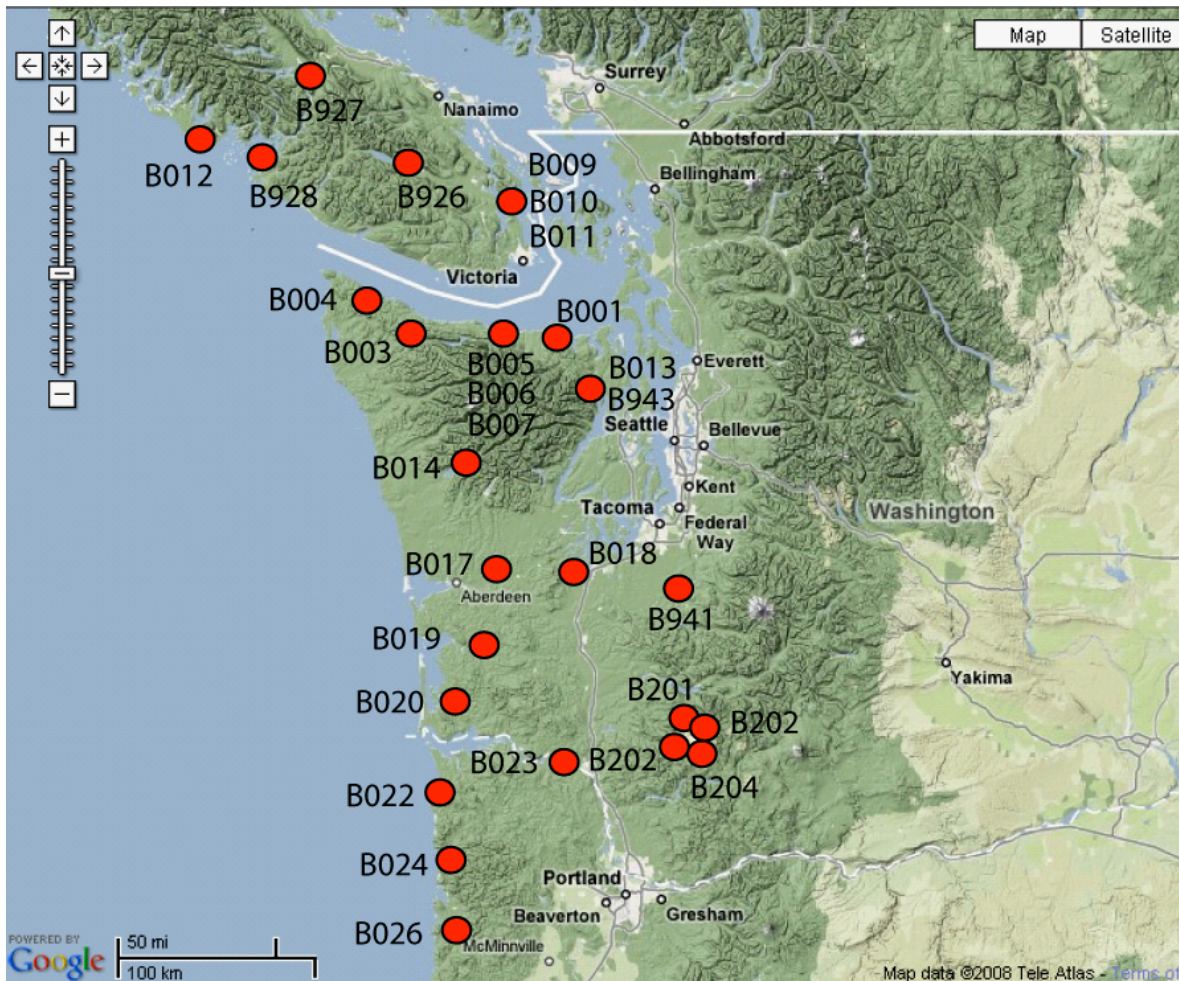


Station Notes for B017, flinkm017bwa2007

Latitude:	46.996 (WGS 84)
Longitude:	-123.5575 (WGS 84)
Elevation:	33.9 m / 111 ft
Install Depth: ¹	225.86m / 741 ft
Orientations: ²	CH0=323.5, CH1=263.5, CH2=203.5, CH3=173.5
Install Date:	11 July 2007
GTSM Technologies #:	US48
Executive Process Software:	1.14
Logger Software:	2.02.2
Home Page:	http://pbo.unavco.org/station/overview/B017
Notes Last Updated:	20 December 2018

¹Install depth is from the top of the casing to the bottom of the strainmeter.

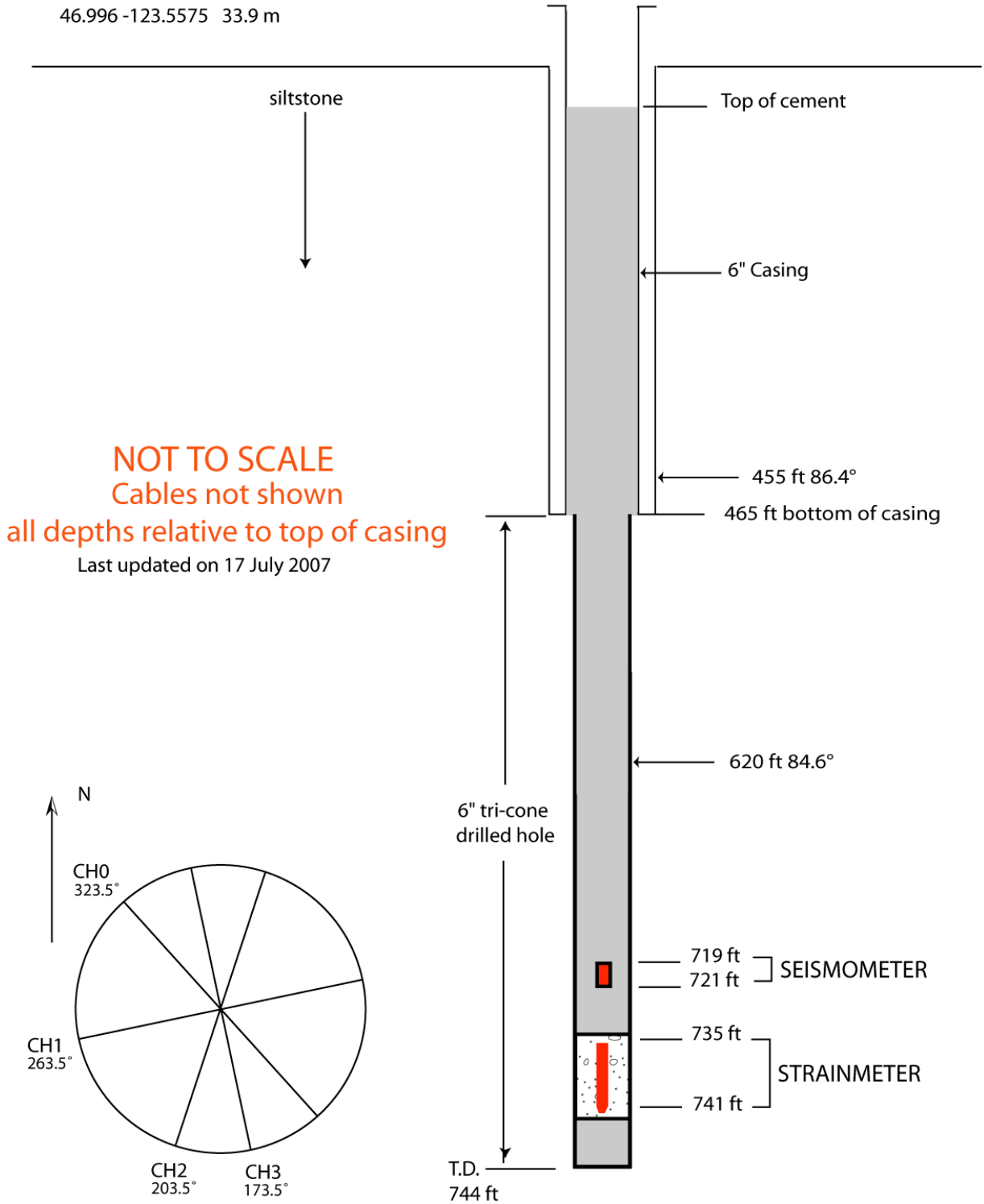
²Orientations are in degrees East of North.



Pacific Northwest PBO strainmeter network, May, 2008

B017 flinkm017bwa2007

46.996 -123.5575 33.9 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	NOT AVAILABLE	-
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. General Information

B017 Installation:

11 July 2007 UTC

1500 Onsite. US48 had powered down during the night.
1530 US48 back on. Set up equipment for install.
1700 Pulled data off of GTSM. Instrument looks great
1717 Shut down US48. Prep for install
1735 Compass Test X: 1.513, 1.029 Y: 1.514, 1.026
1808 Begin mixing grout.
1813 Last H2O added to mix
1823 Begin filling baler.
1827 Baler full. tripping in.
1831 On bottom, dumping grout.
1840 Out of grout. Tripping out.
1842 Out of hole.
1844 Lowering US48.
1858 On bottom of hole. Turning on US48.
1920 Instrument looks good. Decide to leave in hole.
2200 Off site.

12 July 2007 UTC

1400 Leave for site.
1530 Arrive on site after a few stops for water and install equipment.
1545 Test Seismometer #116 V 2.461 kohms H1 2.451 Kohms H2 2.458 KOHMS.
1605 Install Seismometer #116 using steel cable.
1625 Seismometer hung 5' above set grout.
1645 Trip in 1.5" pipe.
1644 1.5" tripped in. Grout at 725.5' Waiting on cement.
1715 Cement pumper arrives.
1910 still woc
2000 Cement truck shows up two hours late. Begin pumping cement. 100-200 foot lift then trip out pipe and repeat. H₂O was at 87 feet. When pumping cement water returned to the surface at same rate as cement was pumped into hole indicating that very little water was coming out of formation or going back into formation.
2053 Out of cement. Should have had 5 yards which would have returned to surface. Never got return. Probably only got 3.5 to 4 yards.
2112 Finished tripping out. Begin digging hole for GTSM cable
2125 Shut down GTSM to bury cable.
2152 Cable buried. Form set. Pour concrete for pad

2235 Pad finished.
2253 GTSM back on.
2350 Leave site.

13 July 2007 UTC

1500 Arrive on site. Pull data off GTSM. Data looks good.
1545 Sound cement. 67' from surface. Begin trenching for AC and VSAT.
1615 Power off GTSM to install electronics on pad.
1730 VSAT aimed. Sig 76, ACP 76 on HZN1 164 mag, 35.4 elevation 3.5 polarization.
1805 GTSM on.
1800 Electrician arrives onsite.
2100 AC drop installed.
2120 VSAT on. Rain gauge installed. NO calibration sheet. Unavco S/N 24052
2148 Shut down GTSM logger board to adjust D/H temp.
2158 Power on logger board.
2200-2350 site clean up. Begin MOB to MSH

2. General information

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

3. Strainmeter Maintenance

- January 8, 2008 UTC – Wade Johnson visited the site to get it back online.
23:15 - On site. Site is running. All lights on VSAT IDU are on, internet light on cisco off. After rebooting the VSAT the Cisco internet light come back on. The VSAT had frozen. Warren was able connect to the site after the VSAT had been rebooted. Wade replaced the GFI outlet with a standard outlet. He also cleaned out the rain gauge (plugged with pine needles).
23:59 - Leave site.
- February 2, 2008 – Tim Dittmann visited the site at 01:10 UTC to swap the black and white fiber modems with new replacements.
- March 11, 2008 – Mike Gottlieb visited the site to swap failed cisco router.
16:55 - On site.
17:20 - Program and connect new router.
18:20 - Confirm downloads in progress.
18:25 - Off site.
- March 24, 2009 – Logger software upgraded to 2.02.2
- July 28, 2009 – Korey re-aimed the VSAT.
- October 8, 2009 – Marmot was offline and was fixed.

- February 9, 2011 – Temporary broadband seismometer deployed, and borehole seismometer metadata collected with the Birddog.
- March 25, 2012 – Applied ColdStart command remotely to correct GPS timing. Timing was ~12 seconds slow before the command was used. The station now has GPS lock.
- July 19, 2012 – Temporary broadband seismometer was deployed.
- July 23, 2012 – Fiber optic modems were replaced when the broadband seismometer was picked up.
- April 2, 2013 – Liz visited the site. The site had 7 batteries, 2 for the GTSM and 5 for the main bank. She added 9 batteries, 3 to the GTSM and a main bank of 6 (3X3). The site pad is built on the ground level. Grass is attempting to grow within the site. Ants had made nests between the batteries and there was a mouse nest. At two points on the pad there is a 1/2 gap between the enclosure and pad, allowing small mice in. Diatomaceous earth was spread across the pad to remove the ants. All spider webs were removed. Liz re-organized the equipment wiring and added Velcro straps to secure all equipment. The rain gauge was full of pine needles and was cleaned. The chop and quads on the GTSM were adjusted. She also replaced the desiccants (saved the ones from the site to dry out during an office week). The LVD was tested and that info will be added to the B017 Word Doc.
- July 9, 2013 – Liz swapped the power box.
- July 11, 2013 – The site went offline shortly after the previous visit when the GTSM power box was replaced. All GTSM boards and FODP were on when Liz arrived, with the exception of the Logger Board. The Logger board was replaced and the files updated.
- November 14, 2013 – Removed spider webs from enclosure. There was a large amount of soil within the enclosure, removed most of it. Vegetation had grown over the pad, creating a soil layer over the pad, which had pushed the soil into the enclosure. The soil in the enclosure contained grass growing within the site and grass roots from the grass surrounding the enclosure. This allowed more moisture into the site. Replace GTSM desiccants, which had been replaced four months earlier, indicating the amount of moisture in the site. Added diatomaceous earth. Water was pooled on the top of the rain gauge, meaning rainfall was not being recorded. Rain gauge was cleaned. The GTSM was on and the FODP was on. Restarted logger board twice and still could not ping GTSM from within the site. Tried replacing the Power Box, but still could not ping GTSM. Replaced the logger board. Was able to ping GTSM from within the site. Removed soil and grass that has grown over the pad.
- December 16, 2013 – Mike Gottlieb upgraded the GTSM logger firmware from 1.166 2.10.2. The GTSM stopped collecting data on 9 December 2013, the logger upgrade fixed the problem.
- March 31, 2015 – Arrived on site to find the comms LVD was off, everything else was on. The Iota A/C charge controller was only outputting 3 A. Power cycling the charge controller fixed the behavior, the Iota began outputting 15 A again, and charging the mains batteries. Apparently it had gotten stuck in some sort of fault mode. Decided to replace the Iota since it was unclear why it faulted. Noticed the black wire going into the Iota was slightly charred.

Replaced that wire also. New charge controller observed to be outputting 15 A and charging batteries. Adjusted quadrature and chop on the GTSM. Cleared debris from rain gauge. It was not completely clogged (as in, there was no standing water in the funnel).

- October 21, 2015 –Upgraded comms to LS300. Adjusted quads and chops. Cleaned clogged rain gauge.
- June 20, 2017 – Rain gauge was clogged and pooling water, cleaned rain gauge. Power cycled marmot. Changed strain_logger.conf to disable pressure pot to match power box. Cleaned up site.
- September 13, 2017 – GTSM was powered off and GTSM PB has red lights. GTSM battery bank was at 11.3V. Followed power and it ended at the isolation block. Tried new power box, but no change. Isolation box appears to be the problem. Need to replace isolation block and heat sink pad.
- October 4, 2017 – Replaced GTSM isolation block. New isolation block had the same issue. Need to order more spare parts for the power panel. Most likely a bad new isolation block. Power cycle Marmot.
- October 19, 2017 – Replaced failed isolation block on backpanel. Now outputting 16 V. GTSM batteries were dead (3 V) and not charging. Moved GTSM onto one of the mains batteries, now it appears to be working better. 1 GTSM and 5 mains connected, with 3 dead old GTSM batteries that still need to be removed.
- November 1, 2017 - GTSM was still offline after replacing the isolation block. GTSM battery was losing charge. Needed to replace the power box. Swapped out GTSM Battery Bank with 4 new batteries. Replaced the power box and updated the strain-logger.conf file. Cleaned out the rain gauge. Replaced the 4 port fiber optic modem.
- February 8, 2018 – Could not connect to the Marmot remotely. Marmot reboot did not correct issue. Swapped out Marmot and contacted Otina to finish new Marmot set-up.
- December 5, 2018 – Upgraded LS300 to RV50. Installed 4G red bull antenna.