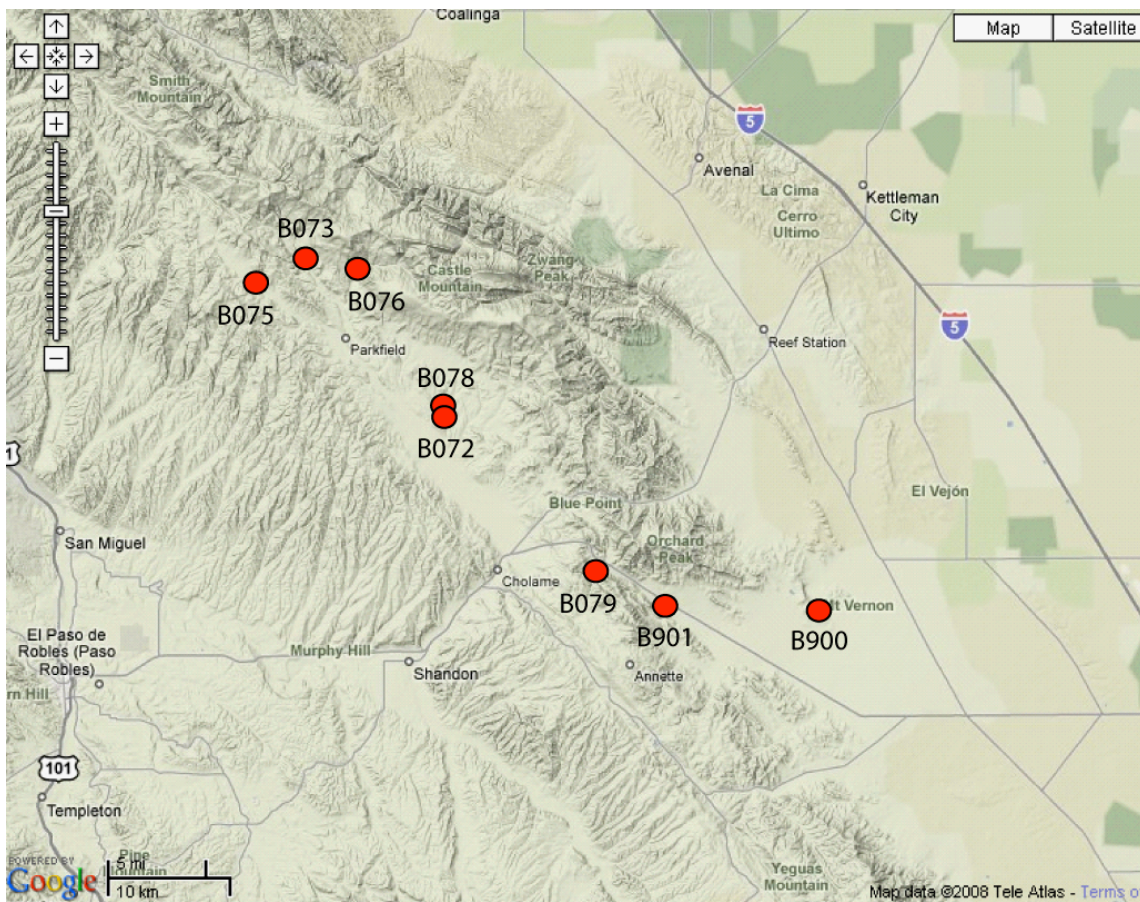


Station Notes for B079, jackcn079bcs2006

Latitude:	35.7157 (WGS 84)
Longitude:	-120.2057 (WGS 84)
Elevation:	436.6 m / 1432 ft
Install Depth:	181.5 m / 597 ft
Orientations:	CH0=353.7, CH1=293.7, CH2=233.7, CH3=203.7
Install Date:	13 October 2006
GTSM Technologies #:	US21
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.2
Home Page:	www.unavco.org/instrumentation/networks/status/pbo/overview/B079
Notes Last Updated:	July 30, 2019

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

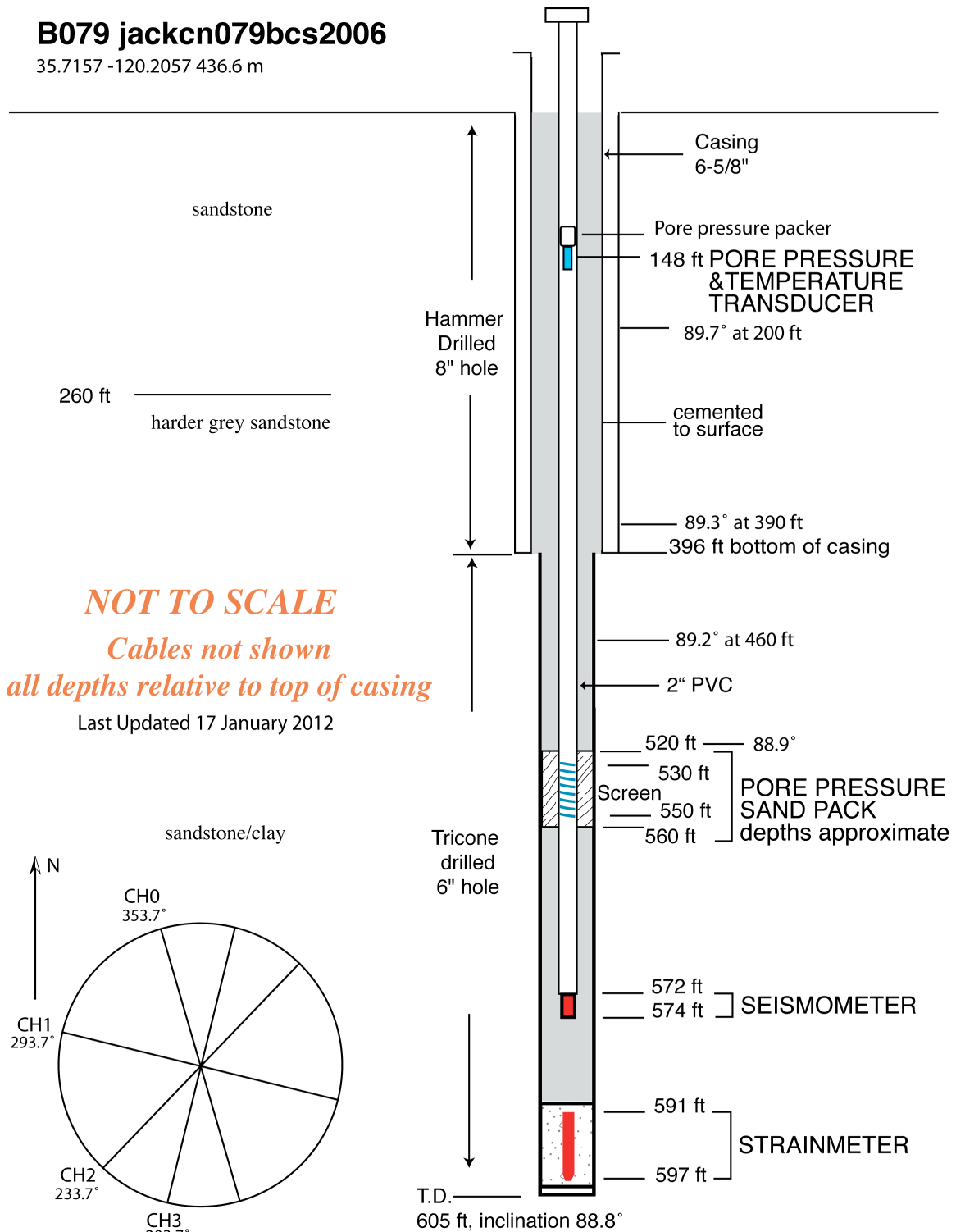
· Orientations are in degrees East of North.



Parkfield PBO strainmeter network, July, 2008

B079 jackcn079bcs2006

35.7157 -120.2057 436.6 m



Instrumentation at Strainmeter

Instrument	Units	Bottle/ASCII Scale Factor	SEED Scale Factor
------------	-------	---------------------------	-------------------

Pore Pressure	Hecto Pascals	1.0	N/A
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	Not installed at this time	

1. Installation notes

This site is located 1/2 mile south of HW 46 near the USGS Vogal ranch site. The strainmeter is installed at 597 feet. The Hole was brought up 7 feet using a dump bailor with one bag of portland cement. Besides a large blow out at the bottom of the hole the rock is consistent with a few healed fractures. Install location was determined using full waveform sonic, ACTV and a BHC.

2. General Information

- Oct 13 – Oct 31, 2006 Logger went into standby and restarted almost every day
- Door opened on Oct 16-18,24,29-31, Nov 16, 2006
- Nov 17, 2006
“status-report.sh omits Rainfallmm. bad software? Configuration problem?”
- Sensitivities of all EH channels corrected in the dataless on March 4, 2010.
- The pore pressure sensor is installed at 148 feet with the packer inflated directly above the sensor.

3. Strainmeter Maintenance

- 17 November 2006
Wade Johnson and Alan visited the site they “retrofitted the GTSM charging system with Flex chargers and also tested the wiring of the seismometers.”
- December 5, 2006
Mike Gottlieb visited the site at 13:05 PST.
- December 17, 2006 - Michael Hasting updated the RT firmware to 1.17 and the GPS to 135_309.s3. Timing is now accurate. (Dec 19 - Time Difference: 2 seconds - within error of check) Also tested and checked the power system.
- January 13, 2007 – Michael Hasting tried to set downhole temp adjustment to 1.25V but could only get it to 0.654V. As such the downhole temperature reading can not be set back to 0 degrees and is reading -2.84. He found that the solar panels were miss wired and hooked directly to the batteries, and not going through the charge controller. He moved the solar wires to correct terminal. Should not see the +16V on SOH data now. Tested rain gauge, works.
- March 30, 2007 – Michael Hasting moved all 9 solar panels over to the Xantrex charge controller. He installed the DC/DC converter and hooked up the GTSM to this. As of 16:30 local time the GTSM is showing 3.2amps of charge. The configuration is 8 primary batteries and 4 GTSM batteries.
- October 1, 2007 – This site was visited today between 20:30 and 23:59 UTC. The station was reset and adjustments were made. The site was evaluated and a faulty GTSM power box was found. It was draining the batteries on the comms power system and over charging the GTSM

batteries. A new box has been requested to be delivered and it should be there to install on Wednesday. More work and evaluation will be performed at that time. The site is still experiencing power outages on the comms/seismic power system.

- October 3, 2007 – Warren Gallaher visited this site to perform some maintenance. The site was cleaned up and reorganized for better access. The power box was replaced and adjusted for proper charge voltage. Also the quadrature and delay were set, and a Marmot was installed. The solar regulator was found to be causing radiated noise on the GTSM system. As a temporary solution one set of solar panels was hooked to the GTSM power box directly and the wires were re-routed to provide physical separation. 2 of the 8 batteries from the comms equipment were moved to the GTSM to provide more backup power.
- December 17, 2007 UTC – Mike Gottlieb visited the site to swap the fiber optics modems.
21:00 On site, swapped fiber optic modems.
21:24 GTSM back online, off site.
- July 17, 2008 – Chuck Kurnik visited the site to replace the fiber modem and get the GTSM online again. He also configured the Q330 to record pore pressure with temperature, and the nets was removed.
- December 7, 2008 – Warren Gallaher visited the site. Station has a new GTSM power box and is now tracking satellites and has a current time fix.
- March 19, 2009 – Logger software upgraded from 1.15 to 2.02.2
- July 19, 2009 – Andre Basset visited the site after it failed to come back online after the Hughes VSAT migration. The Cisco router and VSAT units were power cycled. The VSAT came back online with the correct new IP address but the Cisco did not. The Cisco router IP was changed and the station is now back online.
- August 1, 2009 - All Rt Boards were upgraded to Firmware 1.20. Quadrature was adjusted.
- October 21, 2010 – Liz VanBoskirk visited the site to see why it was offline. The VSAT IDU was completely off, but the station is still recording data. The battery main bank of 8 was replaced. The bank was rewired differently, as suggested by Warren. The positive and negative wires feeding the bank were wired so that each set of four had the positive come in on one end and the negative on the other. Tested the power system by looking at current and voltage. The GTSM battery bank and solar panels tested fine.
- October 28, 2010 – A broadband seismometer, marmot and Q330 were temporarily deployed at the site. The seismometer will be used to orient the borehole seismometer.
- November 3, 2010 – New VNP installed (ODE & IDU).
- November 16, 2010 – The IDU transmit and receive lights were off. When connected to the IDU, the receive signal was listed as 30%. The IDU power was cycled and the status changed to good (green). The transmit was 95% and the receive was 75%. The comms will be monitored to see if the IDU repeats this issue with the receiving status.
- August 17, 2011 – Power system upgraded. Replaced 10AWG battery jumpers with 4AWG battery jumpers.
- December 20, 2011 – Upgraded power system. Added Tristar MPPT solar controller.

- April 10, 2012 – The compact flash drive on the logger board had failed on March 30, 2012. Chad Pyatt replaced the logger board and configured it.
- November 13, 2012 – Chad Pyatt issued the GPS_Coldstart command remotely, but the GTSM is still not tracking Satellites. The antenna will need to be checked on the next site visit.
- March 26, 2013 – The GTSM power box and GPS antenna were replaced to address the clock timing issue. The GTSM time was ~515 seconds slow at the time of this visit. The LVD settings at this site were significantly different than UNAVCO specifications (LVD 1: off @ 11.23, on @ 12.04; LVD 2: off @ 12.05, on @ 12.66), and were adjusted.
- April 16, 2013 – The power box and 5-port modem were replaced. The power box was not recording barometric pressure correctly. Since the change, the pressure data is following the trend recorded prior to the previous PB swap. The modem failure was resulting in lost seismic data. It was difficult to diagnose due to the lack of GTSM data loss, and the fact that the data loss was occurring at roughly the same time every day. Prior to the swap, Chad connected to the local network through the cisco, and was able to communicate with all equipment. Since the swap, seismic data flow has been at 100%.
- May 14, 2013 – Logger board was replaced and the batteries were checked.
- August 5, 2014 – Adjusted LVD settings.
- July 22, 2015 – Adjusted quads and chops. Tested cell service. Even with a yagi antenna, connection was considered too marginal to replace functional VSAT.
- December 10, 2015 – Swapped the RT board on CH2 to try and address data.
- March 31, 2016 – Measured resistance and capacitance on all four GTSM channels.
- July 12, 2016 – Swapped GTSM and mains batteries. Tested all down hole cell resistance and capacitance as part of ongoing data quality assessment.
- December 6, 2016 – Continued down-hole GTSM testing by changing 1st decade RT value and observing voltage change on channel input signal. Tested downhole instrument response. CH2 had no downhole response to RT changes, and appears to be dead.
- April 20, 2017 – Continued GTSM testing using dummy load cell. Noise was found on CH1 and CH2 signals indicating possible noise in uphole electronics.
- March 14, 2018 – Added Setra barometric sensor and configured Q330.
- April 11, 2018 – Swapped oscillator. This fixed an issue where CH1 and CH3 showed unstable amp i/p waveforms when the RT was changed. CH2 had no tap step, reduced amp i/p response and saturates at 1V, not fixable. CH1 was in G2, adjusted quad and it went to G3. Instability on amp i/p for CH1 and CH3 when moved out of balance. Oscillator swap corrected this problem. Tested RV50 with verizon and wilson antenna. RSSI 83, not quick but faster than VSAT. Plan on upgrading next visit.
- January 4, 2019 – Checked pore pressure. No response from instrument on willard, digiquartz, or kermit. Reboots did not help. Will need to replace sensor, there is a deflated packer currently, no gps borehole mount.

- July 16, 2019 – Installed an RV50 with a Wilson antenna. Replaced pore pressure sensor. Had to use truck winch to pull copper tubing from hole. Replaced without packer or tubing at similar depth of 148'.