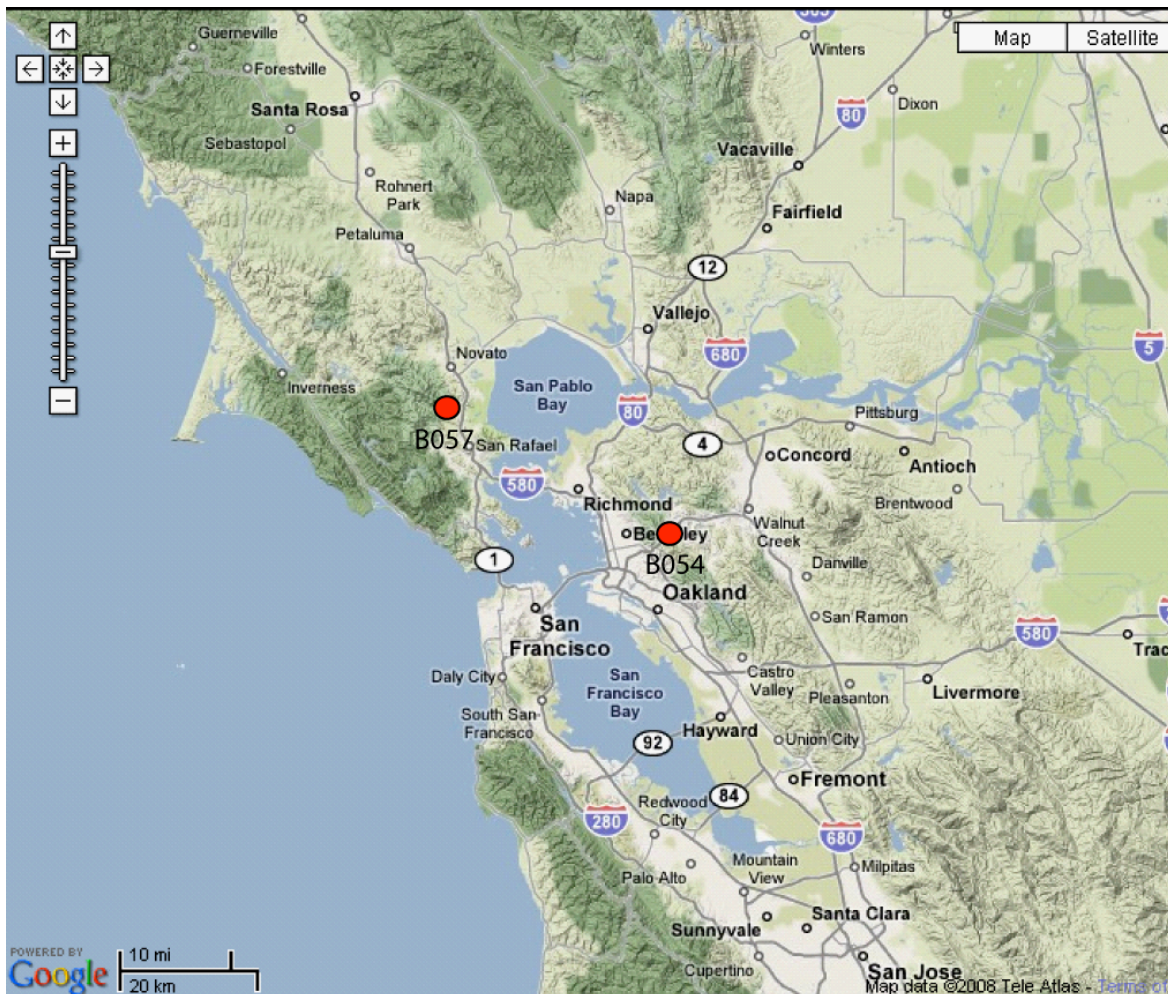


Station Notes for B054, sibley054bcn2008

Latitude:	37.8602 (WGS 84)
Longitude:	-122.1995 (WGS 84)
Elevation:	405.6 m / 1331 ft
Install Depth:	125.8 m / 413 ft
Orientations:	CH0=325, CH1=265, CH2=205, CH3=175
Install Date:	August 21, 2008
GTSM Technologies #:	US72
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.2
Home Page:	www.unavco.org/instrumentation/networks/status/pbo/overview/B054
Notes Last Updated:	July 25, 2019

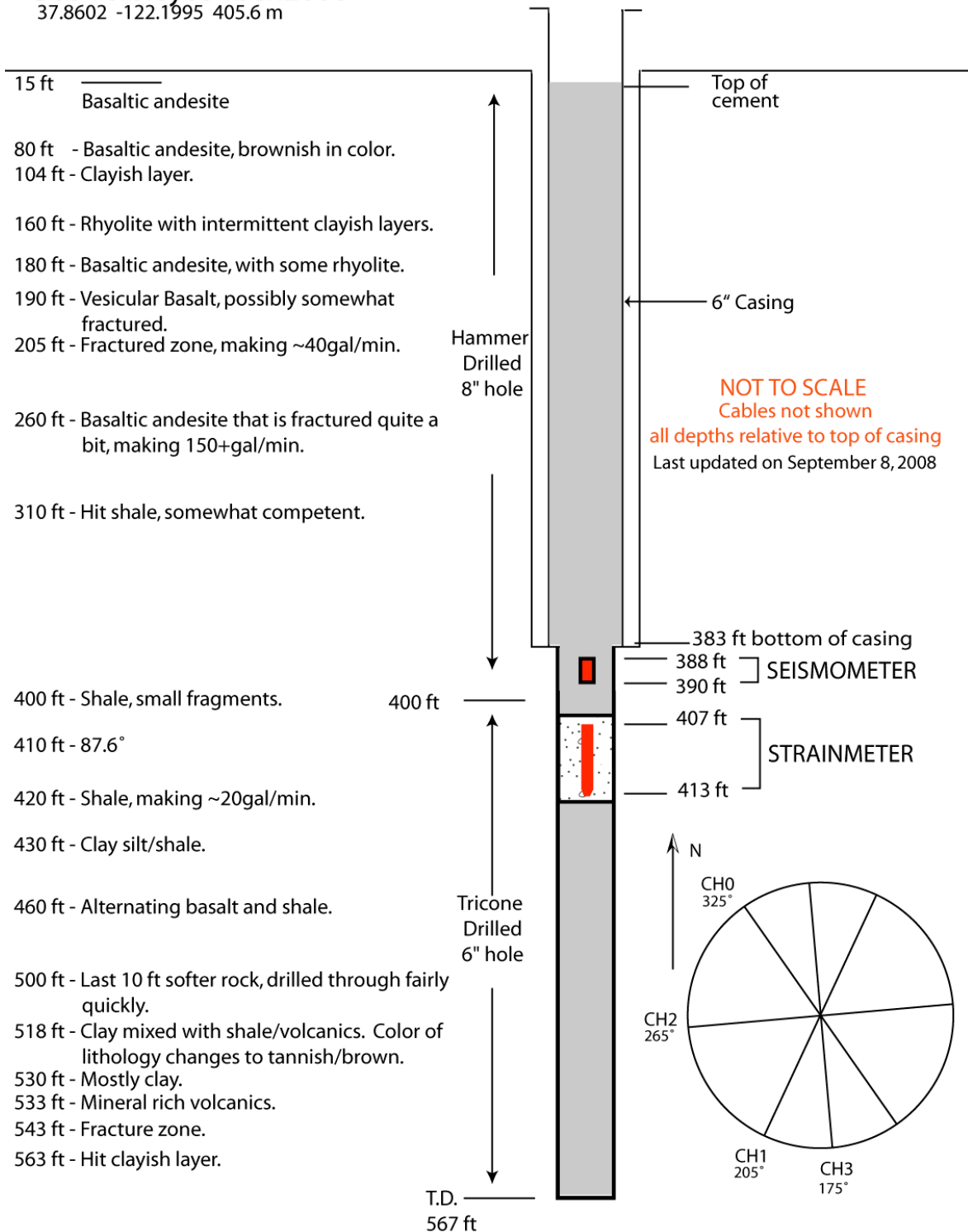
Install depth is from the top of the casing to the bottom of the strainmeter.

Orientations are in degrees East of North.



San Francisco strainmeter network, August 2008

B054 sibley054bcn2008
37.8602 -122.1995 405.6 m



Instrumentation at Strainmeter

Instrument	Units	Bottle/ASCII Scale Factor	SEED Scale Factor
Pore Pressure	Hecto Pascals	None Installed	---
GTSM Barometer	Kilopascals	1.0	0.0001
Rain Gauge	Millimeters/hour	1.0	0.252
Down hole Temperature Sensor	Degrees Celsius	1.0	0.0001
Logger Temperature Sensor	Degrees Celsius	1.0	0.0001
Setra Barometer	Hecto Pascals	None Installed	

1. Installation notes

August 18, 2008 UTC

21:00 - On site.

22:08 - US 72 off, data from the past 2 weeks looks good.

Compass Test:

X 0.481, 1.417

Y 1.109, 2.001

Sound bottom at 417.5 ft. Install zone is 406-413 ft. Plan on tagging bottom and pulling back 4.5 ft.

23:30 - Mixing penngrout.

23:45 - Premature trip, probably close to the bottom but at least 2-3 ft off, dumps grout.

23:50 - Decide not to install, since it is impossible to know the state of grout in hole.

01:00 - Off site.

August 19, 2008 UTC

15:10 - On site. Tag bottom at 401 ft (16.5' of grout, 2.5' more than normal). Work on trench, solar panel rack, level and pour pad. James gets a local driller out to see site. Hope to set up on the well within a day or two to clean out back to install zone for second attempt.

00:30 - Off site.

August 20, 2008 UTC

15:00 - On site. Put enclosure on pad, install uphole electronics, work on trench, fabricate solar rack, and meet with fencer.

00:45 - Off site.

August 21, 2008 UTC

Finish solar panel rack in the morning.

19:30 - Drillers off site, total depth back to 415'8".

21:14 - Mixing 9 bags of Penn Grout DJ805, at 4.9 qt/bag.

21:21 - Last water added.

21:32 - Dump bailer going down hole.

21:37 - Tripped on bottom.

21:55 - Strainmeter touched bottom, tied off 3' above the bottom (at 412'8").

21:57 - US72 on.

22:00 - X(init) - 0.683, Y(init)-1.310

22:10 - Renamed B054.

23:30 - Cleaned up and off site.

2. General Information

- Sensitivities of all EH channels corrected in the dataless on March 4, 2010.

3. Strainmeter Maintenance

- September 19, 2008 - Warren Gallaher upgraded the GTSM logger software from version 1.15 to 2.02.2. The site was offline from about 19:30 until about 20:30 UTC.

- January 30, 2009 – Wade Johnson visited the site.
13:04 local time – Onsite. Main batteries at 13.54v and GTSM batteries at 13.68V. Moved three solar panels over to the main power system. Hooked GTSM to power isolation block, and took photos.
13:50 – Off site.
- March 19, 2009 - B054 was upgraded from 2.02.2 to the correct version of 2.02.2 that matches the compact flash size.
- April 29, 2009 - Between 2:04-2:06 PM local time, the strainmeter was turned off. Rt Board 0 was pulled out and then returned to the GTSM. Once the strainmeter was turned back on Chan. 0 was observed until it reached Gain 3. A Setra was also installed.
- June 3, 2009 – 13:00 to 14:50 PT – The RT firmware was upgraded to version 1.20 and the quadrature was adjusted. All fiber-optic modems were replaced on site.
- January 13, 2010 – Liz VonBoskirk visited the site. The plastic piece on the mount that holds the disk at the correct elevation has broken. A new mount is needed. Due to the height of the VSAT dish (> 6ft in height), and that this task involves moving the dish down, then back onto the new mount, two people will be needed.
- February 19, 2010 – Wade and Liz visited the site.
10:30-11:30 Local time – Plastic piece on mount was replaced, and the dish was re-pointed to pass the cross pole test. It was noted that the screws were not tightened down for elevation and cross-pole on the mount. Quadrature and Oscillator Board Delays adjusted. Batteries were at 12.7V when leaving site (cloudy day).
14:00-15:00 – Return to the site because data is not flowing. It is a VPN issue and is resolved before leaving site.
- September 23, 2010 – RT board 0 was replaced. The new board had firmware version 1.18 and after calibration returned to G3. The firmware was updated but the board was on G2. The board was pulled and placed back into the environmental box 3 times. The quad box was unresponsive when adjusting for quadrature.
- December 11, 2010 – The solar power system was reviewed. The solar panels were checked where they enter the site because the panels were built over the site. There appears to be two bad panels. In order to determine which panels are bad and replace them, two people will be needed. The battery bank contains 6, so 2 more batteries should be added. All boards and connecting cable was detached and examined for corrosion and other notable issues. Everything looked clean. When putting the boards back in, Channel 1 returned to Gain 3, but the quad pots were still unresponsive. The quadrature was adjusted for all channels and none were greatly offset.
- February 8, 2011 – Temporary broadband seismometer deployed, and borehole seismometer metadata collected with the Birddog.
- March 1, 2011 – A broadband seismometer, marmot and Q330 were temporarily deployed at the site. The seismometer will be used to orient the borehole seismometer.
- August 24, 2011 – Power system upgraded. Replaced 10AWG battery jumpers with 4AWG battery jumpers. Rewired both battery banks to new BSM solar site standard. GTSM was not going into G3, adjusting quad/chop fixed this problem.

- August 25, 2011 – Data quality was poor since the RT board swap in September. Swapped RT board CH0 and calibrated.
- October 20, 2011 – Troubleshoot Proxycast comms problem. Added two batteries to uphole electronics bank. Power system now has two banks of 4 batteries for Q330/Mormot/comms, and one bank of 4 batteries for the GTSM. Removed VSAT ODU/IDU.
- November 7, 2011 – Station back online after the sprint card was reset and the cellular modem was power cycled.
- February 15, 2012 – EFOY fuel cell was installed. Site should now be sufficiently powered during winter/cloudy weather. Batteries were reconfigured to make room. Fuel cell positive wiring (sense, power supply) connected to one battery on up-hole electronics side, negative to back panel. Unit online and performed self test. Upgraded solar charge controller. Removed VSAT dish and mounting hardware, site has cellular communications.
- July 26, 2012 – A temporary broadband seismometer was deployed.
- August 14, 2012 – Environmental box was replaced and quad/chop were adjusted on all channels. Digital counts returned to expected range, and noise was eliminated. Added YAGI antenna to cell modem and increased cell signal strength from fair to strong. Was onsite in late afternoon, and panels need to be tested at midday.
- December 7, 2012 – Wade and Mike visited the site and found the rain gauge completely clogged. It is now clean and should be collecting rainfall data again.
- January 8, 2013 – All up-hole electronics were online and functioning. The Fuel cells had plenty of fuel. Local access to cell modem showed an error indicating that the CDMA card was not installed. The card was reseated and the power was cycled. No change.
- January 9, 2013 – Cell modem was swapped. Configuration transferred between modems. System is online and VPN is up.
- November 13, 2014 – Clock lock on the Q330 is at 10%, no satellites. Problem with either the GPS or the Antenna. Antenna current is 12-13ma. The seismic data effectively had no timing, and was useless for earthquake and other timing related data usage.
- March 3, 2014 – The Q330 had not satellites or GPS time. The antenna was swapped and the Q330 was rebooted. EFOY in failure mode. Operating hours 401. Error 83. Power cycled fuel cell. Serial setting for serial to ethernet switch was returning pings locally and remotely. One fuel cartridge was empty, the other was at ~80%.
- March 4, 2014 – Q330 had timing and satellites after reboot. Removed fuel cell for repair.
- August 7, 2014 – Reinstalled EFOY fuel cell and left w fuel cell cartridges in the enclosure.
- March 29, 2016 – EFOY and solar controller were not on local network after installation of RV50 cell modem. Marmot would not allow ssh. Marmot data logger was rebooted and SSH was remotely verified. EFOY was in error mode. Added service fluid.
- December 28, 2018 – Fuel cell had plenty of fuel (3 M28s on site), but fuel cell was showing error 22, replace fuel cartridge. Fuel cell has 608 hours of run time. Reset cleared error, but it kept coming back. Tried without duocart switch, one tank at a time but still could no clear error permanently. Removed fuel cell to send back for repair. Adjusted chops and quads. Clear clogged rain gauge. Tested rain gauge, no data. Discovered damage to cable between

rain gauge and hut. Cable needs to be cut and spliced, but Mike did not have tools with him due to gate being locked. Add to to-do list for next time.

- July 12, 2019 – Replaced all batteries. Previous ones were from 2016, but had gotten very low last winter and were not performing well. Found coms outage was due to failed port on NS205 switch. Stopped using switch, without FC there is enough ports on the fiber modem. Saw some restarts on the RV50, power connector wasn't seating well. Replaced power cable and RV50 seemed more stable. Removed old silver yagi, replaced with Wilson, signal improved. Spliced damaged section in rain gauge cable.