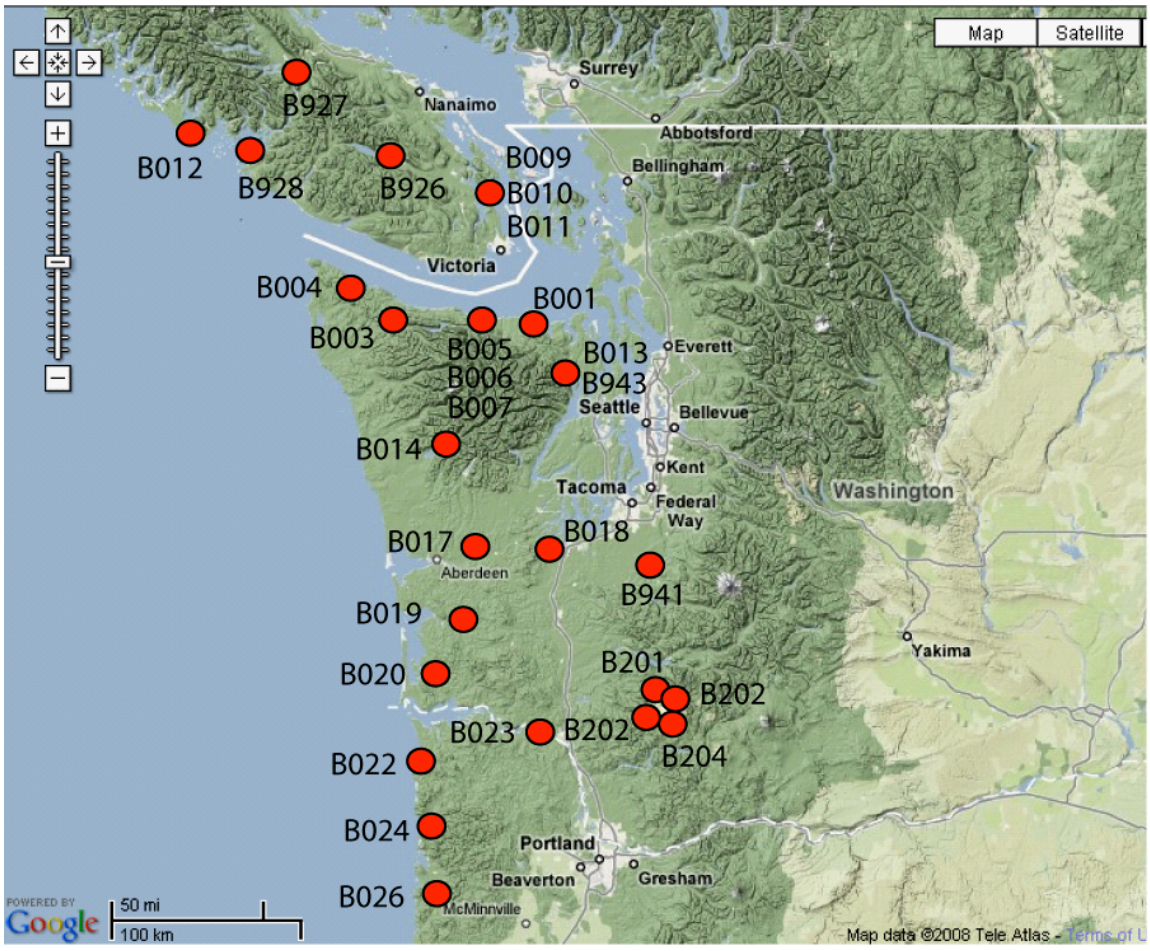
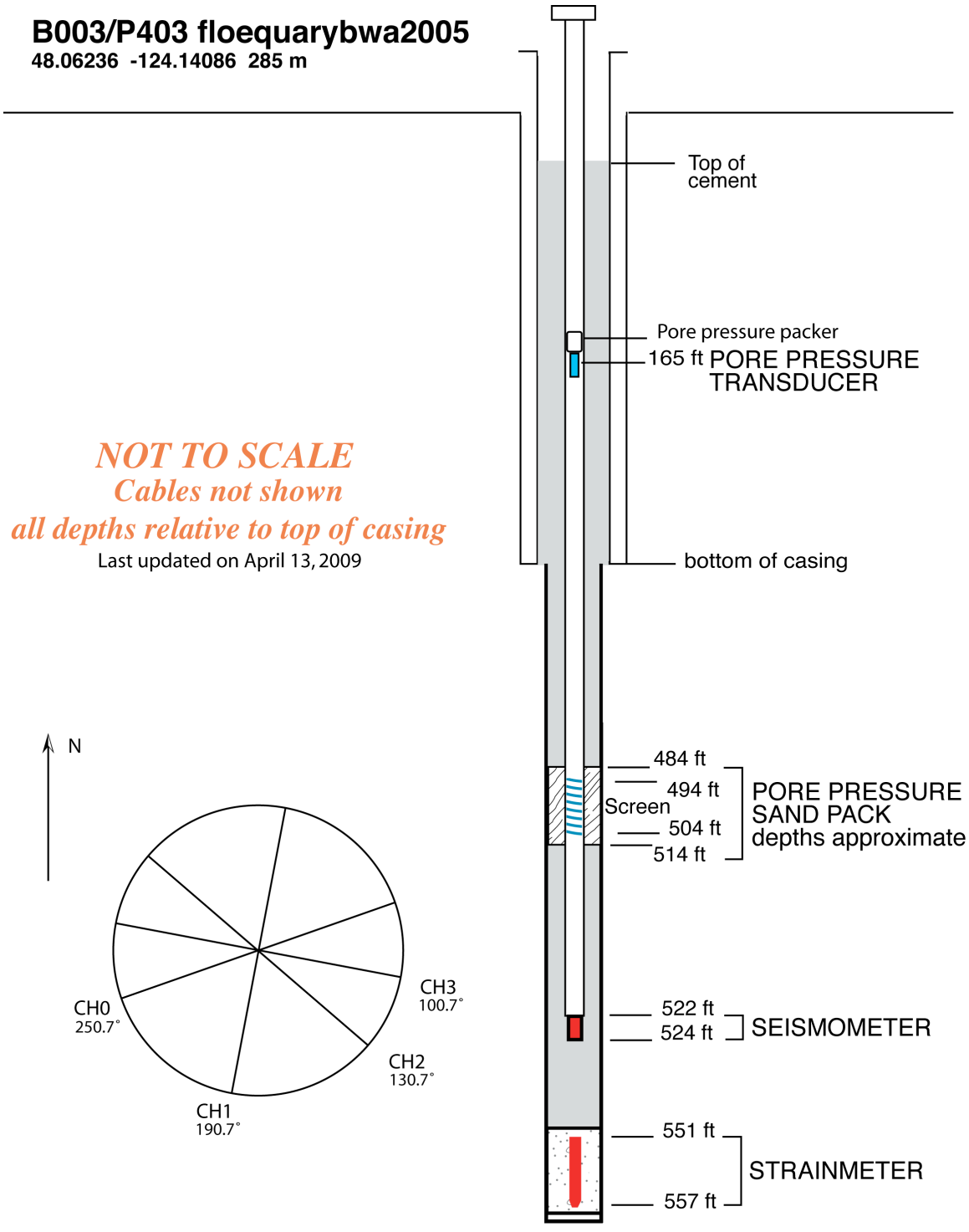
Station Notes for B003/P403, Floe Quarry, floequarybwa2005

Latitude:	48.06236 (WGS 84)
Longitude:	-124.14086 (WGS 84)
Elevation:	285 m / 934 ft
Install Depth:[1]	170 m / 557 ft
Orientations:[2]	CH0=250.7, CH1=190.7, CH2=130.7, CH3=100.7
Install Date:	21 June 2005
GTSM Technologies #:	US02
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.2
Home Page:	http://pbo.unavco.org/station/overview/B003
Notes Last Updated:	October 10, 2018

[1]Install depth is from the top of the casing to the bottom of the strainmeter.
[2]Orientations are in degrees East of North.



Pacific Northwest PBO strainmeter network, April, 2008


B003/P403 floequarybwa2005
48.06236 -124.14086 285 m
Top of cement
Pore pressure packer
165 ft PORE PRESSURE TRANSDUCER
NOT TO SCALE
Cables not shown
all depths relative to top of casing
Last updated on April 13, 2009
bottom of casing
N
CH0 250.7°
CH3 100.7°
CH2 130.7°
CH1 190.7°
484 ft
494 ft
Screen
504 ft
514 ft
PORE PRESSURE SAND PACK depths approximate
522 ft
524 ft
SEISMOMETER
551 ft
557 ft
STRAINMETER

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	1.0	1.43E-4

1. General Information

- June 19 – 29 2005, Engineers on site. Data copied using USB connection June 20 – 24. USB copy attempted on June 25-29.

- On 9 November 2005 the following files were replaced in the IRIS DMC and NCEDC archives
  P403.2005.2005272151200.xml.bz2
  P403.2005.2005280142624.xml.bz2
  P403.2005.2005287204538.xml.bz2
  The files were replaced because the "/" was missing from the closing tag of the Modified Julian Date element (<MJD>). The strain values and associated time-series corrections were not changed.

- January 13, 2006 - All XML files written after January 10, 2006 (version number greater than 20060101000000) are written in PBO XML format V1.0.1. Each observation element now includes an offset element. The offset elements contain a running sum of all offsets that should be applied to the data to remove steps which are non-tectonic in original, for example, steps introduced by field tests. See the PBO Strainmeter Data products web page for the V1.0.1 documentation.

- November 9, 2006 - Record amounts of rain fell on the Olympic Peninsula between the 1st and 9th November 2006.

- Due to some critical internal system changes, P403 was renamed B003 on 30 October 2007. The 16-character id will not change. This change will affect seismic data from this station.

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

- The pore pressure sensor is installed at 165 feet with the packer inflated directly above the sensor.

2. Strainmeter Maintenance

- Door opened and logger restarted on July 27, 2005.

- September 13, 2005 - Mike Hasting installs a GPS monument on top of the wellhead at the BSM station P403. "We also pulled about 850ft of 3/4 inch power cable, or should I say a really long extension cord, from the site down to the landowner's cabin so we now have A/C power at the site to charge the batteries. We also had to do a little field surgery on the CDMA modem as the internal antenna cable came out. We also had a bad flex charger and had to replace that on site."

- Door opened and logger restarted on October 5, 2005 .

- December 21, 2005 - A second NetRS was installed at P403 to replace the one that failed on December 14, 2005.

- January 3, 2006 - NetRS was configured to also collect pore data.

- Door opened and logger restarted on April 12, 2006.

- July 20, 2006 - Mike Hasting replaces the NetRS at P403. While configured to collect pore data, and producing daily files, the files contain no pore data. "The last time we had a complete, valid pore data file from P403 was on 23jun2006, and partial files on 24jun2006 and 25jun2006 as the NetRS was in its death throes."

- August 11, 2006 – Mike Hasting upgrades RT firmware.

- November 28, 2006 - Michael Hasting went up to P403 today. As expected the power was out, as it was for the entire Forks region. He got the station up and running on his generator but when he checked the status of the GTSM it was still running. What it told him was that it had power recently and was charging over the past few weeks while it was off line. He checked and it seamed to have all the appropriate Day files so something was amiss. After some inspection He found the VSAT was miss aligned by about 30 degree. Amassing what +100mph winds will do and some loose bolts. So he got it back in alignment and had it working.

- January 28, 2007 – Michael Hasting finally was able to get to the site today. Upon arrival there was no power at the station. An investigation of the equipment revealed that the power supply for the seismic and GPS system fried itself. As a result, the circuit breaker down at the house has been tripped so there is currently no A/C power at the sit.

- January 29, 2007 – Michael Hasting got the station back online and working. He added weather stripping around the doors to the enclosure, and made sure the pore pressure sensor was working.

- October 30, 2007 UTC – Steve Smith visited Floe Quarry primarily for renaming BSM gear to B003, and leaving GPS gear as P403. However, he also did some normal maintenance. The capacitor on the F/O modem looked fair, but will probably need replacing in the not-to-distant future. It is working for now.

  GTSM - Changed to B003.
  Marmot - Swapped out for a new "blue" one and named B003.
  Q330 - Changed to B003.
  NetRS - Remains P403.

Pore Pressure - Still connected to the NetRS.

20:05pm - On-site.
20:12 - Doors open.
20:18 - SpeedCharge Charger flashing "Check" light.
According to manual, this may mean bad battery.
Battery @ 14.04V.
This powers the network side.
20:34 - Start data dump.
Dessicant appears really white, but he didn't have any to replace it, or an m-wave.
21:02 - Unintended Net-side power outage.
While replacing power cable for new Marmot he had to unscrew some posts on a jumper block, for which all power for net side gear was attached (unavoidable).
21:06 - All power restored.
21:07 - New Marmot in place.
21:10 - Q330 Net cable replaced due to trauma (closed in GTSM logger door by last visitor).
21:13 - Gave up on USB Data Download. Endless blinking green light.
21:34 - GTSM Batteries @ 14.04V.
22:50 - Spent a bunch of time downloading Willard (and other files) and renamed Q330.
23:01 - Buttoning up
23:11 – Offsite.

- December 19, 2007 - Wade Johnson and Liz Van Boskirk visited the site to get it back online. When they arrived on site they noted that two batteries where spread across the site about 150 feet from each other. The solar panels were gone, but the unistrut they were attached to was stacked to one side of the enclosure and conduit was lying on the ground. The power to the Marmot, Q330, NetRS and four port fiber optic switch was off. With further investigation it was discovered that when the conduit to the panels was cut it shorted out the batteries in the site. One set of Panels went to the GTSM through a flex charger. They removed the GTSM's solar charge controller and cleaned up the wires going to it.

  The Power system for the non-GTSM components did not do any better. Fortunately the Flex charger was not damaged and could still be used at a LVD. There was an over the counter DC charger attached to the Battery that was damaged by the short. They replaced it with a standard IOTA charger. When Wade hooked up the IOTA all of the electronics came back up except the Marmot. They checked out the Marmot power cable and it is working. Wade believes the marmot was damaged when the system shorted out. The Marmot was removed and will be sent back to boulder. This was a "new" Marmot that Steve Smith installed in Oct. Unused wires were cleaned up and site buttoned up.

- March 7, 2008 UTC – Wade Johnson visited the site.
  00:10 - Onsite.
  00:21 - Power down main power, replace power system with standard back panel, and add Marmot.
  01:37 - Power up site.

- March 20, 2009 – Wade Johnson upgraded the logger firmware from version 1.15 to 2.02.2.

- March 8, 2009 – VSAT had hung, was reset on march 8, 2009.

- October 6, 2009 – Wade Johnson visited the site to get it back online. There was a power failure at the site. Wade installed a new Powerbox for the strainmeter, DC power supply and timer for the VSAT, and a new set of batteries. He set up the marmot and put the Cisco on DC power. The site is now up to standard BSM power standards.

- November 19, 2009 – Wade was onsite from11:00 to 12:00 local time. He removed the NetRS and moved the pore pressure to the Q330. He started up a serial session on the Q330 and called Warren to confirm the swap to the Q330.

- August 5, 2010 – Reconnected AC power, and trimmed trees that were interfering with VSAT. (the site lost power again on Aug 19, 2010)

- August 23, 2010 - Site was visited. The panel Iota, switches and wire were charred. The batteries could not charge and get above 11.3 Volts. All equipment surfaces in the site showed signs of high moisture content.

- August 24, 2010 – 12:30-16:00 Pacific Time. The panel was replaced. All electronics are re-wired through the new panel. Note, the seismometer does not go through the panel and was not rewired. GTSM was turned off during the re-wiring. After the batteries charged everything come on except the IDU. The IDU power converter was replaced with one that plugs directly into the power strip (no longer goes through the timer).

- June 20, 2012 – After arriving on site, all equipment except the GTSM was off. The battery main bank was at the LVD cutoff. Liz plugged her phone into the power strip to confirm that there was still power to the site, which there was. She lifted the panel that all equipment is wired into and noticed the charge controller was full of dead ants. Below the panel was a large ant nest and as Liz further lifted the panel up ants begin moving out of the charge controller. The charge controller was replaced on the panel. Ants have been an issue with the Olympic Peninsula sites. Diatomaceous earth should be brought in July when the site is rebuilt.

- July 10 – 13, 2012 – The hut was upgraded.
  On-site: Travis Pitcher, Ken Austin, Wade Johnson, Charlie Sievers, and Liz.
  When the wood on the old pad was removed, it was discovered there was no cement, the wood was only holding dirt. The new pad form was slightly larger to fill in under the old one. For the power, the cord coming up the hill was placed in liquatite conduit and secured to make sure there was no pull on the line. Photos on DIMS. The Seismic data flow had been re-directed through the Q330. The marmot on-site was powered, but the status light was blinking red. The new marmot is not available in the MDM. Liz will look into it after updating reports. The marmot UNID listed in the MDM did not match the replaced marmot. Four more batteries should be added to the main battery bank after the broadband is removed.

- July 13-16 2012
  Broadband deployed 7/13-16 after enclosure upgrade was completed.

- February 5, 2013 – Checked rain gauge, nothing is blocking it. It was tipping before the GTSM power box was replace. Replaced the power box. Strapped down all of the equipment with Velcro straps.

- March 21, 2013 – Liz visited the site. Finished securing the GTSM power box and completed securing equipment at the site. She tested the rain gauge to make sure it was tipping. Liz will check the rain gauge wiring next time she visits the site.

- July 24, 2013 – Liz tipped the rain gauge twice. No rainfall was recorded.

- July 25, 2013 – The rain gauge cable was bad. The cable was replaced, end re-soldered, and the new end was test. The plastic connector on the power box twists, probably from the summer heat. The rain gauge had multiple fail points: the old soldering was broken off, with no connection and the bad cable.

- March 20, 2014 – Solar amps reading was steady state at about 12.5 A, which was impossibly high. Edited the strain-logger.conf file to enable the coil current sensor.

- April 1, 2014 – Checked rain gauge from power box. When tipped it only produced a voltage change of 0.03v. Re-soldering the rain gauge wire did not help.

- April 2, 2014 – Replaced the power box. There is now a change of 4.9v when the rain gauge is tipped. The rain gauge was tipped several times as a test.

- April 22, 2014 – Power strip had to be power cycled to get the station back online after the breaker had flipped.

- May 8, 2014 – Replaced the old surge protector with a 15 amp power strip.

- October 6, 2014 – Mike Gottlieb visited the site to install a 15A breaker to the external outlet for landowner power.

- June 17, 2015 – Landowner tripped the 15 amp power strip/surge protector in the site. The landowners 15 amp breaker did not trip. Reset power strip, site is back online. Adjusted GTSM quads and chop.

- October 13, 2015 – Moved BSM comms over to GPS. Upgraded GPS comms from Lancell II to LS300. Adjusted quads and chops.

- October 26, 2016 – Site went off-line during large storm due to power failure. GTSM surge protector/power strip would not turn on. Reset GFI, however power strip still would not turn on and tripped GFI. Swapped out power strip and GFI outlet did not trip. All equipment come back on. Got word from DelHur that the quarry will be active this week and next.

- February 9, 2018 – LS300 on-site was completely dead. All other power and equipment on-site was in good condition and operational. Swapped out CDMA with a RV50. Connected to VPN tunnel.

- September 4, 2018 – Swapped batteries. 3 new GTSM batteries and 7 batteries for the main bank (2 banks, one with 3 and one with 4 batteries). Adjusted GTSM chops and quads Meet with electrician for power estimate.