

EARTH SCIENCE

Mt. Washington, NH, in January

Part 2

NAME _____

Period _____

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When you studied the characteristics of the air masses around Mt. Washington in Part 1 of this exercise, it was reasonable to assume that the dewpoint temperatures were similar at the base and at the top of the mountain, because little or no evaporation or condensation had occurred to change the absolute vapor content of the air as it rose up Mt. Washington. Note that the clouds are



JUST beginning to form at the summit, so even some distance from the summit, the dewpoint at your location could serve as a proxy for the actual temperature on the summit. (Can you explain why the dewpoint temperature a little higher up in the cloud would be lower than it is right at the summit?)

Photo © 2008 by Heather Renyck, White Mountains Regional HS, Whitefield, NH

At 6 AM on the morning of January 21, 2008, the following conditions were reported:

Current Conditions 6 AM 1/21/08	Current Conditions 6 AM 1/21/08
Observed at: Whitefield, New Hampshire Elevation: 1073 ft / 327 m	Observed at: Mt. Washington, New Hampshire Elevation: 6266 ft / 1910 m
 -3 °F / -19 °C Clear	 -24 °F / -31 °C Blowing Snow Freezing Fog
Humidity: 62%	Humidity: 100%
Dew Point: -13 °F / -25 °C	Dew Point: -24 °F / -31 °C
Wind: 6 mph / 9 km/h / 2.6 m/s from the WSW	Wind: 85 mph / 137 km/h / 38.1 m/s from the West
Pressure: 30.46 in / 1031 hPa (Rising)	Wind Gust: 100 mph / 161 km/h / 44.8 m/s
Windchill: -15 °F / -26 °C	Pressure: - / -
Visibility: 10.0 miles / 16.1 kilometers	Windchill: -73 °F / -58 °C
UV: 0 out of 16	Visibility: 0.0 miles / 0.0 kilometers
Clouds: Clear - (Above Ground Level)	Snow Depth: 4.0 in / 10.16 cm

Data adapted from wunderground.com

1. Scan the data, and explain how it supports Mt. Washington's claim to the "World's worst weather."

2. Explain why there is such a difference in the dewpoint temperature at the summit after a long cold night. (Hint: Where do you think the cloud base was on the mountain over night?)