

SWAC – Weather Balloon Launch

24 July 2009

Overview

What's a Radiosonde

- What is a radiosonde
- What data does it collect
- Why are those data important

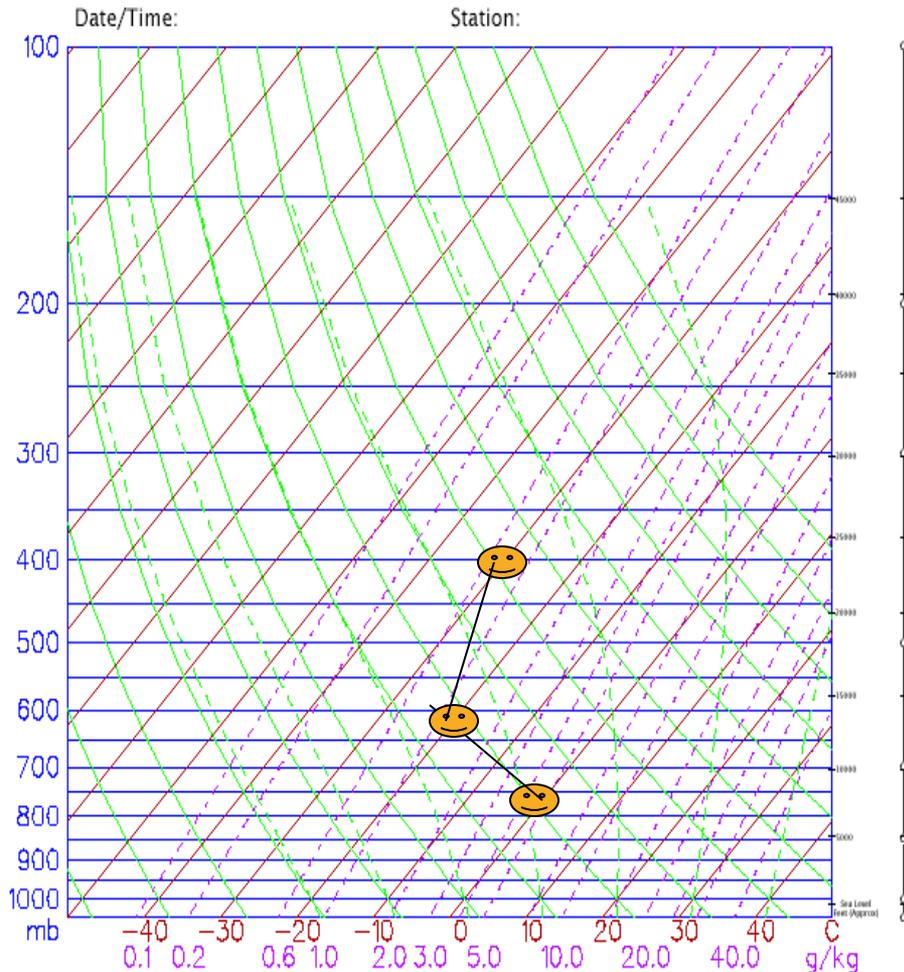


What is a Radiosonde

- balloon carries meteorological instruments aloft (radiosonde)
- temperature, dew point (moisture) and wind are measured at various levels
- when plotted a snapshot of the distribution of these variables in the vertical results
- this plot allows meteorologists to diagnose the atmosphere in the vertical

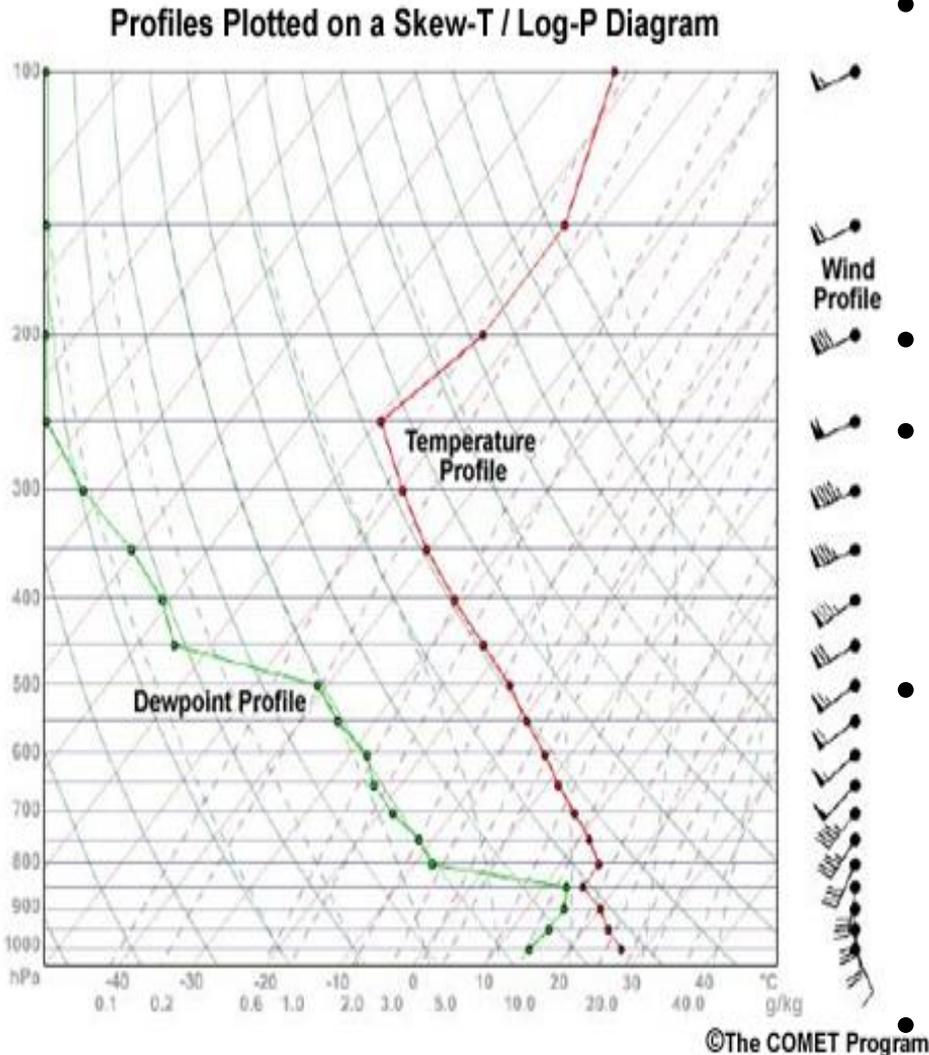


Plotting the data from a radiosonde on a SKEW-T chart



- SKEW-T chart (left) consists of pressure along the “Y” axis or vertical in millibars (MB)
- temperature along the “X” axis (Celsius), are solid red lines lower left to upper right.
- temperature and dew point values are plotted at junction of appropriate pressure and temperature lines.
- for example, the orange dot represents a temperature value of minus 20C at 500 MB pressure level.

What a vertical plot looks like



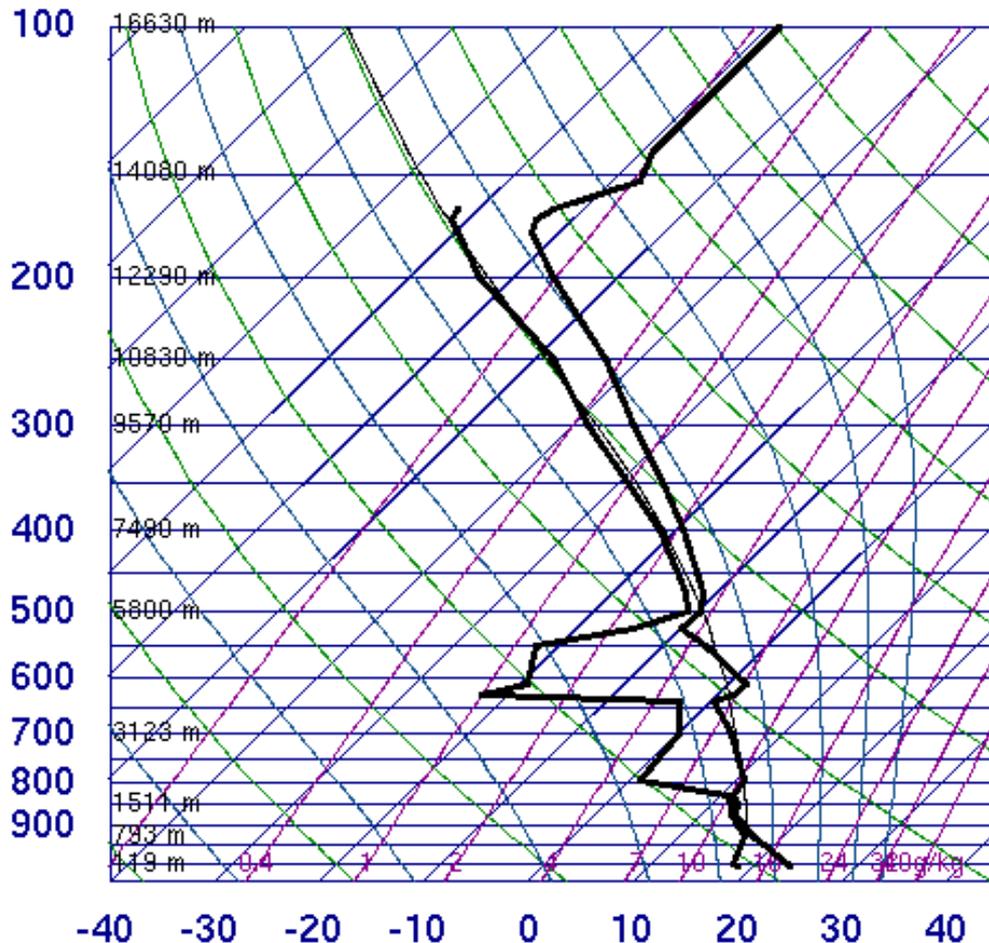
- temperature and dewpoint (moisture) are plotted at appropriate pressure levels
- temperature values - RED line
- dewpoint temperature values - GREEN line.
- the closer together the temperature and dew point, the more moist the air is.
- where the lines are close, clouds are likely

Why these measurements are important

- ***These observations allow us to diagnose the atmosphere similar*** to the snapshot that blood pressure measurements provide
- Without these data...we would be ***limited to observing the atmosphere in one dimension*** (horizontal)
- When coupled with surface weather reports and satellite data, ***we get a 3 dimensional view (horizontal, vertical and time) of atmospheric*** temperature, moisture and wind
- These measurements provide clues assisting the meteorologist in ***understanding and anticipating motion in the atmosphere***

Albany, NY sounding at 8:00pm last night

72518 ALB Albany



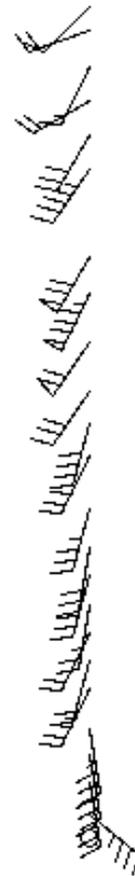
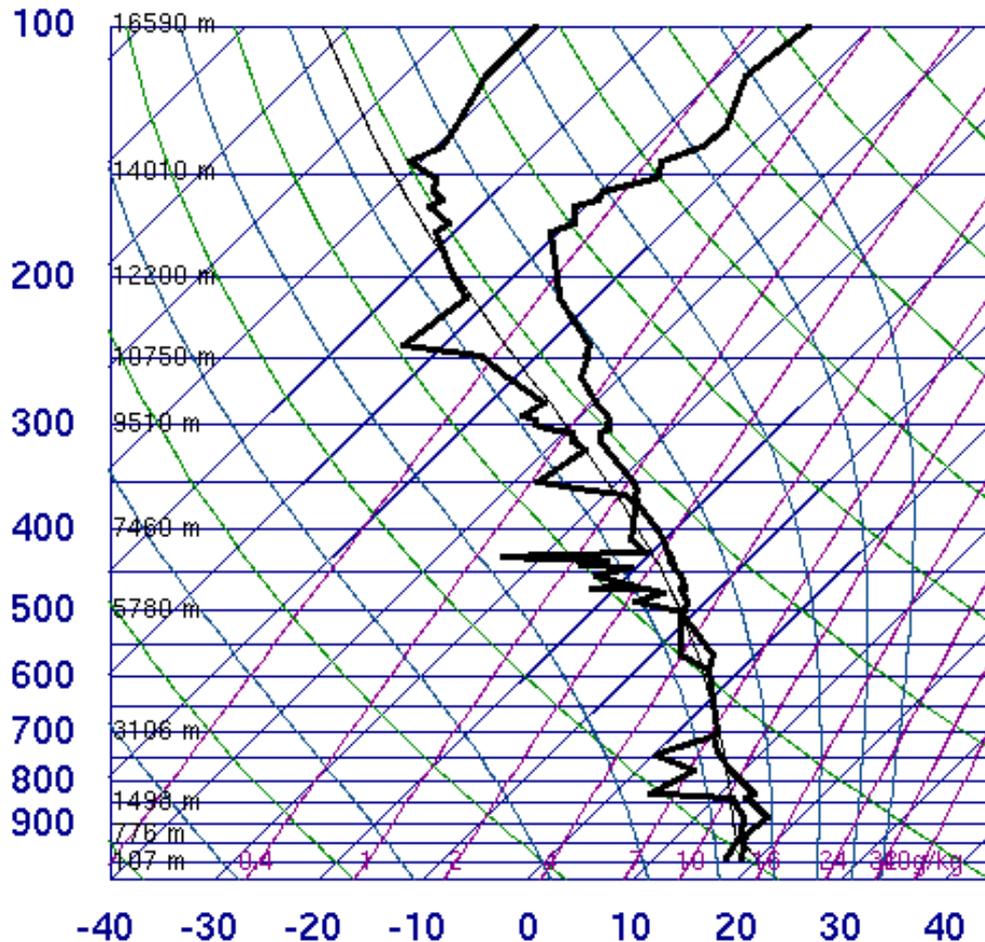
SLAT 42.70
SLON -73.83
SELV 96.00
SHOW 1.54
LIFT -0.27
LFTV -0.33
SWET 209.0
KINX 29.30
CTOT 21.70
VTOT 22.30
TOTL 44.00
CAPE 110.4
CAPV 176.6
CINS -2.64
CINV -2.15
EQLV 492.4
EQTV 490.9
LFCT 911.6
LFCV 914.6
BRCH 2.22
BRCV 3.54
LCLT 289.7
LCLP 924.5
MLTH 296.3
MLMR 13.03
THCK 5681.
PWAT 38.69

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Maniwaki, PQ sounding at 8:00pm last night

71722 WMW Maniwaki



SLAT	46.38
SLOE	-75.96
SELV	173.0
SHOW	-0.92
LIFT	0.42
LFTV	0.40
SWET	237.5
KINX	37.40
CTOT	23.40
VTOT	25.10
TOTL	48.50
CAPE	12.97
CAPV	21.58
CINS	-101.
CINV	-92.2
EQLV	502.5
EQTV	502.5
LFCT	759.6
LFCV	774.0
BRCH	0.17
BRCV	0.28
LCLT	289.4
LCLP	948.2
MLTH	293.9
MLMR	12.45
THCK	5673.
PWAT	40.97

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