

## Answer Key for Environmental Geology Lab 6

1. In the eye wall located within the right front quadrant.
2. Calm clear conditions with no rain
3. Counter-clockwise
4. To the north of Brownsville in the right front quadrant is where the greatest damage will occur.
5. June 1 to Nov 30
6. Wind velocities decrease but precipitation remains intense
7. No but it would be prudent to evacuate immediate coastal areas like South Padre Island.
8. Yes because much of the county would be flooded if a major hurricane makes landfall near Cameron County.
9. Any route that avoids immediate coastal areas. US 83, which ultimate ends up in Laredo would be a good option as would US 281, which goes to San Antonio.
10. No because a major hurricane will likely strike South Padre some time in the next 50 years, which will wipe out any buildings on the island.

11.	Normalized Wind Velocity	Force Compared with Tropical Storm
Minimal Hurricane	1.875	3.516
Category 5 Hurricane	4.5	20.25

12. Whereas a minimal tropical storm can cause some minor damage to buildings a category 5 hurricane is over twenty times greater that has the potential to completely destroy a building.

13.	First Tropical Depression	July 11
	First Tropical Storm	July 12
	First Hurricane	July 14
	First Landfall	July 18
	Second Landfall	July 20

14. SE to NW

15. It rapidly decreases in intensity from hurricane to tropical storm to tropical depression status.

16. Not on the July 20 but it does on July 21.

17.	July 20	0.06 in
	July 21	2.00 in
	Total	2.06 in

18. 52.3 mm

19. This represents the movement of Emily as it approaches South Texas.

20. 50.3 mm

21. (a)  $Q (m) = 0.0503 m$

(b)  $Q (m^3) = 1,255,776 m^3$

(c)  $Q (cms) = 14.5 cms$

22. Yes the calculated discharge is greater than the 9 cms required to cause flooding so Emily did result in some significant flooding

23. Five

24. Since no tornadoes reached Laredo flooding from the heavy rain was the only hazard that impacted Laredo.

25. Wave Velocity (km / hr) = 700 kph  
Time (hrs) = 1.42 hrs

26. Scale is roughly 7.5 cm = 1000 km

15 minutes	175 km	30 minutes	350 km
45 minutes	525 km	1 hour	700 km
1 hour 15 minutes	875 km		

27. Draw five circles on map on Figure 6. Circles drawn over only areas of water

28. No. The impact of a tsunami depends on the intensity of the tsunami waves, the undersea features, and the land topographic elevations can have different affects on a tsunami.

29. Run-up is the highest vertical elevation reached by a tsunami

30. The inundation limit is the horizontal distance that a tsunami travels inland.

31. Draw labeled lines at both 5 and 10 meters on Figure 8
32. Corpus Christi, Brownsville, and Galveston
33. About 30 to 40 kilometers
34. US 77 north and then turn west on US 83
35. This would clog the roads and prevent the people along the coast from moving out of harms way.