ATM 211
Stability Exercise

Name: _______________________________________

On the course website are the following three soundings (note the surface-based parcel path in a thick light grey):

Sounding 1: Birmingham, AL. 0000 UTC, 28 April 2011
Sounding 2: Jackson, MS. 1200 UTC, 28 April 2014
Sounding 3: Davenport, IA. 1200 UTC, 29 June 2012

1) In which of the three soundings is deep convection (e.g., thunderstorms that reach the equilibrium level) least likely at the time the radiosonde was launched? (Hint: Think about parcels lifted from any pressure level in the sounding.) Explain your answer.

2) In which of the three soundings is the surface-based CAPE the highest? What makes this environment so favorable for such high surface-based CAPE?
3) In which of the three soundings is there **no SBCAPE** (surface-based CAPE), but **significant MUCAPE** (most unstable CAPE)? What makes this *environment* so favorable for such high MUCAPE, but no SBCAPE?

4) The sounding for Jackson, Mississippi is “capped”. How might the *environment* change in Jackson throughout the day in order to decrease the strength of the cap (and thus weaken the CINH, which is -224 J/kg)?