

## WSRN Station Names

### What do those oddball codes mean?

Continuously Operating Reference Stations (CORS); whether they are included in the NGS CORS network, or are local, scientific, or for navigation systems typically have a standard 4 character alpha-numeric code. The 4 character code has been incorporated into international data files formats for transfer of static (or streamed) observation data (like Rinex).



*WSRN station "HAHD" (NGS CORS) near Howard Hansen Dam*

**Is this code mandatory and does the code need to be unique?** Pretty much; if the station operators want the data to be useable by others and for the static files to be recognizable in most processing software (unless a proprietary format is used). Unless a CORS is operated for purely local and internal use (e.g. some agriculture and private stations) the station needs a unique 4 character code. The scientific community has a great interest in each station having unique codes as they keep time series (some have been running for over two decades) from which they can do their ongoing scientific studies on plate tectonics, atmosphere, etc. It is very important to change a code if a station is moved, and to never use that code again. This is so that data from old stations do not get mixed up with new. If the ARP (antenna reference point) of the mount stays the same, receiver and antennas can be changed and keep an old name. Nearly every WSRN station provides data to CWU (PANGA), USGS (for their earthquake system), JPL, and other scientific institutions.

**Is there a master list of station codes, who keeps it, and who decides on what names can be used?** The station owners/operators can call a station anything they want, but they have to check to see if a code is already being used – anywhere in the world. There is no central registry, but we do due diligence on checking some of the lists of science stations around the world. The most complete list is hosted by SOPAC (Scripps Orbit and Permanent Array Center).

**How does the WSRN choose station codes?** Firstly, we try to find a code that sounds like the location; e.g. “BELI” is in Bellingham. But often codes that come close are already being used, so then we can get a bit creative. We name stations after prominent surveyors (both living and deceased), people who have worked hard to build/support the network, and sometimes the folks who built/sponsored a station insist on a name. Then other times, well, we might find a name that has significance for the locals, or celebrates some aspect of the local community. Sometimes it boils down to “we worked our keisters off building this thing, we get to name it” ;)

**Here is list of WSRN stations (decoded):**

<b>ANAT</b> Anatone WA	Straight forward location; at the WSDOT shop there
<b>ARLI</b> Arlington WA	Pending NGS CORS. Not to confuse with Arlington OR
<b>ARLN</b> Arlington OR	At an ODOT shop. Not to be confused with Arlington WA
<b>BDRY</b> Boundary Dam WA	Way up by Metaline Falls
<b>BELI</b> Bellingham WA	City of Bellingham facility
<b>BIGD</b> Grand Coulee WA	Close to the town, but as there was too much bureaucracy involved in placing one on the grounds of the dam, a local internet provider (called BigDamNet at the time) graciously offered a nice building mount
<b>BILS</b> Queets WA	Named for <a href="#">Bill Strange</a> , former chief geodesist at the NGS who passed away in 2009. Bill was a great resource in understanding elements of geodesy during the development of the WSRN.



Station “BILS” near Queets-Stillwater School

<b>BPKT</b> Badger Pocket, WA	A science station for Central Washington University (CWU)
<b>BRN3</b> Burnaby BC	Operated by a network in Canada; used to be called “BRNB” but then they moved it (twice).
<b>CATH</b> Cathlamet WA	WSDOT hosted
<b>CBLV</b> Bellevue WA	A new station established by the City of Bellevue (and upgrade of an old station on city hall)
<b>CCPW</b> Dayton, WA	Columbia County Public Works hosted.
<b>CHCM</b> Chimacum, WA	CWU (PANGA) science site at the city school
<b>CHEL</b> Chelan WA	WSDOT hosted at one of their yards
<b>CNCR</b> Concrete WA	One of two Skagit County sites connected to the WSRN
<b>COLV</b> Colville WA	City of Colville hosted
<b>COUG</b> Cougar WA	Cowlitz County & WSDOT hosted. Refurbishing in 2017
<b>COUP</b> Coupeville WA	Island County hosted. An early station in the network before there were many receivers designed with network cards to connect. The helpful IT guru (Stan Bradshaw) there figured out settings for device servers to move the data securely without undue complexity – his solution has been used by other networks around the world.

**CPUD** Wenatchee WA                      Chelan PUD hosted

**CPXF** Pack Forest WA                      A science station and NGS CORS that predated any real-time networks in the state. Comms courtesy of Pierce County PC3N RTN.

**CROK** Castle Rock WA                      Name has nothing to do with those weird sandals. City of Castle Rock and WSDOT hosted. Nearby latte stand serves some mean beans ☺

**CSKI** Kent City WA                      City of Kent hosted. Named for Larry Cekalski: Larry Cekalski was born in Chicago and made his way to Washington in the late '70s. He started working in the City of Kent Survey Section in 1981 and has played a key role there ever since. He was trained in the era of chain and Lietz T60s, and warmed up to new technology only after it proved that it would not lie to him. Then he would embrace it with passion and dig in to the inner workings as the surveyor/scientist that he was. Larry was a primary beta tester of the WSRN in the Kent area and helped to develop the department standards we use today. He loved a good math puzzle, a good joke, and a good pizza all equally. He died Jan 30, 2008 after fighting cancer for 5 months.

**CSTL** Castlegar BC                      Contingency station (if TRA1 is down). Adjacent network hosted. Way up there eh?

**CUSH** Lake Cushman WA                      Tacoma Power (Tacoma Public Utilities) and WSDOT hosted at the scenic hydro dam.

**CWAK** Chiliwack BC                      Canada Natural Resources host. Good hockey team eh?

**DEEJ** Amanda Park WA                      WSDOT hosted. Named for Daniel Johnson, UW geophysics professor who died tragically with a colleague in a logging truck accident in 2005. Dan, "DJ" or "Deej" worked on the early GPS arrays that would later interface with the WSRN.

**DMND** Diamond Lake                      CWU hosted. A challenging site; 6 years to complete.

**DVPT** Davenport WA                      Mounted on the county jail; a very secure site

**ELSR** Bremerton Airport WA CWU and WSDOT hosted. Named for Port Orchard surveyor Dave Elser, a well-respected surveyor, CAD wizard and tireless promoter of the profession. Dave lost his battle with cancer in 2004.

**ENUM** Enumclaw WA King County hosted; at the dump.

**EPHR** Ephrata WA WSDOT hosted, in town at the WSDOT yard.

**GLWD** Glenwood, WA Holy backwoods Batman! That is a remote place. It took nearly a decade to get reliable comms connections. CWU and WADNR hosted.



*Outside the WADNR shop in Glenwood WA*

**GOLY** Goldendale WA At the Goldendale WSDOT shop. When we scouted a site at the Goldendale observatory (NGS CORS) there was no comms (and bureaucracy) option available (at the time) – then we saw a WSDOT shop down the hill and out in the open – bingo!

**GRCK** Grouse Creek WA One of the original 5 sites of the first subnet in eastern WA. CWU and WSDOT established the site and after a few years of challenging comms options it is a very reliable site.

**GRMD** Grand Mound WA A ways out of town at a treatment plant, this is hosted by Thurston County and CWU. Swarms of angry wasps menace us during visits. NGS CORS.

**HAHD** Howard Hansen Dam WA A very challenging install on an unnamed peak overlooking the dam (but with a stunning Mt. Rainier view). CWU set up solar power and a mount, then we

have a complex relay of radio jumps that bounce down the hill and valley. Solar array blew over in a storm one winter, and after a long hike in propped it up with logs (later rebuilt). NGS CORS.

**JOBO** Edison, WA                      Named for the great local surveyor [Joe Glidden](#) (known fondly on a popular surveying forum as “Jobo”) who passed away in 2013. Local farmers were pitching on a new station in the Edison area and graciously agreed to the name for the station.

**KENI** Kennewick WA                      A City of Kennewick and Benton PUD collaboration

**KLTS** Kahlotus WA                      Another challenging install. Originally mounted on the only-school-in-town (then called KAHL). CWU later put a ground mount out by a county road shop. A series of linked radio jumps to the school (later replaced by county comms). NGS CORS.

**KOOT** Couer D' Alene ID                      Hosted by Kootenai County near the airport, KOOT was a real collaborative effort by local surveyors to construct the concrete mount. Pending NGS CORS



*Station “KOOT”*

**LCRS** Lacrosse WA                      A remote county shop at the far west of Whitman County.

**LINH** Ellensburg WA                      On Lind Hall at CWU; a bunch of test antennas up there.

**LMID** Toppenish WA                      Hosted by several partners at a city water plant. Named for [Leroy Middleton](#) a very much respected WA surveyor who passed away in 2012. Leroy’s classes and book helped many of us pass the riparian rights portion of the license exams.

**LNGB** Longbranch WA Hosted by Pierce County for their PC3N network.

**LSIG** Tolt Dam WA Near Tolt dam. Named for Larry “Obi Wan” Signani; surveyor, geodesist, educator, and geodetic conscience for the WSRN. If Larry does not approve of the station quality and until he verifies good coordinates a station does not fly.

**LTAH** Latah WA Hosted by Spokane County, a very remote site that was part of the original E WA subnet. Jim McLefresh (Spokane County) researched some very creative means for getting comms out to the site like bouncing signals off mountain tops.

**LWCK** Ilwaco WA Now at the Lewis and Clark Interpretive Center of Cape Disappointment State Park, the station had been in Ilwaco at a port building (IWAC), but was buffeted by high winds and often had comms outages. Moved a few years back, a tenuous radio shot from the original site caused a lot of heartbreak, but a modem sponsored by a surveying firm keeps it up and running quite well.

**LWST** Lewiston ID NGS CORS. Hosted by the City of Lewiston at the airport. A great site, there were ongoing comms issues; the hosts with the City of Lewiston got used to driving out to the site to “jiggle the handle” to fix the connections.

**MKAH** Neah Bay, WA As live comms connections to the NGS CORS are still difficult; tribal GIS folks graciously offered to host this interim station at their forestry building.

**MONT** Montesano, WA Hosted by Grays Harbor County

**MSLK** Moses Lake WA Formerly called MLKE, the antenna was moved to a better location by the City of Moses Lake surveyors several years ago.

**NINT** North Bend WA Established by CWU and King County, the antenna is on a solid building that sits on bedrock – the massive Nintendo facility near North Bend

**OCEN** Ocean Shores WA Hosted by the City of Ocean Shores. NGS CORS.

- OKNG** Okanogan WA                                      At the WSDOT shop just out of town.
- OLAR** Olympia Airport                                      Established by CWU with help from Thurston County, it is at the Olympia Airport and is solar powered.
- OLMP** Olympia WA                                      Smack in the middle of Olympia on a solid city building.
- OTHL** Othello WA                                      Graciously hosted by the IT folks for the city schools
- OYLR** Renton WA                                      Established by one of the 3 original founders of the PRSN (forerunner of the WSRN) Bob Maconie (retired City of Renton Surveyor). The station is a very stable mount on the roof of the city hall. Bob named the station “Oyler” for a city employee who had passed away.
- P025** Bonner's Ferry ID                                      One of the CORS of the Plate Boundary Observatory (PBO) and an NGS CORS. Stations with the alphanumeric designations (prefixed by “P” and followed by 3 numbers) are mostly PBO. The National Science Foundation (NSF) funded the Earthscope initiative of which the Plate Boundary Observatory was a major component. Operated by Unavco in Boulder CO, there are about 1,100 PBO stations (mainly on the west coast and Alaska). Originally it was a very closed project, but after locals (and WSRN) helped site many of the stations, and the NSF saw a public benefit, access to data was established for many sites. Originally limited to GPS-only, local collaborators (like the WSRN (funded upgrades to add Glonass. P025 is still GPS only (but we’re negotiating the upgrade).
- P401** Quillayute WA                                      PBO CORS. GPS only (for now)
- P402** Hoh River                                      PBO CORS. GPS only (for now)
- P403** Sappho WA                                      PBO CORS. GPS only (for now)
- P414** Ridgefield WA                                      PBO CORS but built with WSDOT help at the weigh station. A long struggle with comms (now OK) the station was upgraded to add Glonass by the WSRN & WSDOT.





*"P414" near Ridgefield*

- P429** Cascade Locks PBO CORS station. The station was upgraded to add Glonass by the WSRN & WSDOT. Replaced SKMA on the network when that station retired.
- P437** Bayview, WA Contingency site. PBO CORS. GPS only (for now)
- P442** Darrington WA Once called DARI, this site was a PBO and Snohomish County collaboration; upgraded to Glonass by WSRN & WSDOT
- P444** Ross Dam WA PBO and Seattle Public Utilities collaboration. Upgraded to add Glonass by SPU; a comms upgrade is in the works.
- PABH** Pacific Beach WA NGS CORS and CWU site, it is now part of the PBO array.
- PDTN** Pendleton OR Original site was called PNDL, but moved to a city shop and upgraded to add Glonass, it is now an NGS CORS.
- PDXA** Portland Airport OR Portland Airport site on a fire station
- PFLD** Paine Field WA Snohomish County hosted
- PKWD** Packwood WA WSDOT hosted at their yard outside town.
- PLMN** Pullman WA WSDOT hosted at their yard outside town.

**POME** Pomeroy WA

WSDOT hosted at their yard outside town.

**PRDY** Purdy WA

Contingency site. Hosted by Pierce County PC3N network.

**PRSR** Prosser WA

Hosted by Benton County PUD.

**PTAA** Port Angeles Airport WA

Hosted at the City airport. NGS CORS



*“PTAA”, NGS CORS at Port Angeles airport*

**PTSN** Paterson WA

WSDOT hosted at a local school

**QMAR** Stevens Pass WA

At a WSDOT shop near the pass. Named for [Tony Qamar](#), UW seismologist who died a tragic auto accident along with colleague Dan Johnson (DEEJ) in 2005. Tony was visionary and established arrays of GPS and other scientific instruments across the state. Tony encouraged us to start the WSRN and established the first stations in the network.

**RICH** Richland WA

City of Richland hosted

**RKD1** Oroville, WA

A CWU site, and NGS CORS. Named for [Dr. Roy K. Dokka](#), scientist and educator, Roy established the network in Louisiana and was great resource in development of the WSRN. Roy passed away in 2011.

**RMRK** Rimrock, WA

WSDOT hosted at their yard outside town.

**RPUB** Republic WA                      Hosted at the Ferry County courthouse, this was a challenging site to develop; rough comms, remote location (loooong drive out there). County folks were instrumental in its success.

**RYA1** Hope ID                              A project spearheaded by local engineering firm Ruen Yeager (hence the name) make this a community and educational effort. At the elementary school in Hope ID, the kids from the school district were involved along with a lot of local volunteers. CWU provided the hardware.

**RYMD** Raymond WA                      WSDOT hosted at their yard outside town.

**SACH** Saanichton BC                      On Vancouver Island, hosted by an adjacent network.

**SAMM** Issaquah, WA                      Hosted by Sammamish Plateau Water at one of their well sites down the hill in Issaquah.

**SC02** Friday Harbor WA                      A long time CWU/UW site at the UW lab across the bay from town, the site was recently upgraded to add Glonass by the WSRN.

**SC03** Mount Olympus                      Up on the peak, this site originally established by CWU/UW (plus a helicopter and a lot of hiking).



*“SC03” on Mount Olympus*

**SC04** Chemainus BC                      Contingency site; GPS only

**SEQM** Sequim WA                              Hosted by a local surveying firm outside town

**SMAI** West Seattle WA                      NGS CORS at an SPU reservoir. One of the original PRSN sites. For some reason in the early days some bureaucrat did not want the original name WSEA (because they did not want anyone to figure out where it might be located.... yep, that makes no sense) so one of the PRSN operators came up with a variation on his daughters name ;)

**SNOQ** Hyak WA                              WSDOT hosted at their snow shed. CWU installed, it sits up on a rock thumb next to the shed (you can see it from the highway). Even though snow can pile up on the rock over the top of the mount and dome, it performs year round with few issues.

**SPKN** Spokane WA                          Hosted by the city at their dump near the airport, it has been submitted to become an NGS CORS.

**SPRG** Sprague WA                          WSDOT hosted at their yard outside town.

**SSHO** North Seattle WA                      One of the original stations (pre-network) set up in conjunction with CWU and UW at an SPU reservoir. Like SMAI it got named after one of the WSRN operator's son. NGS CORS

**STHK** Stehekin WA                          The forever station; as in it is taking forever to build. The main challenge is that there are few options for internet connectivity up there. If anyone has an idea that works we might consider naming it after them ;)

**TACO** Tacoma, WA                          Hosted by Apex Engineering at their office

**TDLS** The Dalles OR                          ODOT hosted at their shop near town.

**THUN** Thun Field WA                          Contingency site. Hosted by Pierce County PC3N network.

**TUMW** Tumwater WA                          Hosted by the City of Tumwater

**TWSP** Twisp, WA                              Replacement for the original station WNTH. Hosted by a local surveying firm that moved their offices to Twisp after fires in recent years.

**UFDA** Poulsbo WA                      One of the original 4 stations in the PRSN hosted by Kitsap PUD. Site of the famous “flower pot” dome incident; the “KPUD” site once ran for a 4 year straight period without interruption until it was moved to another building and renamed to UFDA (“uffda” or “oofda”) to honor the Scandinavian heritage of the area.

**VCWA** Vancouver WA                      Hosted by the City of Vancouver at a police station.

**VERN** Mt. Vernon WA                      Established and hosted by Skagit County, it was originally called “OTIS” (as it was atop the elevator shaft structure on a county building), it was moved slightly to reduce multipath and renamed “VERN” after the town.

**VRNT** Vernita WA                      WSDOT hosted at their yard outside town.

**WALA** Walla Walla WA                      WSDOT hosted at the airport outside town.

**WEBG** Battleground WA                      WSDOT hosted at their yard outside town. The name has two meanings (by design). It sounds like “West Battleground” (the WSDOT shop is west of town, but the real name is to honor retired geodesist Georg Weber of the BKG (the German version of the NGS). Georg lead the development of NTRIP, the communications protocol in your survey controller and used by networks worldwide.



*Station “XANE”, barely spared by the 2015 fires.*

**XANE** Wenatchee WA                      Established by CWU and Chelan PUD, the site is near a water tank on a hill west of Wenatchee. For two consecutive years fires nearly engulfed the antenna (wires go singed) but the site continues to operate well. Named by the CPUD lead on the project for his son.

**YAKI** Yakima WA                              Hosted by the City of Yakima

**YELM** Yelm WA                                Contingency site. Hosted by Pierce County PC3N network.