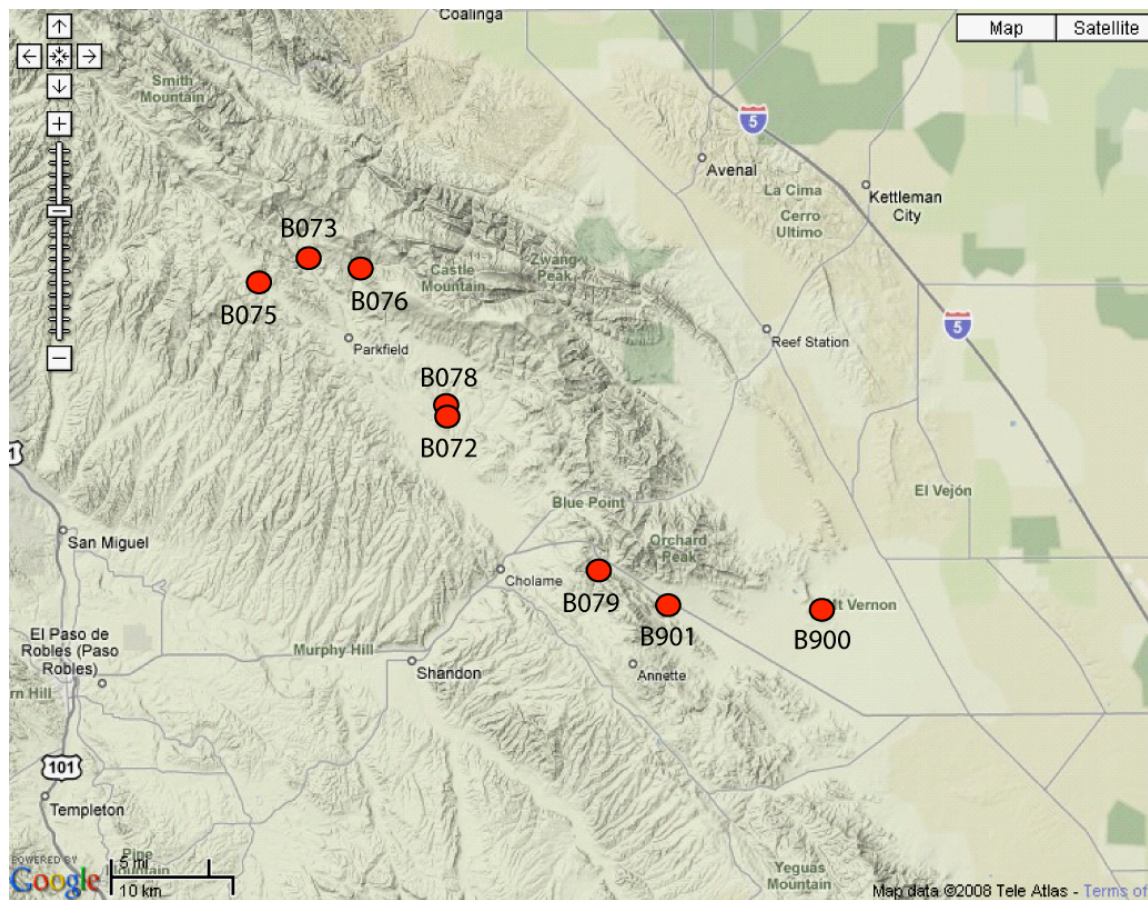


Station Notes for B900, blacka900bcn2007

Latitude:	35.686 (WGS 84)
Longitude:	-120.003 (WGS 84)
Elevation:	219.5 m / 720 ft
Install Depth:	186.2 m / 611 ft
Orientations:	CH0=221.3, CH1=161.3, CH2=101.3, CH3=71.3
Install Date:	August 22, 2007
GTSM Technologies #:	US39
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.2
Home Page:	http://pbo.unavco.org/station/overview/B900
Notes Last Updated:	February 1, 2019

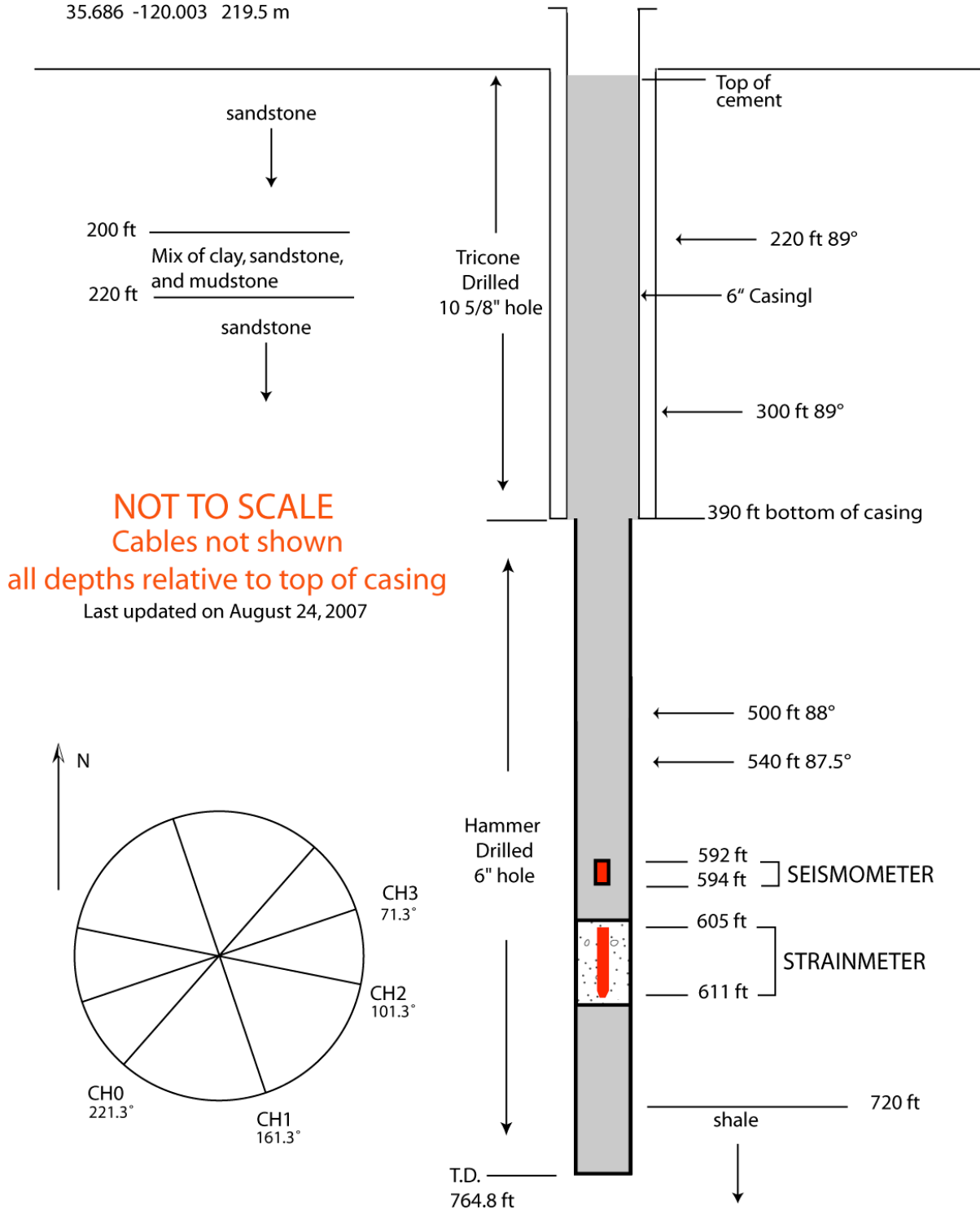
Install depth is from the top of the casing to the bottom of the strainmeter.

Orientations are in degrees East of North.



Parkfield PBO strainmeter network, July, 2008

B900 blacka900bcn2007
35.686 -120.003 219.5 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	1.0	1.42925E-04

1. Installation notes

August 22, 2007, UTC

17:41 - Start mixing grout (Batch # 161594414R7)
 17:45 - Add last bag of grout.
 17:49 - Add last of Water (15.3 gal + .2 gal extra due to heat (about 90F)).
 17:55 - Fill Baler with grout.
 18:00 - Baler full, begin lowering it down the hole.
 18:04 - Baler on the bottom.
 18:09 - Out of grout. Trip out
 18:15 - GTSM in hole, tripping in.
 18:30 - GTSM at 611 feet.
 18:34 - GTSM powered up.
 18:37 - Reboot logger with new name.
 18:50 - Called good. Clean up site.
 19:30 - Leave site.

August 23, 2007, UTC

16:30 - On site
 17:15 - Test Seismometer #57 V= 2.550 Ohms H1= 2.550 Ohms H2= 2.540 Ohms
 17:50 - Dig pit for strainmeter cable.
 19:00 - Lower seismometer on steel cable.
 19:30 - On bottom. Pull back 7 feet
 19:40 - Trip in 1.5" pipe
 20:15 - Tag bottom at 600' 9".
 21:05 - Pump 4 yard of Portland cement
 22:20 - Done pumping cement
 22:45 - GTSM21 shut down to bury cable and to pour pad.

August 24, 2007

00:22 - UTC – GTSM turned back on.
 00:35 - Leave site.

August 24, 2007, UTC

15:30 - Onsite. Sound hole at 93 feet. Work on VSAT and wiring electronics.
 18:00 - Trip in 80 feet of pipe.
 19:00 - Pump in 16 bags of cement. Get return to surface.
 19:21 - Shut down GTSM21. Install enclosure and electronics.
 22:30 - GTSM21 turned back on. Cement in solar mounts.
 23:59 - Leave site.

August 25, 2007, UTC

15:30 UTC - Onsite. Work on VSAT and Solar panels.
 16:30 - VSAT up
 17:50 - Adjust DH temp. Set test point to 1.754 (lowest I could get it.)
 20:20 - Leave site after programming equipment and collecting metadata.

2. General Information

- No pore pressure infrastructure installed at this site.

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

3. Strainmeter Maintenance

- August 28, 2007 – The BSM logger did not receive GPS time after installation. The GPS cable's BNC connector was loose. Wade Johnson fixed this and also pulled the GPS chip and cleaned up the pins. The status-report now show good time and tap steps.
17:37 UTC - Onsite
17:51 - Shut down GTSM to fix cable and reset chip.
18:08 - GTSM21 powered on.
18:26 - Adjust quad and chopper, all DID switches off. Still a tiny bit fast.
18:55 - Leave site.
- October 4, 2007 – Mick Gladwin visited the site. The solar regulator was found to be causing radiated noise on the GTSM system return signals (1.2V where better than 10 mV is required). As per other Parkfield sites, the temporary partial solution of re routing wiring and isolating one set of solar panels with a direct connection to the GTSM power box (rather than via the main battery bank and Vicor isolator) was implemented. Two additional batteries were connected to the GTSM bank to make a total of four. Modifications were completed at dusk, so no verification of solar levels was carried out. Subsequently it was verified that levels are ok.
- December 11, 2008 - Andre installed a new Quanterra Q330 at around 11:06am local time. The GPS did not lock on to satellites to establish position and time until around 12:10pm local time. The Q330 was seeing 9 satellites when he left. Clock status on the main Willard screen was green and at 90%. Rain gauge was missing it's screen so it had filled with bees and dust. Gauge was removed flipped upside down and poked at until it was unclogged. Metal screen was reinstalled and secured. Instrument cable is damaged, and the outer plastic and inner grounding metal sheath are damaged. The cable was wrapped but it is likely compromised.
- December 12, 2008 – Warren Gallaher configured the new Q330 with the standard setting. The unit was reset at about 19:45 UTC, it is now tracking satellites well, so it now has good timing.
- March 19, 2009 – Logger software upgraded from 1.15 to the correct version of 2.02.2 that matches the compact flash size.
- May 4, 2009 – A high rate Setra barometer was installed. An old and new Q330 underwent tests to see if Q330 GPS placement would help improve sky view for satellites. Both were roughly the same. The new Q330 was left at the site.
- August 1, 2009 – All RT boards were upgraded to firmware 1.20. Quadrature was adjusted.
- January 20, 2010 – Q330 was swapped.
- February 18, 2010 – Liz VanBoskirk visited the site and replaced the fiber optic modems.
- March 3, 2010 - The Q330 GPS was replaced with a GPS with a shorter cable. Improvement will be observed. While at the site the GPS was moved in various locations, as well as the top of the enclosure for optimal signal strength. If improvement is still needed the GPS will be located outside the enclosure.

- August 17, 2010 – Main bank batteries and VSAT ODU replaced.
- October 26, 2010 – A broadband seismometer, marmot and Q330 were temporarily deployed at the site. The seismometer will be used to orient the borehole seismometer.
- November 16, 2010 – B900 is one of the sites with GTSM data quality issues. As a first step to deal with the issue the GTSM was turned off and all boards and connections from the power box and downhole were disconnected, inspected for corrosion, and reconnected. The quads were observed after pulling the RT boards and they were all in phase. After speaking with Wade, who checked the site, the logger board was recording a temperature much colder than it actually was and a high RT number for all channels. Both the main bank and GTSM batteries were rewired so that each bank (of four) has the negative (black wire) attach on one end of the bank and the positive (red wire) feeds to the other end of the bank. The main battery bank was increased to eight.
- January 14, 2011 – The ODU was replaced. On the IDU, only the power light was on. When connected to the field laptop, only the power light was on. The IDU should be replaced and the VSAT is pointed toward Satellite IA8. All equipment in the enclosure is recording data.
- January 31, 2011 – Liz VanBoskirk visited the sit from 15:00 to 17:00 Pacific time. The film on the new ODU, which was added to the site in early January, was pecked through by birds. The ODU was replaced. The IDU was for a different satellite. The dish was re-pointed, but was not completed by the end of the day light. The transmit signal was at 91%.
- February 1, 2011 – Liz VanBoskirk visited the site between 14:30 to 17:30 Pacific time. The IDU was failing to transmit. The configuration files were deleted, which fixed the issue. The VSAT dish mount was secured.
- February 2, 2011 between 13:00 and 14:30 PT – The file on the router was updated with the new IDU IP address. The VSAT dish mount was secured to the post to resist high winds.
- August 18, 2011 – Power system upgraded. Replaced 10AWG battery jumpers with 4AWG battery jumpers.
- December 20, 2011 – Upgraded power system. Added Tristar MPPT solar controller.
- March 26, 2013 – Replaced 12 batteries. While this site is located in the open, the site seems to go offline sooner than other sites in the area during storms. The panels tested at 18.8 - 19.2V / 4.7 - 4.9A, so the array is working as expected. The LVD settings were slightly off, and were adjusted back to UNAVCO specs.
- August 5, 2014 – Checked solar panels, one was bad and needs to be replaced. Cleaned solar panels and adjusted LVD settings. LDV3 off at 11.98 and on at 12.61V.
- August 26, 2014 – Swapped 1-port fiber modem.
- July 22, 2015 – Adjusted quadrature and chop. Removed old VSAT dish, pole mount ,and ODU.
- March 31, 2016 – Performed GTSM resistance/capacitance testing on all four channels. Adjusted quad/chop.
- July 12, 2016 – Test resistance and capacitance on all GTSM cell channels.

- December 6, 2016 – Continued down-hole GTSM testing by changing 1st decade RT value and observing voltage change on channel input signal. Adjusted quad/chop. Tested downhole instrument response. Modified strain-logger.conf to enable internal event detection.
- February 1, 2017 – 5-port modem switch failed and was replaced.
- April 12, 2018 – Adjusted quadrature, was already very good, only minor adjustments.
- September 11, 2018 – Visited site to diagnose communications failure. RV50 was active and configuration was correct, but APN was missing. Site was previously online; mystery RV50 failure. Added primary and backup APN to RV50 config.
- January 4, 2018 – Cleaned bird droppings off solar panels. Replaced 900 mhz Yogi with Wilson antenna. Replaced missing rain gauge screen, cleaned funnel.