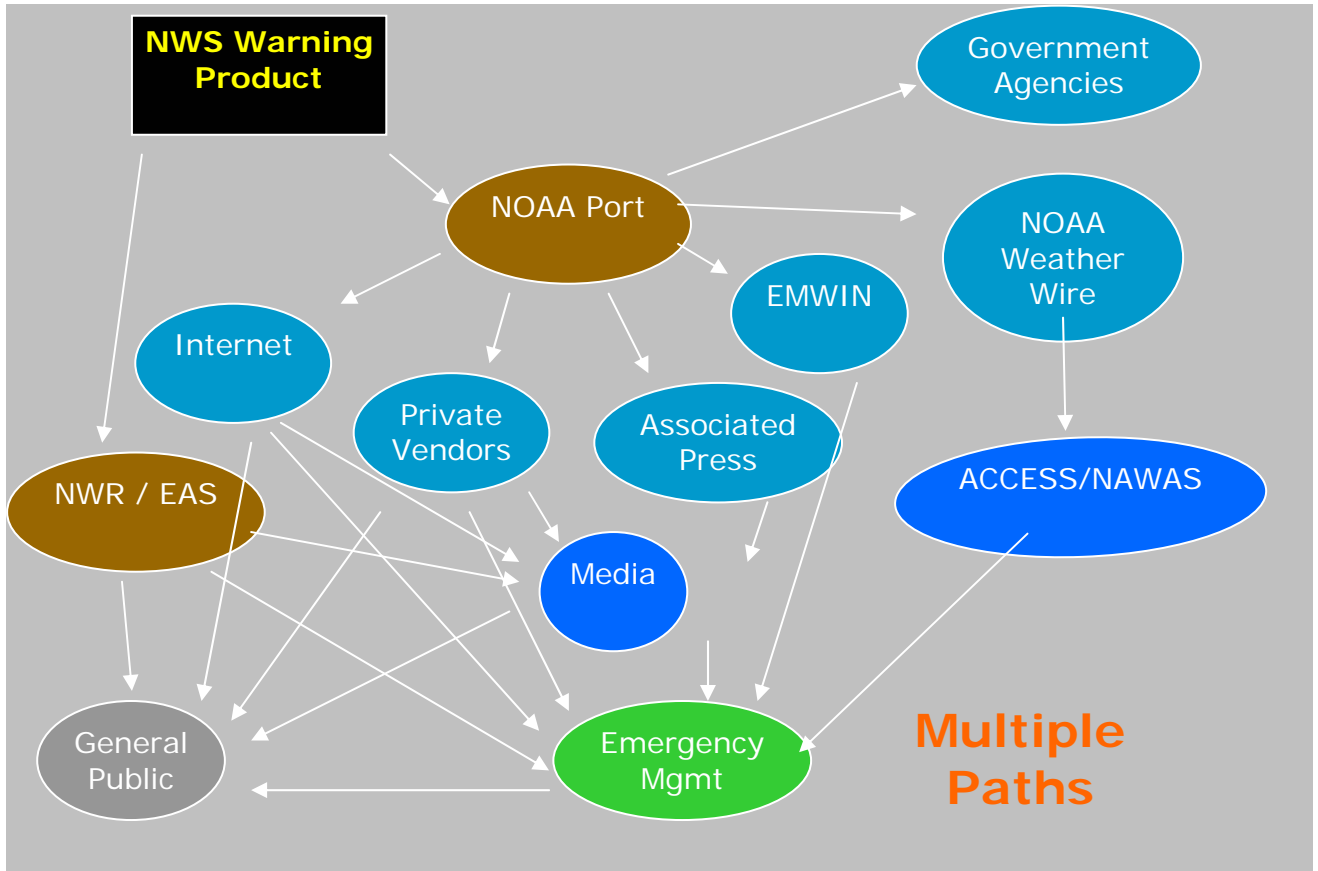


Flow of NWS Information to Customers

A series of electronic networks allow multiple options for emergency managers, media, and the general public to access the National Weather Service's suite of forecasts, warnings and outlooks.



Dissemination of Weather Products

Mass Media Dissemination

The NWS disseminates weather products through various means. Many media customers get NWS information via the Family of Services, NOAA Weather Wire (NWS), NOAA Weather Radio (NWR), the internet, and private vendors.

<http://www.nws.noaa.gov/om/disemsys.shtml>

NOAA Weather Wire Service

The NOAA Weather Wire Service (NWS) is a means for disseminating hydro-meteorological and other environmental information to the media, emergency management agencies, and other users. While most information is in plain language, a few products are in coded format. The products are identified by an eight or nine character code. The code is in the form of cccNNNxxx. The following example breaks down the code components:

CODE FORMAT: cccNNNxxx EXAMPLE: SEANOWSEW

where ccc = **Parent Forecast Office**, ccc = **SEA (Seattle)**

NNN = **Product Identifier**, NNN = **NOW (Short Term Forecast)**

xxx = **Originating Weather Office**, xxx = **SEW (Seattle Forecast Office)**

In the example, SEANOWSEW is the product code for the Seattle Short Term Forecast.

When a product is issued by any weather office in the state, whether a warning or regularly scheduled transmission, it is sent to the forecast office main computer in Seattle, by way of high speed communications links. From there it is relayed to the NOAA Weather Wire Service via satellite communications, retaining the original eight or nine character identifier. Simultaneously, it is transmitted to the National Center for Environmental Protection (NCEP) in Camp Springs, Maryland. For subscriptions and information on the NOAA Weather Wire Service, call DynCorp at (800) 635-4679.

NWWS URL: <http://www.nws.noaa.gov/nwws/>

Family of Services

At NCEP, NWS products are distributed to the Family of Services. **It is from the Family of Services that the news media and private companies, who do not subscribe to the weather wire, obtain the weather products which are transmitted back to the state.** With satellite communications and high speed computers, this entire process is accomplished in just a few seconds. At the Family of Services, however, the nine character product identifying code is changed to the World Meteorological Organization (WMO) ID code. This guide refers to each product using both the "NNN" part of the nine digit NWS ID and the WMO ID code as reference. For example, the winter storm watch (SEAWSWSEW) is listed as WSW (NWS ID) followed by WWUS46 (WMO ID).

Family of Services URL: <http://www.nws.noaa.gov/datamgmt/fos/fospage.html>

Emergency Alert System (EAS)

The Emergency Alert System (EAS) is used to alert the local community about emergency information and warnings through local broadcast and cable media. Certain messages can be generated by local, state, and federal offices and transmitted on radio, television, and cable TV networks. These messages alert the community about immediate life-threatening hazards like 911 outages, tornadoes, flash floods, severe thunderstorms, blizzards, dam failures, volcanic activity, chemical releases, tsunami or any event that poses a danger to life or property.

EAS can be activated by several methods. The NWS activates the system via NOAA Weather Radio. We activate the system when life threatening weather or potential damage to property may occur, such as tornadoes, flash floods, severe thunderstorms, tsunamis, and rapidly developing blizzards. We can, at the request of emergency management officials activate the system for events like dam failures, toxic spills and Amber Alerts.

When the system is activated, certain tones are heard on radio, weather radio receivers, and televisions that interrupt the audio portion of the programming. Each television station may choose whether to use a crawler or have an audio portion discuss what the alert is. Radio

stations use only audio messages. Depending on the weather event, television and radio stations will often provide additional follow up information as it becomes available.

NOAA Weather Radio

Flood and weather forecast/warning information is ineffective unless you receive it in a timely manner. One key manner to do so is via NOAA Weather Radio (NWR), providing current weather forecasts and information directly to you around the clock on one of seven VHF-FM frequencies. There are over 900 NWR stations across the U.S broadcasting to the American public. With 22(23 when Cowlitz in Spring '08) stations broadcasting in Washington state, 95% percent of Washington's population is covered by the National Weather Radio. The NWR airs Emergency Alert System (EAS) messages from national, state, and local EAS sources. The state has adopted NWR as an "all-hazards" warning system. NWS Seattle operates five stations covering much of western Washington..

NOAA Weather Radio is also available online, via our website. The same NWS products available through weather radio can now be played on a personal computer using MP3 format.

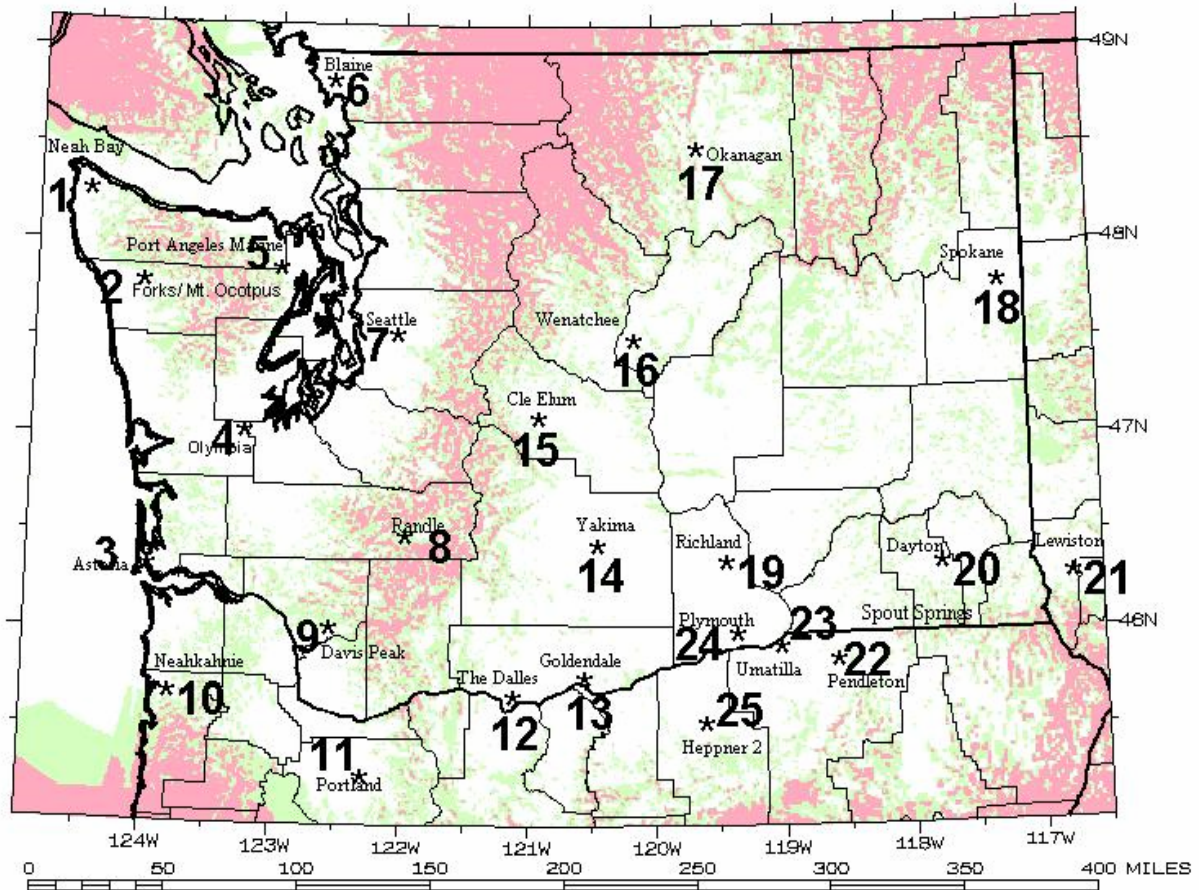
Weather radio receivers are available from local radio electronic and Internet retailers. Receivers have a warning alarm feature, behaving much like a smoke detector when a warning message is received. The receivers permit you to specify your location plus what EAS "all-hazards" warning messages you would like to receive, providing you with a tailored warning system for your home, business, school, health care facility, et al. NWR frequencies are now included in some motor vehicle models as well. For more about NWR, visit www.wrh.noaa.gov/sew/nwr1.php.

Locations of NOAA Weather Radios that service Western Washington in our CWA include:

LOCATION	CALL LETTERS	FREQUENCY
Forks / Mt Octopus	KXI-27	162.425
Neah Bay	KIH-36	162.550
Olympia	WXM-62	162.475
Puget Sound	WWG-24	162.425
Seattle	KHB-60	162.550
Blaine	KAD-93	162.525
Cowlitz (spring '08)	WZ-2502	162.425

WFO Seattle is responsible for maintenance of these transmitters.

NOAA Weather Radio Coverage In Washington



NWR in Western Washington (1-8)

MP3 Indicates available audio files, updates every 15-20 minutes

NWR in Western Washington

- 1) [Neah Bay](#) **MP3** 162.550 MHz
- 2) [Mt. Octopus/Forks](#) **MP3** 162.425 MHz
- 3) [Astoria, OR](#) 162.400 MHz
- 4) [Olympia](#) **MP3** 162.475 MHz
- 5) [Puget Sound](#) **MP3** 162.425 MHz
- 6) [Blaine](#) **MP3** 162.525 MHz
- 7) [Seattle](#) **MP3** 162.550 MHz
- 8) [Upper Cowlitz Valley](#) **MP3** 162.425 MHz
- 9) [Woodland](#) 162.525 MHz

NWR in Other Areas

- 13) [Goldendale](#) 162.525 MHz
- 14) [Yakima](#) 162.550 MHz
- 15) [Cle Elum](#) 162.400 MHz
- 16) [Wenatchee](#) 162.475 MHz
- 17) [Okanogan](#) 162.400 MHz
- 18) [Spokane](#) 162.400 MHz
- 19) [Tri-Cities](#) 162.450 MHz
- 20) [Dayton](#) 162.525 MHz
- 21) [Lewiston, ID](#) 162.550 MHz
- 22) [Pendleton, OR](#) 162.400 MHz
- 23) [Umatilla, OR](#) 162.500 MHz

- 10) [Neahakanie Mtn., OR](#) 162.425 MHz
11) [Portland, OR](#) 162.550 MHz
12) [The Dalles](#) 162.400 MHz
24) [Hermiston, OR](#) 162.425 MHz
25) [Heppner, OR](#) 162.425 MHz

National Warning System (NAWAS)

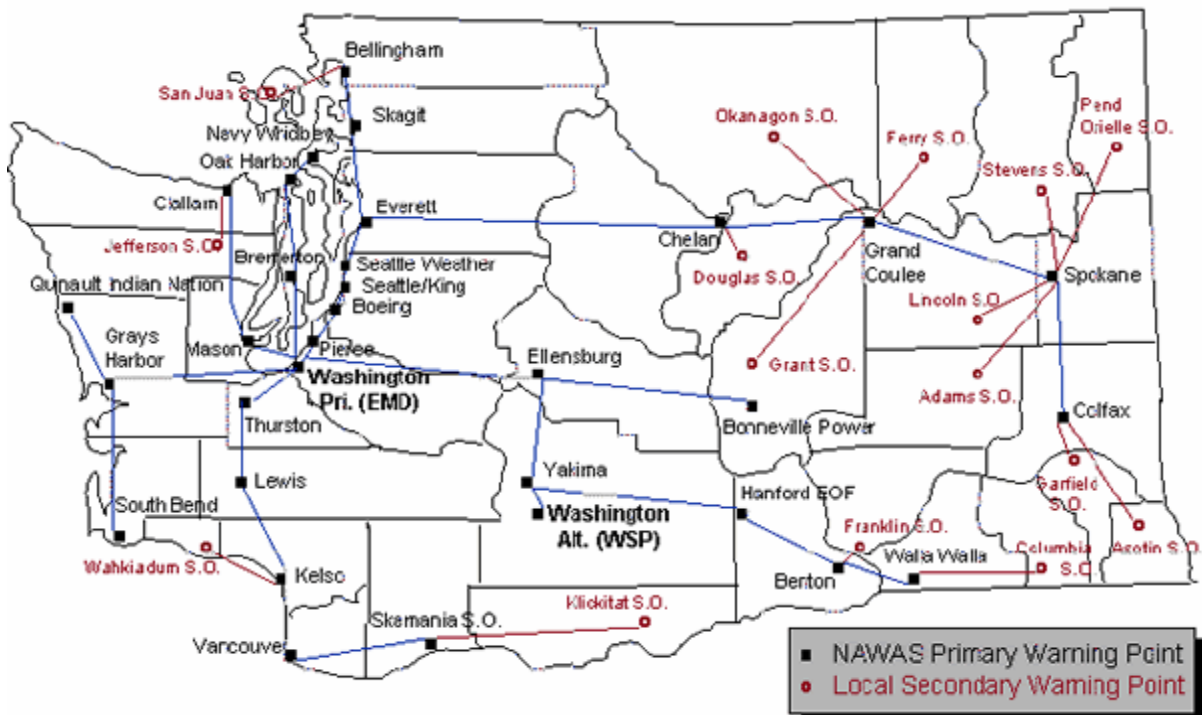
Funded by the Federal Emergency Management Administration (FEMA), the National Warning System (NAWAS) is a comprehensive party-line network of telephone circuits. NAWAS connects more than 1,500 federal and state warning points throughout the United States. Although NAWAS is a national system, the day-to-day operation is under the control of the individual states. Each state has its own plan for the use of NAWAS during weather emergencies. NAWAS is used to warn the public, through local governments, about the potential loss of life and/or property. Such threatening situations are not limited to meteorological or hydrological events. The warning messages can include, but are not limited to: dam failures, earthquakes, volcanoes, major fires, terrorist activities, landslides, and hazardous materials releases. When a warning is issued, the Seattle NWS calls the Washington Warning Point over NAWAS to verify that warnings and watches have reached the affected counties. This also provides the opportunity for the county's point of contact to ask questions over NAWAS regarding the warning. The Washington State NAWAS relay system begins in Olympia and spreads across the state depending on which WA counties need to be contacted.

The messages are also distributed over ACCESS, where the Washington State Patrol may further distribute to other county locations. For more information regarding ACCESS, please contact the Washington State Patrol.

For more information on NAWAS, please visit:

http://emd.wa.gov/telcom/telcom_national_warning_systems.shtml

National Warning System (NAWAS)



Emergency Managers Weather Information Network (EMWIN)

The Emergency Managers Weather Information Network (EMWIN) is a low cost method for receiving NWS information. The data is received free of charge using a small dish satellite receiving system that is purchased by the user. The satellite dish is connected to a home or office personal computer. The data is accessed and displayed using Windows based point and click software. The latest weather and flood warnings, watches, forecasts, statements, observations and other data are automatically stored, along with weather graphics like the radar summary and satellite imagery. The data are available nationwide directly from satellites and the system can be purchased by anyone. For more information, access the EMWIN home page at the address: <http://iwin.nws.noaa.gov/emwin/index.htm>

Basic Product Format

(See Appendix H for more detailed product examples)

ZONE CODE EXAMPLE

WMO Header *WWUS76 KSEW 02534* (see appendix G)
NWS Header (see above) *(SEA)NPWSEW* (SEA is parent office, this portion is not shown)

Mass Media Header *URGENT – WEATHER MESSAGE*
Office/Date/ *NATIONAL WEATHER SERVICE SEATTLE WA*
Time Stamp *904 AM PST THU FEB 7 2008*

Generic Code
–**ZONE** or *WAZ510-021345-*
–**COUNTY**

VTEC Code (see below) *O.CON.KSEW.HW.W.0004.000000T00000Z/*

Public Zone Code Text *ADMIRALTY INLET AREA-*
(for Zone - **WAZ510**) *904 AM PST THU FEB 7 2008*

Headlines *... WIND ADVISORY IN EFFECT UNTIL 2 PM PST THIS AFTERNOON*

Overview *THE NATIONAL WEATHER SERVICE HAS ISSUED...*

Message Text *WEST WINDS OF 20 TO 30 MPH WITH GUSTS TO 45 MPH...*

End of Message *\$\$
WEATHER.GOV/SEATTLE*

Basic Product Format

(See Appendix H for more detailed product examples)

COUNTY CODE EXAMPLE

WMO Header	<i>WGUS66 KSEW 151139</i> (see appendix G)
NWS Header (see above)	<i>(SEA)FFASEW</i> (SEA is parent office, this portion is not shown)
Mass Media Header	<i>URGENT – IMMEDIATE BROADCAST REQUESTED FLOOD WATCH</i>
Office/Date/ Time Stamp	<i>NATIONAL WEATHER SERVICE SEATTLE WA 339 AM PST THU NOV 15 2007</i>
Flood Headlines	<i>...THE NATIONAL WEATHER SERVICE IN SEATTLE HAS ISSUED A FLOOD WATCH...</i>
Affected Rivers/ Counties	<i>SKOKOMISH RIVER NEAR POTLATCH AFFECTING MASON COUNTY</i>
Flood Bulletin #	<i>.FLOOD BULLETIN NO. 1</i>
Message Text	<i>HEAVY RAIN OVER THE OLYMPIC MOUNTAINS COULD DRIVE THE SKOKOMISH RIVER...</i>
Generic Code	
-ZONE or	<i>WAC045-151839-</i>
-COUNTY	
VTEC Code (see below)	<i>O.NEW.KSEW.FLA.0004.71115T1139Z-000000T000Z/</i>

Flood Summary

*THE NATIONAL WEATHER SERVICE IN SEATTLE...
* FLOOD WATCH FOR
THE SKOKOMISH RIVER NEAR POTLACH
* UNTIL FURTHER NOTICE
* AT 2:45 AM THURSDAY THE STATE WAS 13.0 FEET...*

END OF MESSAGE

*\$\$
WEATHER.GOV/SEATTLE*

Valid Time Event Code (VTEC)

Valid Time Event Code (VTEC) enables weather providers and vendors to automate and tailor the product stream delivered to their clients. This capability, in turn, allows customers to select the specific message types they want to receive. VTEC will help allow automated dissemination of critical weather information through technologies such as paging systems and television message crawl systems.

VTEC can best be described as the way computer systems interact so that information can be digested into different systems properly. It is used for non-routine forecast products. Examples include all Hydrology products, and Watches or Warnings. For more information please visit: <http://www.nws.noaa.gov/os/vtec>

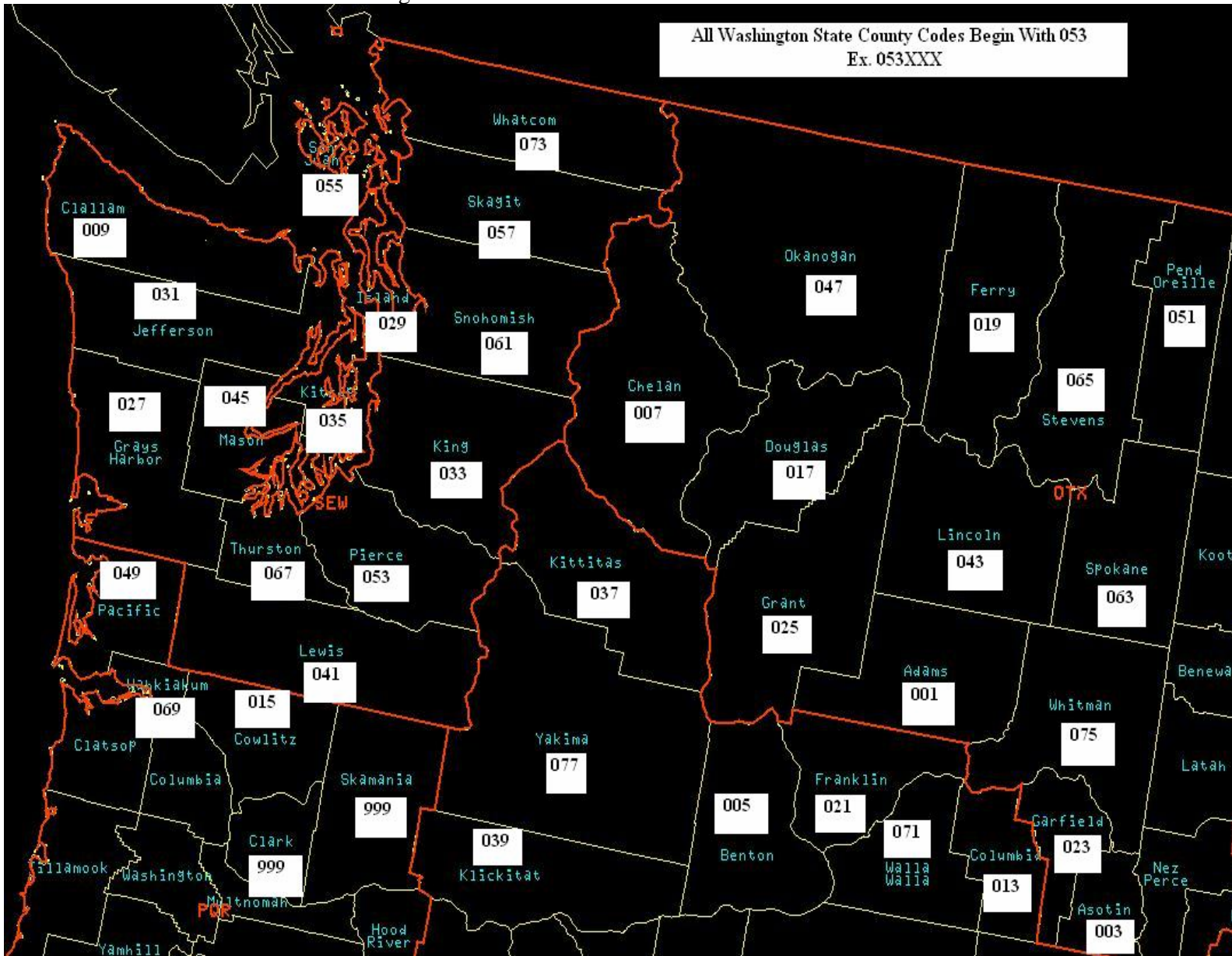
County Warning Areas

Each NWS Forecast Office across the U.S. serves a County Warning Area (CWA) based upon forecast office's Doppler weather radar coverage. In Washington state, four Doppler weather radars monitor weather over Washington. The Seattle forecast office radar is located on Camano Island, Portland's on Dixie Mtn near Scappoose, OR, Spokane's near Fairchild AFD and Pendleton at the Pendleton OR airport. See the map below for the counties each Washington NWS Forecast Office serves based on their Doppler Weather Radar coverage.

County Codes

The Federal Information Processing System (FIPS) designates a six-digit code for each county across the U.S. Below is map showing the county codes for Washington. All the county codes begin with the state code, in Washington's case 053. In NWS products, instead of 053, we use the letters WAC in our products which stand for Washington County. The remaining three numbers identify the individual counties.

The county codes are used in the generic code of selected of selected NWS forecast and warning messages. These are primarily short-fused severe weather warnings; such as tornado, flash flood, severe thunderstorm warnings and flood watch and warning products. EAS is also activated based upon these county codes. See the map and table below for the county numbers across Washington State.



**STATE OF WASHINGTON
EMERGENCY ALERT SYSTEM**

[< previous](#) [TAB Index](#) [EAS Home](#) [next >](#)

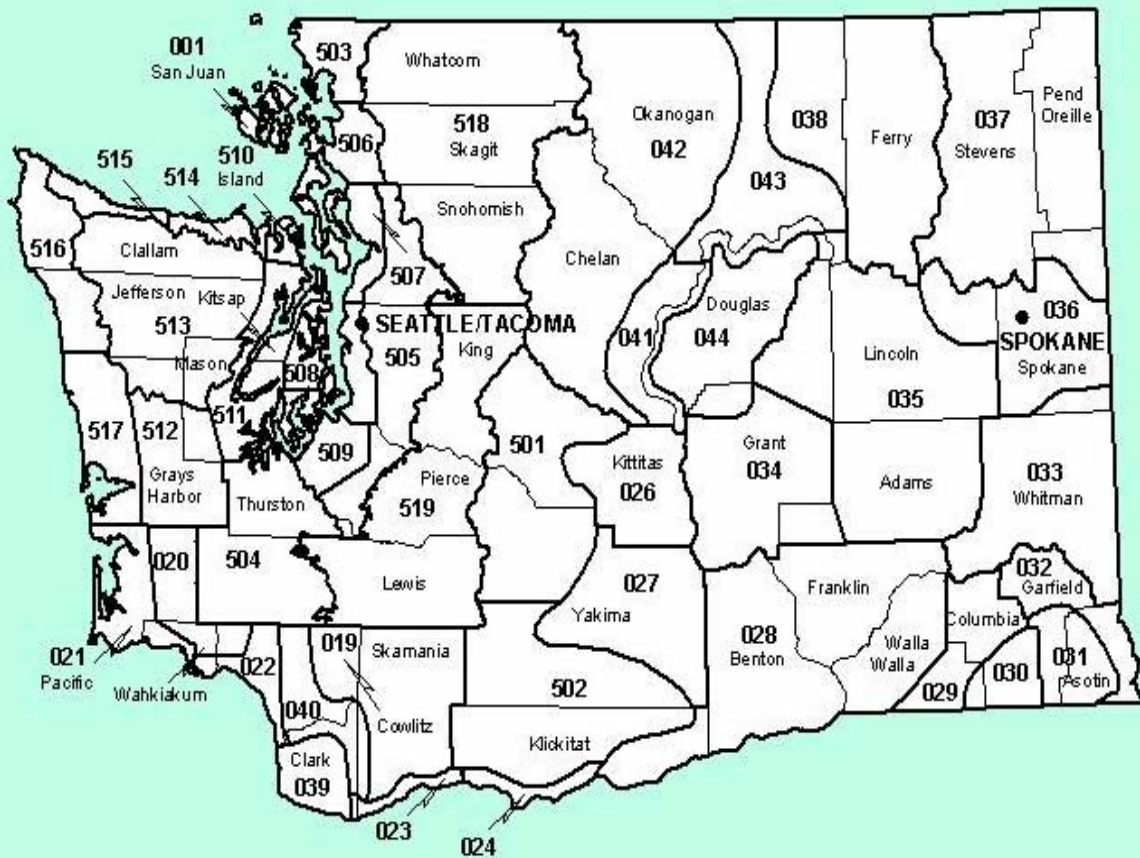
**TAB 18
Location Codes**

Adams	053001	Klickitat	053039
Asotin	053003	Lewis	053041
Benton	053005	Lincoln	053043
Chelan	053007	Mason	053045
Clallam	053009	Okanogan	053047
Clark/Skamania	053999	Pacific	053049
Columbia	053013	Pend Oreille	053051
Cowlitz	053015	Pierce	053053
Douglas	053017	San Juan	053055
Ferry	053019	Skagit	053057
Franklin	053021	Snohomish	053061
Garfield	053023	Spokane	053063
Grant	053025	Stevens	053065
Grays Harbor	053027	Thurston	053067
Island	053029	Wahkiakum	053069
Jefferson	053031	Walla Walla	053071
King	053033	Whatcom	053073
Kitsap	053035	Whitman	053075
Kittitas	053037	Yakima	053077

For more information, please visit the Washington State Association of Broadcasters (WSAB) at <http://www.wsab.org/>.

Public Forecast Zones

WASHINGTON PUBLIC FORECAST ZONE BOUNDARIES



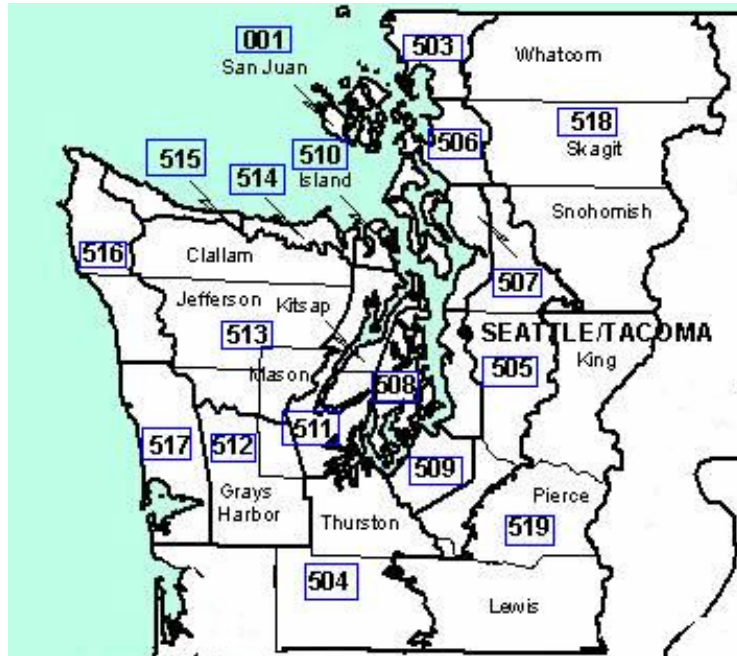
NATIONAL WEATHER SERVICE WESTERN REGION

- Weather Forecast Office
- County Boundary
- ▭ Forecast Zone Boundary

The Seattle, Spokane, Portland, and Pendleton Forecast Offices issue public zone forecasts for their respective slices of Washington. The maps below will show the geographic area of

each office with the corresponding zone number labeled. Forecast zones were created by linking climatologically or common weather regions as well as media coverage areas. The Seattle forecast office provides specific forecasts for 18 zones (areas) in Western Washington.

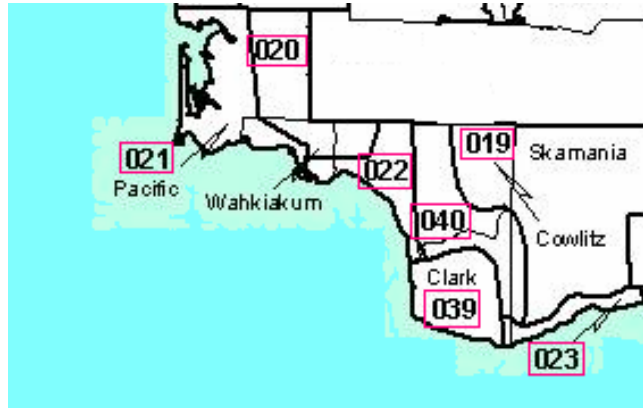
Public Weather Zone Forecast Map Seattle WFO



ZONE NUMBER	ZONE NAME
001	San Juan Islands
503	Western Whatcom County
504	Southwest Interior
505	East Puget Sound Lowlands
506	Western Skagit County
507	Everett and Vicinity
508	Seattle/Bremerton Area
509	Tacoma Area
510	Admiralty Inlet Area
511	Hood Canal Area
512	Lower Chehalis Valley Area
513	Olympics
514	Eastern Strait of Juan de Fuca
515	Western Strait of Juan de Fuca

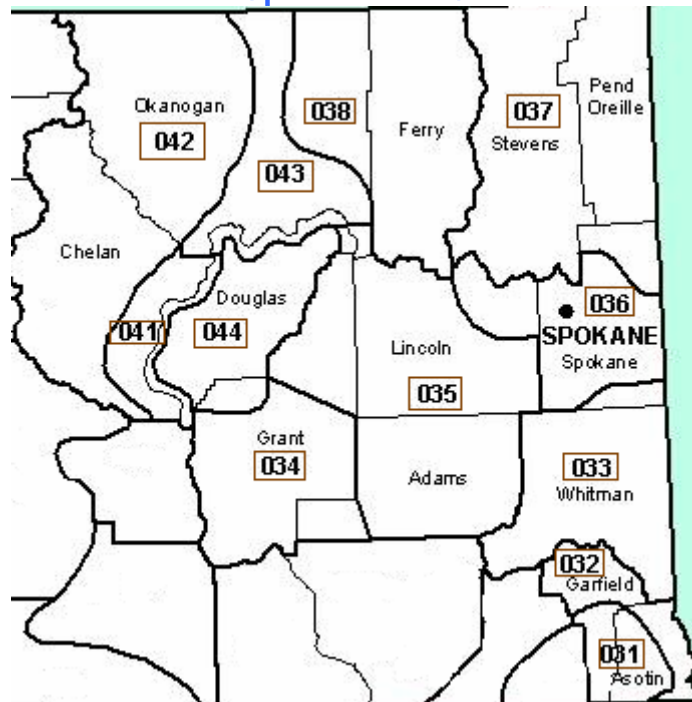
516	North Coast
517	Central Coast
518	West Slopes Northern Cascades and Passes
519	West Slopes Central Cascades and Passes

**Public Weather Zone Forecast Map
Portland WFO**



ZONE NUMBER	ZONE NAME
019	South Washington Cascades
020	Willapa Hills
021	South Washington Coast
022	Lower Columbia Valley and I-5 Corridor in Cowlitz County
023	Western Columbia River Gorge
039	Greater Vancouver Area
040	South Washington Cascade Foothills

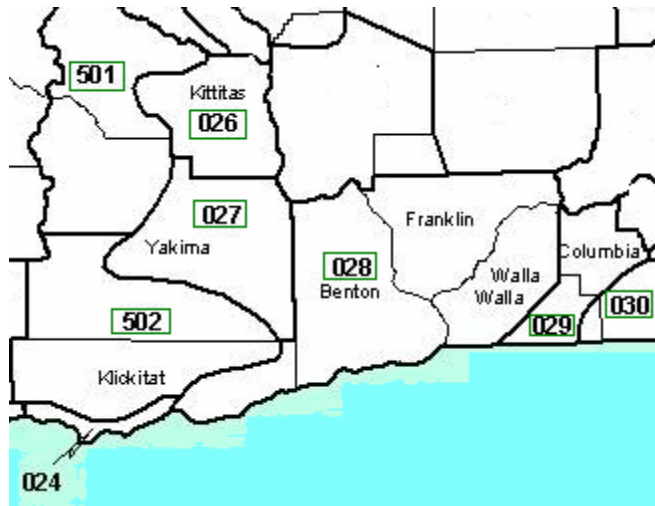
Public Weather Zone Forecast Map Spokane WFO



ZONE NUMBER	ZONE NAME
031	Northeast Blue Mountains
032	Lower Garfield and Asotin Counties

033	Washington Palouse
034	Moses Lake Area
035	Upper Columbia Basin
036	Spokane Area
037	Northern Panhandle and Northeast Mountains
038	Okanogan Highlands
041	Wenatchee Area
042	East Slopes Northern Cascades
043	Okanogan Valley
044	Waterville Plateau

Public Weather Zone Forecast Map
Pendleton WFO



ZONE NUMBER	ZONE NAME
024	East Columbia River Gorge of Washington
026	Kittitas Valley
027	Yakima Valley
028	Lower Columbia Basin of Washington

029	Foothills of Blue Mountains
030	Northwest Blue Mountains
501	East Slopes of Central Cascades
502	East Slopes of Southern Cascades