

HOW DID THAT HAPPEN?

The historic November 1921 ice storm
Plus other big snowstorms in NW OR & SW WA

MARK NELSEN – CHIEF METEOROLOGIST



70 YEARS AGO THIS WEEK

Earliest arctic blast on record in the region

Climatological Data for PORTLAND INTL AIRPORT, OR - November 1955

[Click column heading to sort ascending](#), [click again to sort descending](#).

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
1955-11-01	48	40	44.0	-6.6	21	0	0.03	0.0	0
1955-11-02	56	41	48.5	-1.8	16	0	0.48	0.0	0
1955-11-03	60	54	57.0	7.0	8	0	0.01	0.0	0
1955-11-04	57	38	47.5	-2.3	17	0	0.23	0.0	0
1955-11-05	54	36	45.0	-4.5	20	0	0.00	0.0	0
1955-11-06	54	47	50.5	1.2	14	0	0.21	0.0	0
1955-11-07	60	42	51.0	2.0	14	0	0.00	0.0	0
1955-11-08	61	49	55.0	6.2	10	0	0.08	0.0	0
1955-11-09	61	53	57.0	8.4	8	0	0.08	0.0	0
1955-11-10	59	41	50.0	1.7	15	0	0.11	0.0	0
1955-11-11	42	26	34.0	-14.1	31	0	0.16	1.1	0
1955-11-12	28	21	24.5	-23.3	40	0	T	T	T
1955-11-13	30	19	24.5	-23.1	40	0	T	T	T
1955-11-14	27	15	21.0	-26.4	44	0	T	T	T
1955-11-15	26	13	19.5	-27.6	45	0	0.01	0.2	T
1955-11-16	25	20	22.5	-24.4	42	0	0.09	2.4	1
1955-11-17	28	23	25.5	-21.2	39	0	0.45	4.5	1
1955-11-18	52	27	39.5	-6.9	25	0	1.57	0.0	4
1955-11-19	43	33	38.0	-8.2	27	0	0.46	0.0	T
1955-11-20	42	33	37.5	-8.5	27	0	0.02	0.0	0
1955-11-21	46	35	40.5	-5.2	24	0	0.02	0.0	0
1955-11-22	45	36	40.5	-5.0	24	0	0.26	0.0	0
1955-11-23	48	37	42.5	-2.8	22	0	0.30	0.0	0
1955-11-24	54	46	50.0	5.0	15	0	0.90	0.0	0
1955-11-25	54	48	51.0	6.2	14	0	0.33	0.0	0
1955-11-26	57	45	51.0	6.4	14	0	0.95	0.0	0
1955-11-27	48	40	44.0	-0.4	21	0	0.03	0.0	0
1955-11-28	43	38	40.5	-3.6	24	0	0.13	0.0	0
1955-11-29	45	39	42.0	-1.9	23	0	0.09	0.0	0
1955-11-30	51	41	47.5	3.8	17	0	0.34	0.0	0
Cum	1107	1076	-	-	701	0	7.34	8.2	-
Average	46.9	35.9	41.4	-5.7	-	-	-	-	0.2

Courtesy: Bobby Corser

Climatological Data for GOVERNMENT CAMP, OR - November 1955

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
1955-11-01	32	25	28.5	-11.3	36	0	0.86	6.0	14
1955-11-02	34	25	29.5	-10.0	35	0	0.25	2.0	16
1955-11-03	32	25	28.5	-10.7	36	0	0.71	0.0	16
1955-11-04	52	29	40.5	1.5	24	0	0.63	0.0	8
1955-11-05	M	28	M	M	M	M	0.51	0.0	4
1955-11-06	47	31	39.0	0.6	26	0	0.00	0.0	4
1955-11-07	57	40	48.5	10.3	16	0	0.57	0.0	0
1955-11-08	55	39	47.0	9.1	18	0	T	0.0	0
1955-11-09	47	42	44.5	6.9	20	0	T	0.0	0
1955-11-10	45	38	41.5	4.1	23	0	2.32	0.0	0
1955-11-11	40	20	30.0	-7.1	35	0	1.34	4.0	4
1955-11-12	20	6	13.0	-23.8	52	0	1.40	14.0	18
1955-11-13	8	3	5.5	-31.1	59	0	0.00	0.0	18
1955-11-14	3	1	2.0	-34.3	63	0	0.00	0.0	18
1955-11-15	29	-4	12.5	-23.5	52	0	0.00	0.0	16
1955-11-16	10	-1	4.5	-31.3	60	0	0.40	4.0	20
1955-11-17	7	4	5.5	-30.0	59	0	0.20	2.0	22
1955-11-18	30	0	19.5	-15.8	45	0	0.13	8.0	30
1955-11-19	32	18	25.0	-10.0	40	0	3.25	5.0	25
1955-11-20	M	22	M	M	M	M	0.80	2.0	27
1955-11-21	36	M	M	M	M	M	S	3.0	28
1955-11-22	29	24	26.5	-7.7	38	0	M	4.0	30
1955-11-23	34	M	M	M	M	M	M	10.0	38
1955-11-24	35	25	30.0	-3.7	35	0	M	4.0	42
1955-11-25	38	32	35.0	1.5	30	0	M	3.0	36
1955-11-26	41	M	M	M	M	M	M	0.0	25
1955-11-27	41	31	36.0	3.0	29	0	3.36A	0.0	18
1955-11-28	52	27	39.5	6.7	25	0	0.00	0.0	16
1955-11-29	36	26	31.0	-1.5	34	0	0.00	0.0	15
1955-11-30	41	34	37.5	5.2	27	0	0.29	T	14
Sum	966	596	-	-	917	0	17.02	71.0	-
Average	34.5	22.1	28.0	-7.9	-	-	-	-	17.4
Normal	41.5	30.4	35.9	-	872	0	12.69	30.6	-

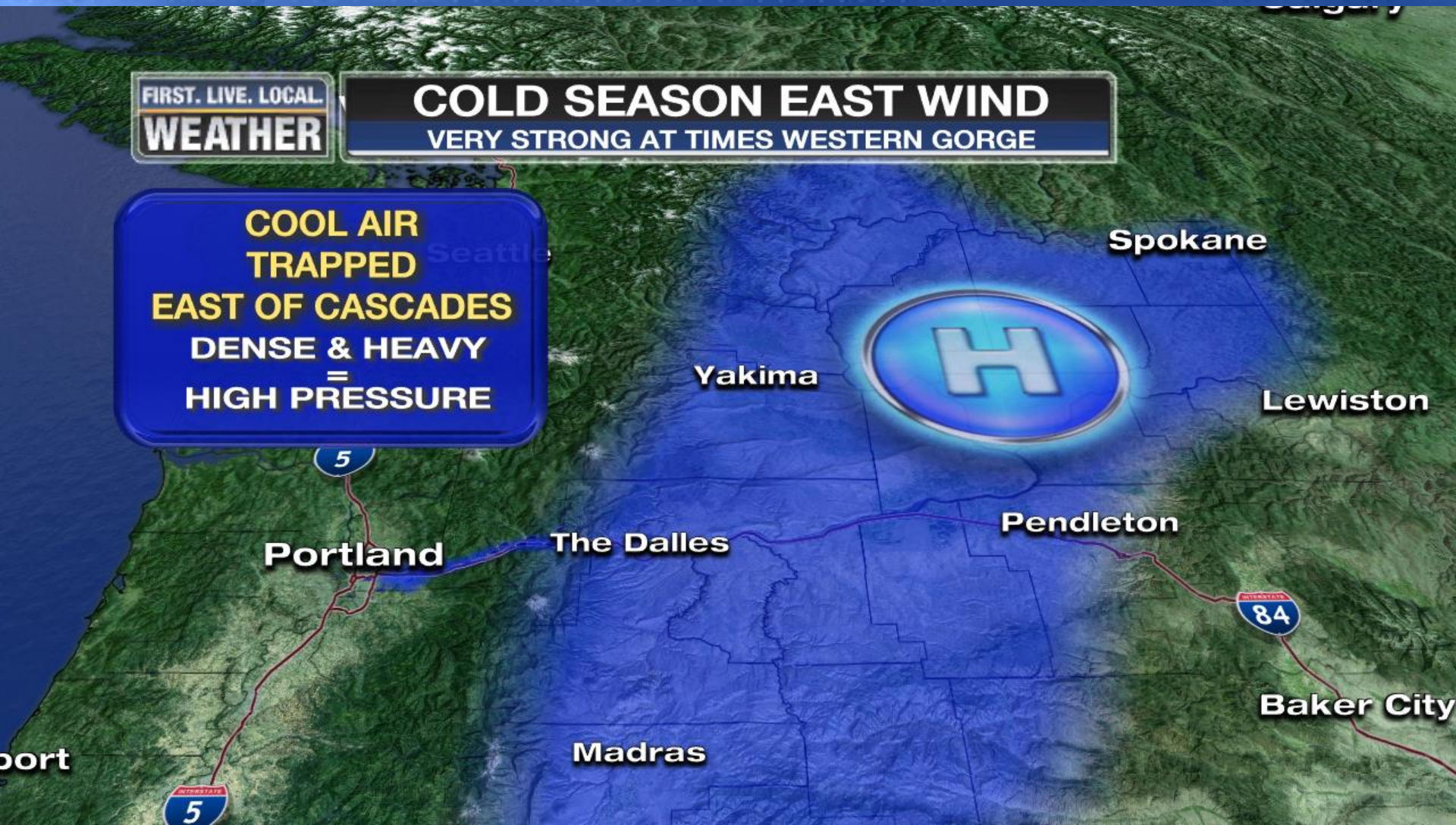
Courtesy: Bobby Corser

FIRST. LIVE. LOCAL.
WEATHER

COLD SEASON EAST WIND

VERY STRONG AT TIMES WESTERN GORGE

**COOL AIR
TRAPPED
EAST OF CASCADES
DENSE & HEAVY
=
HIGH PRESSURE**



FIRST. LIVE. LOCAL.
WEATHER

COLD SEASON EAST WIND

VERY STRONG AT TIMES WESTERN GORGE

**COLD AIR
FLOWS WEST
THROUGH GORGE
ACCELERATES
AT WEST END**

**COLUMBIA
RIVER GORGE**

Trout Lake

Hood River

Vancouver

Portland

Troutdale

Parkdale

Lake Oswego

Think of it as a “waterfall” of cool air.

Wind slows down dramatically as it spreads out in metro area

Let's Talk Snow

Tough to Get It Down to Sea Level!



Snowfall

Tough to Get to Sea Level!

BECAUSE...

- 50-55° degree ocean to west .
- Cold Alaskan/Canadian airmasses modify over ocean.
- Cold surface easterly flow occurs while in dry ridging.

HOW DO WE GET SNOW?

1. Short over-water trajectory of Canadian arctic air.
2. Cold easterly flow at surface w/moisture above.



FOX 12

SNOW SETUP # 1

FIRST. LIVE. LOCAL.

CLASSIC SETUP FOR WET SNOW TO SEA LEVEL

**COLD
ARCTIC AIR**

**PICKS
UP MOISTURE
OVER OCEAN**

SEATTLE

PORTLAND

In This Pattern

Usually, west wind in east county areas = no more snow than Portland

FOX 12

SNOW SETUP #2

FIRST. LIVE. LOCAL.

A BIT MESSIER

**MILD & MOIST
AIR RIDES
OVER COLD AIR**



MILD

COLD



FIRST ALERT OUR BIG SNOW/ICE STORMS

**LOTS OF PACIFIC
MOISTURE
RIDES OVER THE COLD AIR**

MOISTURE



FIRST ALERT OUR BIG SNOW/ICE STORMS

**SOMETIMES A COMBINATION OF
SNOW & FREEZING RAIN**
**USUALLY ENTIRE METRO GETS SNOW
AT ONCE IN THIS PATTERN**

Temps slow to warm, can last 2-3 days

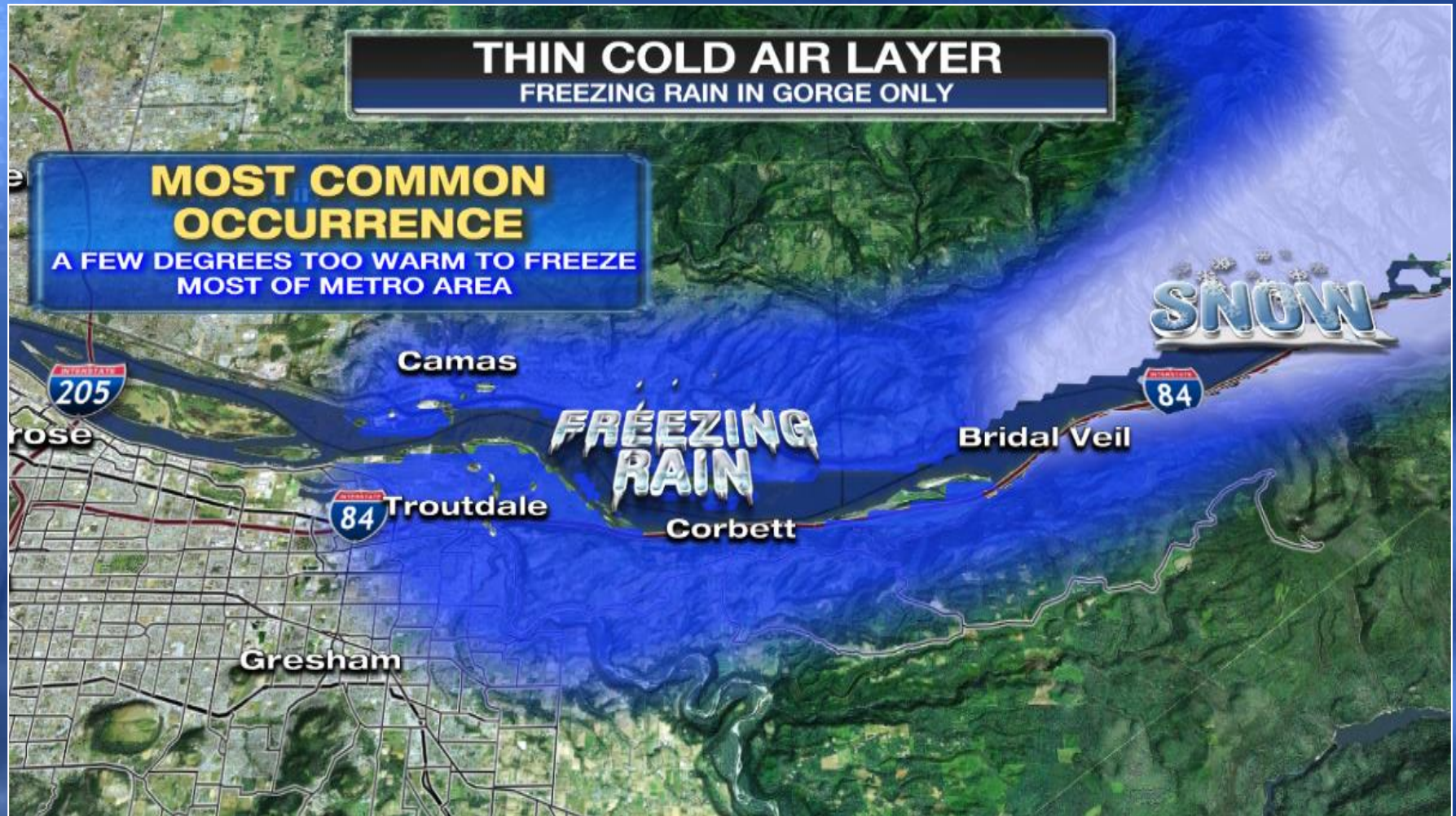


THIN COLD AIR LAYER

FREEZING RAIN IN GORGE ONLY

MOST COMMON OCCURRENCE

A FEW DEGREES TOO WARM TO FREEZE
MOST OF METRO AREA



5

THICKER COLD AIR LAYER

WIDESPREAD FREEZING RAIN METRO AREA

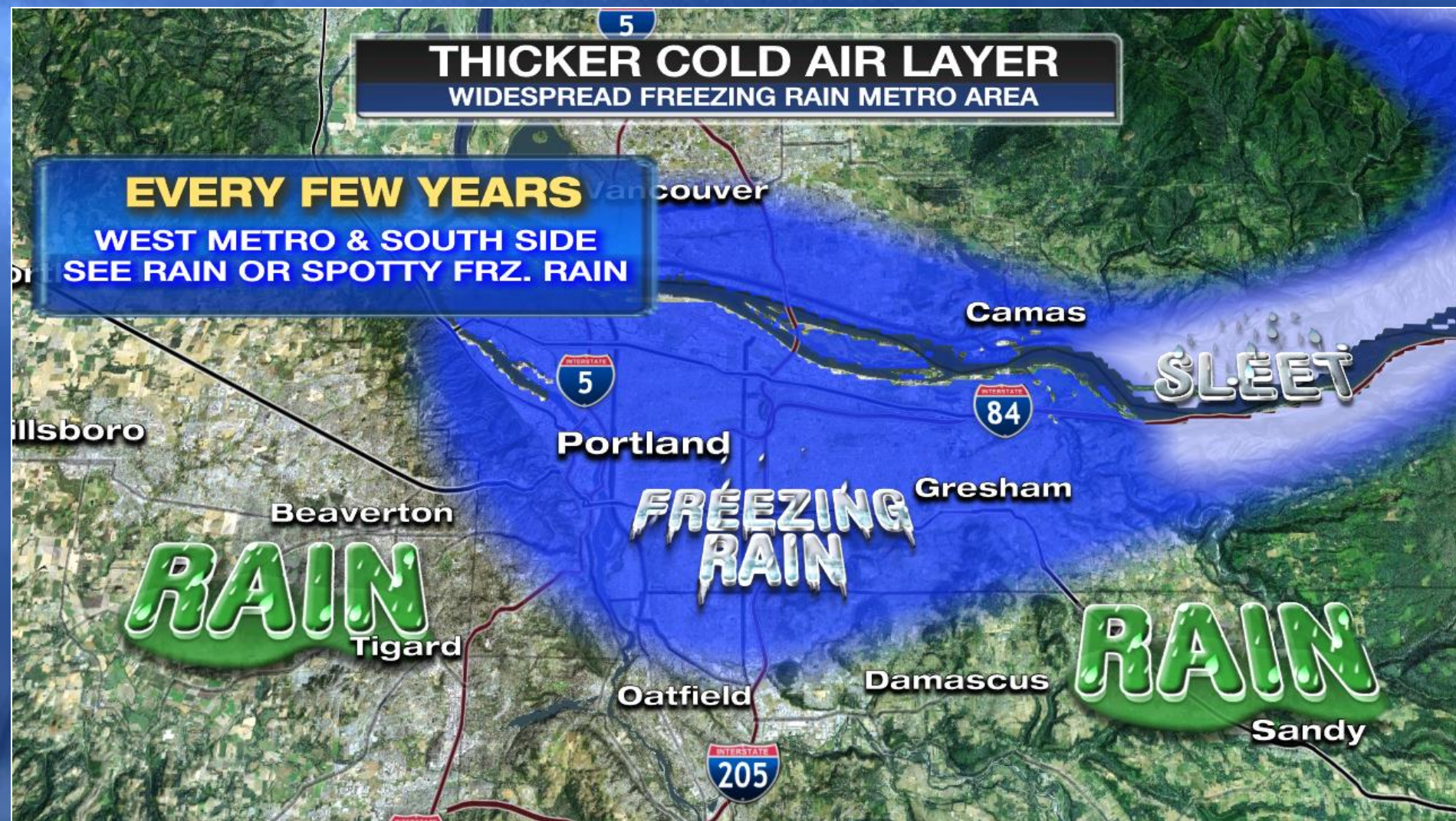
EVERY FEW YEARS
WEST METRO & SOUTH SIDE
SEE RAIN OR SPOTTY FRZ. RAIN

SLEET

FREEZING
RAIN

RAIN

RAIN



MAJOR BLAST OF COLD THROUGH GORGE
SNOW EAST METRO & GORGE, THICK ICE FARTHER SOUTH

Hood R

SNOW

Portland

Forest Grove

Sandy

SLEET

Wilsonville

McMinnville

Colton

Woodburn

RAIN

Willamina

**FREEZING
RAIN**

Dallas

Salem

THE BIG STORMS

JANUARY 2004, 2008

FEBRUARY 2014

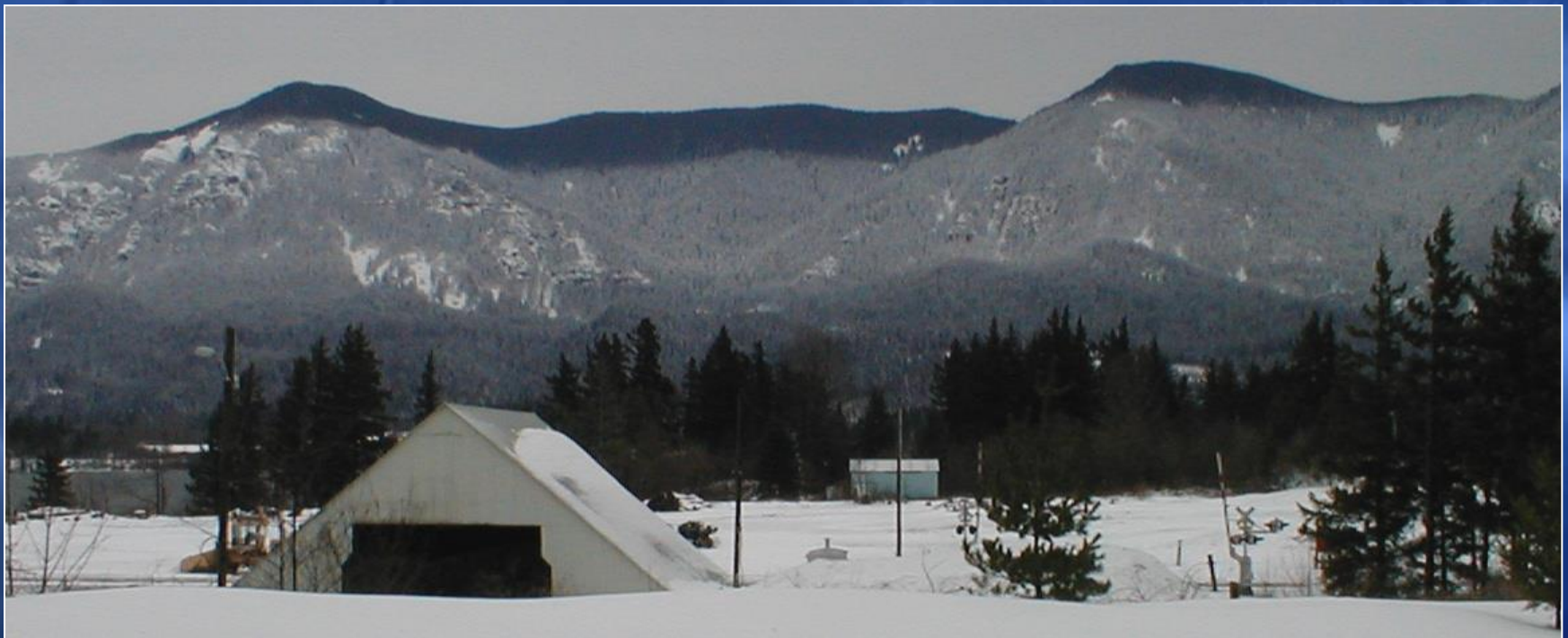
**Damaging freezing rain
pushes down into
the Valley**

- **Freezing Rain:**

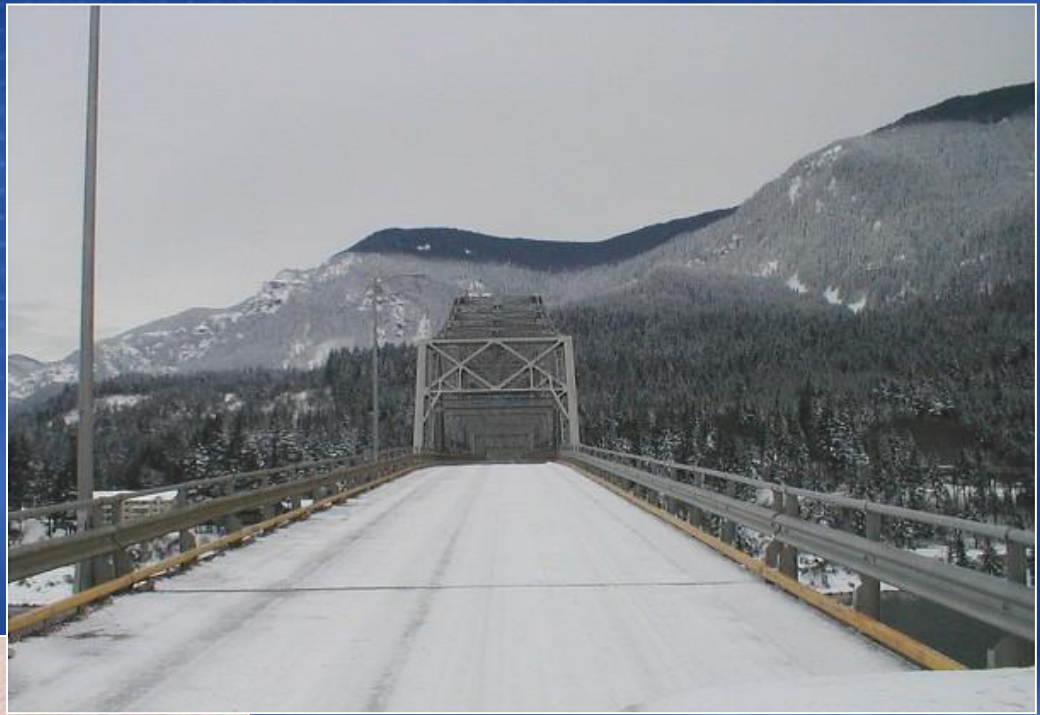
Snowflakes melt into rain. Drops still liquid on impact, but freeze very quickly because air temp is below freezing.

Means that cold air mass is getting thinner, or is already thin.

Glaze ice on everything!



- **Ice Pellets:** Used to be called sleet. Snowflakes melt into rain. Drops freeze back into hard ice pellets while going through **thick cold air mass** below. Makes a “clinking” noise on impact. Rolls down steep slopes easily.





December 2008 Snowstorm

**10-30" in Metro
Area!**

Best snowstorm since 1980.
One of the top five
in our history.

A.I. Trash

No, this isn't the Oregon snowfall record

snowiest day in Oregon history

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★ AI Overview

The snowiest single day in Oregon history was **April 8, 2009**, when Malheur County recorded an unprecedented 60 inches of snowfall. For a more western Oregon perspective, a major event occurred on January 31, 1937, when Salem received 27 to 33 inches of snow, and another was on January 21, 1943, when Portland received 15.5 inches. [🔗](#)

- **Oregon State Record:** The largest one-day snowfall was 60 inches in Malheur County on April 8, 2009.
- **Salem, OR:** The city received 27 to 33 inches of snow on January 31, 1937, making it one of the heaviest snowfalls in the state's history.
- **Portland, OR:** The city's snowiest 24-hour period was January 21, 1943, when it recorded 15.5 inches of snow. [🔗](#)

A.I. Trash

No, this isn't the Oregon snowfall record

Climatological Data for RIVERSIDE 7 SSW, OR - April 2009

[Click column heading to sort ascending, click again to sort descending.](#)

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall
2009-04-01	50	23	36.5	-8.1	28	0	0.00	M
2009-04-02	56	38	47.0	2.3	18	0	0.00	M
2009-04-03	M	M	M	M	M	M	0.00	M
2009-04-04	M	M	M	M	M	M	0.00	M
2009-04-05	63	13	38.0	-7.1	27	0	0.00	M
2009-04-06	71	19	45.0	-0.2	20	0	0.00	M
2009-04-07	73	22	47.5	2.2	17	0	0.00	M
2009-04-08	67	42	54.5	9.1	10	0	0.60	60.0
2009-04-09	59	38	48.5	2.9	16	0	0.04	4.0
2009-04-10	54	33	43.5	-2.2	21	0	0.21	21.0
2009-04-11	60	40	50.0	4.1	15	0	0.07	7.0
2009-04-12	M	M	M	M	M	M	0.00	M

1980 Snowstorm

Oregon state record for 1-day snowfall
January 9th

Bonneville Dam

39"

Hood River Exp. Station

47"

Other “recent” big storms...

Jan 1950 – Snowiest month in Portland

Severe cold with several ice/snow storms throughout the month

Dec 1968

Severe cold & ice/snow, coldest day 14° @PDX

Jan 1979 – Ice Storm

Severe/thick icing in east Portland

Jan 1980 – Snow Storm

Mainly snow...4-5 feet!

Dec 1996 – Double Ice Storms

4-6” ice west end Gorge, into East Portland

Jan 1998 – Snow Storm

12-18” snow



FIRST ALERT THE BIG SNOW STORMS

IN PORTLAND (1940-NOW)

RANK	3-DAY TOTAL	DATE
1ST	15.9"	Jan 22, 1943
2ND	13.6"	Jan 15, 1950
3RD	12.6"	Dec 31, 1968
4TH	12.4"	Dec 21, 2008
5TH	10.8"	Feb 23, 2023

© C L I F F O R D P A G U I O

FIRST ALERT BIGGEST SNOW STORMS

IN DOWNTOWN PORTLAND (1884-NOW)

RANK	3-DAY TOTAL	DATE
1ST	26.5"	Dec 22 1892
2ND	22.3"	Dec 17, 1884
3RD	17.5"	Dec 10, 1919
4TH	16.8"	Feb 1, 1937
5TH	16.3"	Jan 20, 1943

© C L I F F O R D P A G U I O



The 1937 "Big Snow"

Portland: 16.8" January 31st + February 1st

...Sally Brown is not happy...

Credit: Oregonian

The 1937 “Big Snow” in Salem

Two feet of wet, heavy snow wreaked a lot of damage on buildings, too. Many structures collapsed under the weight. The large marquee overhang around Miller’s Department store (which operated in the Reed Opera House) collapsed under the weight of the snow, luckily early enough in the

CREDIT: Salem Statesman Journal

Salem’s greatest snowstorm

25.0” February 1st

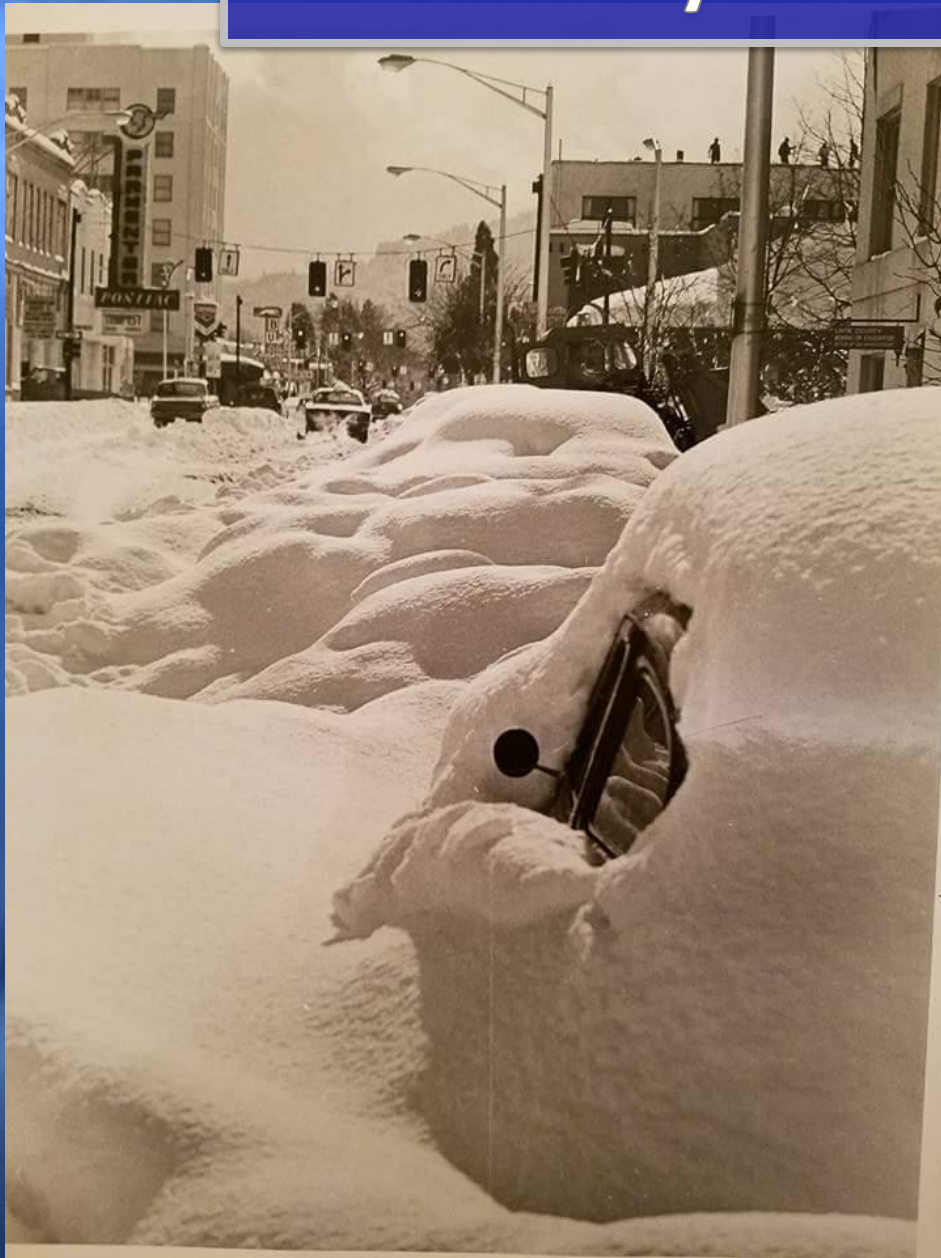
Greatest 1-Day Snowfall

Salem in and out of arctic air or cold showers much of Jan 1937, this was end of cold month.

2.50” rain followed next 3 days

2nd greatest snowfall? 17.5” – Dec 10, 1919

January 1969 Eugene Storm



Eugene's greatest snowstorm

14.0" Jan 25

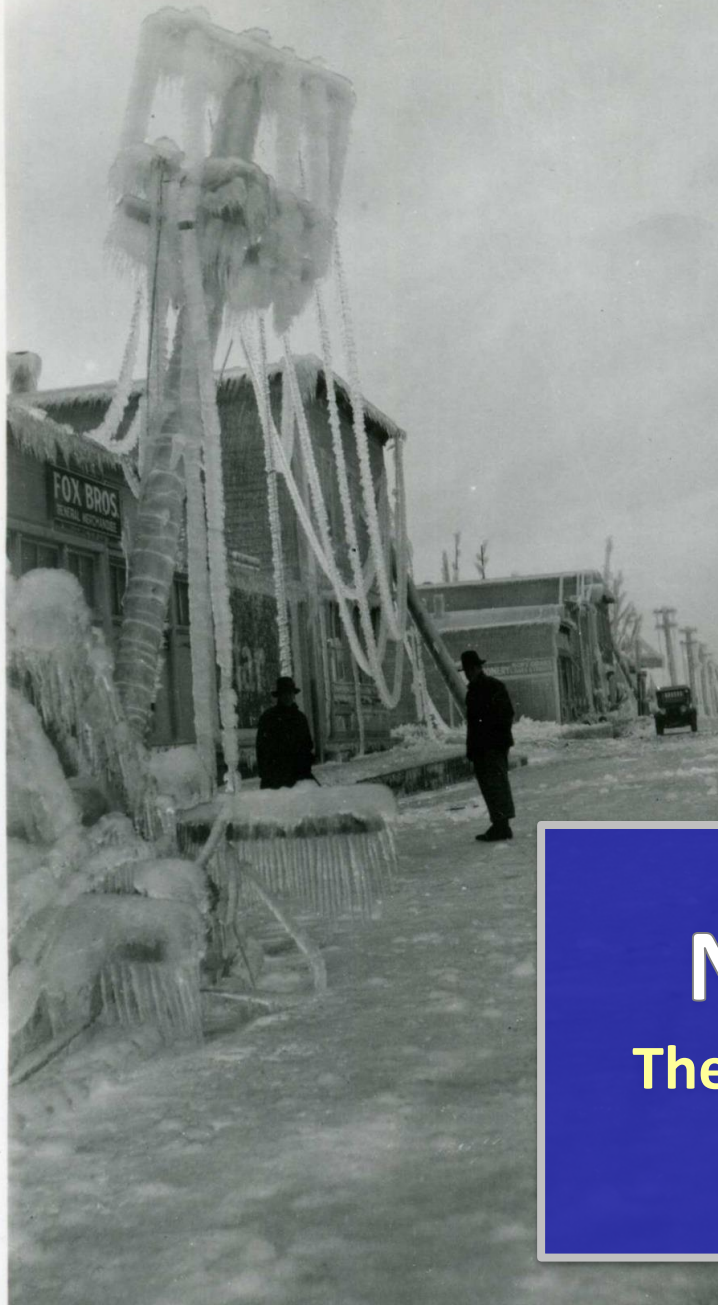
13.9" Jan 26

10.0" Jan 27

37.9" Total

*Started in lower 20s,
then rose to 35° on 26th/27th
A heavy/wet snow to finish,
then hard freeze on 28th*

4 of top 10 snowfalls in Eugene
in past 15 years!



November 19-21, 1921
The worst ice storm on record in our area!
Nothing like it in past 100+ years



November 19-21, 1921

**IT SHOULD HAVE BEEN A FLOOD,
...BUT COLD AIR INTERVENED**

Climatological Data for PORTLAND RFC CITY, OR - November 1921

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	HDD	CDD	Precipitation	Snowfall	Snow Depth
1921-11-01	61	41	51.0	14	0	0.00	0.0	0
1921-11-02	53	41	47.0	18	0	0.00	0.0	0
1921-11-03	54	40	47.0	18	0	0.00	0.0	0
1921-11-04	62	44	53.0	12	0	0.03	0.0	0
1921-11-05	68	52	60.0	5	0	0.02	0.0	0
1921-11-06	66	52	59.0	6	0	0.02	0.0	0
1921-11-07	61	50	55.5	9	0	0.00	0.0	0
1921-11-08	61	45	53.0	12	0	0.00	0.0	0
1921-11-09	60	44	52.0	13	0	0.00	0.0	0
1921-11-10	52	42	47.0	18	0	T	0.0	0
1921-11-11	48	44	46.0	19	0	0.01	0.0	0
1921-11-12	55	44	49.5	15	0	0.00	0.0	0
1921-11-13	54	44	49.0	16	0	T	0.0	0
1921-11-14	54	45	49.5	15	0	0.07	0.0	0
1921-11-15	50	42	46.0	19	0	0.05	0.0	0
1921-11-16	45	40	42.5	22	0	0.02	0.0	0
1921-11-17	47	39	43.0	22	0	0.00	0.0	0
1921-11-18	46	41	43.5	21	0	0.29	0.0	0
1921-11-19	52	33	42.5	22	0	2.68	0.0	0
1921-11-20	38	29	33.5	31	0	3.41	T	0
1921-11-21	57	34	45.5	19	0	0.62	0.0	0
1921-11-22	53	42	47.5	17	0	0.28	0.0	0
1921-11-23	52	41	46.5	18	0	T	0.0	0
1921-11-24	56	45	50.5	14	0	0.34	0.0	0
1921-11-25	52	45	48.5	16	0	0.80	0.0	0
1921-11-26	59	49	54.0	11	0	0.27	0.0	0
1921-11-27	51	42	46.5	18	0	0.48	0.0	0
1921-11-28	48	39	43.5	21	0	0.32	0.0	0
1921-11-29	58	48	53.0	12	0	0.15	0.0	0
1921-11-30	60	54	57.0	8	0	0.18	0.0	0
Sum	1633	1291	-	481	0	10.04	T	-

NOVEMBER 1921
WET & WARM
BUT LOOK CLOSELY
AT 19TH-21ST
~ 7 inches of rain!

Climatological Data for HEADWORKS PORTLAND WTR B, OR - November 1921

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation
1921-11-01	64	38	51.0	3.1	14	0	M
1921-11-02	66	46	56.0	8.4	9	0	M
1921-11-03	60	M	M	M	M	M	0.03
1921-11-04	59	53	56.0	8.9	9	0	0.05
1921-11-05	59	47	53.0	6.1	12	0	0.06
1921-11-06	67	44	55.5	8.9	9	0	0.11
1921-11-07	64	44	54.0	7.7	11	0	0.07
1921-11-08	61	38	49.5	3.4	15	0	M
1921-11-09	65	38	51.5	5.7	13	0	M
1921-11-10	66	35	50.5	4.9	13	0	M
1921-11-11	52	35	43.5	-1.8	21	0	0.08
1921-11-12	50	42	46.0	0.9	19	0	0.04
1921-11-13	51	40	45.5	0.7	19	0	0.12
1921-11-14	52	42	47.0	2.4	18	0	0.32
1921-11-15	64	34	49.0	4.6	16	0	0.64
1921-11-16	42	33	37.5	-6.6	27	0	0.23
1921-11-17	42	34	38.0	-5.9	27	0	0.25
1921-11-18	43	35	39.0	-4.6	26	0	0.78
1921-11-19	47	35	41.0	-2.4	24	0	2.97
1921-11-20	51	36	43.5	0.3	21	0	5.13
1921-11-21	51	39	45.0	2.1	20	0	3.12
1921-11-22	55	44	49.5	6.8	15	0	1.20
1921-11-23	52	39	45.5	3.0	19	0	0.50
1921-11-24	56	41	48.5	6.3	16	0	0.45
1921-11-25	62	40	51.0	9.0	14	0	1.10

BULL RUN DAM
IN 4 DAYS...
~ 12 inches of
rain!

Climatological Data for SALEM AP (MCNARY FIELD), OR - November 1921

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall
1921-11-01	56	35	45.5	-4.1	19	0	0.02	0.0
1921-11-02	49	39	44.0	-5.3	21	0	T	0.0
1921-11-03	49	40	44.5	-4.6	20	0	0.00	0.0
1921-11-04	64	42	53.0	4.1	12	0	0.10	0.0
1921-11-05	67	46	56.5	7.9	8	0	0.03	0.0
1921-11-06	65	48	56.5	8.1	8	0	0.05	0.0
1921-11-07	61	45	53.0	4.8	12	0	0.03	0.0
1921-11-08	57	36	46.5	-1.5	18	0	0.00	0.0
1921-11-09	57	32	44.5	-3.2	20	0	0.00	0.0
1921-11-10	45	34	39.5	-8.0	25	0	0.00	0.0
1921-11-11	50	36	43.0	-4.3	22	0	0.02	0.0
1921-11-12	57	41	49.0	1.9	14	0	0.00	0.0
1921-11-13	57	39	48.0	1.2	17	0	0.00	0.0
1921-11-14	55	45	50.0	3.4	15	0	0.03	0.0
1921-11-15	52	39	45.5	-0.9	19	0	0.30	0.0
1921-11-16	45	39	42.0	-4.2	23	0	0.25	0.0
1921-11-17	49	35	42.0	-4.0	23	0	0.12	0.0
1921-11-18	46	35	40.5	-5.2	24	0	0.00	0.0
1921-11-19	53	41	47.0	1.5	18	0	0.72	0.0
1921-11-20	55	41	48.0	2.7	17	0	2.30	0.0
1921-11-21	60	37	48.5	3.4	16	0	2.28	0.0
1921-11-22	55	45	50.0	5.2	15	0	0.95	0.0
1921-11-23	53	43	48.0	3.4	17	0	0.27	0.0
1921-11-24	54	44	49.0	4.6	16	0	0.20	0.0

SALEM
IN 4 DAYS...
~ 6 inches of rain!

GOVERNMENT

CAMP

Heavy snow,
then 7" rain...
TOTAL: ~12" precip!

Climatological Data for SUMMIT GUARD STN, OR - November 1921

Click on the heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	HDD	CDD	Precipitation	Snowfall	Snow Depth
1921-11-01	33	31	44.5	20	0	0.00	0.0	M
1921-11-02	39	43	51.5	13	0	0.00	0.0	M
1921-11-03	58	42	50.0	15	0	0.00	0.0	M
1921-11-04	60	40	48.5	16	0	0.00	0.0	M
1921-11-05	60	41	50.5	14	0	0.00	0.0	M
1921-11-06	62	43	52.5	12	0	0.25	0.0	M
1921-11-07	51	40	45.5	19	0	0.00	0.0	M
1921-11-08	52	32	42.0	23	0	0.00	0.0	M
1921-11-09	59	40	49.5	15	0	0.00	0.0	M
1921-11-10	65	43	54.0	11	0	0.00	0.0	M
1921-11-11	58	35	46.5	18	0	0.00	0.0	M
1921-11-12	50	34	42.0	23	0	0.32	0.0	M
1921-11-13	49	33	41.0	24	0	0.00	0.0	M
1921-11-14	42	30	36.0	29	0	0.00	0.0	M
1921-11-15	32	27	29.5	35	0	1.42	8.0	8
1921-11-16	31	25	28.0	37	0	0.52	6.0	12
1921-11-17	28	24	26.0	39	0	0.13	2.0	14
1921-11-18	30	24	27.0	38	0	1.30	13.0	27
1921-11-19	35	28	31.5	33	0	3.50	27.0	54
1921-11-20	44	31	37.5	27	0	4.96	0.0	28
1921-11-21	46	38	42.0	23	0	2.73	0.0	8
1921-11-22	38	29	33.5	31	0	0.50	4.0	12
1921-11-23	40	28	34.0	31	0	0.80	3.0	15
1921-11-24	41	31	36.0	29	0	0.00	0.0	15

ATMOSPHERIC RIVER

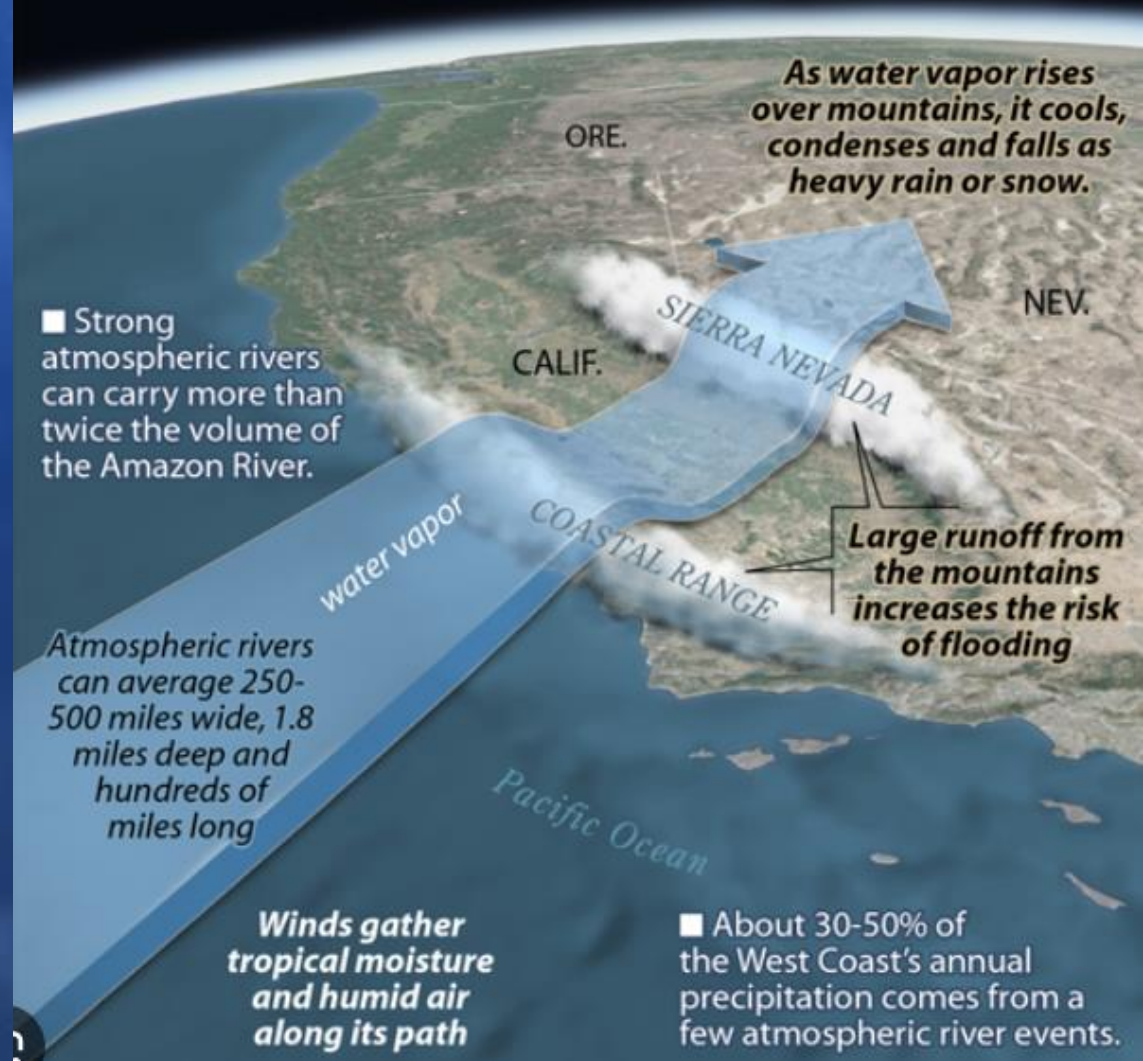
Aka PINEAPPLE EXPRESS

They have always
existed, but given a
name in 1990s

Studied quite a bit in
2000s

Rivers in the Sky

Atmospheric rivers are giant flowing streams of water vapor. While weaker atmospheric rivers bring needed rainfall, more intense atmospheric rivers can cause extreme precipitation, flooding and dangerous mudslides.



Climatological Data for HOOD RIVER EXPERIMENT STN, OR - November 1921

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
1921-11-01	47.5	34	40.75	2.2	17	0	0.00	0.0	M
1921-11-02	49.0	34	41.5	4.0	16	0	0.00	0.0	M
1921-11-03	43.0	30	36.5	-1.7	22	0	0.00	0.0	M
1921-11-04	43.5	31	37.25	-0.9	21	0	0.00	0.0	M
1921-11-05	54.0	31	42.5	9.9	11	0	0.04	0.0	M
1921-11-06	56.0	47	51.5	12.2	9	0	0.07	0.0	M
1921-11-07	44.5	31	37.75	1.0	20	0	0.00	0.0	M
1921-11-08	44.5	30	37.25	1.2	20	0	0.00	0.0	M
1921-11-09	45.0	30	37.5	2.0	20	0	0.00	0.0	M
1921-11-10	42.5	30	36.25	-0.3	22	0	0.00	0.0	M
1921-11-11	41.0	30	35.5	-1.5	24	0	0.00	0.0	M
1921-11-12	43.0	34	38.5	0.8	22	0	0.00	0.0	M
1921-11-13	50.5	45	47.75	8.5	14	0	0.00	0.0	M
1921-11-14	46.0	36	41.0	4.3	19	0	0.08	0.0	M
1921-11-15	41.5	34	37.75	0.0	23	0	0.28	0.0	M
1921-11-16	36.5	31	33.75	-4.7	28	0	0.02	0.0	M
1921-11-17	36.0	30	33.0	-5.0	29	0	0.02	0.0	M
1921-11-18	41.5	38	39.75	0.7	23	0	0.01	0.0	M
1921-11-19	M	22	M	M	M	M	0.53	6.0	M
1921-11-20	24.0	18	21.0	-16.3	41	0	2.50	21.5	26
1921-11-21	23.0	17	20.0	-17.0	42	0	4.05	10.0	31
1921-11-22	31.0	20	25.5	-8.8	34	0	2.09	0.0	31
1921-11-23	35.0	28	31.5	-4.6	30	0	0.10	0.0	M
1921-11-24	37.0	32	34.5	-2.3	28	0	0.06	0.0	M
1921-11-25	39.0	32	35.5	-0.1	26	0	0.60	0.0	M
1921-11-26	39.5	32	35.75	0.6	25	0	0.26	0.0	M
1921-11-27	40.0	32	36.0	1.4	25	0	0.17	0.0	M
1921-11-28	39.5	31	35.25	1.1	25	0	0.14	0.0	M
1921-11-29	40.5	32	36.25	2.3	24	0	0.10	0.0	M
1921-11-30	49.0	40	44.5	11.0	16	0	1.20	0.0	8
Sum	1470	958	-	-	676	0	12.32	37.5	-
Average	50.7	31.9	41.5	0.1	-	-	-	-	24.0
Normal	48.6	34.3	41.4	-	706	0	4.83	1.5	-

HOOD RIVER
37" Snow,
then frz. rain/ice/rain
TOTAL: ~9" precip!

THE DALLES

54" Snow in 3 days

~9" precip, more than ½
of yearly normal in 4
days!

Climatological Data for THE DALLES, OR - November 1921
Click column heading to sort ascending, click again to sort descending.

Date	Max Temp	Min Temp	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall
1921-11-01	70	34	52.0	5.2	13	0	0.00	0.0
1921-11-02	71	35	52.0	5.6	13	0	0.00	0.0
1921-11-03	68	32	50.0	3.9	15	0	0.00	0.0
1921-11-04	62	32	47.0	1.2	18	0	0.00	0.0
1921-11-05	61	31	51.5	6.1	13	0	0.00	0.0
1921-11-06	62	32	52.5	7.4	12	0	0.01	0.0
1921-11-07	60	31	50.0	5.2	15	0	0.00	0.0
1921-11-08	60	31	48.0	3.5	17	0	0.00	0.0
1921-11-09	60	32	48.0	3.8	17	0	0.00	0.0
1921-11-10	60	31	46.0	2.1	19	0	0.00	0.0
1921-11-11	60	30	45.0	1.4	20	0	0.00	0.0
1921-11-12	61	30	45.5	2.2	19	0	0.00	0.0
1921-11-13	60	29	44.5	1.5	20	0	0.00	0.0
1921-11-14	60	34	47.0	4.3	18	0	0.02	0.0
1921-11-15	58	32	45.0	2.6	20	0	0.00	0.0
1921-11-16	52	32	42.0	-0.2	23	0	0.00	0.0
1921-11-17	50	32	41.0	-0.9	24	0	0.00	0.0
1921-11-18	50	33	41.5	-0.1	23	0	0.00	0.0
1921-11-19	48	20	34.0	-7.4	31	0	4.20	24.0
1921-11-20	45	19	32.0	-9.1	33	0	2.50	16.0
1921-11-21	40	18	29.0	-11.8	36	0	2.20	14.0
1921-11-22	42	18	30.0	-10.6	35	0	0.00	0.0
1921-11-23	49	29	39.0	-1.3	26	0	0.00	0.0
1921-11-24	45	30	37.5	-2.6	27	0	0.01	0.0
1921-11-25	43	31	37.0	-2.9	28	0	0.02	0.0
1921-11-26	44	32	38.0	-1.6	27	0	0.00	0.0
1921-11-27	48	33	40.5	1.1	24	0	0.00	0.0
1921-11-28	50	32	41.0	1.8	24	0	0.00	0.0
1921-11-29	49	31	40.0	1.1	25	0	0.00	0.0
1921-11-30	59	34	46.5	7.8	18	0	0.45	0.0
Sum	1664	922	-	-	653	0	9.41	54.0
Average	55.5	30.7	43.1	0.7	-	-	-	-
Normal	51.6	33.3	42.4	-	676	0	1.88	0.7

FIRST ALERT NOVEMBER 19-22, 1921

GREATEST ICE STORM ON RECORD IN WESTERN GORGE + HEAVY SNOW EAST

- ATMOSPHERIC RIVER (PINEAPPLE EXPRESS)**
 - > AIMED AT N.W. OREGON
 - > GREATEST 4-DAY PRECIP RECORD STILL AT BULL RUN HEADWORKS
- UNUSUALLY EARLY & COLD ARCTIC AIRMASS**
 - > EAST OF CASCADES & THROUGH GORGE
 - > VERY THIN COLD LAYER INTO EAST PORTLAND METRO
 - > 3-DAY SNOWFALL RECORDS STILL STAND EASTERN GORGE

6 DAYS STUCK INSIDE MOSIER TWIN TUNNELS

*"Snowbound
Nov 19 to 27 1921"*



LOTS OF PEOPLE STUCK!

(From PORTLAND OREGON WEATHER & CLIMATE – *Raymond Hatton*)

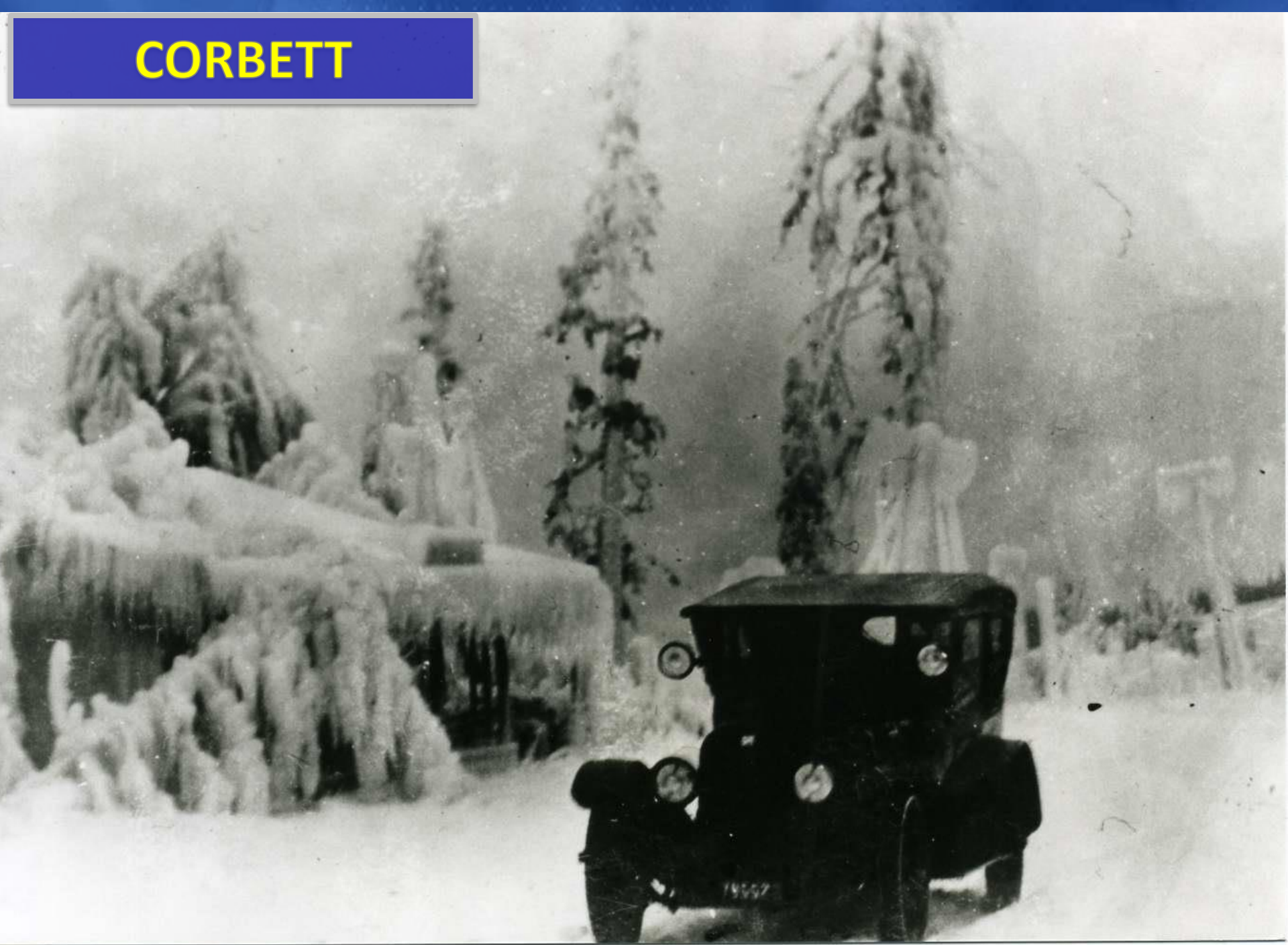
- *8 passenger trains stuck for days on both sides of river*
- *Estimated 250 cars abandoned in Gorge*
- *“card parties + phonograph brought to 63 stranded train passengers near Bridal Veil”*
- *“matters moved all right Saturday night into Sunday, but by Sunday morning the women began to get anxious...the men sang and told stories”*
- *Steamers brought many passengers out of Gorge*
- *Old historic highway (the only highway) still closed in early January by deep snow/ice pellet drifts*

HOW THICK WAS THE ICE?

Thicker than December 1996 event: ~2" in Gresham/Troutdale, 4-6" Corbett then

- *Pictures imply 1-2" in east/northeast Portland*
- *But very localized. Only close to Columbia River in lowest elevations*
- *Possibly thicker than 12" in Corbett!*
- *"COLD BLAST SMITES REGION OF CORBETT" (Oregonian)*
- ***"one man residing in Corbett declared he shattered the ice casing on a large telephone pole with a high-power rifle to prevent it from falling on his buildings. Ice cakes 18" thick and 200lbs fell to the ground" (Oregonian)***
- ***"temperature fell to 22°" (Oregonian)***
- ***"ten-acre prune orchard mashed with only splintered stubs above the ice" (Oregonian)***
- *Potato crop ruined since temps dropped so quickly after mild weather*

CORBETT



NEAR ONEONTA GORGE Feet of ice pellets!



IN THE GORGE Feet of ice pellets!



HOW DID NOVEMBER 1921 ICE STORM END?

The same way it always does!

Warming "Chinook Wind" from Southwest

During the prevalence of the ice storm the wind at Portland was almost constantly from the east. Shortly before 4 p. m. on the 21st it was noted that the lower clouds, which had been moving from the east, were moving rapidly from the southwest, and in a few minutes the wind changed to south, increasing in force. In half an hour the temperature had risen from 40° to 56°.

WHAT ABOUT JANUARY 1950?

- 3rd coldest month on record in Portland
 - Snowiest at PDX (back to 1940)
 - 4th snowiest downtown
- Tied for snowiest of 1900s w/1916
 - - 28 days w/measurable precip

Minimum 1-Month Mean Avg Temperature for PORTLAND RFC CITY, OR

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missi
1	28.1	1930-01-31	
2	29.2	1888-01-31	
3	29.3	1950-01-31	
4	29.7	1916-01-31	
5	29.9	1937-01-31	
6	30.3	1875-01-31	
7	30.7	1949-01-31	
8	31.6	1884-12-31	
9	32.0	1887-02-28	
10	32.4	1957-01-31	

Period of record: 1874-06-14 to 1973-06-30

Maximum 1-Month Total Snowfall for PORTLAND RFC CITY, OR

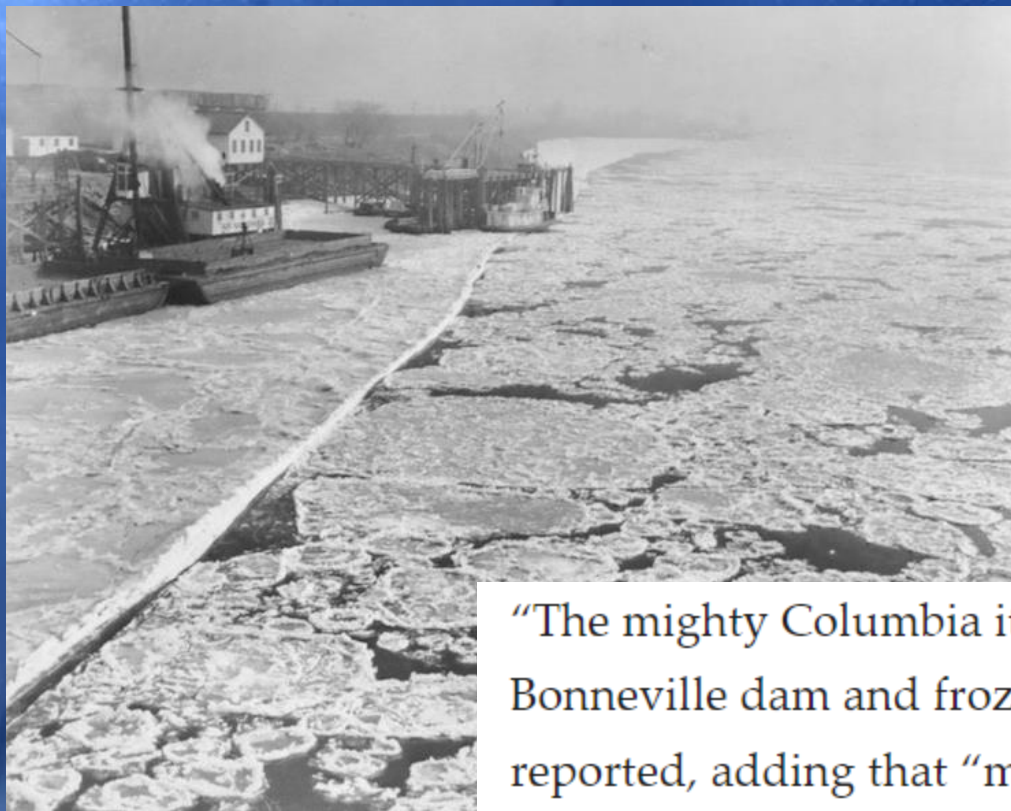
Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	35.3	1890-01-31	0
2	34.1	1884-12-31	0
3	32.9	1916-01-31	0
-	32.9	1950-01-31	0
5	29.0	1892-12-31	0
6	20.4	1895-01-31	0
7	20.0	1893-02-28	0
8	18.9	1887-02-28	0
9	18.0	1937-01-31	0
10	17.5	1919-12-31	0

Period of record: 1884-02-22 to 1973-06-30

JANUARY 1950

- Numerous cold weather systems dropped down coastline and into PACNW
 - One particularly strong on Friday the 13th...



"The mighty Columbia itself was choked with ice floes below Bonneville dam and frozen solid above," The Oregonian reported, adding that "many Oregon communities were in chaos ... as sleet and ice crippled communications." A "cutter" ship was sent to rescue tugboats caught in the floes upstream from St. Helens.

FIRST ALERT JANUARY 1950

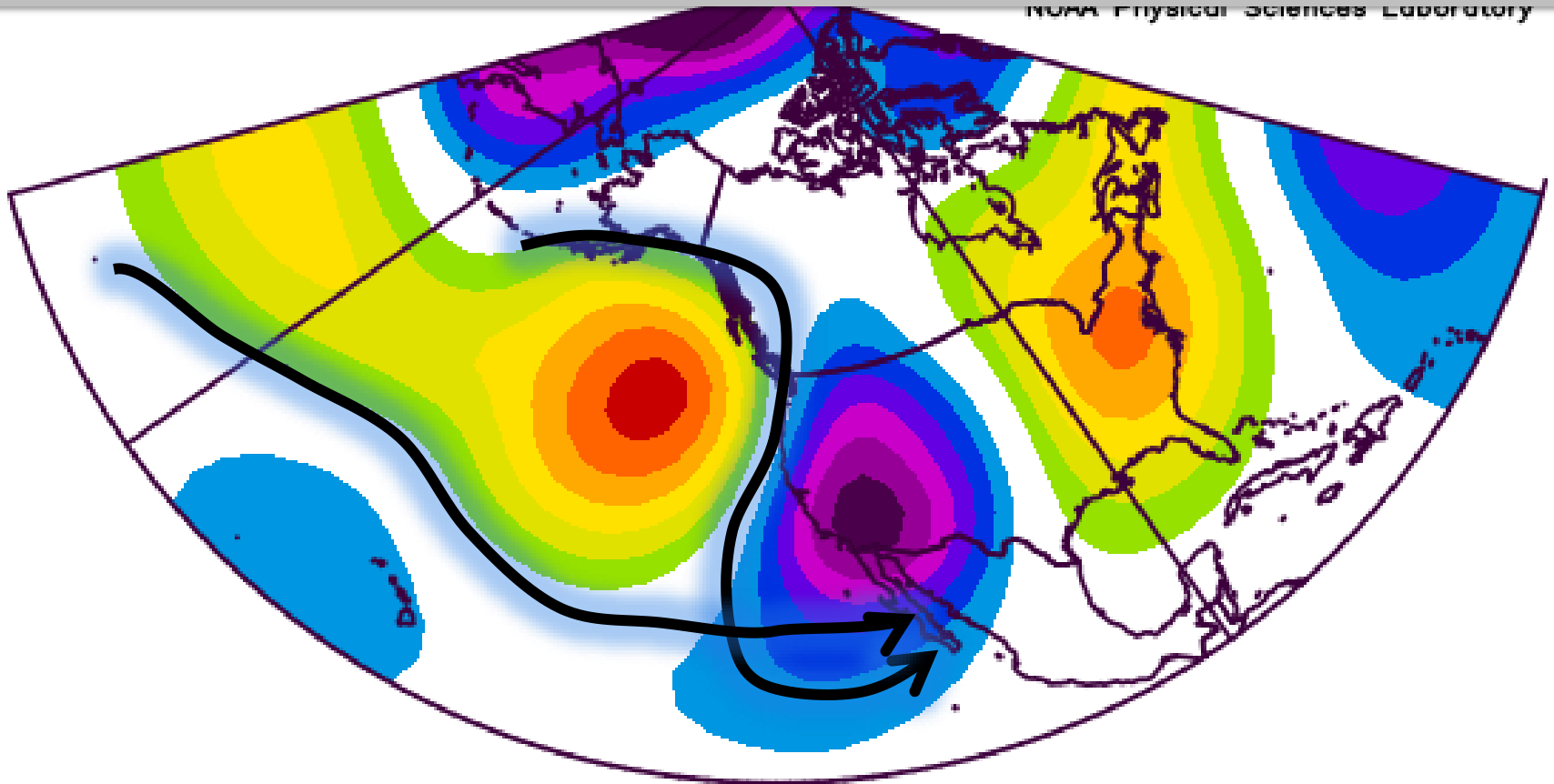
SNOWIEST MONTH IN PORTLAND IN LAST 100 YEARS

- **PACNW IN COLD ARCTIC AIR MOST OF MONTH**
 - > ONLY TWO BRIEF WARMUPS IN PORTLAND
 - > COLDEST NIGHTS ON RECORD END OF MONTH FOR SOME
- **FREQUENT "WET" STORM SYSTEMS FROM WEST**
 - > ABUNDANT SNOWFALL AT ALL ELEVATIONS
 - > ONE MAJOR STORM ON 13TH
 - > UNUSUALLY HIGH NUMBER OF "PRECIP DAYS"

JANUARY 1949

1" precipitation at PDX, 9.8" snow

NOAA Physical Sciences Laboratory



500mb Geopotential Height (m) Composite Anomaly (1991-2020 Climatology)
1/1/49 to 1/31/49

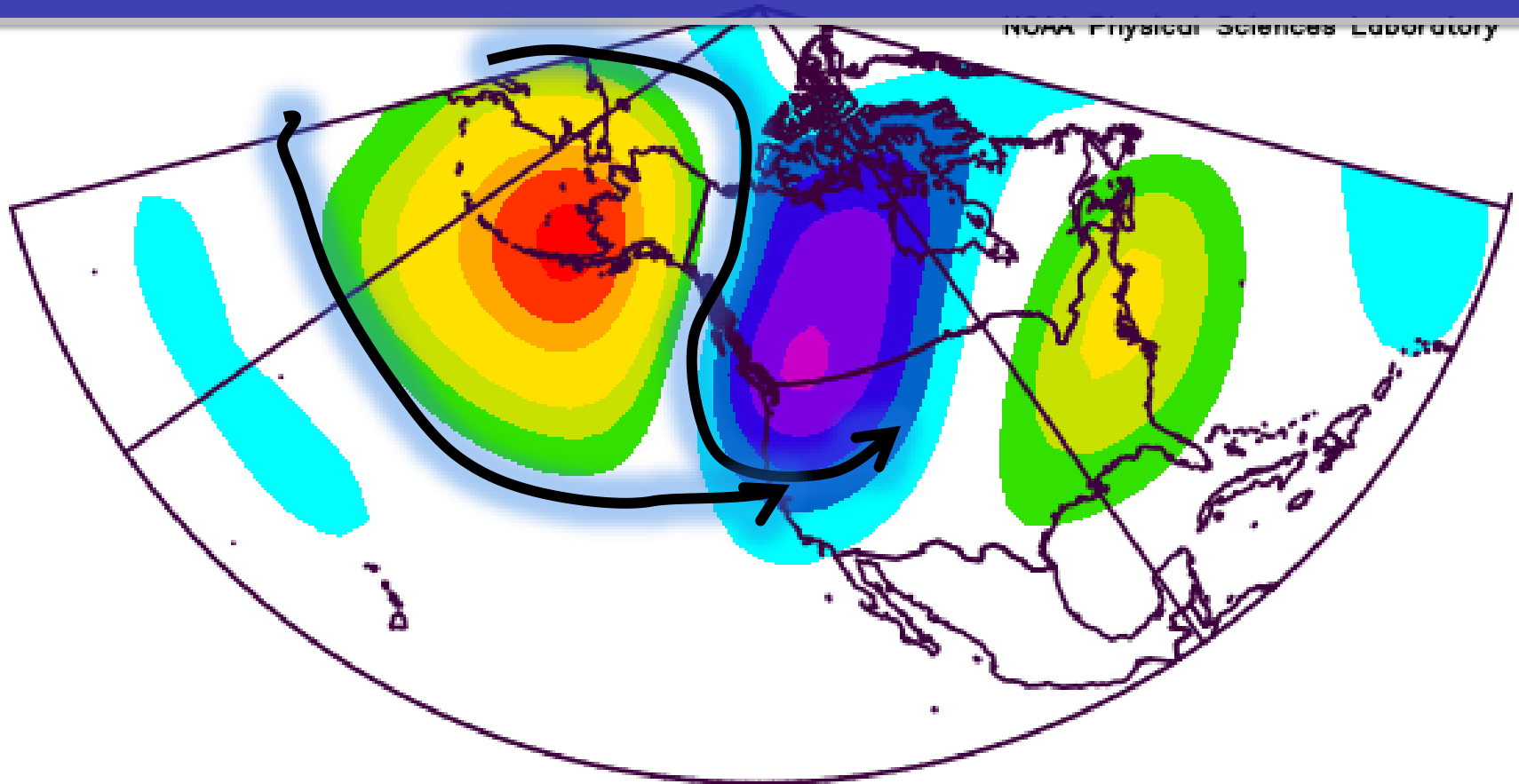
NCEP/NCAR Reanalysis



JANUARY 1950

10" precipitation at PDX, 41.4" snow

NOAA Physical Sciences Laboratory



500mb Geopotential Height (m) Composite Anomaly (1991–2020 Climatology)
1/1/50 to 1/31/50

NCEP/NCAR Reanalysis



The location of the principal 700-mb. troughs and ridges in the entire Northern Hemisphere during January 1950 was similar to that in January 1949.³ Thus, during both months temperatures were abnormally cold in western Canada and northwestern United States and abnormally warm in eastern United States, the British Isles, and Mexico; while precipitation was generally heavy in the Hawaiian Islands and generally deficient in western Europe. Most of the centers of 700-mb. height anomaly in the western hemisphere, however, were farther north and more intense this January than last. Consequently, westerly wind components (relative to normal) produced wetter weather on the West Coast and much warmer, drier conditions in the Southwest during January 1950 than were experienced in January 1949, when easterly wind components prevailed. On the other hand, the greater intensity and northward displacement of the Bermuda High in January 1950 compared to January 1949 made this January the warmest on record in large portions of the eastern and southern United States.

Climatological Data for PORTLAND RFC CITY, OR - January 1950

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	HDD	CDD	Precipitation	Snowfall	Snow Depth
1950-01-01	36	M	M	M	M	0.11	1.0	1
1950-01-02	M	22	M	M	M	T	T	0
1950-01-03	33	19	26.0	39	0	0.29	3.0	T
1950-01-04	33	26	29.5	35	0	T	0.0	3
1950-01-05	42	26	34.0	31	0	0.25	0.0	2
1950-01-06	46	33	39.5	25	0	1.65	T	0
1950-01-07	36	33	34.5	30	0	0.79	T	0
1950-01-08	38	34	36.0	29	0	0.29	T	T
1950-01-09	43	34	38.5	26	0	0.58	T	0
1950-01-10	43	35	39.0	26	0	0.96	T	0
1950-01-11	39	34	36.5	28	0	0.01	T	0
1950-01-12	38	33	35.5	29	0	0.15	0.5	1
1950-01-13	41	15	28.0	37	0	0.75	3.0	2
1950-01-14	30	14	22.0	43	0	0.26	1.4	3
1950-01-15	36	22	29.0	36	0	0.25	1.0	4
1950-01-16	23	14	18.5	46	0	0.10	1.0	4
1950-01-17	18	11	14.5	50	0	0.05	T	2
1950-01-18	21	15	18.0	47	0	0.50	1.0	1
1950-01-19	32	17	24.5	40	0	1.50	3.0	3
1950-01-20	43	31	37.0	28	0	1.20	5.2	5
1950-01-21	54	39	46.5	18	0	0.19	0.0	T
1950-01-22	52	44	48.0	17	0	0.20	0.0	T
1950-01-23	45	30	37.5	27	0	0.40	0.0	T
1950-01-24	36	20	28.0	37	0	T	0.1	T
1950-01-25	37	16	26.5	38	0	0.08	0.5	1
1950-01-26	38	24	31.0	34	0	0.49	2.3	2
1950-01-27	24	18	21.0	44	0	0.35	5.0	6
1950-01-28	29	18	23.5	41	0	0.05	1.0	6
1950-01-29	20	14	17.0	48	0	0.14	0.2	5
1950-01-30	24	11	17.5	47	0	0.08	3.5	8
1950-01-31	19	8	13.5	51	0	0.01	0.2	7
Sum	1049	710	-	1027	0	11.68	32.9	-
Average	35.0	23.7	29.3	-	-	-	-	2.1

PORTLAND DOWNTOWN

8 days of
precipitation mid-
month, with mainly
sub-32° temps

Climatological Data for PORTLAND INTL AIRPORT, OR - January 1950

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
1950-01-01	36	25	30.5	-10.4	34	0	0.09	1.3	1
1950-01-02	28	18	23.0	-17.9	42	0	T	T	1
1950-01-03	33	16	24.5	-16.5	40	0	0.22	2.2	1
1950-01-04	32	25	28.5	-12.5	36	0	0.03	0.2	3
1950-01-05	41	26	33.5	-7.6	31	0	0.12	T	1
1950-01-06	46	34	40.0	-1.2	25	0	1.37	T	0
1950-01-07	37	33	35.0	-6.2	30	0	0.53	T	0
1950-01-08	39	33	36.0	-5.3	29	0	0.19	T	0
1950-01-09	43	34	38.5	-2.9	26	0	0.49	T	0
1950-01-10	43	35	39.0	-2.4	26	0	1.00	T	0
1950-01-11	38	33	35.5	-6.0	29	0	0.01	0.2	0
1950-01-12	36	32	34.0	-7.6	31	0	0.04	0.7	T
1950-01-13	36	14	25.0	-16.6	40	0	0.98	7.5	7
1950-01-14	24	9	16.5	-25.2	48	0	0.16	3.3	8
1950-01-15	35	20	27.5	-14.3	37	0	0.14	2.8	7
1950-01-16	21	8	14.5	-27.4	50	0	0.06	1.6	8
1950-01-17	22	8	15.0	-26.9	50	0	0.02	0.3	8
1950-01-18	22	13	17.5	-24.5	47	0	0.65	1.8	8
1950-01-19	30	18	24.0	-18.1	41	0	1.98	4.1	13
1950-01-20	34	28	31.0	-11.1	34	0	0.30	0.0	12
1950-01-21	48	34	41.0	-1.2	24	0	0.28	0.0	8
1950-01-22	48	37	42.5	0.2	22	0	0.20	0.0	6
1950-01-23	42	30	36.0	-6.3	29	0	0.13	0.2	4
1950-01-24	31	18	24.5	-17.9	40	0	0.03	0.7	5
1950-01-25	27	12	19.5	-23.0	45	0	0.03	0.7	4
1950-01-26	36	21	28.5	-14.0	36	0	0.36	2.8	6
1950-01-27	22	17	19.5	-23.1	45	0	0.34	5.4	11
1950-01-28	25	10	17.5	-25.1	47	0	0.05	1.2	12
1950-01-29	20	8	14.0	-28.7	51	0	0.09	1.6	12
1950-01-30	25	10	17.5	-25.3	47	0	0.20	2.6	15
1950-01-31	16	-2	7.0	-35.8	58	0	0.01	0.2	15
Sum	1016	657	-	-	1170	0	10.10	41.4	-
Average	32.8	21.2	27.0	-14.9	-	-	-	-	5.7

PORTLAND AIRPORT

8 days of
precipitation mid-
month, with mainly
sub-32° temps

Climatological Data for PORTLAND INTL AIRPORT, OR - February 1950

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
1950-02-01	25	1	13.0	-29.9	52	0	0.00	0.0	14
1950-02-02	18	-3	7.5	-35.5	57	0	0.00	0.0	13
1950-02-03	20	4	12.0	-31.0	53	0	0.07	0.5	13
1950-02-04	30	18	24.0	-19.1	41	0	0.21	1.6	14
1950-02-05	36	26	31.0	-12.2	34	0	0.22	0.0	13
1950-02-06	42	32	37.0	-6.2	28	0	0.17	0.0	9
1950-02-07	47	37	42.0	-1.3	23	0	0.13	0.0	6
1950-02-08	47	37	42.0	-1.4	23	0	0.59	0.0	3
1950-02-09	46	32	39.0	-4.5	26	0	0.01	0.0	2
1950-02-10	45	31	38.0	-5.6	27	0	0.28	0.0	1
1950-02-11	45	38	41.5	-2.2	23	0	0.01	0.0	T
1950-02-12	43	37	40.0	-3.8	25	0	0.60	0.0	T
1950-02-13	51	38	44.5	0.6	20	0	0.35	0.0	0

PORTLAND AIRPORT

Snow finally
disappeared 2nd
week of February...in
Portland

CASCADE LOCKS – JAN 1950

Climatological Data for CASCADE LOCKS, OR, January 1950
Click only on the numbers to sort ascending

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
1950-01-01	40	29	34.5	-2.0	30	0	0.27	3.0	3
1950-01-02	31	25	28.0	-8.6	37	0	0.00	0.0	2
1950-01-03	28	20	24.0	-12.6	41	0	0.00	0.0	2
1950-01-04	28	21	24.5	-12.1	40	0	0.70	6.0	7
1950-01-05	40	21	30.5	-6.1	34	0	0.07	0.0	7
1950-01-06	49	35	42.0	5.3	23	0	1.41	0.0	0
1950-01-07	35	32	33.5	-3.2	31	0	1.69	6.5	7
1950-01-08	36	32	34.0	-2.8	31	0	0.11	0.0	3
1950-01-09	37	32	34.5	-2.4	30	0	0.51	1.5	5
1950-01-10	43	31	37.0	0.1	28	0	1.66	6.0	9
1950-01-11	37	32	34.5	-2.5	30	0	0.23	0.5	8
1950-01-12	35	30	32.5	-4.6	32	0	0.26	0.5	8
1950-01-13	33	9	21.0	-16.2	44	0	0.29	4.5	11
1950-01-14	22	8	15.0	-22.2	50	0	0.60	6.0	17
1950-01-15	20	16	18.0	-19.3	47	0	1.96	12.0	27
1950-01-16	17	9	13.0	-24.4	52	0	0.96	12.0	38
1950-01-17	17	3	10.0	-27.5	55	0	0.30	3.0	40
1950-01-18	13	7	10.0	-27.6	55	0	0.17	6.0	45
1950-01-19	16	10	13.0	-24.7	52	0	1.12	6.0	48
1950-01-20	29	15	22.0	-15.8	43	0	1.19	3.0	48
1950-01-21	34	28	31.0	-6.9	34	0	1.09	0.0	47
1950-01-22	50	33	41.5	3.5	23	0	0.60	0.0	37
1950-01-23	42	32	37.0	-1.1	28	0	0.56	0.0	32
1950-01-24	33	23	28.0	-10.2	37	0	0.20	0.5	32
1950-01-25	25	11	18.0	-20.3	47	0	0.05	1.0	32
1950-01-26	18	11	14.5	-24.0	50	0	0.55	8.0	38
1950-01-27	19	12	15.5	-23.1	49	0	0.48	4.0	42
1950-01-28	20	12	16.0	-22.7	49	0	0.32	2.0	44
1950-01-29	17	4	10.5	-28.3	54	0	0.00	0.0	42
1950-01-30	15	-3	6.0	-32.9	59	0	0.05	0.5	40
1950-01-31	9	M	M	M	M	M	0.00	0.0	38
Sum	888	580	-	-	1215	0	17.40	92.5	-
Average	28.6	19.3	24.3	-13.3	-	-	-	-	24.5
Normal	41.9	33.2	37.6	-	851	0	M	M	-

Climatological RECORD - February 1950

CASCADE LOCKS – FEB 1950

Date	Max Temperature	Min Temperature	Avg Temperature	Avg Temperature Departure	HDD	CDD	Precipitation	Snowfall	Snow Depth
1950-02-01	15	-2	6.5	-32.7	58	0	0.00	0.0	38
1950-02-02	9	M	M	M	M	M	0.00	0.0	37
1950-02-03	5	M	M	M	M	M	0.00	0.0	37
1950-02-04	20	3	11.5	-28.0	53	0	0.50	5.0	41
1950-02-05	31	17	24.0	-15.6	41	0	0.05	1.0	40
1950-02-06	38	25	31.5	-8.3	33	0	0.46	4.0	42
1950-02-07	39	32	35.5	-4.4	29	0	0.42	0.0	36
1950-02-08	45	33	39.0	-1.0	26	0	0.57	0.0	34
1950-02-09	42	33	37.5	-2.7	27	0	0.00	0.0	34
1950-02-10	36	32	34.0	-6.3	31	0	0.41	0.0	33
1950-02-11	42	32	37.0	-3.4	28	0	0.42	0.0	29
1950-02-12	40	33	36.5	-4.0	28	0	0.30	0.0	28
1950-02-13	38	33	35.5	-5.2	29	0	1.22	0.0	26
1950-02-14	39	34	36.5	-4.3	28	0	0.97	0.0	24
1950-02-15	41	34	37.5	-3.4	27	0	0.45	0.0	23
1950-02-16	45	34	39.5	-1.6	25	0	1.02	0.0	20
1950-02-17	44	34	39.0	-2.2	26	0	0.14	0.0	M
1950-02-18	45	33	39.0	-2.3	26	0	0.00	0.0	17
1950-02-19	48	32	40.0	-1.5	25	0	0.00	0.0	16
1950-02-20	45	31	38.0	-3.6	27	0	0.32	0.0	14
1950-02-21	45	34	39.5	-2.3	25	0	0.05	0.0	13
1950-02-22	45	35	40.0	-1.9	25	0	0.31	0.0	13
1950-02-23	49	36	42.5	0.5	22	0	2.33	0.0	12
1950-02-24	55	37	46.0	3.8	19	0	2.53	0.0	5
1950-02-25	48	37	42.5	0.2	22	0	0.28	0.0	T
1950-02-26	45	36	40.5	-2.0	24	0	0.31	0.0	0
1950-02-27	49	30	39.5	-3.1	25	0	0.04	0.0	0
1950-02-28	50	28	39.0	-3.7	26	0	0.00	0.0	0
Sum	1093	776	-	-	755	0	13.10	10.0	-
Average	39.0	29.8	35.7	-5.2	-	-	-	-	22.7

Late January & early February 1950

CALM/CLEAR END OF MONTH w/SNOWPACK ON GROUND = COLD!

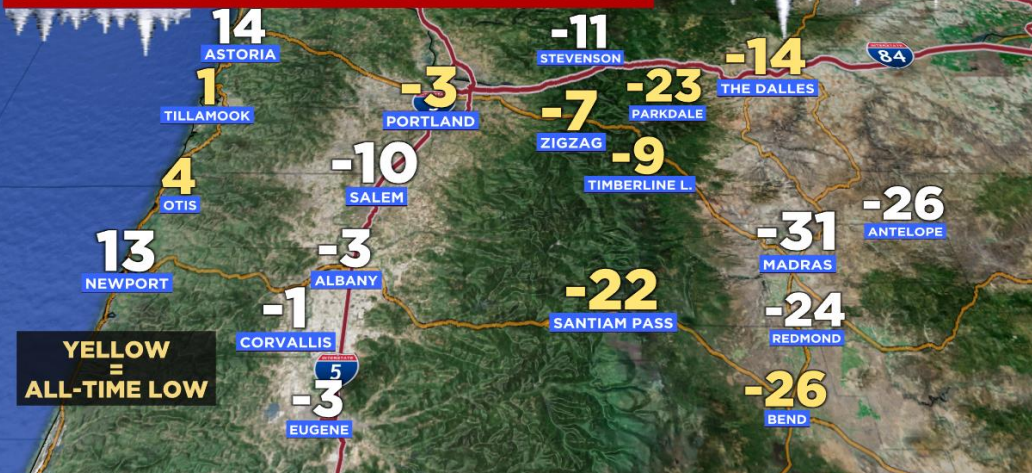
FIRST ALERT EXTREME COLD SPELL IN 1950

COLDEST TEMPERATURE JAN. 30TH - FEB 3RD 1950



FIRST ALERT EXTREME COLD SPELL IN 1950

COLDEST TEMPERATURE JAN. 30TH - FEB 3RD 1950



Climatological Data for TIMBERLINE LODGE - January 1950 Click column headers to sort by value TIMBERLINE LODGE – JAN 1950

Date	Max Temperature	Min Temperature	Avg Temperature	HDD	CDD	Snowfall	Snow Depth
1950-01-01	16	6	11.0	54	0	5.0	130
1950-01-02	16	-1	7.5	57	0	7.0	135
1950-01-03	12	-4	4.0	61	0	4.0	130
1950-01-04	20	7	13.5	51	0	3.0	129
1950-01-05	23	5	14.0	51	0	1.0	130
1950-01-06	27	17	22.0	43	0	4.0	134
1950-01-07	25	17	21.0	44	0	11.0	144
1950-01-08	24	9	16.5	48	0	7.0	143
1950-01-09	21	10	15.5	49	0	19.0	148
1950-01-10	20	14	17.0	48	0	25.0	156
1950-01-11	18	8	13.0	52	0	9.0	159
1950-01-12	11	7	9.0	56	0	5.0	161
1950-01-13	22	5	13.5	51	0	14.0	164
1950-01-14	29	11	20.0	45	0	17.0	169
1950-01-15	16	11	13.5	51	0	12.0	168
1950-01-16	17	5	11.0	54	0	5.0	173
1950-01-17	40	2	21.0	44	0	0.0	170
1950-01-18	32	9	20.5	44	0	1.0	169
1950-01-19	52	28	40.0	25	0	2.0	167
1950-01-20	40	30	35.0	30	0	0.0	166
1950-01-21	49	29	39.0	26	0	6.0	158
1950-01-22	33	24	28.5	36	0	4.0	158
1950-01-23	28	10	19.0	46	0	16.0	170
1950-01-24	40	4	22.0	43	0	6.0	175
1950-01-25	43	-9	17.0	48	0	0.0	175
1950-01-26	21	6	13.5	51	0	18.0	180
1950-01-27	23	11	17.0	48	0	15.0	192
1950-01-28	14	2	8.0	57	0	8.0	195
1950-01-29	15	-3	6.0	59	0	0.0	195
1950-01-30	9	-6	1.5	63	0	0.0	185
1950-01-31	10	-8	1.0	64	0	0.0	M
Sum	766	256	-	1499	0	224.0	-
Average	24.7	8.3	16.5	-	-	-	160.9

Five Meet Death in Numbing Coast Blizzard; Cars Stalled on Blocked Roads, Power Cut Off

100th YEAR
the
GREAT NEWSPAPER of the WEST

The Oregonian

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PORTLAND, OREGON, SATURDAY, JANUARY 14, 1950

CITY EDITION 22 PAGES PRICE FIVE CENTS

What's a Little Wind? Students Ask as School Quits in Middle of Day



Linsien high school students brace against stiff winds on Portland's slushy streets as city officials suspended school Friday

noon. A freak of the weather kept most of Portland free of snow as the worst storm of the winter hit the Northwest.

Mother, Children Perish In Pond as Auto Leaves Road Near Kelso, Wash.

Crane Operator Hits Live Wire In Freeing Cable

At least five persons met death in the Pacific Northwest during a Friday the 13th blizzard. Three of the deaths occurred when a car skidded on an icy road near Kelso, Wash., drowning the wife and two children of a Fort Worth, Texas, soldier.

The soldier, Cpl. Walter Warner, 35, escaped when the car skidded and plunged into a pond. But his wife, Charlotte, 33, a son, Ronald, 2, and a daughter, Marcelle, 1, were drowned.

The Warners were traveling from their home in Titusville, Pa., on a new assignment at the Washington military installation.

Crane Operator Killed

Instantaneous death came to William Hayes, 45, a crane operator at the Weyerhaeuser Timber company cargo dock in Longview, Wash. He was attempting to loosen a frozen trolley cable when his hand contacted a live wire.

A crash of skidding autos on the Lake Washington floating bridge outside Seattle tossed Horst C. North, 40, Seattle, into the lake, where he drowned in the icy water.

An early morning accident on McLeishlin boulevard, at the south city limits of Millwaukie, sent Miss Jacqueline Hayward, 19, Gladstone, to Portland sanitarium with a broken back. She was riding with Morris Kent, 31, Oregon City, who was hospitalized for lesser injuries.

Car Grasses Truck

The car skidded, then side-swiped a beer truck traveling the opposite direction. State Policeman Gerald Hampton said. They were en route to work at the Oregon state game commission.

Three persons were sent to Emory hospital Friday as a result of Portland traffic accidents blamed on the storm. They were John M. Kane, 67, 6925 N. E. 25th avenue, face and right leg injuries; William R. Potter, 30, 3030 S. Sherman street, arm and left leg injuries; and Norman A. Kellogg, 23, 1302 S. E. Ankeny street, head injury.

Mercury Races Up, Down; City Gets Blizzard, Thaw

BY PHYLLIS LAURIE

The weather went crazy in Portland Friday. East wind, west side, all around the town, the conflicting reports

Highways All Over Western Oregon Closed by Storm

The Pacific Northwest became a group of isolated communities Friday and scores of motorists were stranded on snowbound highways when storms closed roads and severed communications.

There was a possibility many drivers caught in the almost blizzard-like storms were marooned without aid.

Almost all highways out of Portland were closed, including the upper Columbia river highway, where a snow and sleet slide near Wyath, east of Cascade Locks, blocked the road and marooned about 30 persons.

Trains Reschedule Motorists

Union Pacific passenger train No. 20 bound for Spokane left Portland at 10:22 p. m. and picked up the stalled motorists at Wyath, to take them around the slide to Hood River and The Dalles. Highway crews were working from east and west to attack the slide.

Other stranded motorists were reported at Stevenson, Wash., Coeur d'Alene, Idaho, and the Klamath Falls area.

The Lower Columbia River highway was closed by a slide at Rainier. The Sunset, Wolf Creek and Mount Hood highways were reported by state police Friday night to be open, but "getting pretty bad."

Bus Schedules Canceled

Trailways bus line canceled schedules north and south from Portland Friday night. Greyhound lines halted a bus westbound to Portland at Lyle, placed passengers aboard a train and canceled schedules east from Portland. Schedules southward were running as far as Roseburg, California passengers were being put aboard trains at Eugene. All buses were running up to two hours late.

Additional pictures of Northwest storm on page 16 of section 3. Further news and stories of the weather will be found on page 3 of section 2.

Railroads remained operating against increasing difficulties from mounting drifts. By a freak of weather, most

British Navy Announces 65 Perish in Sub

Picture on Page 2
CHATHAM, Eng., Jan. 14 (AP)—The British royal navy Friday night said 65 men perished in the sinking of the submarine Truculent.

New Deal on Sale of PP & L Would Retain Management

An alternative deal for common stock of Pacific Power & Light company, sold only last week to B. J. Van Ingen & Co., was in the making in Wall street Friday. Uniquely, New York sources said The Oregonian the new purchase proposal, still in the making, would be presented for federal securities and exchange commission approval as a sale by which PP & L

Portland Man, 11 Others Die In Air Crash

FORT BENNING, Ga., Jan. 14 (AP)—Twelve men died Friday when an aircraft carrier clipped a wing on a runway and crashed, shattering bodies and wreckage more than 300 feet. Five men were in the hospital at nearby Lowry airbase, four

Meanwhile, a syndicate headed by Van Ingen & Co. and employing Guy C. Meyers, New York financier who has served numerous Northwest and Nebraska PUDs as fiscal agent, awaited an SEC hearing January 22 on the provisional contract to buy PP & L stock for \$10,000,000 to \$10,500,000, \$4.11, or as Howard L. Ailer, president of American Power & Light company, a holding firm that is

Mercury Races Up, Down; City Gets Blizzard, Thaw

BY PHYLLIS LAURITZ

Staff Writer, The Oregonian

The weather went crazy in Portland Friday.

East side, west side, all around the town, the conflicting reports came in—first snow, then rain, then slush. And as night fell, freezing temperatures and snow again.

At the airport, Portland's official weather reporting station, the snow kept coming all day, with 8 or 9 inches of white stuff on the ground and drifts to 2½ feet piled up by gusts as high as 45 miles per hour, as the thermometer moved from 21 degrees

at noon to 35 at 4:30 p. m.

Downtown pedestrians, meantime, slopped through rain-soaked snow that gurgled down the streets in torrents.

East Side Varies

On the east side thermometers in the Grant Park district went up and down like Rockefeller Center elevators—varying from an unofficial 38 degrees down to 20 degrees at 2 p. m., and back to 34 degrees at 4 o'clock.

More Voted For Welfare

SALEM, Jan. 14 (AP)—Another \$20,000,000 was voted Friday to pay for increasing state unemployment welfare costs.

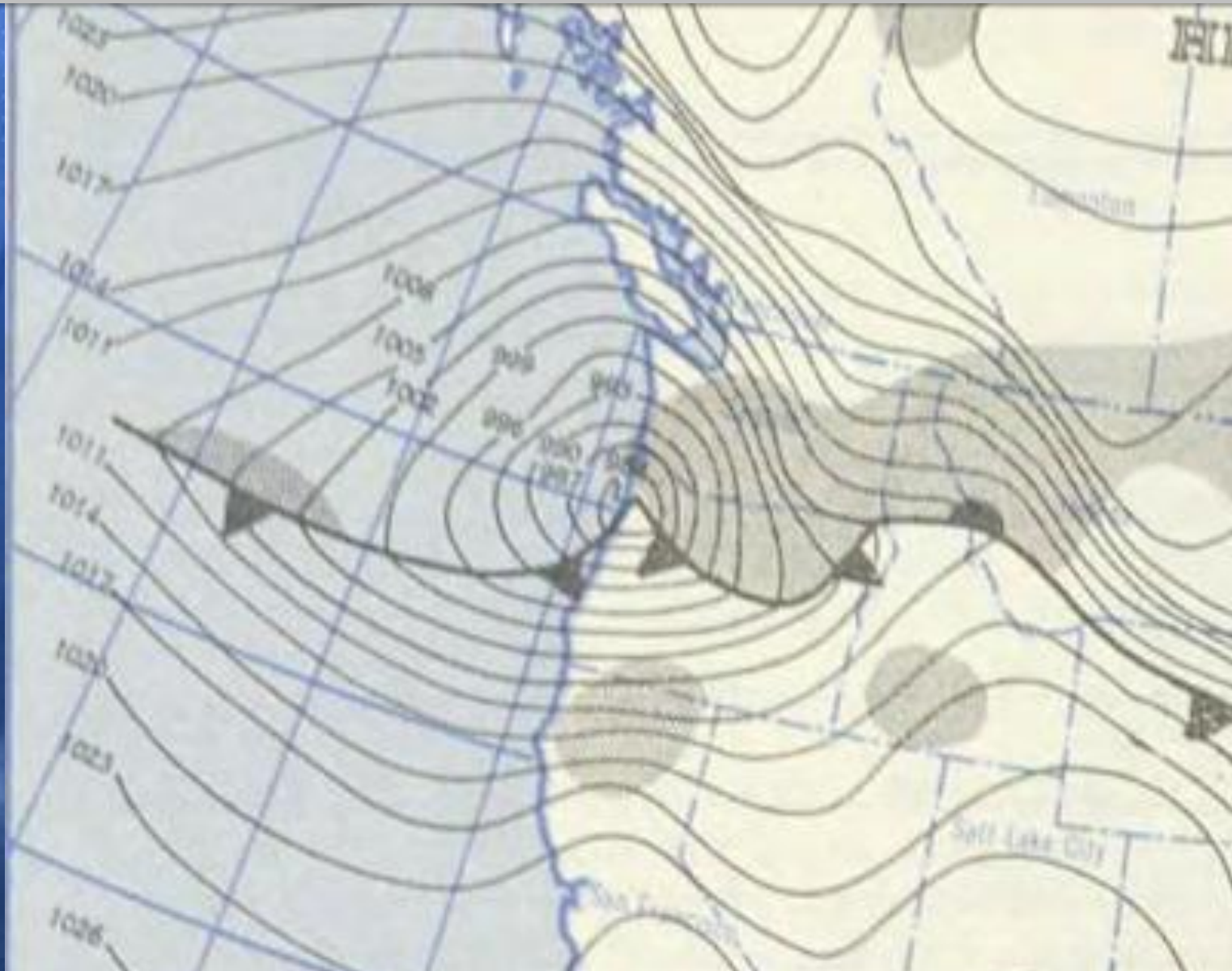
HOURLY TEMPERATURES

Hourly temperature readings at Portland airport fluctuated as much as 13 degrees as storm front hovered over city Friday. Readings are no longer available from downtown Portland. Readings were:

Time, P.M.	De- grees	Time, P.M.	De- grees
1:30	-----22	7:30	-----16
2:30	-----20	8:30	-----16
3:30	-----22	9:30	-----14
4:30	-----35	10:30	-----16
5:30	-----22	11:30	-----16
6:30	-----19	12:30	-----16

Friday morning, January 13th 1950

DEEP LOW PRESSURE MOVES ONTO NORTHERN OREGON COAST

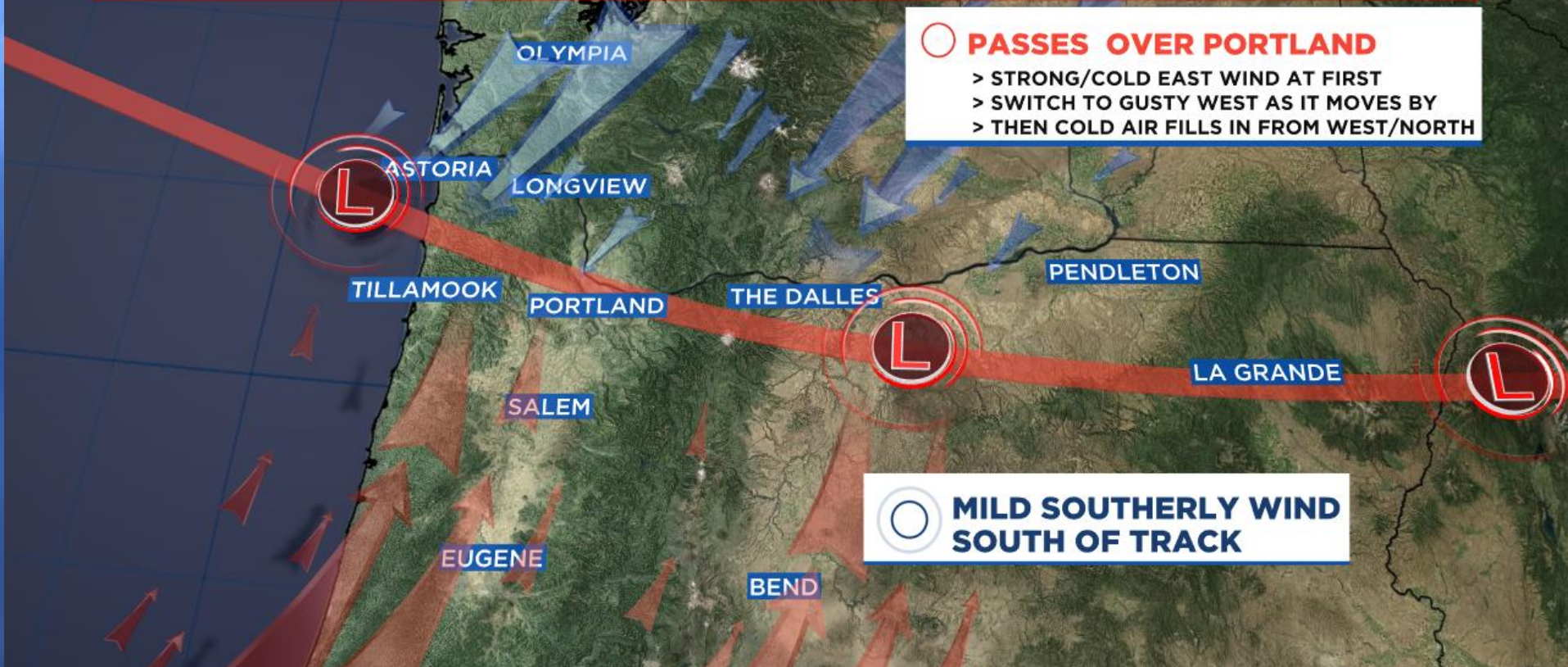


While snow fell heavily in the northeast most of Friday, the downtown section had rain most of the day and partly blue skies late in the afternoon. Snow began falling over most of the city by 11 p. m., adding two or three inches to what already was on the ground.

The cold during the night crept over the Willamette valley, which had been having southerly winds and rain most of Friday. This morning Eugene reported 23 degrees and Salem 19. Salem had three inches of snow.

FIRST ALERT FRIDAY THE 13TH STORM

JANUARY 13TH, 1950 DEEP LOW PRESSURE TRACKS ACROSS NORTHERN OREGON

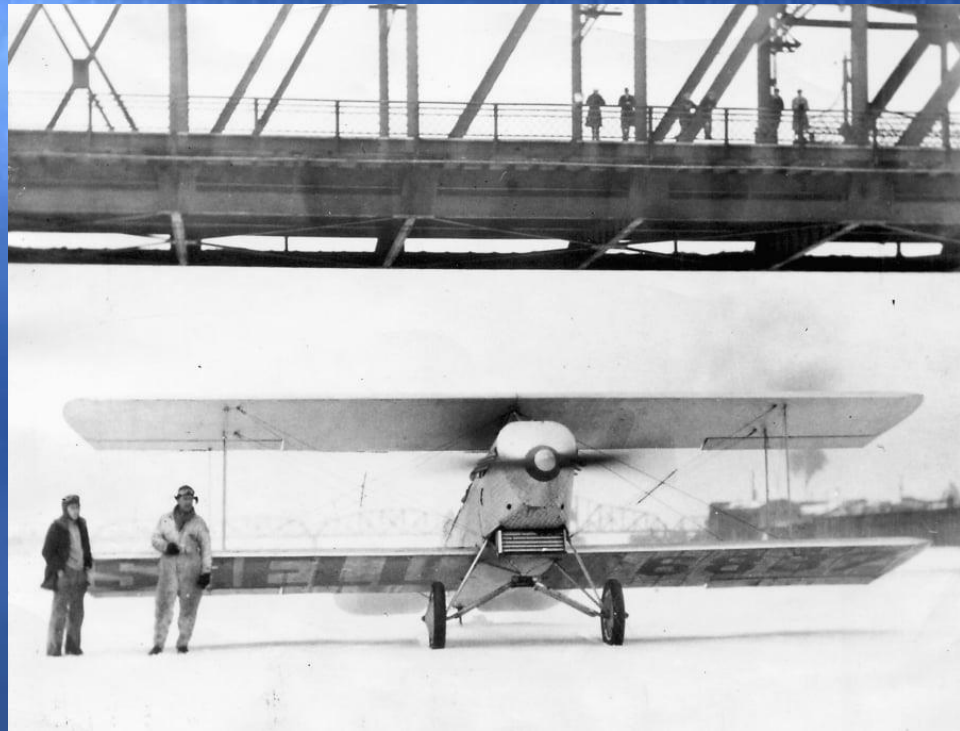


Peak snow depth, January/February 1950

Location	Peak snow depth	Notes	
Astoria OR	15" on Jan 13 th 18" on 15th	<u>1"</u> + on ground for a month	
Downtown Portland	7" on Jan 31 st		
Portland Airport	15" on Jan 31 st		
Troutdale OR	14"		
Bonneville Dam OR	39" on 19 th , 33" on 29 th		
Cascade Locks OR	48" on 19 th		
Stevenson, WA	45" on 20 th		
Wind River, WA	74" on Feb 4th	156" total January snowfall	
Hood River OR	31" on 17th	Finally melted out Feb 23rd	
Parkdale OR	61" on 17th	Finally melted out March 27	
Timberline Lodge OR 6000'	9 events <u>10"</u> + snowfall in Jan.	224" total January snowfall	
The Dalles OR	22" on 18 th		
Goldendale WA	28" on 18th		

HONORABLE COLD MENTION

JANUARY 1930...LAST TIME COLUMBIA TOTALLY FROZE OVER



Climatological Data for PORTLAND RFC CITY, OR - January 1930

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	HDD	CDD	Precipitation	Snowfall	Snow Depth
1930-01-01	54	40	47.0	18	0	0.09	0.0	0
1930-01-02	46	38	42.0	23	0	0.00	0.0	0
1930-01-03	50	40	45.0	20	0	0.19	0.0	0
1930-01-04	47	33	40.0	25	0	0.74	T	0
1930-01-05	40	34	37.0	28	0	0.12	T	0
1930-01-06	40	30	35.0	30	0	0.07	T	0
1930-01-07	34	24	29.0	36	0	0.00	0.0	0
1930-01-08	32	25	28.5	36	0	0.24	2.9	3
1930-01-09	32	21	26.5	38	0	0.00	0.2	2
1930-01-10	29	20	24.5	40	0	0.00	0.0	1
1930-01-11	27	18	22.5	42	0	0.00	0.0	1
1930-01-12	30	18	24.0	41	0	0.00	0.0	1
1930-01-13	28	17	22.5	42	0	0.00	0.0	1
1930-01-14	26	19	22.5	42	0	0.10	T	1
1930-01-15	23	19	21.0	44	0	0.25	7.4	8
1930-01-16	22	15	18.5	46	0	T	0.1	6
1930-01-17	18	13	15.5	49	0	T	0.0	5
1930-01-18	19	14	16.5	48	0	0.14	1.0	5
1930-01-19	26	16	21.0	44	0	0.25	4.0	9
1930-01-20	26	16	21.0	44	0	0.00	0.0	8
1930-01-21	24	15	19.5	45	0	0.00	0.0	8
1930-01-22	22	15	18.5	46	0	0.02	0.0	7
1930-01-23	26	18	22.0	43	0	0.01	0.2	7
1930-01-24	30	19	24.5	40	0	0.00	T	7
1930-01-25	32	19	25.5	39	0	0.00	0.0	7
1930-01-26	30	22	26.0	39	0	T	T	6
1930-01-27	36	27	31.5	33	0	0.00	T	6
1930-01-28	34	24	29.0	36	0	0.84	0.6	7
1930-01-29	39	31	35.0	30	0	0.02	0.0	6
1930-01-30	40	35	37.5	27	0	0.34	0.0	4
1930-01-31	50	34	42.0	23	0	0.01	0.0	3
Sum	1012	729	-	1137	0	3.43	16.4	-
Average	32.6	23.5	28.1	-	-	-	-	3.8
Normal	M	M	M	M	M	M	M	-

JANUARY 1930

**19 consecutive days
below freezing**

**15 consecutive
nights below 20°**

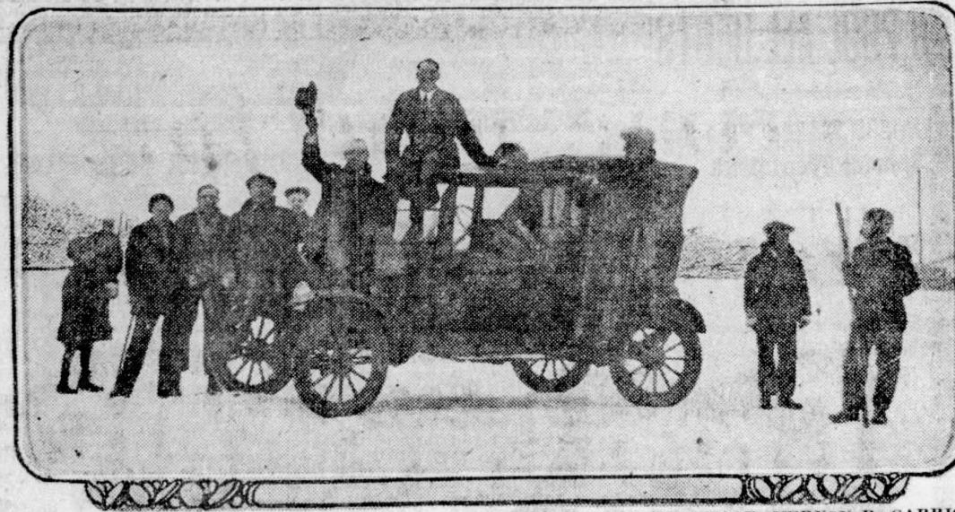
**4 days with 1+”
snowfall**

HONORABLE COLD MENTION

JANUARY 1924...CAR DRIVES ACROSS WILLAMETTE

THE SUNDAY OREGONIAN, PORTLAND

AUTOMOBILE WHICH CROSSED WILLAMETTE RIVER ON ICE AT SELLWOOD YESTERDAY
THOUGHT TO HAVE BEEN FIRST TIME IN HISTORY.



THE CAR IN THE MIDDLE OF THE RIVER. F. C. MARSHALL IS ON THE HOOD, VERNON R. GARRICK
ON TOP AND P. C. RINEHART ON THE RUNNING BOARD.

AUTOMOBILE CROSSES WILLAMETTE ON ICE

FEAT IS PERFORMED NEAR
SELLWOOD FERRY.

Heavy Vehicle Traverses River
for First Time in 40 Years,
Old Residents Believe.

An automobile was driven across the Willamette river on the ice yesterday for the first time in history, it was believed. The feat took place about 3 o'clock at Sellwood, when Vernon R. Garrick, a Portland real estate man, and several friends, took his light car down the west bank and drove it across the rough surface.

No difficulty was experienced in the trip and the car was not equipped with chains. Members of the party assisted in traversing the slippery road on the banks of the river.

Recollections of old residents in the vicinity of the Sellwood ferry, where the trip took place, were that not since the cold weather about

AUTO CROSSES ON ICE

FEAT IS PERFORMED NEAR
SELLWOOD FERRY.

Heavy Vehicle Traverses River
for First Time in 40 Years,
Old Residents Believe.

Continued from First Page.
river. Persons present at the crossing yesterday who were in Portland at the earlier time the river was frozen recalled that then the ice became thick enough to permit hauling heavy loads of material.

Yesterday's venture was the object of interest for a large number of spectators. A number who had just won for themselves the distinction of having walked across the river on the ice saw their adventures outdone by the men in the car.

The members of the party, all of whom were real estate agents, were

Climatological Data for PORTLAND RFC CITY, OR - December 1924

Click column heading to sort ascending, click again to sort descending.

Date	Max Temperature	Min Temperature	Avg Temperature	HDD	CDD	Precipitation	Snowfall	Snow Depth
1924-12-01	45	35	40.0	25	0	0.41	0.0	0
1924-12-02	55	44	49.5	15	0	0.22	0.0	0
1924-12-03	50	42	46.0	19	0	0.38	0.0	0
1924-12-04	49	42	45.5	19	0	0.77	0.0	0
1924-12-05	44	40	42.0	23	0	T	0.0	0
1924-12-06	44	39	41.5	23	0	0.01	0.0	0
1924-12-07	42	38	40.0	25	0	0.08	0.0	0
1924-12-08	47	36	41.5	23	0	0.00	0.0	0
1924-12-09	50	35	42.5	22	0	0.07	0.0	0
1924-12-10	60	50	55.0	10	0	0.01	0.0	0
1924-12-11	60	54	57.0	8	0	0.00	0.0	0
1924-12-12	55	49	52.0	13	0	0.00	0.0	0
1924-12-13	55	48	51.5	13	0	T	0.0	0
1924-12-14	56	M	M	M	M	0.00	0.0	0
1924-12-15	M	33	M	M	M	0.81	3.0	3
1924-12-16	35	15	25.0	40	0	T	T	1
1924-12-17	20	12	16.0	49	0	0.00	0.0	1
1924-12-18	20	11	15.5	49	0	0.00	0.0	1
1924-12-19	21	13	17.0	48	0	0.00	0.0	1
1924-12-20	22	17	19.5	45	0	0.03	0.3	1
1924-12-21	29	22	25.5	39	0	0.00	0.1	1
1924-12-22	31	19	25.0	40	0	0.00	0.0	T
1924-12-23	32	18	25.0	40	0	0.00	0.0	T
1924-12-24	30	18	24.0	41	0	0.00	0.0	T
1924-12-25	29	13	21.0	44	0	0.00	0.0	T
1924-12-26	26	12	19.0	46	0	0.01	0.0	T
1924-12-27	35	23	29.0	36	0	0.54	0.5	1
1924-12-28	44	34	39.0	26	0	0.22	0.0	T
1924-12-29	52	43	47.5	17	0	0.41	0.0	0
1924-12-30	49	42	45.5	19	0	T	0.0	0
1924-12-31	45	39	42.0	23	0	0.47	0.0	0
Sum	1232	936	-	840	0	4.44	3.9	-
Average	41.1	31.2	35.8	-	-	-	-	0.3

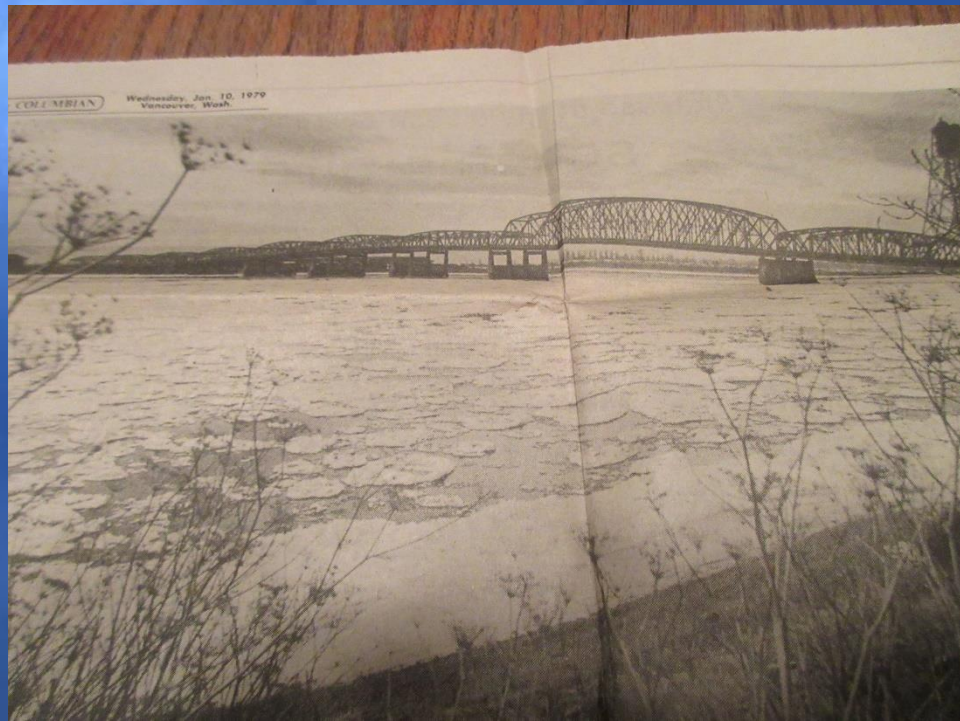
**DECEMBER
1924
Only
10 days/nights
below freezing**

**After a warm
December start!**

**Mainly dry cold
spell**

HONORABLE COLD MENTION

JANUARY 1979...LAST TIME COLUMBIA HAD A LOT OF ICE IN METRO AREA



14 consecutive days mainly
below freezing.
Just two 33° afternoons



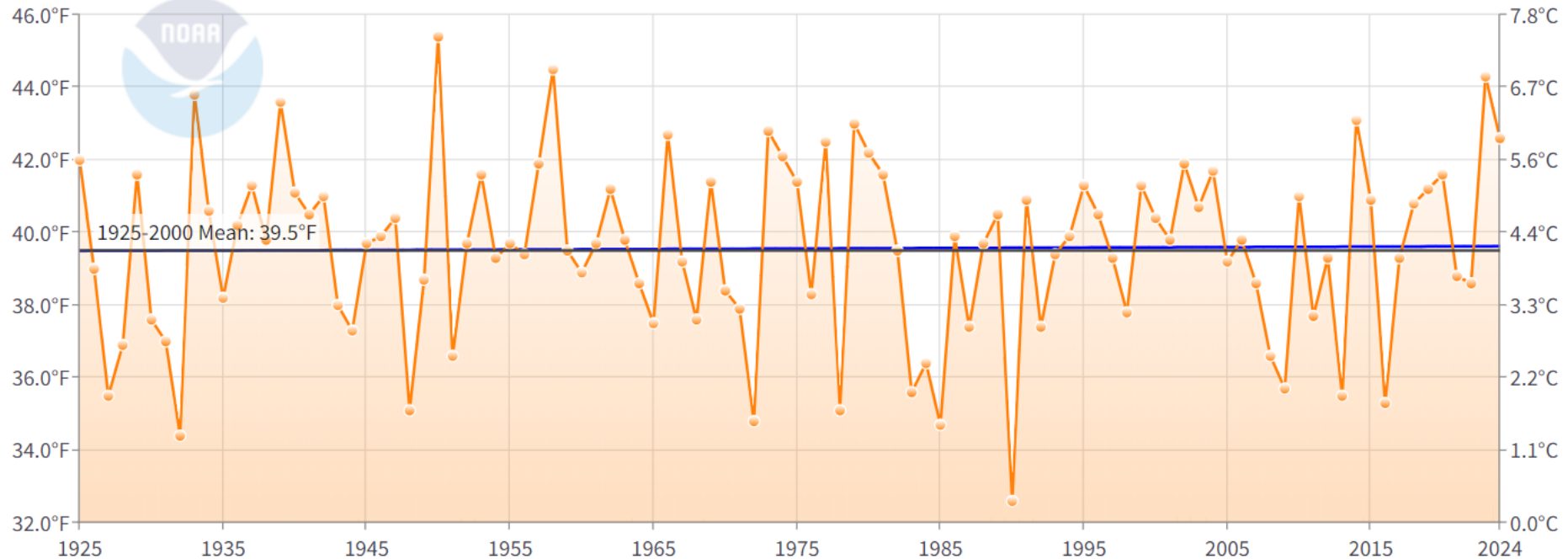
Are Winters Becoming Less Severe?

YES, but mainly January; fewer very cold winters than in the past
DECEMBER HASN'T CHANGED MUCH

Oregon, Climate Division 2 Average Temperature

December

1925-2024 Trend
(+0.0°F/Decade)



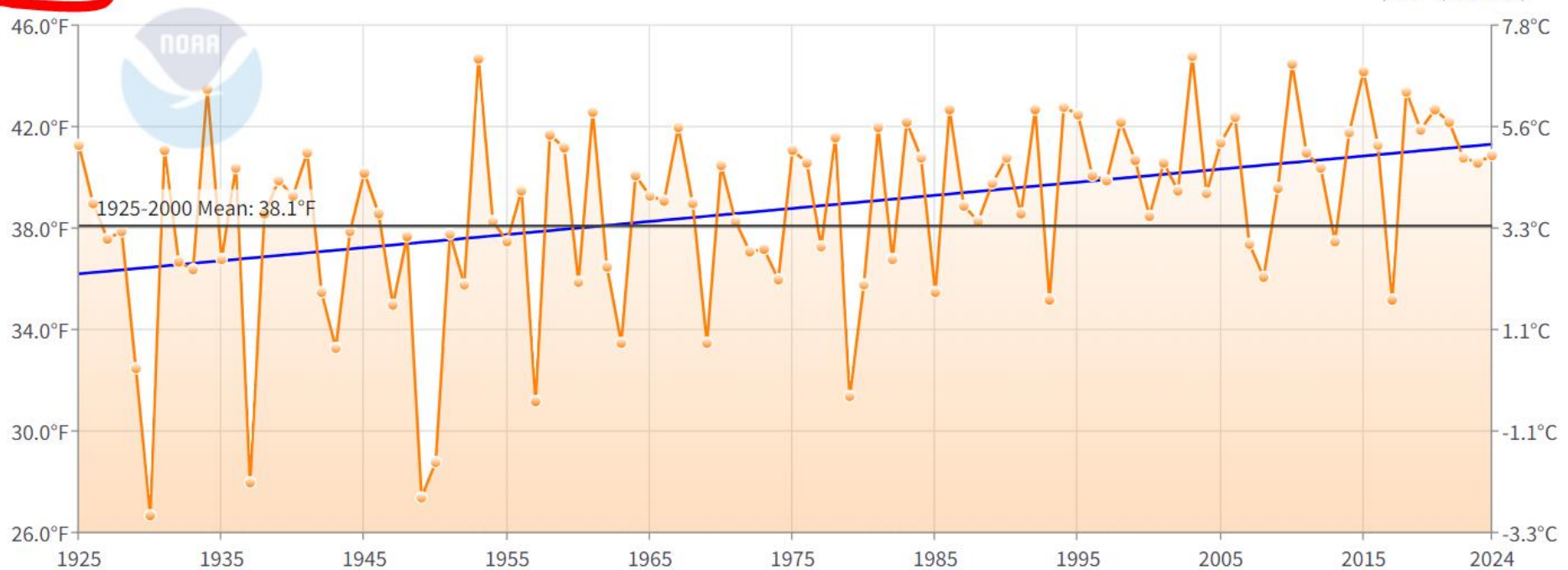
Are Winters Becoming Less Severe?

YES, but mainly January; fewer very cold winters than in the past

Oregon, Climate Division 2 Average Temperature

January

1925-2024 Trend
(+0.5°F/Decade)



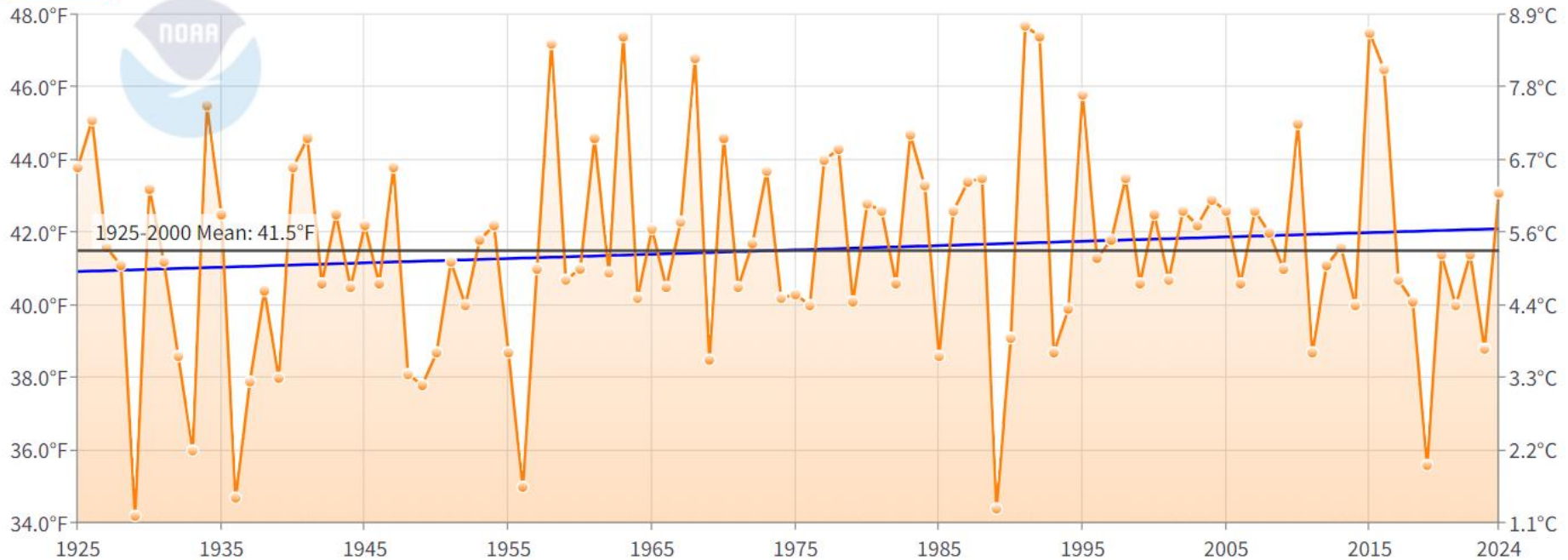
Are Winters Becoming Less Severe?

YES, but mainly January; fewer very cold winters than in the past

Oregon, Climate Division 2 Average Temperature

February

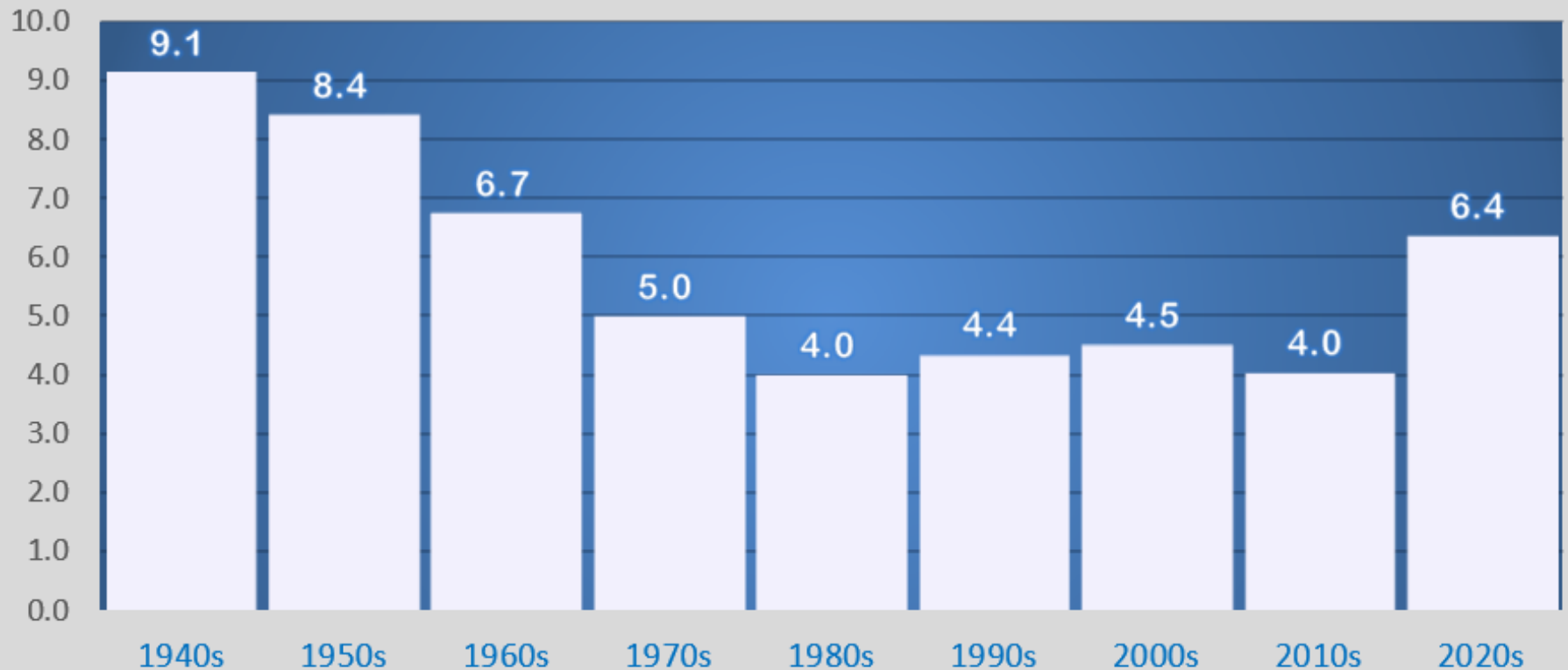
1925-2024 Trend
(+0.1°F/Decade)



Big drop late 20th century, now levelled off

OFFICIAL PORTLAND SNOWFALL

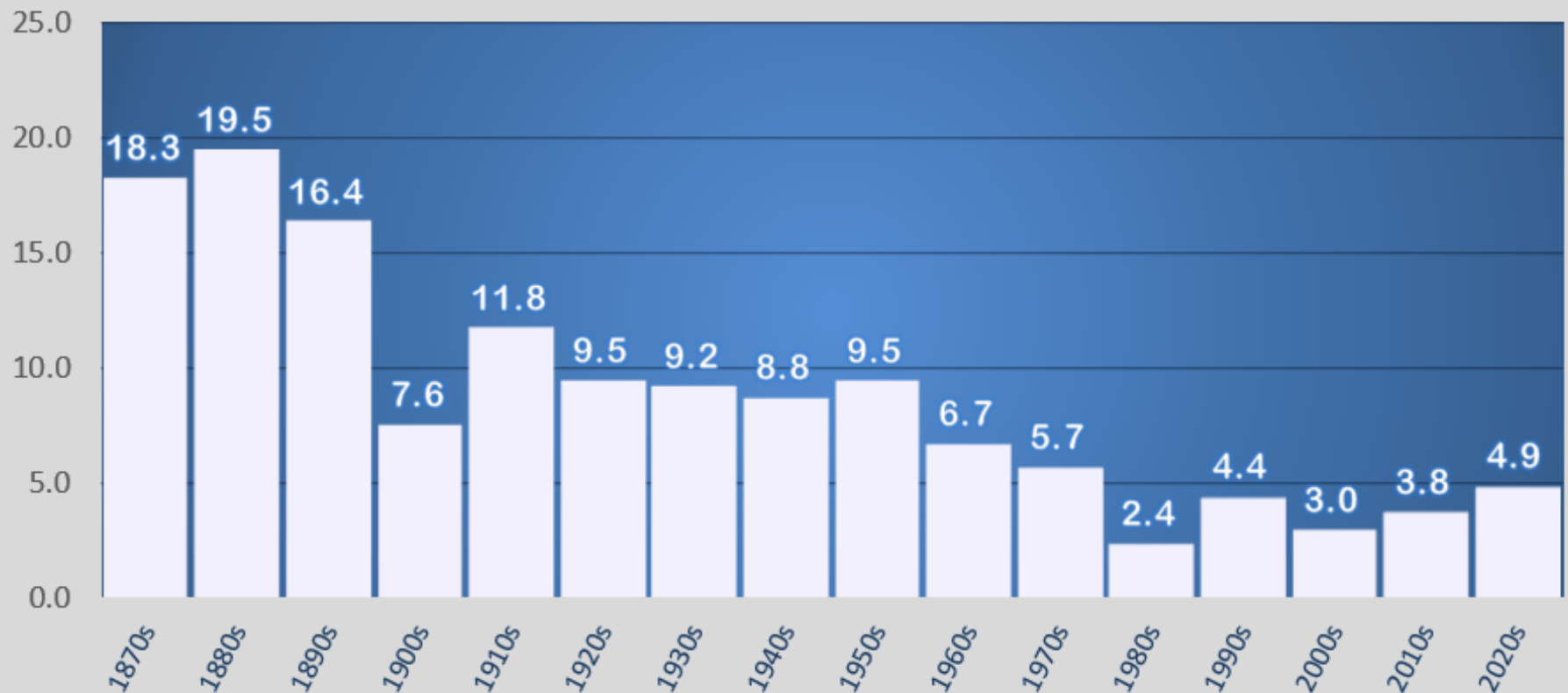
Average per winter in inches (Portland Airport & NWS Office)



It snowed A LOT more in late 1800s

DOWNTOWN PORTLAND SNOWFALL

Average per winter in inches



QUESTIONS?

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