

Pacific Northwest had fewer quakes this last decade

Researcher sees an 'ominous quiet'

By TOM BANSE
Northwest News Network

Most people in the Pacific Northwest know it is earthquake country. A new analysis published this week, however, notes that major quakes in the region have gone on a puzzling hiatus over the last decade.

Steve Malone, the former Pacific Northwest Seismic Network director, analyzed the number of earthquakes over the past five decades in Washington state and Oregon. He noticed an unmistakable drop in quakes greater than magnitude 4 in the most recent decade — 2009 to present — compared to all the prior ones.

"The largest event in the past decade was also smaller than the largest event in any previous decade," Malone wrote in the journal *Seismological Research Letters*. "It seems inescapable that strong seismicity has taken a break."

Oregon and Washington state together experienced 15 to 17 earthquakes with magnitudes above 4.0 per decade between 1969 and 1999.



The joke around the Pacific Northwest Seismic Network office is that recently departed director John Vidale, left, did a good job suppressing earthquakes for the past decade.



Bricks that fell from an earthquake cover parked cars in Seattle's Pioneer Square district in 2001.

'JUST BECAUSE IT'S BEEN QUIET NOW DOESN'T MEAN WE SHOULD BE WORRIED THAT SOMEHOW SOMETHING IS ABOUT TO BE UNLEASHED.... WE WANT TO BE VIGILANT.'

Harold Tobin, the director of the Northwest seismometer network based at the University of Washington

The next decade, 1999-2009, the number of bigger quakes dropped to 11 and then during the most recent decade it tailed off to eight. Malone re-ran his analysis using the much larger catalog of all quakes above magnitude 2 and noted that

the abundance of low-level temblors hewed closer to a consistent level.

Malone did not have a neat explanation for what the cause for a regionwide earthquake lull might be. But seismologists are coming around to accepting

there are nonrandom cycles of earthquakes, said Harold Tobin, the director of the Northwest seismometer network based at the University of Washington.

"The essential question is, does that mean we're in a quiet period now and what was before that was normal?" Tobin said. "Or have we returned to normal after a decade or so of an unusually large numbers of earthquakes?"

Tobin said the length of time for which good records exist is not long enough, geologically speaking, to determine what is normal.

Malone's analysis was published online Wednesday under the catchy title,

"An Ominous Quiet in the Pacific Northwest."

The analysis covers crustal earthquakes on land and in the nearshore of the Pacific Northwest region. It does not address the feared Cascadia Subduction Zone megquake, aka "The Big One," which reoccurs at long intervals. The last rupture of the offshore Cascadia fault happened in the year 1700.

Malone also excluded from his primary analysis quakes in a narrow band of southern Oregon bordering California because they tie into different geologic basins from the Pacific Northwest. He also excluded all quakes under

volcanically-active Mount St. Helens.

In the absence of certainty about the nature and extent of an earthquake lull, Tobin said the best thing Northwest residents can do is just be prepared.

"Just because it's been quiet now doesn't mean we should be worried that somehow something is about to be unleashed," Tobin said. "But on the other hand, I want to say that since it has been quiet people might be a little complacent. They should remember that the Pacific Northwest has earthquakes and has earthquakes that sometimes cause some damage. We want to be vigilant."

Oregon, Washington lawmakers consider plastic bag bans

Measures could replace local ordinances

By CASSANDRA PROFITA
Oregon Public Broadcasting

Lawmakers in Oregon and Washington state are considering bills that would ban single-use plastic bags statewide to reduce plastic pollution.

Right now, bills in both states would prohibit retailers from giving out single-use plastic checkout bags and require them to charge a 10-cent fee on paper bags.

Washington lawmakers have already passed two versions of the bill out of committee. Oregon's House Committee on Energy and Environment took up the bill on Tuesday.

Statewide laws could replace local ordinances that also ban plastic bags.

Shawn Miller, with the Northwest Grocery Association, said his group wants to avoid a patchwork of conflicting local restrictions with 16 local governments



Kroger, the nation's largest grocery chain, will phase out the use of plastic bags in its stores by 2025.

in Oregon already having passed plastic bag bans and more considering the idea.

"It is time to go ahead and adopt a statewide system that is consistent," Miller told lawmakers. "It just takes one small change in one of the local governments to cause us a lot of problems just from a business standpoint."

Miller said his group

only supports the bill as long as it includes a fee on paper bags to cover the extra cost to grocers.

But that fee is a deal-breaker for opponents with the Northwest Pulp and Paper Association, who make paper bags.

"Portland was the first city to pass a plastic bag ban 10 years ago," lobbyist Paul Cosgrove told lawmakers.

"It didn't include a fee on paper, and it still does not have a fee on paper, and it's been operating well in big stores and little stores for that 10-year period."

State Rep. Janeen Sollman, D-Hillsboro, a bill co-sponsor, said paper bag use in Portland increased by nearly 491 percent after the city banned plastic bags.

She and other supporters say the fee will encourage people to bring reusable bags while dramatically reducing the amount of plastic polluting waterways, harming wildlife and clog-

ging up machinery in recycling facilities when people mistakenly put plastic bags in their recycling bins.

"We are going to see an increase in our paper

bags but we want people to change their behavior," Sollman said. "Plastics are wreaking havoc on our environment, on our land and in our waterways."

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TV SCHEDULE

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Evening listings THURSDAY

THURSDAY EVENING		A - Charter Astoria/ Seaside - L - Charter Long Beach										FEBRUARY 21	
A	L	6 PM	6:30	7 PM	7:30	8 PM	8:30	9 PM	9:30	10 PM	10:30	11 PM	11:30
2	KATU	KATU News at 6 (N)		Jeopardy! (N)	Wheel Fortune (N)	Grey's A. "I Want a New Drug" (N)		A Million Little Things "The Rosary" (N)	With Murder "Make Me the Enemy" (N)	News (N)		(35) Jimmy Kimmel	
4	KOMO	KOMO 4 News at 6pm (N)		Wheel Fortune (N)	Jeopardy! (N)	Grey's A. "I Want a New Drug" (N)		A Million Little Things "The Rosary" (N)	With Murder "Make Me the Enemy" (N)	KOMO4News (N)		(35) Jimmy Kimmel	
5	KING	NBC News (N)	KING 5 News (N)	KING 5 News (N)	Evening	Titan "The Battle of the Titans" (N)		Brooklyn 99 (N)	Will & Grace (N)	Law&Order: SVU "Facing Demons" (N)		KING 5 News (N)	(35) Tonight Show
6	KOIN	KOIN Local 6 (N)	Evening News (N)	Extra	Ent. Tonight	The Big Bang (N)	Young Sheldon	Mom (N)	Fam (N)	S.W.A.T. "Pride" (N)		News (N)	(35) Colbert
7	KIRO	KIRO 7 News (N)	Evening News (N)	KIRO 7 News (N)	Ent. Tonight	The Big Bang (N)	Young Sheldon	Mom (N)	Fam (N)	S.W.A.T. "Pride" (N)		KIRO News (N)	(35) Colbert
8	KGW	KGW News at 6:00 p.m. (N)		Tonight Cassidy	Inside Edition	Titan "The Battle of the Titans" (N)		Brooklyn 99 (N)	Will & Grace (N)	Law&Order: SVU "Facing Demons" (N)		News (N)	(35) Tonight Show
9	KRCW	Modern Family	Modern Family	The Goldbergs	The Goldbergs	Charmed "Keep Calm and Carry On"		Legacies (N)		News (N)	Friends Pt. 1 of 2	Two and a Half	Two and a Half 1/2
10	KOPB	Family Travel	Business (N)	PBS NewsHour (N)		Art Beat (N)	Oregon Guide (N)	Midsomer M.	(50) Midsomer M.	Echoes of the Dead	Masterpiece Mystery! "Endeavour: Coda"		
12	KPTV	6 O'Clock News (N)		Family Feud (N)	Family Feud (N)	Gotham "Ace Chemicals" (N)		The Orville "Identity, Pt. 1" Pt. 1 of 2 (N)	10 O'Clock News (N)			News (N)	Page Six TV
13	KPDx	Mike & Molly	Mike & Molly	Big Bang Theory	Big Bang Theory	8pm Prime News (N)		9pm Prime News (N)	Big Bang Theory	Family Guy	American Dad!		The Game
14	KCPQ	Modern Family	Modern Family	Big Bang Theory	Big Bang Theory	Gotham "Ace Chemicals" (N)		The Orville "Identity, Pt. 1" Pt. 1 of 2 (N)	Q13 NEWS AT 10 (N)			News (N)	The Simpsons
20	TBS	Family Guy	Family Guy	Seinfeld	Seinfeld	Seinfeld	Seinfeld	Big Bang Theory	Big Bang Theory	Big Bang Theory	Big Bang Theory	Conan (N)	Miracle Workers
22	KZJO	Black-ish	Black-ish	Mom	Modern Family	Mom	Modern Family	Q13 News at 9 (N)	Big Bang Theory	Big Bang Theory	Big Bang Theory	Two and a Half	Two and a Half 1/2
29	ESPN	NCAA Basketball (L)		SportsCenter (N)		SportsCenter (N)		SportsCenter With Scott Van Pelt (N)	SportsCenter (N)			SportsCenter (N)	
30	ESPN2	NCAA Basketball (L)		College Basketball	UFC Main Event	NCAA Basketball Oregon State at UCLA (L)		UFC Unleashed "Brazilian Powerhouses"	UFC "Heavyweight Champions"			Now or Never (N)	UFC UFC FN 55
31	NICK	The Loud House	The Loud House	The Loud House	Henry Danger	SpongeBob	SpongeBob	The SpongeBob Movie: Sponge Out of Water ("15) Antonio Banderas.		Friends	Friends	Friends	Friends
32	DISN	Coop & Cami	Coop & Cami	Raven's Home	Raven's Home	Sydney to the Max	Coop & Cami	Raven's Home	Raven's Home	Sydney to the Max	Coop & Cami	Andi Mack	Friends' Home
34	FAM	(5:30) **** The Incredibles ("04) Voices of Holly Hunter, Craig T. Nelson.		Siren "Primal Instincts" (N)		**** Monsters, Inc. ("01. Ani) Voices of Billy Crystal, Mary Gibbs, John Goodman.		**** Pride and Prejudice and Zombies (2016, Horror) Sam Riley, Jack Huston, Lily James.		(05) Rap Game "Fight For Your Life" (N)	DaBrat/RapGame	Bring It! (N)	
35	FMC	(4:30) Kingsman: The Secret Service	(10) **** Kingsman: The Secret Service (2014, Action) Colin Firth, Samuel L. Jackson, Taron Egerton.	(50) Pride and Prejudice and Zombies (2016, Horror) Sam Riley, Jack Huston, Lily James.						(05) Rap Game "Fight For Your Life" (N)	DaBrat/RapGame	Bring It! (N)	
36	LIFE	Grey's Anatomy "Rise Up"		Bring It! "Survival of the Fittest"		Bring It! "Action Chat (N)		Bring It! "A Star Is Born" (N)		(05) Rap Game "Fight For Your Life" (N)	DaBrat/RapGame	Bring It! (N)	
38	ROOT	NCAA Basketball Pepperdine at Gonzaga (L)		NCAA Basketball Utah at Washington		NCAA Basketball Oregon State at UCLA (L)		NCAA Basketball Pepperdine at Gonzaga					
39	FS1	NCAA Basketball California at Arizona (L)		NCAA Basketball Oregon State at UCLA (L)		NCAA Basketball Pepperdine at Gonzaga		NCAA Basketball California at Arizona					
43	SPIKE	Friends	Friends	Friends	Friends	Friends	Friends	Lip Sync Battle (N)	Lip Sync Battle	**** My Cousin Vinny (1992, Comedy) Marisa Tomei, Ralph Macchio, Joe Pesci.			
44	COM	(15) The Office	(50) The Office "Moving On" Pt. 1 of 2	(25) The Office 2/2		The Office	The Office	The Office	The Office	Broad City (N)	The Other Two (N)	The Daily Show (N)	(35) Broad City
45	HIST	Swamp "Clear and Present Danger"		Swamp People "Click Click"		Swamp People "Leviathans"		Swamp People "No Man's Land" (N)		(05) Truck Night in America (N)	(05) Swamp People "Click Click"		
46	A&E	The First 48 "Cranked"		The First 48 "A Murder in Mobile"		The First 48 "The Visitor" (N)		The First 48 (N)		(05) Truck Night in America (N)	(05) Swamp People "Click Click"		
47	TLC	Say Yes-Dress	Say Yes-Dress	Say Yes-Dress	Say Yes-Dress	Dr. Pimple Popper "Scared Cyst-Less"		Dr. Pimple "A Lipoma Is Born" (N)		60 Days In "Pick a Side" (N)	(05) The First 48 "Deadly Premonition"		
48	DISC	Building Off Grid "Rocky Mountains"		Building Off the Grid "Island Oasis"		Off Grid "Smoky Mountain Homestead"		Building Off the Grid "Ohio Valley Hut"		My 600-lb Life "Maja's Story" Maja's boyfriend leaves her without support. (N)			
49	NGEO	Secret Yosemite!		Grand Canyon Skywalk		Into the Grand Canyon Two journalists traverse the Grand Canyon by foot. (N)		Life Below Zero: Ice Breakers "Edge of Winter" (N)		Building Off the Grid "Alaska Range"			
50	TNT	(5:00) NBA Basketball Boston Celtics at Milwaukee Bucks (L)		NBA Basketball Houston Rockets at Los Angeles Clippers Site: Staples Center - Los Angeles, Calif. (L)		Inside the NBA (L)		NBA Basketball Boston vs Milwaukee					
51	AMC	(5:30) **** I, Robot (2004, Sci-Fi) Bridget Moynahan, Alan Tudyk, Will Smith.		**** The Day After Tomorrow (2004, Action) Jake Gyllenhaal, Ian Holm, Dennis Quaid.		(35) ** The 5th Wave (16) Chloë Grace Moretz.							
52	USA	NCIS "The Missionary Position"		NCIS "Patience"		NCIS "What Lies Above"		NCIS "Rendezvous"		NCIS "House Divided"		NCIS "One Step Forward"	
53	FOOD	Beat Bobby Flay	Beat Bobby Flay	Chopped "Leftover Takeover"		Chopped "Bowled Over"		Chopped "Wonton Wonder"		Beat Lay (N)	Beat Bobby Flay	Beat Bobby Flay	Beat Bobby Flay
54	HGTV	Flip or Flop	Flip or Flop	Flip or Flop	Flip or Flop	Flip or Flop	Flip or Flop	Flip or Flop (N)	Flip/Flop Nashville	House Hunters (N)	House Hunters (N)	House Hunters	House Hunters
56	FX	(5:00) **** The Equalizer ("14) Chloë Grace Moretz, Denzel Washington.		**** Star Trek Into Darkness (2013, Sci-Fi) Zachary Quinto, Zoe Saldana, Chris Pine.		**** Cool Hand Luke (1967, Drama) George Kennedy, J.D. Cannon, Paul Newman.							
57	CNN	Cuomo Prime Time		CNN Tonight With Don Lemon		CNN Tonight With Don Lemon		Anderson Cooper 360		Cuomo Prime Time		CNN Tonight With Don Lemon	
58	FNC	Hannity		The Ingraham Angle		Fox News @ Night		Tucker Carlson Tonight		Hannity		The Ingraham Angle	
61	CNBC	Shark Tank		Shark Tank		Shark Tank		Shark Tank		Shark Tank		Paid Program	
63	BRAV	Million Dollar List "Pony Up"		Million Dollar List "Failure to Launch"		Top Chef "Kentucky Farewell" (N)		Million Dollar List "Brother Dearest" (N)	BkyardEnfy "The Concrete Jungle" (N)		Watch What (N)	Million Dollar List	
64	TCM	(5:00) **** 8 1/2 ("63) Marcello Mastroianni.		**** La Strada ("54, Drama) Giulietta Masina, Richard Basehart, Anthony Quinn.		**** Cool Hand Luke (1967, Drama) George Kennedy, J.D. Cannon, Paul Newman.							
65	SYFY	(3:30) Harry Potter & the Sorcerer's S...	(05) **** Harry Potter and the Chamber of Secrets (2002, Family) Rupert Grint, Emma Watson, Daniel Radcliffe.										
162	RFD	SF Machinery	Small Town	Rural America "Live" "AARP" (N)		Steve Lantvit	Rural Eve. News	Grown	Farm Monitor	SF Machinery	Small Town	Time Life Library	