

Sea Level Station Operations in Carrie Bow Caye, Belize

1. Date of report: March 1, 2018
2. Title: Report on Sea Level Station Carrie Bow Caye, Belize
3. Authors

Marguerite A. Toscano, PhD
Research Geologist
Smithsonian Institution
National Museum of Natural History, MRC 121
P. O. Box 37012
Washington, DC 20013-7012
toscanom@si.edu

Thomas B. Opishinski
Ocean Engineer
Interactive Oceanographics, Inc.
81 Shippee Road
East Greenwich, RI
USA 02818-1028
tom@riocean.com

Smithsonian Marine Station at Fort Pierce (USA)
Caribbean Coral Reef Ecosystems Program ccre.si.edu for Carrie Bow Caye

4. Map(s) of tide gauge network in country or region

Note – Dock on figure 2 below is the location of the previous tide station and is identified as ‘Ocean Sensors’ (1999-2014). The new tide station is located 90 m offshore of the NE tip of the island (Figure 3).

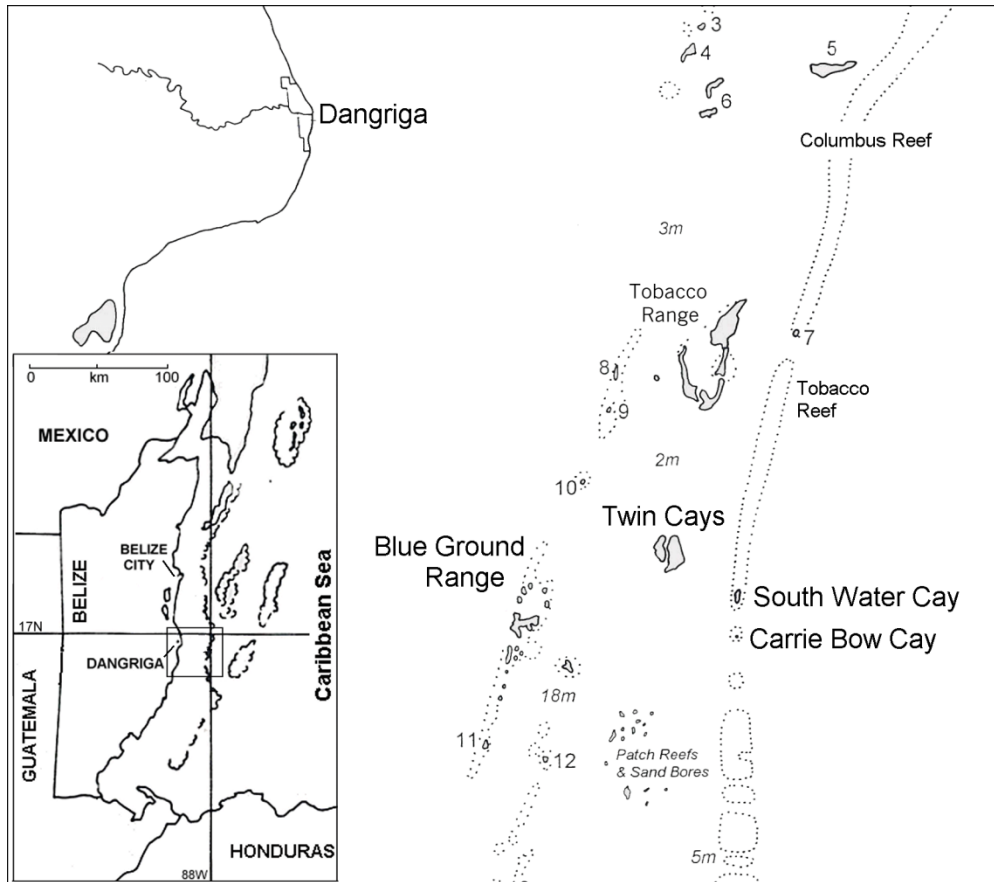


Figure 1. Location of Carrie Bow Caye

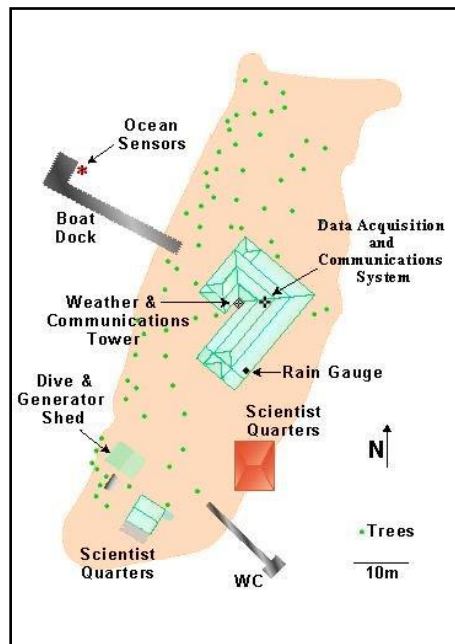


Figure 2. Layout of Marine Laboratory, Carrie Bow Caye.



Figure 3. Location of the sea level platform at Carrie Bow Caye.

5. Tide gauge station

Name:	Carrie Bow Caye
Station Code:	cabc
Lat	16.80283
Long	-88.08202
Date Installed	2015
Status	Operational
Operator:	Thomas Opishinski, Smithsonian Inst.

6. An overview of the gauge technology employed in the station

Communications	GTS Message
GOES PID	777022C4
WMO Header: N/A	SOBH10
GOES Channel	211
Transmit Period	5 minutes
Sampling Rate	1 minute
GLOSS Station ID	N/A
DCP	NexSens iSIC
GPS	Stevens
Sensor #1	Radar
Sensor #2	Pressure Sensor
Met Sensors	Yes

7. Leveling: We have installed geodetic control – 4 deep rod benchmarks, multiple turning point marks (2011) and a benchmark on the instrument platform (2015). We conducted GPS surveys in 2011 and 2015, but the 2015 survey was not readily comparable because the reference GPS station on the mainland was not the same. Leveling has occurred at the same times.

8. An overview of the data availability: Legacy tide data (14 years) is not yet available online pending correction and analysis; satellite transmitter and new sensors installed October 2015.

The new Radar and Pressure Sensor data are currently available at <http://www.ioc-sealevelmonitoring.org/station.php?code=cabc>). QA/QC data are available on <http://nmnhmp.riocean.com/?siteIndex=0>

9. Web, email etc. addresses of data banks and of sources of further information
<http://nmnhmp.riocean.com/?siteIndex=0>
 tom@riocean.com

10. Future Plans.

We are working to analyze legacy tidal data for annual-decadal patterns, long term trends, oceanographic events, and determination of the rate of SLR for Belize. Tide analysis (2015-2018) and predictions (2018) have been produced using TASK and Poltips software learned at 6th Caribbean workshop in Mexico City.