

Three small earthquakes reported along Oregon Coast

Associated Press

NEWPORT — The U.S. Geological Survey reports three small earthquakes have been recorded along the Oregon Coast.

The USGS says a 3.8 magnitude quake was recorded at 7:48 a.m. Saturday about 48 kilometers west of Newport and a 2.5 magnitude quake was recorded several hours later in the same area. In between, a 1.9 magnitude quake occurred at 10:52 a.m.

Tremors were felt from Florence to Depoe Bay.

No injuries or damage were reported. Geologists say damage is not likely in earthquakes below magnitude 4.0.

Canada glacier melt rerouted in rare case of 'river piracy'

By SETH BORENSTEIN
Associated Press

WASHINGTON — Scientists have witnessed the first modern case of what they call "river piracy" and they blame global warming. Most of the water gushing from a large glacier in northwest Canada last year suddenly switched from one river to another.

That changed the Slims River from a 10-foot deep, raging river to something so shallow that it barely was above a scientist's high top sneakers at midstream. The melt from the Yukon's Kaskawulsh glacier now flows mostly into the Alsek River and ends up in the Pacific Ocean instead of the Arctic's Bering Sea.

It seemed to all happen in about one day — last May 26 — based on river gauge data, said Dan Shugar, a University of Washington Tacoma professor who studies how land changes.



Jim Best/University of Illinois

A close-up view in 2016 of the ice-walled canyon at the terminus of the Kaskawulsh Glacier, with recently collapsed ice blocks.

A 100-foot tall canyon formed at the end of the glacier, rerouting the melting water, Shugar and his colleagues wrote in a study published in Mon-

day's journal Nature Geoscience.

The term "river piracy" is usually used to describe events that take a long time to occur, such as tens of

thousands of years, and had not been seen in modern times, especially not this quickly, said study co-author Jim Best of the University of Illinois. It's different from something like the Mississippi River changing course at its delta and it involves more than one river and occurs at the beginning of a waterway, not the end.

The scientists had been to the edge of the Kaskawulsh glacier in 2013. Then the Slims River was "swift, cold and deep" and flowing fast enough that it could be dangerous to wade through, Shugar said. They returned last year to find the river shallow and as still as a lake, while the Alsek, was deeper and flowing faster.

"We were really surprised when we got there and there was basically no water in the river," Shugar said of the Slims. "We could walk across it and we wouldn't get our shirts wet. It was like a snake-shaped lake rather than a river."

TV LISTINGS

Evening listings
MONDAY

MONDAY EVENING												APRIL 17	
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	(2) KATU News at 6		Jeopardy!	Wheel of Fortune	Dancing With the Stars (N)				Quantic "Kumonk" (N)		KATU News at 11	(35) Jimmy Kimmel
3	KOMO	(4) KOMO 4 News		Wheel of Fortune	Jeopardy!	Dancing With the Stars (N)				Quantic "Kumonk" (N)		KOMO 4 News	(35) Jimmy Kimmel
4	KING	(5) NBC Nightly News	KING 5 News	KING 5 News	Evening	The Voice "Live Playoffs" (N)				Taken "Leah" (N)		KING 5 News	(35) Tonight Show
5	KOIN	(6) KOIN Local 6 at 6	CBS Evening News	Extra	Ent. Tonight	Kevin Can Wait (N) Man Plan (N)	Super Donuts (N)	2 Broke G. (SF) (N)	Scorpion "Strife on Mars" (N)	Scorpion "Strife on Mars" (N)		KOIN 6 News @ 11	(35) Colbert
6	KIRO	(7) KIRO 7 News	CBS Evening News	The Insider	Ent. Tonight	Kevin Can Wait (N) Man Plan (N)	Super Donuts (N)	2 Broke G. (SF) (N)	Scorpion "Strife on Mars" (N)	Scorpion "Strife on Mars" (N)		KIRO News	(35) Colbert
7	KGW	(8) KGW News at 6:00 p.m.		Live at 7	Inside Edition	The Voice "Live Playoffs" (N)			Taken "Leah" (N)			KGW News at 11	(35) Tonight Show
8	KRCW	(3) Last Man Standing	Last Man Standing	Modern Family	Modern Family	Supergirl "Exodus"		PennTeller "Penn & Teller Have a Blast"	KGW News at 10	Two and a Half		Two and a Half	Met Your Mother
9	KOPB	(10) This Old House	Business (N)	PBS NewsHour		Antique "Salt Lake City (Hour Three)" (N)	Ore. Experience	Ore. Experience	Antiques Rd. "Chicago (Hour Two)"			Ind. Lens "SEED: The Untold Story"	
10	KPTV	(12) 6 O'Clock News		Family Feud	Family Feud	24 "11:00 PM - 12:00 AM" (SF) (N)	APB "Pandora's Box" (N)		10 O'Clock News			11 O'Clock News	2 Broke Girls 1/2
11	KPDZ	(13) Mike & Molly	Mike & Molly	Big Bang Theory	Big Bang Theory	FOX 12's 8 O'Clock News on PDX-TV	FOX 12's 9 O'Clock News on PDX-TV		Family Guy	Family Guy		American Dad	Cleveland Show
12	KCPO	(13) Modern Family	Modern Family	Big Bang Theory	Big Bang Theory	24 "11:00 PM - 12:00 AM" (SF) (N)	APB "Pandora's Box" (N)		Q13 News at 10			Q13 News	The Simpsons
13	TBS	(20) Family Guy	Family Guy	Family Guy	Family Guy	Family Guy	Family Guy	Family Guy	American Dad	Angie Tribeca (N)		Conan (N)	
14	KZJZ	(22) Two and a Half	Two and a Half	Last Man Standing	Last Man Standing	Modern Family	Modern Family	Q13 News at 9	Big Bang Theory	Big Bang Theory		Friends	Friends
15	ESPN	(29) (4:00) MLB Baseball	Pit./St.L. (L)	Baseball Tonight (L)		SportsCenter		SportsCenter				SportsCenter	
16	ESPN2	(30) (5:00) 30 for 30	"One and Not Done"	SportsCenter		NFL Live		Baseball Tonight (L)	Jalen & Jacoby	30 for 30 "Elway to Marino"		Friends	Friends
17	NICK	(31) Henry Danger	Henry Danger	The Thundermans	The Thundermans	NickyRickyDicky	Game Shakers	Full House	Full House	Full House		Friends	Friends
18	DISN	(32) Bunk'd	Bizaardvark	K.C. Undercover	Andi Mack	Stuck in Middle	Good Luck Charlie	Liv and Maddie	Liv and Maddie	Bunk'd		Jessie	Jessie
19	FAM	(34) The Middle	★★ Bring It On (2000, Comedy) Jesse Bradford, Eliza Dushku, Kirsten Dunst.	★★★ A Thousand Clowns (1972, Musical) David Ford, Howard da Silva, William Daniels.	★★★ The Da Vinci Code (2006, Drama) Audrey Tautou, Jean Reno, Tom Hanks.	Baby Daddy (N)	Baby Daddy (N)	The Twins "Happily NEVER After?" (N)	Baby Daddy	Baby Daddy		The 700 Club	
20	FMC	(35) Movie	(:50) ★★★ How to Train Your Dragon 2 (2014, Animated) Kit Harington, Kristen Wlig, Jay Baruchel.			(:10) FXM Presents	★★★ Red Tails (2012, Action) Terrence Howard, Nate Parker, Cuba Gooding Jr.	(:50) FXM Presents				(:50) FXM Presents	
21	ROOF	(38) Mariners Access	MarinersPre-game	MLB Baseball	Miami Marlins at Seattle Mariners Site: Safeco Field -- Seattle, Wash. (L)			Post-game	MLB Baseball	Miami Marlins at Seattle Mariners			
22	FS1	(39) (5:00) UFC UFC 198				MLB Whiparound (L)		Speak for Yourself	Skip and Shannon: Undisputed Opinions on the biggest sports topics of the day.				
23	SPIKE	(43) Cops	Cops	Cops	Cops	Cops	Cops	Cops	Cops	Cops		Adam Carolla Builds "Garage Rescue"	
24	COM	(44) Futurama	Futurama	South Park	South Park	South Park	South Park	Tosh.0	Tosh.0	Tosh.0		The Daily Show (N) @midnight (N)	
25	HIST	(45) American Pickers	"Scrappy Go Lucky"	Pickers "Who's the Rarest of Them All?"	Amer. Pickers "The \$90,000 Question"	Amer. Pickers (N)	Amer. Pickers (N)	(:05) Pawn Stars (N)	(:35) Pawn Stars (N)	(:05) Pawn Stars (N)	(:35) Pawn Stars (N)	(:05) Pawn Stars	(:35) Pawn Stars
26	A&E	(46) First 48	"House of Pain/ Into the Night"	The First 48 "Shattered Glass"	First 48 "The House on Madrona Street"	The First 48 "1000 Cuts/ Draw"		Bates Motel "Visiting Hours" (N)	The First 48 "Night Run"				
27	TL	(47) Say Yes-Dress	Say Yes-Dress	My 600-lb Life "Ashley D's Story"	My 600-lb Life "Lupe & Ashley D." Lupe	My 600-lb Life "Lupe & Ashley D." Lupe	My 600-lb Life "Lupe & Ashley D." Lupe	My 600-lb Life "Lupe & Ashley D." Lupe	My 600-lb Life "Lupe & Ashley D." Lupe	My 600-lb Life "Lupe & Ashley D." Lupe		My 600-lb Life "Lupe & Ashley D." Lupe	
28	DISC	(48) Street Outlaws		Street Outlaws: Full Throttle "From Mega to Street" (N)	Street Outlaws (N)	Street Outlaws (N)	Street Outlaws (N)	Street Outlaws (N)	Street Outlaws (N)	Street Outlaws (N)		Street Outlaws	
29	NGEO	(49) OriginsHumankind	"Power of Money"	OriginHuman "The Writing on the Wall"	OriginHuman "Progress of War"	OriginHuman "Building the Future" (N)		National Geographic Explorer	OriginHuman "Building the Future"			OriginHuman "Building the Future"	
30	TNT	(50) (5:00) NBA Basketball Playoffs		NBA Basketball Playoffs				Inside the NBA	NBA Basketball Playoffs			NBA Basketball Playoffs	
31	AMC	(51) (5:50) ★★★ Sherlock Holmes (2009, Adventure) Jude Law, Rachel McAdams, Robert Downey Jr.	(:50) Better Call Saul					Better Call Saul (N)				(:10) Better Call Saul	
32	USA	(52) Modern Family	Modern Family	Modern Family	Modern Family	WWE Monday Night Raw						(:05) Friday Night Tykes (N)	
33	FOOD	(53) Guy's Grocery Games		Guy's Game "Big Burger Battle"		Diners, Drive-Ins	Diners, Drive-Ins	Diners, Drive-Ins "Ultimate Bacon Fest"	Help My Yelp (N)	Diners, Drive-Ins	Diners, Drive-Ins	Diners, Drive-Ins	Diners, Drive-Ins
34	HGTV	(54) Love It or List It		Love It/List It "Mother-in-Law Matters"		Love It or List It "Design Indecision"		Love It or List It "New Kid on the Block"	House Hunters	House Hunters		TinyHouseHunters	TinyHouseHunters
35	FX	(56) (5:00) ★★★ Fast & Furious 6 ("13, Act) Paul Walker, Dwayne Johnson, Vin Diesel.		★★ The Maze Runner (2014, Sci-Fi) Thomas Brodie-Sangster, Will Poulter, Dylan O'Brien.		★★★ The Maze Runner (2014, Sci-Fi) Thomas Brodie-Sangster, Will Poulter, Dylan O'Brien.		★★★ The Maze Runner (2014, Sci-Fi) Thomas Brodie-Sangster, Will Poulter, Dylan O'Brien.	★★★ The Maze Runner (2014, Sci-Fi) Thomas Brodie-Sangster, Will Poulter, Dylan O'Brien.			★★★ The Maze Runner (2014, Sci-Fi) Thomas Brodie-Sangster, Will Poulter, Dylan O'Brien.	
36	CNN	(57) Anderson Cooper 360		CNN Tonight With Don Lemon		CNN Tonight With Don Lemon		Anderson Cooper 360	Anderson Cooper 360			CNN Tonight With Don Lemon	
37	FNC	(58) Tucker Carlson Tonight		Hannity		The O'Reilly Factor		Tucker Carlson Tonight	Hannity			The First 100 Days	
38	CNBC	(61) Shark Tank		American Greed "Billionaire Boys Bust"		American Greed: Scam		American Greed "The Bad Neighbors"	American Greed "The Surfer Slayer?"			Paid Program	Paid Program
39	BRAV	(63) Vanderpump R. "Reunion Part 1" 1/3		Vanderpump R. "Reunion Part 2" 2/3		VanderpumpR "Reunion Part 3" 3/3 (N)		Southern Charm "Step and Release" (N)	Sweet OK (N)	Sweet Home OK		WatchWhat (N)	VanderpumpR 3/3
40	TCM	(64) (5:00) ★★★ 1776 (1972, Musical) David Ford, Howard da Silva, William Daniels.		★★★ A Thousand Clowns (1972, Musical) David Ford, Howard da Silva, William Daniels.		★★★ The Da Vinci Code (2006, Drama) Audrey Tautou, Jean Reno, Tom Hanks.		American Rancher	Red Steagall			Product Showcase	
41	SYFY	(65) (5:00) ★★ Pirates of the Caribbean: Dead Man's Chest (06) Johnny Depp.		★★★ The Da Vinci Code (2006, Drama) Audrey Tautou, Jean Reno, Tom Hanks.		American Rancher		Red Steagall				Product Showcase	
42	RFD	(162) American Rancher	Red Steagall	Horse Master	Inside Reining	Craig Cameron	Rural Eve. News	Rural America "Tarter Farm and Ranch"					

80 Work Wanted

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CROSSWORD by Eugene Sheffer

ACROSS 1 Bit of butter 4 Coffee vessel 7 Bronx cheer 11 Exam format 13 Cattle call 14 Notion 15 Formerly 16 — de deux 17 Turf-war side 18 Bath sponge (Var.) 20 Opulent 22 Country singer McGraw 24 Corpulent 28 Self-indulgent "journey" 32 Bid 33 Seized vehicle 34 Rep.'s rival 36 "The Music Man" setting 37 Blood-sucker 39 Official pardon

41 Shun 43 Actor Gibson 44 Soon, poetically 46 "Strange as it seems ..." 50 Hoedown site 53 Pirate's chart 55 Canal of song 56 With (Fr.) 57 Leading lady? 58 Saturn feature 59 Hereditary unit 60 Bottom line 61 Wooden pin

23 Central vehicles 25 Sci-fi 26 Salamander 27 Wagon 28 Perry's creator 29 Pop music's Bee — 30 Oil cartel 31 Royal insomnia cause 35 "Tasty!" 38 Chick's mom 40 Prefix with natal 42 U.S. voters since 1920 45 Cathedral area 47 Plumbing problem 48 Queue 49 Safe-cracker 50 Satchel 51 St. crosser 52 Stimp'y's pal 54 Favorite

Solution time: 21 mins.

SATURDAY'S ANSWER 4-17

1	2	3	4	5	6	7	8	9	10
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