

Name _____

Date _____

Unit 6: Meteorology

Lab: Synoptic Meteorology *(Map A/B only)*

Introduction: The study of energy interactions within the atmosphere leads to the identification of systems that can be mapped as field quantities. A series of composite maps showing these atmospheric variables provides a picture of past and present conditions. Such a composite map is called a "synoptic" map. Weather forecasting is based on a series of synoptic maps.

Objective: You will construct field maps and learn to identify patterns that can be used to predict weather.

Procedure A:

- On Map A use a pencil to lightly draw isotherms at a 10-degree interval.
- Check carefully to be sure that the isotherms are correct, then darken them.

Discussion Questions:

1. How does temperature change from north to south on this map?
2. Near which cities is the temperature gradient the greatest?

Calculations:

1. Calculate the temperature gradient between Galveston and Kansas City. SHOW ALL WORK AND LABEL YOUR ANSWER WITH PROPER UNITS.
2. Calculate the temperature gradient between Cincinnati and Chicago. SHOW ALL WORK AND LABEL YOUR ANSWER WITH PROPER UNITS.

Procedure B:

- On Map B use a pencil to lightly draw isobars connecting points of equal atmospheric pressure. Use a 4-millibar interval starting with 1000.0 mb (station code = 000).
- Check carefully to be sure that the isobars are correct, then darken them.
- Label the centers of High and Low pressure areas using a capital H and L respectively.

Discussion Questions:

1. What is the lowest air pressure on this map? _____
2. Near which city is the low pressure center located? _____
3. What is the highest air pressure on this map? _____
4. Near which city is the high pressure center located? _____
5. As you travel from Salt Lake City to Los Angeles, what change in atmospheric pressure would you observe?

Calculations:

1. Calculate the pressure gradient between Galveston and Little Rock. **SHOW ALL WORK AND LABEL YOUR ANSWER WITH PROPER UNITS.**

