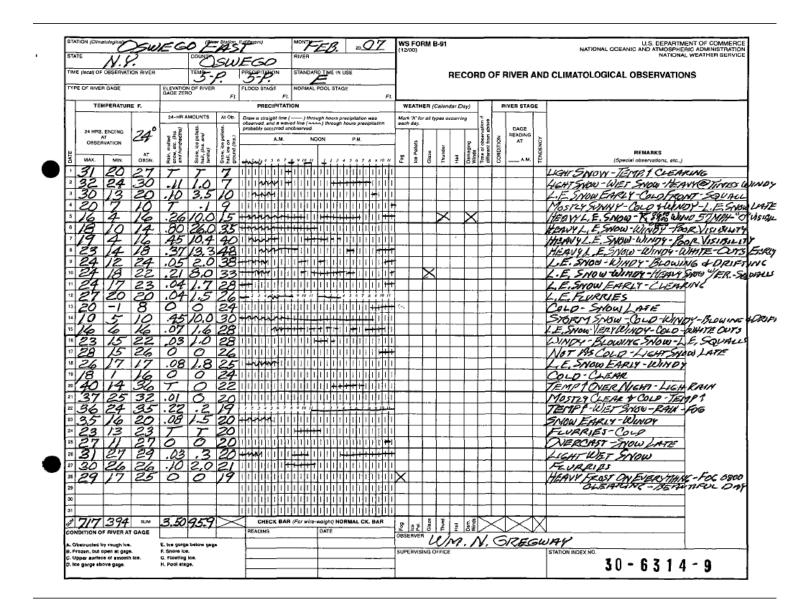
## 2007 New York State Science Olympiad - Basic Weather

Station 2

2-1 In the winter, natural snow, ice pellets and ice on the ground can melt, can be washed or be blown away, but on a day when the air temperatures are significantly below freezing and the relative humidity is low, the snow, ice pellets and ice can totally disappear naturally (not by shoveling, plowing or snow blowing) by \_\_\_\_\_\_ (provide the word or describe the process).

Answer the following questions (2-2 to 2-10) based on the data presented for the National Weather Service Oswego East station located just south of Lake Ontario in upstate New York.



- 2-2 What was the greatest amount of snow and/or ice pellets that fell in any 24-hour period?
- 2-3 What was the date and the greatest depth of the snow, ice pellets, and/or ice measured on the ground?
- 2-4 How many days did it take to reduce that greatest depth of snow, ice pellets, and/or ice on the ground to ½ of the greatest depth?
- 2-5 What was the maximum air temperature recorded during this period in your answer to Question 2-4?
- 2-6 Explain the primary reason why this greatest depth was reduced in half.
- 2-7 On February 2, 2007, how much snow fell?
- 2-8 What was the water equivalency of the snow that fell on February 2?
- 2-9 A comparison of a fixed volume (for example, a cubic foot) of the snow that fell on February 2 with the same fixed volume of snow that fell on February 5 (Do not assume that you can pack snow into a fixed volume) shows that:
  - A. Not enough information was provided in the Oswego East station data to compare the mass of snow in a fixed volume on both dates.
  - B. The February 2 and February 5 volumes would have the same mass.
  - C. The February 2 volume would have a greater mass than the February 5 volume.
  - D. The February 5 volume would have a greater mass than the February 2 volume.
- 2-10 Since only snow reached the ground in the lake effect snowstorm on February 5, what was the air temperature profile above the ground in the area affected by this storm?
  - A. Air temperatures were above freezing within the first 1,000 meters above the ground and were below freezing above 1,000 meters.
  - B. Air temperatures were below freezing within the first 1,000 meters above the ground, were above freezing above 1,000 meters to 2,000 meters and were below freezing above 2,000 meters.
  - C. Air temperatures were below freezing within the first 1,000 meters above the ground and were also below freezing above 1,000 meters.

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- D. Air temperatures were below freezing within the first 100 meters above the ground and were above freezing above 100 meters.
- 2-11 Only ice pellets reached the ground during the St. Valentines Day storm in certain areas of the New York City Metropolitan area. What was the air temperature profile above the ground in these areas?
  - A. Air temperatures were above freezing within the first 1,000 meters above the ground, and were below freezing above 1,000 meters.
  - B. Air temperatures were below freezing within the first 1,000 meters above the ground, above freezing above 1,000 meters to 2,000 meters and below freezing above 2,000 meters.
  - C. Air temperatures were below freezing within the first 1,000 meters above the ground, and the air temperatures were also below freezing above 1,000 meters.
  - D. Air temperatures were below freezing within the first 100 meters above the ground and were above freezing above 100 meters.