

SIO Gravity Tie Report – R/V Sally Ride

Date of Tie (yyyymmdd):

20180418

Base Station Code, Port & Cruise Name leg (e.g., DoD 2080-2, San Diego, RR1234):

V0649B, Manzanillo, SR1806

Gravity Base Station Location (describe as precisely as possible):

Back of the base of the Benito Juarez monument, up the steps; the round marker has been painted over (white), but bears the inscription "INEGI."

Ship Location (port, pier, etc.; describe as precisely as possible):

El Estibador area pier, northeast side, toward the end of the pier, three ship tie places from the end, at the marker 9TCT, 19 03.442N, 104 18.772W.

Land Meter ID (enter serial number of Lacoste & Romberg portable meter, or 'bp' if ship is docked at base station):

G-611

Location	Time (UTC) Add 24 hours if readings cross GMT midnight	Reading – Take 3 per location Reading from the portable gravity meter (e.g., 2345.67)			Height (Inches) Height of portable meter above sea level
First Pier measurement	mGals and free air calc: 20:25:06	(2141.85 + (70.581 x 1.02041)) + (8.833 ft x 0.09406			mGal/ft) = 2213.955 mGals 106 (ship mark 10' above BGM-3 also 106)
Base Station measurement	mGals and free air calc: 20:39:16	(2141.85 + (72.838 x 1.02041)) = 2216.175 mGals	2172.845	2172.838	Pier height above sea level if 'bp' tie: 2172.838
Second Pier measurement	mGals and free air calc: 21:03:20	(2141.85 + (70.692 x 1.02041)) + (8.917 ft x 0.09406			mGal/ft) = 2214.824 mGals 107 (ship mark 10' above BGM-3 also 107)

Base Station Position: **LAT:** 19 03'14.5" N (19.0542814) **LON:** 104 18'57.1" W (-104.31586989)

Ship Gravimeter Still Reading from logged data (bias mGal = ~123,000):

$$\underline{978583.889220652098} = ([\text{scale factor} - \text{see BGM-3}] \times [\text{avg BGM-3 raw counts for tie period}]) + [\text{bias} - \text{see BGM-3}]$$

$$(\underline{4.98247686} [\text{from June 2015}] \times \underline{24736.5643}) + \underline{855334.530} [\text{from last tie}]$$

Comments:

No rain, but slight wind. Sunny and bright. Difficult to perform pierside grav ties because of pier movement. Also, note that the mark on the side of the ship indicates the bottom of the Main Deck, not the Transceiver Room (where the BGM-3 is) deck, which is about 10' lower.

Person(s) making tie:

Daniel Yang and Mary Huey