

Surface map analysis tips

1. In most cases, winds are calm at the center of a high. In fact, this is a mathematical requirement from dynamics.
2. Isobars must be “kinked” cyclonically at fronts, since a front is a first-order discontinuity
3. Locate highs and lows, and draw these first.
4. Winds will blow “cross-isobaric” towards lower pressure, and away from high pressure.
5. Areas with a dewpoint difference but weak shifts in winds and weak temperature gradient are dry lines.
6. Keys to finding fronts
 - a. Large temperature difference. Temperature gradient is typically on the poleward or westward side of fronts (unless its “backdoor front” coming from the east), and hence the isotherms are “packed” in these regions.
 - b. Change in pressure tendency
 - c. Cyclonic shift in wind speed and/or direction
 - d. Change in dewpoint
 - e. Lowest pressure occurs along the front
 - f. Sometimes a region of “weather”: precipitation, fog, clouds, etc. But, sometimes it’s the passage of a new air mass with a change in temperature, wind, and dewpoint with no precipitation. It depends on the dynamics and thermodynamics of the situation.