

Intro to Meteorology

Teamwork Fall 2020

(11/17/2020 2:30-4:00 pm; online)

Questions

Part I) Multiple Choice (10 questions, each 5 points)

Identify the letter of the choice that ***best*** completes the statement or answers the question.

- _____ 1. The main advantage of infrared satellite imagery is that
 - a. It has better resolution.
 - b. It shows thunderstorms better.
 - c. It shows all levels of the atmosphere.
 - d. It allows you to see clouds during the night as well as during the day.

- _____ 2. The purpose of launching a weather balloon is to
 - a. Gather information about the upper atmosphere.
 - b. Get information about upper-level winds.
 - c. Get information about upper-level temperature.
 - d. All of the above.

- _____ 3. When a cold front passes, we will experience
 - a. Warm advection
 - b. A wind shift from S to NW.
 - c. Light winds
 - d. Southerly winds

- _____ 4. The lines on a 500 mb map represent
 - a. Temperature
 - b. Pressure
 - c. Humidity
 - d. Height of the surface

- _____ 5. You are at a weather station, and you observe that the pressure is decreasing rapidly. What kind of weather would you expect?
 - a. Clear skies
 - b. Calm winds
 - c. Possible stormy weather

_____ 6. In a satellite image, the brighter white patches mean

- a. Sunny skies
- b. Low cloud tops
- c. High cloud tops
- d. High winds

_____ 7. If the wind is very strong from the South, you are likely experiencing:

- a. Warm advection
- b. Cold advection
- c. No advection

_____ 8. If you see a line colored blue with triangles on a surface analysis, this line is depicting a

- a. Warm front
- b. Occluded front
- c. Cold front
- d. High pressure

_____ 9. Orographic lifting means that air is being lifted due to

- a. A front.
- b. Differential heating.
- c. The sea breeze.
- d. A mountain range.

_____ 10. I am told that there is a High pressure overhead. I can expect

- a. Stormy weather
- b. Cloudy skies
- c. Clear skies, and fair weather
- d. A hurricane

_____ 11. On a 500 mb map, higher heights mean

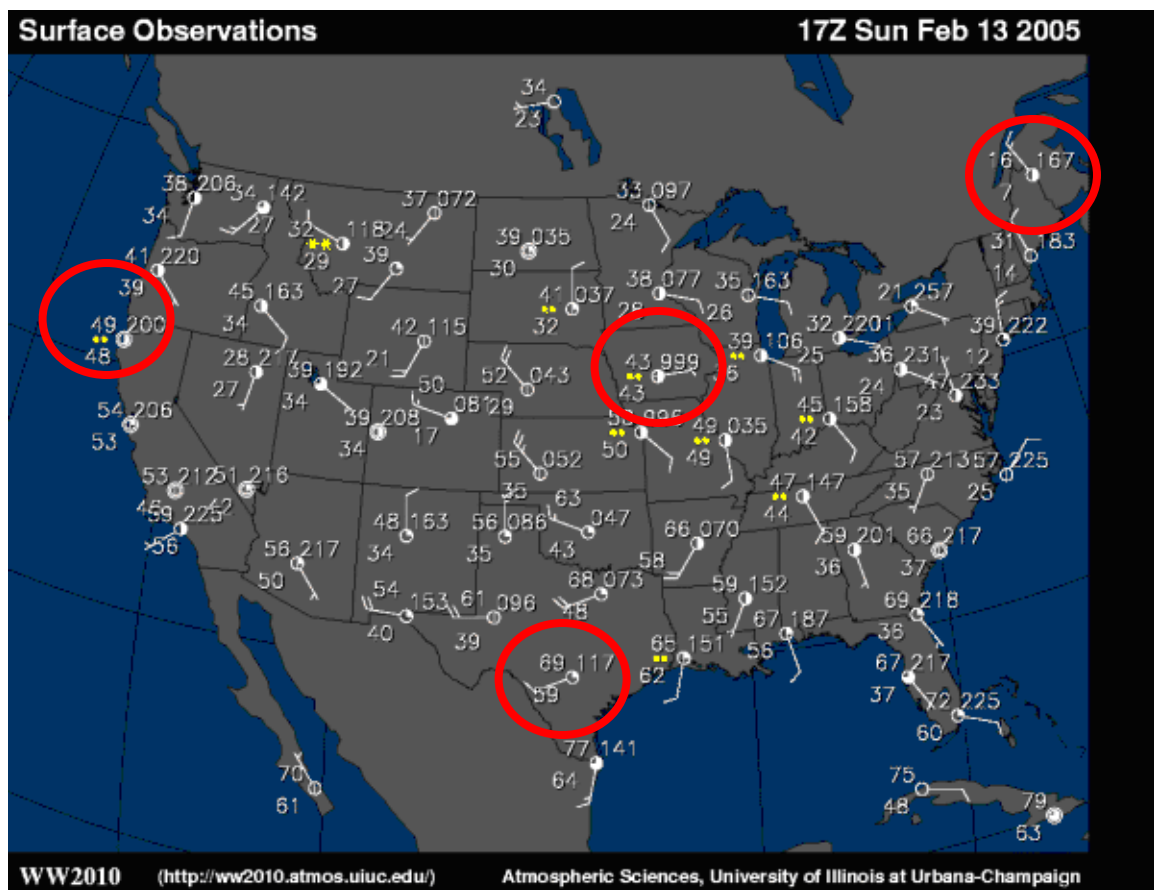
- a. Stronger winds
- b. Weaker winds
- c. Warmer temperatures
- d. Cooler temperatures

Part II) Station model (6 questions, each 5 points)

Using the surface weather map below, compare the station data from the four circled stations in Texas, California, Iowa, and Maine. Complete the table to list all the information given at the four stations and answer the following questions:

	Texas	California	Iowa	Maine
Cloud cover				
Wind speed				
Wind direction				
Air pressure				
Temperature				
Dew Point				

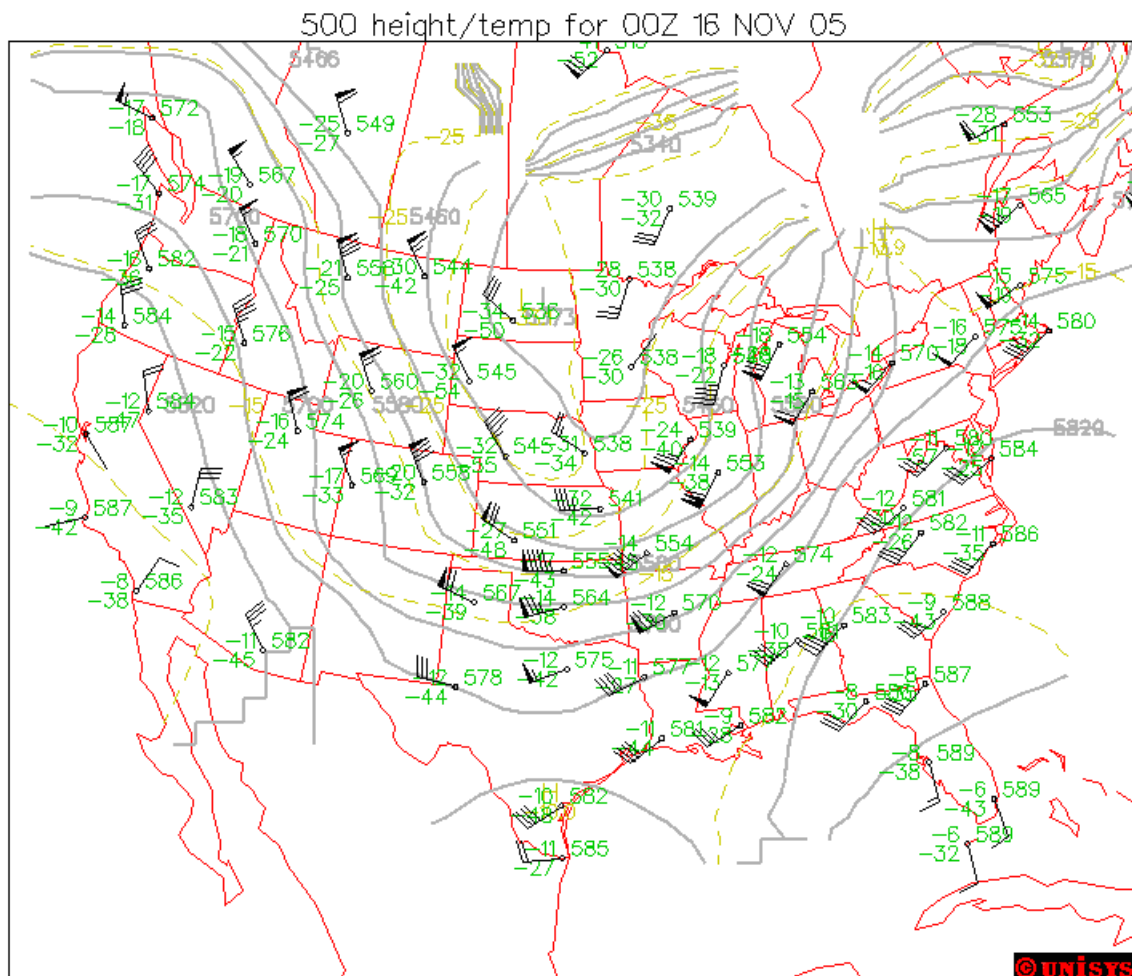
- 1) Which station had the highest pressure?
- 2) Which one had lowest pressure?
- 3) Which one had highest temperature?
- 4) What station had the weakest wind?
- 5) What station had the least cloud cover?
- 6) What station had the most humidity?



Part III) Contour analysis (4 questions, each 2 points)

Analyze the 500 mb map analysis below.)

- 1) What is the prominent feature on the map below(circle answer)?(trough, ridge)
- 2) Looking at this map, what state has the highest temperature at 500 mb? (Florida)
- 3) What kind of advection are they experiencing in the Rocky Mountains?(cold, warm)
- 4) What kind of advection are they experiencing on the East coast?(cold, warm)



Part IV) Satellite and radar images

1) Use the following visible, infrared satellite images and the radar image
(5 questions, each 2 points)

- a) Describe cloud cover conditions for continental US
- b) What is the main difference between the visible and infrared images? Why do you see these differences?
- c) Describe precipitation in the US.
- d) Compare the satellite images with the radar image. What type of pressure system do you think is causing the precipitation?
- e) What type of front do you see

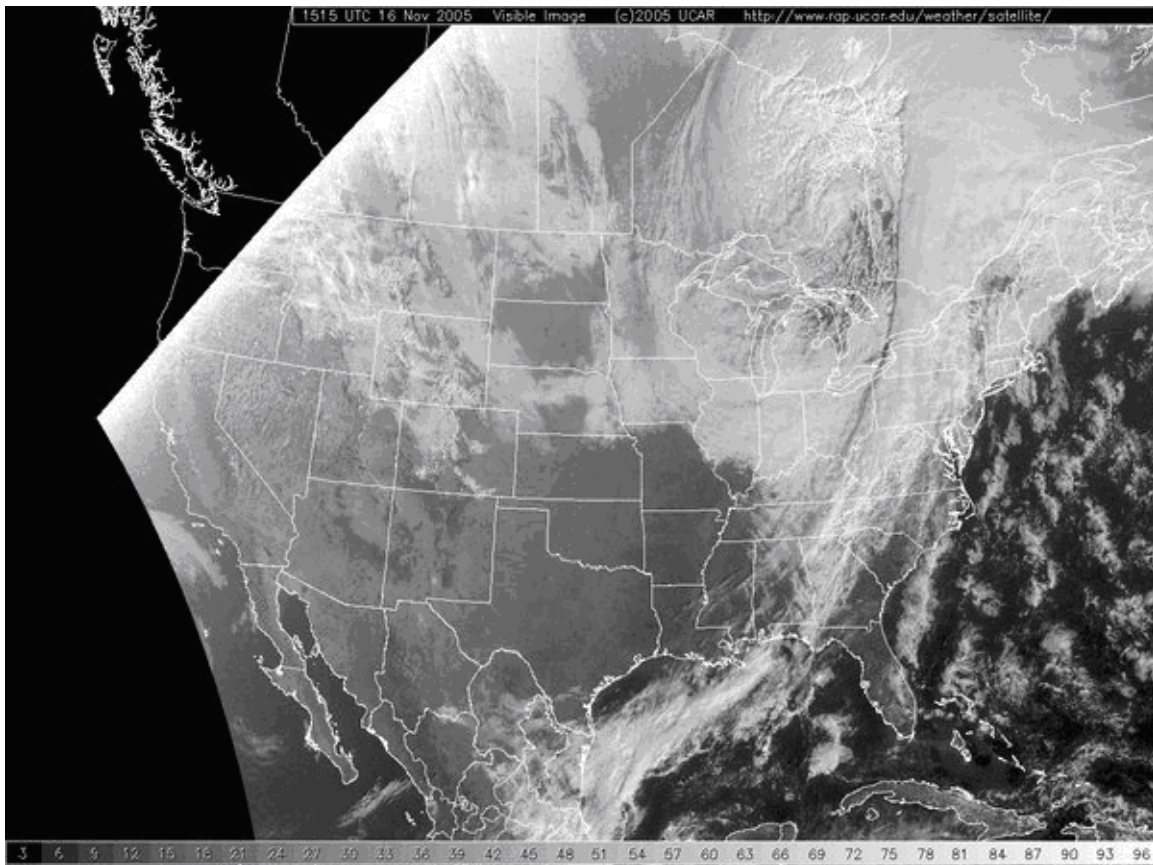


Fig. 1a. Satellite visible image

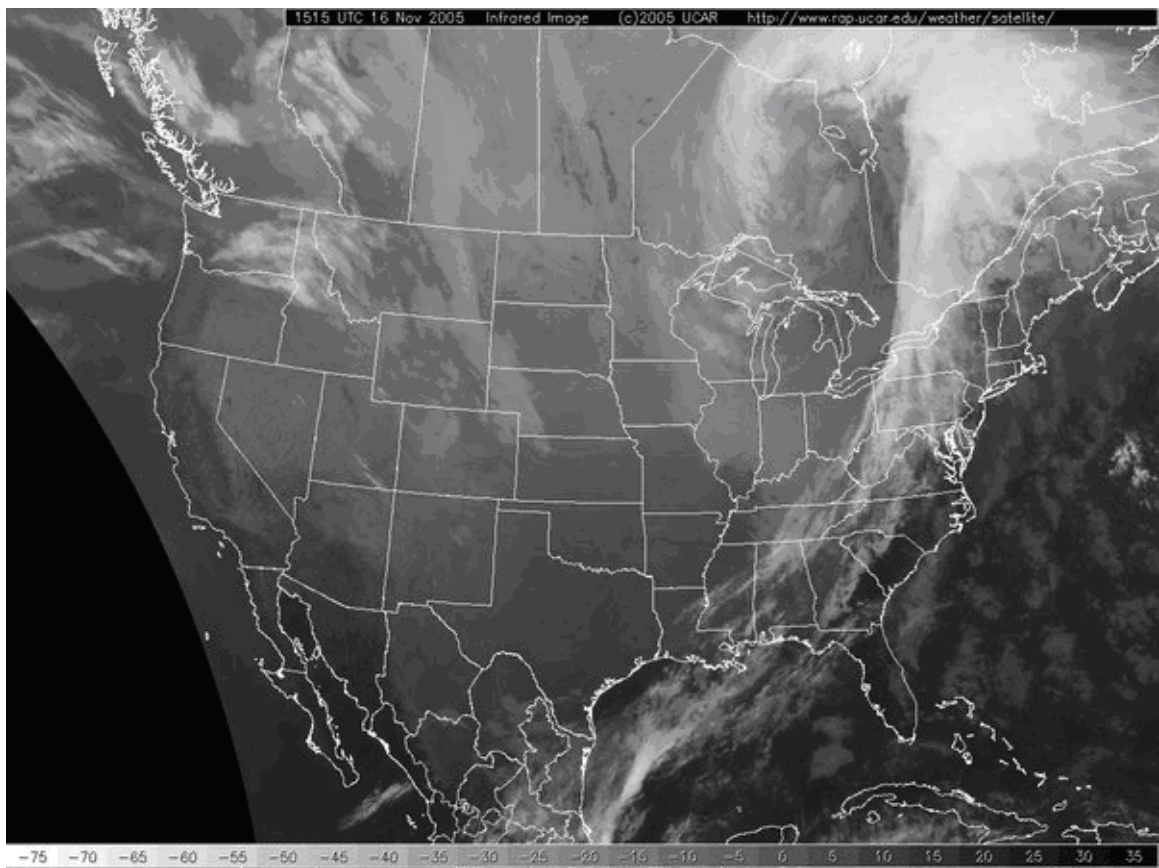


Fig. 1b. Satellite infrared image

**RADAR REFLECTIVITY FROM RADAR CODED MESSAGES
METEOROLOGICAL DEVELOPMENT LABORATORY
NATIONAL WEATHER SERVICE
AP/CLUTTER EDITING APPLIED
NOV 16, 2005 15:20 UTC**

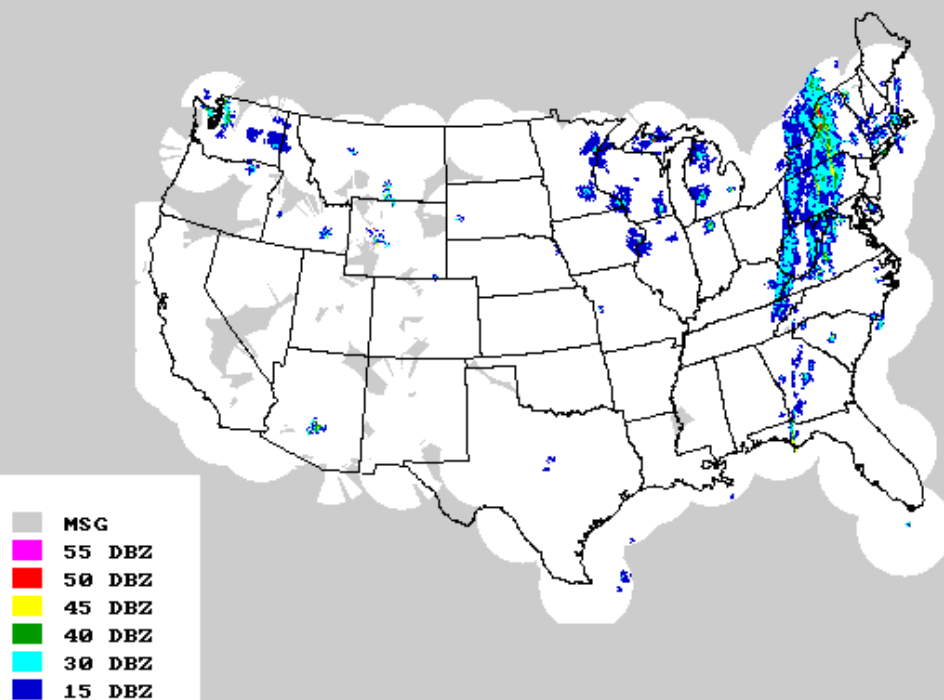


Fig 1c. Radar image

2) Refer to the radar diagrams below(circle your answer).
(3 questions, each 5 points)

- a) The radar detects motion TOWARD the radar at position 1 2 3 4 5.
- b) The radar detects motion AWAY from the radar at position 1 2 3 4 5.
- c) The radar does not detect motion at position 1 2 3 4 5.

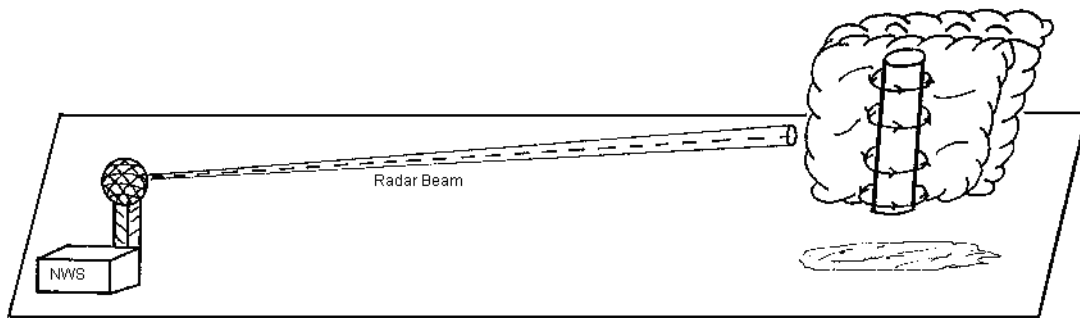


Figure 1a. Side view.

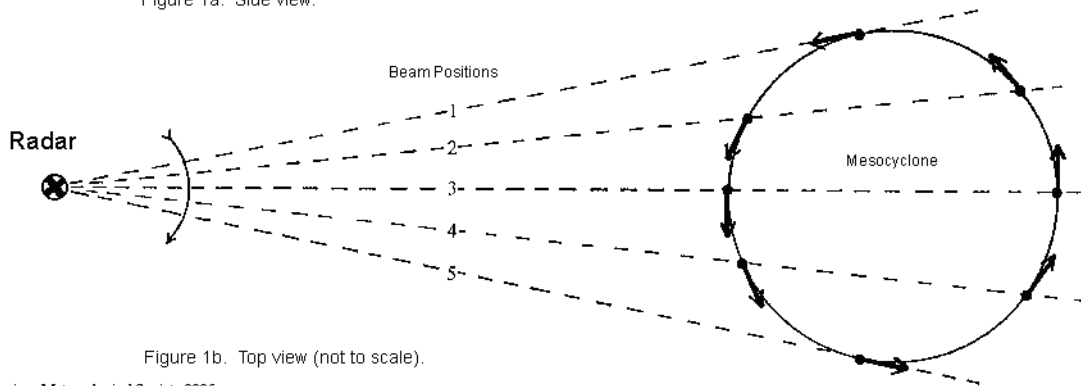


Figure 1b. Top view (not to scale).