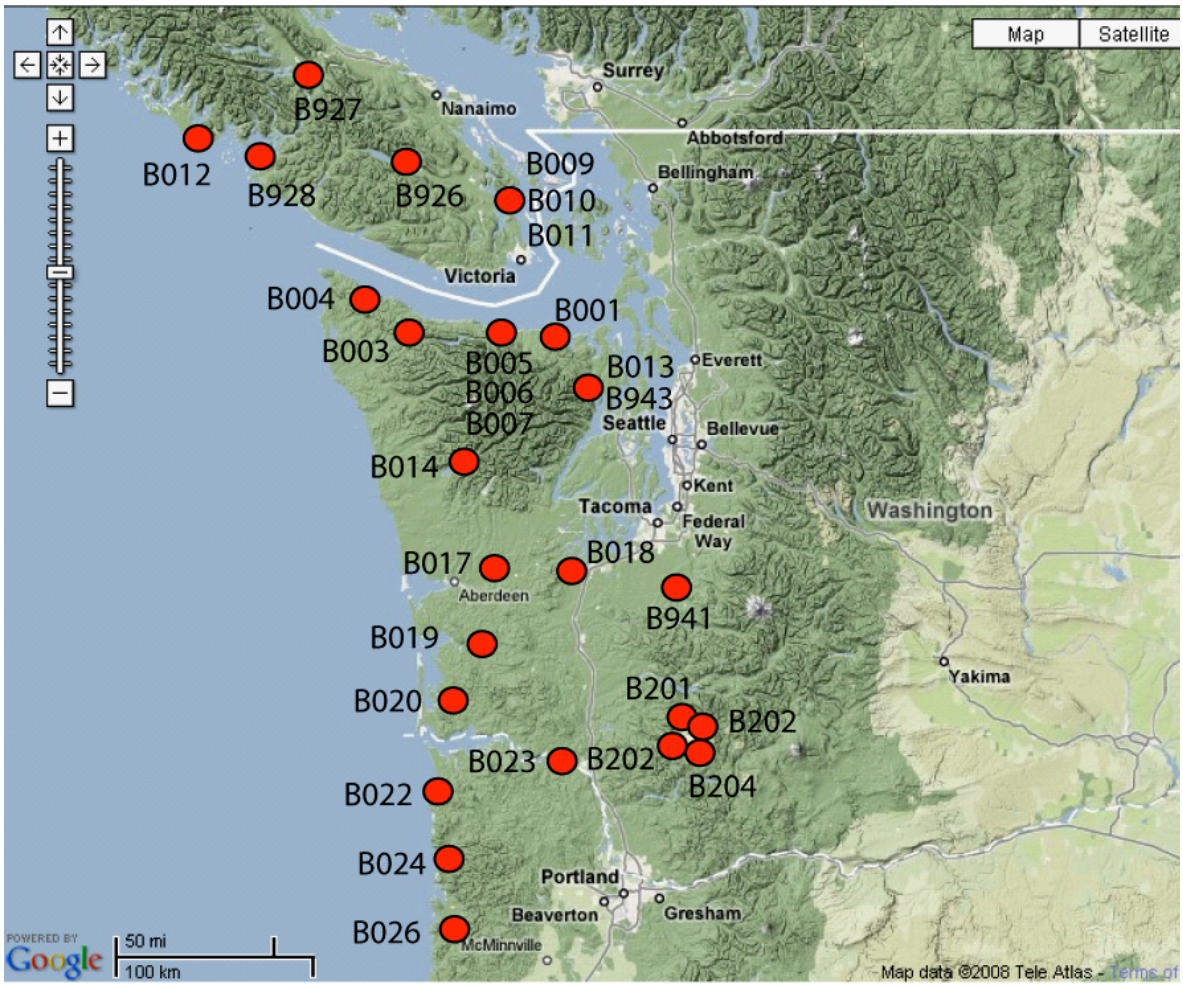
Station Notes for B012, Ucluelet, ucluelet1bbc2005

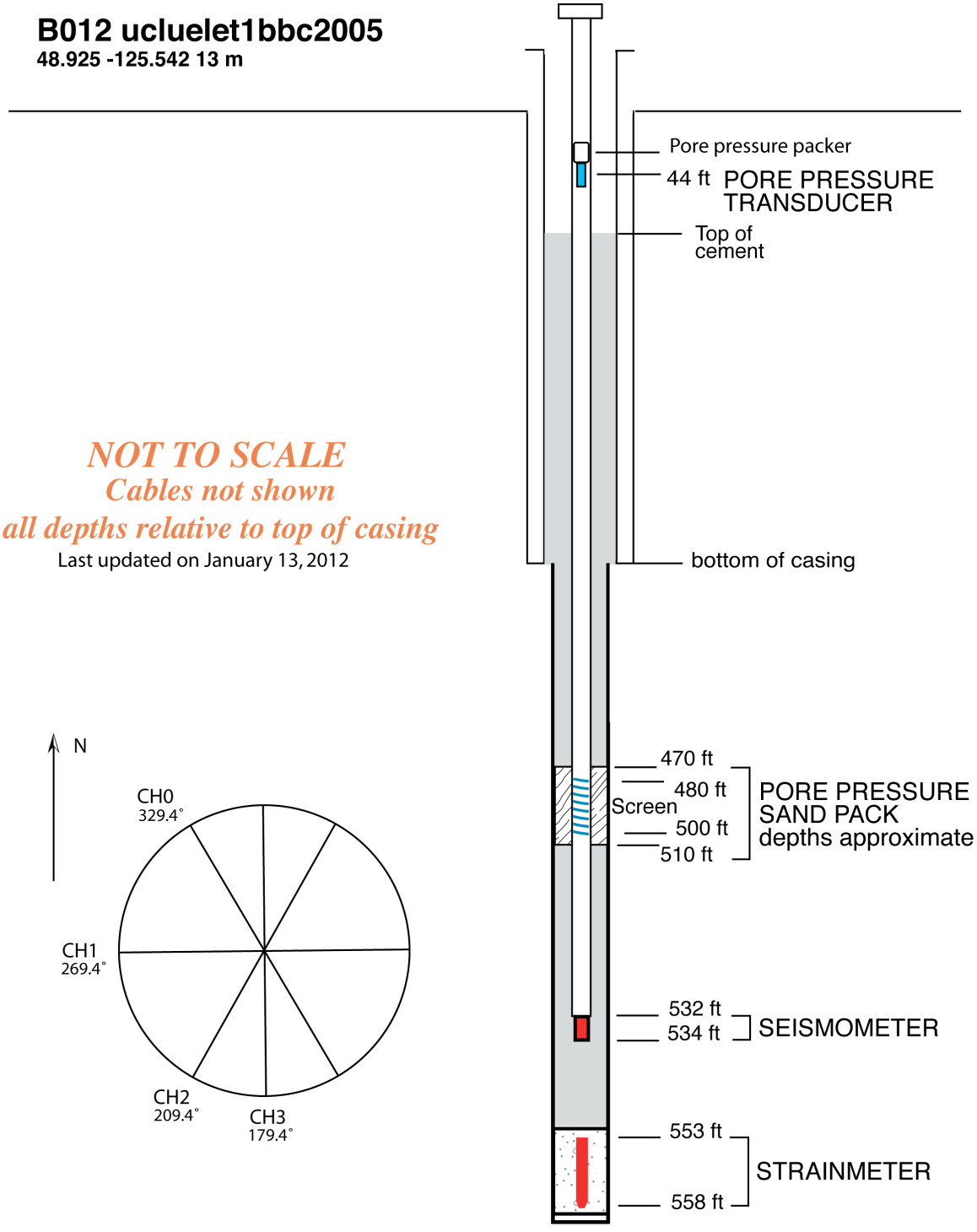
Latitude:	48.925 (WGS 84)
Longitude:	-125.542 (WGS 84)
Elevation:	10 m / 33 ft
Install Depth:[1]	170.1 m / 558 ft
Orientations:[2]	CH0=329.4, CH1=269.4, CH2=209.4, CH3=179.4
Install Date:	22 September 2005
GTSM Technologies #:	US07
Executive Process Software:	Version 1.14
Logger Software:	Version 2.02.3
Home Page:	http://pboweb.unavco.org/stations/?checkkey=B012
Notes Last Updated:	September 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 23, 2008

B012 ucluelet1bbc2005
48.925 -125.542 13 m



NOT TO SCALE
Cables not shown
all depths relative to top of casing
Last updated on January 13, 2012

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	1.43051E-4

1. General Information

- January 30, 2006 - First set of processed data released January 27, 2006.
- November 9, 2006 - Record amounts of rain fell on the Olympic Peninsula between the 1st and 9th November 2006.
- No data have been returned from B012, Ucluelet since 16 December 2006.
- Environmental door opened July 5, 2005
- Logger restarted on Oct 27, June 1, 2005
- Environmental door opened on January 4, 2007 at 17:30 UTC for 4 seconds
- Sensitivities of all EH channels corrected in the dataless on March 4, 2010.
- The pore pressure sensor is installed at 44 feet with the packer inflated directly above the sensor.

2. Strainmeter Maintenance

- Engineers on site Sept 21-23, Oct 3, 2005. Data copied using a USB connection on the 23rd.
- December 12, 2005 - Mick Gladwin visited B012. Mick noted major deformation and kink in the main cable at the entry to the hut. He located a broken shield in the flexible cable. Corrected offset setting of Downhole degrees on logger board.
- August 30, 2006 - Mike Hasting upgraded firmware at B012. He also installed a new enclosure over the borehole and power supply.
- January 25, 2007 – Michael Hasting tried to get the VSAT up and running with little luck. Looks like the ODU (Out door unit) transmitter is not working in the LNB.
- January 26, 2007 – Michael Hasting installed a rain gauge.
- January 30, 2007 – Today Michael Hasting installed the new ODU, and Powered up the DW6000 system. The station is now back online.

- September 26, 2007 UTC – Steve Smith visited the site.
  Summary of the visit is that a bad RG-6 cable was found and replaced at Ucluelet. Everything except the GTSM data logger is back online. Amazingly enough it appears to be another fiber switch failure. Everything is online, and has been for the last 30 hours or so. The intermittent connectivity seen with B012 from the start could have been caused by a marginal RG6 cable which finally failed recently. It appears the building the VSAT is mounted to has been painted recently, and perhaps that activity caused the final RG6 failure.
  16:04 - Onsite.
  16:05 - Take pictures.
  16:12 - Check VSAT.
  Transmit light OFF
  System light OFF
  16:15 - Power cycle VSAT, same results.
  Power comes on, then LAN, then receive, then transmit.
  Transmit stays on for about 15 seconds, then turns off.
  System light never comes on.
  16:20 - Offsite for CG question.
  16:30 - Onsite again.
  16:34 - Checked VSAT status page. "Transmit cable is not connected" Signal Strength is 75.
  16:45 - Getting tools up to the roof.
  16:50 - VSAT must be rotated about 90 degrees for access to coax connections.
  16:56 - Rain gauge unmounted
  17:00 - Both coax connections re-terminated.
  17:39 - Work completed on coax work, rewrapped with mastic and friction tape.
  17:46 - Dish "pointed".
  17:48 - Same error. Signal strength only 63 now.
  17:50 - Inside RG6 connections sub par, re-terminated those.
  17:55 - Still not working.
  18:03 - Swapped RECV cable with XMIT cable on both ends.
  18:14 - Tried VSAT, no receive light this time around, bad cable?
  19:00pm - Cut the indoor terminator off, and wrapped the shielding around the center conductor. Cut the outdoor terminator off, and performed continuity test on cable between shielding
  and center conductor. Expected ~0 ohms, got open circuit.
  19:30 - Return from town, found 2 x 25ft sections of RG6 and a female/female adapter.
  20:00 - Run new cable externally from transmitter to VSAT IDU, all lights come right on and VSAT works. Signal Strength only 62.
  20:30 - VSAT back off, pulled new cable through conduit using old RG6 cable.
  VSAT still works great.
  21:00 - Wrap up coax connections with mastic and friction tape.
  21:14 - Dish and rain gauge back in place.
  Signal strength now 76.
  21:30 - Lab PS @ 15V w/ 1.77 A
  1 battery for GTSM, 1 battery for Net gear.
  22:00 - Offsite.

- September 28, 2007 – Steve Smith continued maintenance at the site.
  The visit to Ucluelet (B012) was successful, and the end results of that visit are below:
  Steve got into the building the VSAT is mounted at ~16:15 UTC. That building as it turns

out was painted about 4 weeks ago. We lost connectivity to the site in roughly that same time window. He traced the phone lines that PGC has there, and labeled them 1, 2, and 3 on both ends for future ease of deployment. The intelligent power strip is plugged inin. It has the ability to power cycle 3 sets of 2 sockets each. The VSAT is attached to socket 1, and the PGC NetRS is plugged into socket 3. Socket 2 has nothing plugged into it. Mike Schmidt and Steve Smith setup a sort of protocol for power cycling. The eventual plan is to implement a script that pings the VSAT's external IP address, if it fails to respond, dial out, send a command, verify the result, then send out an email to both parties.

He set up a test with the power strip and his laptop. Mike S. was successfully able to remotely power cycle the charger for Steve's laptop. He then rewired things into "production mode", with our VSAT and the PGC NetRS plugged in. Mike was again able to successfully power cycle both of those with different commands.

The media converters arrived, and Steve immediately plugged one in and got it hooked up to the GTSM side in place of the black media converter. He then tried a ping, which worked perfectly, 0% packet loss. Since he ordered two, and they worked, he labeled and left the other up there as a spare.

He opened up the rain gauge, bucket swung freely, and he heard the magnetic switch ticking away when he swung the bucket back and forth. He verified the gauge is working correctly. So it could either be a cable problem, or a problem with the power box.

He also talked with Kathleen while he was there, she verified the GPS time was good, and helped with the rainfall data research.

- February 11-12. 2009 – Mike Gottlieb and Wade Johnson visited the site. They installed a large 19" rack to house the electronics, installed new fiber optic modems, and re-routed the conduit and cables. The netRS was removed and the pore pressure data will now be coming through the PGC netRS that is still onsite.

- March 2, 2009. Possible ETS transient signal observed in shear strain.

- March 23, 2009 – Logger software upgraded to 2.02.2

- July 13, 2009 – Mike Gottlieb Replaced US7PB/26512 with SP321/27136 on 7/13/09. This powerbox is fully upgraded. Blue marmot was installed, and the pore pressure was moved to the Q330. The logger was also replaced with SL600/UNID 25901.

- March 12, 2010 – Brian Schofield replaced the Setra at 18:15 UTC. This does not seem to have eliminated the problem, as there are still spikes in the data. It appears the signal has to do with fans turning on and off inside the building. It will be necessary to route the Setra intake outside the building to eliminate these signals

- September 13, 2010 – Mike Gottlieb routed the Setra intake outside the building, which appears to have fixed the step problem in the data.

- May 10, 2011. Logger board failed, logger no longer collecting data.

- June 2, 2011. GTSM Data Logger 25901 was replaced with GTSM Data Logger 28309. The VSAT was repointed. It was originally showing a signal strength of 52. Got it up to 58-60. It was raining the whole time, which accounts for the low pointing numbers. Cross pole was 63. Connection speed seemed good upon completion.

- July 27, 2011 – VSAT was showing a signal strength of 29. A new IDU was tried, but no change was observed. Replaced the co-ax cable and the signal strength jumped to 90, and the connection was restored. Confirmed that PGC equipment also came back online. Left original IDU on site.

- January 27, 2012 – Removed VSAT IDU and installed a DSL line.

- July 12 2012 Mike Gottlieb at site.
  8 new batteries installed.
  1x2 gtsm
  2x3 mains
  4 gauge jumpers added

- November 4, 2014 – Station was hit by lighting on October 22, 2014. Ch2 flatlined and Ch3 reported "no valid data" afterwards. Remote logger reboot did not fix the problems.

  Ch3 returned to normal after oscillator board was power cycled. Swapped in RT2 board (US7RT2, 26507) so that channel had a good display again.

  Ch2 was flatlined and tap step was 0.000. A new RT2 board did not fix. Amp O/P signal ddi not respond to quadrature adjustments, or forcing the RT number up/down in the menu or with the QB. Replacing oscillator board made no difference. Channel was also calibrating 3x faster than the others. Replacing flex cable made no difference either. No visible damage/loose wires were visible on the inside of Quad box or backplane. Left with US7RT3 installed (with dead screen but otherwise functional) since this channel is not currently recording anything.

  Conclusions: RT2 does not appear to be receiving any signal from downhole. The failure has been isolated to the following: backplane/quad box, or DH instrument/cable. Will need to return with new environmental box to replace backplane/quad box and see if that helps. CH0, CH1, CH3 appear to be functioning normally again.

  No boards were damaged (except screen on US7RT3), so left all original equipment on site, after swapping Rt2 and Rt3. Power cycling the oscillator fixed CH3. Quadrature was checked but not adjusted on CH0, CH1. CH3 was adjusted slightly.

- January 13, 2015 – Mike returned with a replacement environmental box (US83). Replacing this did not affect the data on Ch2. It was still recording a flat line (no signal), with a tap step of 0.000 and no response to quadrature or manual RT adjustment. This was the last piece of uphole equipment left that could have failed, meaning the issue is with the downhole instrument and will not be repairable. The other 3 channels are still functioning normally (Ch0, Ch1, Ch3). The original environmental box (US7) was left installed.

- April 20, 2016 – Corrected file storage configurations from FW 2.02.3.

- September 22, 2016 – Completed downhole test procedure on GTSM and adjusted chops and quads.

- August 1, 2018 – 4 port fiber modem had failed and been replaced 3 times this year. Appears to be an issue with power cable? Modem was replaced by PGC in July. Dataflow caught up, but then went down again immediately, modem was not staying powered on. Mike was able to power up by unplugging and re-plugging power cable. Replaced power cable (although no obvious issues with the old one visible). Power seemed stable to modem while on site. Could not ping Q330, no ethernet light on unit. Had to replace mil spec ethernet cable to make it work again. Unusual failure of cable.