

## Tropical Forecast Discussion for September 23, 2010

### Synoptic Overview:

At 1500UTC, 23 September, there were only two tropical systems of interest in the Atlantic Basin. Tropical Depression Lisa (PGI45L) was still meandering within weak steering in the eastern Atlantic and PGI46L/AL95 was briskly moving west in the Caribbean Sea. Lisa was forecast to move slowly to the NW over the next couple of days without gaining much intensity while PGI46L/AL95 was much more organized and identified by NHC in the tropical outlook as having a 80% chance of developing into a tropical cyclone and probably would be upgraded to TD15 or TS Matthew this afternoon.

Synoptic features included a broad and moderately-strong ridge centered over the western Atlantic extending across the Gulf of Mexico and a weak trough over the eastern Atlantic, north of 25° latitude (Fig.1). Weak ridging was prevalent south of 25° N. The ridge in the western Atlantic was steering AL95 to the west while the combination of the weak trough and ridging in the eastern Atlantic was responsible for the slow motion of TD Lisa.

Fig. 1: Surface synoptic analysis of the Atlantic basin at 1500 UTC 23 September.

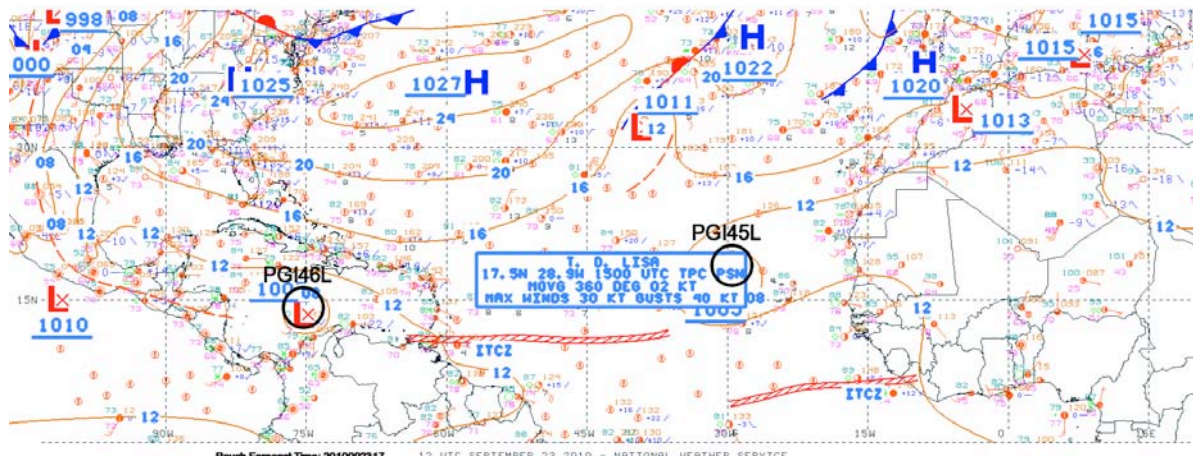
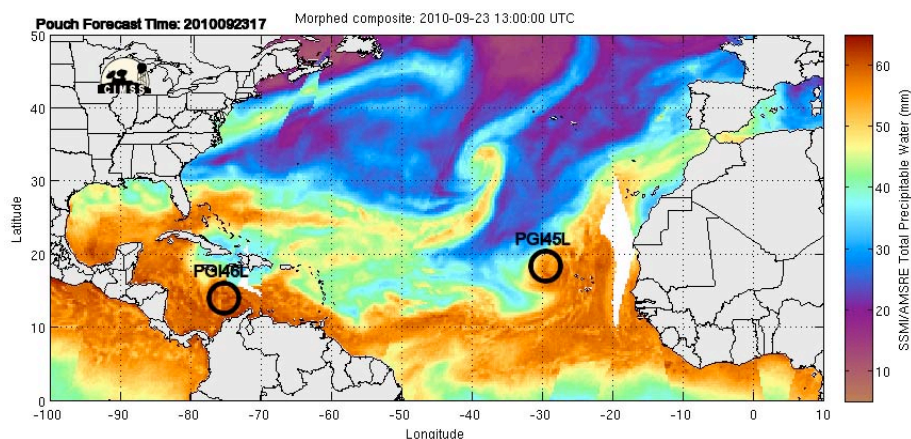


Fig. 2: TPW image of the Atlantic basin



### Tropical Depression Lisa (PGI45L):

NHC downgraded TS Lisa to a depression last night. Lisa continued to struggle because of a combination of moderate shear and dry air (Fig. 2). Only small areas of moderate convection near Lisa's center were able to maintain the vortex (Fig. 3). Lisa was located within weak steering currents and was expected to meander for another 12-24 hours before resuming a low NW track (Fig. 4). Lisa might regain TS status but was not forecast to strengthen much further.

Fig. 3: Visible Satellite image of TS Lisa

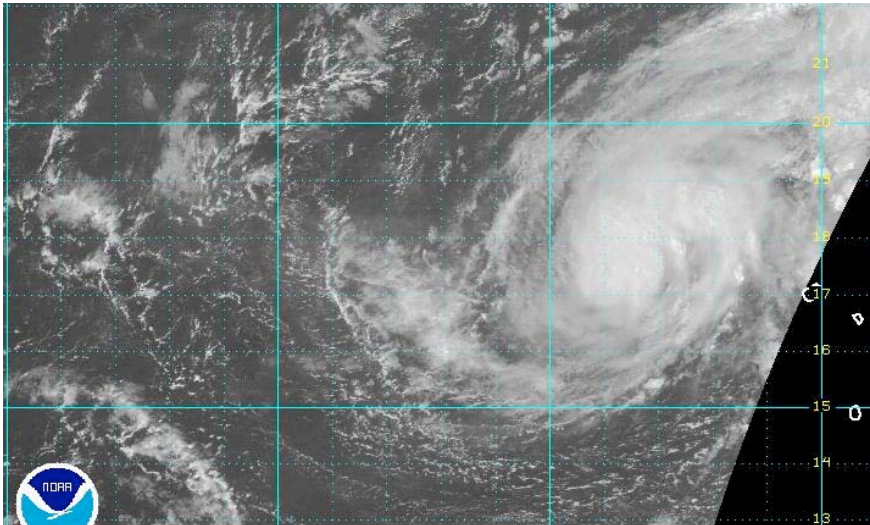
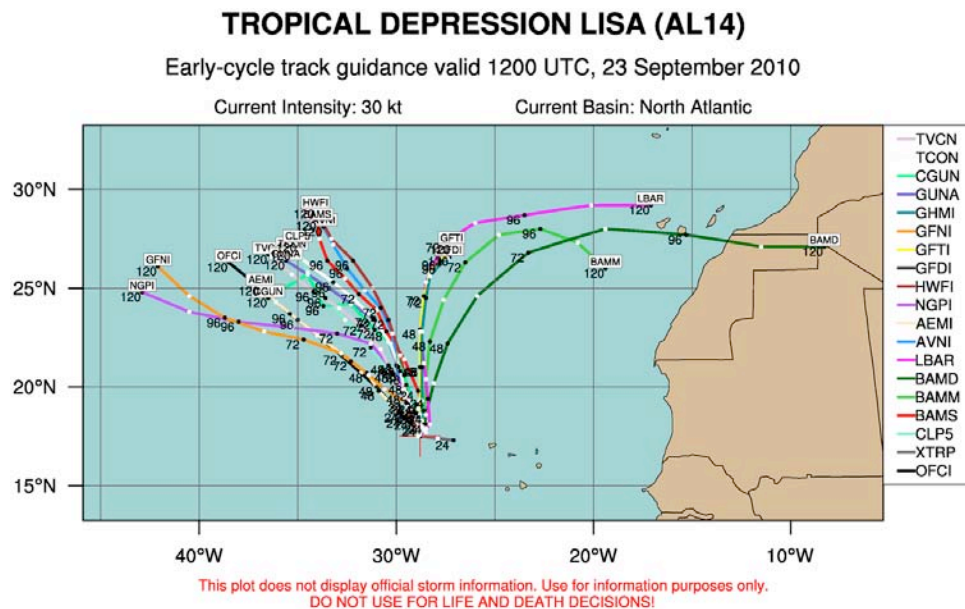


Fig. 4: 1200 UTC track guidance for TD Lisa





PGI46L/AL95:

PGI46L was becoming much more organized and appeared to be very close to becoming a depression as it moved westward at 15 kt in the central Caribbean. Visible (Fig. 5) and infrared (Fig. 6) satellite imagery revealed some areas of scattered convection but also convection that was exhibiting significant banding.

Fig. 5: Visible satellite image of PGI46L/AL95

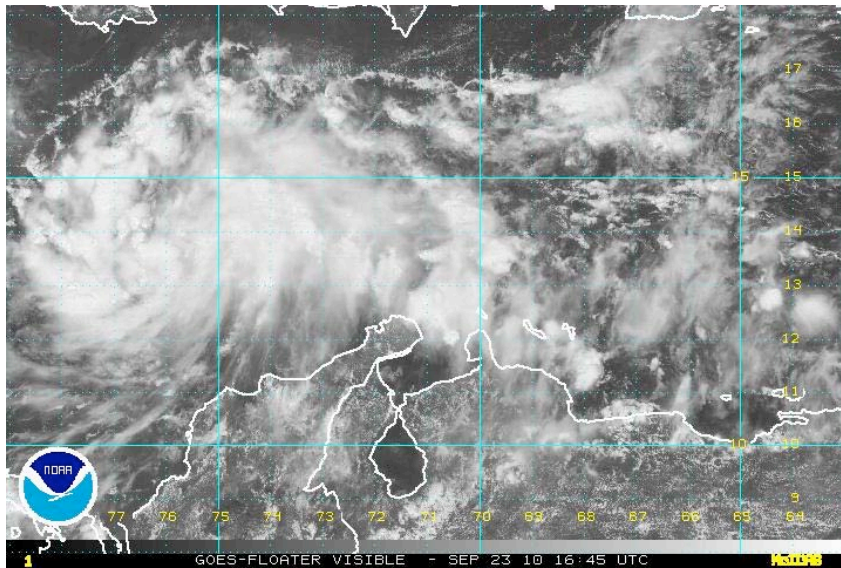


Fig. 6: IR satellite image of AL95

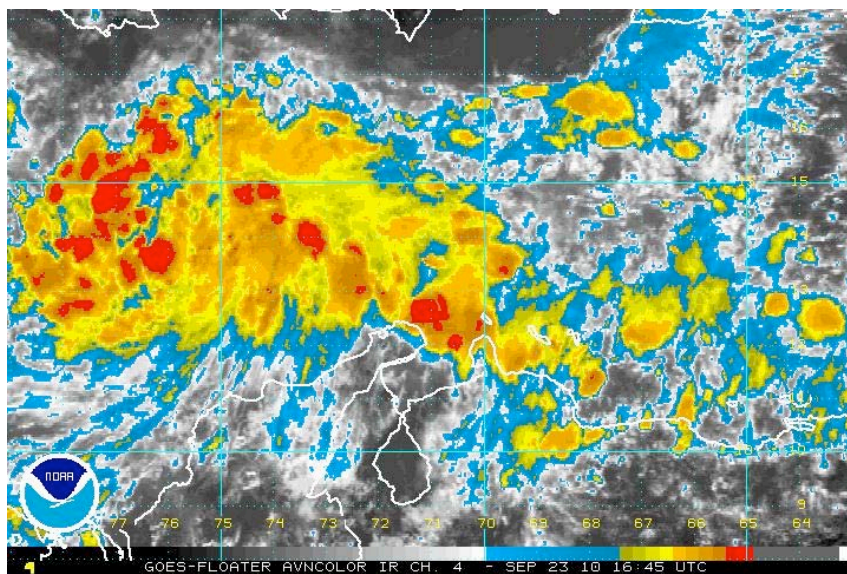
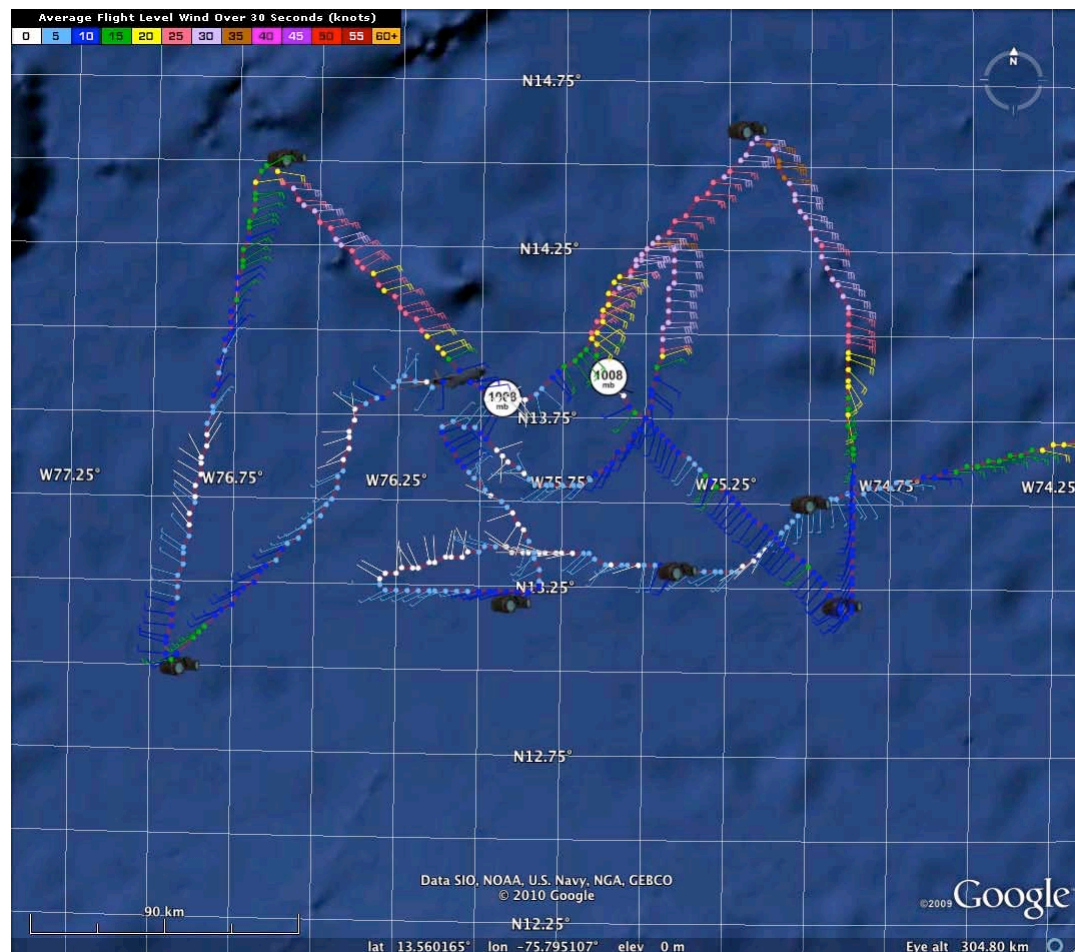


Fig. 7: 1500 ft flight-level winds from an Air Force invest mission into AL95.



The Air Force was currently flying a low-level invest mission into AL95 and found a weak, broad, closed circulation with a minimum central pressure of 1008 mb (Fig. 7). The highest surface and flight-level winds were about 30 kt and the winds suggested multiple, small and weak wind centers within the broader circulation.

Environmental conditions were overall favorable for further developments and strengthening. Water vapor imagery (Fig. 8) showed an upper low in the Gulf of Mexico that was moving westward and was too far away to influence AL95. There was also a small upper low just to the NW of AL95 that might actually be beneficial to AL95 by imparting momentum fluxes at upper levels. The dry air was situated just to the north of AL95 but most, if not all, of the “pouch” of PZGI46L/AL95 was imbedded within a moist environment.

According to the CIMMS analyses, AL95 was located on the eastern side of an upper-level anticyclone with easterly winds of 20-30 kt over the system (Fig. 9). Low-level vorticity had greatly increased over the last 24 hours, there was moderate shear over the convection (Fig. 10), and SSTs (not shown) were 28°-29°C.



Fig. 8: Water vapor image of the Caribbean and Gulf of Mexico.

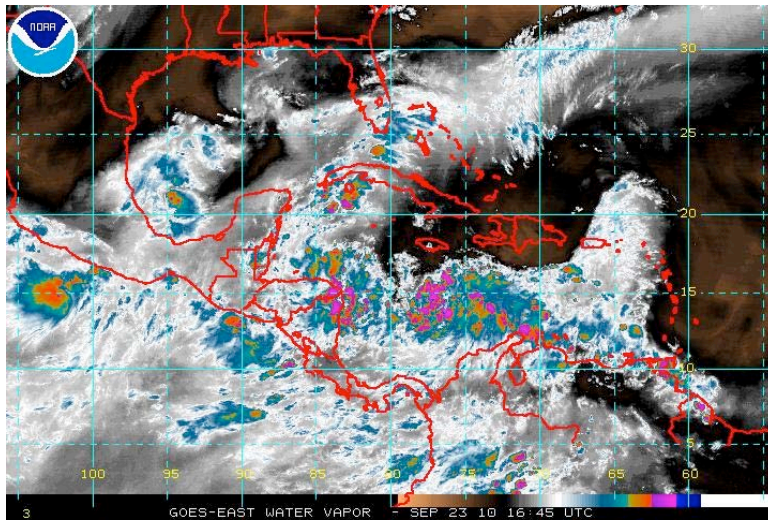


Fig. 9: CIMSS analyses of vorticity and upper-level winds

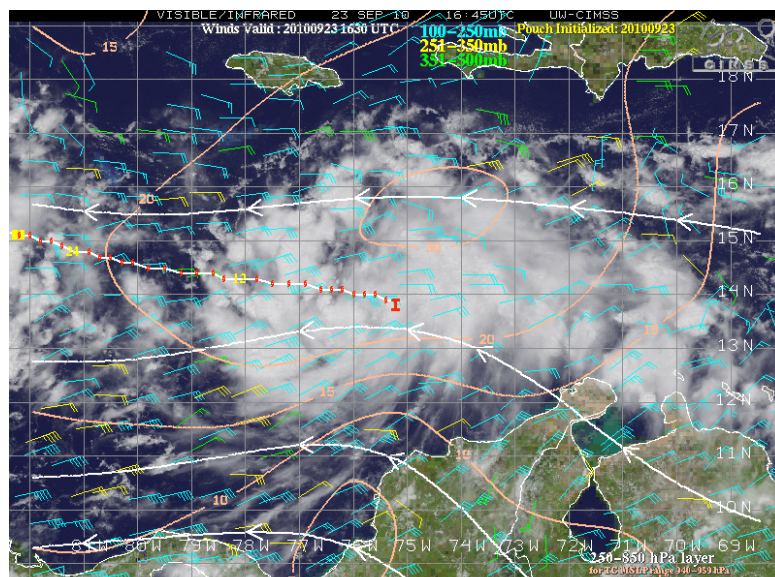


Fig. 10: CIMSS analyses of vorticity and shear

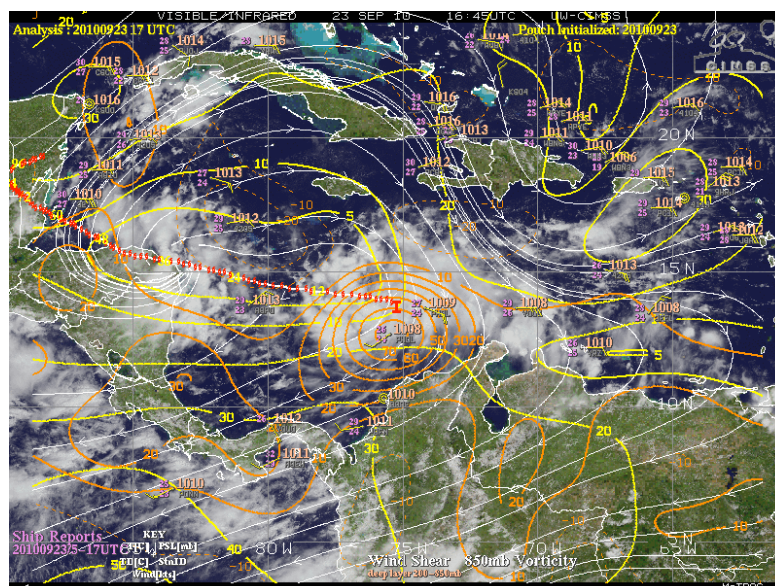


Fig. 11: 1200 UTC intensity guidance for AL95/PGI46L

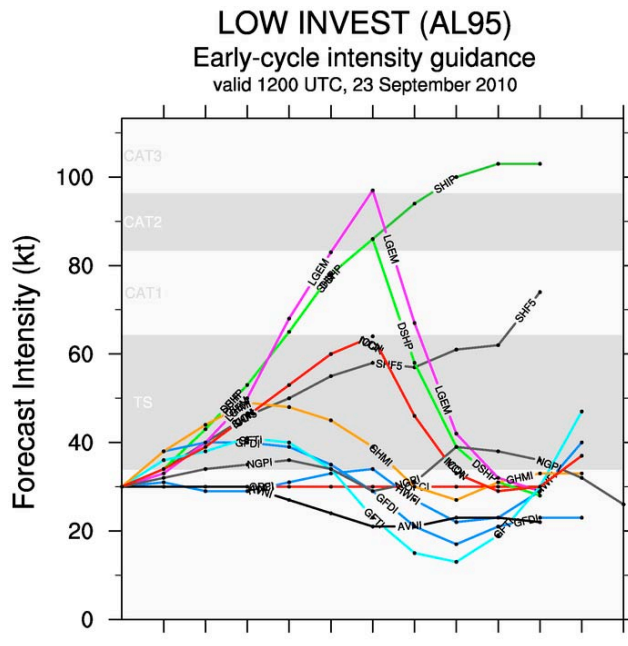


Fig. 12: 1200 UTC track guidance for PGI46L/AL95

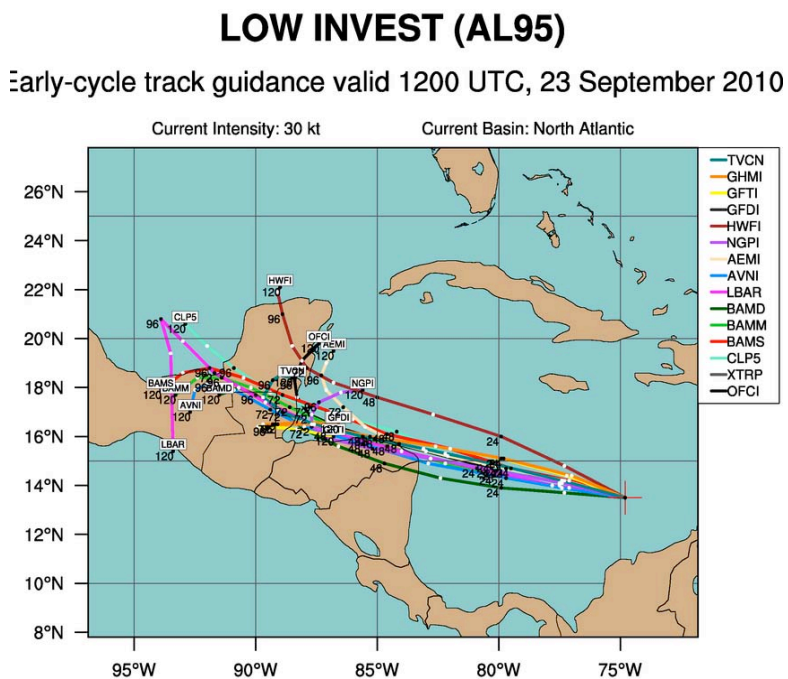
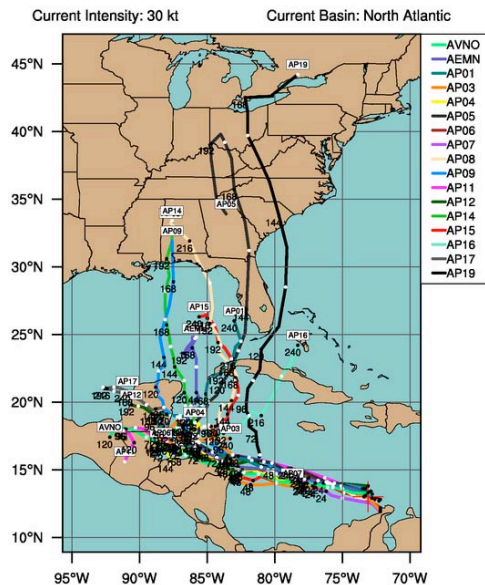


Fig. 13: Long-range ensemble track guidance for PGI46L

### **DISTURBANCE INVEST (AL95)**

NCEP GFS Ensemble track guidance valid 0600 UTC, 23 September 2010



The track guidance showed a westerly motion over the next 48-72 hrs and forecast AL95 to move inland over Nicaragua or Honduras, along the Honduras coast, or over just offshore in the western Caribbean in 36-48 hours (Fig. 12). The future intensity would, of course, depend on whether or not PGI46L remained over water or not.

The track forecast beyond about 4 days continues to be interesting and complex. Most of the guidance showed a slowing of the westward progress of AL95 after about 48-72 hours. Some model guidance suggested that the system might stall and meander or even move NE while in the Western Caribbean, others indicated a northward track into the Gulf of Mexico, while at least one model has PGI46L tracking across Central America into the EPAC. The consensus track was a slowing down at about 72-96 hours and a track to the north afterwards. Fig. 13 shows the GFS ensemble track guidance that shows the range of possibilities of the long-range future track of the system except, perhaps, the track across Central America.

Another scenario is that AL95 might stall over Central America, weaken, while a strong monsoonal flow that is developing in the EPAC might form a monsoon-type depression in the Western Caribbean. Some of the global model guidance is suggesting this.

The forecaster of this discussion believes that AL95 will develop into Tropical Storm Matthew later today or early tomorrow and continue to strengthen before landfall in extreme NE Nicaragua or eastern Honduras.

Mike Black

HRD, NOAA-AOML, 9/23/2010