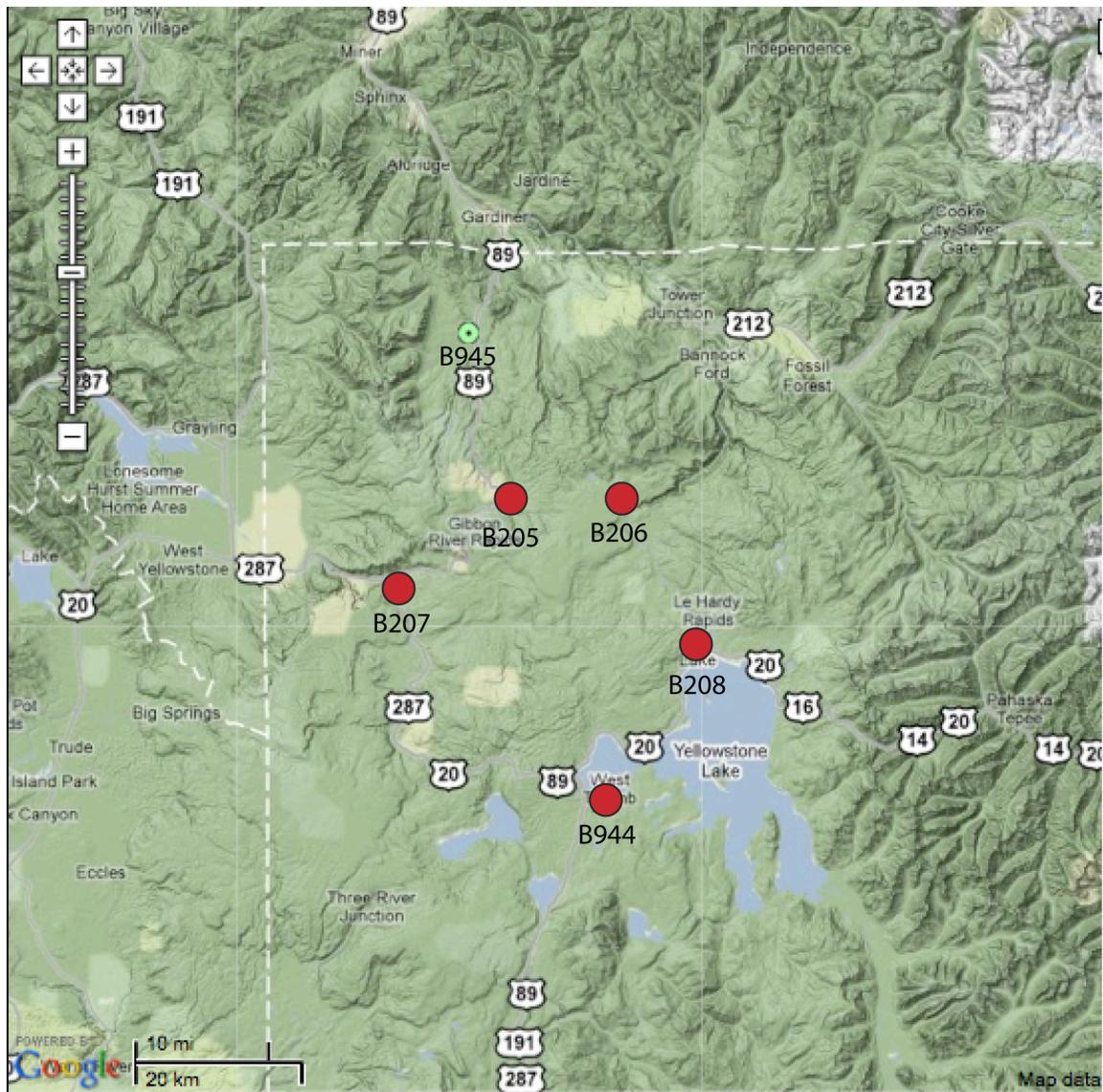


Station Notes for B206, canyon206bwy2008

Latitude: 44.7177 (WGS 84)
Longitude: -110.5117 (WGS 84)
Elevation: 2399.5 m / 7872 ft
Install Depth: 78.9 m / 259 ft
Orientations: CH0=181, CH1=121, CH2=61, CH3=31
Install Date: June 27, 2008
GTSM Technologies #: US76
Executive Process Software: Version 1.14
Logger Software: Version 2.02.2
Home Page: <http://pbo.unavco.org/station/overview/B206>
Notes Last Updated: October 27, 2020

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

Orientations are in degrees East of North.

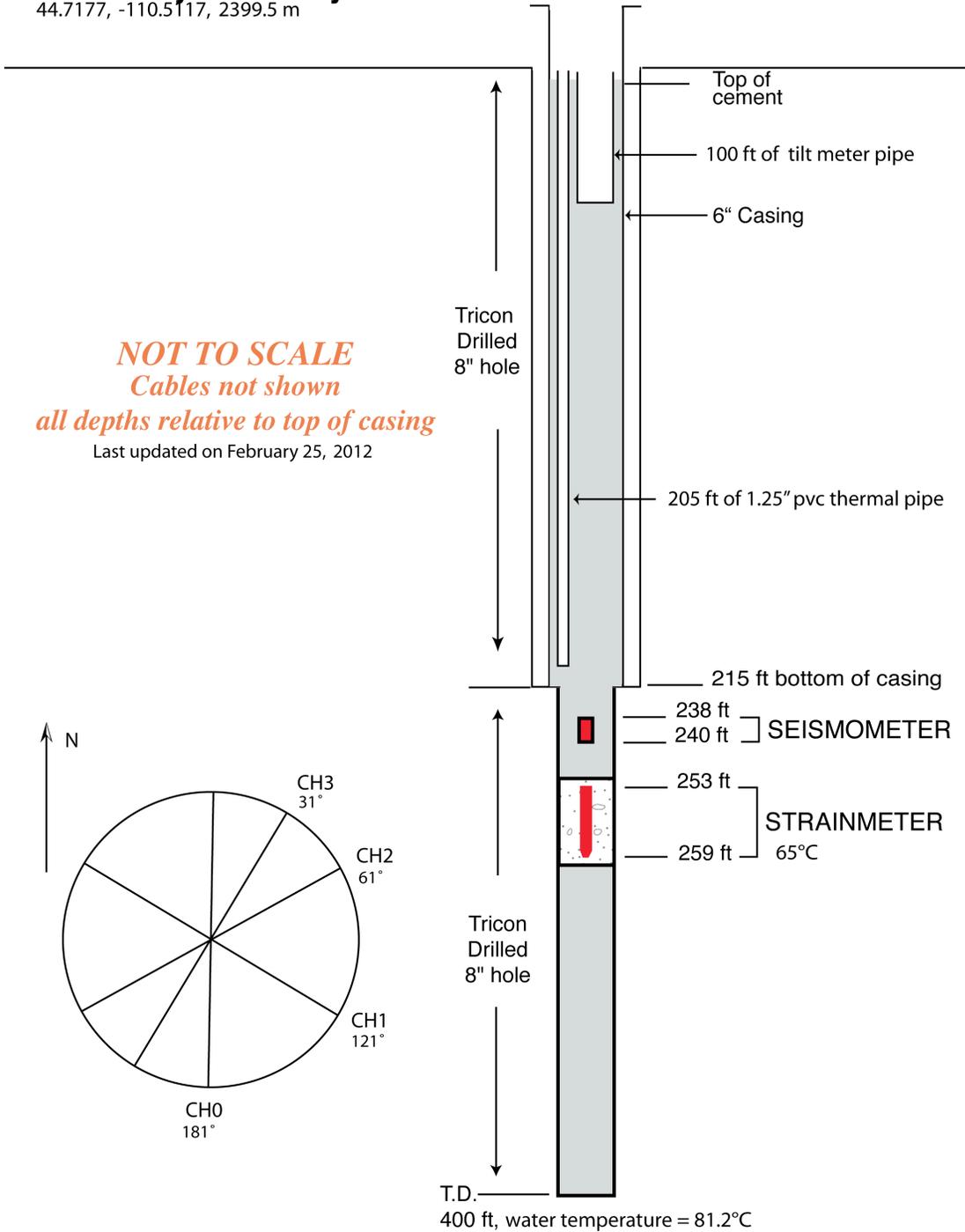


Yellowstone PBO strainmeters, October 2008. Green dots represent boreholes that only have a seismometer.

B206 canyon206bwy2008

44.7177, -110.5117, 2399.5 m

NOT TO SCALE
Cables not shown
all depths relative to top of casing
Last updated on February 25, 2012



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	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	None Installed	

1. Installation notes

June 27, 2008 UTC

15:00 On site.
 15:00 – 17:00 Take temperature profile, decide that 259' (from top of casing) is still fine (65°C).
 Hole lost ~10' of water overnight, implying that cement job worked.
 16:56 Turn off US76.
 17:00 – 19:00 Setting up for install, trip in tremie pipe.
 Compass test:
 X 1.804 , 1.014
 Y 1.320 , 0.565
 20:10 – 20:25 Pump ~300 gallons of 50°C water to cool hole.
 20:28 – 20:40 Trip out tremie pipe.
 20:29 Start mixing 9 bags of Penn grout DJ805. Water content 5 qts/bag (~1qt total was in the form of ice).
 20:44 Stop mixing.
 20:47 Running bailer down.
 20:49 Bailer trips on bottom.
 20:52 Out of hole with bailer.
 21:04 Strainmeter on bottom.
 21:09 Strainmeter turned on.
 Initial temperature: 4.509.
 Initial compass results: X - 1.486 Y - 1.285.
 21:20 Rename to B206.
 21:30 Adjust downhole temperature, and clean up.
 23:00 Off site.

June 28, 2008 UTC

18:00 On site, test seismometer #130.
 v - 2.386
 h1 - 2.381
 h2 - 2.409
 19:00 – 19:15 Lower seismometer to 243'2".
 19:25 – 19:55 Lower 205' of 1.25" thermal pipe.
 20:00 – 20:20 Lower 100' of tiltmeter pipe.
 20:25 – 20:45 Lower tremie pipe, tag grout at 243'9" (19' of grout plus strainmeter).
 21:00 – 22:00 Pump 36 bags Portland cement.
 22:10 Turn off strainmeter.
 23:00 Buried cable.

June 28, 2008 UTC

00:00 Pad poured.
00:25 Strainmeter on.
01:00 Off site.

June 29, 2008 UTC

15:15 On site.
15:30 Sound thermal pipe (179') and tiltmeter pipe (103'), and cement in well (2').
15:30 Turn off strainmeter.
15:45 – 18:30 Installing uphole electronics.
16:55 Strainmeter on inside hut. Final compass numbers: X - 1.473, Y - 1.238.
19:00 Site online, off site.

2. General Information

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

3. Strainmeter Maintenance

- July 2, 2008 - B206 was moved to AC power last night at about 23:00 UTC on July 1, 2008. Site was functioning nominally at the time.
- July 3, 2008 UTC
18:30 - Dave Mencin and Mike Jackson arrived onsite.
18:40 - Sounded tiltmeter hole at 99.4 ft from top of tiltmeter casing. Drilled hole in roof of enclosure to lower tiltmeter. Measure casing orientation, +X orientation is 86 magnetic. Dropped in a small bottle of fine sand, raising the bottom by several inches. Lowered tiltmeter to bottom of hole. Wired up tiltmeter to power and Marmot, and tested tiltmeter through the Marmot. Poured larger bottle of sand down hole, both amounts as specified in installation manual. Initially leveled tiltmeter.
20:50 - Offsite.
- January 21, 2009 – Wade Johnson re-leveled the tiltmeter at 9:20 UTC.
- March 6, 2009 – Wade Johnson leveled the B206 Tilt meter between 11:30-11:45pm PST.
- March 31, 2009 – Logger software upgraded to 2.02.2
- April 9, 2009 – Wade Johnson leveled the tilt meter between 2:25 to 2:30 am PDT. X was heading off scale as soon as he had finished.
- June 10, 2009 – Warren Gallaher re-leveled the tiltmeter but it was behaving badly. He ran the process several times and it had a very difficult time getting to 0. Once there he stopped the leveling and the X axis started to creep up again. He watched it climb to about 100 twice then re-ran the leveling. X was climbing when he left it but the Y axis appeared stable.
- June 30, 2009 – Dave Mencin visited the site to replace the power box.

- Nov 8, 2009 - At 5:10 am MST Dave Mencin leveled the tiltmeter.
- May 3, 2010 – Replaced the GTSM power box with a high altitude model. Replaced Setra barometer with a high altitude model. Tried to log onto tiltmeter, but unable to get any response. Tiltmeter probably needs to be replaced.
- August 5, 2010 - Other Maintenance Activity type: Bears / Animals. Station was offline, and found to have damaged RG6 cables leading to the VSAT dish, likely chewed through by a bear. Slack from inside the hut was pulled through the conduit, and the RG6 was re-terminated and connected to ODU. Station came back online.
- September 28 – 29, 2010 – Portable broadband seismometer was installed at the site for 24 hours. Quads and chops were adjusted.
- July 27, 2012 –The station had not had GPS lock since November 17, 2011, and the GTSM clock was ~987 seconds slow. The power box was replaced and is currently tracking satellites. This is a high altitude modified power box. The strain_logger.conf file was edited to set the pressure offset to 70. The rain gauge was found to be missing the top. It was laying in the grass nearby, and was replaced and secured.
- May 22, 2013 – CH3 began returning 999999 values. The other channels are working fine.
- May 28, 2013 – Mike Gottlieb rebooted the logger remotely. No change, CH3 is still returning 999999 values. The site will require a site visit.
- July 25, 2013 – Korey visited the site. He power cycled the RT3 board which resolved the problem.
- May 6, 2014 – Rain gauge cable was broken, and was reconnected. Replaced RT board for CH1 and CH3 to try and help data quality issues. The swap did not appear to fix the problem. Replaced the ENV box to try and fix data quality issues. Also tried replacing OSC and flex jumper cable, but those did not fix the obvious issues, so Mike left the original OSC and jumper cable in place.
- July 17, 2014 – Liz replaced the Marmot. Noticed that GTSM CH0 was on G1 and CH1 was on G2. Power cycled both and checked quads. Quads were unresponsive for both CH0 and CH1. CH1 eventually returned to G3. CH0 kept going between G2 and G3. Both were noisy.
- September 16, 2015 – Environmental box swap did not solve data quality issues. Reinstalled original environmental box.
- October 3, 2017 – GTSM has been turned off for some time. Harvested spare parts from station no longer in use. Removed environmental box. Removed setra and installed it at B944.
- September 17, 2020 – Found AC power failure to site. Discovered breaker at meter box had tripped and after reset power came back up at site. Test of IOTA, surge protection and batteries tested well. Existing RV50 was deactivated and new RV50 installed.