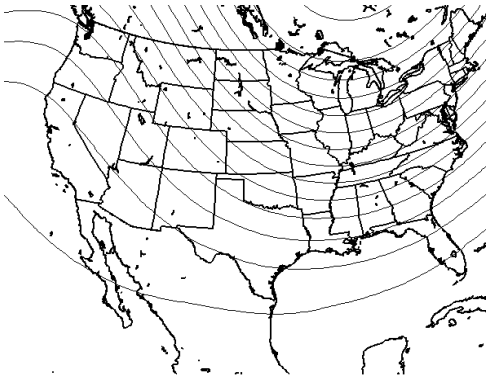
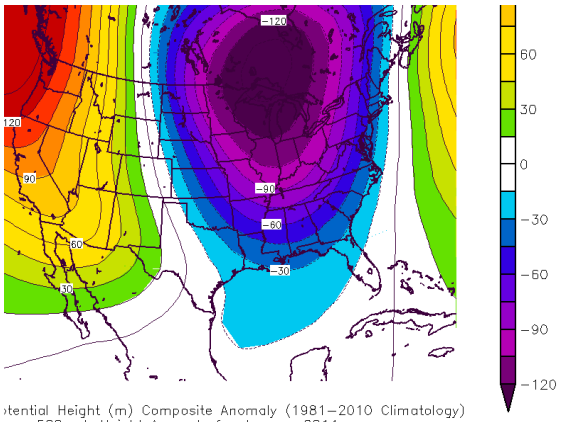
JANUARY 28th – 29th 2014 ICE STORM

January 2014 was an unusually cold month for much of the eastern United States. Upper air patterns with a ridge over the western U.S. and a trough in the east are often associated with below-average temperatures in the east. These weather patterns usually break down after several days, and are followed by a warming trend. This time, however, the pattern remained almost unchanged for the entire month. The chart below (left) was the average upper air pattern for the month of January. The prevailing northwest flow helped steer frigid arctic air from northern Canada southward. Meanwhile the western U.S. was warm and dry. The image below (right) shows just how much this pattern deviated from average. The "colder" colors (purple & blue) show the unusually deep and persistent trough (cold air). The "hot" colors (red & yellow) show the strong high pressure ridge (warm temperatures) in the west.

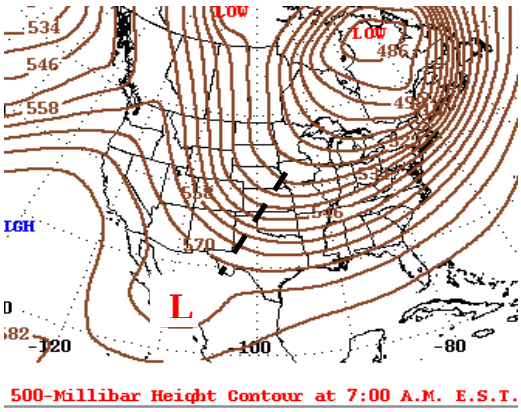


500mb Geopotential Height (m) Composite Mean
Mean 500 mb Heights for January 2014
NCEP/NCAR Reanalysis

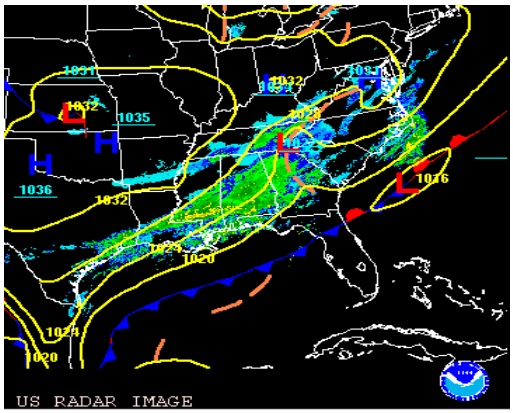


otential Height (m) Composite Anomaly (1981–2010 Climatology)
500 mb Height Anomoly for January 2014
NCEP/NCAR Reanalysis

Most of January was rather dry in the Tallahassee area, as our weather was dominated by dry continental air. However, a subtle change in the weather pattern in late January allowed for a more favorable combination of moisture and cold air that supported freezing/frozen precipitation. On the morning of January 28th there was a trough (black dashed line on image below, left) approaching from the west, with moist southwest flow and rising motion (precipitation) ahead of it over the Southeast.

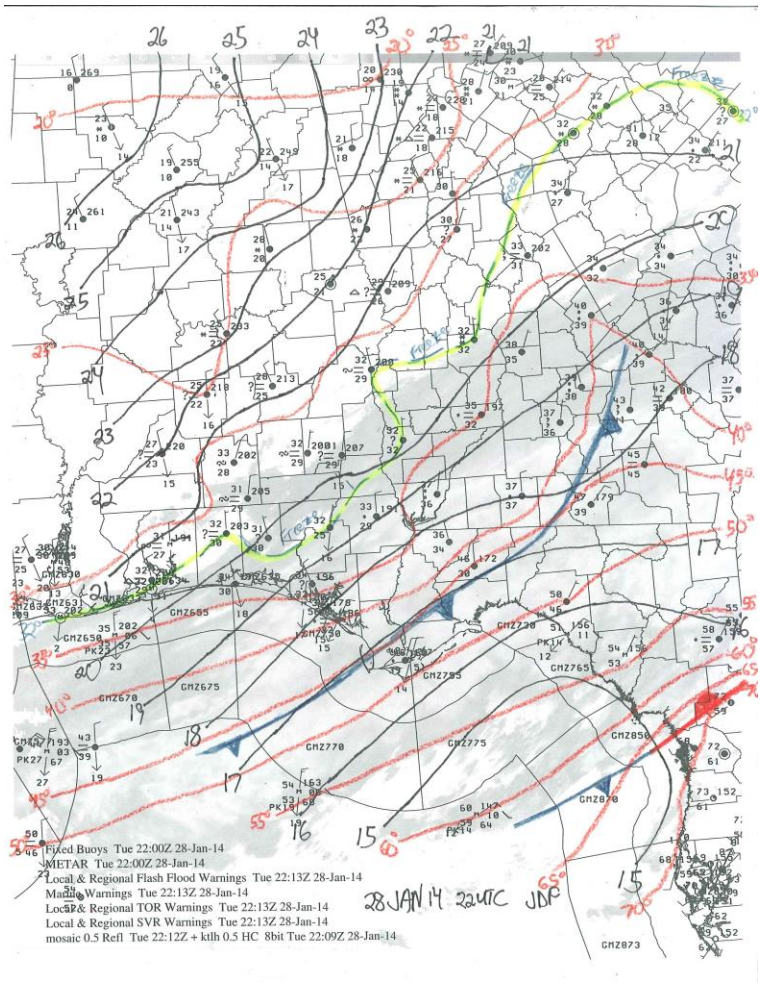


500-Millibar Height Contour at 7:00 A.M. E.S.T.



At the surface (previous page, right), a cold front was stalled across north central Florida and the Gulf of Mexico. However, the deep arctic air was still well north of our region. During in the day, the precipitation changed over to snow and/or sleet in places like Atlanta, Birmingham, Macon, and Mobile, as progressively colder air flowed into the region. This caused major traffic problems, especially in Atlanta.

Late in the afternoon and early evening the rain began to change to freezing rain and sleet in portions of Southeast Alabama, Southwest Georgia, and western portions of the Florida Panhandle. The surface analysis below is "zoomed" in over our local area, and shows the location of the freezing line (highlighted yellow line) in the Florida Panhandle, Southeast Alabama, and extreme Southwest Georgia. There appeared to be a secondary cold front (a fairly common occurrence when arctic air moves southward) that helped accelerate the advance of the cold air and changeover to freezing/frozen precipitation during the evening.



During the night (January 28th – January 29th) the cold air continued to spread south and east. By the morning of January 29th, many locations in our forecast area had changed to either freezing rain, sleet, or a mix, including Tallahassee. Much drier air in the mid to upper atmosphere overspread Southeast Alabama and Southwest Georgia. This caused the precipitation to end there during the morning hours. However, light wintry precipitation lingered across the Florida Big Bend throughout the day, as the upper level trough continued to approach from the west (seen next image). The combination of the unusually cold air and thick clouds prevented many locations from getting above freezing…a very rare occurrence in the Deep South.

The Wednesday morning surface chart below (including a composite radar image) shows the main cold front finally on the move again through South Florida, while high pressure and very cold, dry air continued to infiltrate the Gulf Coast Region. This precipitation tapered off during the evening (bottom image) as the atmosphere dried out. Although most of the sleet/snow/freezing rain accumulations across the region were only a "trace" (i.e. not measurable), several roads were closed, including a large stretch of Interstate-10 in the Florida Panhandle.