

Historical Portland Snowfall

**“An Analytical Look At Snowfall
Potential During The Final Winter
of Each Decade (1871-2009)”**

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Quiz Time

What is the average winter snowfall at the Portland International Airport (1941-2009)?

- A: 2"**
- B: 6"**
- C: 9"**
- D: 11"**

Quiz Time

What is the average winter snowfall at the Portland International Airport (1941-2009)?

B: 6"

Quiz Time

Dear Santa, "Last" Christmas I was ---

Quiz Time

Dear Santa, "Last" Christmas I was ---

A: "Grumpy" due to all the snow you brought me.

Quiz Time

Dear Santa, "Last" Christmas I was ---

A: "Grumpy" due to all the snow you brought me.

B: "Excited" due to all the snow you brought me.

Quiz Time

Dear Santa, "Last" Christmas I was ---

A: "Grumpy" due to all the snow you brought me.

B: "Excited" due to all the snow you brought me.

C: "Exhausted" due to all the e-mails STEVE sent me about all the snow YOU brought me!

Quiz Time

Dear Santa, "Last" Christmas I was ---

A: "Grumpy" due to all the snow you brought me.

B: "Excited" due to all the snow you brought me.

**C: "Exhausted" due to all the e-mails STEVE sent me
about all the snow YOU brought me!**

D: All the above

Quiz Time

Dear Santa, "Last" Christmas I was ---

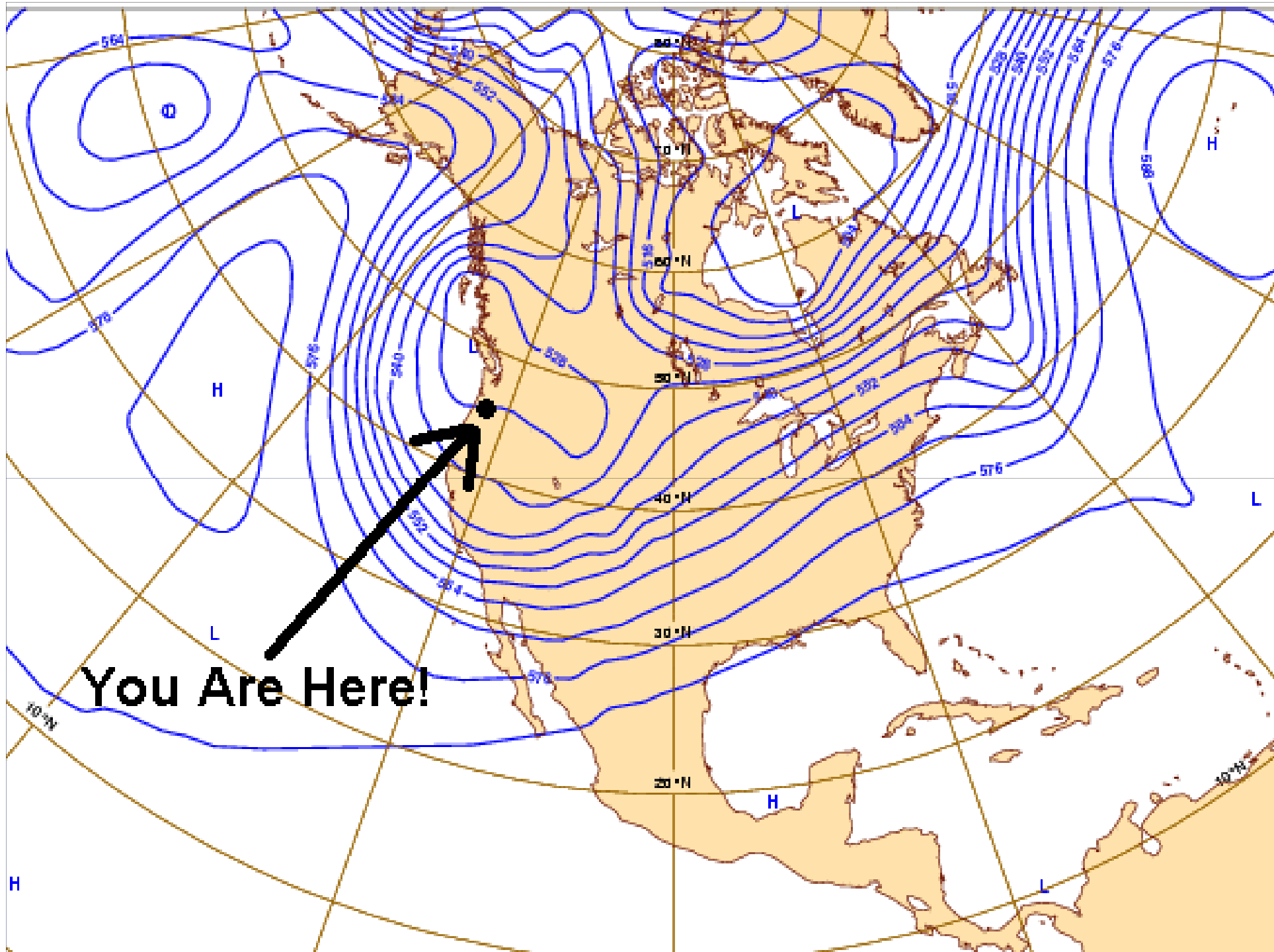
D: All the above

Quiz Time

**Dear Santa, "This" Christmas
I Would Like To Request
The Following Weather Pattern ---**

Quiz Time

**Actually Santa, Scratch That Last Request
and Replace It With This One Instead -**



Quiz Time

**The answer this winter “may” be
as simple as looking at the past!**

Let’s take a quick look!

Portland's Average Winter Snowfall Within A Decade (1871-2009)

<u>Inches</u>	<u>Year W/In A Decade</u>
14.7	09-10
13.8	02-03
12.1	08-09
10.5	05-06
9.9	06-07
9.1	01-02
8.2	03-04
7.4	04-05
6.5	00-01
5.1	07-08

Year

Snowfall Inch.

1879-80	18.8
1889-90	41.6
1899-00	1.4
1909-10	14.5
1919-20	19
1929-30	16.4
1939-40	0
1949-50	44.5
1959-60	12.9
1969-70	0
1979-80	12.4
1989-90	8.3
1999-00	1
2009-10	???

30th Year

Snowfall Inch.

1889-90

41.6

1919-20

19

1949-50

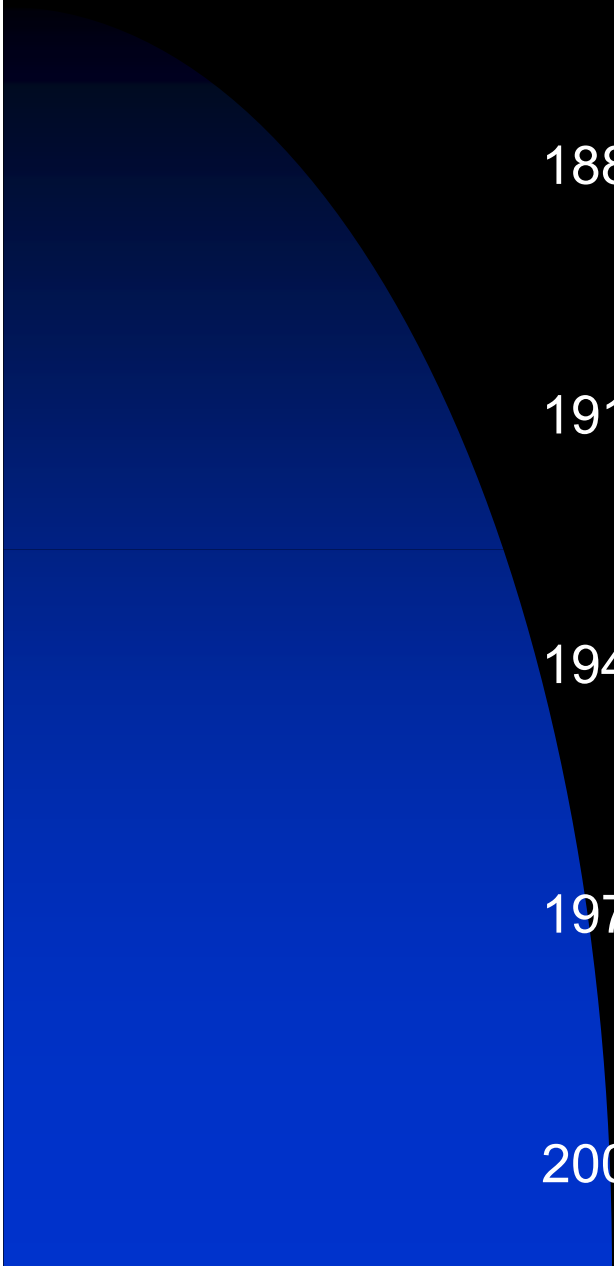
44.5

1979-80

12.4

2009-10

???



60th Year

Snowfall Inch.

1889-90

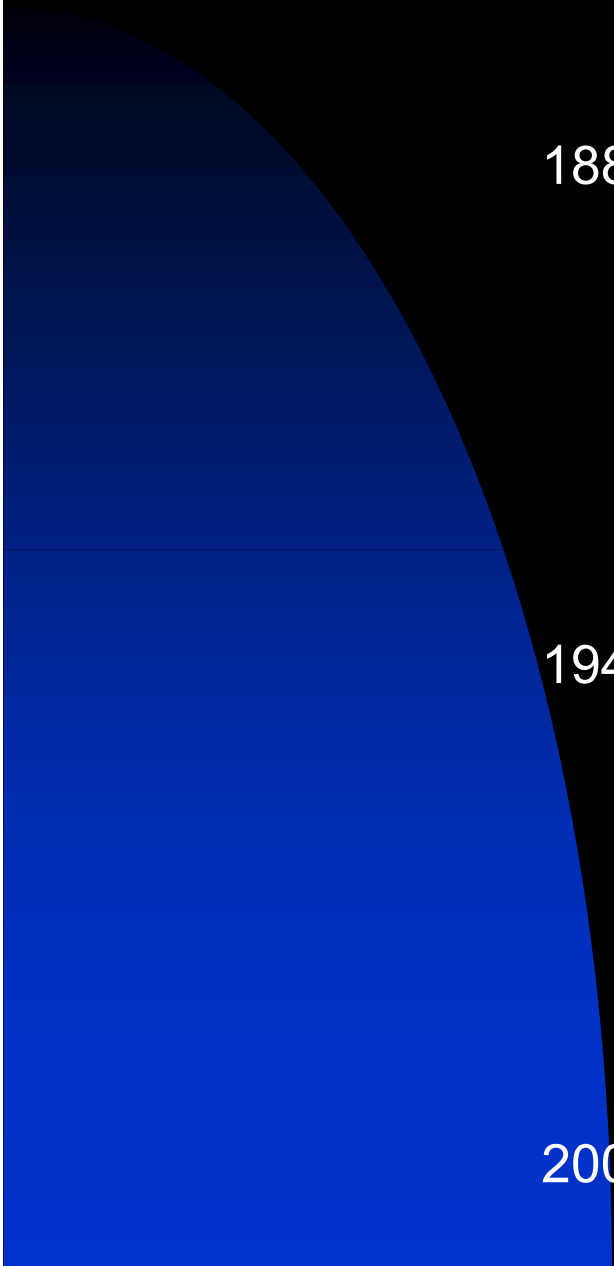
41.6

1949-50

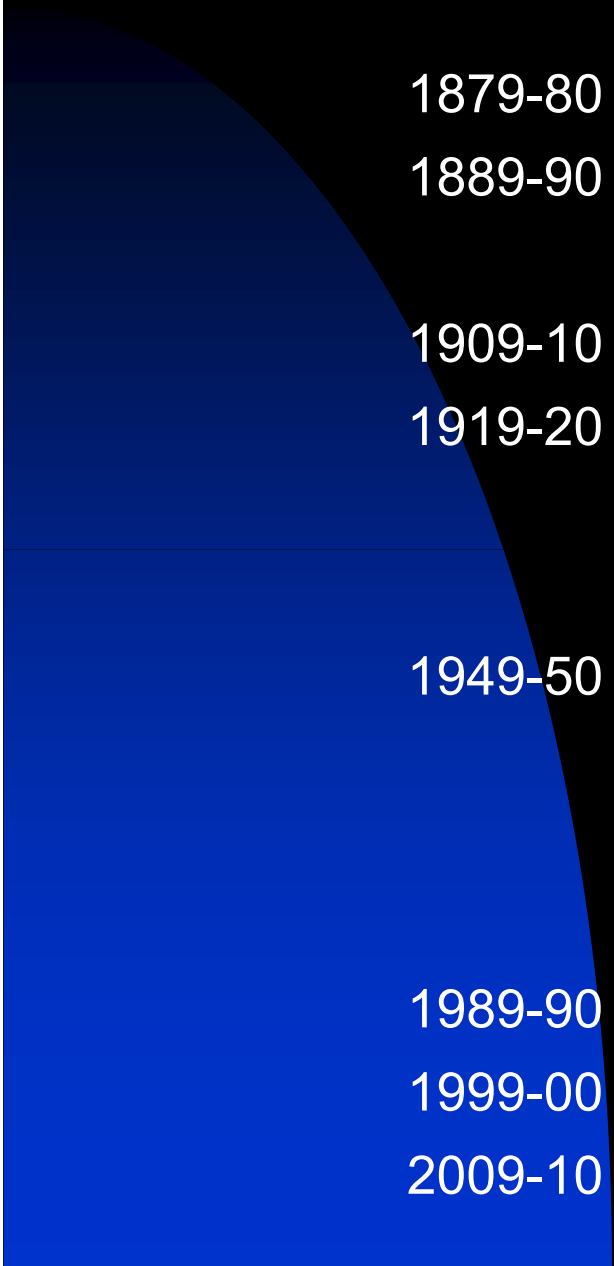
44.5

2009-10

???



<u>Year</u>	<u>Snowfall Inch.</u>	<u>PDO</u>
1879-80	18.8	Neg
1889-90	41.6	Neg
1899-00	1.4	Pos
1909-10	14.5	Neg
1919-20	19	Neg
1929-30	16.4	Pos
1939-40	0	Pos
1949-50	44.5	Neg
1959-60	12.9	Pos
1969-70	0	Pos
1979-80	12.4	Pos
1989-90	8.3	Neg
1999-00	1	Neg
2009-10	???	Neg???



<u>Year</u>	<u>Snowfall Inch.</u>	<u>PDO</u>
1879-80	18.8	Neg
1889-90	41.6	Neg
1909-10	14.5	Neg
1919-20	19	Neg
1949-50	44.5	Neg
1989-90	8.3	Neg
1999-00	1	Neg
2009-10	???	Neg???

<u>Year</u>	<u>Snowfall Inch.</u>	<u>PDO</u>	<u>Solar</u>
1879-80	18.8	Neg	Min
1889-90	41.6	Neg	Min
1899-00	1.4	Pos	Min
1909-10	14.5	Neg	Mid
1919-20	19	Neg	Mid
1929-30	16.4	Pos	Max
1939-40	0	Pos	Mid
1949-50	44.5	Neg	Max
1959-60	12.9	Pos	Max
1969-70	0	Pos	Max
1979-80	12.4	Pos	Max
1989-90	8.3	Neg	Max
1999-00	1	Neg	Max
2009-10	???	Neg???	Min

Year

Snowfall Inch.

PDO

Solar

1879-80

18.8

Neg

Min

1889-90

41.6

Neg

Min

2009-10

???

Neg???

Min

<u>Year</u>	<u>Snowfall Inch.</u>	<u>PDO</u>	<u>Solar</u>	<u>ENSO</u>
1879-80	18.8	Neg	Min	C
1889-90	41.6	Neg	Min	C
1899-00	1.4	Pos	Min	W
1909-10	14.5	Neg	Mid	C
1919-20	19	Neg	Mid	N
1929-30	16.4	Pos	Max	N
1939-40	0	Pos	Mid	N
1949-50	44.5	Neg	Max	C
1959-60	12.9	Pos	Max	N
1969-70	0	Pos	Max	W
1979-80	12.4	Pos	Max	N
1989-90	8.3	Neg	Max	N
1999-00	1	Neg	Max	C
2009-10	???	Neg???	Min	???

Average Portland Snowfall In Final Winter of Each Decade (1871-2009)

All 09-10 years	14.7"
Every 30th year (a)	29.4"
Every 60th year (b)	43.1"
Following a decade w/ 3" or less	23.8"
All Neg PDO years	21.1"
All Pos PDO years	7.2"
All Solar Max years	13.6"
All Solar Min years	20.6"
All solar Min w/ Neg PDO years	30.2"
All ENSO Cold years	24.1"
All ENSO Neutral years	11.5"
All ENSO Warm years	0.7"

Summary

- * On average, the last winter of every decade (from 1871-2009) has yielded the most snow for Portland. More than double the amount of snow in some winters and more than double the 1871-2009 average of 6".
- * Very large snow totals have blanketed Portland every 30th and 60th year looking back in time from 2009/2010, averaging 29" on the 30 yr cycle and 43" on the 60 year cycle. Winter 2009/2010 is aligned with this cycle.
- * A decade with less than 3" of snow has been continually followed by a winter with considerably more snow.
- * On average, Negative PDO winters surveyed can produce as much as 3x the amount of snow as Positive PDO winters in Portland.
- * Of winters surveyed, the combination of solar minimum and Negative PDO averaged 30" of snow in Portland.

Summary

- * Transitioning from a warm PDO phase into a cold PDO phase has resulted in several back-to-back snowy winters in Portland. Example; 1948 to 1951 recorded over 80" of snow in Portland, averaging 26" per winter.
- * Warm ENSO (El Nino) event's combined with a positive PDO have resulted in very poor amounts of snow in Portland over the years covered in this analysis. However, a positive PDO combined with a neutral ENSO signal produced good snowfalls in Portland during the years outlined.
- * Winter 2009/2010's potential combination of -PDO, +ENSO @ Solar Minimum has never occurred during the 14 decades outlined in this study.
- * El Nino events during Cold PDO phase cycles have been known to produce large Portland snow totals, such as the winter of 1968/1969 as well as substantial arctic outbreaks such as the winter of 1972/1973.

**So, what's the final word on
how much snow will fall in
Portland this coming
winter???**

STAY TUNED!!!

Questions?

