

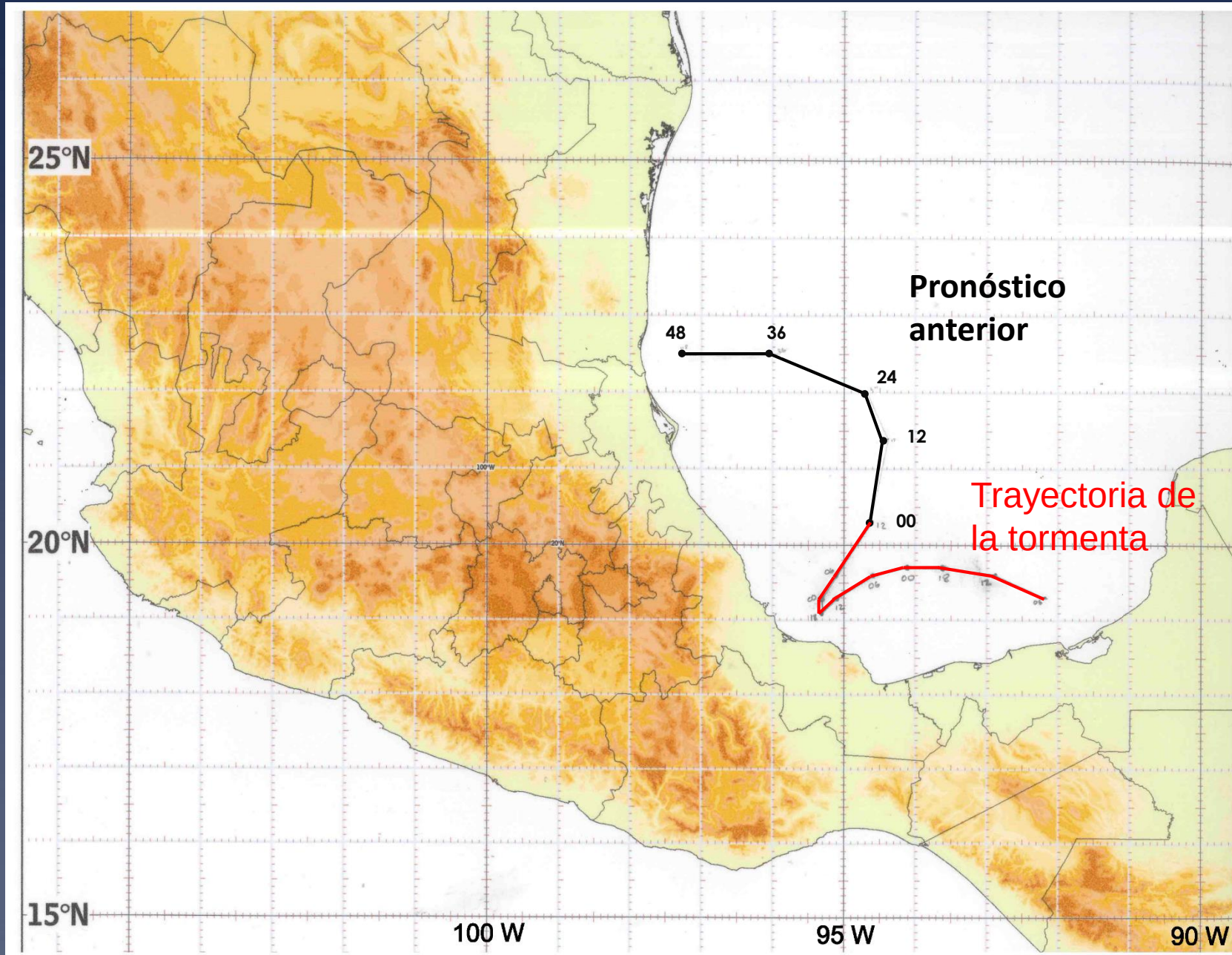
La práctica pronóstico de la trayectoria

2017 WMO RA-IV Workshop
March 8, 2016

La práctica pronóstico de la trayectoria

- You are given 48-h model forecast tracks for a hurricane in the Bay of Campeche.
- You are also given 850 mb vorticity, 500mb height, and 200mb wind fields for the members of the multimodel consensus (GFS, ECMWF, UKMET, HWRF, GFDL)
- Using this information, make a 12-, 24-, 36-, and 48-h track forecast for the hurricane. Provide a latitude and longitude position (to the nearest tenth of a degree), and compute the storm motion at each forecast hour. Plot your forecast on the map provided.
- Will the hurricane make landfall in the next 48 hours? And if so, where?
- Is it time to issue a Hurricane Warning?

Track Forecast Map



Hoja de cálculo de pronóstico de la trayectoria

National Hurricane Center Advisory Composition Worksheet

Cyclone Name	ATCF ID	Adv #	Special	Last	Date	Time (UTC)	Forecaster(s)
Hurricane WMO	ALXX2017	XX	☐	☐	8 March 2017	1800	

Watches and Warnings	Hurricane Watch: North of Cabo Rojo to La Pesca
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Hazards Statements	☐ Storm Surge ☐ Rainfall ☐ Tornadoes
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Notes	
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Fcst Hr	Date/Time (UTC)	Lat (°N)	Lon (°W)	Dir/Spd (deg/kt)	Pres (mb)	Wind (kt)	Gusts (kt)	Status	Wind Radii (nm)				
									kt	NE	SE	SW	NW
0	08 / 00 06 12 18	21.0	94.4		1006	65	80	HU	34	70	80	40	40
									50	40	20	0	20
3	08 / 03 09 15 21								64	20	0	0	0
		miles / km of							12'				
12	09 / 12 18 00 06								34				
									50				
									64				
24	09 / 00 06 12 18								34				
									50				
									64				
36	10 / 12 18 00 06								34				
									50				
									64				
48	10 / 00 06 12 18								34				
									50				

Will the storm make landfall within 48 hours? (Yes or No) _____

If yes, what is your forecasted landfall position? (Lat/Lon) _____

If the storm is forecasted to remain the same intensity and size, is it time to issue a Hurricane Warning? (Yes or No) _____

Parte 1:

Calcular el movimiento actual

Calcular el movimiento actual

La conversión :

1 kt = 1 n mi / h

1° latitude = 60 n mi

1/60° latitude = 1 n mi

$$\text{Velocidad (kt)} = \frac{\text{distancia (degrees)}}{\text{tiempo (h)}} \times \frac{60 \text{ (n mi)}}{1 \text{ (degree)}}$$

El rumbo = Clockwise degrees departure from 0° (N)

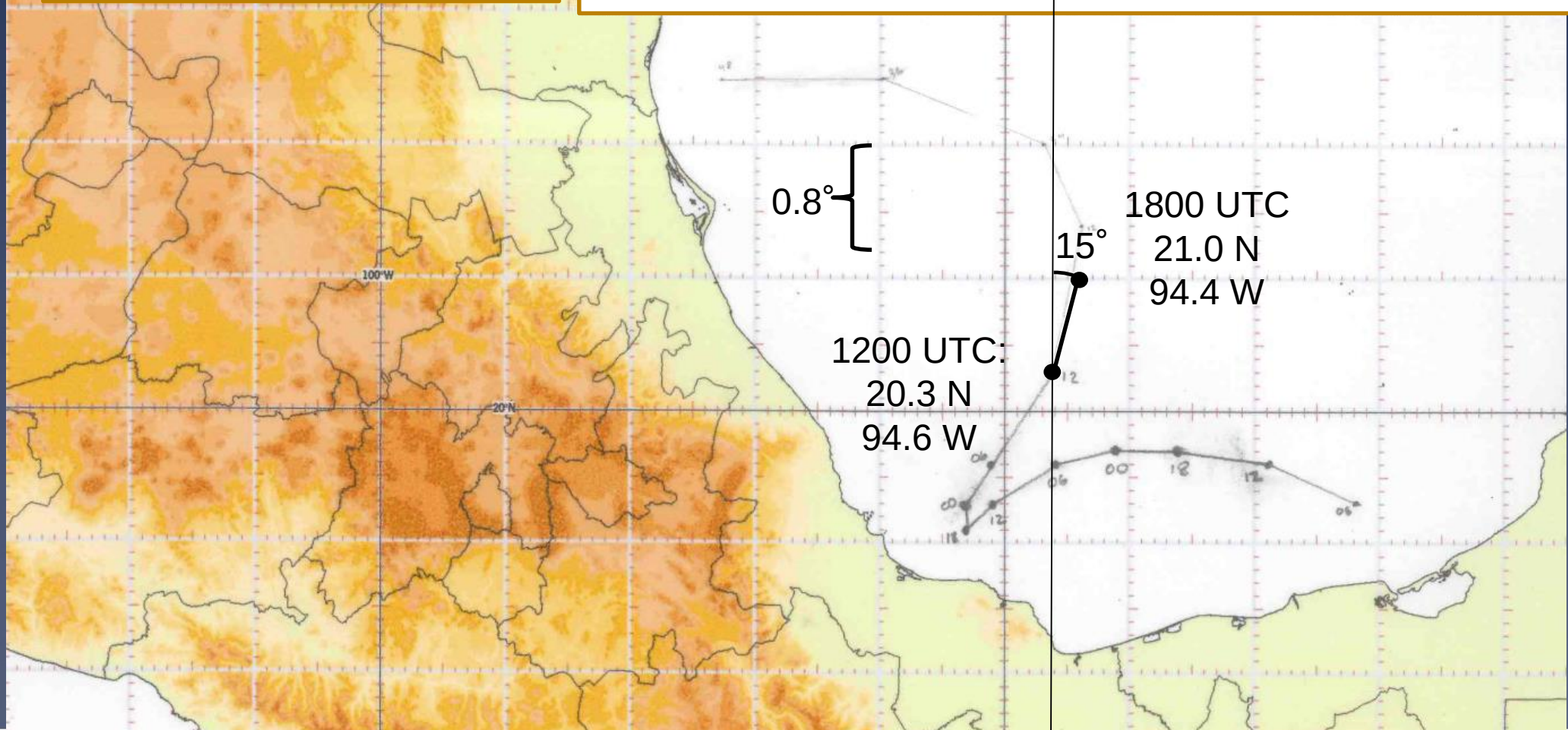


Calcular el movimiento actual

Dirección = 15°

El movimiento = 015/08

$$\text{Velocidad} = \frac{0.8 \text{ (degrees)}}{6 \text{ (h)}} \times \frac{60 \text{ (n mi)}}{1 \text{ (degree)}} = 8 \text{ kt}$$

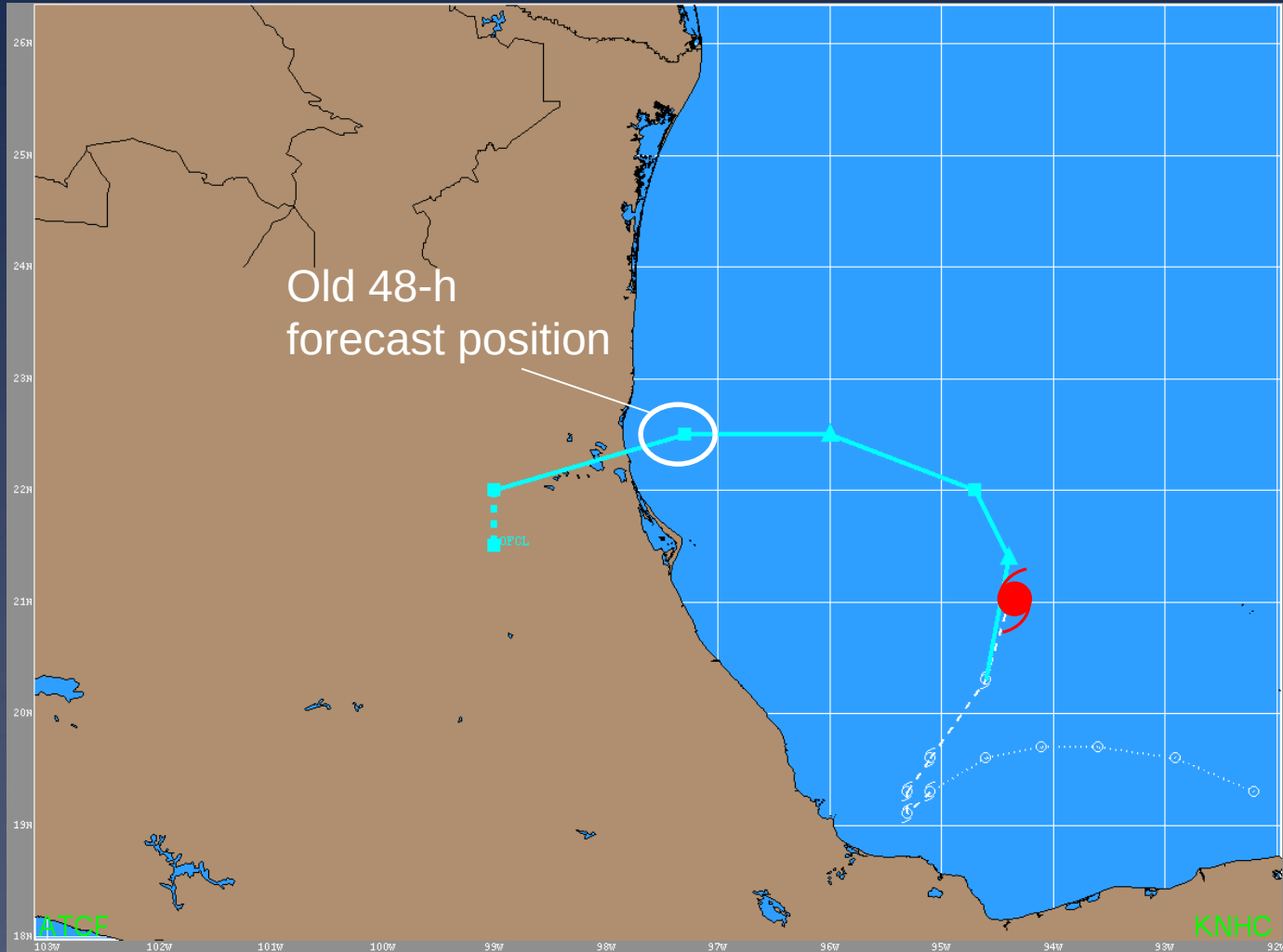


Hoja de cálculo de pronóstico de la trayectoria

Fcst Hr	Date/Time (UTC)	Lat (°N)	Lon (°W)	Dir/Spd (deg/kt)	Pres (mb)	Wind (kt)	Gusts (kt)	Status	Wind Radii (nm)					
									kt	NE	SE	SW	NW	
0	08 / 00 06 12 18	21.0	94.4	015/08	1006	65	80	HU	34	70	80	40	40	
									50	40	20	0	20	
3	08 / 03 09 15 21	---	---	-----	---	---	---	---	64	20	0	0	0	
									12'	---	---	---	---	
12	09 / 12 18 00 06					---	---	---	34	---	---	---	---	
									50	---	---	---	---	
									64	---	---	---	---	
						---	---	---	34	---	---	---	---	

Part 2: Make a Forecast

Initial position, storm motion, and previous forecast



Position:

21.0 N
94.4 W

Motion:

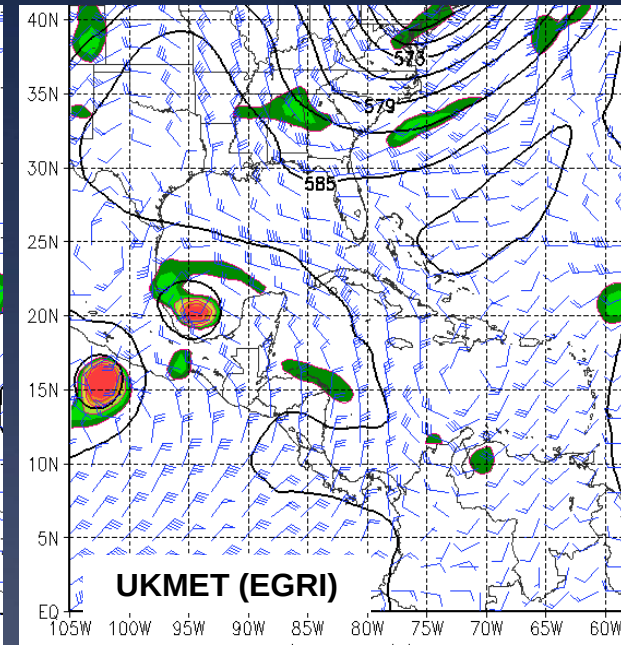
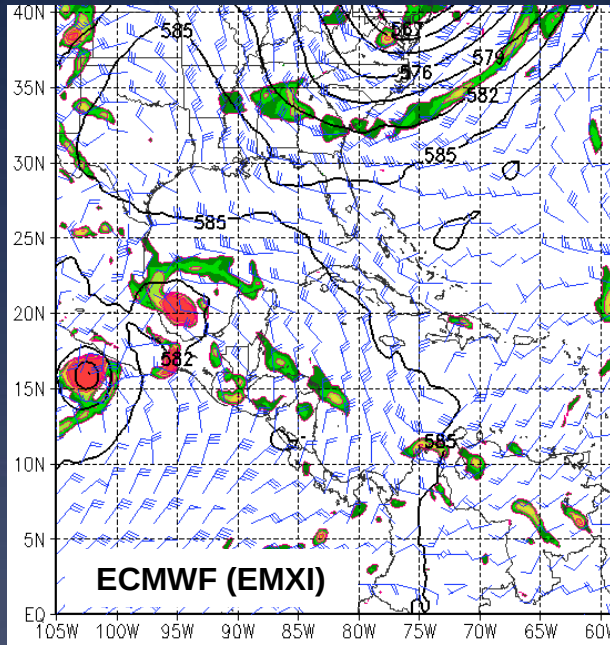
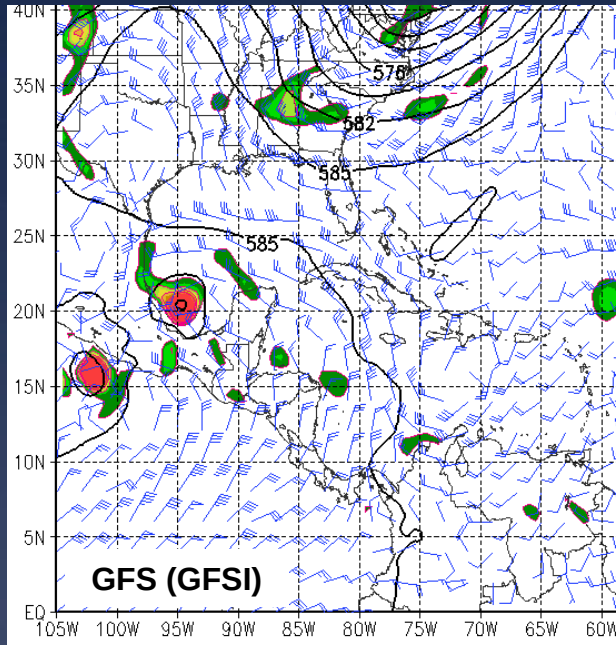
015° (NNE)
8 kt

Intensity:
65 kt

Previous Forecast:

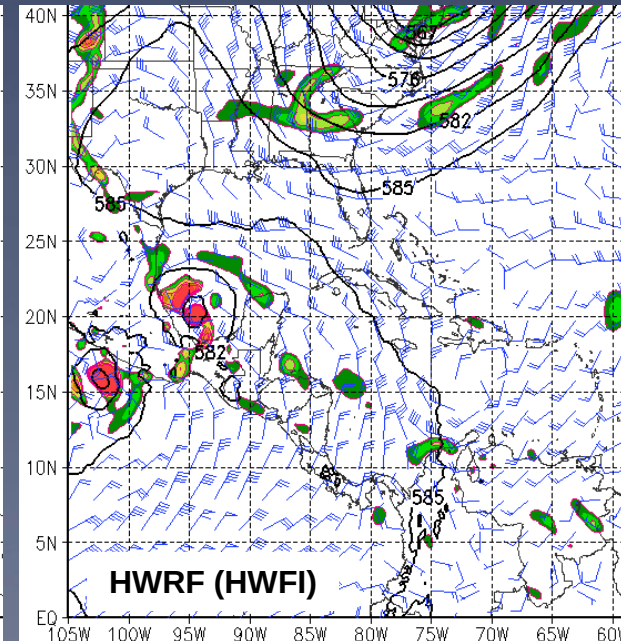
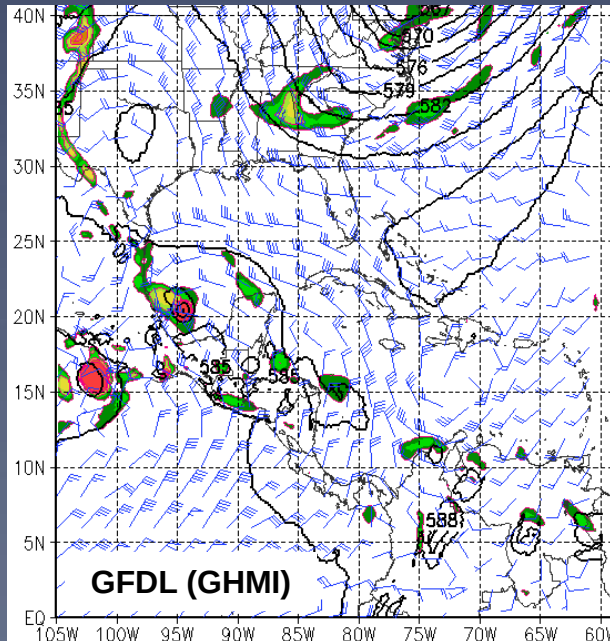
Fhr	Lat	Lon
12	21.4	94.4
24	22.0	94.7
36	22.5	96.0
48	22.5	97.3

Initial model fields

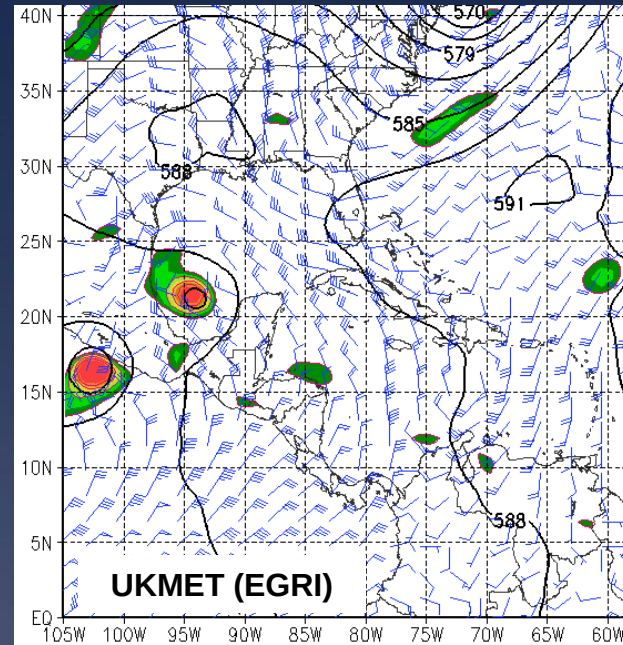
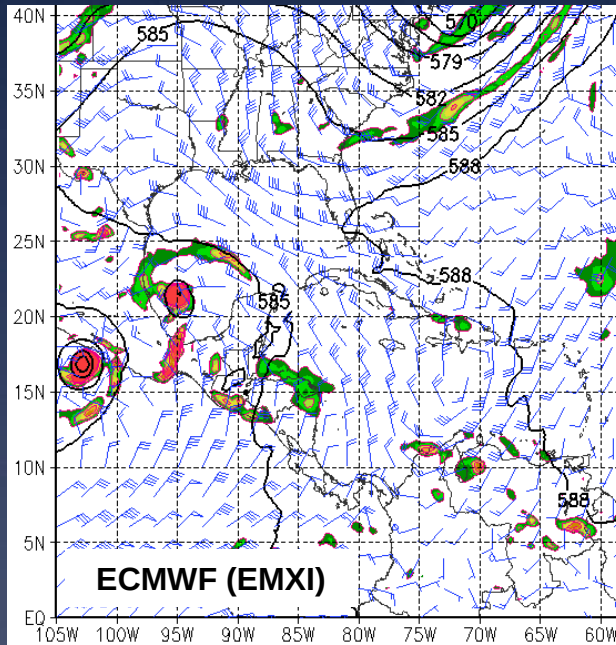
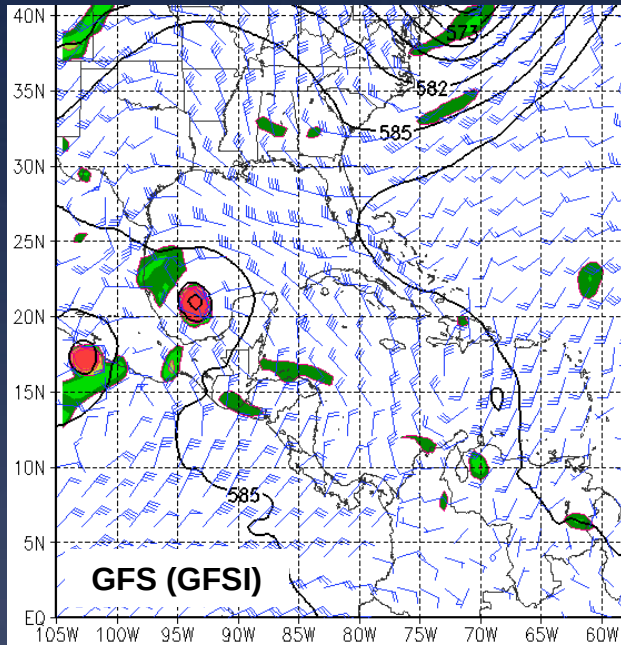


00-h forecasts of :

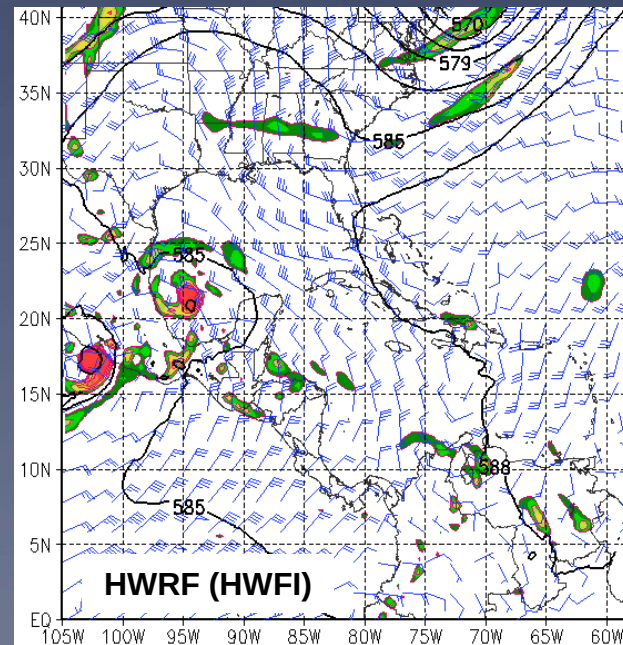
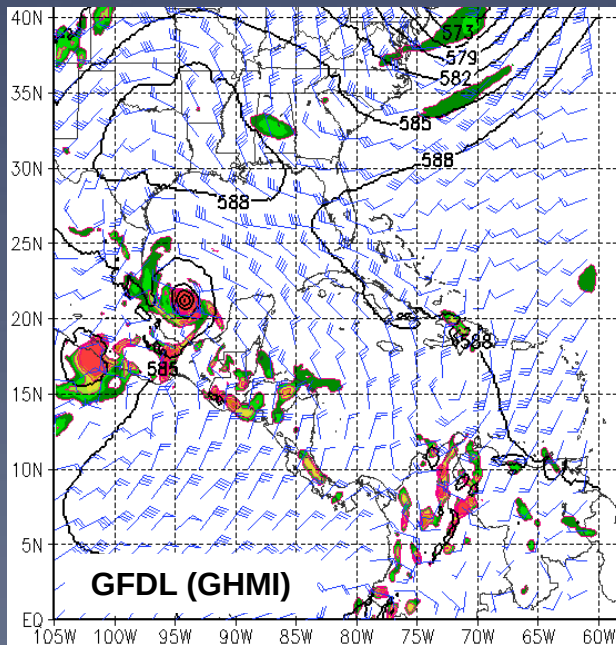
- 850mb relative vorticity (shaded, $\times 10^{-5}/s$),
- 500mb geopotential height (black contours, $\times 10m$)
- 200mb wind vectors (blue barbs, kt)



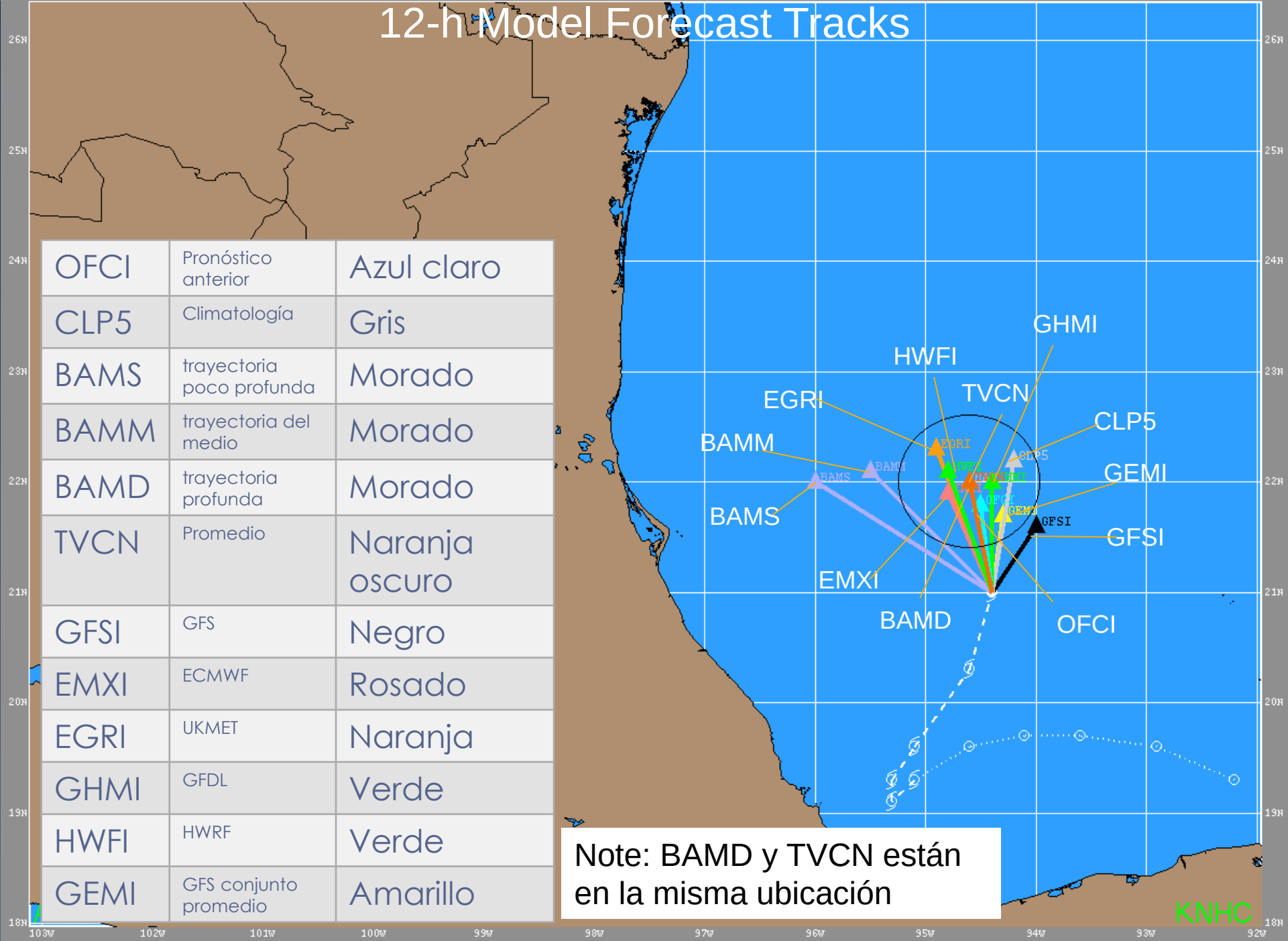
12-h Model Forecast Fields



12-h forecasts of :
- 850mb relative vorticity
(shaded, $\times 10^{-5}/s$),
- 500mb geopotential
height (black contours,
 $\times 10m$)
- 200mb wind vectors
(blue barbs, kt)



12-h Model Forecast Tracks

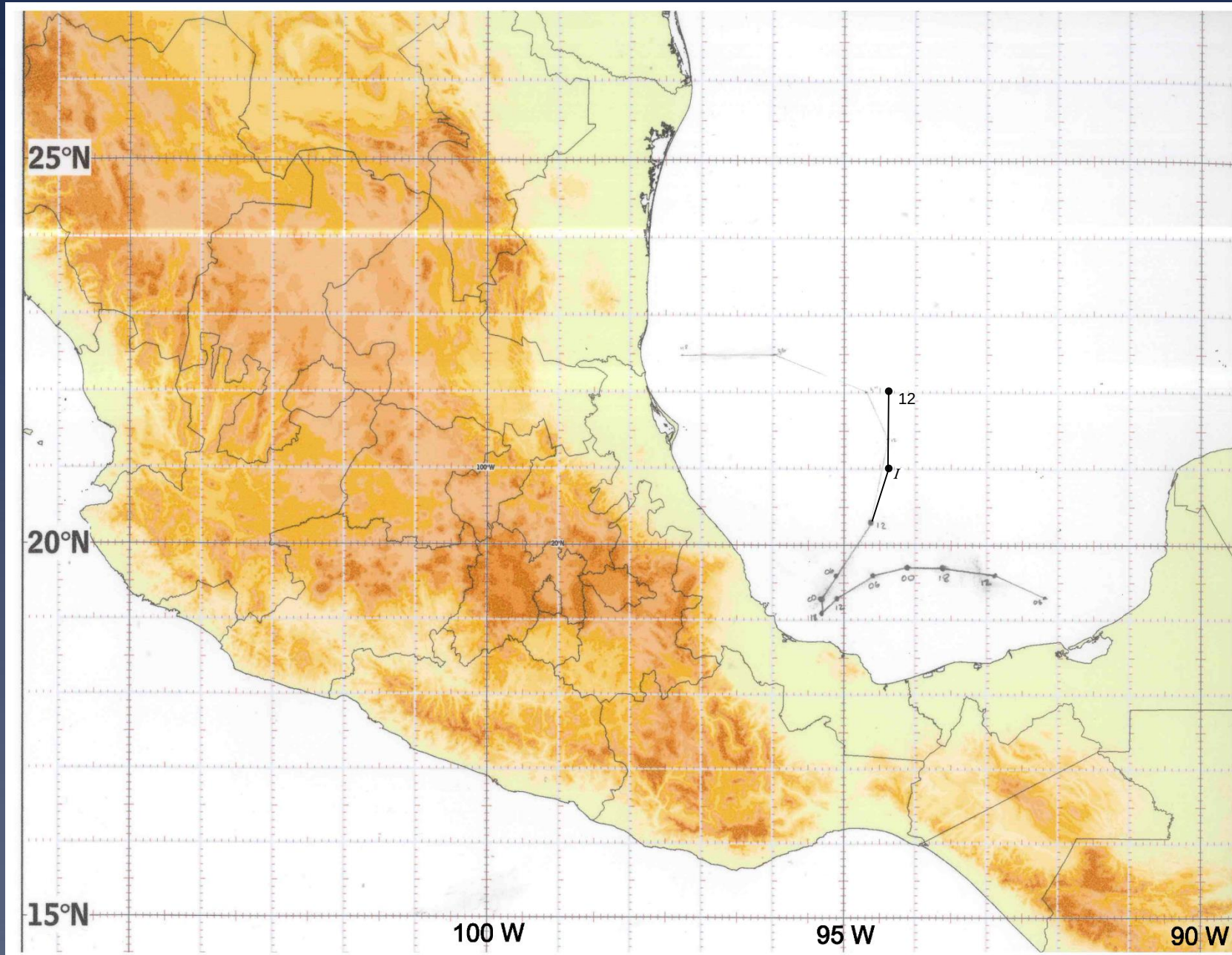


OFCI	Pronóstico anterior	Azul claro
CLP5	Climatología	Gris
BAMS	trayectoria poco profunda	Morado
BAMM	trayectoria del medio	Morado
BAMD	trayectoria profunda	Morado
TVCN	Promedio	Naranja oscuro
GFSI	GFS	Negro
EMXI	ECMWF	Rosado
EGRI	UKMET	Naranja
GHMI	GFDL	Verde
HWFI	HWRF	Verde
GEMI	GFS conjunto promedio	Amarillo

Note: BAMD y TVCN están en la misma ubicación

KNHC

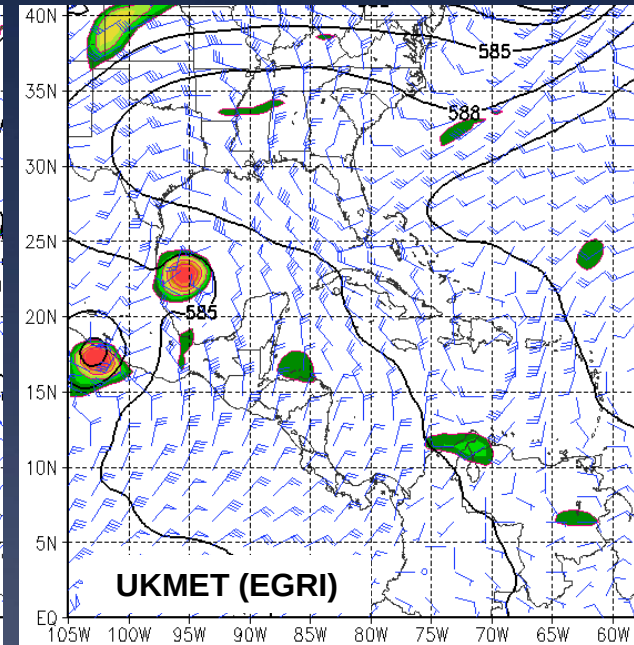
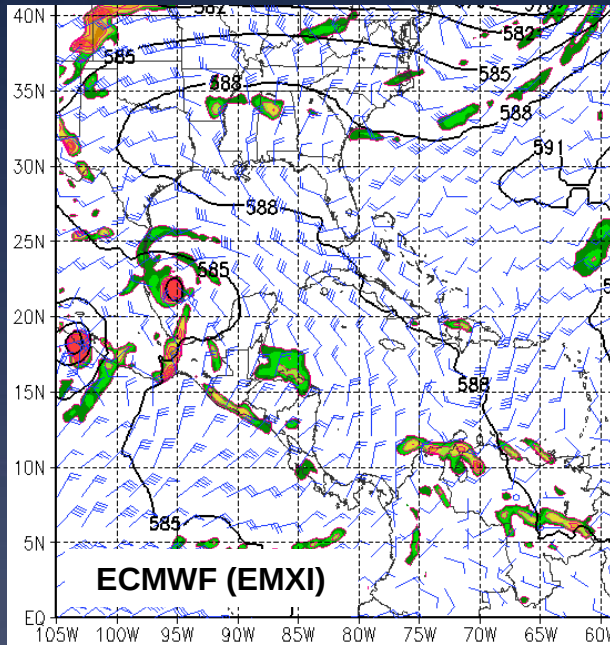
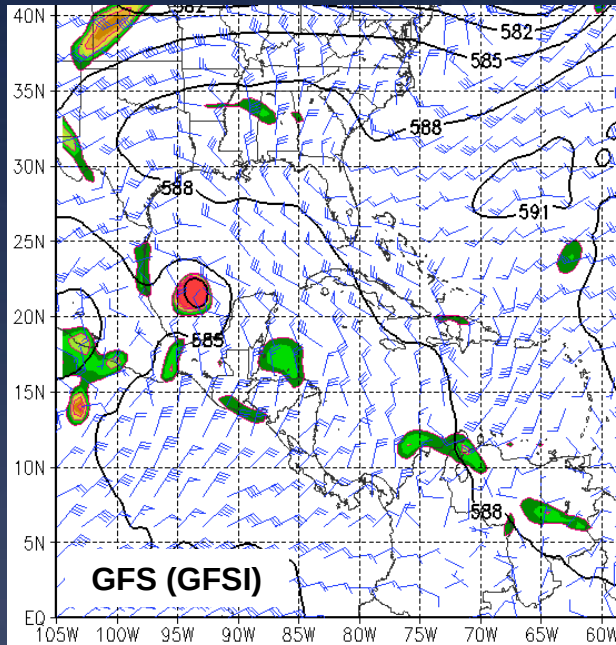
Track Forecast Map



Track Forecast Worksheet

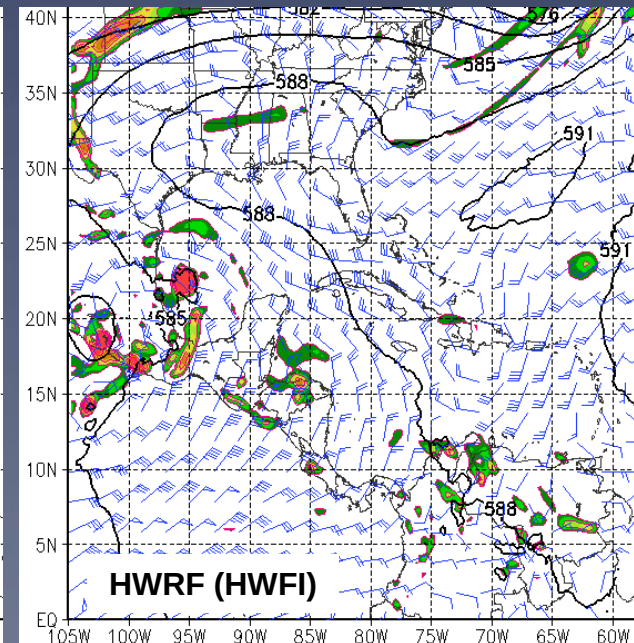
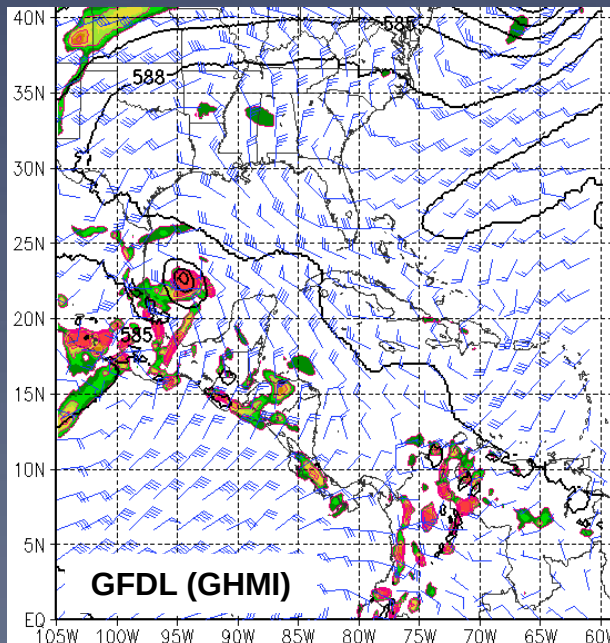
		☐ Tornadoes												
Notes														
Fcst Hr	Date/Time (UTC)	Lat (°N)	Lon (°W)	Dir/Spd (deg/kt)	Pres (mb)	Wind (kt)	Gusts (kt)	Status	Wind Radii (nm)					
									kt	NE	SE	SW	NW	
0	<u>18</u> / 00 06 12 18	21.0	94.4	015/08	1006	65	80	HU	34	70	80	40	40	
									50	40	20	0	20	
3	<u>18</u> / 03 09 15 21	---	---	-----	---	---	---	---	64	20	0	0	0	
		miles / km of							12'	---	---	---	---	
12	<u>19</u> / 12 18 00 06	22.0	94.4	000/05		---	---	---	34	---	---	---	---	
									50	---	---	---	---	
									64	---	---	---	---	
24	<u>19</u> / 00 06 12 18					---	---	---	34	---	---	---	---	
									50	---	---	---	---	
									64	---	---	---	---	
36	<u>20</u> / 12 18 00 06					---	---	---	34	---	---	---	---	
									50	---	---	---	---	
									64	---	---	---	---	

24-h Model Forecast Fields

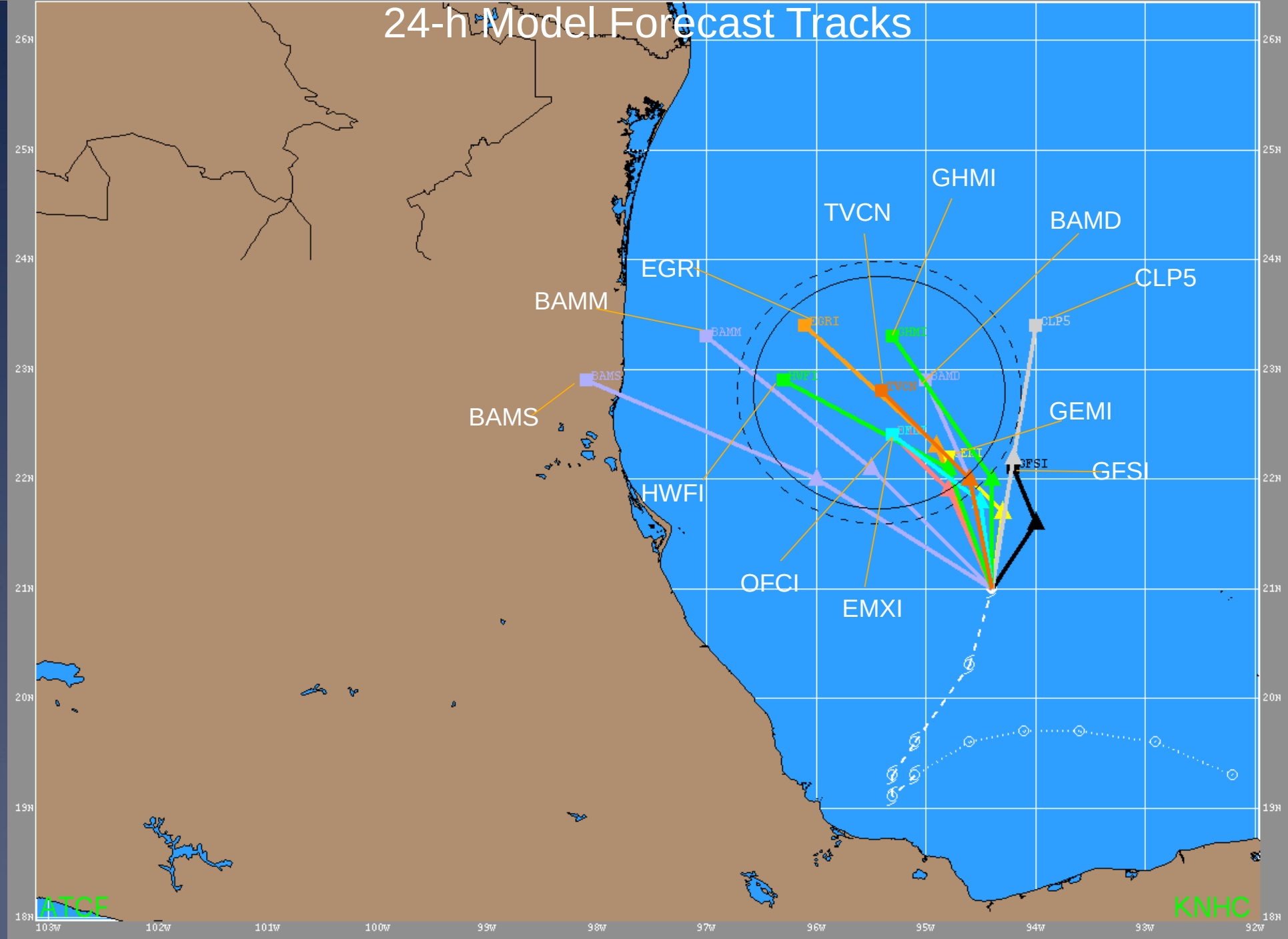


24-h forecasts of :

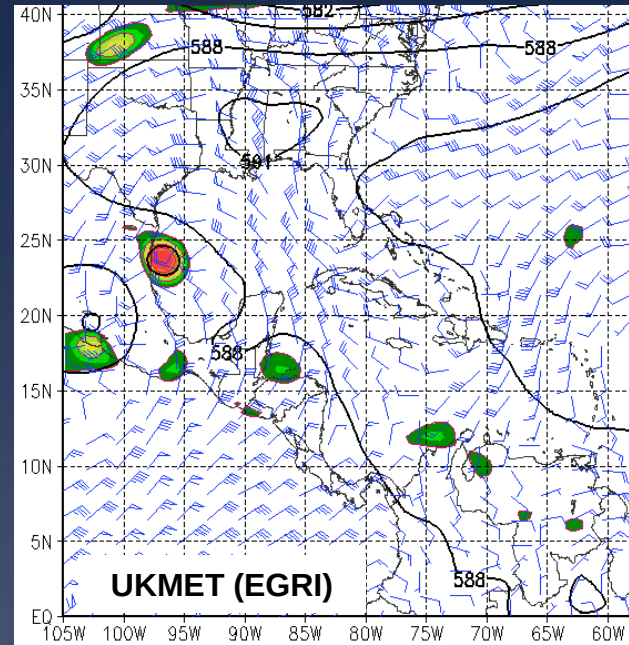
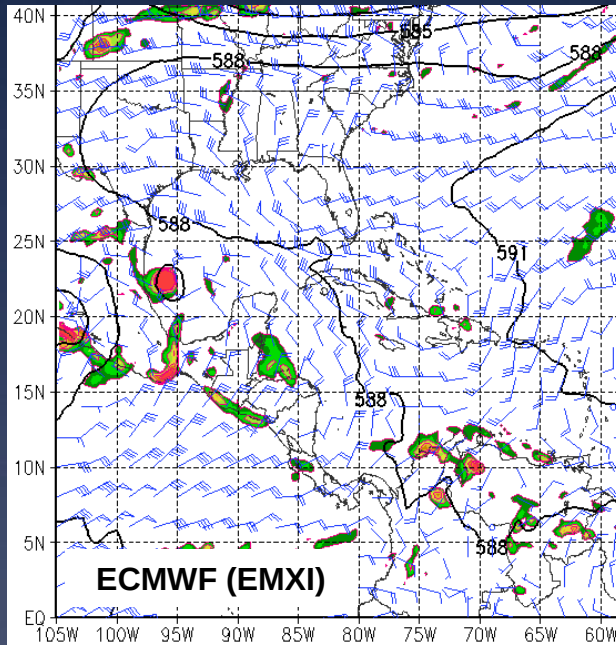
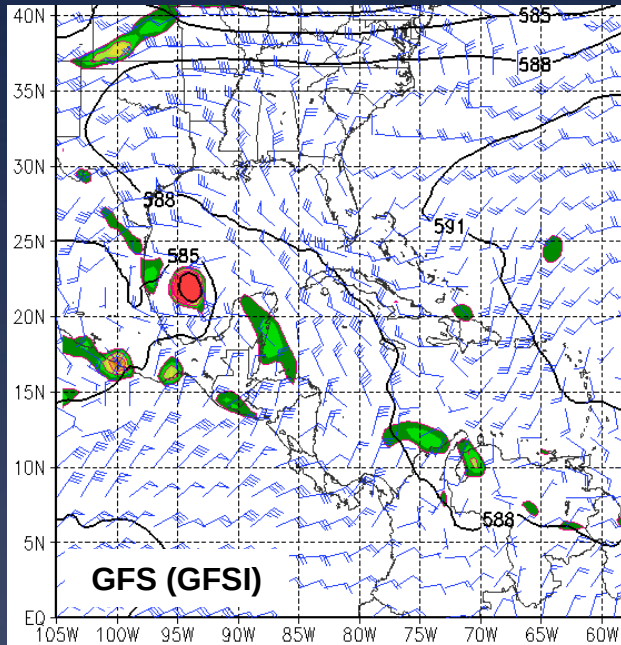
- 850mb relative vorticity (shaded, $\times 10^{-5}/s$),
- 500mb geopotential height (black contours, $\times 10m$)
- 200mb wind vectors (blue barbs, kt)



24-h Model Forecast Tracks

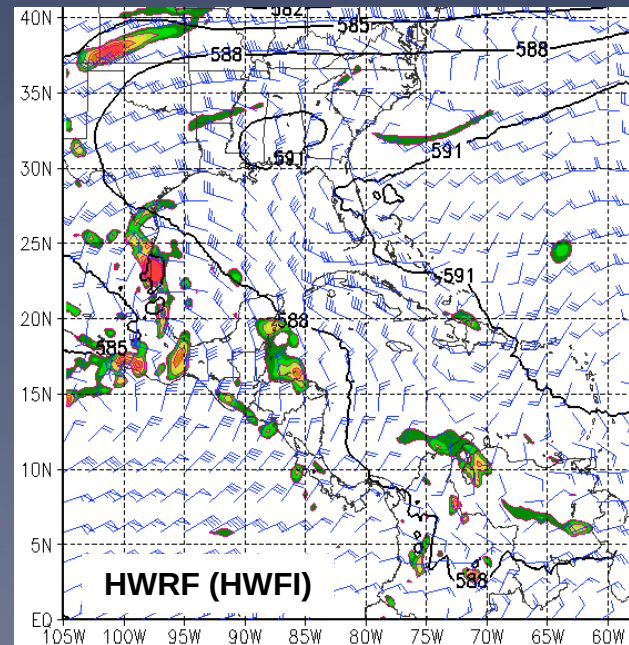
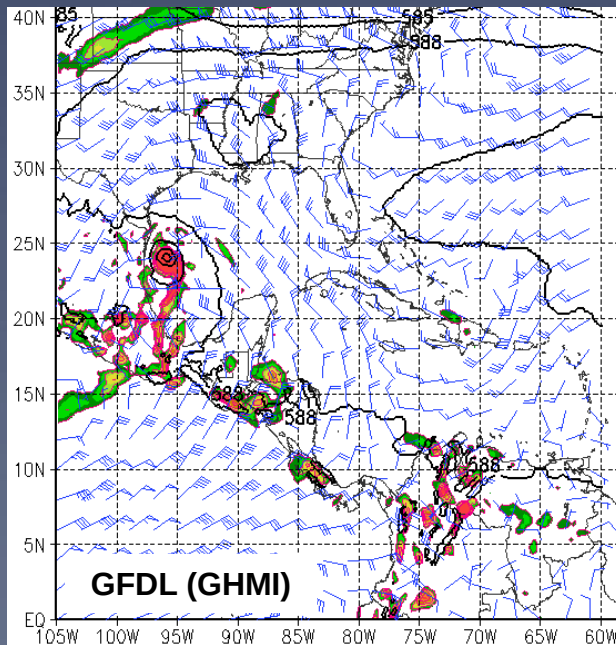


36-h Model Forecast Fields

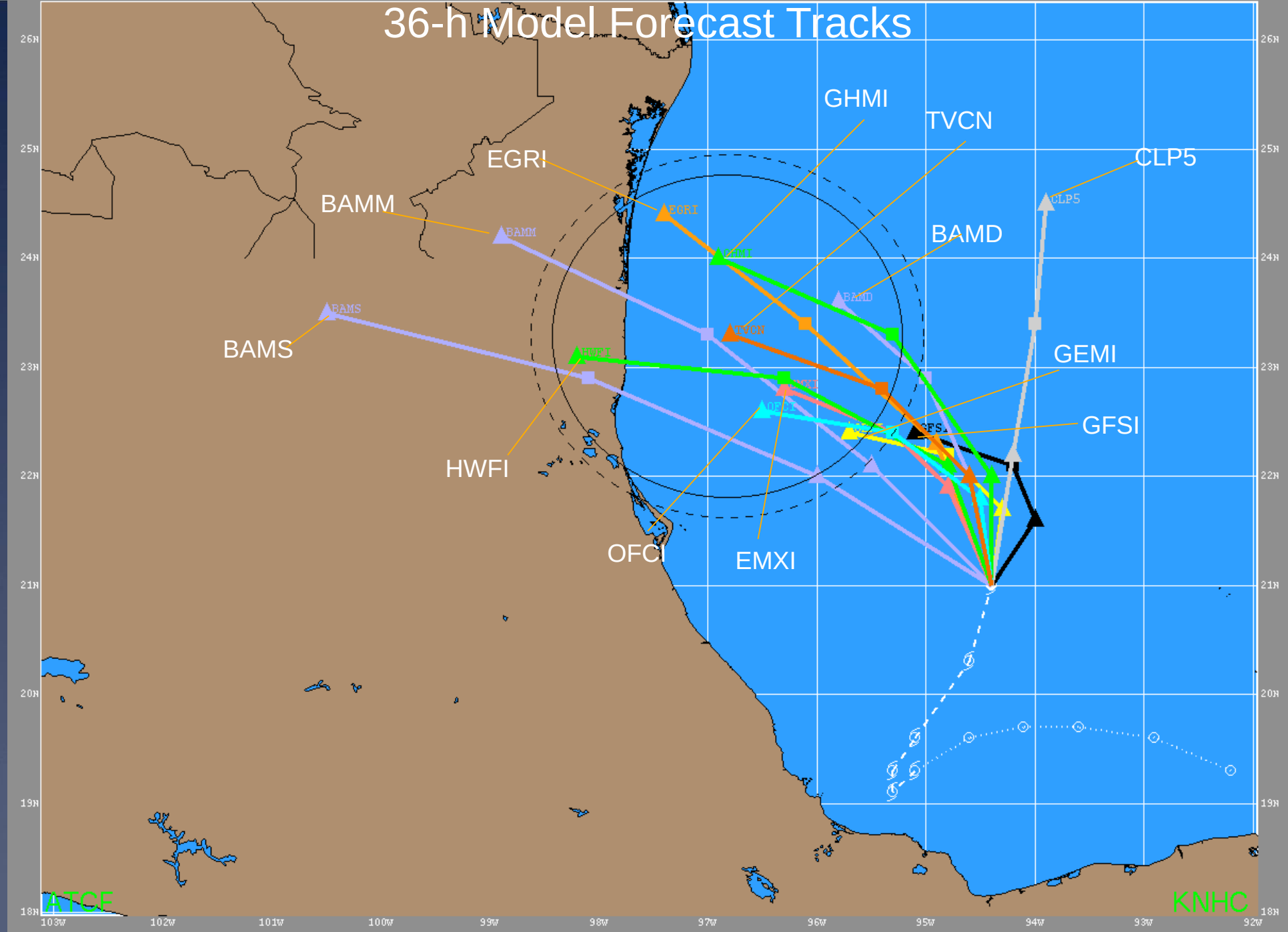


36-h forecasts of :

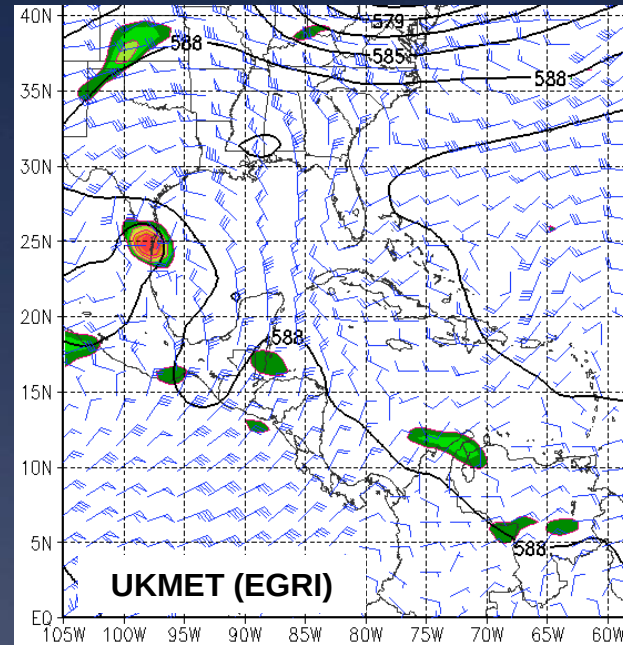
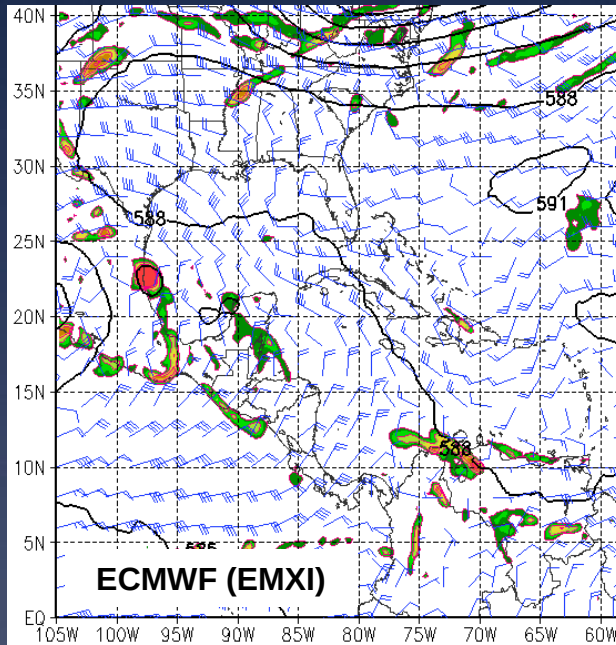
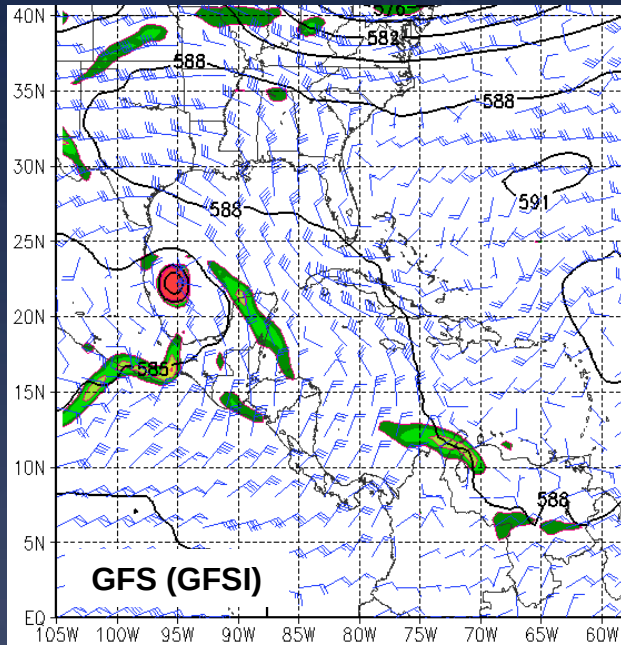
- 850mb relative vorticity (shaded, $\times 10^{-5}/s$),
- 500mb geopotential height (black contours, $\times 10m$)
- 200mb wind vectors (blue barbs, kt)



36-h Model Forecast Tracks

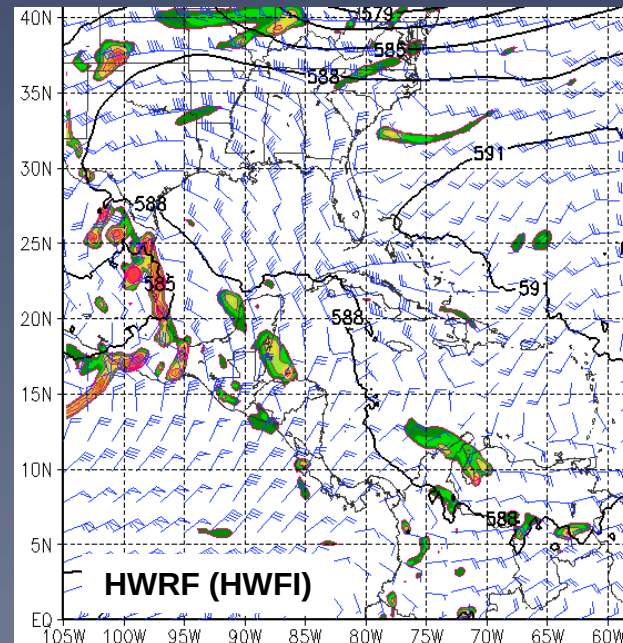
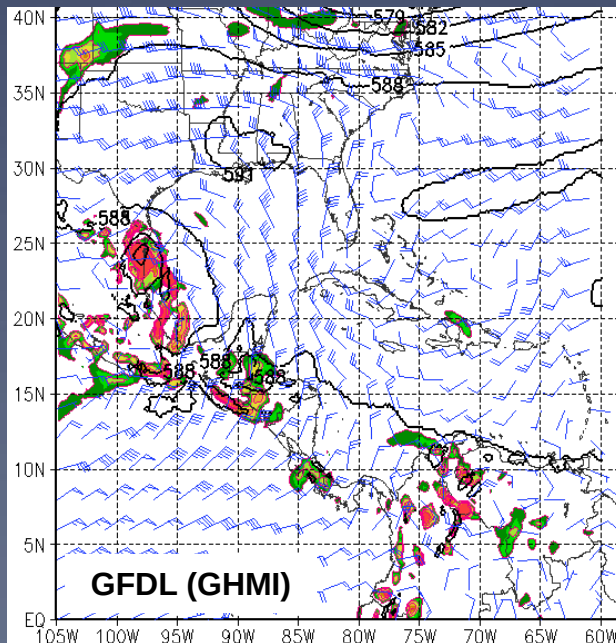


48-h Model Forecast Fields

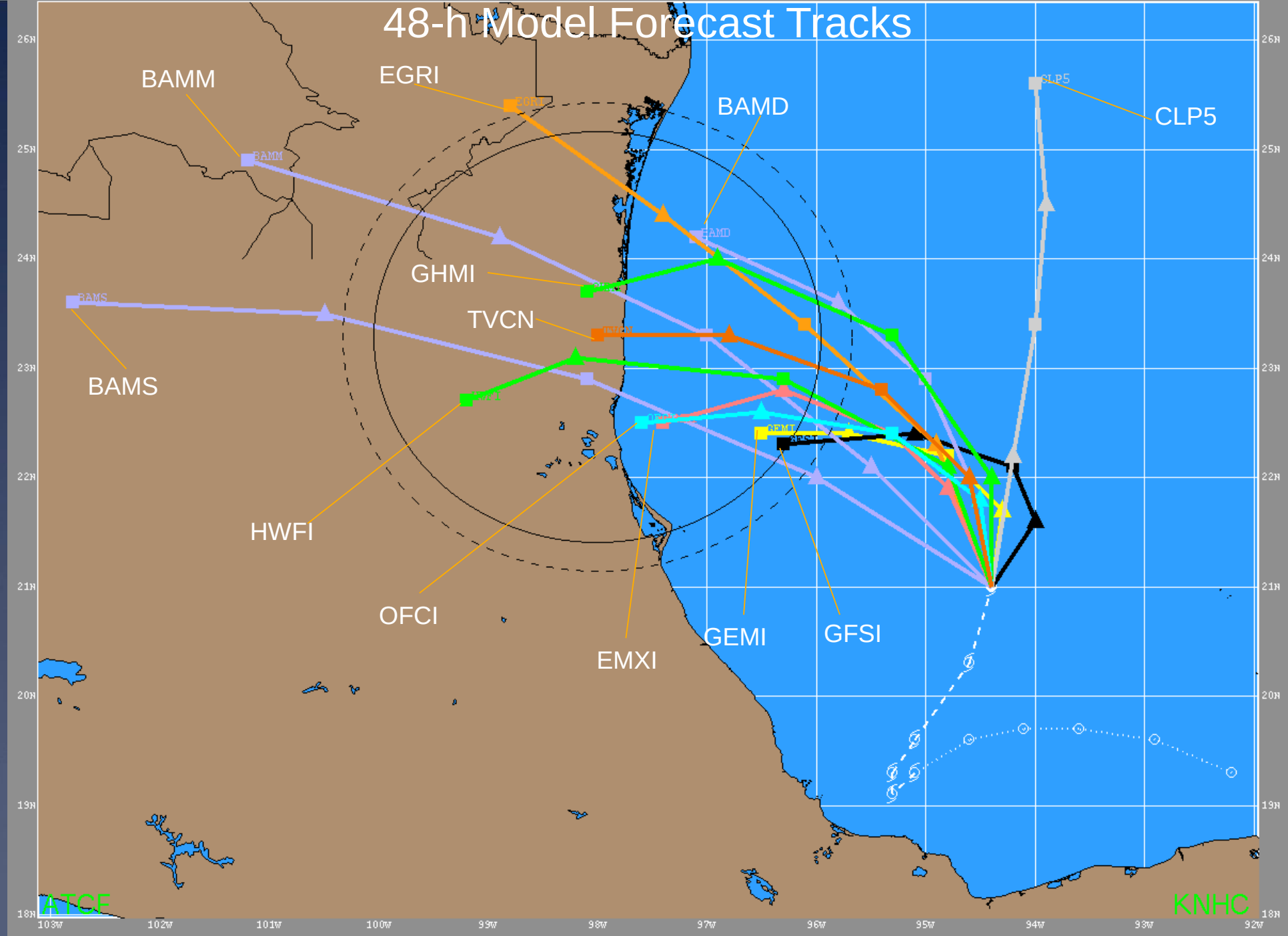


48-h forecasts of :

- 850mb relative vorticity (shaded, $\times 10^{-5}/s$),
- 500mb geopotential height (black contours, $\times 10m$)
- 200mb wind vectors (blue barbs, kt)



48-h Model Forecast Tracks



Part 3:

Responder preguntas

Niveles de Advertencias

- Alerta (vigilancia) de huracán o tormenta tropical:

Condiciones de huracán o tormenta tropical son posibles en el área específica de la alerta, usualmente después de las 48 horas del comienzo de vientos con fuerza de tormenta tropical..

- Aviso de huracán o tormenta tropical:

Condiciones de huracán o tormenta tropical se anticipan en el área prevista en el aviso, usualmente dentro de las 36 horas del comienzo de vientos con fuerza de tormenta tropical.

Will the storm make landfall within 48 hours? (Yes or No) _____

If yes, what is your forecasted landfall position? (Lat/Lon) _____

If the storm is forecasted to remain the same intensity and size, is it time to issue a Hurricane Warning? (Yes or No) _____