

AOSC201: Weather and Climate Lab

Week 2: Surface Weather Maps

Section 103/105

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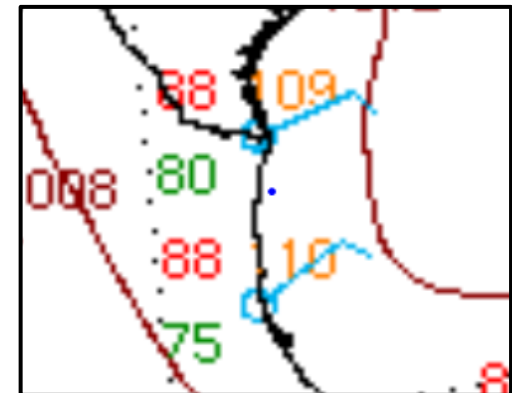
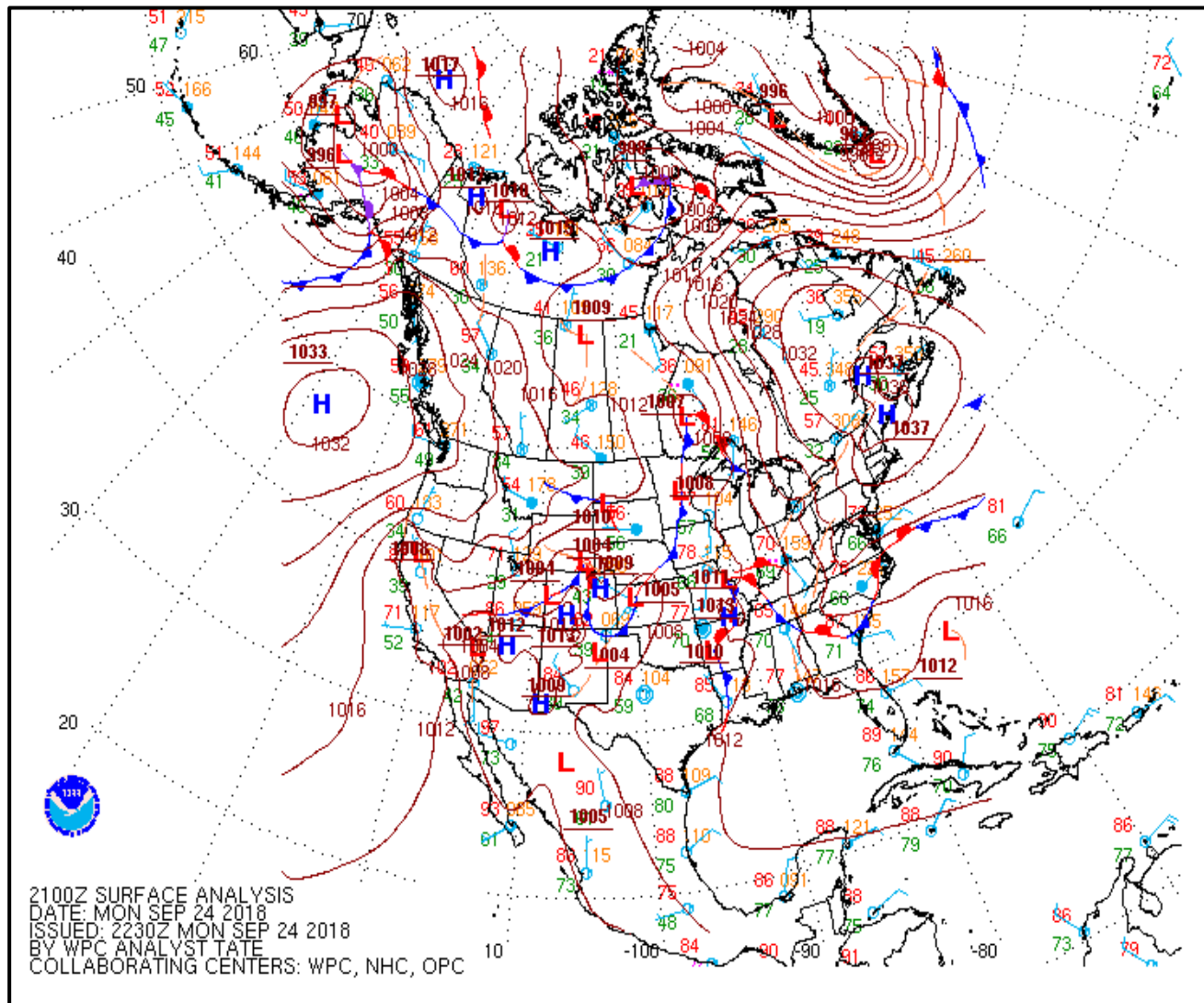


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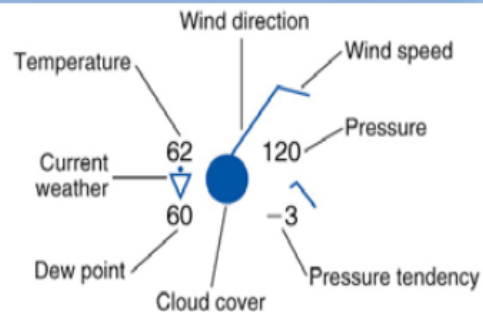
Week 4 Lab: *Surface Weather Maps*

- ❑ Lab#1 of Lab Manual (pages 1-8)
- ❑ 50 points in total
- ❑ INDIVIDUAL Work for the entire lab

Surface Analysis



Weather Station Model



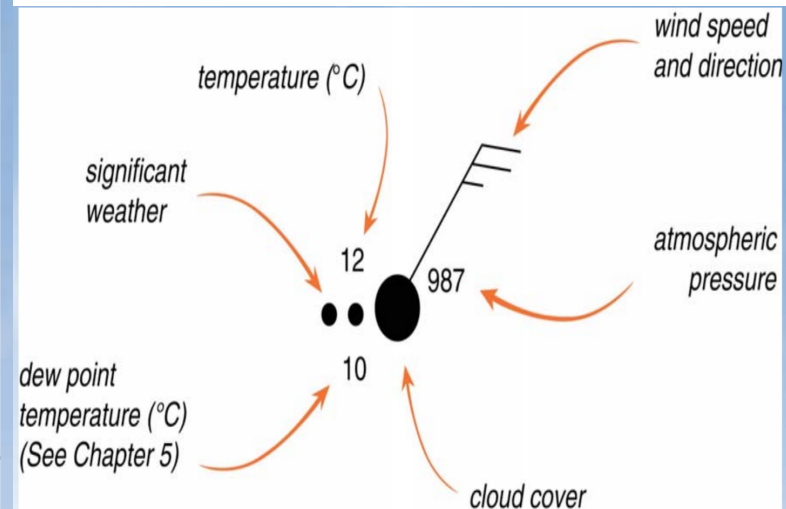
WIND SPEED
miles per hour kilometers per hour

	Calm	Calm
	1-2	1-3
	3-8	4-13
	9-14	14-19
	15-20	20-32
	21-25	33-40
	26-31	41-50
	32-37	51-60
	38-43	61-69
	44-49	70-79
	50-54	80-87
	55-60	88-96
	61-66	97-106
	67-71	107-114
	113-118	182-190
	119-123	191-198

CLOUD COVER

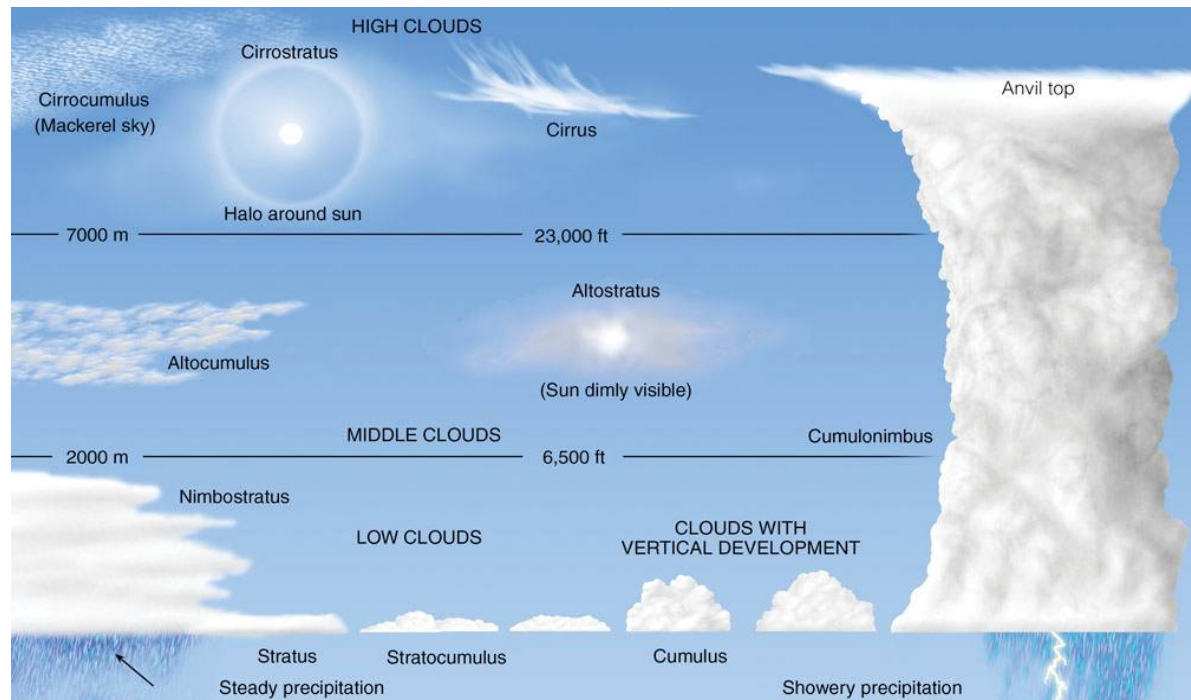
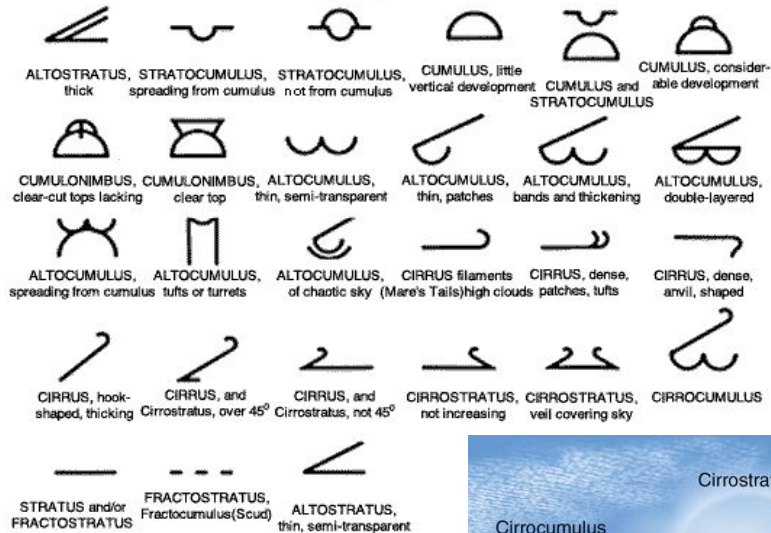
	0% Cloud cover—clear skies
	10% Cloud cover—few clouds
	25% Cloud cover—few clouds
	40% Cloud cover—scattered clouds
	50% Cloud cover—scattered clouds
	60% Cloud cover—broken clouds
	75% Cloud cover—broken clouds
	90% Cloud cover—broken clouds
	100% Cloud cover—overcast
	Vision obscured
	Missing data

RAIN Light Moderate Heavy	DRIZZLE Light Moderate Heavy	SNOW Light Moderate Heavy
Light shower Moderate shower	FREEZING RAIN Light Moderate	Light shower Moderate shower
Thunderstorm Heavy T-storm	OTHER Ice crystals Haze Fog	Ice crystals Ice pellets (sleet)



Types of clouds

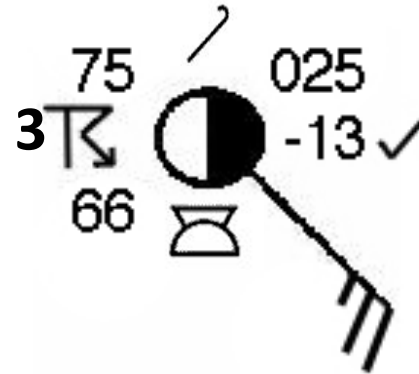
Weather map Symbols for Clouds



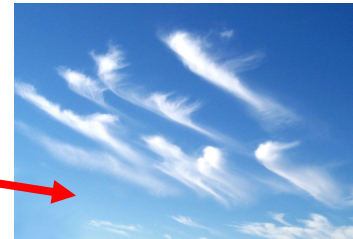
- Prefix:
 - Cirro = high level
 - Alto = mid level
 - Nimbo = involves precipitation

Weather Station Example

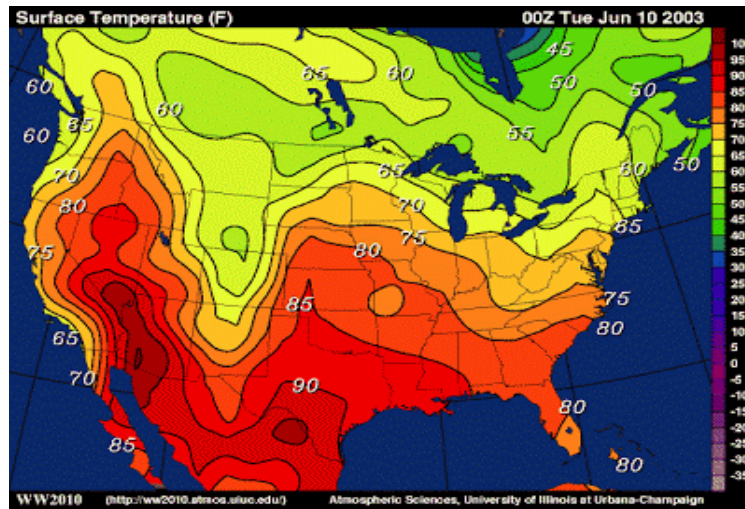
NOTE THE UNITS!
THESE EXACT UNITS MUST BE ON
YOUR LAB TO GET FULL CREDIT



Current Weather: Thunderstorms
Wind Speed: 25 **knots (KT)**
Wind Direction: SE
Temperature: 75°F
Dew Point: 66°F
Pressure: 1002.5 **mb**
Pressure tendency: 1.3 **mb** drop in the last 3 hours
Sky Cover: 50%, or 4/8
Visibility: 3 **miles**
Lower Level Clouds: Cumulonimbus with clear anvil
Upper Level Clouds: Hook shaped cirrus

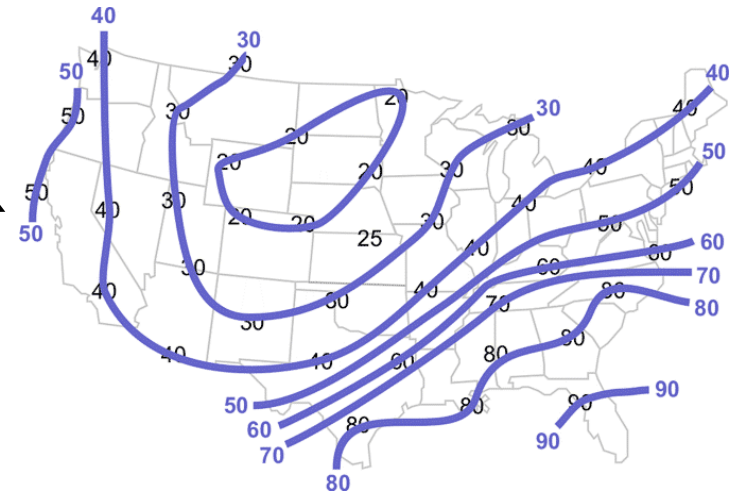


Isotherms



Maps with isotherms are often presented like this

Your isotherms will look like this (each isotherm line will be colored)



Week 4 Lab: Surface Weather Maps

Question 1 (10 points) Directions:

- **Reference** Figures 1 and 2 in the first two pages of the lab for descriptions of all weather map symbols.
- You should mention a total of 12 parameters – *temperature, dew point temperature, wind speed, wind direction, pressure, trend in change of pressure, how much the pressure has changed in the past 3 hours, cloud cover, cloud type (high/mid/low level cloud), visibility, current weather condition*. WRITE proper units.

Week 4 Lab: *Surface Weather Maps*

Question 2 (6 points) Directions:

- <http://weather.weatherbug.com/forecasts/now/college-park-md-20740>
- For pressure, **convert from inches of mercury to mbar** (you can google the conversion – no need to show the math)
- You don't need to write anything for "current weather."

Week 4 Lab: *Surface Weather Maps*

Question 3 (8 points) Directions:

- Complete the weather station model plugging in information from Question #2.
- When it comes to **cloud cover**, you don't have to be as specific as figure 1 suggests you should be. Think about how much you should fill in the circle for partly cloudy, mostly cloudy, clear, or overcast.

Skip Question 4.

Week 4 Lab: Surface Weather Maps

Question 5 (20 points) Directions:

- **DO NOT USE THE MAP IN THE LAB MANUAL.** Use the one that I handed out.
- On this map, **draw and label isotherms** (*lines of constant temperature*) at 10°F intervals – 50°F, 60°F, 70°F, and 80°F.
- Remember which number is temperature on a station model (don't mix it up with dew point). Also, remember that the isotherms cannot intersect each other.
- Please label your isotherms (so we know what temperature the lines represent).

Week 4 Lab: *Surface Weather Maps*

Question 6 Directions:

- On the map you just used for number 5, indicate the **highest** and **lowest** temperature by marking each with a **H** or a **C**.

Skip Question 7.

Week 4 Lab: *Surface Weather Maps*

Question 8 (2 points) Directions:

- Be sure to give me the CHANGE in pressure, not just the new pressure
- **WRITE units.**

Question 9 and 10 (2 points each) Directions:

Hint: Look at the date for Figure 5 on page 8 of Lab Manual. What notable weather event happened on that day?

*Thank
you*

A golden fountain pen nib is positioned at the end of the word 'you', as if it has just finished writing it.

Questions ?