Jay Peak: Are The Claims True?

By

Robert Benson

For this project I decided to put Jay Peak to the test with all its claims for having the most snow in the east. For this, I measured snowfall amounts and looked at snowfall data from websites. What the data that I coleected says is that judging by the numbers that I collected Jay Peak is on target for where it whould have been in October, but slightly down in snowfall for November, at least at the time that my data was collected. I have a total of eight inches of snow fot the days that I collected totals for in November. In previous years Jay has had as little as 2.5 inches. Tha average for November however, is 18.4 inches. The lower numbers could have been caused by other days that it snowed but I did not collect data. Though according to people from Jay Peak, they are behind scheduale for the amount of snow that should have fallen.

INTRODUCTION

For years, Jay Peak Ski Resort has had the motto, "It's all about the snow" claiming that they get the most snow of any ski resort in the East including Sunday River, Maine and Stowe, Vermont. I decided to test this motto against Jay's main compitition Stowe which is located on Mt. Mansfield and Sunday River, to see whether or not it is true. If this claim is true, my theory is that the Jet Stream had to do with the amount of snow that falls over Jay. After hearing all the claims and seeing the snowfall totals when I bought my season pass there, I was under the impression that maybe there was something about the location of the mountain that brought it more snow.

Before looking at how much snow exactly fell on the mountain, I had my own theories on how Jay received so much snow. The main theory being that the Jet stream, which goes over the state, but ytet seems to hover over Jay Peak, brings it more storms then hit other resorts. The climate in Vermont is effected by many things. One major factor is that Vermont is located at 44 degrees north, which means it is 1,500 miles from the Tropic of Cancer and the Artic Circle. Vermont also recieves cold air from both Canada and the North Atlantic. Storms from many different places pass over vermont. The Northern Part of the state is even known to be directly affected by storm cells that stalled near Nova Scotia or Newfoundland. Vermont is also affected by evapotation off of Lake Champlain causing lake effect snow in the higher regions of the state. These two factors are linked because as the air rises to get past the mountains, it cools causing it to fall to earth as precipitation. [1]

[1] Vermont Weather Book p. 4-5

METHODS

To do this test, I measured snowfall at the top of Jay Peak. To measure the snow, I went to the top of Jay Peak Ski Resort and measured by putting a ruler down into the snow. To make sure that I was measuring in the same place each time, I flagged where I measured the times before. For snow data on the other two locations, I checked websites related to snowfall for both the present and the past years. These web pages that I collected data from are from the National Weather Service page at http://205.156.54.206/er/btv/, UVM at www.uvm.edu/ske-l/depths.html, Sunday River at www.sundayriver.com, and Jay Peak at www.JayPeakResort.com. I also checked on the history of Jay Peak to support my data.

DATA

Table 1. Jay Peak snowfall data daily totals

	Summit point 1	Summit point 2
October 30 -	5 inches	5 inches
Novmeber 2 -	4 inches	3 inches
November 5 -	3 inches	4 inches
November 16 -	1 inch	0.5 inches
November 18 -	0.0 inches	0.0 inches

The data represents snow that was on the mountain at the time of measuring, not necessarily snow that fell that day.

Table 2. Elevation Data

Mountian	Jay Peak	Mt. Mansfield	Sunday River
Elevation	3,861 ft	4,393 ft	3,140 ft

The field data was collected from two places at the summit of Jay Peak, in Jay Vermont, approximately 3,861 feet above sea level. The first day I went up there I looked for two locations that were not going to be disturbed by people between data gatherings. Location one was located around thirty feet behind the lift on top of a small hill. Location two was located on the west side of the mountain on a back country trail that is not tree covered and is not affected by snow making. I took five days worth the data. The first day, October 30 after some snowfall the night before, I measured five inches at both points one and two. On November 2, I observed four inches at point one and three inches at point two. On November 5, my measurements showed three inches at point one and four inches at point two. Novermber 16 snowfall totaled one inch at point one and one half inch at point two. There was no snow at the sumit on November 18.

DISCUSSION

I compared my data to data found on several websites for Mt. Mansfield and Sunday Rver's website. The most recient of this data stated that as of November 10, 2001 Mt. Mansfield received 16 inches of snow to date[2] however, did not have a breakdown of daily snowfall totals. There was a website with data only up to 1997 showing the same trend. This trend is Mt. Mansfield getting more snow then Jay Peak. The 1997 figures show My. Mansfield receiving 325.6 inches of snow during that winter, while Jay received 315.7 inches of snow. The difference was even larger in 1996 when Mt.

[2] www.uvm.edu/skivt-l/depths.html

Mansfield over 100 incehs of snow more then Jay Peak, with Mansfield receiving 305.4 inches and Jay Peak receiving 206.7 inches of snow.[3] The results of this re in figures A and B. Other data that I observed was for October, 2000 shows Mt. Mansfield with a higher snowfall for the month of October receiving 21 inches of snow compared to Jay Peak's 8.1 inches. This is shown in Figure C. The main reason that Mt. Mansfield gets more snow is the elevation, with Mansfield at 4,393 being 532 feet taller then Jay Peak which stands at 3,861 feet in elevation. Sunday River's site says that it has accumulated anywhere from 6-60 inches on the mountain with around 30 inches of snow at the summit with out snow making.[4] These totals are much higher then those of Jay Peak, who claims to get more snow. At this point in the year, Sunday River has much more snow then Jay Peak. If this trend continues in this patter, Sunday river should receive more snow then Jay Peak this year. Th reason for the greater snowfall at Sunday River that I could find has to do with latitude with Sunday River being at a higher latitude then Jay. I believe this to be the cause of the greater snowfall because, Jay Peak is actually higher in elevation then Sunday River which stands at 3,140 feet.

However, the 1996 and 97 data for Jay Peak shows Jey getting a higher snowfall in those years then Sunday River which gets an average snowfall of around 155 inches per year. This could mean that either Jay Peak is having a warm beginning to its season, while Sunday River is having a colder or normal start to its season. This could also be a normal pattern as Jay Peak does receive a lot of snow in the later months of the Winter.

[3] NWS Burlington Home Page http://205.156.54.206/er/btv/
[4] www.Sundayriver.com

SUMMARY

The data that were compiled suggest that though Jay does get a lot of snow, it does not get more then Mt. Mansfield. It also seems that this year it has gotten less then Sunday River. I was origionally thinking that Jay's claims to snow superiority were going to hold true. The theory that I had in mind for all of this was tha thtey Jet stream goes ove that part of the state. When the Jet Stream dips, Jay gets many of the storms that ride it from the north, then the Jet Stream goes north, Jay gets many of the that travel it from the south. This however, does not seem to be the case making me think that my origional theory of the Jet Stream carrying storms over the area is not true. This theory could be true, and what could be happening is that the factors of latitude and evlation are greater then the storms carried in by the Jet stream.

My theory that the elevation is the leading factor for snowfall is also suggested by the fact that Mt. Mansfield gets more snow then Sunday River which is at a higher latitude then Mansfield, but yet has a lower elevation.

As for the claim that they get the most snow, I calle dJay Peak on this and told them what I had found. They stuck to their claim by saying that the Resort portion of Jay Peak recieves more snow then the resort portion of Stowe because, the Jay Peak Ski Resort takes up the whole mountain, where as Stowe does not go up to the summit of Mansfield, where most of the snow on that mountain falls.

Biliography

Ludlum, David. Vermont Weather Book.Vermont Historical Society INC, Montpelier, 1996. P. 1-13

Reiter, Elmar. Jet Stream Meteorology. University of Chicago Press, London, 1961.

National Weather Survice Burlington. http://205.156.54.206/er/btv/

www.uvm.edu/ski-l/depths.html

www.Sundayriver.com

www.JayPeakResort.com

Figure A
Jay Peak snowfall

Year	1990	1991	1993	1996	1997
January	69.9	39.6	60	20.4	56.1
February	26.2	24.4	44.8	29.5	39.1
March	18	7.4	59	18.6	73.5
April	14	12.2	12.1	44.8	21
May	0	0	0	5	5.3
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	2	0	0	0
October	2	0	0	0	14.8
November	53	6.5	10	26.3	32.8
December	47.1	45.5	44.7	61.7	73.1
total	230.2	137.6	230.6	206.3	315.7

Fgure B
Mt. Mansfield Snow Data

Year	1993	1996	1997
January	43.9	23.8	62.8
February	64.6	59.4	33.4
March	48.6	37.5	41.8
April	17	71.5	24
May	0	14.3	24
June	0	0	0
July	0	0	0
August	0	0	0
September	0	0	0
October	6	0	26.6
November	28.5	57	47.1
December	38.2	41.9	65.9
total	246.8	305.4	325.6

Figure C
October, 2000 snowfall

Location	Jay Peak	Mansfield
Ave. Max	51.3	45.1
Ave. Min	34.7	32.3
Mon. Ave	43	38.7
Pcpn	3.95	5.08
YTD pcpn	55.25	82.13
Snow	8.1	21
Sea. Snow	8.1	21