The Great Colorado Snowstorm
December 1-5, 1913

Jessica R. Smith
Hollings Student
National Weather Service
Boulder, CO
Key Questions

* What happened in the atmosphere that week?
* Why did it happen?
* What is important about this particular storm?
* What were the impacts?
* Could it happen again?
## Top 10 Snowstorms in Denver 1880-2013

<table>
<thead>
<tr>
<th>Date</th>
<th>Denver Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 1-5, 1913</td>
<td>45.7”</td>
</tr>
<tr>
<td>Mar 17-19, 2003</td>
<td>31.8”</td>
</tr>
<tr>
<td>Nov 2-4, 1946</td>
<td>30.4”</td>
</tr>
<tr>
<td>Dec 24, 1982</td>
<td>23.8”</td>
</tr>
<tr>
<td>Apr 21-23, 1885</td>
<td>23.0”</td>
</tr>
<tr>
<td>Oct 20-23, 1906</td>
<td>22.7”</td>
</tr>
<tr>
<td>Oct 24-25, 1997</td>
<td>21.9”</td>
</tr>
<tr>
<td>Nov 26-27, 1983</td>
<td>21.5”</td>
</tr>
<tr>
<td>Dec 20-21, 2006</td>
<td>20.7”</td>
</tr>
<tr>
<td>Jan 29-31, 1883</td>
<td>19.3”</td>
</tr>
</tbody>
</table>
1913 At a Glance

* Winter started early; first snowfall occurred September 11.
* October continued the trend, and was also quite cold.
* November saw warmer than average temperatures.
* Concern was developing for the lack of moisture; not much snow, only a little rain.

September  
October  
November  
December
Meteorologists relied on surface maps to predict where the storm would travel (upper level maps of the atmosphere didn’t exist).

Many forecasts for the first week of December were of “mixed accuracy.”

End of the week storm was not foreseen.
Newspaper Weather Forecast

THE BAZAAR

ABOUT THE CITY

Harry Wood arrived today from Salt Lake City.

Moses S. Yamaoka returned yesterday from California where he joined Thanksgiving, with his family.

Mrs. and Mr. D. N. Price are now comfortably located in the newly formed home at 222 Sixth Street, with their family.

A surprise party was given for Mrs. Bull, her best friend.

Mrs. Bradley, of Denver, returned Monday evening after spending the Thanksgiving holiday with her friends, Mr. and Mrs. D. M. North.

About 300 guests were entertained at the Midland Hotel last evening for the annual meeting of the Board of County Commissioners. The event was quite a success.

Miss Alice Connelly was an out-of-town visitor at the Midland Hotel last evening. She is from Nevada where she has been visiting her parents the past week.

WEATHER REPORT

Plan tonight and Thursday, Temperature 34-37.

MEAT QUOTATIONS

Spareribs.........$3.00

Loin............$5.00
Special discount on all meats at low cost.

Block and Slab Wood

$2.50 Per Load

Containing 1 and 4 Cords

Phone Pitkin 89-The W. E. Trading Co., Aspen Block

Orders Received At The Byte Stores Co.

THINGS FOR THANKSGIVING

Liking & Cutler &

KNIVES AND FORKS

THE BEST

Have your Turkey in a Little snuffed stew, and also make a turkey that is just right in every respect. The recipe is simple and easy to follow. Heat it slowly and let it simmer. Get your recipe from your local butcher.

L. H. FOWKES HARDWARE

Painted Purities in Groceries

Purposes of this store mean purposes that are right. Just place all your orders of value, and we guarantee you are satisfied.

Just remember this when you are planning Thanksgiving dinners. Give us your orders, and we will do our best.

We Have Just the Right Things

For Thanksgiving that will please your guests and make the occasion one of delight.

The season's beat—at their best—and praise the lowest.

Turkey 25c; Goose 25c; Chicken 25c; all prize in the pound. Sausage, 6 per box. Cranberry sauce, 50c per quart. Cheese, 50c per pound. Pecan pies 25c per pound. Entrepreneur cranberry, cherries, and Pinto and Prune nuts 25c per pound. Easter eggs 25c per pound. Large and Small Wines and Brandy.

FRANKLIN & WATSON

December 1, 1913
December 3

December 3, 1913
December 5

December 5, 1913
A Unique Pattern for December

* Snow in the Denver Metro area and the foothills is directly related to upslope flow conditions.
* The placement of surface high pressure and low pressure during early December 1913 created an extended period of upslope flow.
* The pressure pattern in December 1913 also “opened the Gulf” allowing lots of moisture to travel to eastern Colorado... an unusual pattern for December.
Temperature Differences

* Temperatures remained at 32°F through much of the storm (very unusual for December).
* Wet sidewalks in photos indicate these higher temperatures.
* The temperature helped create heavy wet snow... also unusual for December.

“The snow was very wet and heavy and by noon traffic was considerably impeded. By late evening the blockade was general and street cars, automobiles and other means of conveyance were abandoned. Streets were almost impassable, in many places the snow being drifted to a depth of 4 to 5 feet.”

-Weather Bureau Record
December 4, 1913
<table>
<thead>
<tr>
<th>Location</th>
<th>Total for December 1-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgetown</td>
<td>86”</td>
</tr>
<tr>
<td>Estes Park</td>
<td>53”</td>
</tr>
<tr>
<td>Denver</td>
<td>45.7”</td>
</tr>
<tr>
<td>Boulder</td>
<td>43.75”</td>
</tr>
<tr>
<td>Ft. Collins</td>
<td>33.5”</td>
</tr>
<tr>
<td>Colorado Springs</td>
<td>24.4”</td>
</tr>
</tbody>
</table>

Data from Colorado Climate Center
WORST STORM IN HISTORY RAGING IN COLORADO

The Daily Journal
December 5

SUN APPEARS AND STARTS THAW IN DENVER--CONDITIONS AWFUL--NO TRAINS

The Daily Journal
December 6

ROOFS
Collapsing In Denver from Weight of Snow
Trains Stalled On All Lines Near the Capital City; Much Suffering

Ft. Collins Weekly Courier
December 5

WEEK OF RAIN AND SNOW

Aspen Democrat Times
December 5

Yuma Pioneer
December 5
Millionaires Mingle with Laborers to Free Denver from Clutches Storm

DENVER, Dec. 10.—Thousands of people today responded to the call issued by Mayor Perkins for help in clearing the streets and sidewalks of snow so that traffic could be resumed, and volunteered to shovel snow in the suburbs to clear the streets to traffic.

In this good work everybody seemed to enter in good spirit and with a vim, the millionaires of the city mingling with the laborers and clearing the streets for blocks and blocks.

The railroad situation here and throughout the remainder of the state is rapidly improving, and most of the trains are now running on normal schedules. The Christmas shopping in the city is now on in full swing and nearly all of the schools are again open after being closed since Friday.

The streets in most sections of the city are now sufficiently cleared to permit the grocers and dairymen to deliver food and milk.

Melting Snow Reveals Mangled Body in Denver

DENVER, Dec. 9.—The melting of the snow here today caused the revealing of a severed hand, which was protruding from the snow this morning. This led to an investigation and the discovery of a badly mangled body of an unidentified man on the Colorado and Southern railroad tracks in the suburbs of the city. The body was terribly mangled and for this reason probably never will be identified.

The 34 persons who have died in the city recently are still unburied, as it is impossible to reach the cemeteries nor to dig graves. These bodies will be held in the undertaker's rooms until the snow is cleared sufficiently to permit of holding funerals.

Traffic in the city is rapidly assuming the normal and it is expected that within a few more days everything will be running as usual.
Impacts of the Storm

“The traffic [blockade] continued and extended to the railroads. In addition to [blockaded] traffic conditions, great damage was done to flat roofed buildings and in several cases buildings with flat roofs collapsed.”

-Weather Bureau Record
  December 5, 1913
Thursday, December 4th at noon, all tramway service through the city was cancelled. Service wasn’t restored until one week later. As soon as one track was cleared, another would be tied up and covered with snow drifts.
Map showing the number of trains stalled heading in and out of Denver published by Rocky Mountain News (Dec 5)
Automobiles had to be hauled to garages by (ironically) teams of horses.
Pedestrians Take Over

* The Denver Post: “The only means of transportation was a sturdy pair of legs.”
The tramway service hired anyone who was able-bodied to help clear the routes. This started out on Thursday with 780 men, but by Friday grew to over 4,000!
Long Term Impacts: Ski Industry

* Skiing was never considered a “recreational sport” until the years after the 1913 storm.
* Denver’s first ski-jumping competition was held in the foothills in January 1914.
Long Term Impacts: Farming

* Saturday headlines of Rocky Mountain News declared “Farmers See Golden Harvest”
* The 1914 crop valued at $115,000,000
* The snow assured sufficient moisture
Long Term Impacts: Building Codes

* This storm set the precedent for snow loads on building roofs
* Modern roofs must be able to hold 25-30 lbs/sq ft*

*Taken from Denver Building Codes

Caption: “Every cubic foot weighed twenty-two pounds”