

ATM 311

Hurricane Ike: Extra-Tropical Transition

Name: _____

You have given three maps, some with multiple copies:

Map #1: Surface observations, 0700 UTC, 13 September 2008

Map #2: Surface observations, 1100 UTC, 14 September 2008

Map #3: 300-mb height (m), temp (°C) and wind (kt), 1200 UTC, 14 September 2008

* On Map #1, contour isobars every 4 mb in multiples of 4. At this time, Ike had a minimum sea level pressure of approximately 951 mb, and was located just off the coast of Galveston, Texas. Remember not to contour isobars where there is no data.

* On one copy of Map #2, contour isobars every 4 mb and label any fronts, lows and highs.

* On another copy of Map #2, contour isotherms every 5° F in multiples of 5. Shade (or circle) the *strongest* WAA areas in red, and the *strongest* CAA areas in blue.

* On Map #3, contour isoheights every 90 m in multiples of 90. Also, contour isotachs in a different color every 20 knots, starting with 50 kts (i.e., 50, 70, 90, 110, etc.).

After you've analyzed each map, answer the following questions:

1. In Map #1, where is the strongest pressure gradient in relation to the hurricane?

2. In Map #1, describe the temperature distribution in the vicinity of the hurricane.

3. What are some signs that Ike has gone through an extratropical transition by the morning of 14 September?

4. Are there any regions of frontogenesis in Map #2? Where? How can you tell?

5. What feature on Map #3 likely led to the rapid extratropical transition of Hurricane Ike? How did this process occur?

6. Map #2 and Map #3 are at almost identical times. Where is the cyclone at the surface in relation to the upper-tropospheric jets? What does this say about the future of the cyclone at this point?

7. How might Hurricane Ike have helped to create (or amplify) the upper-tropospheric ridge over the eastern United States at 1200 UTC 14 September 2008?