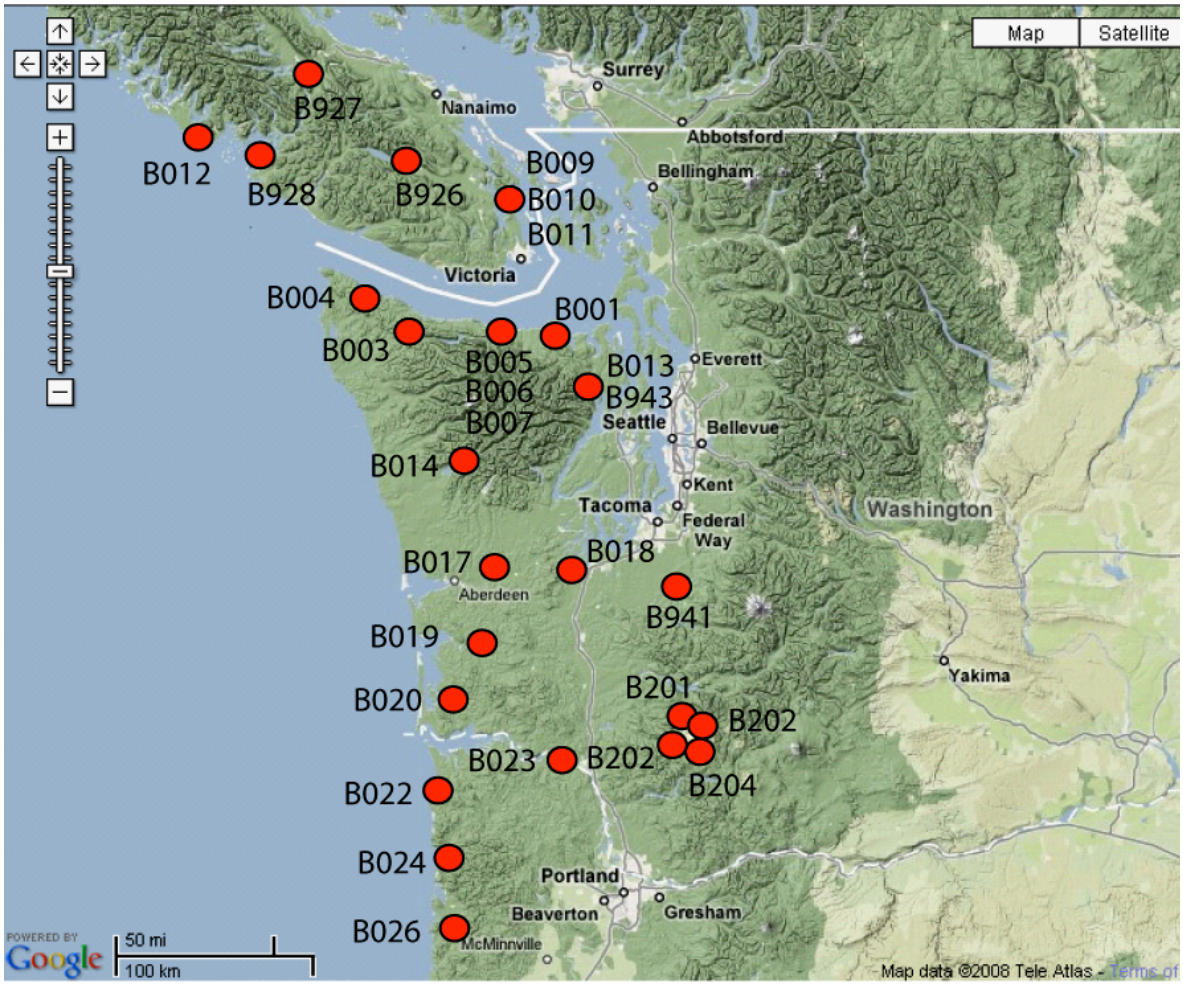
Station Notes for B007 shoresso3bwa2005

Latitude:	48.0575767 (WGS 84)
Longitude:	-123.5041133 (WGS 84)
Elevation:	293 m / 961 ft
Install Depth:[1]	140.03 m / 459 ft
Orientations:[2]	CH0= 193.0, CH1= 133.0, CH2= 73.0, CH3= 43.0
Install Date:	2005-07-23
GTSM Technologies #:	US03
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.2
Home Page:	http://pboweb.unavco.org/stations/?checkkey=B007
Notes Last Updated:	October 11, 2018

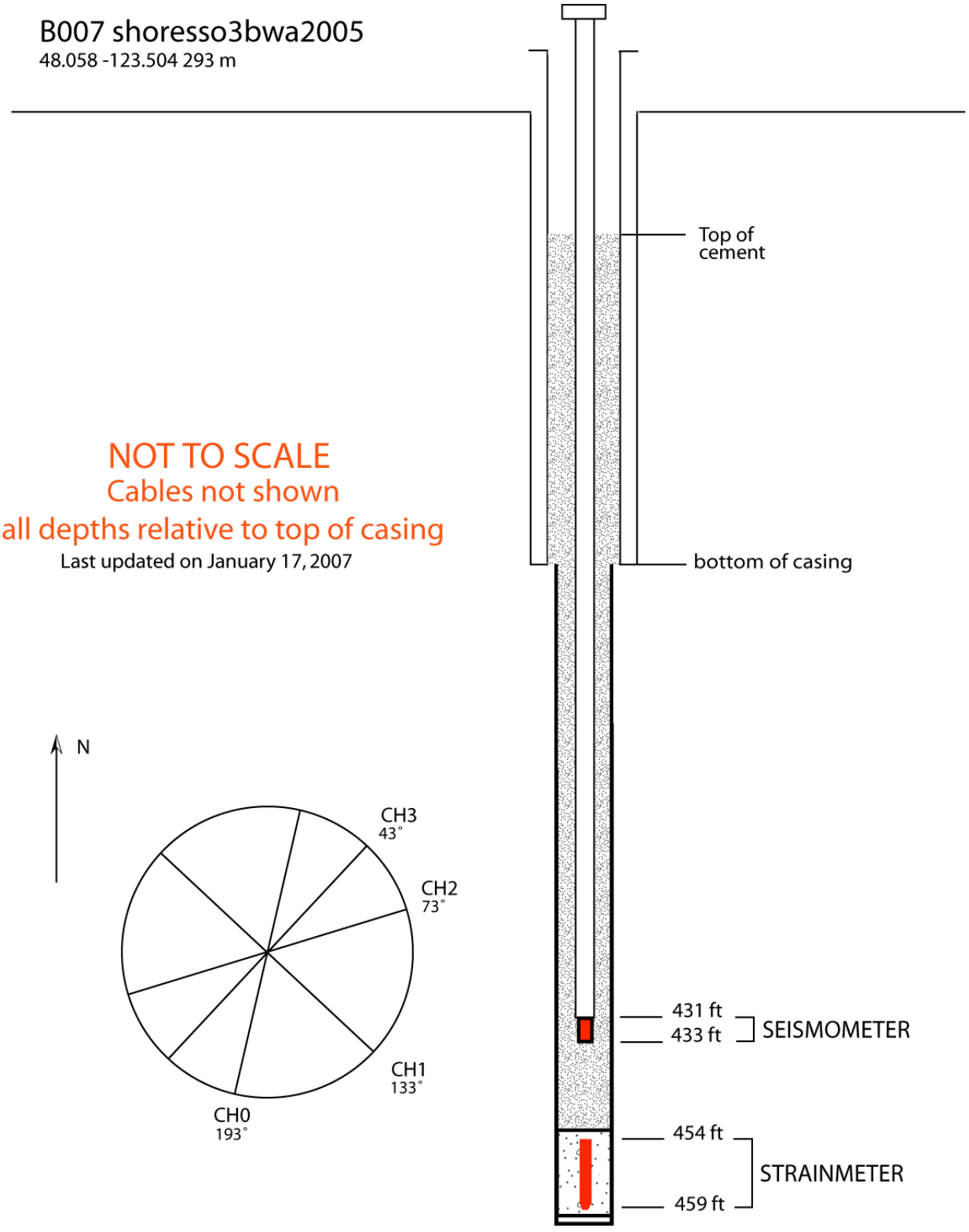
[1]Install depth is from the top of the casing to the bottom of the strainmeter.
[2]Orientations are in degrees East of North.



Pacific Northwest PBO strainmeter network, April, 2008

B007 shoresso3bwa2005

48.058 -123.504 293 m



NOT TO SCALE

Cables not shown

all depths relative to top of casing

Last updated on January 17, 2007

Instrumentation at Strainmeter

Instrument	Units	Bottle/ASCII Scale Factor	SEED Scale Factor
Pore Pressure	Hecto Pascals	N/A	N/A
GTSM Barometer	Kilopascals	1.0	0.0001
Rain Gauge	Millimeters/hour	N/A	N/A
Down hole Temperature Sensor	Degrees Celsius	1.0	0.0001
Logger Temperature Sensor	Degrees Celsius	1.0	0.0001
Setra Barometer	Hecto Pascals	N/A	1.43051E-4

1. General Information

- B007 is part of the Shores cluster of strainmeters. Strainmeters B005 and B006 are within a few 100 meters of B005.
- Record amounts of rain fell on the Olympic Peninsula between the 1st and 9th November 2006.
- Quarry blast on September 5, 2007 at 18:43 UTC. The blast caused offsets on all channels of B005, B006 and B007.
- Quarry blast on July 16, 2008. The blast caused offsets on all channels of B005, B006 and B007.
- Sensitivities of all EH channels were corrected in the dataless on March 4, 2010. The blast caused offsets on all channels of B005, B006 and B007.
- Quarry blast on May 24, 2012 at 22:44 UTC. The blast caused offsets on all channels of B005, B006 and B007.
- Quarry blast on May 7, 2013 at 21:07:03 UTC (confirmed by the USGS http://earthquake.usgs.gov/earthquakes/eventpage/uw60526356#summary). The blast caused offsets on all channels of B005, B006 and B007.
- Sensitivities of all EH channels corrected on March 4, 2010.

2. Strainmeter Maintenance

- July 23, 2005
  Sat Jul 23 16:33:51 2005. Logger started.

- July 28, 2005
  Thu Jul 28 09:30:14 - 16:57:14 2005. Logger restarted twice.

- August 4, 2005
  Thu Aug 4 20:16:42 - 20:16:55 2005. Environmental door opened.

- August 17-18, 2005
  Wed Aug 17 20:43:09 - Thu Aug 18 18:46:41 2005. Mike Hasting worked at the site. A second A/C circuit breaker was put in the power panel for PNSN, UW, who were recording broadband seismic data near B005 on the slow slip earthquakes. The voltage settings were reset in the power box to reflect the true voltage in the batteries. The downhole temperature could not be reset on the strainmeter.

- August 31, 2005
  Wed Aug 31 02:04:25 2005. Logger restarted.

- September 13, 2005
  Tue Sep 13 15:54:21 - 15:54:29 2005. Environmental door opened.

- October 21, 2005
  Fri Oct 21 20:13:11 -20:14:18 2005 Environmental door opened

- October 27, 2005
  Thu Oct 27 04:57:12 - 04:59:23 2005. Logger restarted.

- December 16, 2005
  Fri Dec 16 19:57:10 - 21:49:29 2005. Mick Gladwin of GTSM Technologies visited the site. The RT firmware was upgraded to version 1.16 . It was noticed that the main cable had an excessive bend and that the flex cable was kinked at the plug.

- December 19, 2005
  Mon Dec 19 00:34:58 - 22:52:31 2005. Environmental door opened, logger restarted.

- December 23, 2005
  Fri Dec 23 21:42:05 - 21:47:58 2005. Environmental door opened, logger restarted.

- 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 http://pboweb.unavco.org/?pageid=101 for the V1.0.1 documentation.

- April 12, 2006
  Wed Apr 12 22:52:47 - 23:15:43 2006. Environmental door opened, logger restarted.

- May 25, 2006
  Thu May 25 05:43:28 - 05:48:44 2006. Logger restarted.

- August 9, 2006
  Wed Aug 9 23:33:31 - Thu Aug 10 00:03:54 2006. Mike Hasting upgraded the RT firmware. Logger restarted.

- August 17, 2006
  Thu Aug 17 00:15:45 - 00:18:44 2006. Logger restarted.

- November 28, 2007
  Mike Hasting visited the site to work on B005. He found that there was 2 feet of snow at the site and the VSAT was covered in snow.

- May 18, 2006 – The constant voltage power supply failed. Fortunately Wade Johnson got to the site before the GTSM batteries were over discharged. He replaced the entire power system with Warren's AC power system. When he left the site all batteries were being

charged.

- November 1, 2007 UTC – Steve smith visited the site to do some routine maintenance.
  18:54 - Onsite.
  19:00 - Confirm we have power, all looks good.
  19:10 - Doors closed.
  19:12 - Offsite.

- December 19, 2008 UTC – Wade Johnson and Liz Von Boskirk visited the site.
  17:55 - The 1-port fiber optic modem wass replaced.

- February 27, 2008 UTC – Sarah Venator visited the site.
  18:04 - Open enclosure. Replace old black modem with new one.
  Unplug old Marmot and plug in new one which had been pre-configured by Warren. Check to see that site is now reachable and online.
  ~18:30 Close enclosure, off site.

- July 8, 2008 – Mike Gottlieb visited the site to take inventory. The site needs 3 batteries, new hut, new fiber optic modems, electronics rack, trip-lite, and possibly a pore-pressure sensor.

- 29 July 2008 PST
  14:20 On site, enclosure open.
  14:25 Power down site except GTSM.
  15:05 Add 3 batteries; 1 to strainmeter and 2 to battery bank. Add Tripp-Lite.
  15:15 Power up site. Ping GTSM, Marmot, Q330 and all respond.
  15:30 Enclosure closed, off site.

- March 26, 2009 – Logger software upgraded to 2.02.2.

- Nov 20, 2009 – Wade Johnson visited the site from 10:30 to 16:30 local time. The CF card at this site appears to have failed. He put in a new compact flash card from a spare logger board. The logger recognized the compact flash but was unable to use it because of pre-existing files on the card. Wade used MP46 procedures to reformat card. After doing this, the logger was not able to recognize the card. He swapped in the spare logger board and attempted to reformat the compact flash again. This did not work. While booting up the logger "sees" the compact flash but error messages occur because of a bad file structure. Wade left the new board in the site. Hopefully this site can be fixed remotely. Comms at the site were off line when he was up there due to a power outage.

- January 22, 2010 – Wade Johnson replaced the logger.

- March 28, 2010 – Liz visited the site to attach ID tags to equipment that did not have them.

- October 21, 2010 – Chad repaired the damaged VSAT mount, and the Shores network was back online. A new marmot was also installed.

- March 21, 2011 – Power supply for Cisco router failed. After it was replaced the comms came back up.

- July 19, 2011 – The Marmot was power cycled. Otina was contacted afterward to determine the status of data flow. The power box float light was off. Liz lifted the box and felt water moving in the bottom of the box. After taking the box apart, careful not to let water touch the top, it was noted that corrosion has developed on the electronics. The power box was replaced.

- September 20 – 21, 2011 – Pad was extended, equipment rack installed, full size hut installed, and two GTSM batteries replaced.

- January 12, 2012 – The GTSM power box and GTSM GPS antenna were both replaced. The GPS antenna was moved to a higher location with the Q330 GPS.

- June 19, 2012 – The battery main bank of 6 was replaced. There was a data quality issue mentioned for this site. All boards were pulled, checked for corrosion, and re-seated. All cables were checked for corrosion as well. Everything appeared clean. It was noticed that on the GTSM Quad box, that the switch for Channel 3 was flipped down (off) and a red light was on. Liz called Wade to confirm that all switches should be in the up/on position and discussed the purpose of the switch. It is possible this introduced the noise. The GTSM data will be monitored. The GTSM quadrature was adjusted.

- January 11, 2015 – Logger board was failing and was replaced. Adjusted quadrature. Marmot is dead and needs to be replaced.

- April 16, 2015 – Secured all site equipment and adjusted chops and quads.

- September 28, 2016 – Turned off GTSM and documented resistance and capacitance of downhole instrument. Adjusted GTSM chops and quads. Replaced enclosure locks.

- July 7, 2017 – Adjusted chops and quads. Added diatomaceous earth and refreshed desiccants. Took photos of GTSM power box inside and strain_logger.conf settings.

- October 4, 2018 – Swapped 8 batteries.