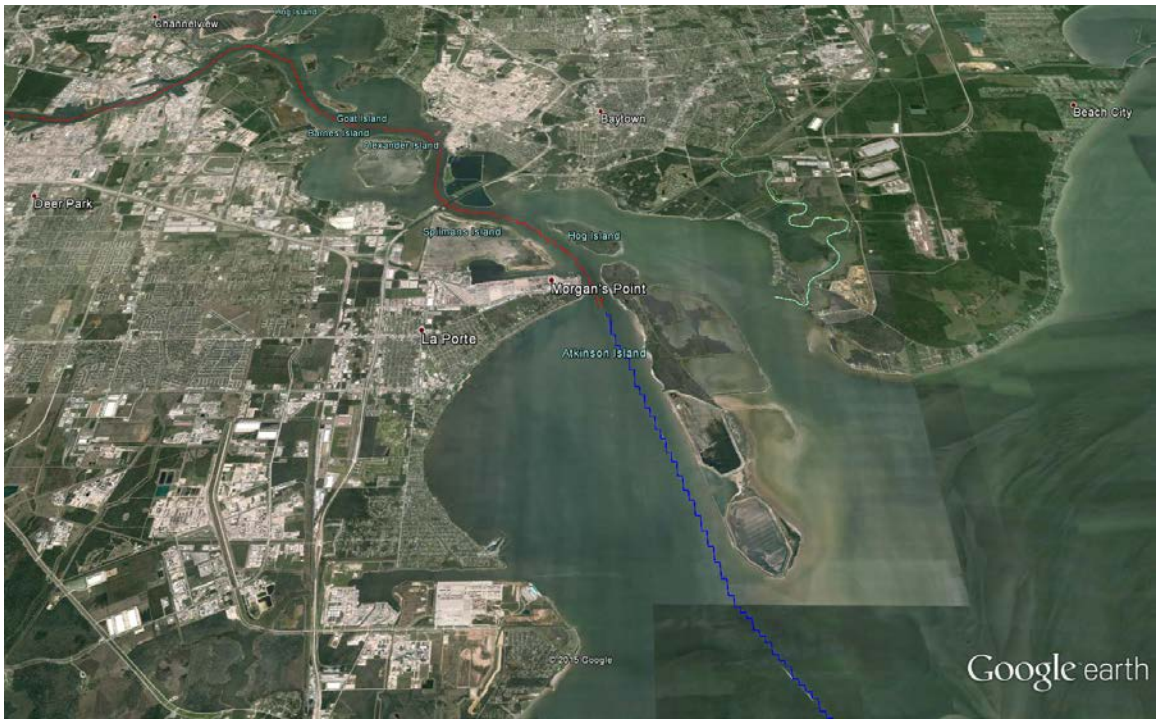

Figure 1 Recorded GPS tracks (Red = Conti Peridot, blue=Carla Maersk)

The collision location 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. The positions of the antennas at the time of collision were determined based on geometry.

Conti Peridot

The AIS GPS antenna is located 535 ft from the bow and 26 ft starboard of the center line. The initial impact point on the *Conti Peridot* was on starboard bow about 35 ft port of the center line and 32 ft aft of the bow. The ships heading was approximately 314 deg true at the time of the collision. At impact, the coordinates of the GPS antenna relative to the point of collision were:

East = (26+35)cos(360-314) + (535-32) sin (360-314) = 404 ft
North = (26+35)sin(360-314) - (535-32) cos (360-314) = -306 ft

Carla Maersk

The AIS GPS antenna is located 512 ft from the bow and 24 ft starboard of the center line. The initial impact point on the *Carla Maersk* was on the starboard side about 53 ft port of the center line and about 170 ft aft of the bow. The ships heading was approximately 197 deg true at the time of the collision. At impact, the coordinates of the GPS antenna relative to the point of collision were:

East = (512-170)sin(197-180) + (53-24)cos (197-180) = 128 ft
North = (512-170)cos(197-180) + (53-24)sin (197-180) = 336 ft

Voyage data recorder (VDR) data was available for the *Conti Peridot* and *Carla Maersk*. Speed and course (track) used in the integration are presented in figures 2 and 3.

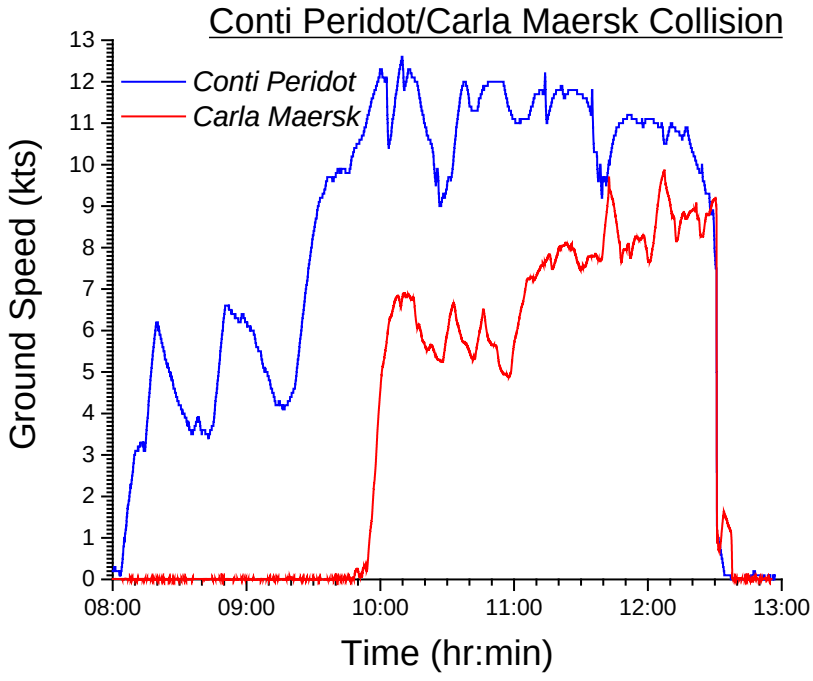

Figure 2 Speed over ground

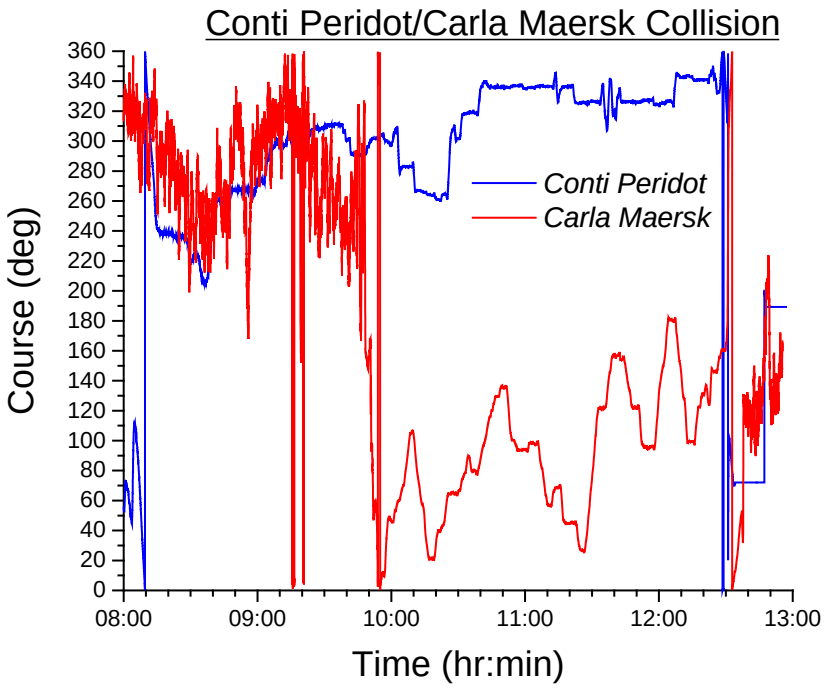

Figure 3 Course

The results of the integration, performed backward from the 12:30:43 collision time and the positions of the GPS antennas at impact, are compared to the recorded GPS positions in figures 4 and 5 for the *Conti Peridot* and 6 and 7 for the *Carla Maersk*. A speed addition of 0.05 kts for the *Conti Peridot* were applied to match the east and north coordinates derived from recorded latitude and longitude. No adjustment was required for the C*arla Maersk*.

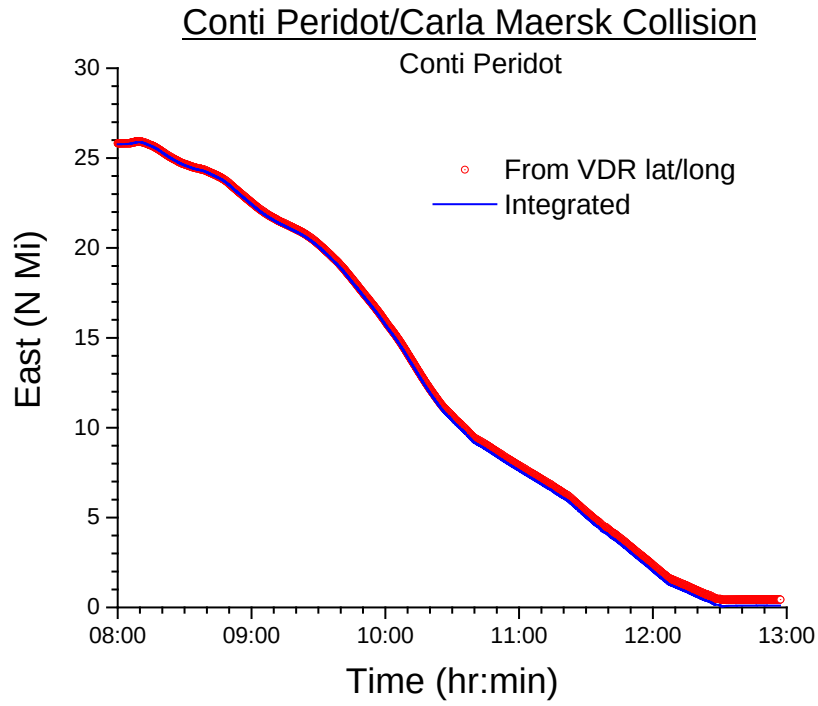

Figure 4 Conti Peridot east position

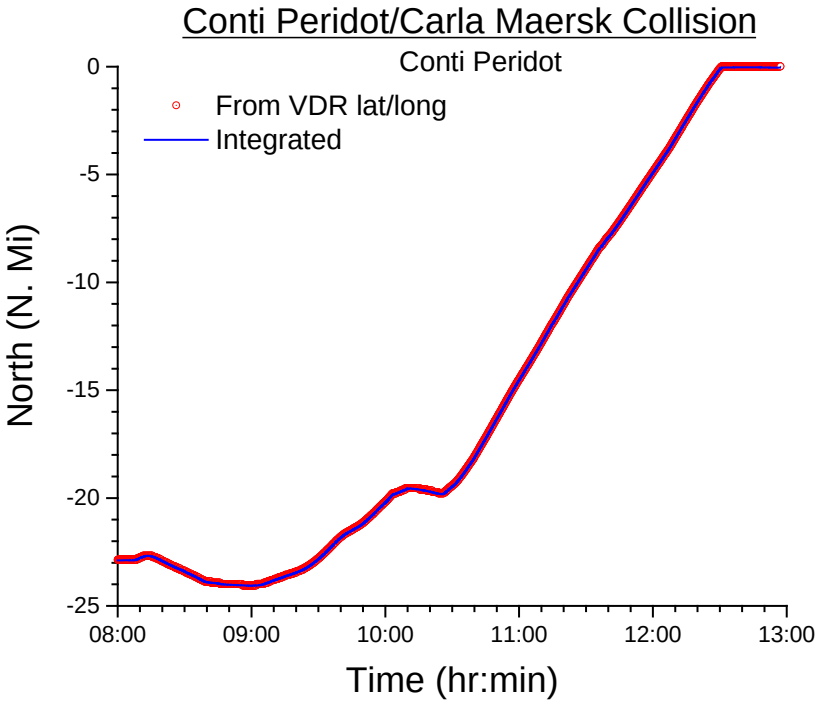

Figure 5 Conti Peridot north position

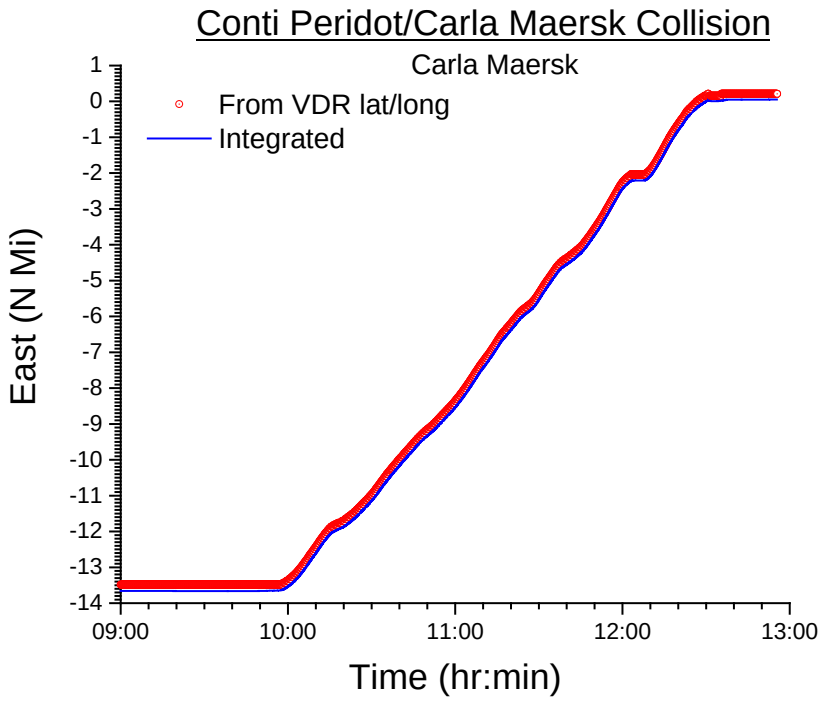

Figure 6 Carla Maersk east position

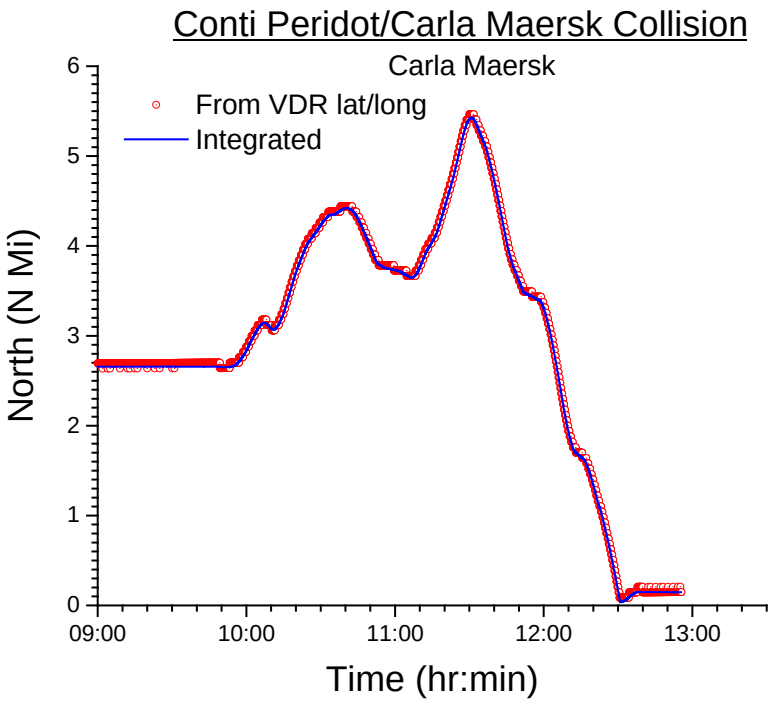

Figure 7 Carla Maersk north position

A map view of the integrated track near the point of collision is shown in figure 8.

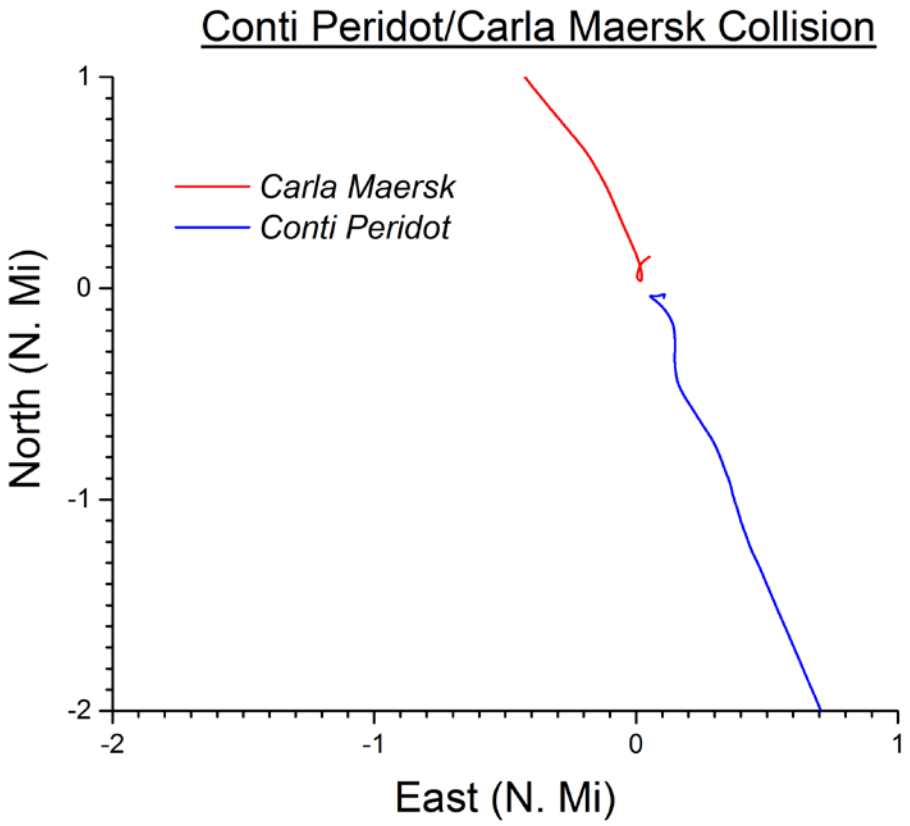

Figure 8 Map view of accident ship tracks