

Cruise summary Ronald H. Brown from August 28-September 4, 2003, St. Maarten to St. Petersburg, Florida.

The observations collected during this cruise contributed to the basic understanding of the mechanisms that govern plate tectonics, in this case, the creation of the island of Puerto Rico and the deep trench north of it.

An area the size of the State of Maine was mapped by the SeaBeam 2112 multibeam system, which was mounted on the keel of the Ron Brown. Participants on the cruise included Uri ten Brink (chief Scientist), Bill Danforth, and Chris Polloni from the USGS Woods Hole Field Center. The seafloor morphology data was merged by Pilar Llanes Estrada, a visiting Ph.D. student from the University of Madrid, with LIDAR data around the coast of Puerto Rico processed by John Brock, (USGS in St. Petersburg), the island topography, and a low resolution compilation of the surrounding sea floor morphology to create a uniform morphology data base for Puerto Rico and its surrounding seas at a grid interval of 150 meters.

Cruise participants

Dr. Uri ten Brink – Chief Scientist, USGS – Woods Hole Field Center

William Danforth – Data processing, USGS – Woods Hole Field Center

Christopher Polloni – Data presentation and archiving, USGS – Woods Hole Field Center

Dr. Joram ten Brink – Film producer and photographer, Westminster University, U.K.

Dr. Koura Gibson – Teacher at Sea, Washington D.C.

Eran Kaplan – Watch stander, Department of Geophysics and Planetary Sciences, Tel Aviv University

Kenneth Kiesel – Engineer, L-3 Communication SeaBeam Instruments

Kenneth Nadeau – Engineer, NOAA, Northeast Fisheries Office, Woods Hole.

Daily log

(All times are local, 4 hours behind UT).

Thursday, 8/28/2003

08:00 – Depart cruise ships' pier in Phillipsburg, St. Maarten. Moderate trade winds. Some white caps.

10:53 – entered velocity file from cruise RB03-02, XBT4.

11:37 – Started recording data

13:00 – Arrived at Waypoint 1.

17:34 – Ship's power drive failed, which required slowing down for 8 minutes.

17:50 – Launched XBT # 1. It is slightly different from velocity file from RB03-02, XBT4.

20:07 - Changed to new velocity file.

Frequent navigation loss lasting generally up to 30 sec., because of loss of reception of GPS p-code.

8/29/03

Instances of temporary navigation loss continue, including down time of 21 minutes at 08:11. Input navigation system changed at ~1:30, and was brought back to p-code at 18:12 after antenna location was moved to assure better line of sight with the satellites.

Seas are calm. Wind is less than 10 kt. Data being collected at 13 kt.

19:32 – A flare was detected in the direction northeast of our line. Ship left the survey track and proceeded for 2 miles to investigate the source of the flare. Coast guard Puerto Rico station was contacted. This coast guard station received similar reports from 2 aircrafts in the area.

20:19 – Gave up search.

20:51 – Back on survey line.

Further inquiry revealed that it was the descent of rocket boosters:

----- Original Message -----

From "Arencibia, Frank PO3" <FArencibia@Gantsec.uscg.mil>

Date Sat, 30 Aug 2003 16:52:36 -0400

To "FOO Ronald.Brown" <foo.ronald.brown@noaa.gov>

Subject RE: Flare sighting 08/29/03

Good day to the Capt and crew of the Ronald Brown:

Coast Guard San Juan would like to thank you for your assistance with the flare case last evening. We would also like to inform you that the sighting was correlated to the descent of rocket boosters from a successful launch of a satellite out of Cape Canaveral. Thanks again and have a good voyage!

Coast Guard San Juan Search and Rescue Watch

-----Original Message-----

From: FOO Ronald.Brown [mailto:foo.ronald.brown@noaa.gov]

Sent: Saturday, August 30, 2003 8:21 AM

To: farencibia@gantsec.uscg.mil

Subject: Flare sighting 08/29/03

Follow up per last night's phone call.

Estimation of how far above horizon orange flare was:

5-10 degrees elevation bearing 040 degrees from ship posn 19-22.6N

062-33.1W - Approx 1930 Local

8/30/2003

10:30 - Asked Bridge to put a third generator on line to increase the ship's speed to a maximum as the sea was calm and wind was < 10 kt. Ship reached top speed of 15.6 kt., but some beams were lost because the ship started vibrating. On the other hand, good data was collected with two generators on line at speed of 13.5-14.1 kt.

11:36-12:00 – The Hippy board was shut accidentally while ship's electrical power was switched from "clean" power to "dirty" power. It was thought (wrongly) that all SeaBeam components are connected to UPS. The shutdown happened just before a turn at waypoint 19.

19:05 – Dropped XBT #3 and made some changes to the velocity file.

We are followed by Hurricane Fabian, which moves westward roughly at 13-15 kt. We can therefore keep ahead of it. Hurricane Fabian hit Bermuda several days later.

8/31/2003

09:05 – Dropped XBT #4. Big changes to the velocity profiles were observed. Replaced the velocity file at 09:46.

10:35 – Got the Captain's permission to extend the survey to "hug" the entire previous survey area west to longitude 69.00°

12:00 – Informed by Lt. Pralgo, the navigation officer, that she miscalculated the transit time to Florida,

and we have additional 3 hours (40 miles) to collect data. Survey area was extended into the Hispaniola trench to take advantage of the fact that we will transit in the same area.

23:40 – Completed the survey at 19°34'15" 69°15'10".

9/1/2003-9/3/2003

Transit at an average speed of 13 kt. along the northern coast of Cuba and between Dry Tortugas and the rest of the Florida Keys. Slowed down to 10 kt. and later even slower, while traveling along the west coast of Florida to arrive at the entry buoy to Tampa Bay on 9/4/03 at 5-6 AM.

SeaBeam continues to run during the transit to Florida for testing purpose. Software copies and disks were switched to test their reliability. We test the SeaBeam performance at shallow waters as the ship approached the Dry Tortugas. The SeaBeam system collects 145 beam up to a depth of 250 meters. At shallower depths it switches automatically to 75 beams to avoid near field effects. However, one of the starboard beams gave an erroneous reading by ~+200 meters at waters of 500-250 meters.

Thursday, 9/4/2003 – Tied to Coast guard pier in St. Petersburg at 09:15. Cloudy and rainy as a Tropical storm was moving east from the Gulf.
