

DISCOVER-AQ OUTLOOK -- September 17, 2013

Today (Tuesday): No fly day.

Tomorrow (Wednesday): Fly day? Cloudy conditions remain, though somewhat less cloudy than Monday. As the remnants of Ingrid move SW, the moisture and convective outflow also should shift SW somewhat. Less moisture and cirrus should thus impact the region, though not enough to dissipate the cirrus deck significantly.

Thursday: May be OK to fly. However, the forecast is very uncertain. The upper level ridge weakens and moves E, while an upper trough builds over the continental US. This should bring some instability to the region. The change in the synoptic flow pattern will also be more conducive to the inflow of moisture and cirrus cloud from the remnants of Ingrid and Manuel.

Friday: Not looking good for a flight. Instability from the trough and moisture inflow from the Gulf and the storm remnants should allow for convection and precipitation.

With onshore flow, ozone and PM are expected to remain low through the weekend.










9/17/2013 Weather Briefing

Clare Flynn










Recommendations

- Wednesday: **No fly day**. Very similar situation to today.
- Thursday and Friday: **No fly days**; cloud coverage increases as the upper trough pulls more moisture from the remnants of Ingrid and Manuel. A surface front also begins to move southward.










Conroe:

THIS AFTERNOON	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY
								
20%		20%		40%	30%	60%	40%	30%
Slight Chc Thunderstorms High: 94 °F	Partly Cloudy Low: 70 °F	Slight Chc Thunderstorms High: 94 °F	Partly Cloudy Low: 72 °F	Chance Thunderstorms High: 92 °F	Chance Thunderstorms Low: 74 °F	Thunderstorms Likely High: 91 °F	Chance Thunderstorms Low: 73 °F	Chance Thunderstorms High: 91 °F

Houston Hobby:

THIS AFTERNOON	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY
								
20%		30%	20%	40%	30%	60%	40%	30%
Slight Chc Thunderstorms High: 93 °F	Partly Cloudy Low: 78 °F	Chance Showers High: 93 °F	Slight Chc Thunderstorms Low: 78 °F	Chance Thunderstorms High: 91 °F	Chance Thunderstorms Low: 78 °F	Thunderstorms Likely High: 90 °F	Chance Thunderstorms Low: 77 °F	Chance Thunderstorms High: 91 °F

Galveston:

THIS AFTERNOON	TONIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY	THURSDAY NIGHT	FRIDAY	FRIDAY NIGHT	SATURDAY
								
20%	20%	40%	20%	40%	30%	50%	40%	40%
Slight Chc Thunderstorms High: 90 °F	Slight Chc Thunderstorms Low: 81 °F	Chance Showers High: 90 °F	Slight Chc Thunderstorms Low: 81 °F	Chance Thunderstorms High: 88 °F	Chance Thunderstorms Low: 80 °F	Chance Thunderstorms High: 87 °F	Chance Thunderstorms Low: 80 °F	Chance Thunderstorms High: 89 °F

Current Conditions

Conroe:



A Few Clouds
90°F
32°C

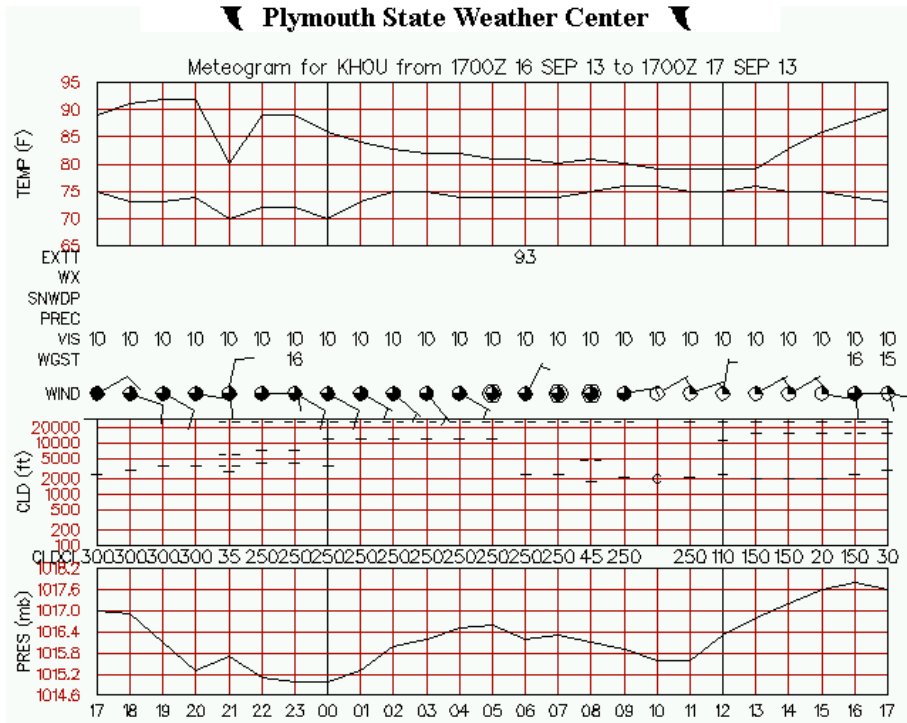
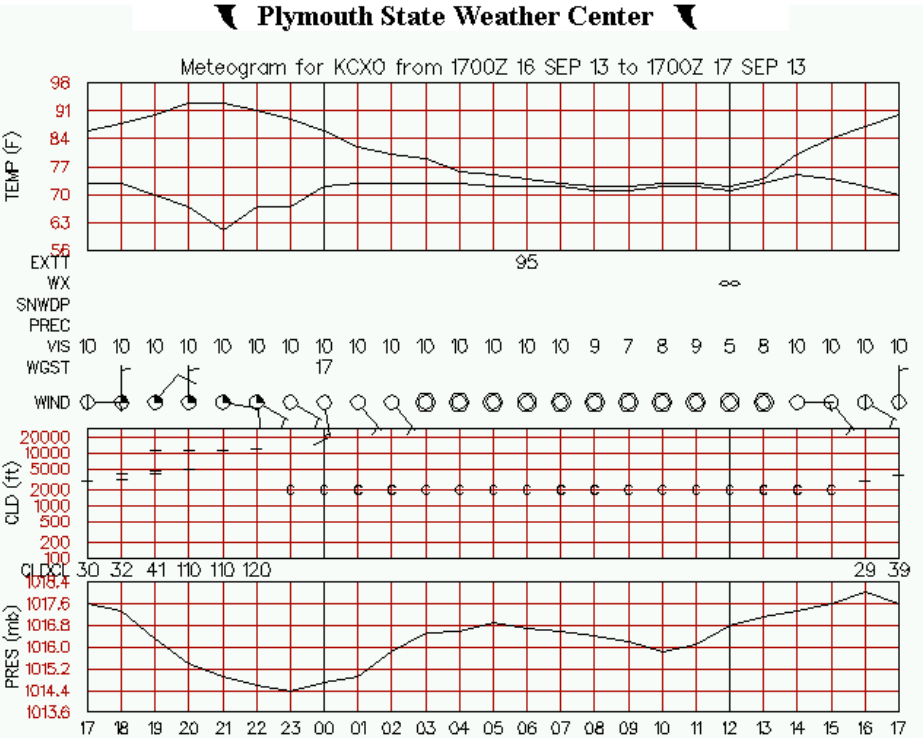
Humidity 52%
Wind Speed Vrb1 6 mph
Barometer 30.06 in (1017.6 mb)
Dewpoint 70°F (21°C)
Visibility 10.00 mi
Heat Index 96°F (36°C)
Last Update on 17 Sep 11:53 am CDT

Houston Hobby:



Partly Cloudy
90°F
32°C

Humidity 58%
Wind Speed E 9 G 17 mph
Barometer 30.04 in (1017.6 mb)
Dewpoint 73°F (23°C)
Visibility 10.00 mi
Heat Index 99°F (37°C)
Last Update on 17 Sep 11:53 am CDT



Current Conditions

Galveston:



Partly Cloudy

89°F

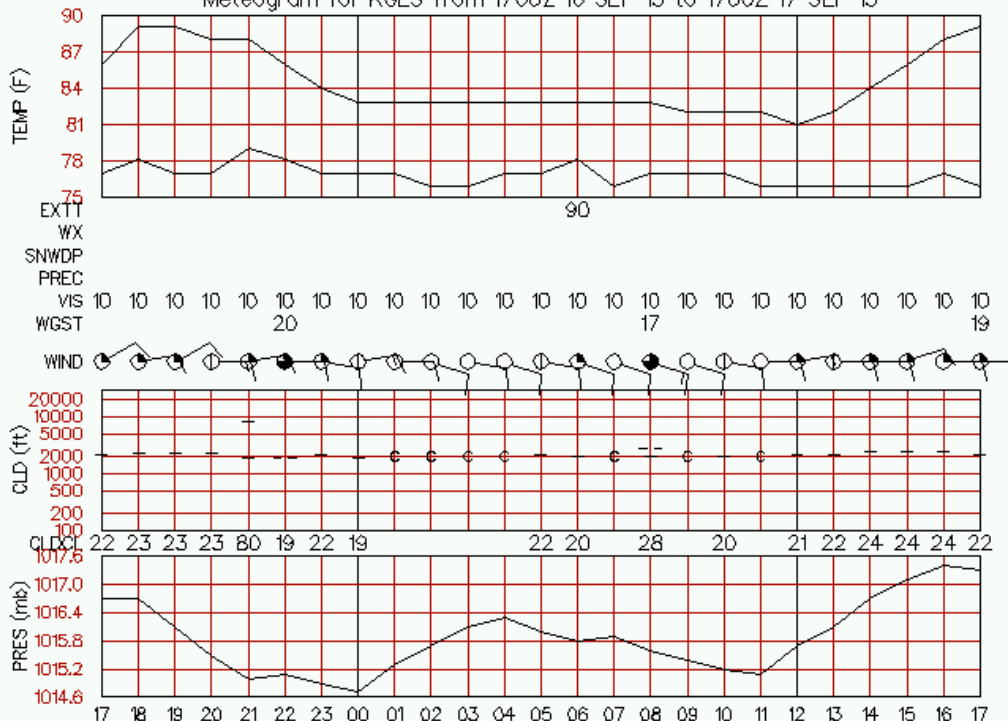
32°C

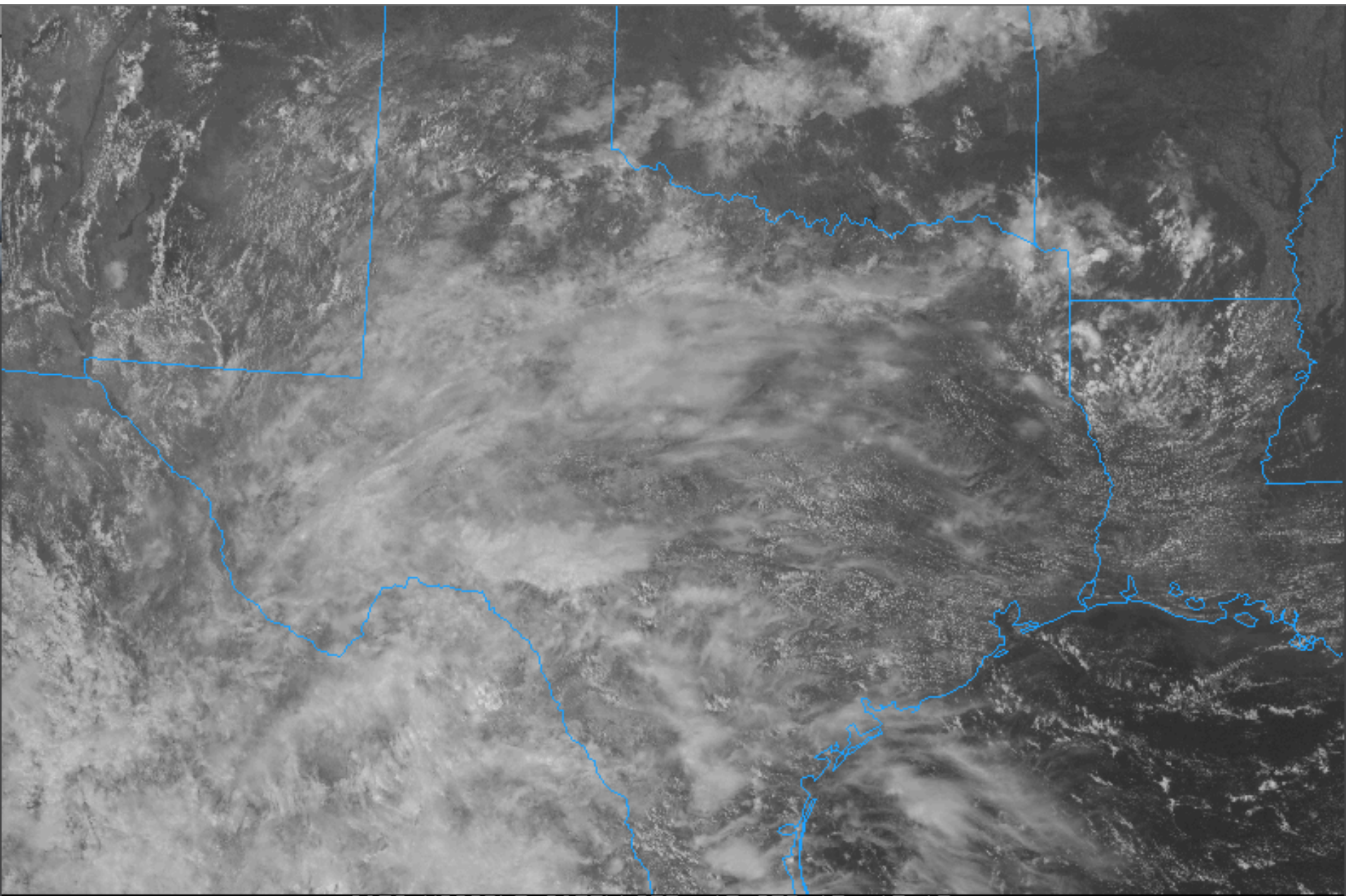
Humidity 65%
Wind Speed E 16 G 22 mph
Barometer 30.04 in (1017.3 mb)
Dewpoint 76°F (24°C)
Visibility 10.00 mi
Heat Index 100°F (38°C)

Last Update on 17 Sep 11:52 am CDT

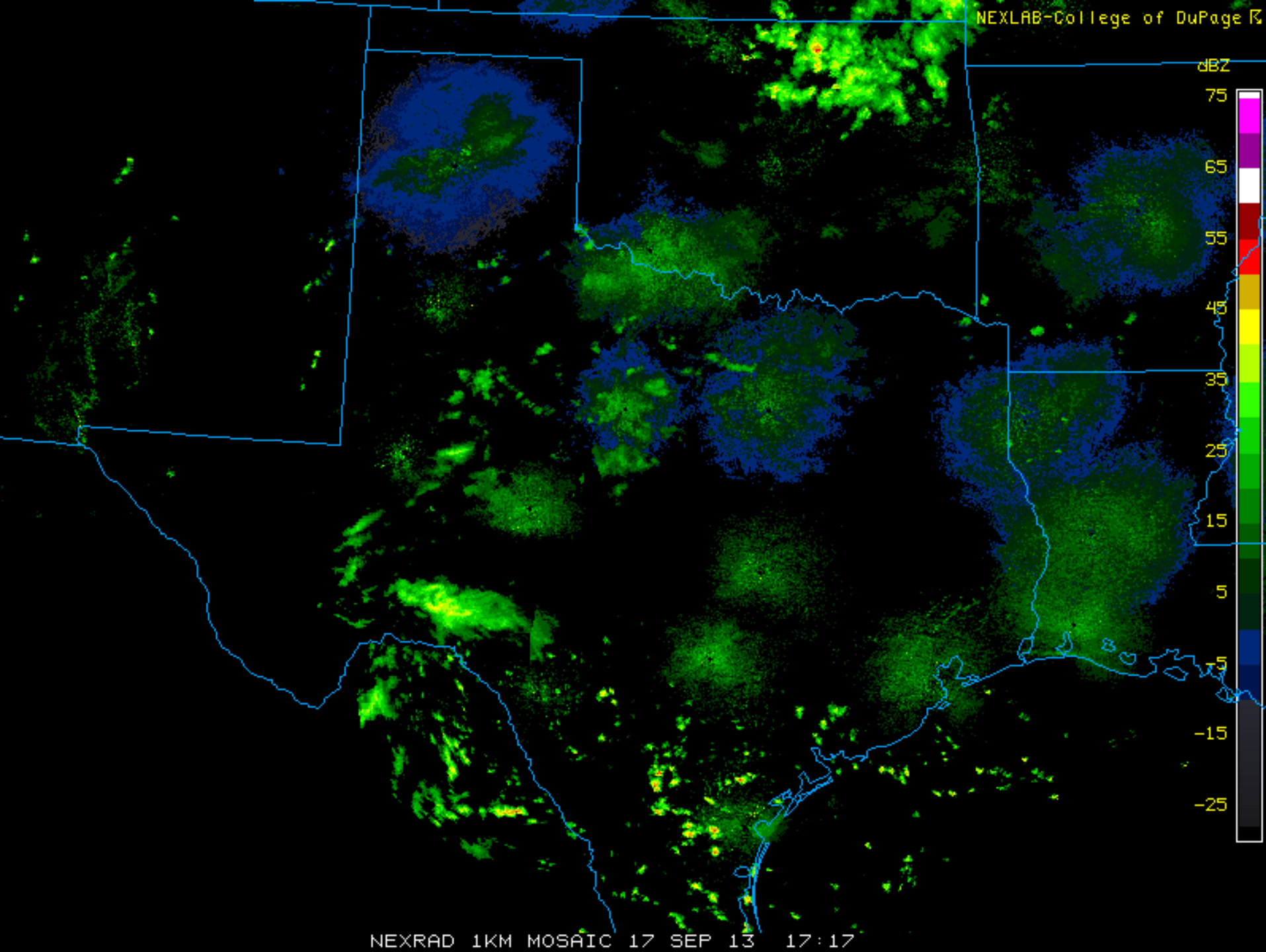
Plymouth State Weather Center

Meteogram for KGLS from 1700Z 16 SEP 13 to 1700Z 17 SEP 13



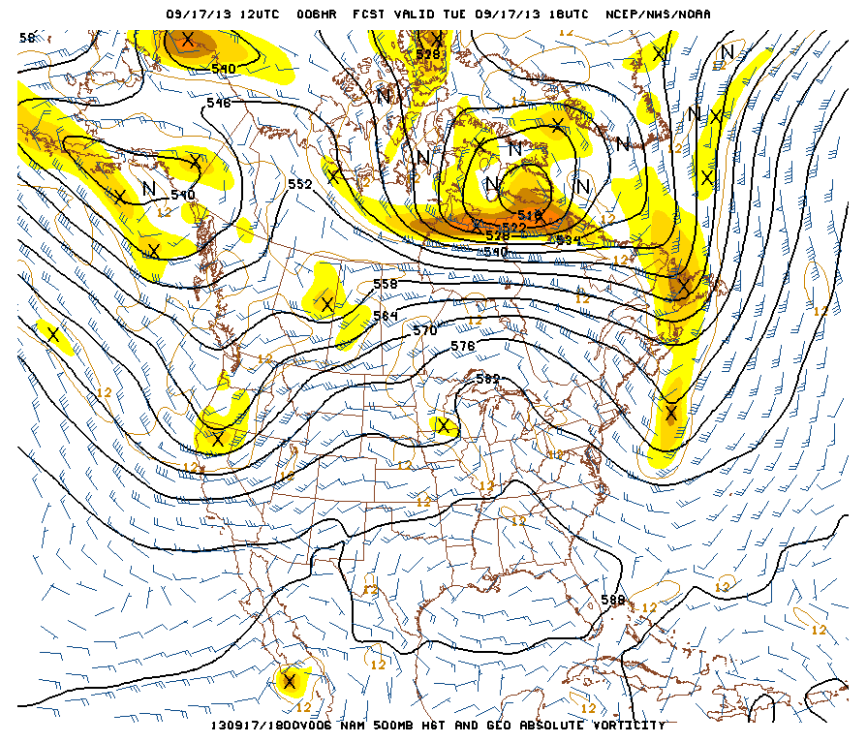
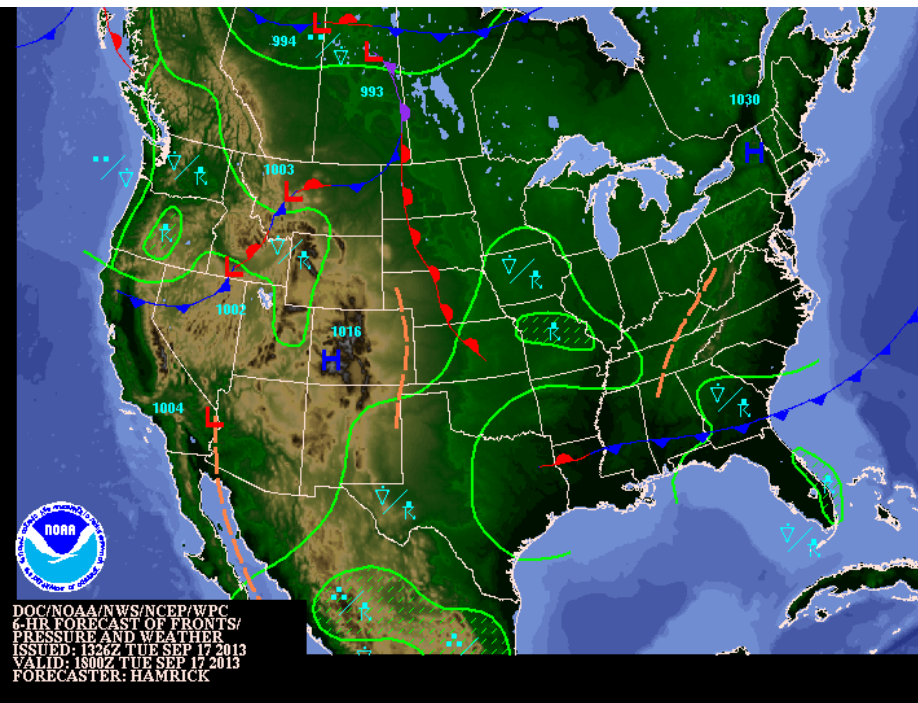


GOES VISIBLE SATELLITE 17 SEP 13 17:15



Today: Similar to yesterday. Region remains under influence of the upper ridge. Moisture will continue to stream into region from Ingrid; will have to fight the subsidence for any convection to occur. Thick cirrus deck and extensive low level cloud coverage present.

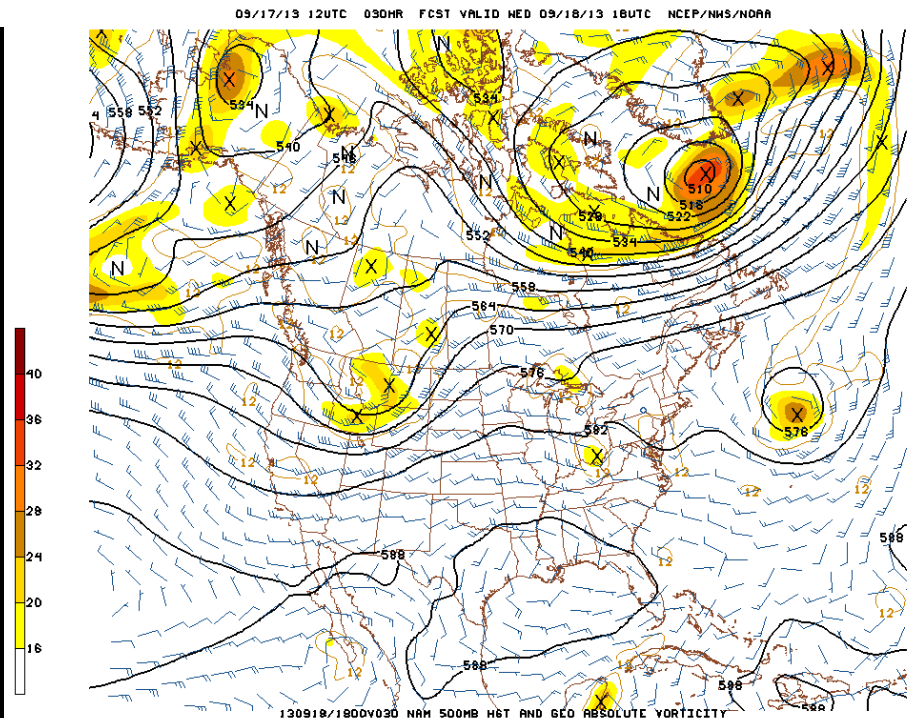
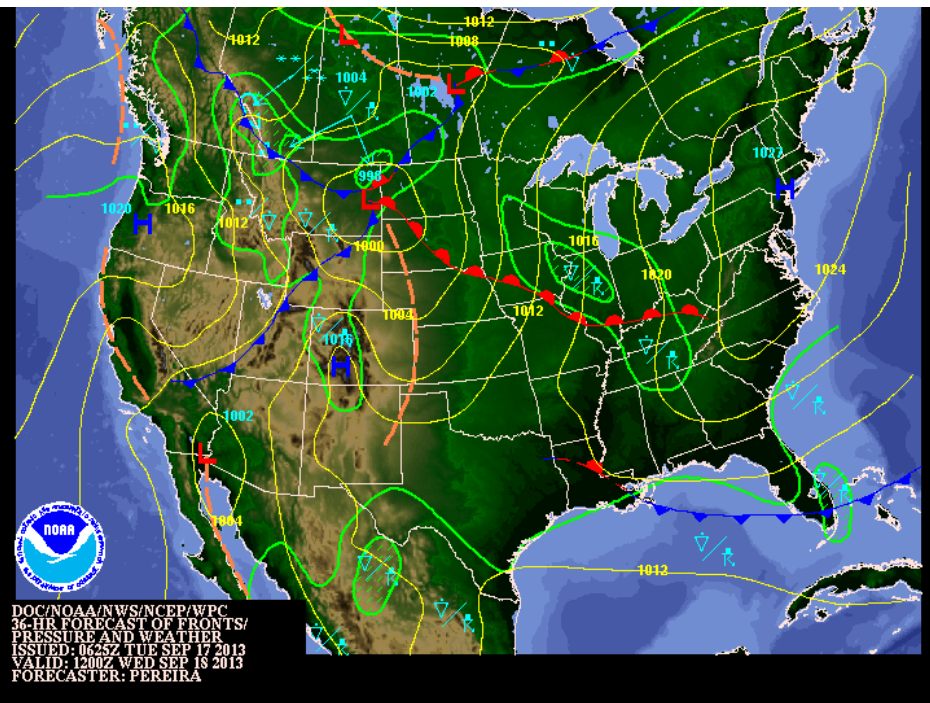
1 PM CDT
500 mb vorticity



10 m winds at 1 PM today

Tomorrow: The upper ridge will weaken significantly while the upper trough builds into the region from the west. This change in synoptic flow will enhance the moisture stream from the remnants of Ingrid and Manuel. Showers and convection should thus form ahead of the surface front.

1 PM CDT
500 mb vorticity



10 m winds at 1 PM tomorrow

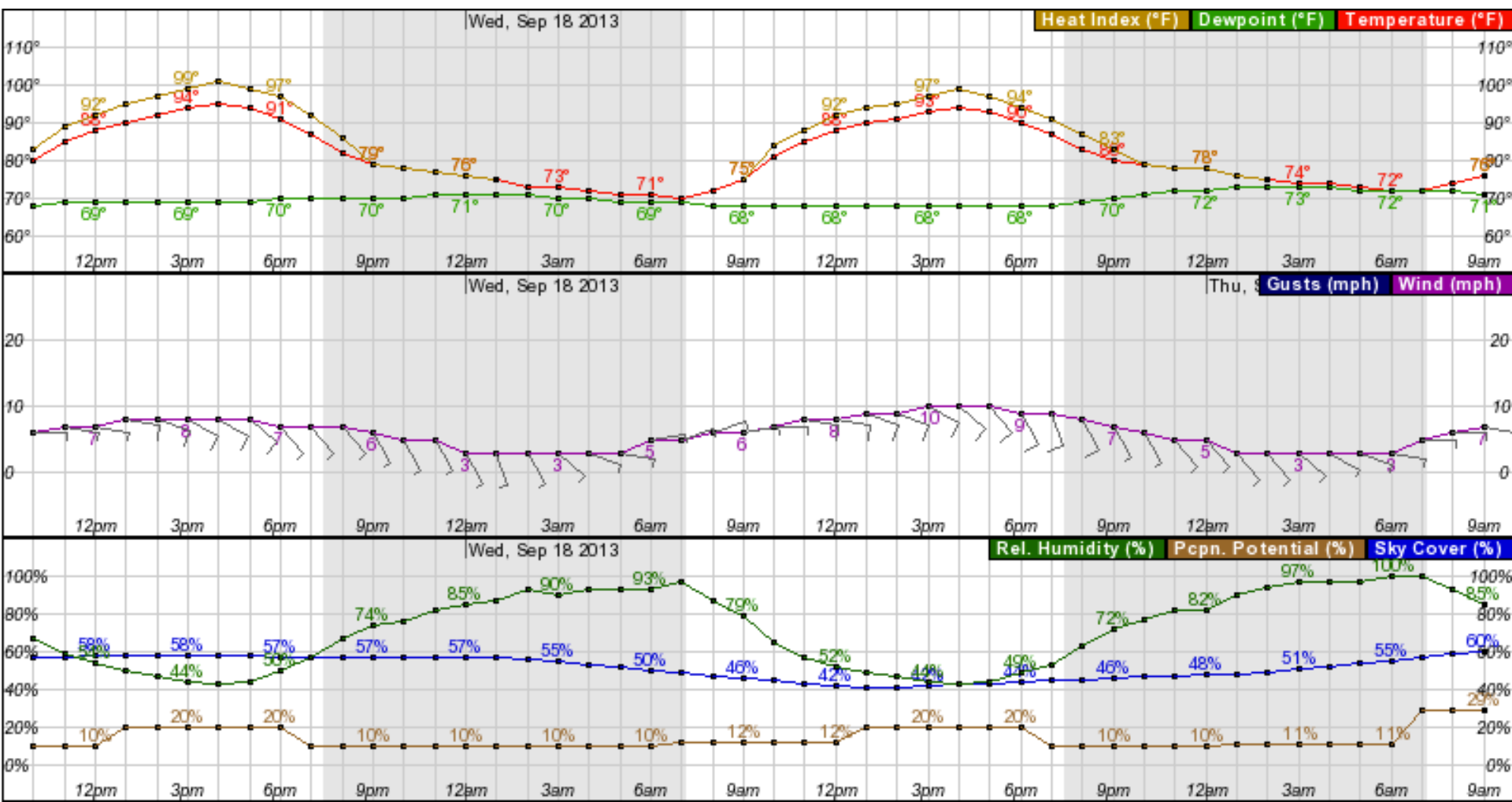
Conroe

Today: Partly cloudy

Tomorrow: Partly cloudy

Today→

Tomorrow→

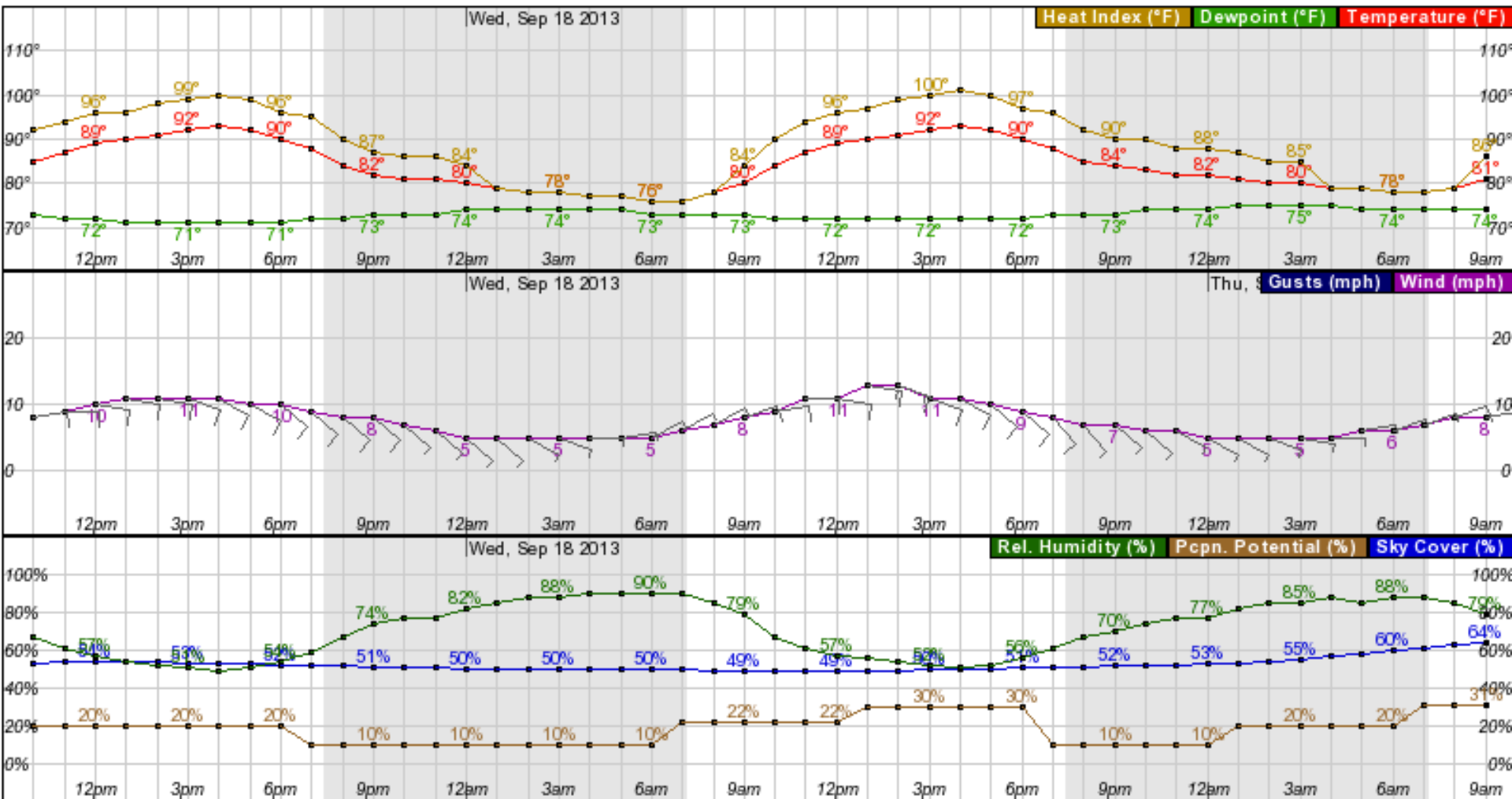


Houston Hobby

Today: Partly cloudy
Tomorrow: Partly cloudy

Today→

Tomorrow→



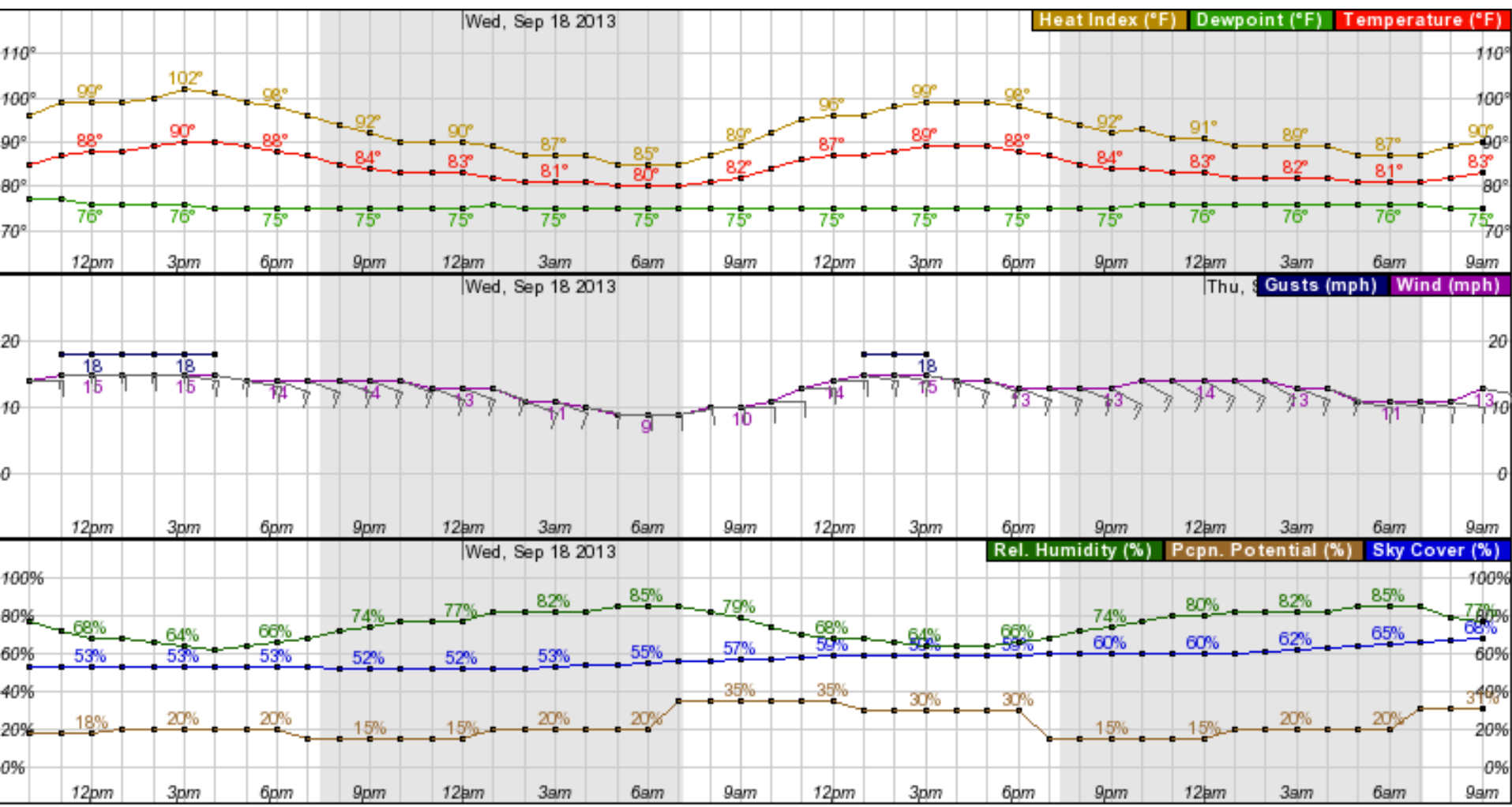
Galveston

Today: Partly cloudy

Tomorrow: Partly cloudy

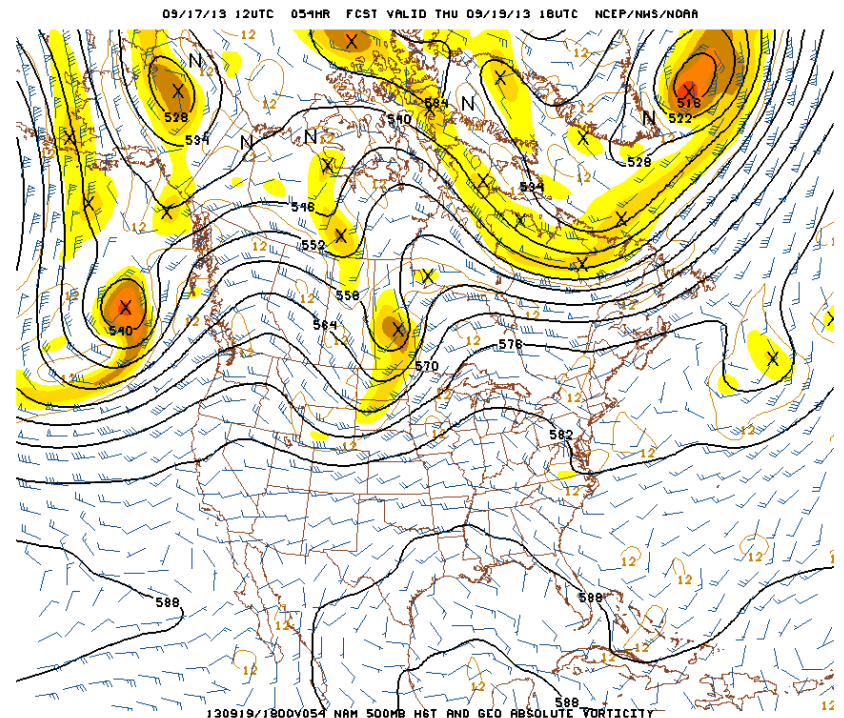
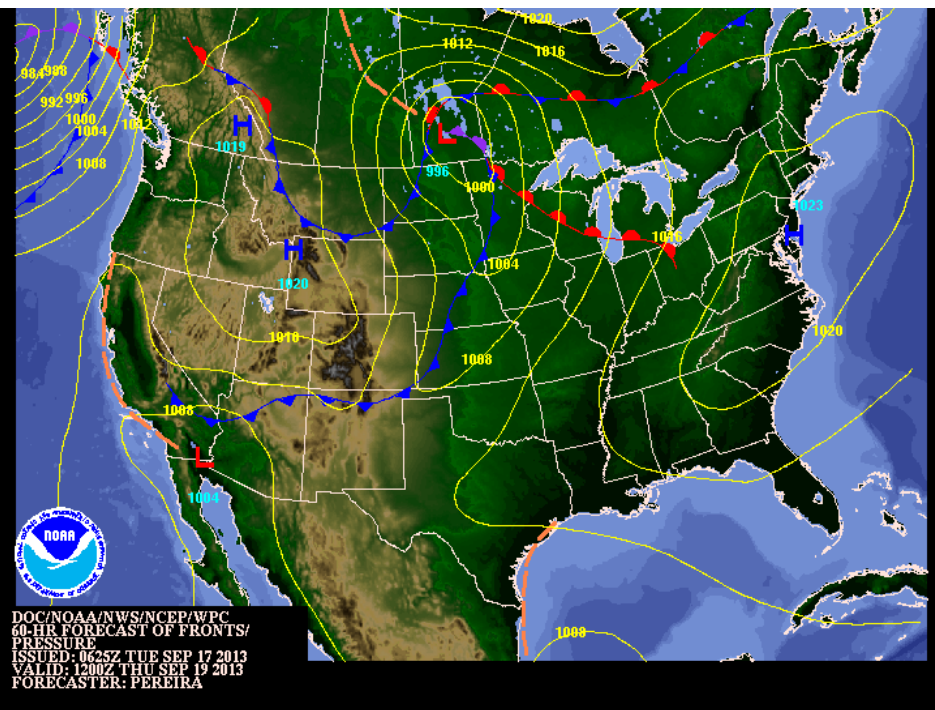
Today→

Tomorrow→



Thursday: Upper trough dominates the study region, which is followed by another trough off the Pacific NW. Moisture will continue to stream in from Ingrid and Manuel, allowing the cloud decks to again thicken; however, best chances for precipitation are on Friday.

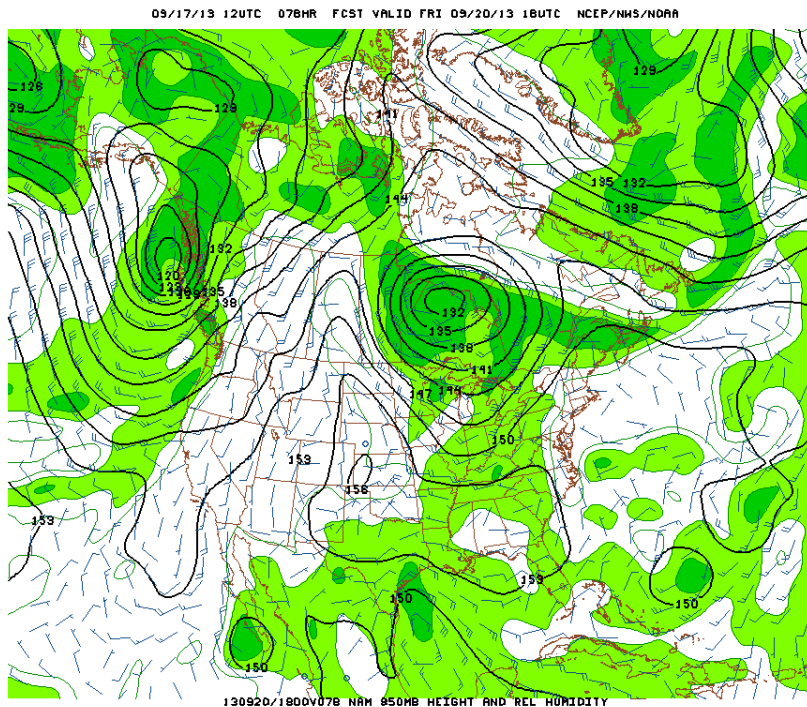
1 PM CDT
500 mb vorticity



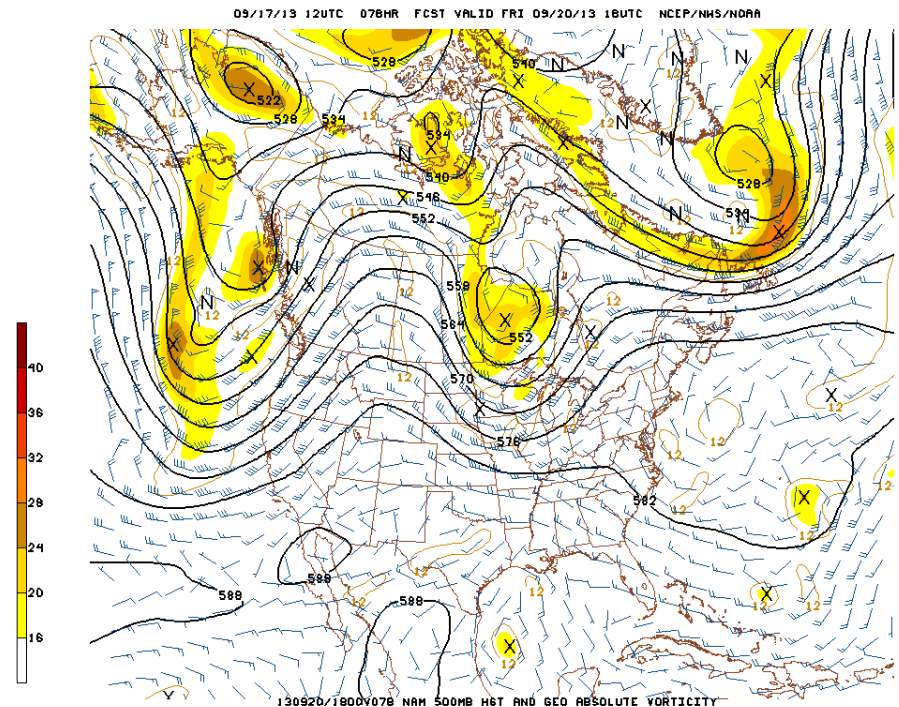
10 m winds at 1 PM Wednesday

Friday: Similar situation as predicted for Thursday. Models demonstrate high chances for showers/convection ahead of the surface front on Friday afternoon.

1 PM CDT
850 mb RH



500 mb vorticity



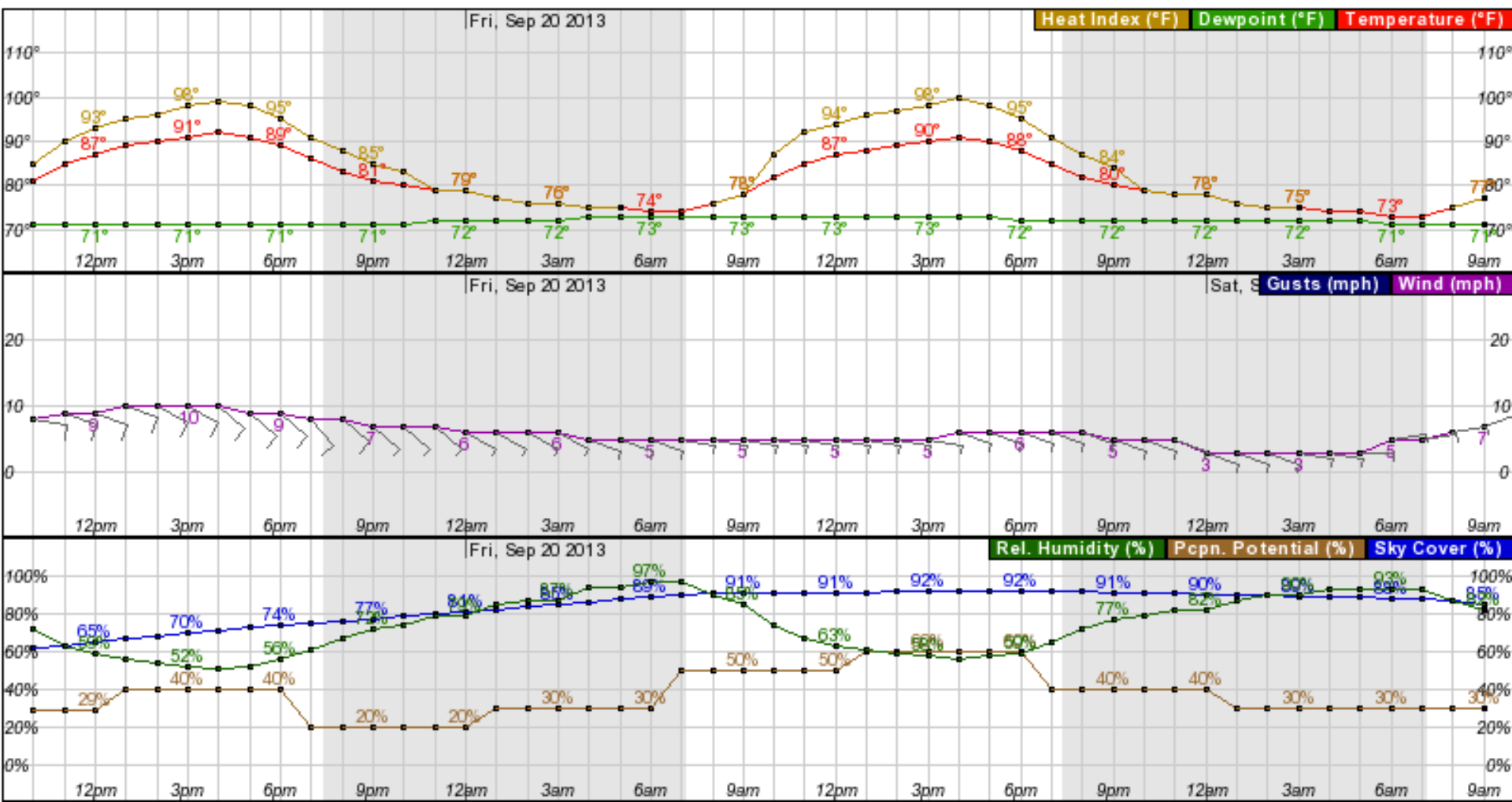
Conroe

Thursday: Mostly cloudy

Friday: Mostly cloudy

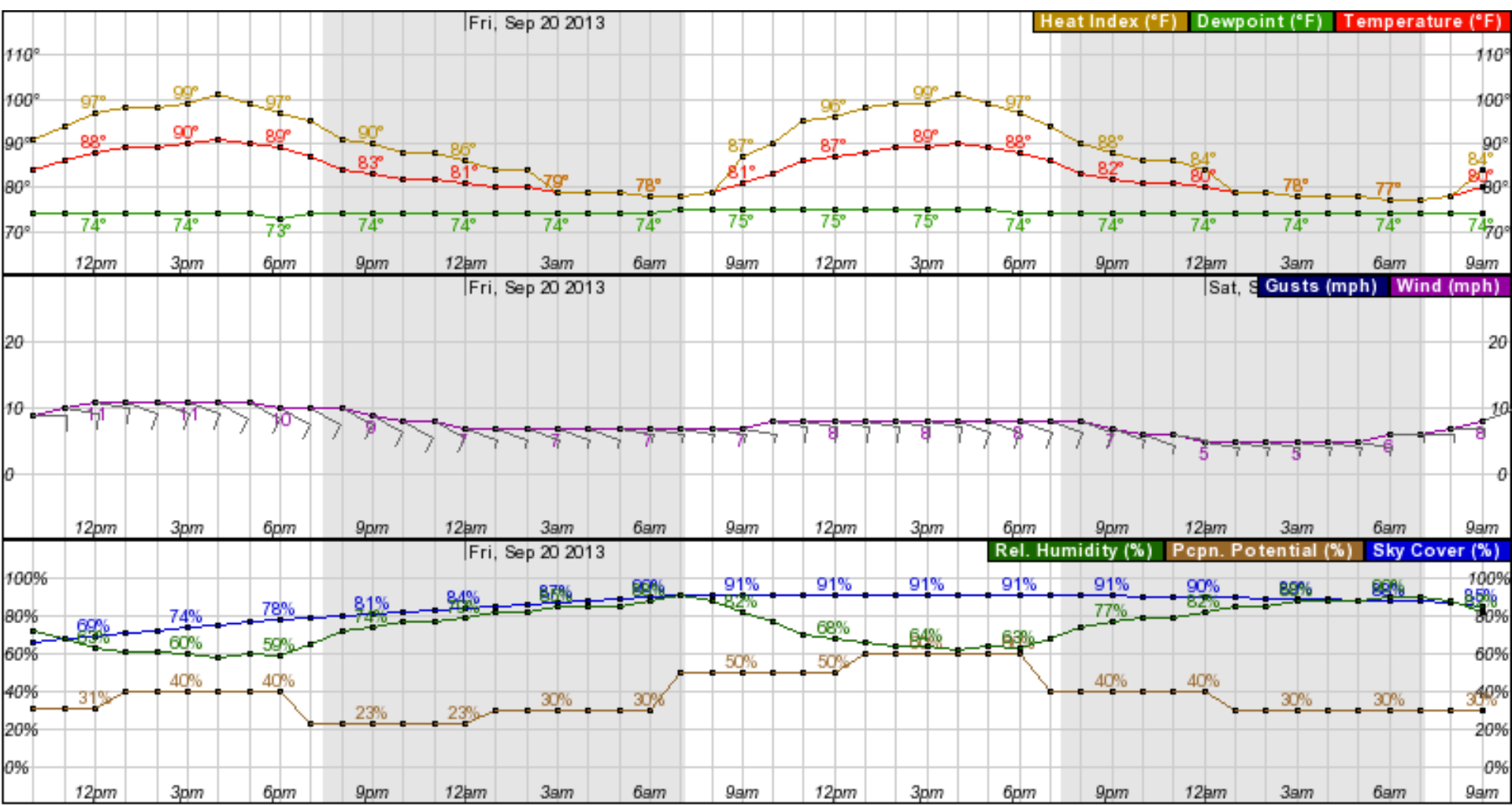
Thursday→

Friday→



Houston Hobby
Thursday: Mostly cloudy
Friday: Mostly cloudy

Thursday→ Friday→



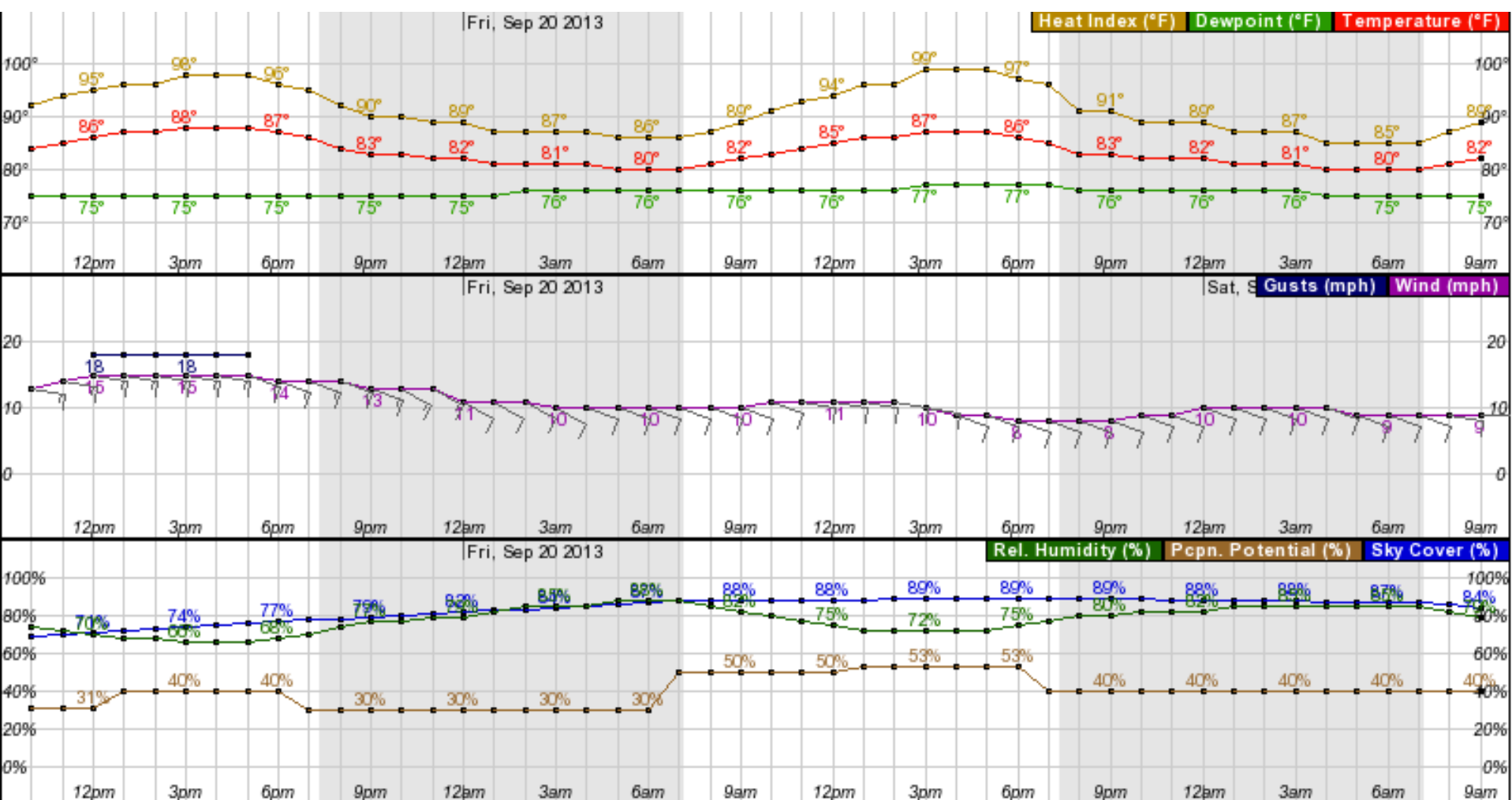
Galveston

Thursday: Mostly cloudy

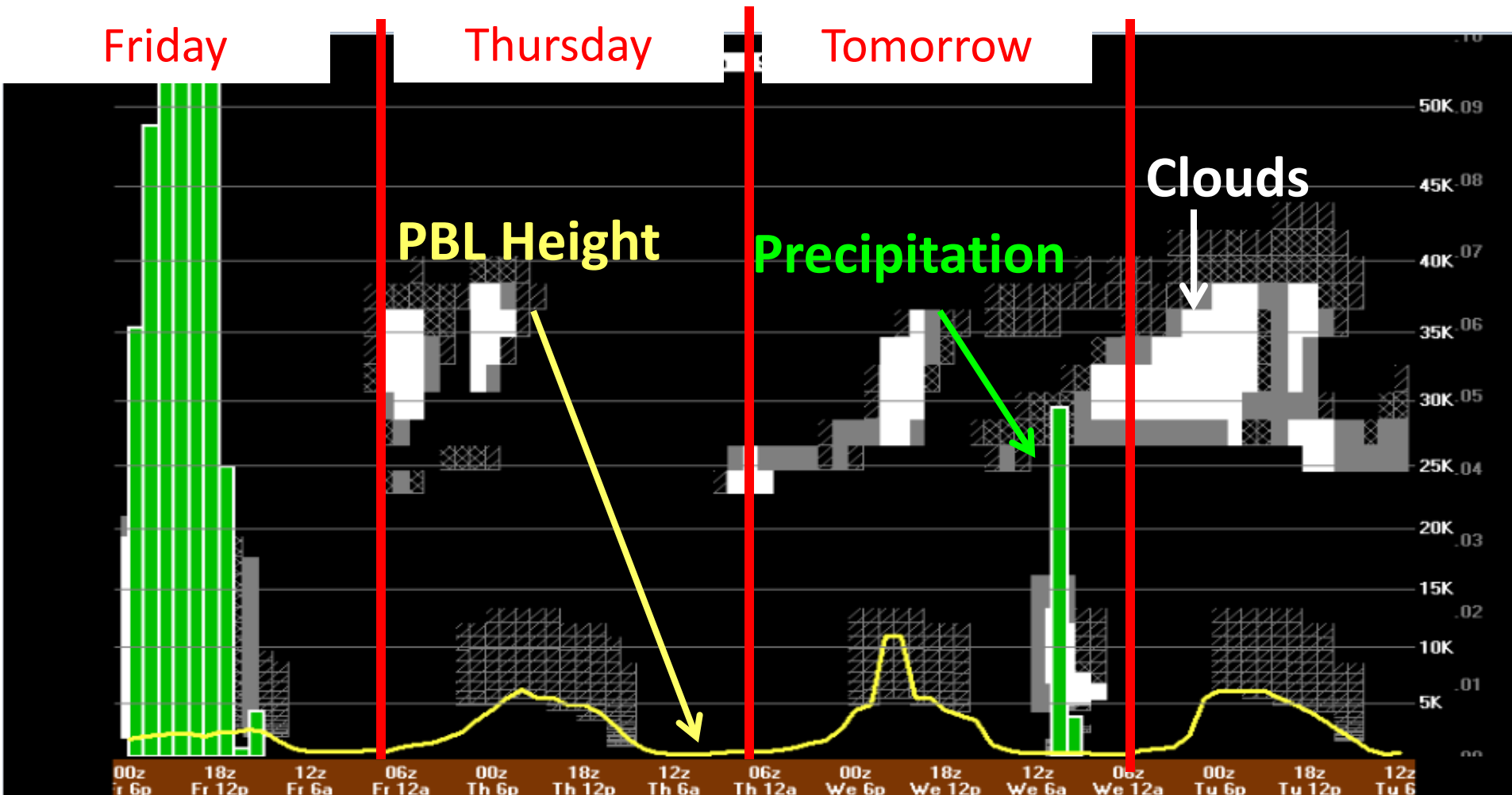
Friday: Mostly cloudy

Thursday→

Friday→

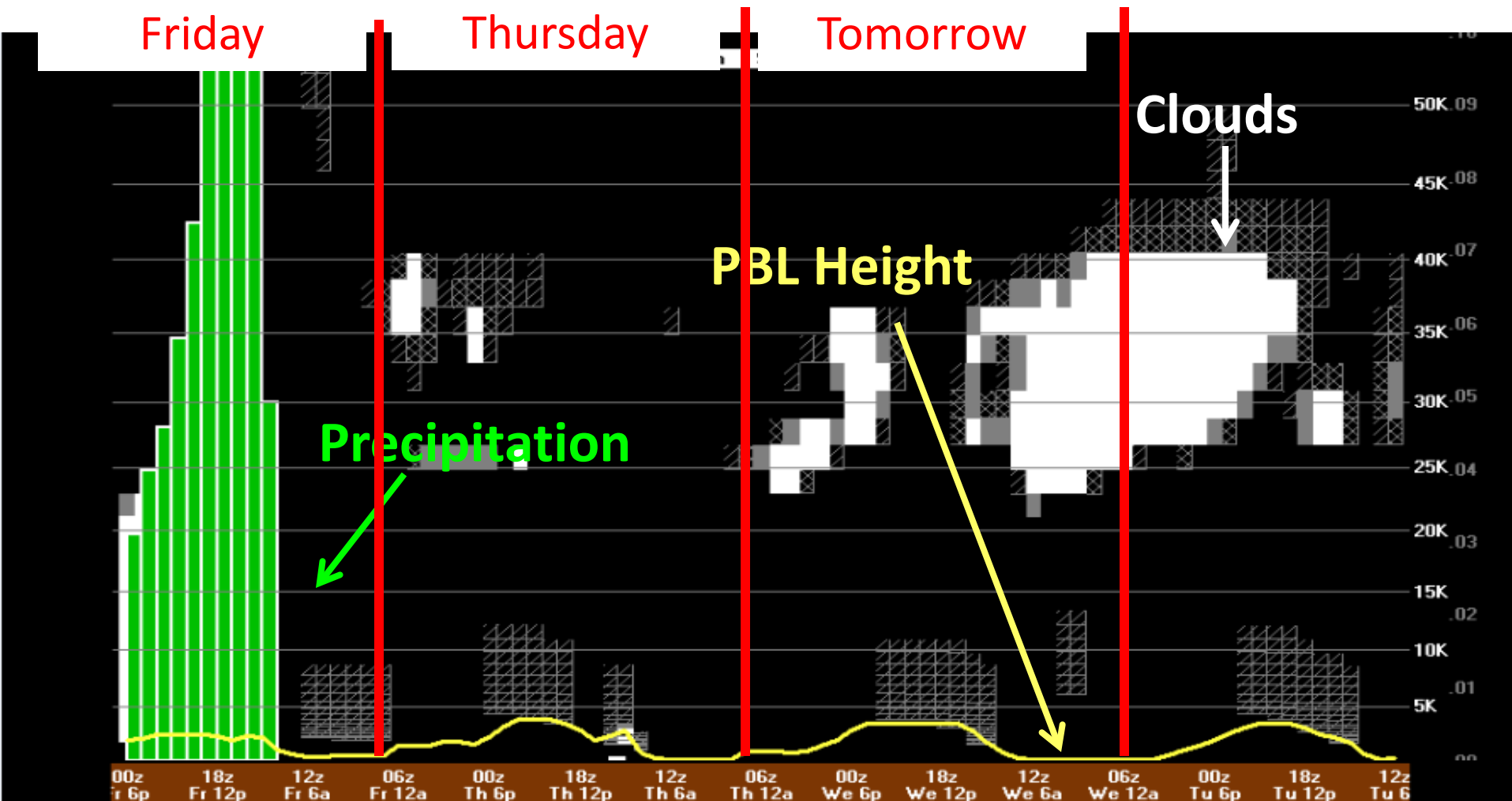


Conroe; BUFKIT – NAM (12 UTC 10 September)



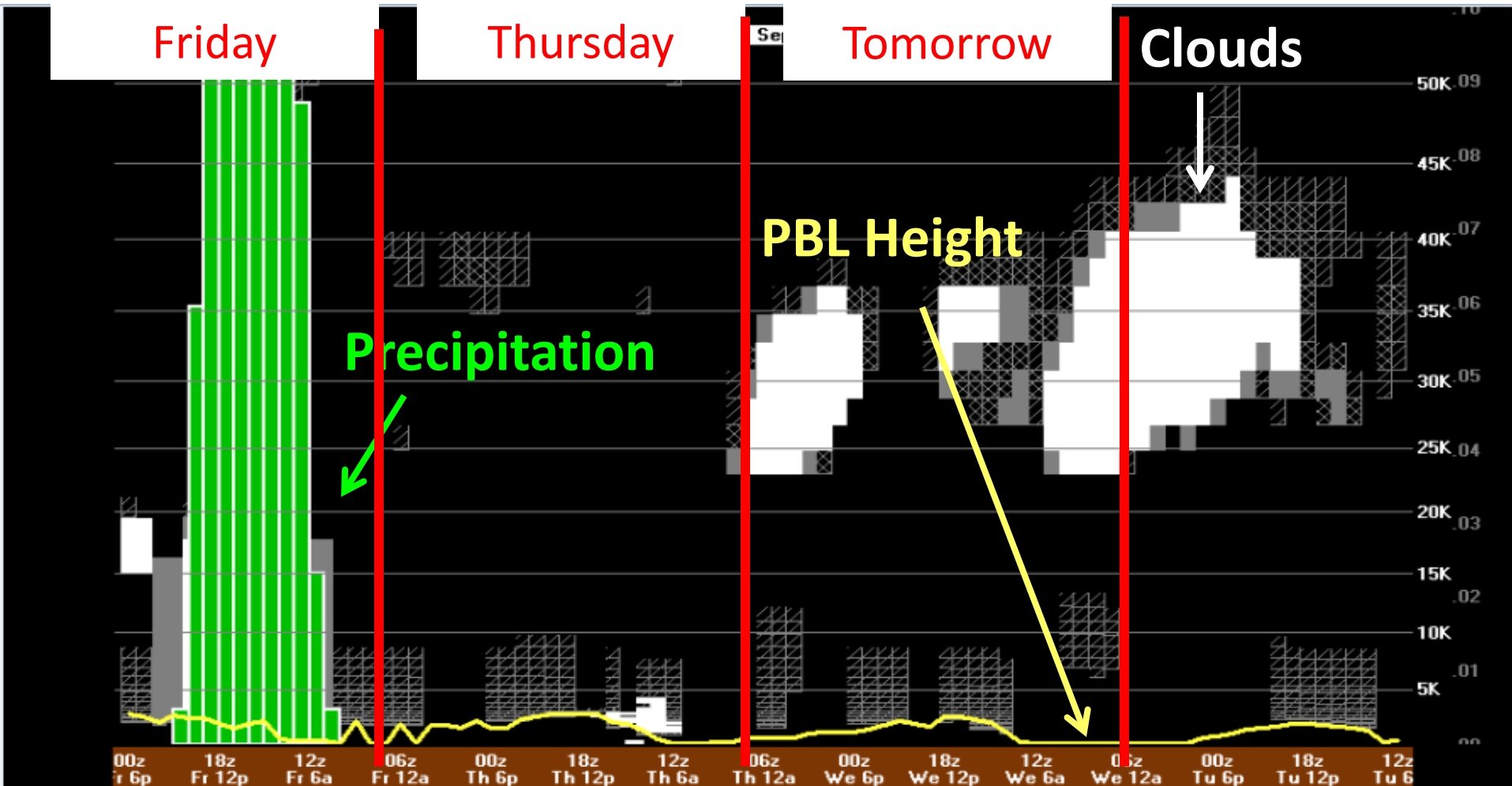
- Tomorrow: Scattered Cu and some cirrus/precipitation.
- Thursday: Scattered Cu during afternoon, with cirrus during evening.
- Friday: Convection and precipitation.

Houston Hobby; BUFKIT – NAM (12 UTC 10 September)



- Tomorrow: Scattered Cu and cirrus during most of the day.
- Thursday: Scattered Cu during afternoon, with scattered cirrus during evening.
- Friday: Convection and precipitation.

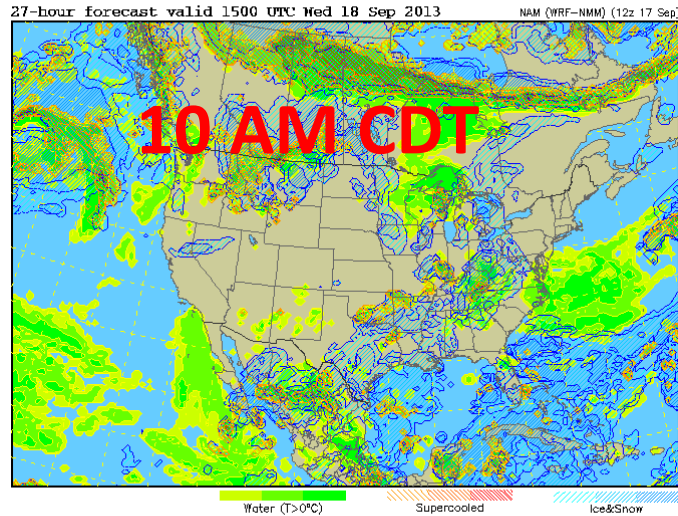
Galveston; BUFKIT – NAM (12 UTC 10 September)



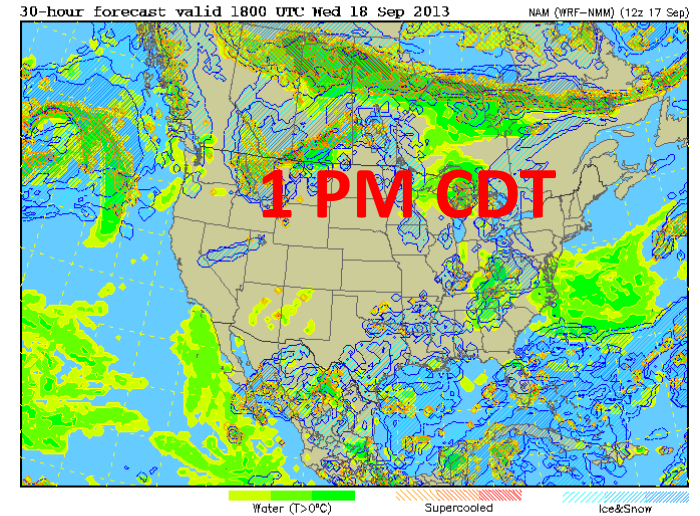
- Tomorrow: Scattered Cu and cirrus during most of the day.
- Thursday: Scattered Cu during afternoon, with scattered cirrus during evening.
- Friday: Convection and precipitation.

Tomorrow: NAM – Cirrus all day with a cumulus deck during afternoon

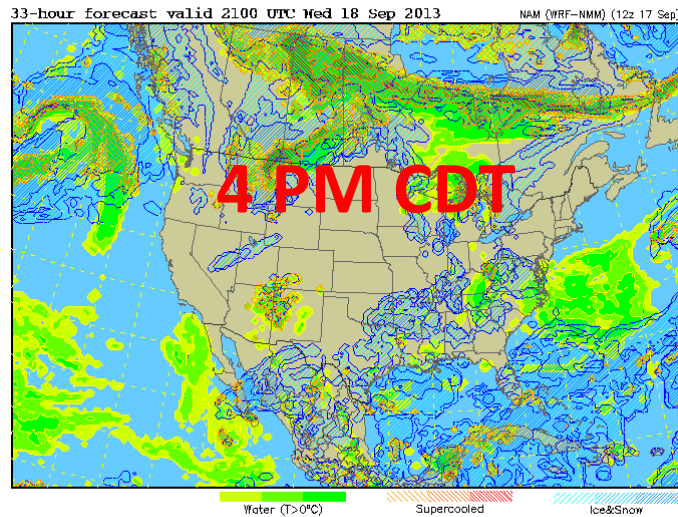
Integrated liquid and frozen hydrometeors (all levels)



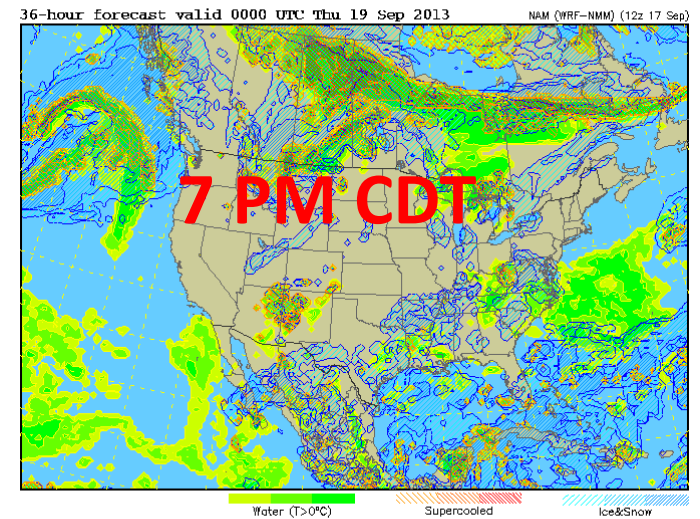
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



Tomorrow: GFS – Cloudy all day

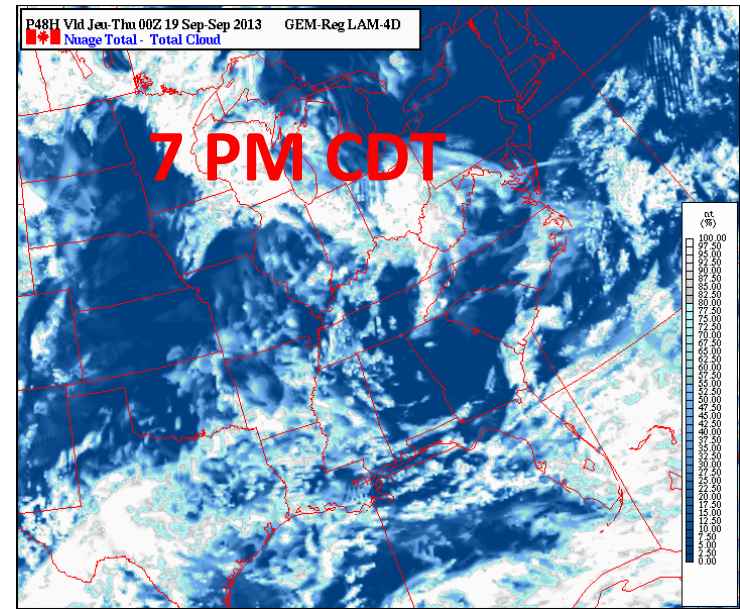
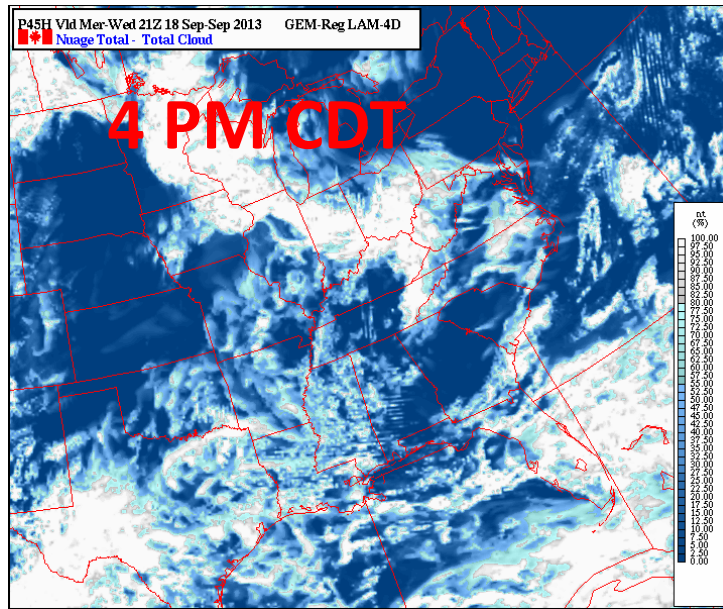
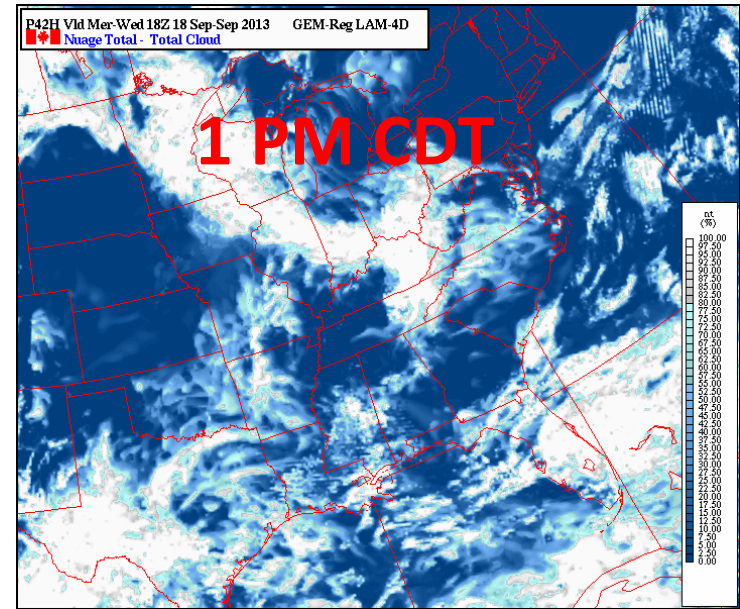
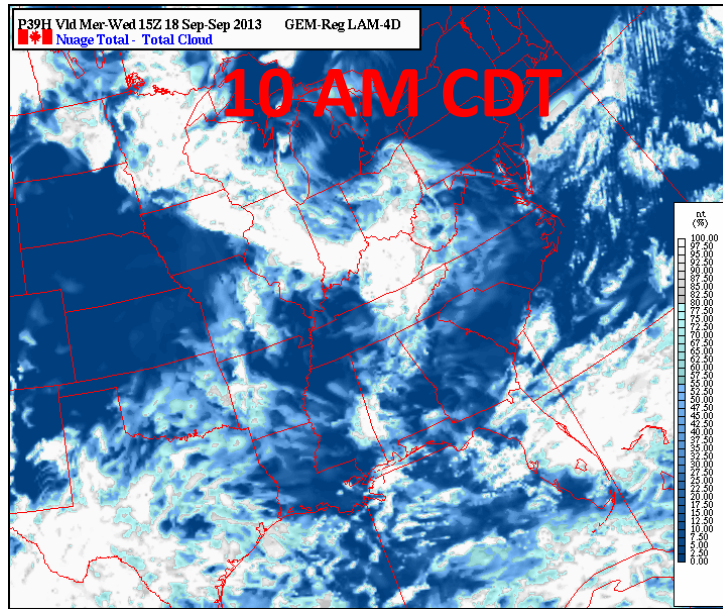
10 AM CDT

1 PM CDT

4 PM CDT

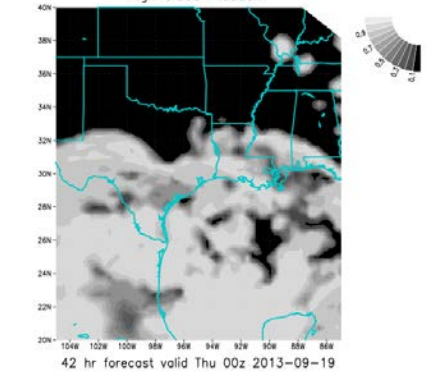
7 PM DT

Tomorrow: Canadian – Cloudy all day

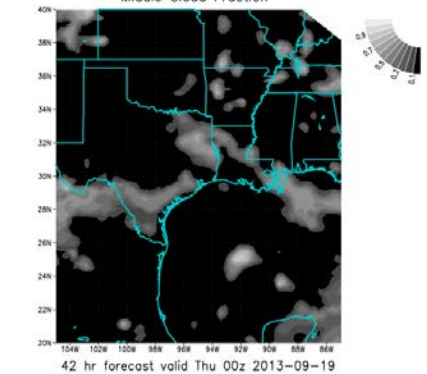


7 pm

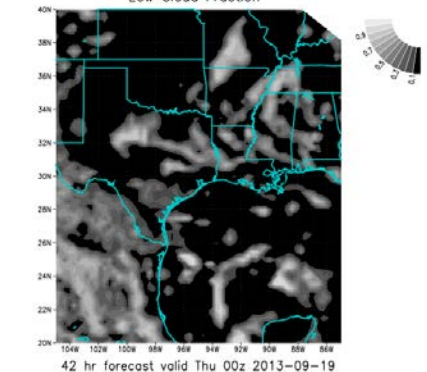
NASA/GMAO - GEOS-5 Forecast initialized on 06z 2013-09-17
High Cloud Fraction



NASA/GMAO - GEOS-5 Forecast initialized on 06z 2013-09-17
Middle Cloud Fraction

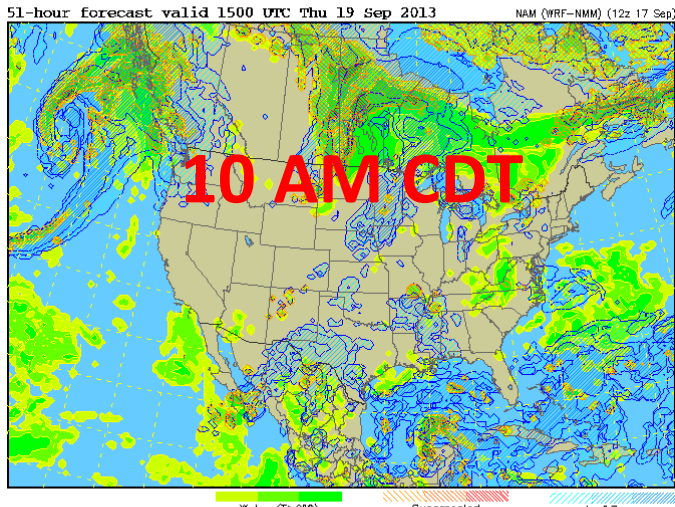


NASA/GMAO - GEOS-5 Forecast initialized on 06z 2013-09-17
Low Cloud Fraction

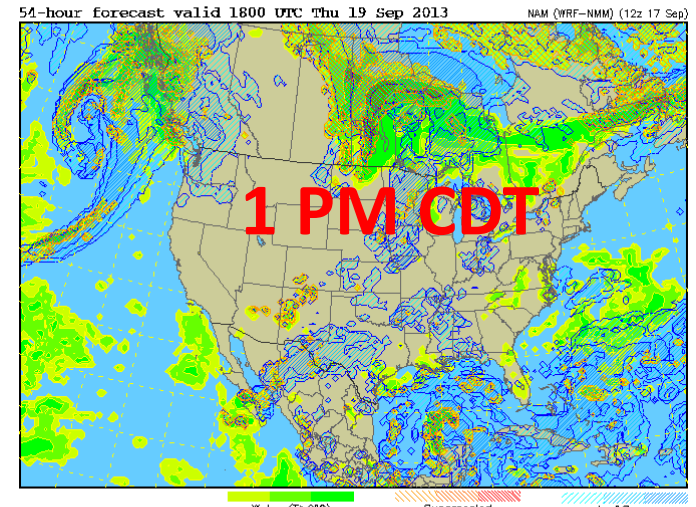


Thursday: NAM – Clear during morning, clouds by afternoon

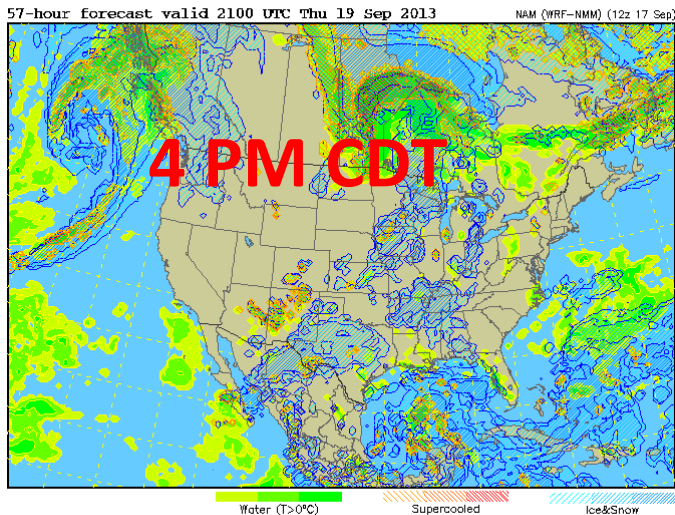
Integrated liquid and frozen hydrometeors (all levels)



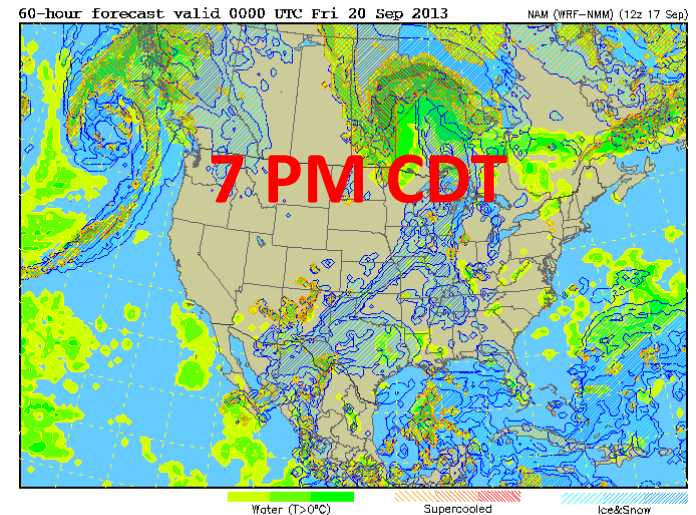
Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



Integrated liquid and frozen hydrometeors (all levels)



Wednesday: GFS – Clouds through the afternoon

1 PM CDT

7 PM CDT

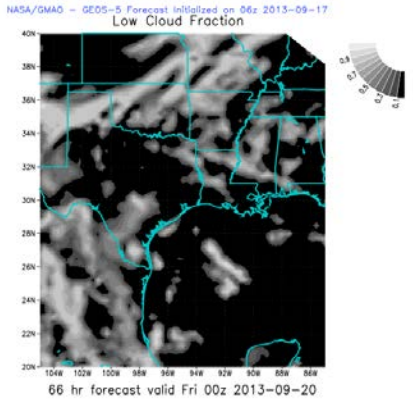
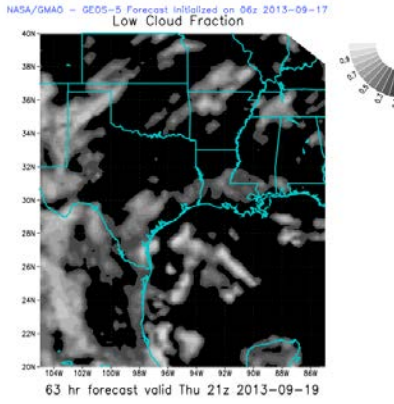
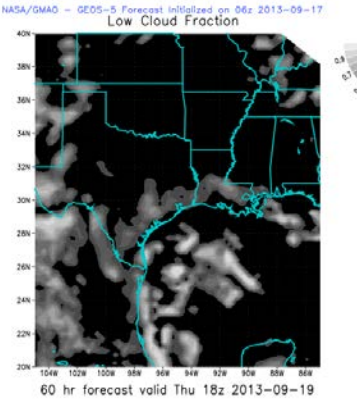
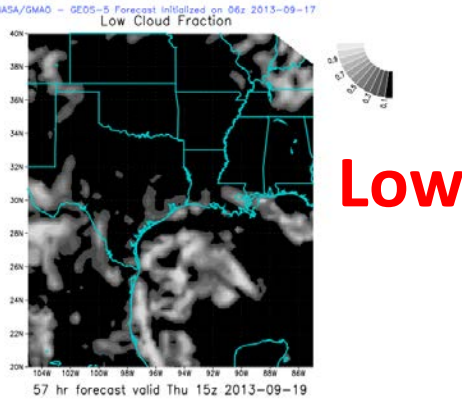
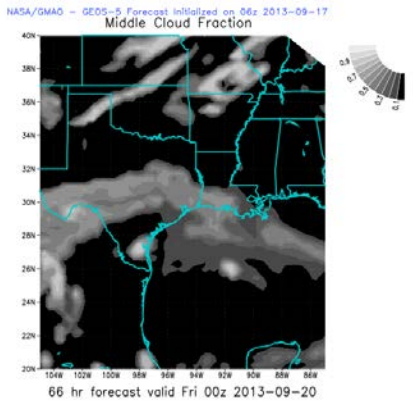
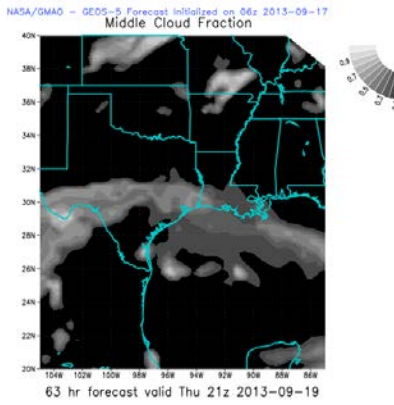
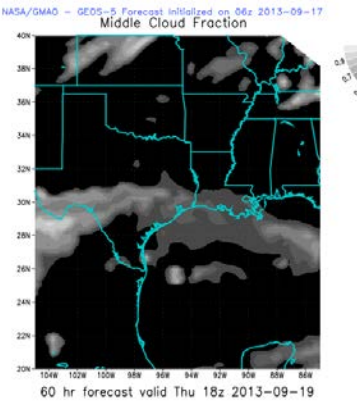
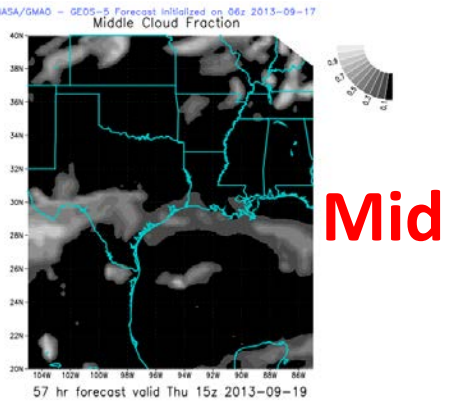
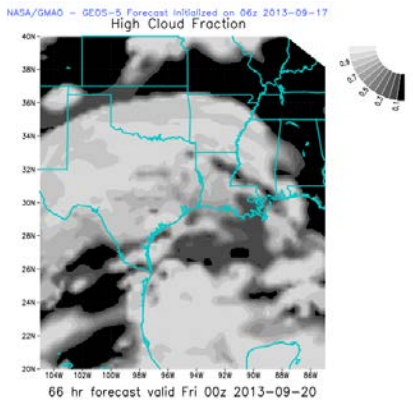
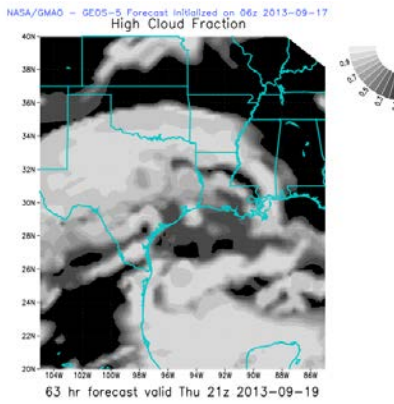
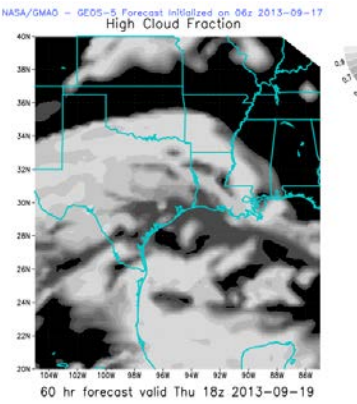
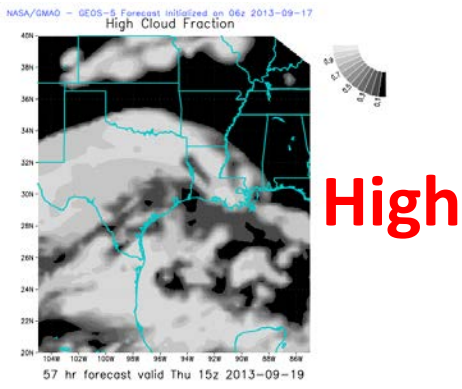
Thursday: GEOS-5 – clouds at all levels throughout the day

10 am

1 pm

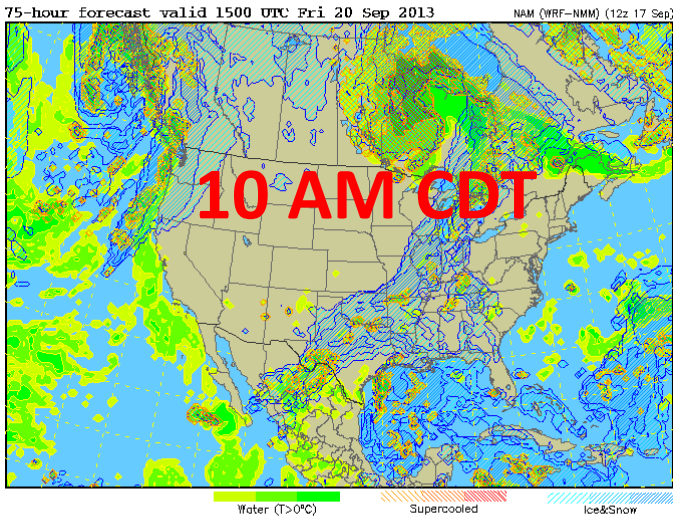
4 pm

7 pm

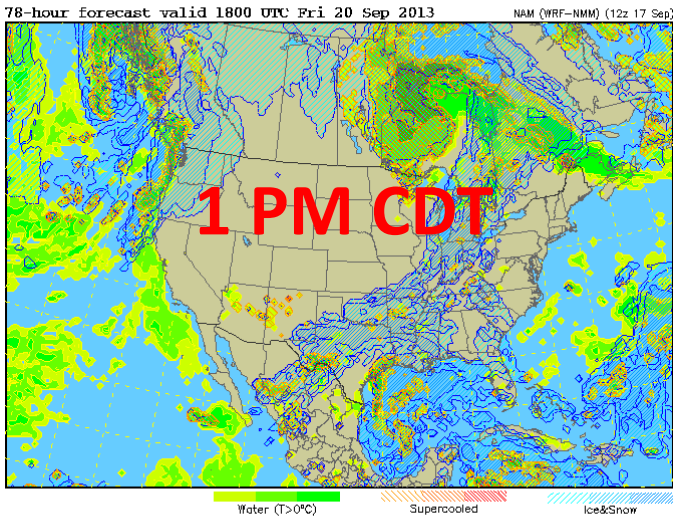


Friday: NAM – Cloud coverage increases throughout the day

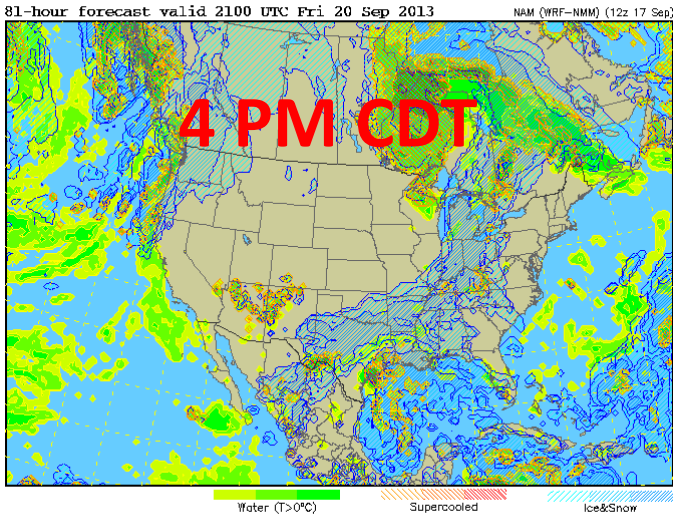
Integrated liquid and frozen hydrometeors (all levels)



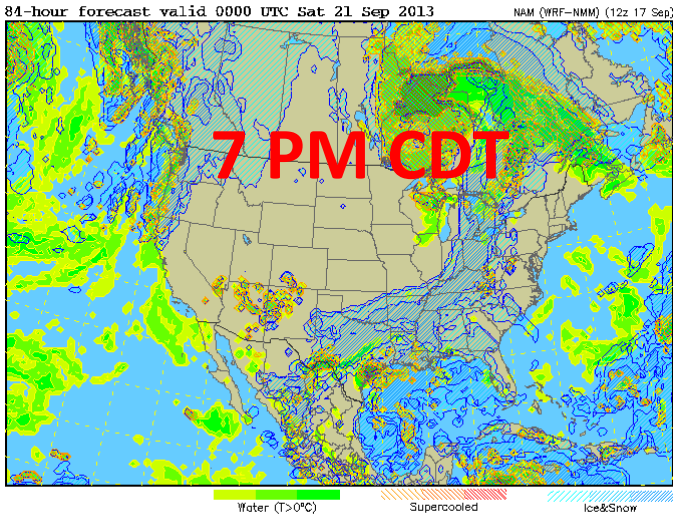
Integrated liquid and frozen hydrometeors (all levels)



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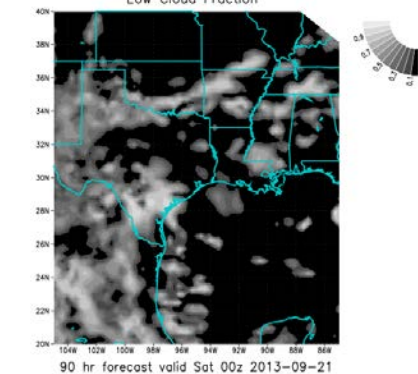
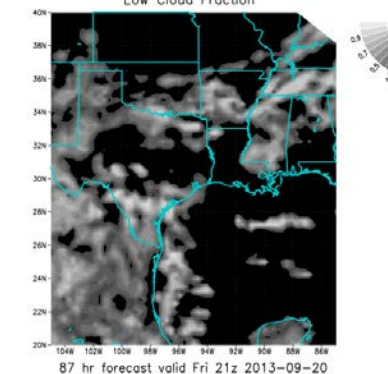
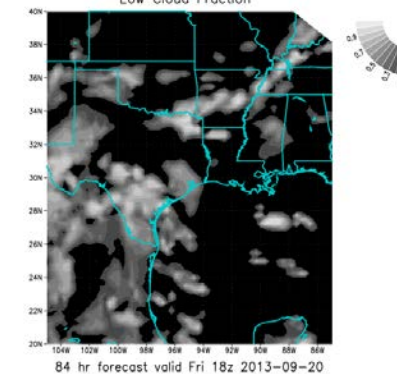
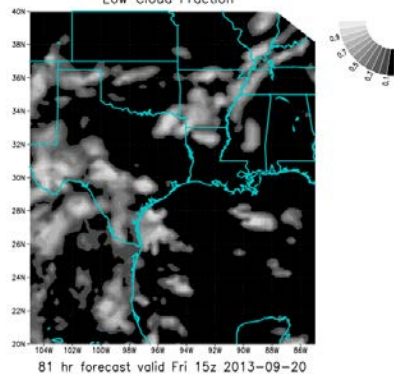
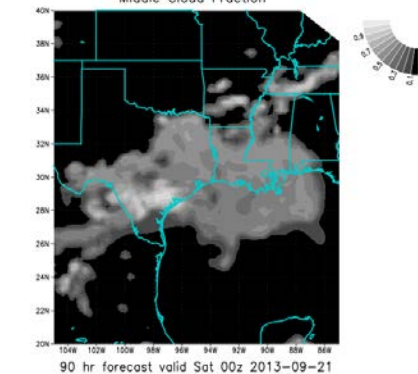
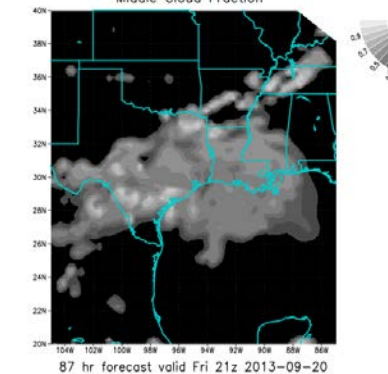
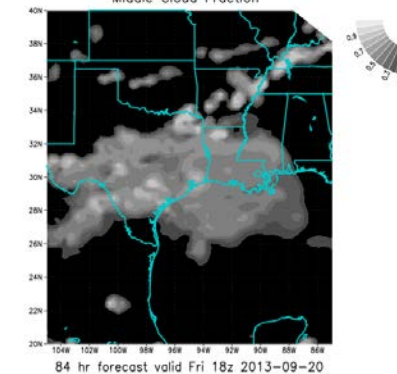
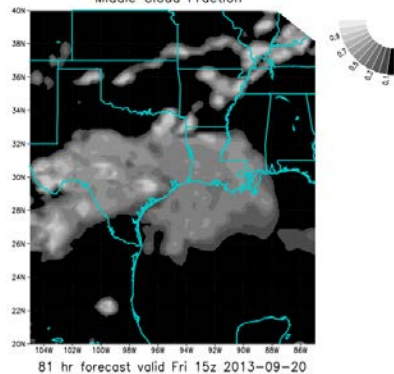
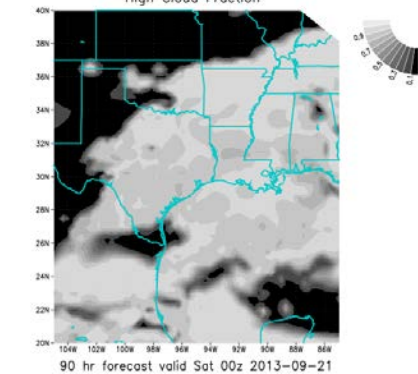
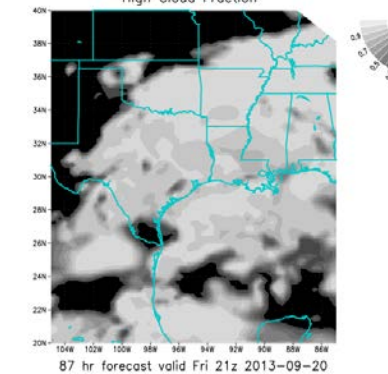
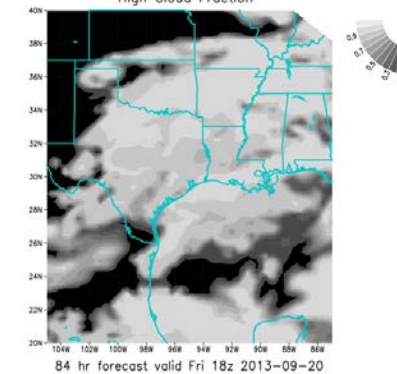
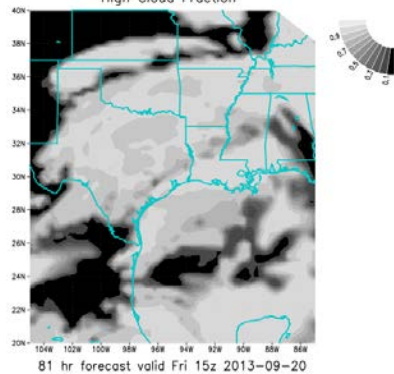
Friday: GEOS-5 – high and mid level clouds all day

10 am

1 pm

4 pm

7 pm



DISCOVER-AQ Air Quality Outlook

September 17, 2013

Bryan Duncan

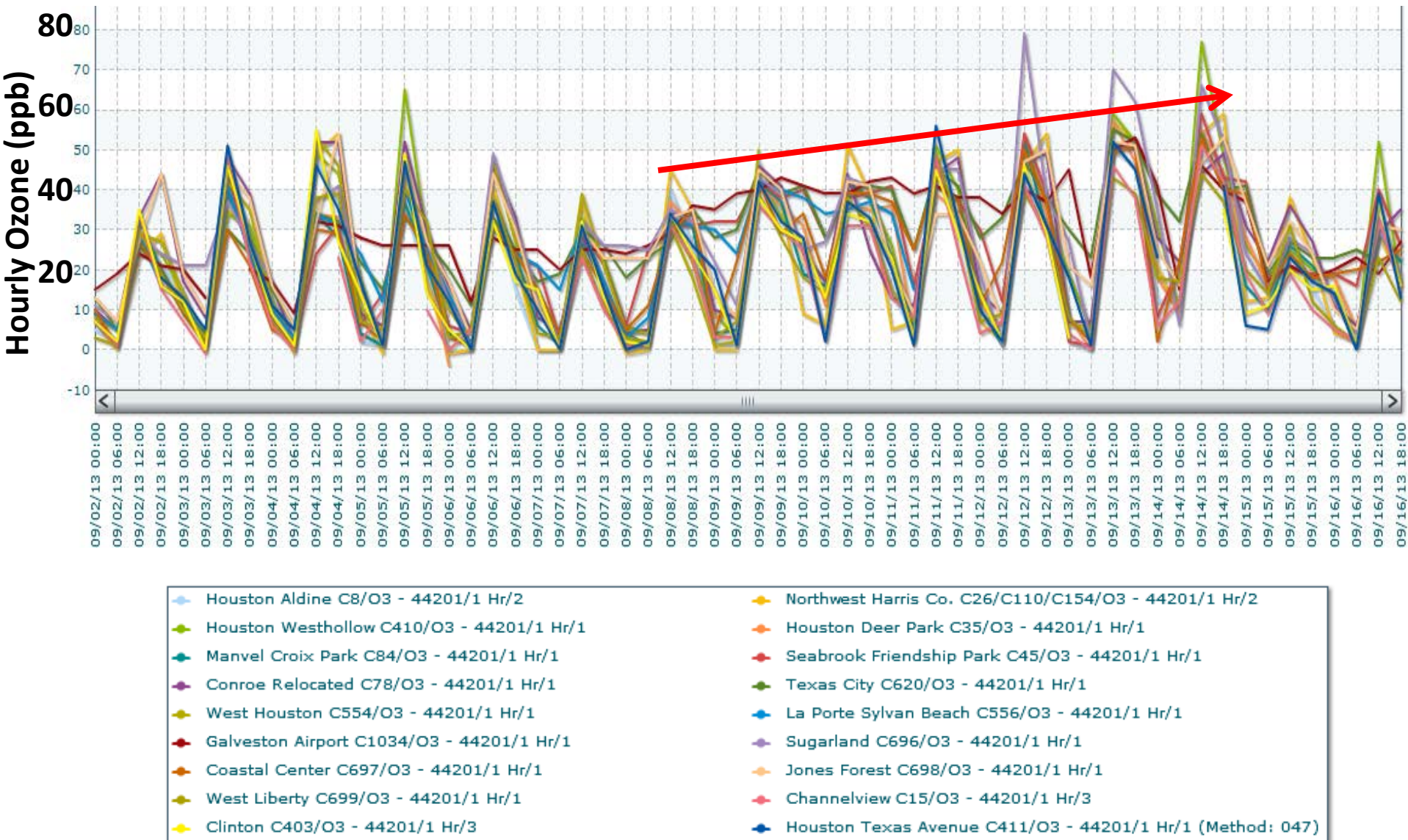
Mariel Friberg

TCEQ AQ Forecast:

TODAY-FRIDAY: Code Green – Good 🙄

Hourly Ozone (airnowtech.org)**

September 2nd – 16th ** EVERY 6th HOUR PLOTTED!!!!



Houston - Network of Environmental Towers (H-NET)

Houston Network of Environmental Towers (H-NET) collect chemistry and meteorological measurements for air quality model applications in Houston Galveston Area. This web site provides real-time update of collected data, as well as historical data.

Currently, **five sites** have been set up in

- [UH - Main Campus](#) (695)
- [Jones State Forest](#) (698)
- [West Liberty Airport](#) (699)
- [UH - Sugar Land](#) (696)
- [UH - Coastal Center](#) (697)

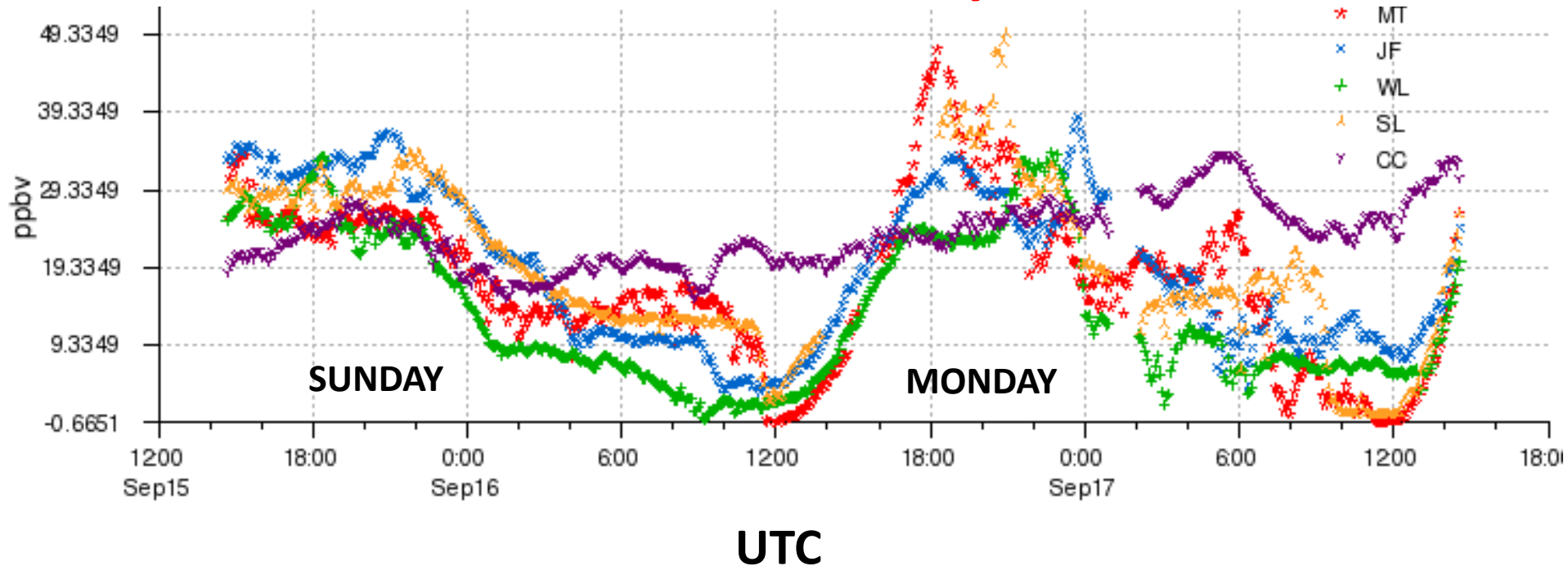
[More about this project.](#)



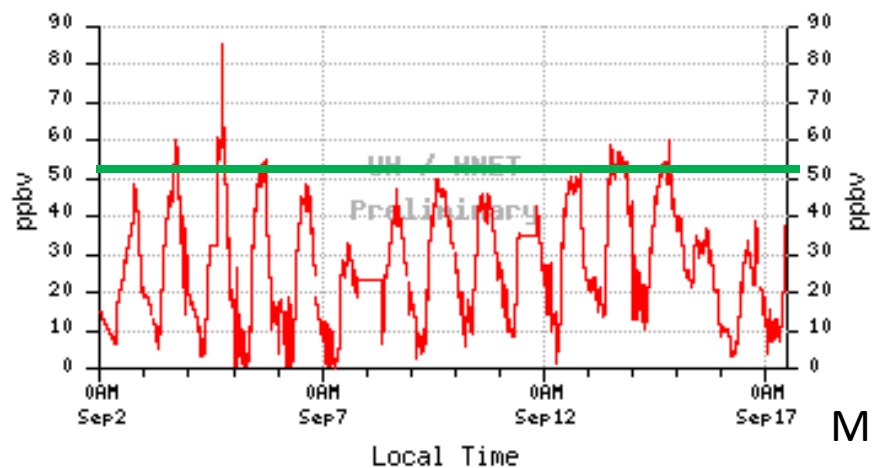
low ozone – marine air

background increased some as
indicated by Coastal Center

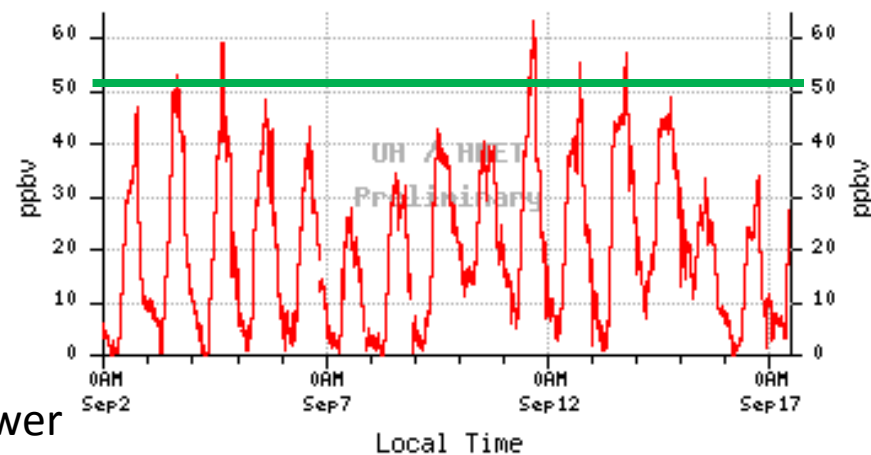
Ozone (ppbv)



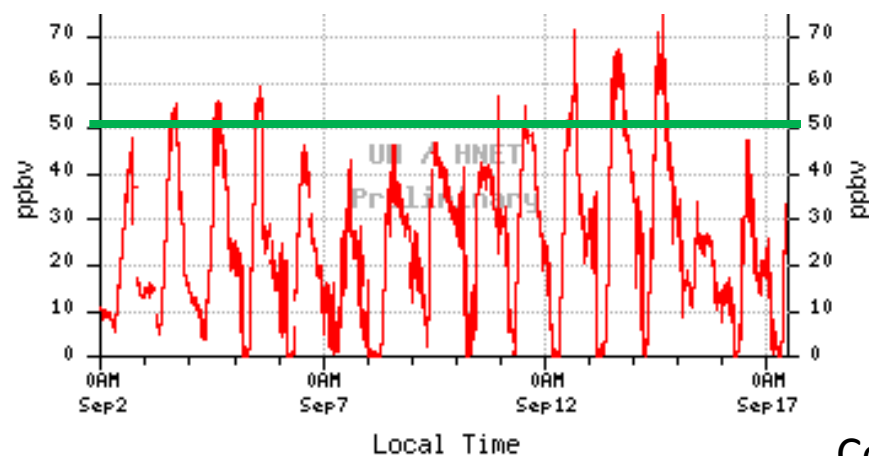
Jones Forest



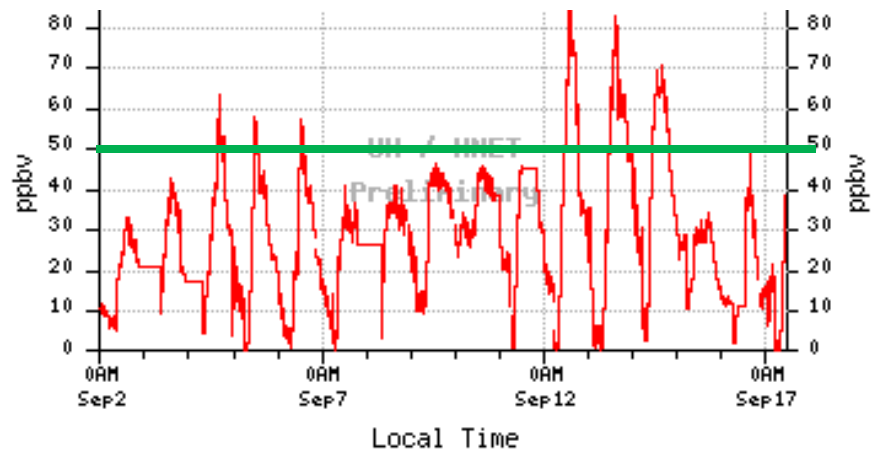
West Liberty



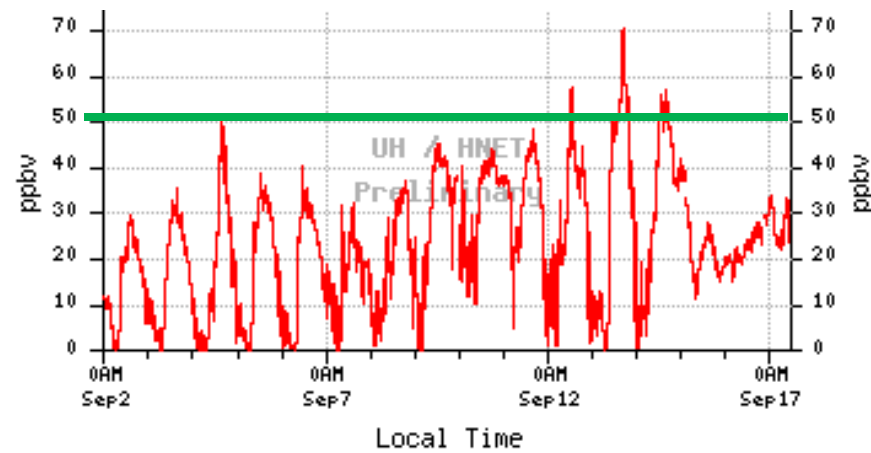
Moody Tower



Sugar Land



Coastal Center



O₃ (ppbv) – 15 min avg
September 2nd – 16th

———— = 50 ppbv

**Houston – Network of
 Environmental Towers
 (H-NET)**

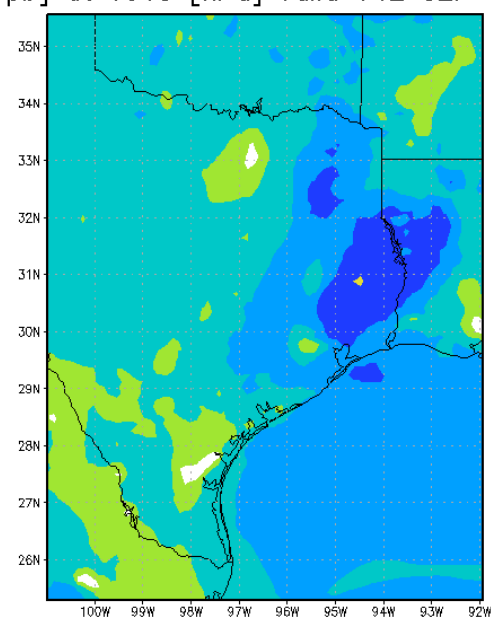


03 [ppb] at 1013 [hPa] Valid 14Z SEP 18 2013

1013 hPa

03 [ppb] at 1013 [hPa] Valid 17Z SEP 18 2013

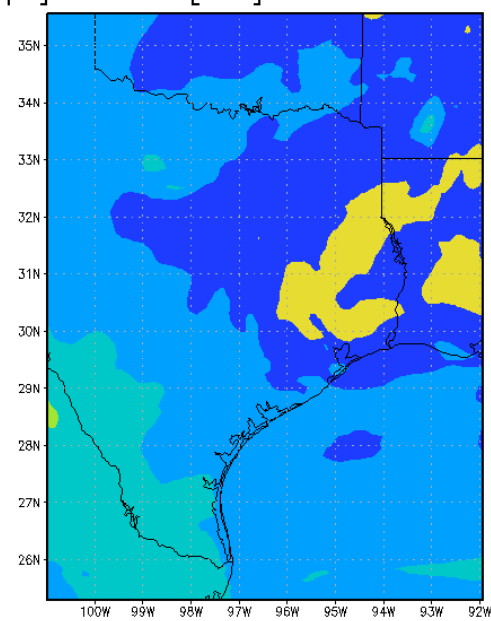
9 am



**NOAA
Experim.
CMAQ**

**Surface
Ozone**

noon

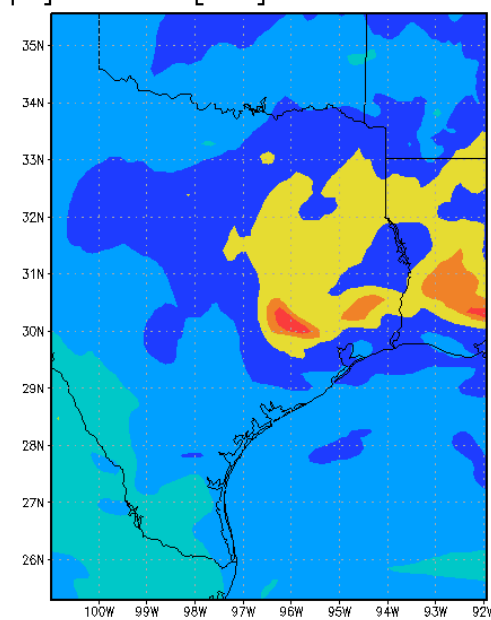


GRADS: COLA/IGES

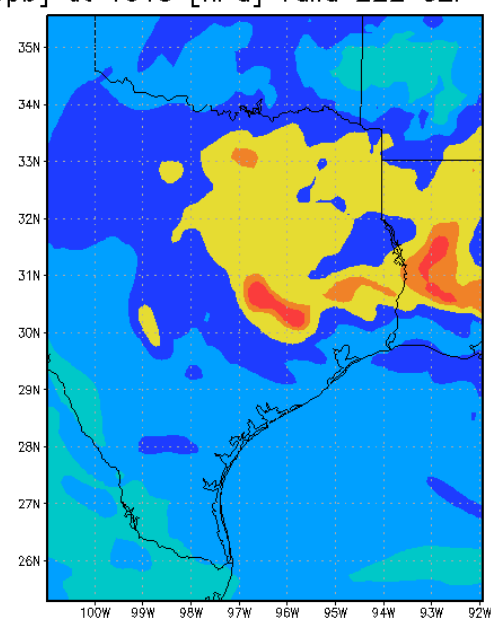
GRADS: COLA/IGES

03 [ppb] at 1013 [hPa] Valid 19Z SEP 18 2013

2 pm



5 pm



Wednesday

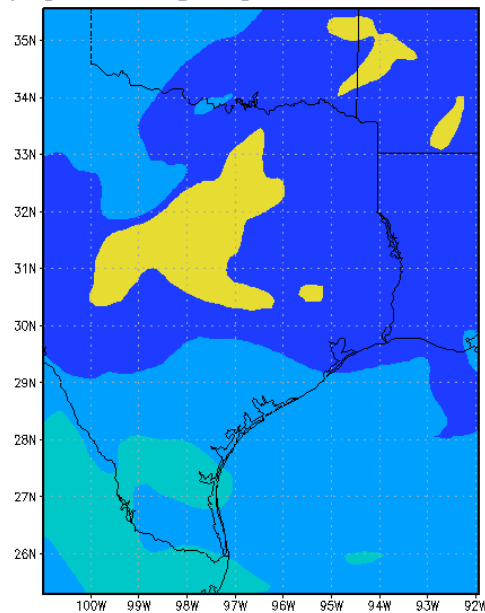
GRADS: COLA/IGES

GRADS: COLA/IGES



03 [ppb] at 850 [hPa] Valid 14Z SEP 18 2013

9 am



GRADS: COLA/IGES

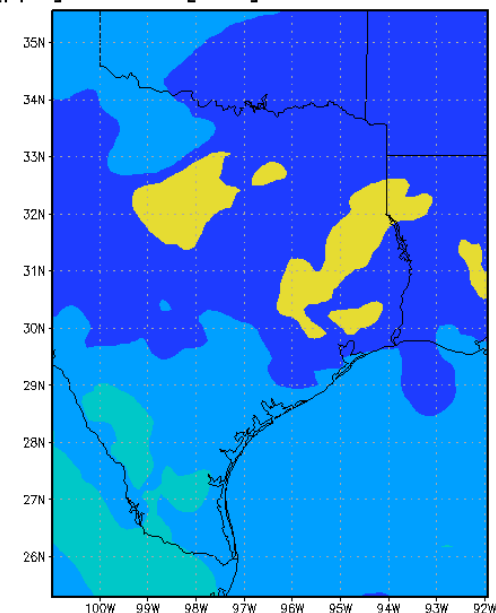
850 hPa

noon

NOAA
Experim.
CMAQ

1.5 Km
Ozone

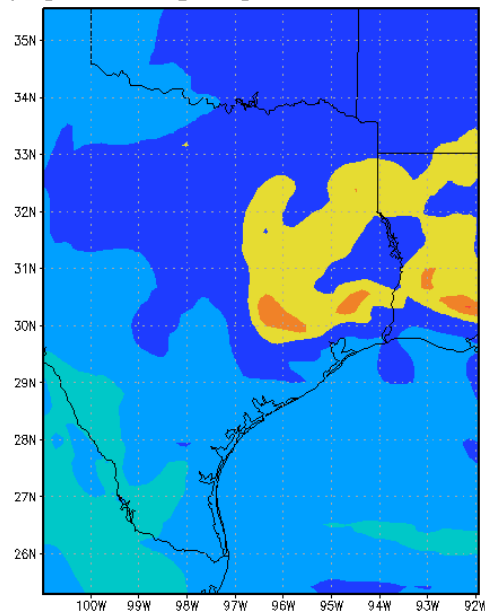
03 [ppb] at 850 [hPa] Valid 17Z SEP 18 2013



GRADS: COLA/IGES

03 [ppb] at 850 [hPa] Valid 19Z SEP 18 2013

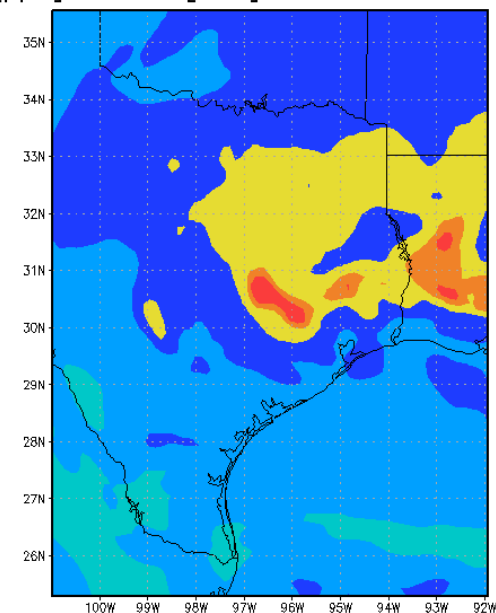
2 pm



GRADS: COLA/IGES

03 [ppb] at 850 [hPa] Valid 22Z SEP 18 2013

5 pm



GRADS: COLA/IGES

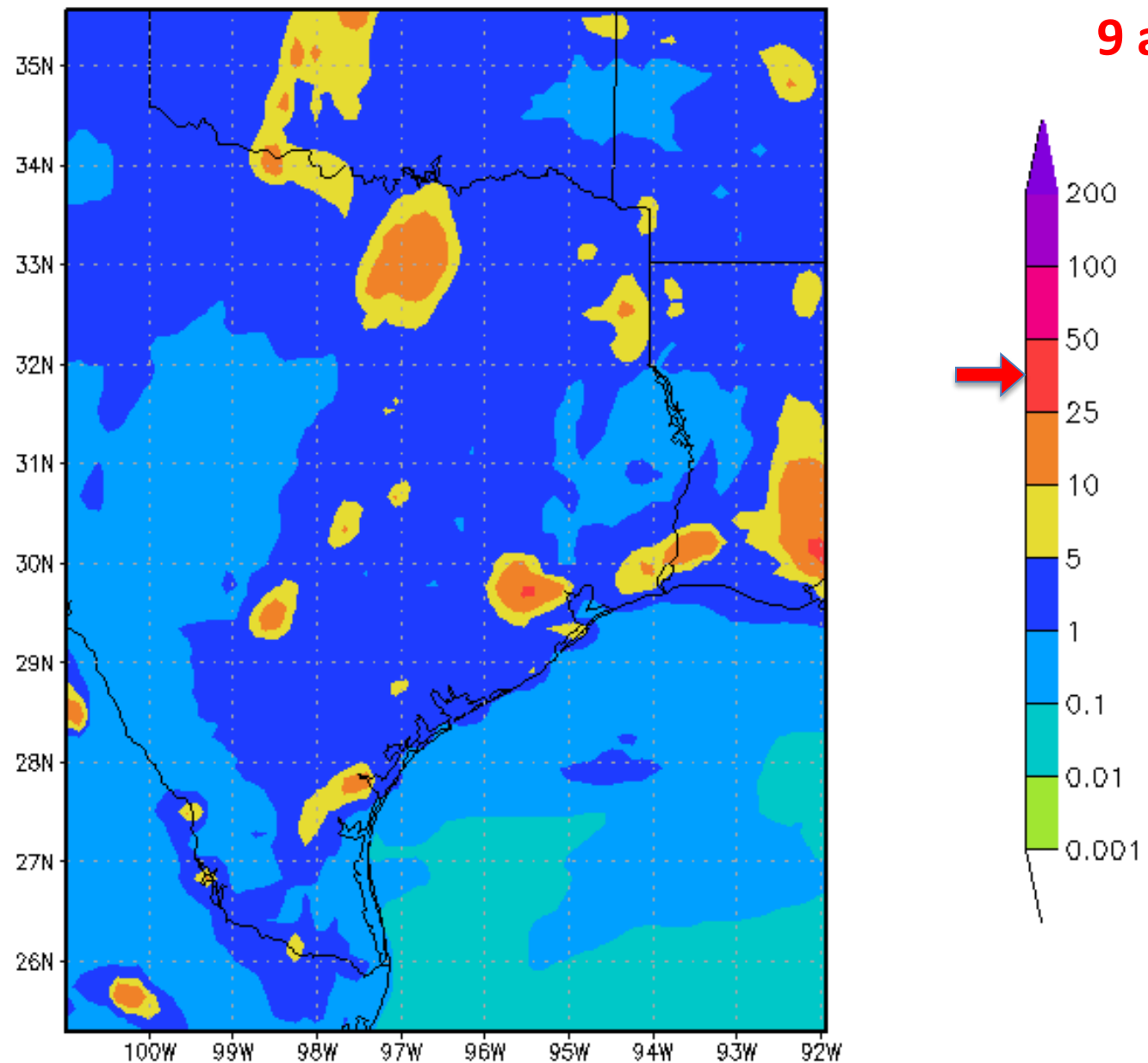
Wednesday

NO2 [ppb] at 1013 [hPa] Valid 14Z SEP 18 2013

9 am

NOAA Experm.
CMAQ Model
Surface NO2

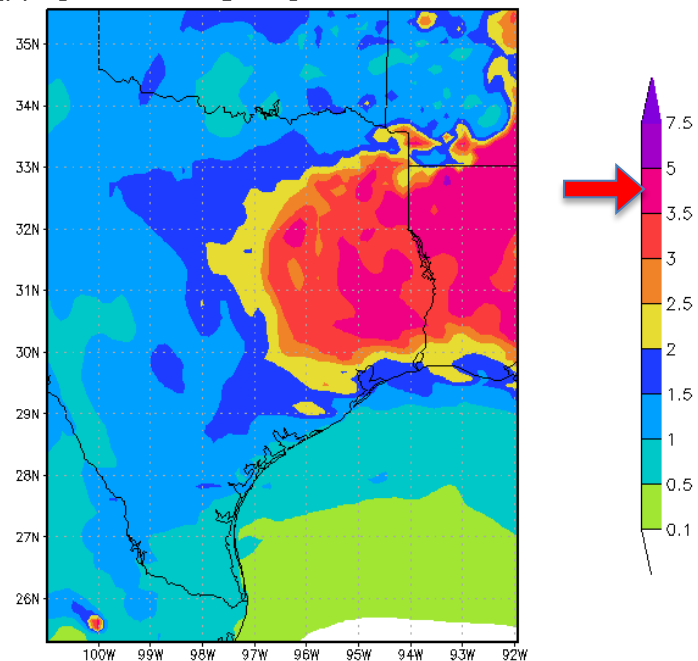
Wednesday





FORM [ppb] at 1013 [hPa] Valid 19Z SEP 18 2013

2 pm

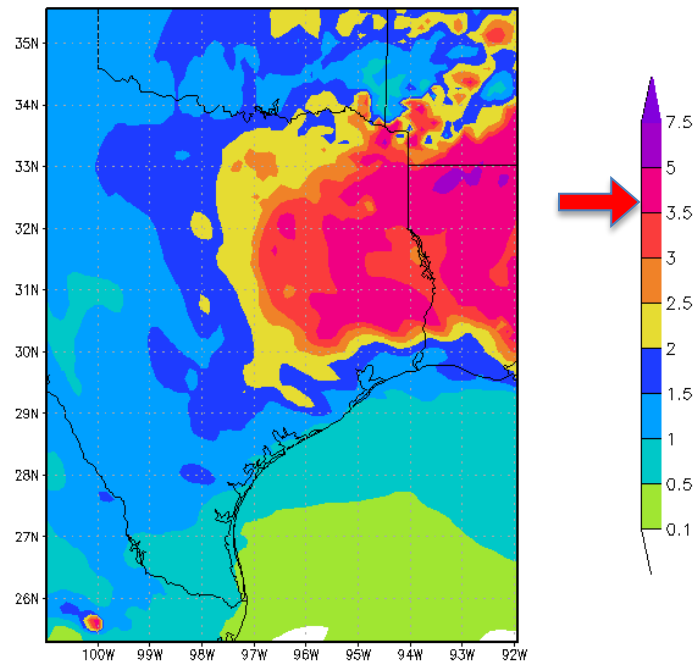


Wednesday

**NOAA Experim. CMAQ Model
Surface Formaldehyde**

FORM [ppb] at 1013 [hPa] Valid 22Z SEP 18 2013

5 pm





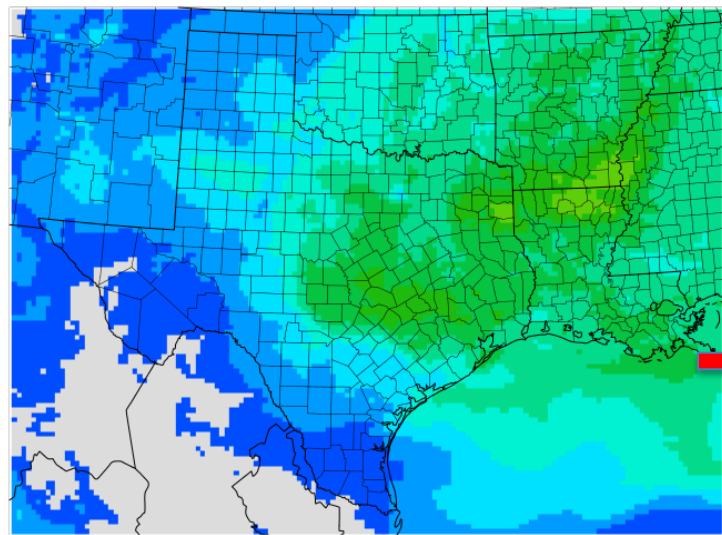
9 am

Ozone
Best Case

Wednesday

Ozone
Best Case

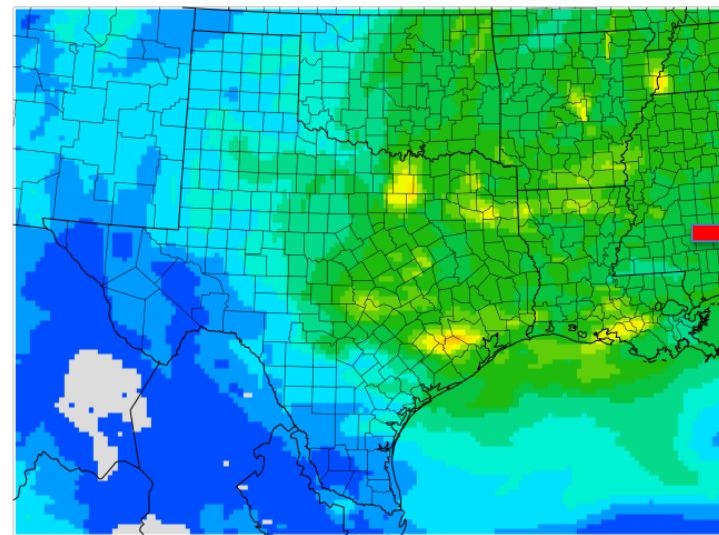
noon



Min(54,4) = 11.3, Max(127,77) = 69.4

Wed September 18 09:00 CST

ENVIRON



Min(53,4) = 25.8, Max(93,42) = 91.2

Wed September 18 12:00 CST

ENVIRON

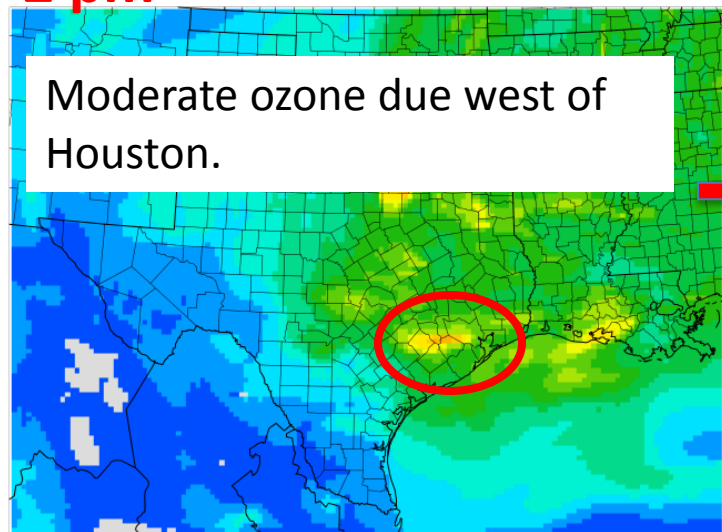
CAMx Model Surface Ozone

Ozone
Best Case

Ozone
Best Case

5 pm

2 pm

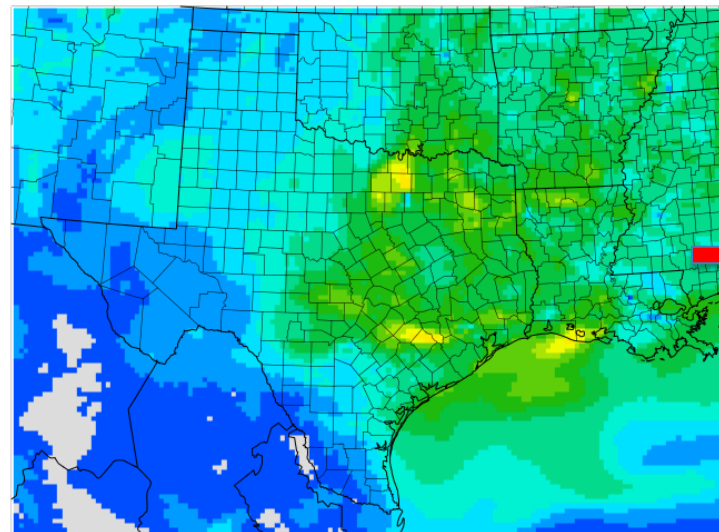


Moderate ozone due west of Houston.

Min(50,30) = 26.6, Max(90,41) = 93.2

Wed September 18 14:00 CST

ENVIRON



Min(54,4) = 18.9, Max(86,42) = 83.4

Wed September 18 17:00 CST

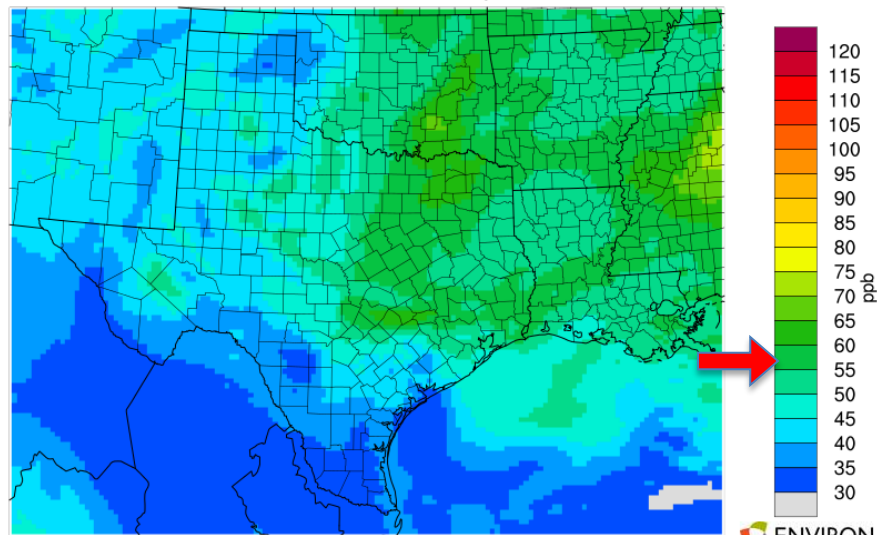
ENVIRON



9 am

Ozone

Best Case: CAMx Layer 14



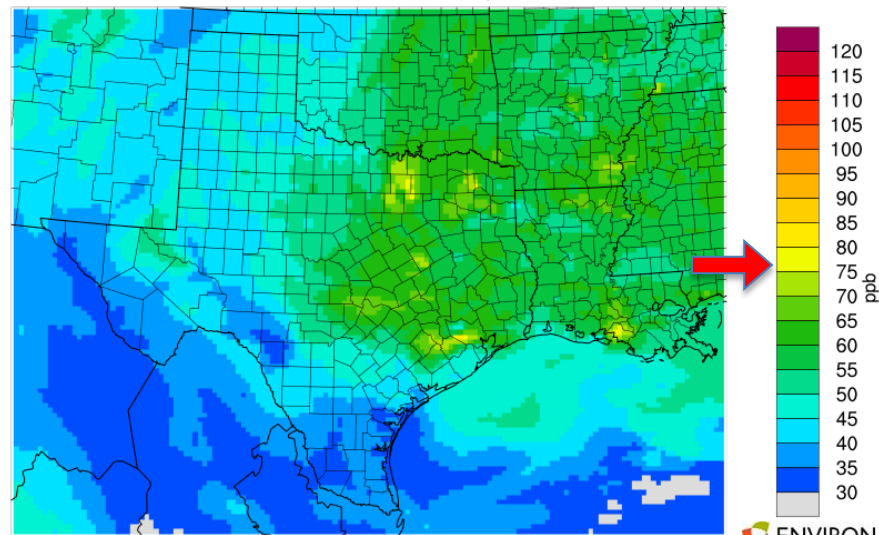
Min(144,10) = 28.8, Max(148,82) = 72.2

Wed September 18 09:00 CST

Wednesday

Ozone

Best Case: CAMx Layer 14



Min(29,2) = 28.2, Max(94,42) = 80.8

Wed September 18 12:00 CST

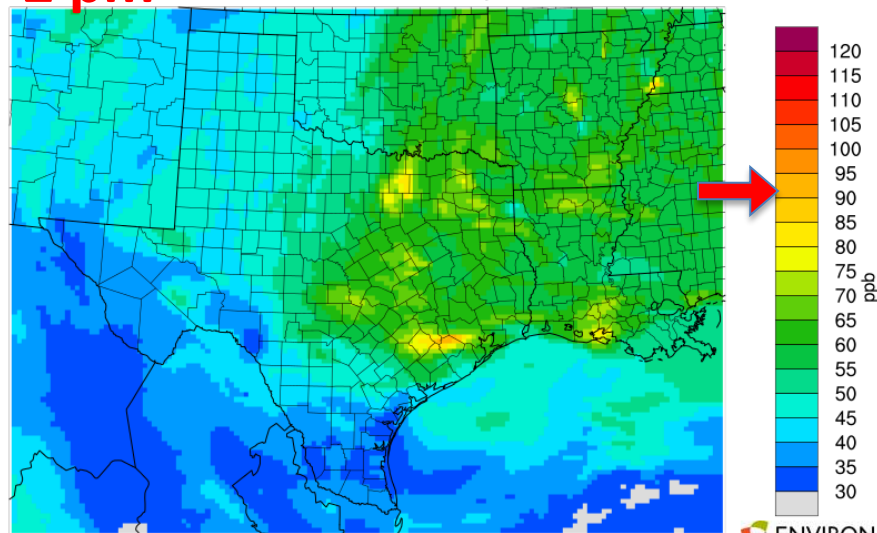
noon

**CAMx Model
1.2 km Ozone**

2 pm

Ozone

Best Case: CAMx Layer 14

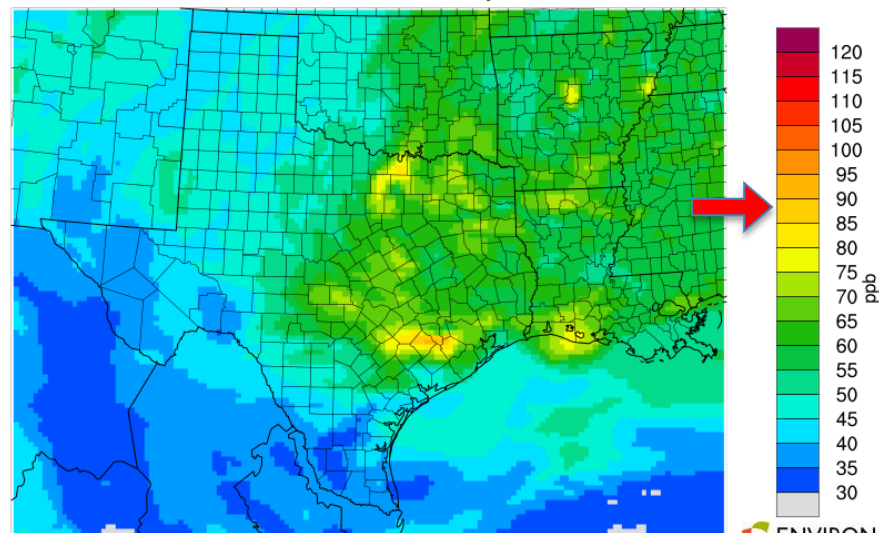


Min(28,2) = 28.5, Max(92,41) = 94.0

Wed September 18 14:00 CST

Ozone

Best Case: CAMx Layer 14



Min(23,2) = 29.2, Max(89,41) = 91.8

Wed September 18 17:00 CST

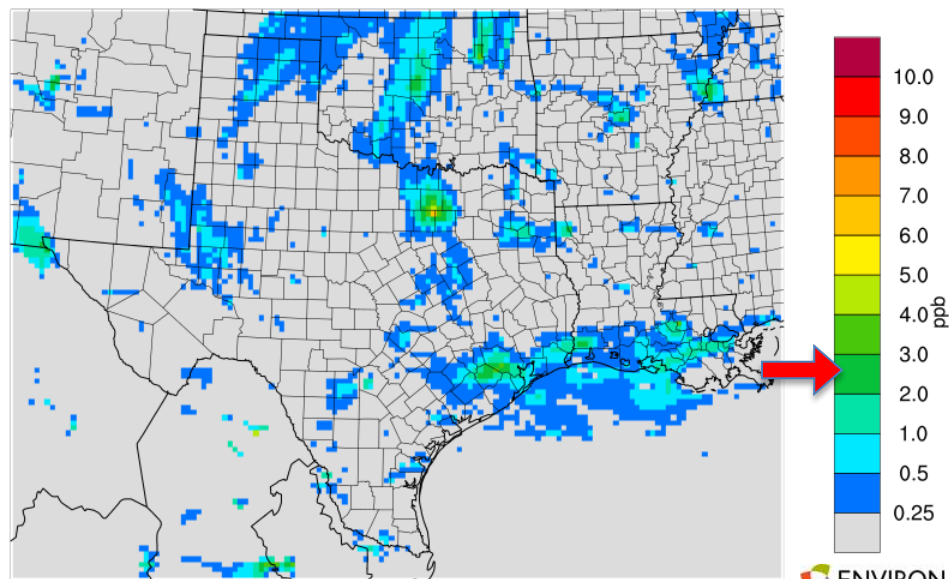
5 pm



NO
Best Case

9 am

Wednesday

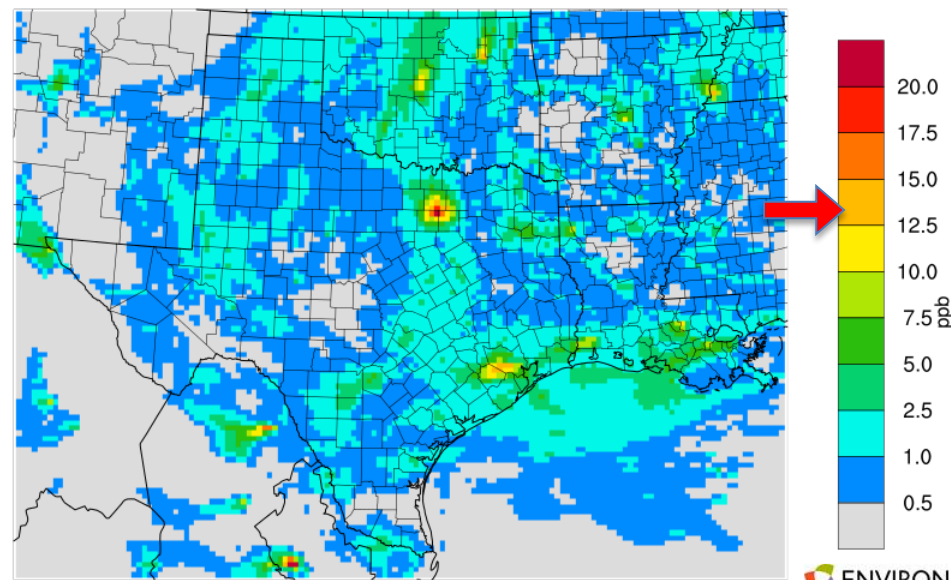


Min(50,8) = 0.0, Max(82,71) = 6.1

Wed September 18 09:00 CST

CAMx Surface NO and NOx

NOx
Best Case **9 am**



Min(2,10) = 0.1, Max(54,4) = 23.3

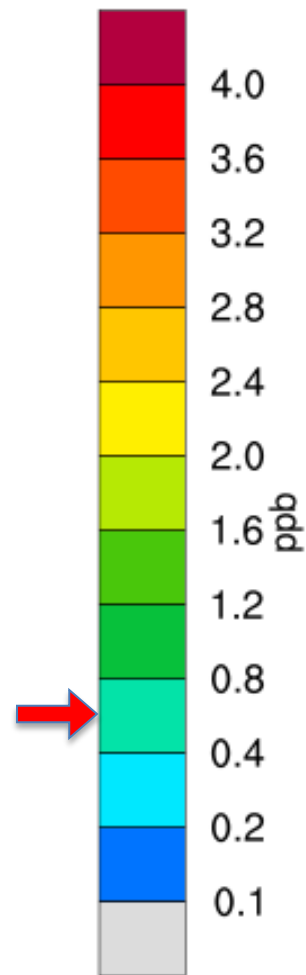
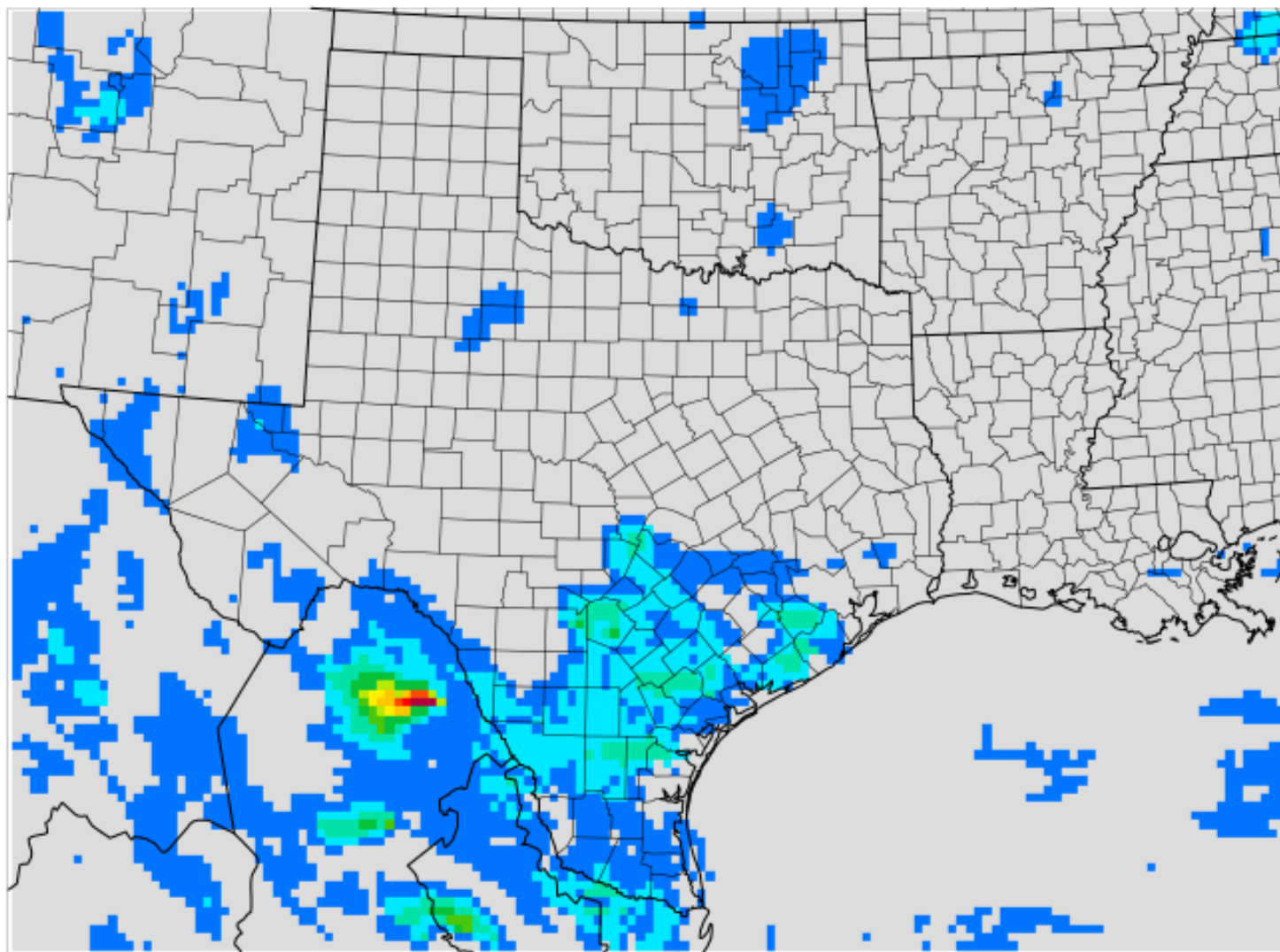
Wed September 18 09:00 CST



NO₂

Best Case: CAMx Layer 14

CAMx Model
1.2 km NO₂



 ENVIRON

Min(117,41) = 0.0, Max(49,30) = 5.1

Wed September 18 09:00 CST

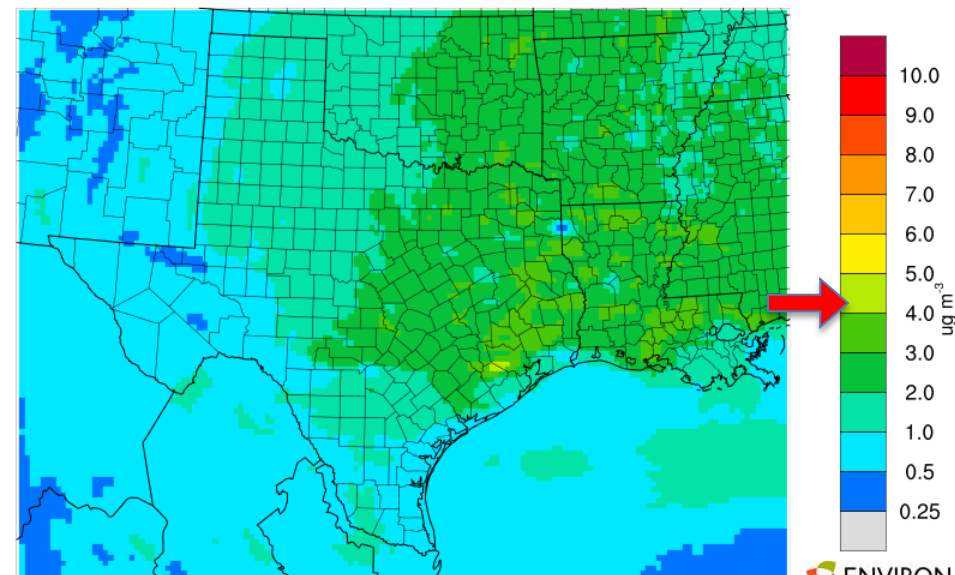
9 am



Formaldehyde

Best Case: CAMx Layer 14

2 pm



Min(14,109) = 0.3, Max(94,42) = 4.7

Wed September 18 14:00 CST

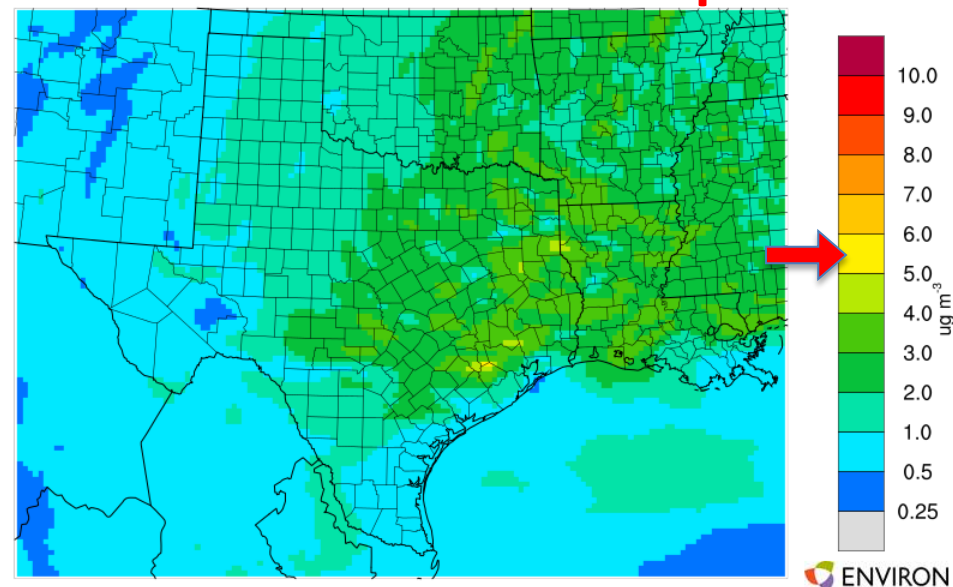
Wednesday

CAMx Model Formaldehyde 1.2 km (Layer 14)

Formaldehyde

Best Case: CAMx Layer 14

5 pm



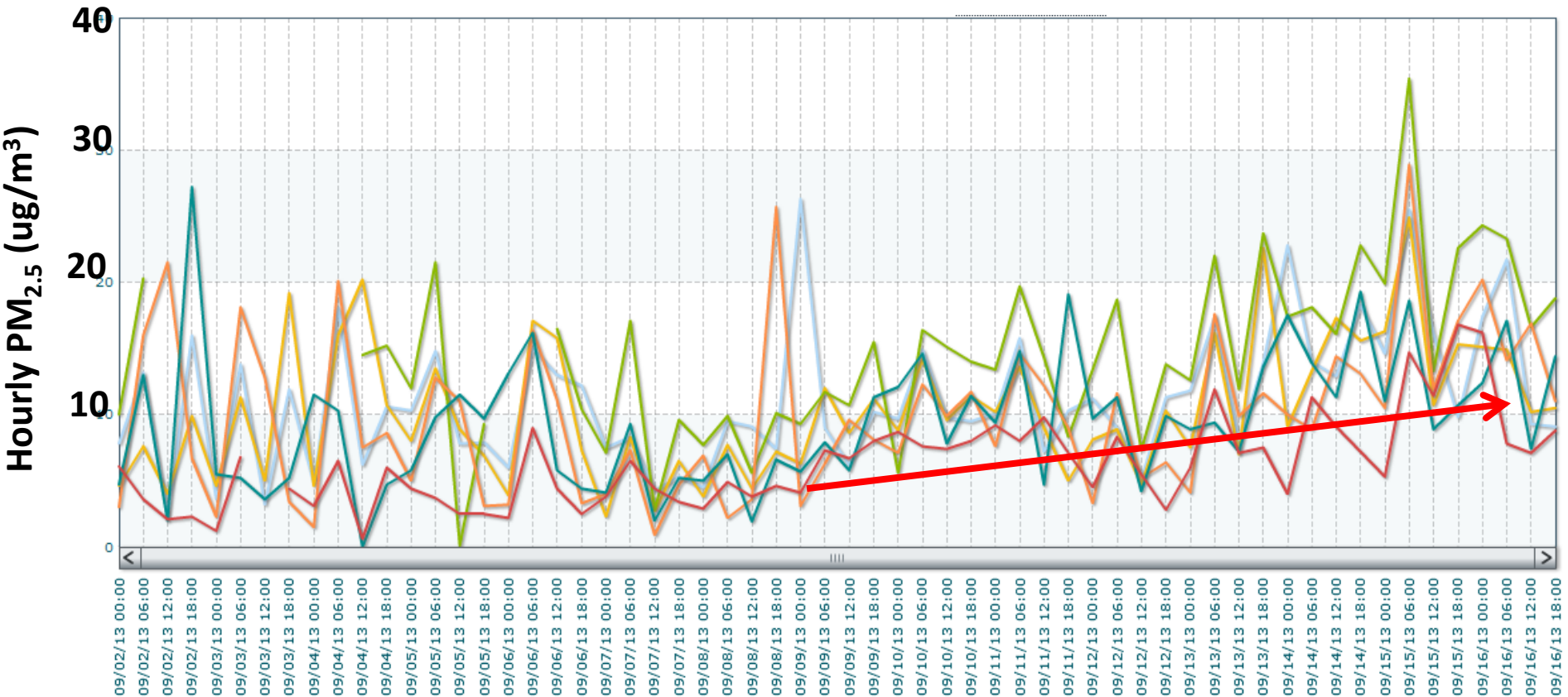
Min(21,109) = 0.3, Max(91,42) = 5.2

Wed September 18 17:00 CST

Hourly PM_{2.5} (airnowtech.org)**

September 2nd – 16th

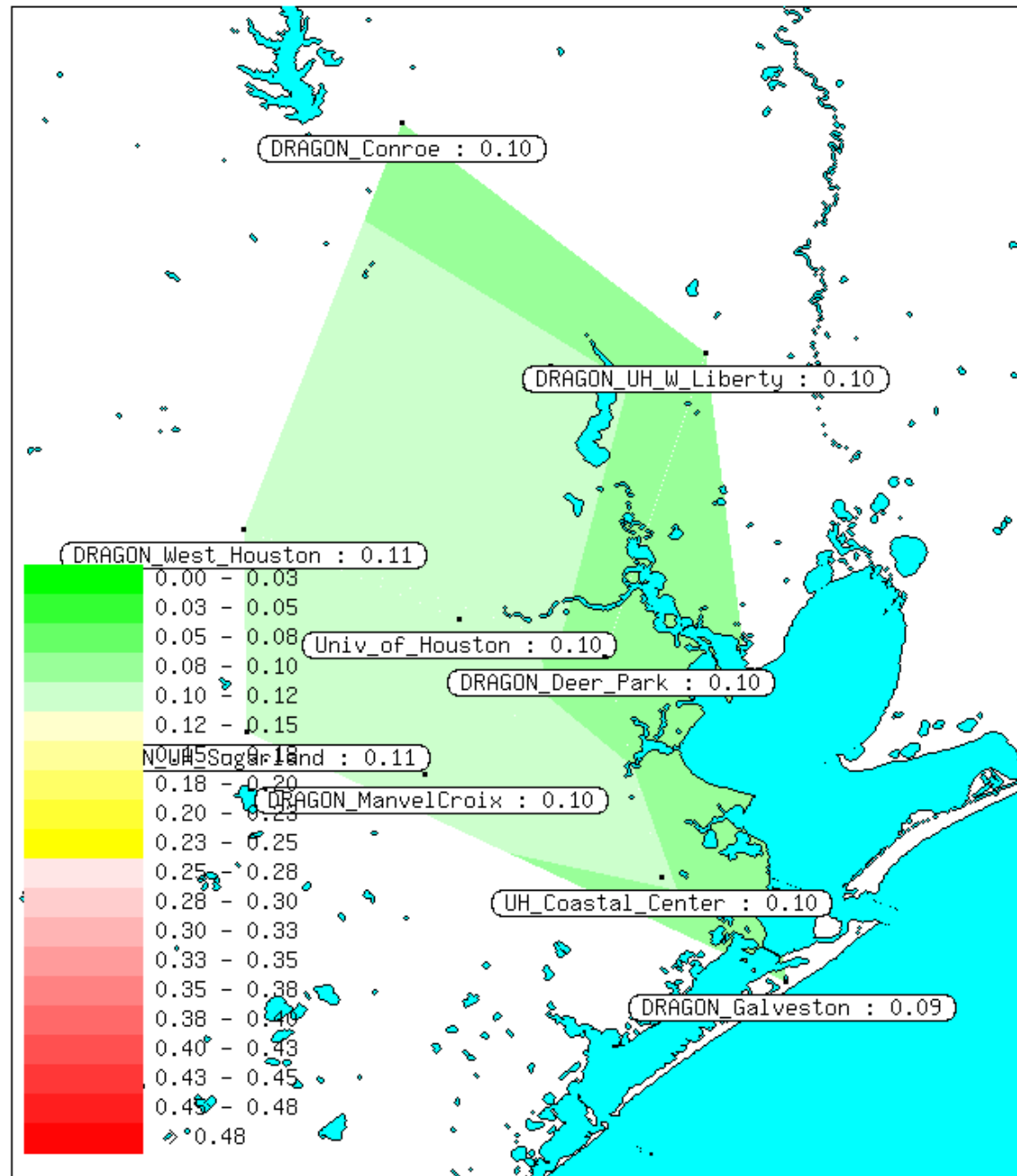
**** EVERY 6th HOUR PLOTTED!!!!**



Houston Aldine C8/PM_{2.5}-88502 - 88502/1 Hr/3
Houston Deer Park C35/PM_{2.5}-88502 - 88502/1 Hr/3
Conroe Relocated C78/PM_{2.5}-88502 - 88502/1 Hr/3

Clinton C403/PM_{2.5}-88502 - 88502/1 Hr/3
Seabrook Friendship Park C45/PM_{2.5}-88502 - 88502/1 Hr/3
Galveston Airport C1034/PM_{2.5}-88502 - 88502/1 Hr/3

DRAGON : September 17th (Tuesday) at Level 1.5



Fire-counts over last week.

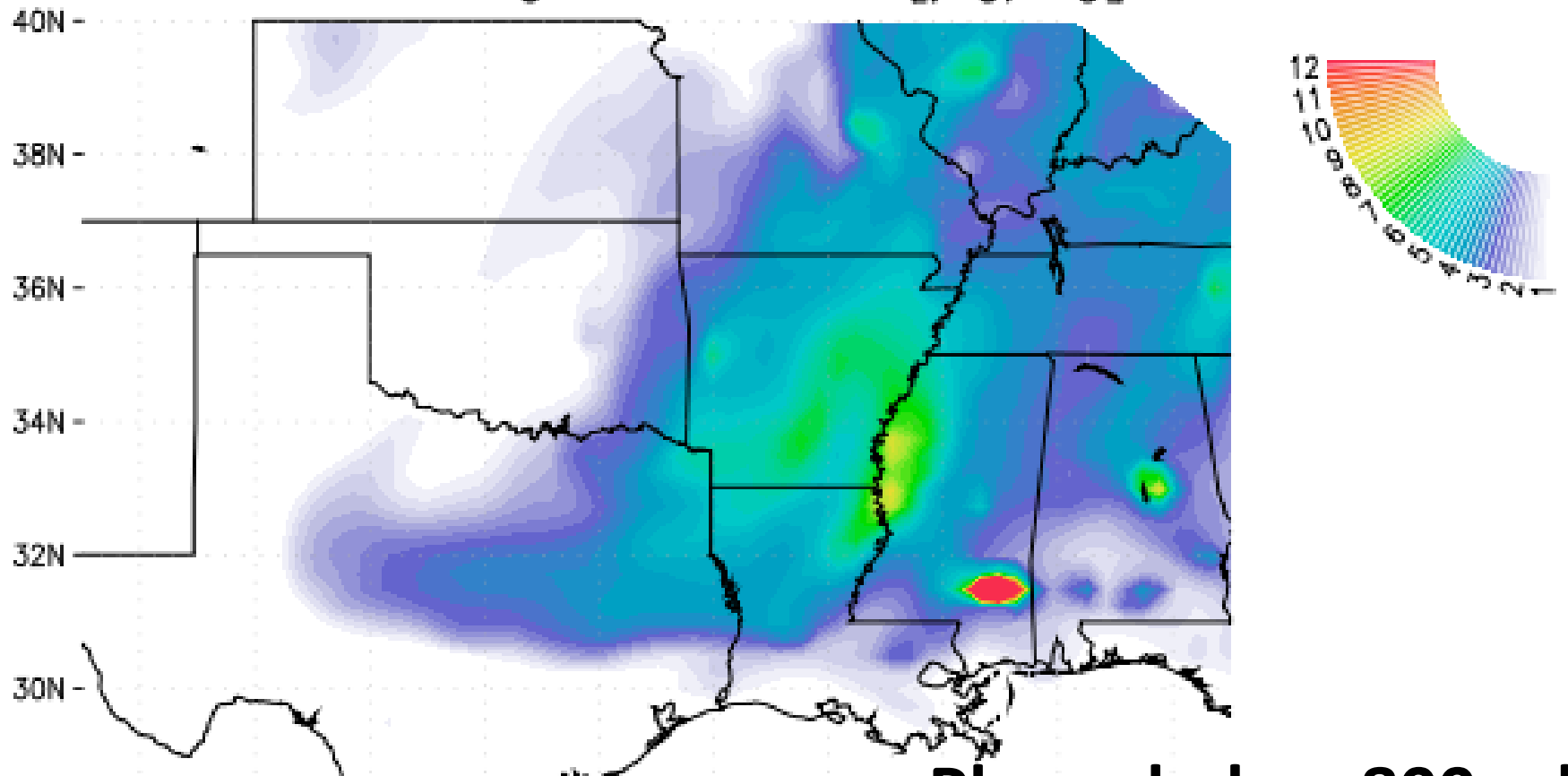


GEOS-5 indicates that agricultural plume may pass over Houston overnight (SE -> NW), but be north of us during flight hours tomorrow. GEOS-5 assumes persistence of emissions!

1 pm Wednesday

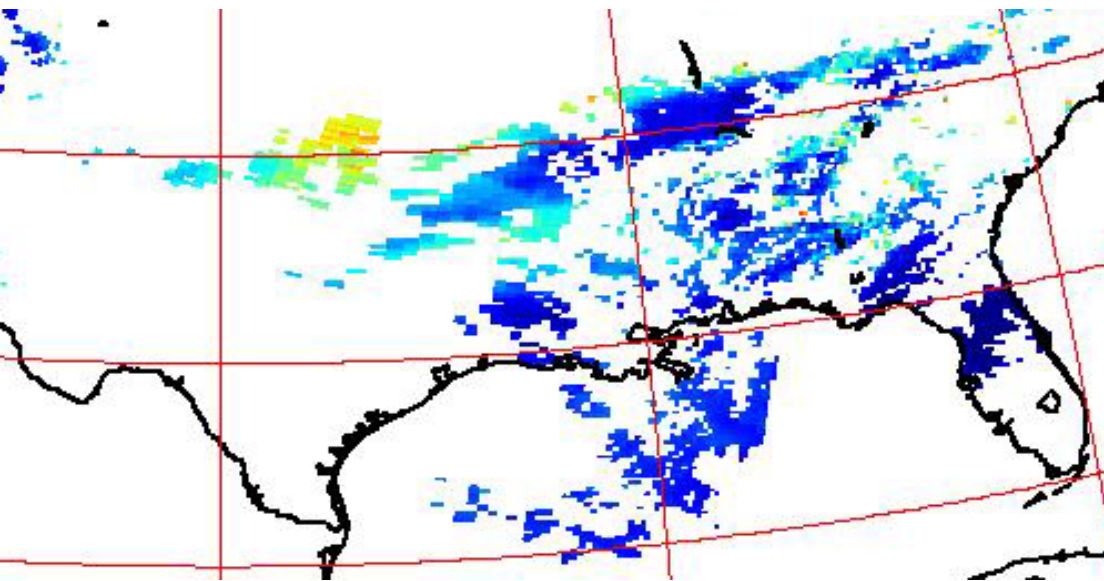
NASA/GMAO – GEOS-5 Forecast Initialized on 06z 2013-09-17

850 hPa Organic Carbon [$\mu\text{g}/\text{kg}$]



Plume below 800 mb

Terra AOD - Yesterday

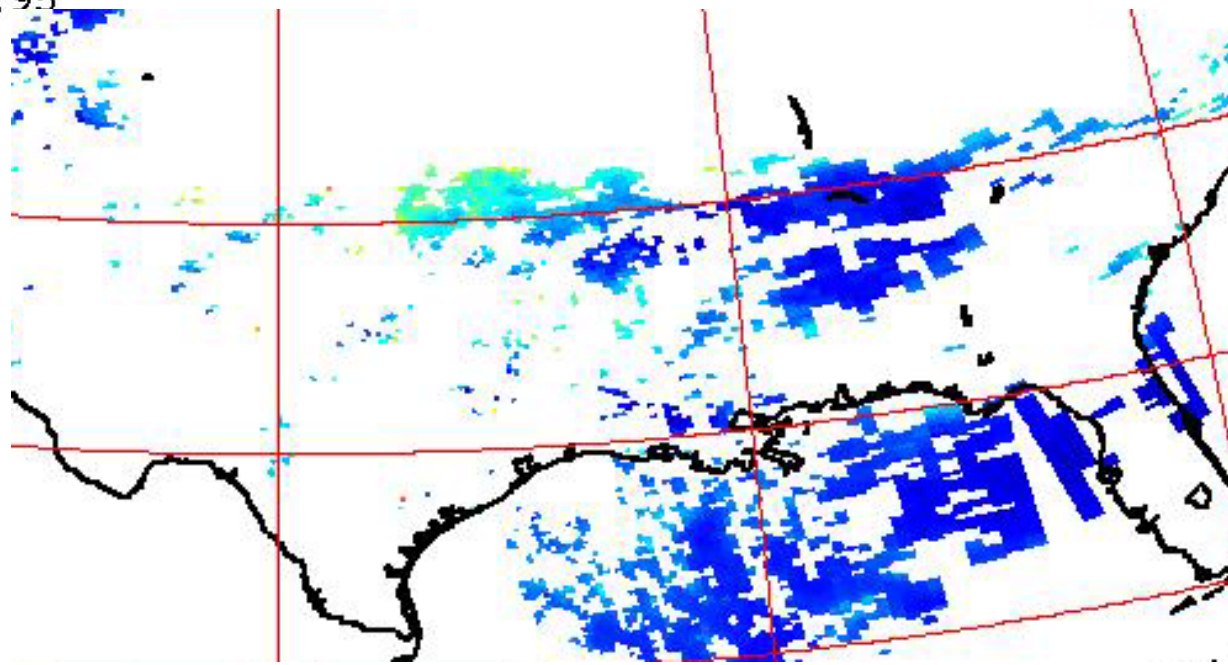


Does GEOS-5 verify with observations?

High AOD over Oklahoma, but not as much over the SE US – at least in clear areas.

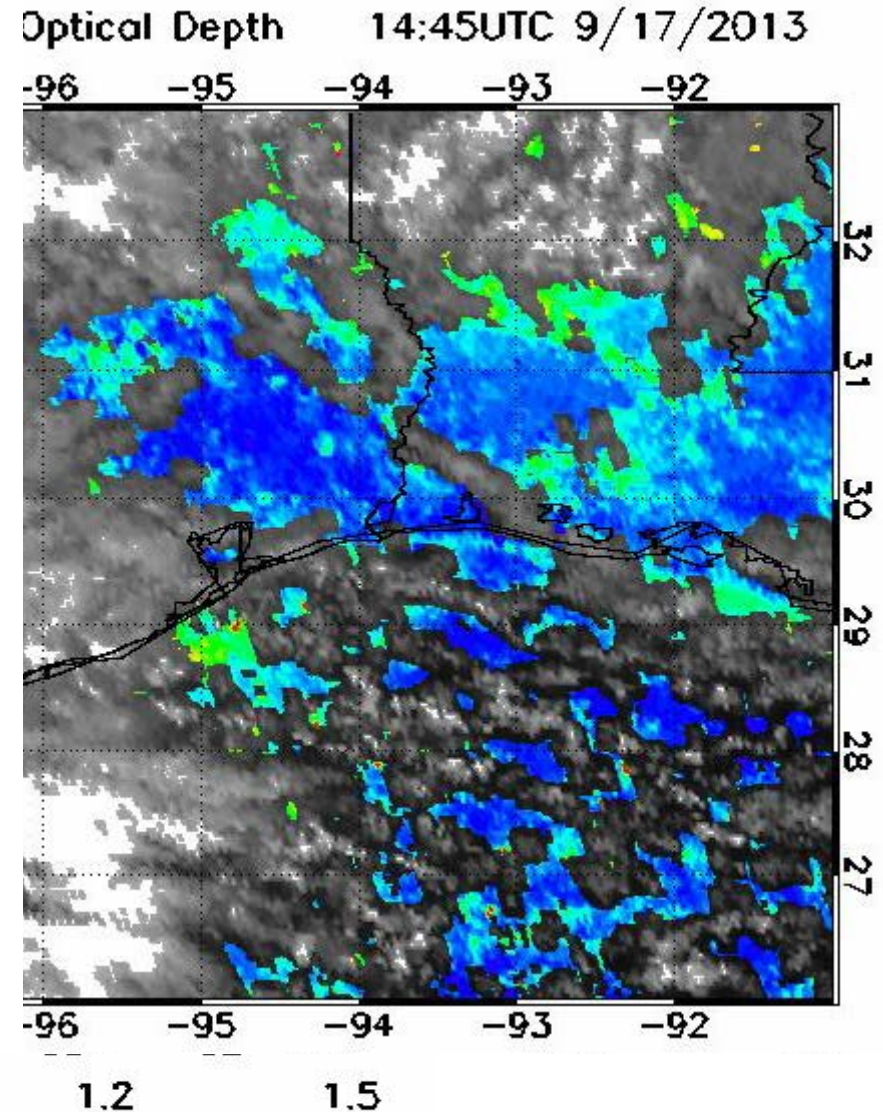
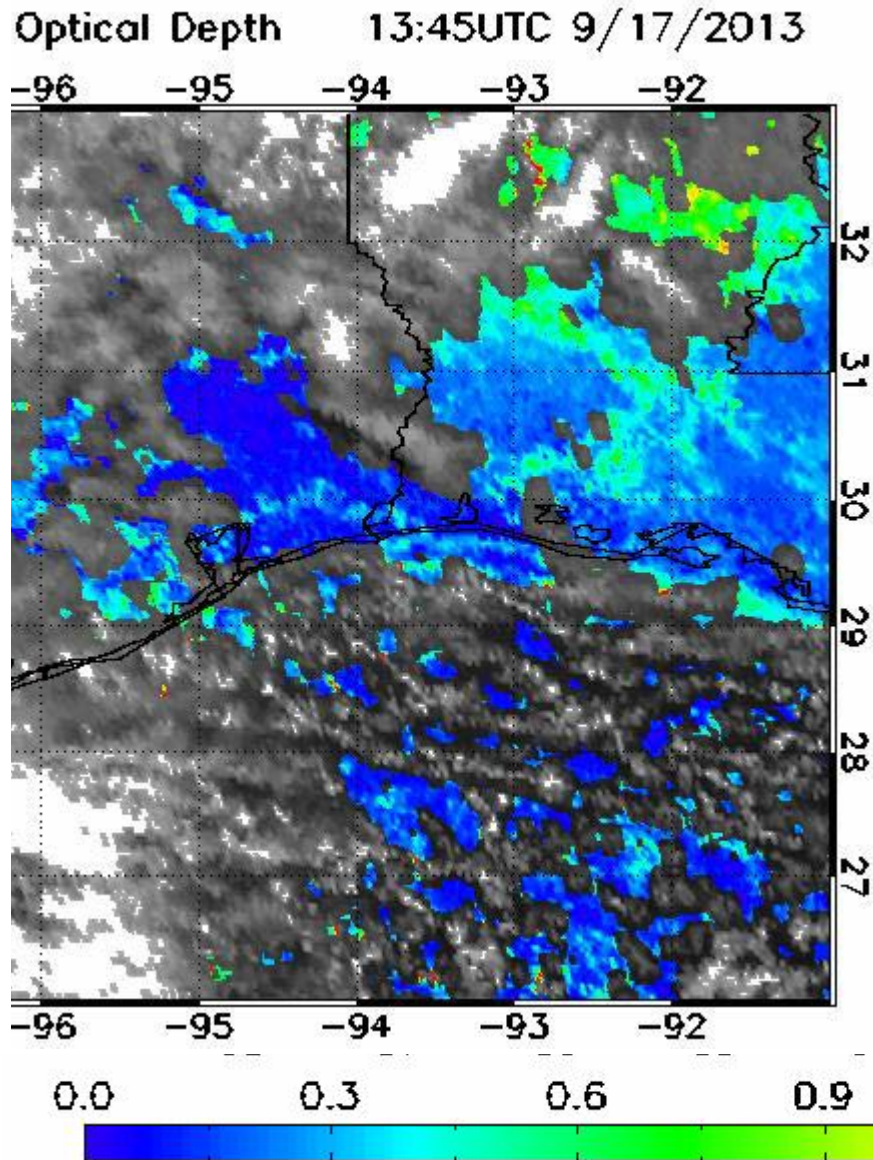
0.05 0.15 0.35 0.55 0.75 0.95

Aqua AOD –Yesterday



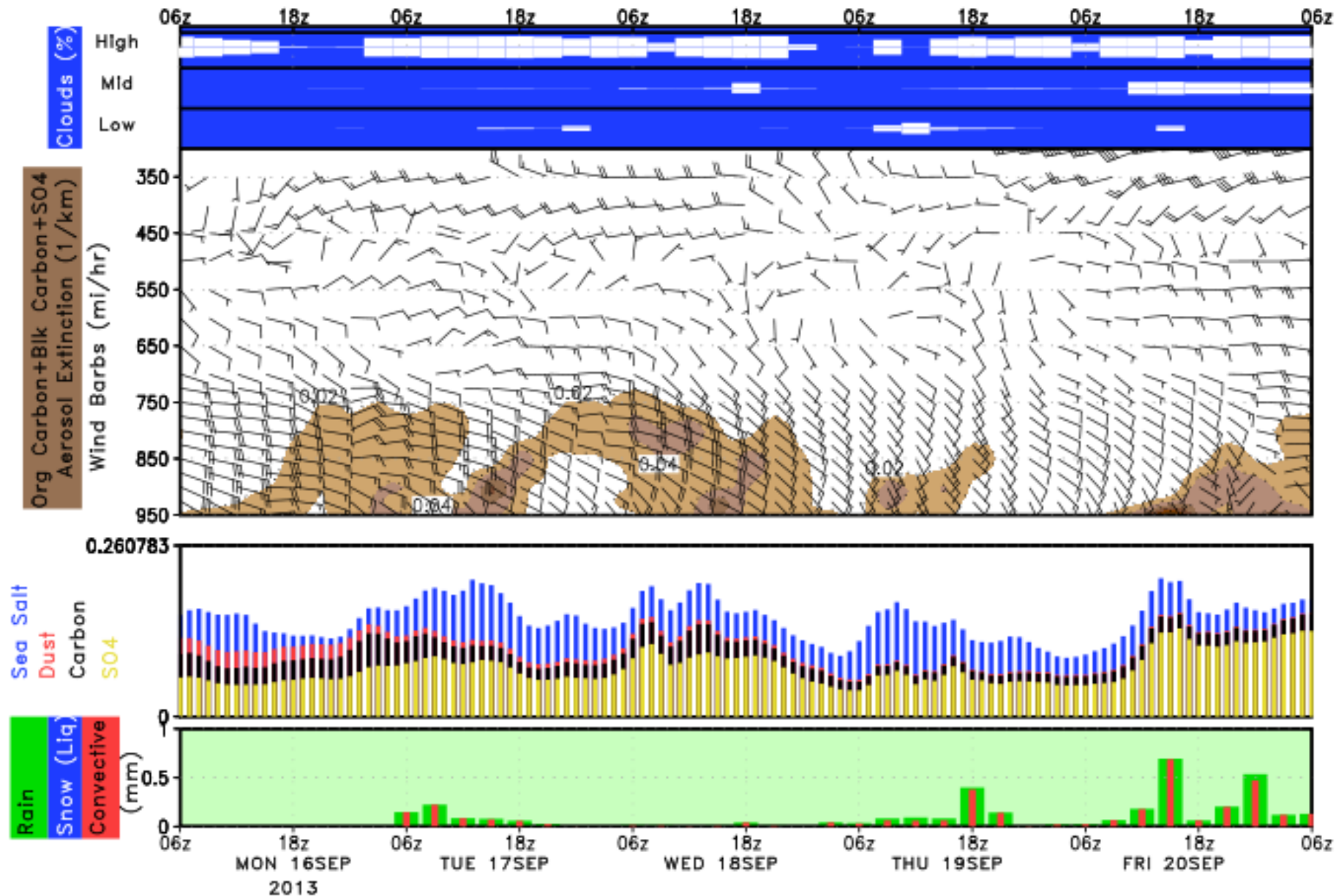
GOES AOD - Today

High AOD over Louisiana & maybe just offshore Galveston.



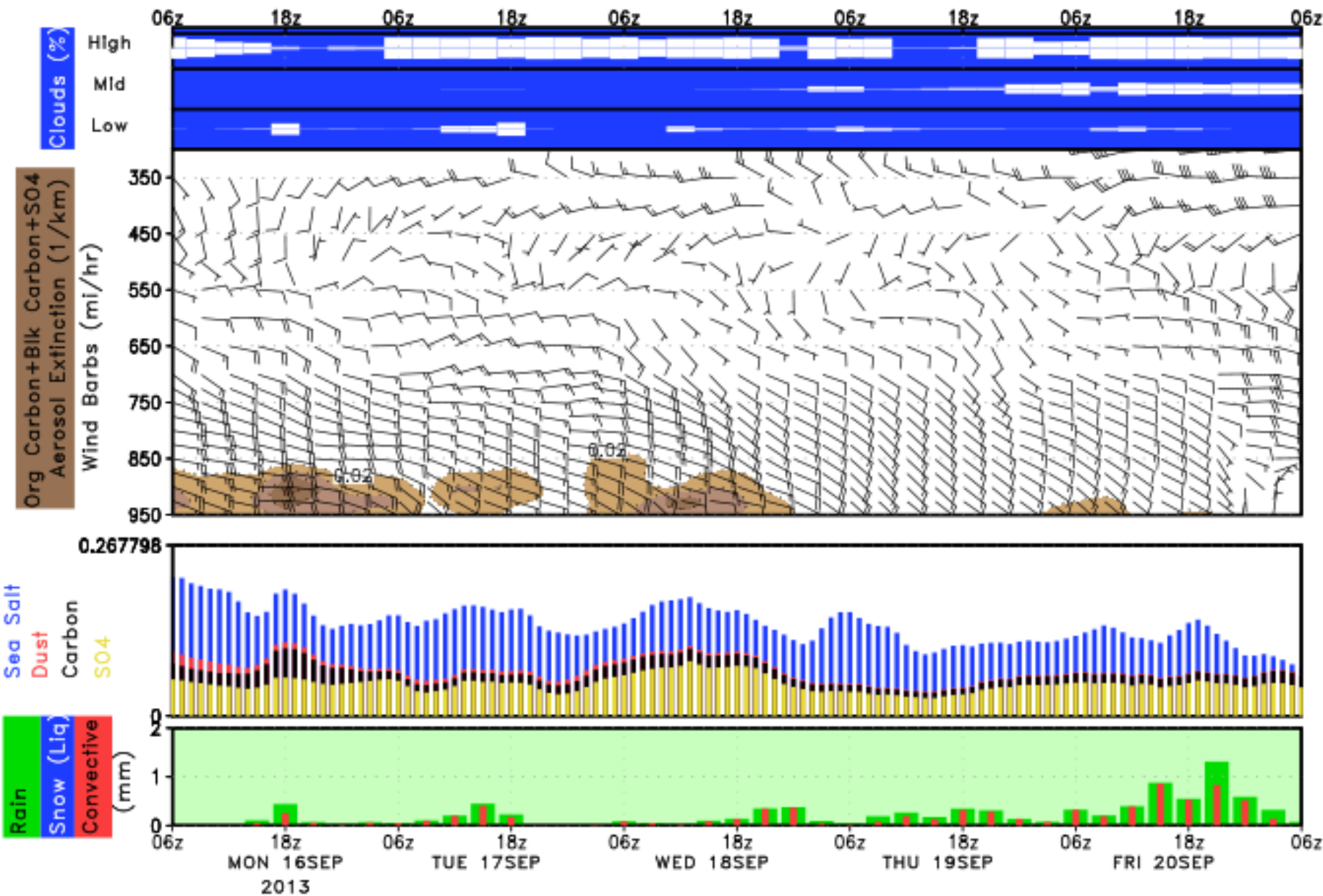
CONROE

NOT UPDATED ON GMAO SITE.



GALVESTON

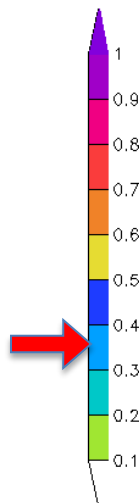
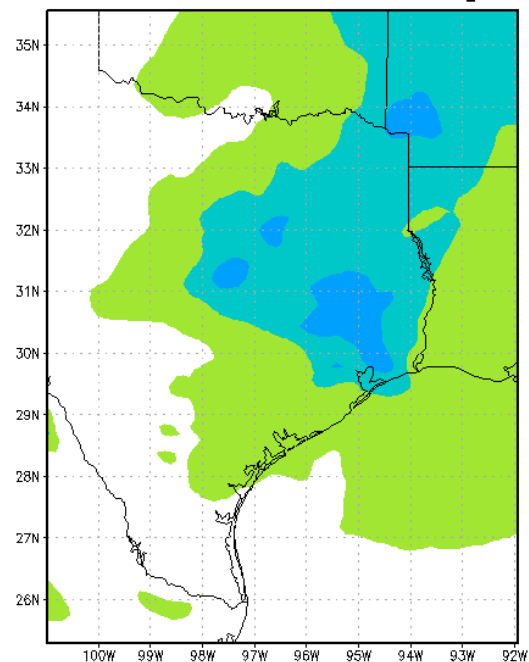
NOT UPDATED ON GMAO SITE.





(dev) aot 32H VALID 14Z 18 SEP2013 [dimensionless]

2 pm

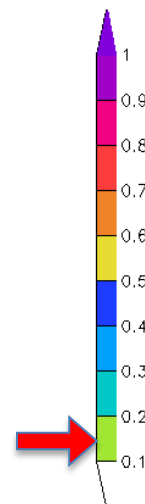
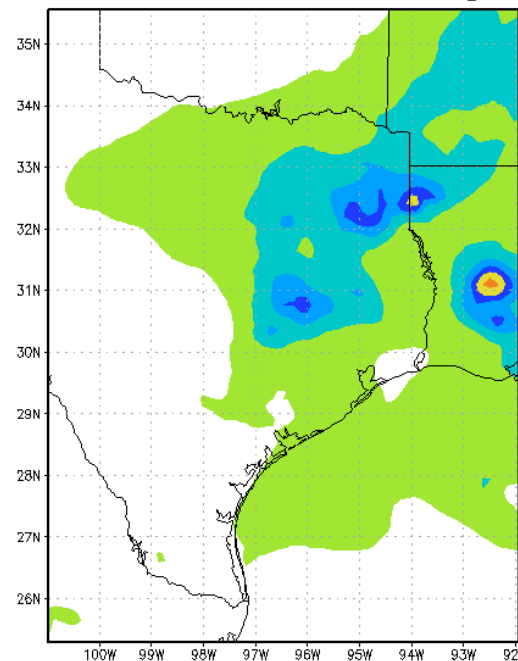


Wednesday

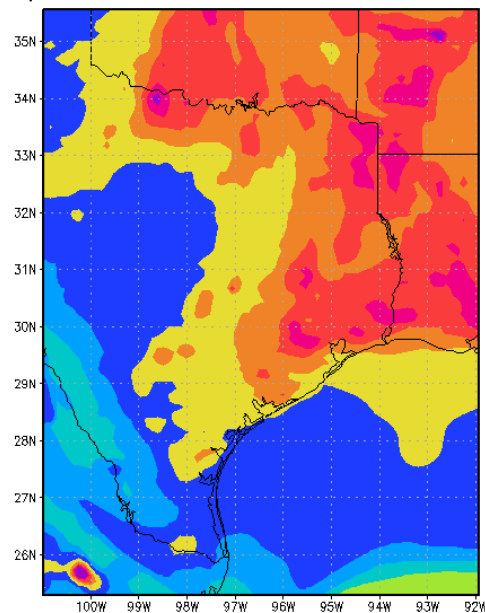
NOAA Experimental CMAQ AOT

(dev) aot 40H VALID 22Z 18 SEP2013 [dimensionless]

5 pm



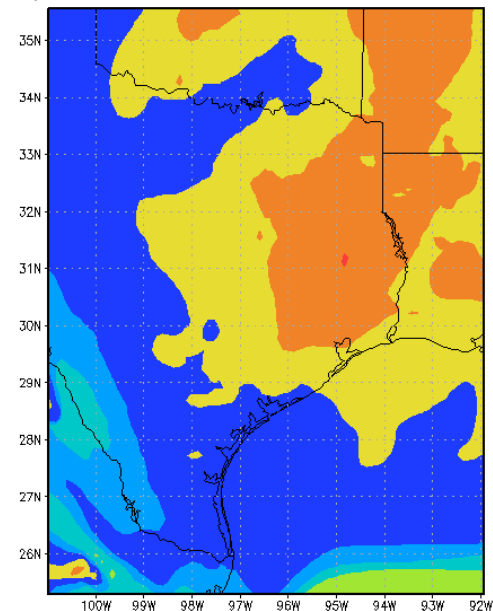
 (dev) sfc pm25 32H VALID 14Z 18 SEP2013 [$\mu\text{g}/\text{m}^3$]
9 am



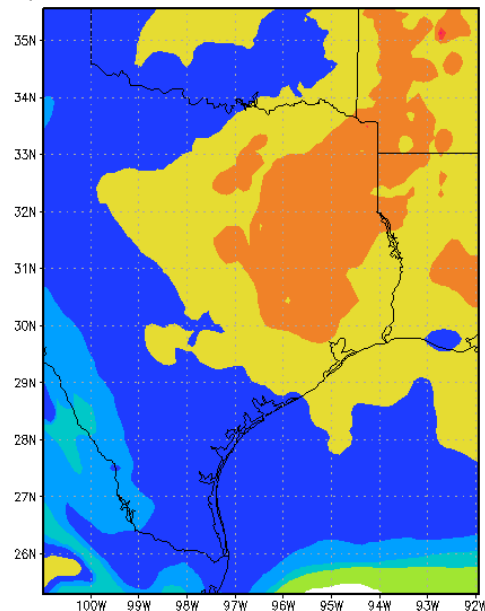
Wednesday

NOAA
Experimental
CMAQ Surface
Pm 2.5

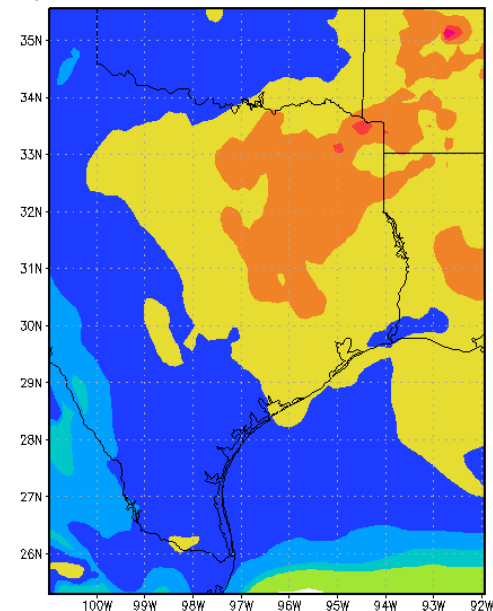
(dev) sfc pm25 35H VALID 17Z 18 SEP2013 [$\mu\text{g}/\text{m}^3$]
noon



(dev) sfc pm25 37H VALID 19Z 18 SEP2013 [$\mu\text{g}/\text{m}^3$]
2 pm

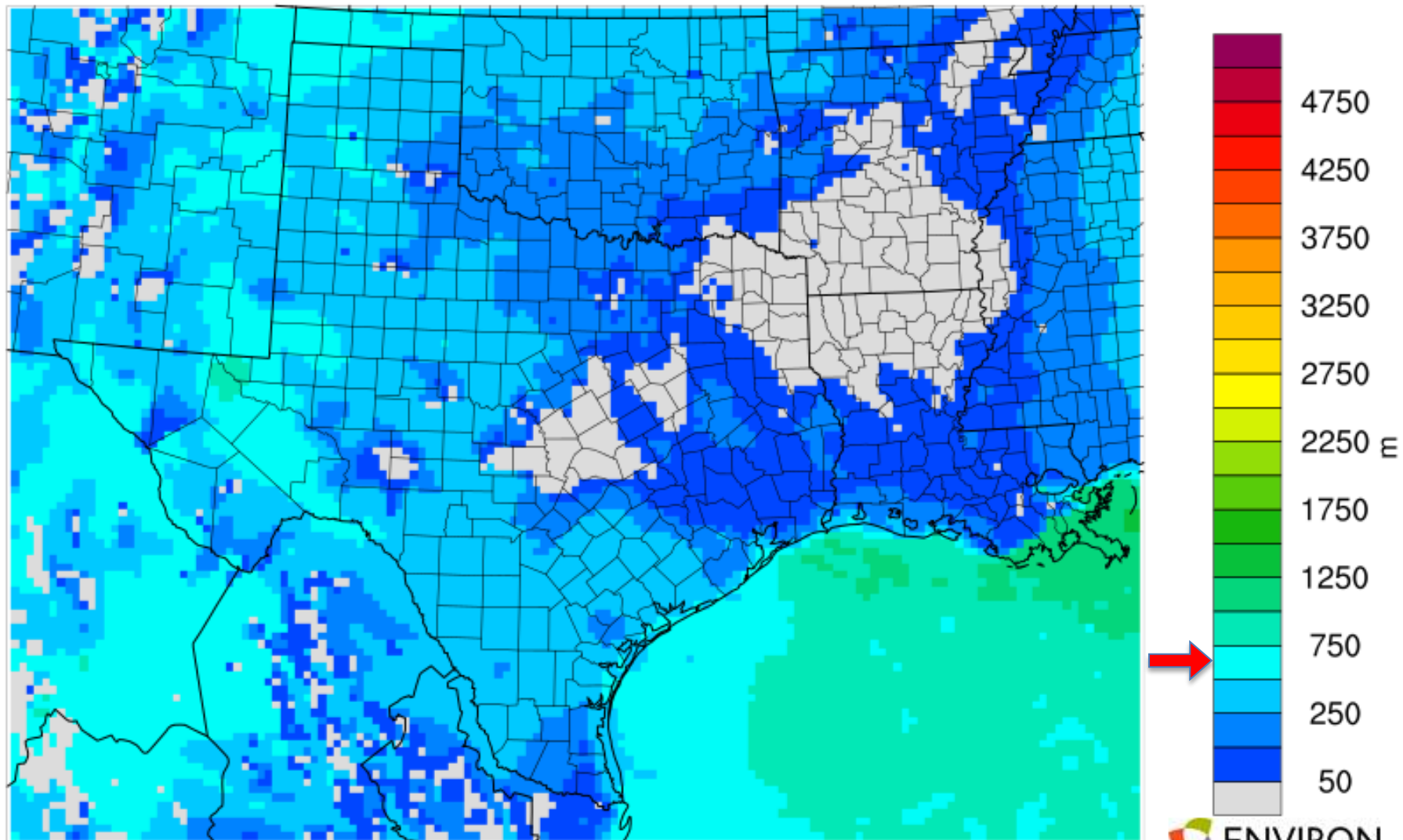


(dev) sfc pm25 40H VALID 22Z 18 SEP2013 [$\mu\text{g}/\text{m}^3$]
5 pm



PBL Height

Texas 12km



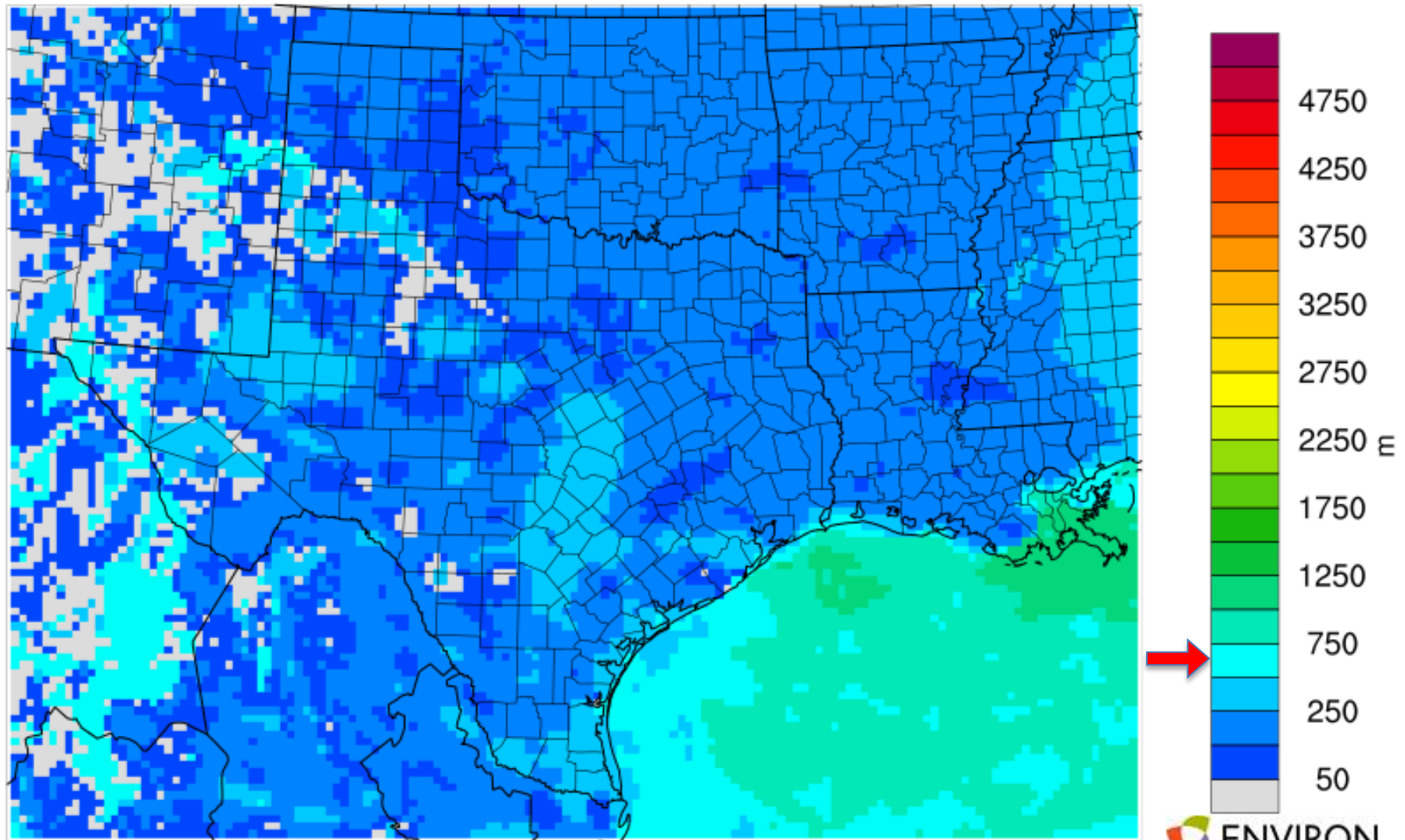
Min(14,107) = 15.7, Max(148,43) = 1296.7

Wed September 18 06:00 CST

ENVIRON

PBL Height

Texas 12km

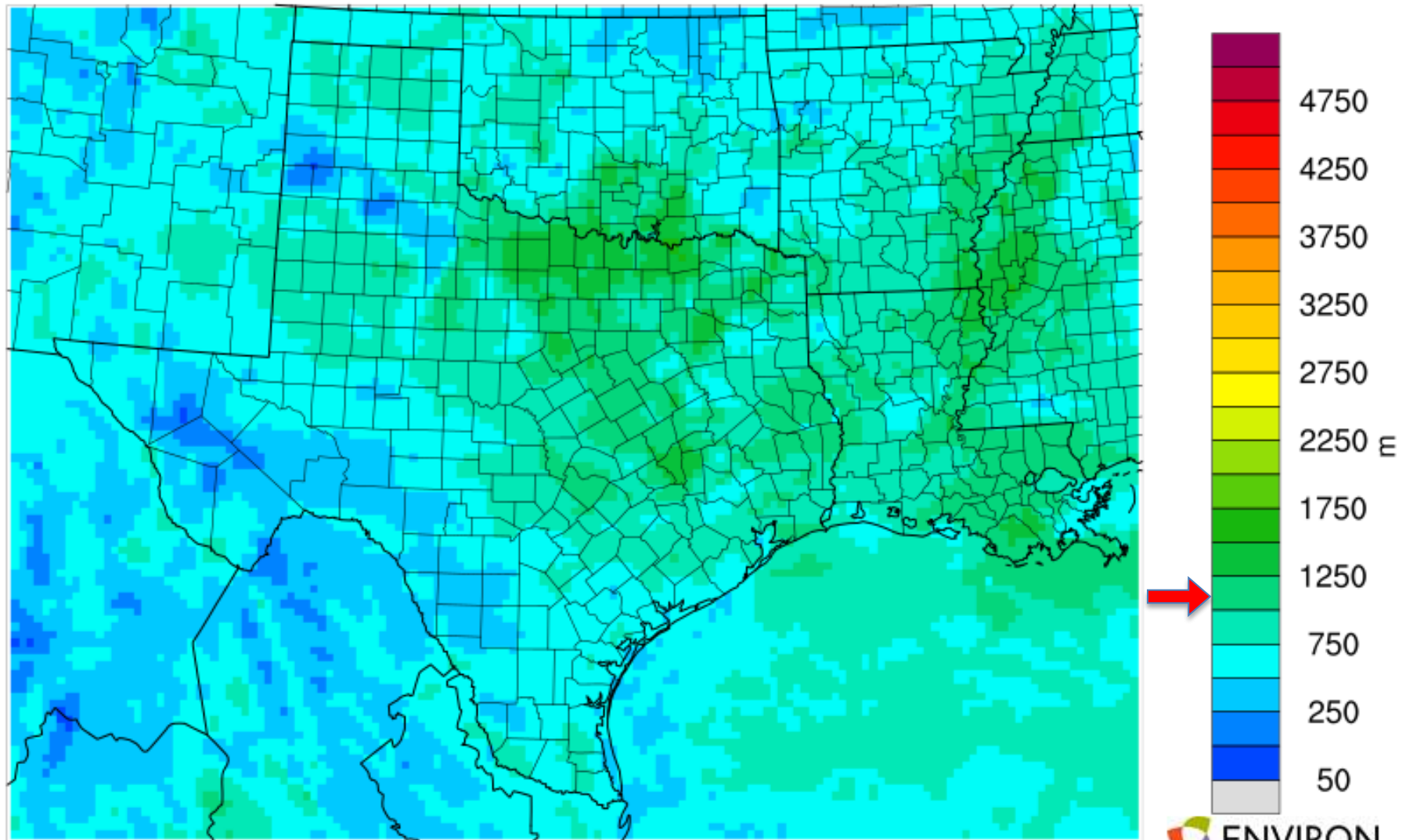


Min(11,107) = 16.4, Max(141,44) = 1238.1

Wed September 18 08:00 CST

PBL Height

Texas 12km

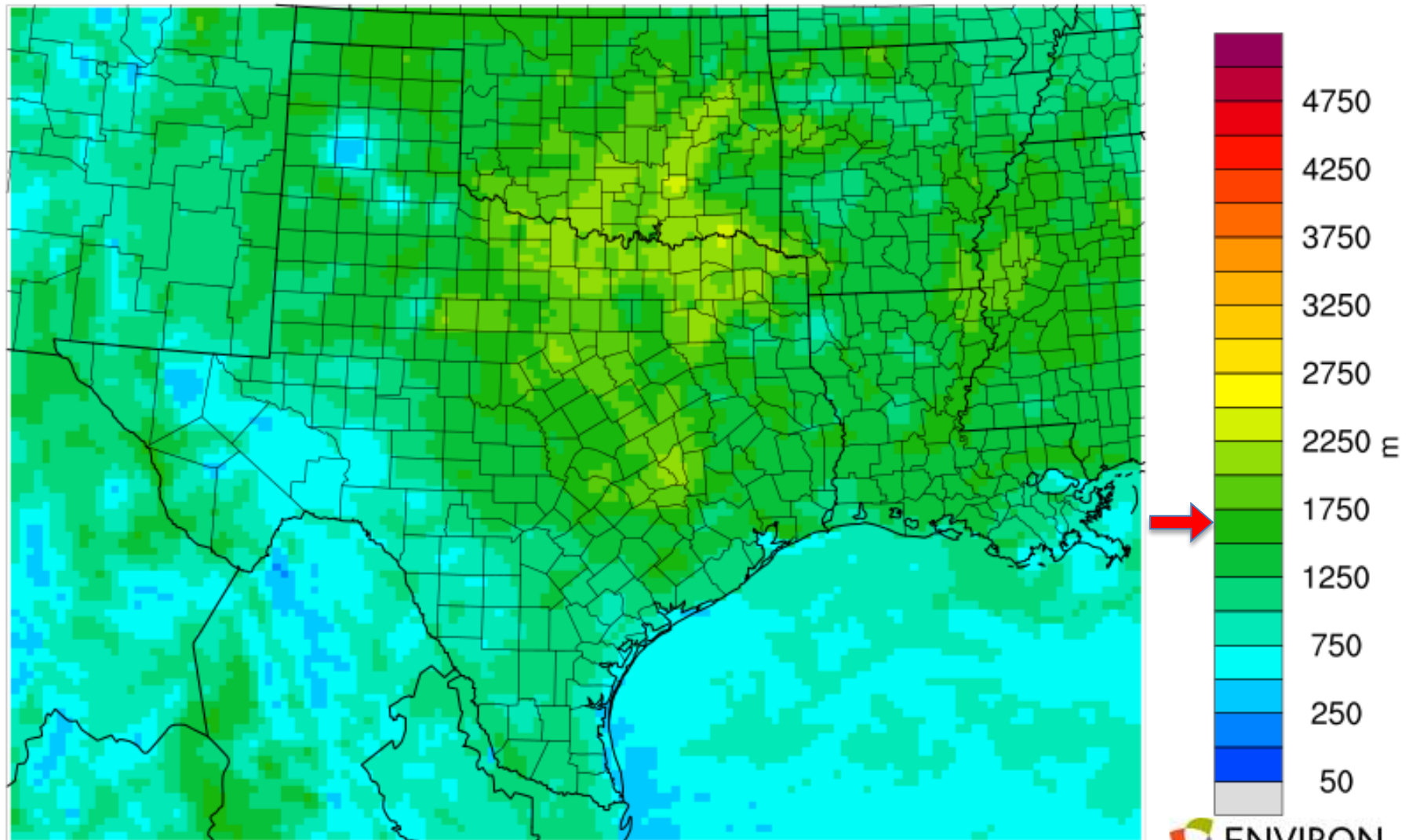


Min(8,17) = 57.5, Max(89,77) = 1523.6

Wed September 18 10:00 CST

PBL Height

Texas 12km

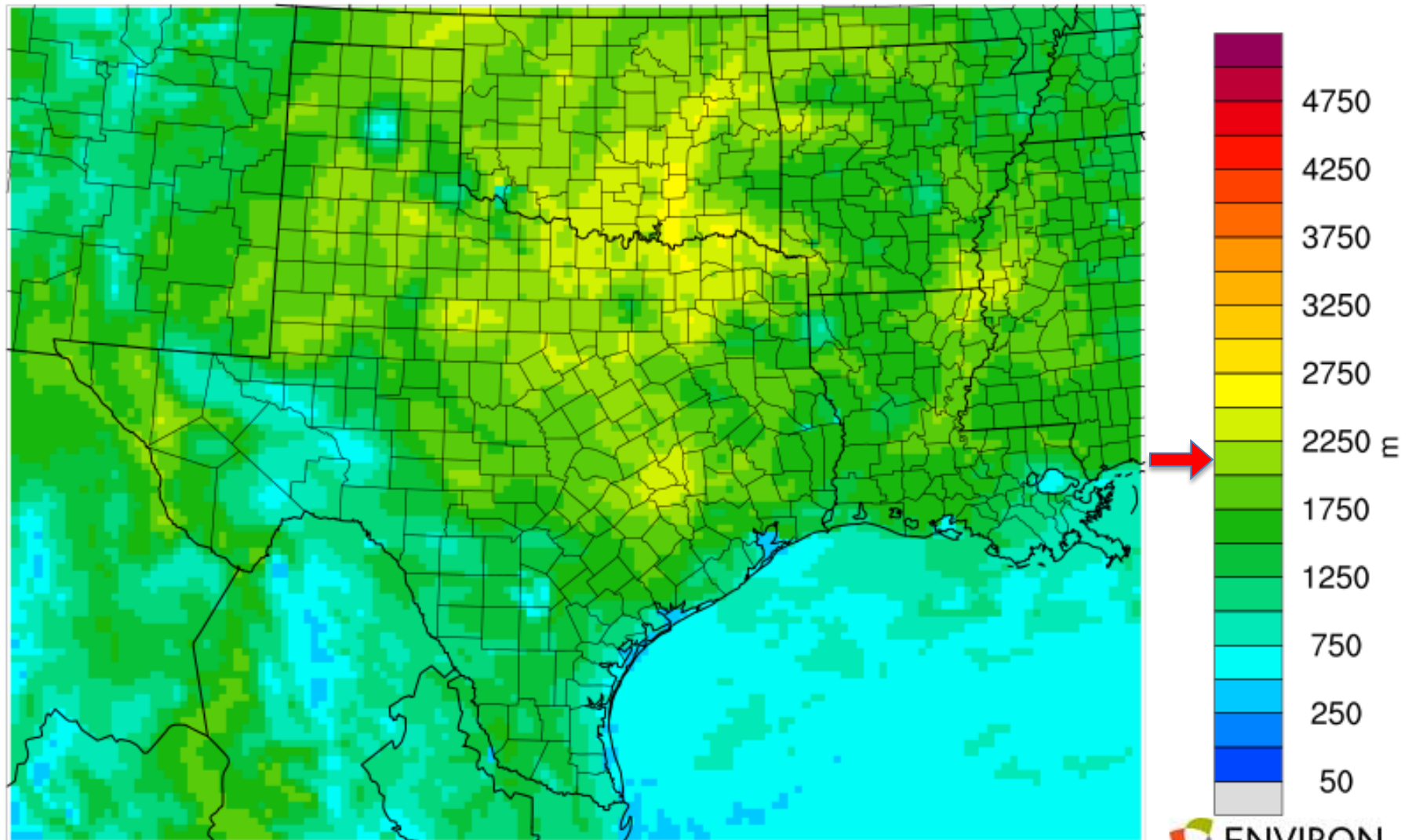


Min(37,36) = 218.5, Max(95,80) = 2291.0

Wed September 18 12:00 CST

PBL Height

Texas 12km

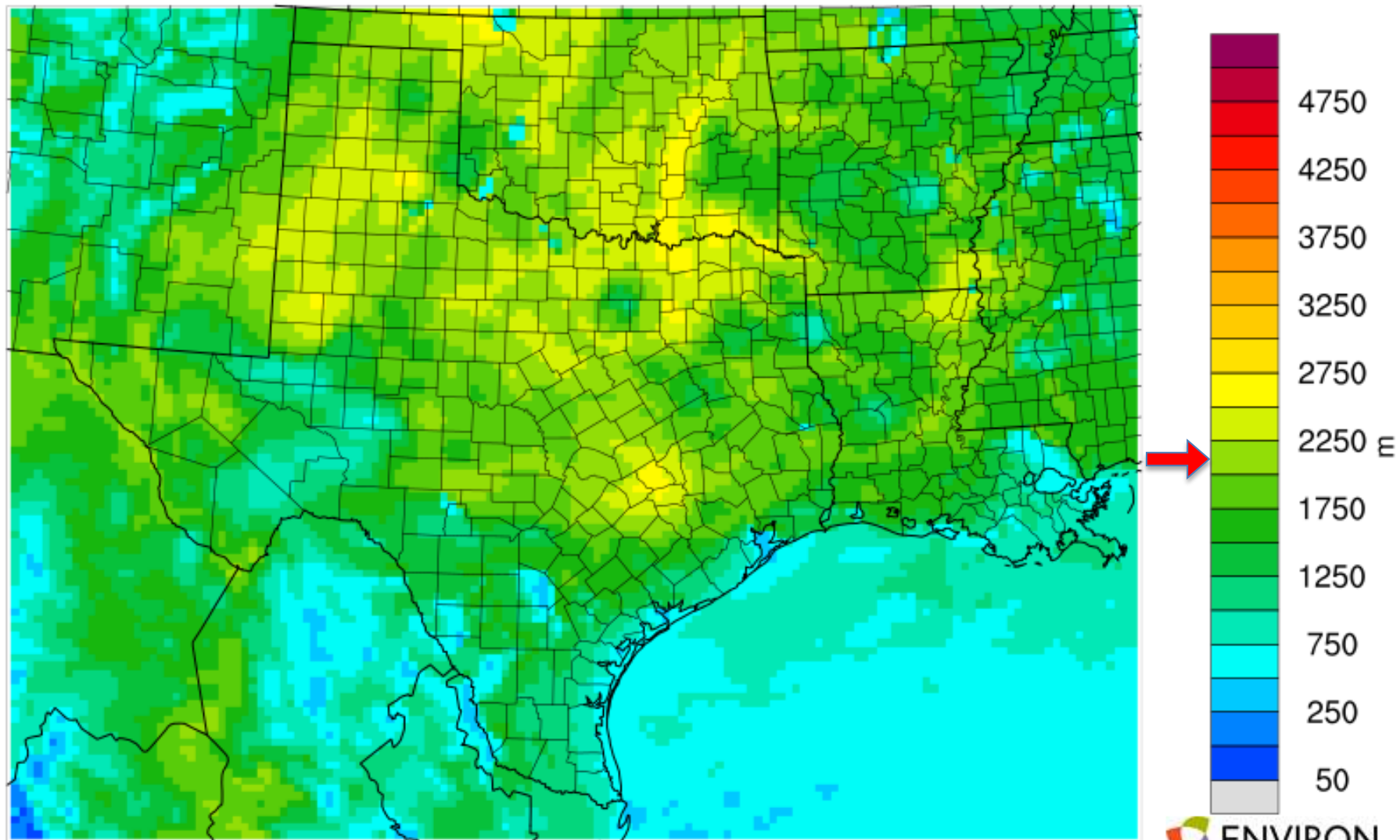


Min(64,12) = 272.5, Max(88,86) = 2645.6

Wed September 18 14:00 CST

PBL Height

Texas 12km

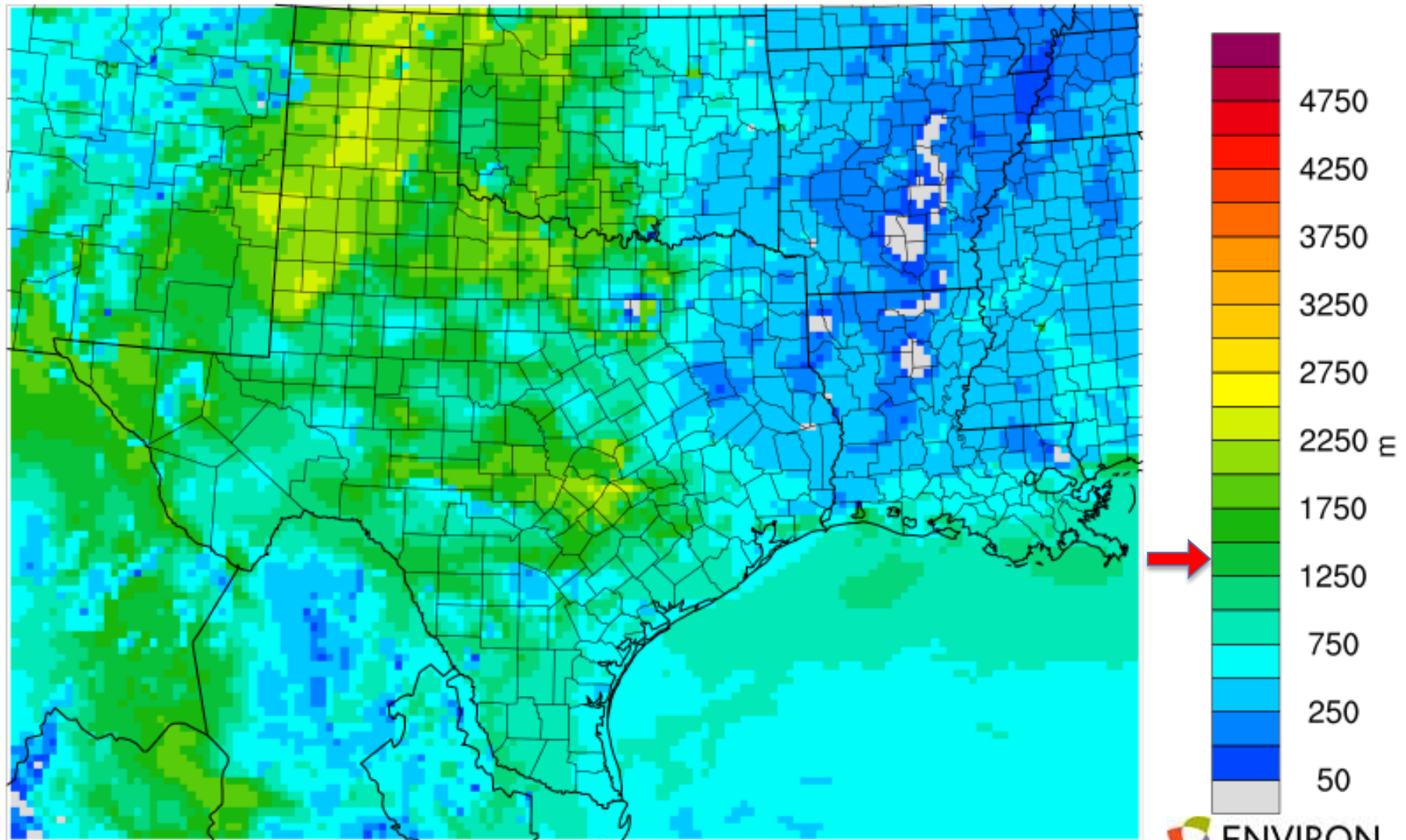


Min(4,2) = 59.7, Max(94,80) = 2641.9

Wed September 18 16:00 CST

PBL Height

Texas 12km



Min(138,51) = 17.2, Max(48,97) = 2426.7

Wed September 18 18:00 CST

Model Intercomparison September 17, 2013

Mariel Friberg

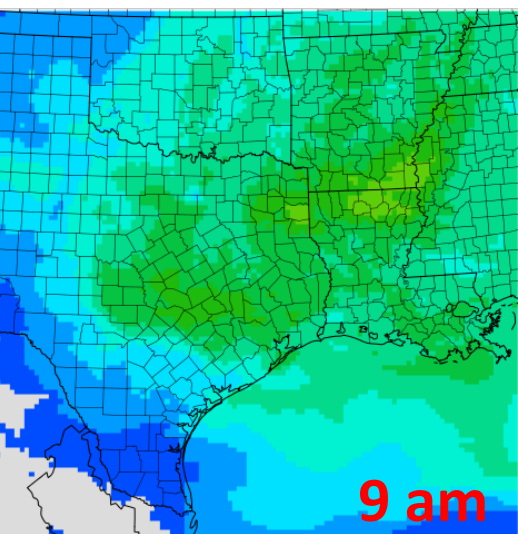
03

CAMx vs. NOAA-CMAQ
vs. UH-CMAQ
Surface



CAMx

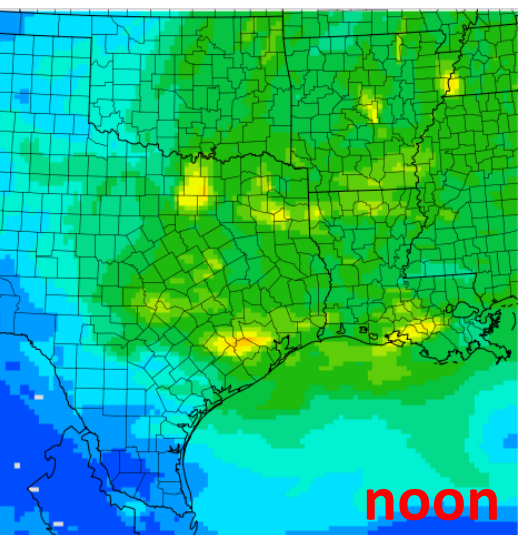
Ozone
Best Case



Min(54,4) = 11.3, Max(127,77) = 69.4

Wed September 18 09:00 CST

Ozone
Best Case

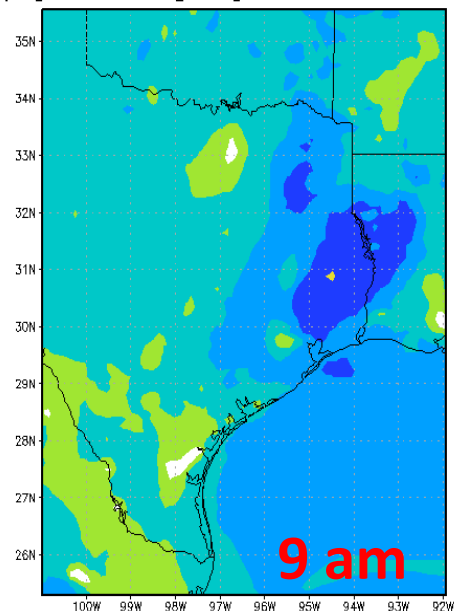


Min(53,4) = 25.8, Max(93,42) = 91.2

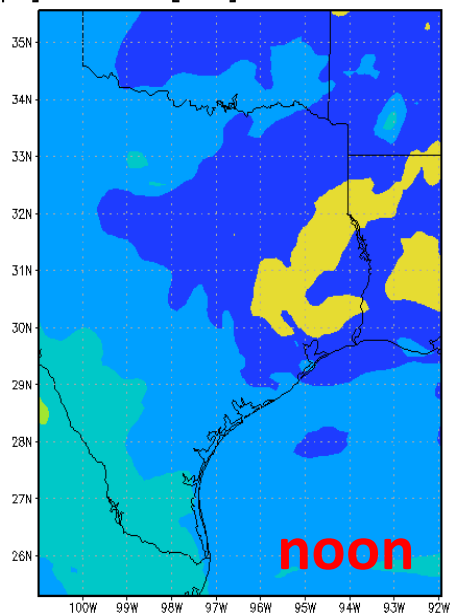
Wed September 18 12:00 CST

NOAA-CMAQ Surface O3

O3 [ppb] at 1013 [hPa] Valid 14Z SEP 18 2013

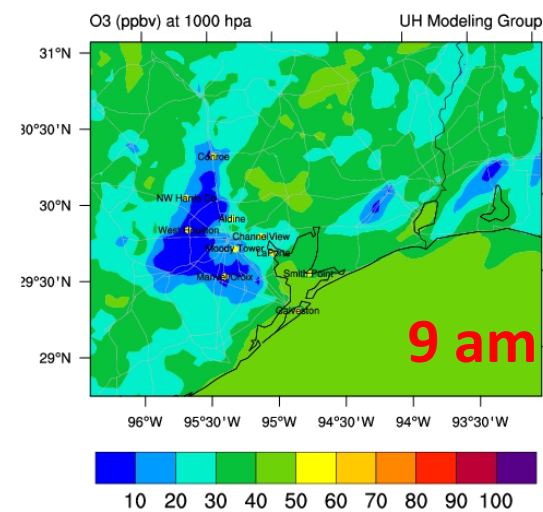


O3 [ppb] at 1013 [hPa] Valid 17Z SEP 18 2013

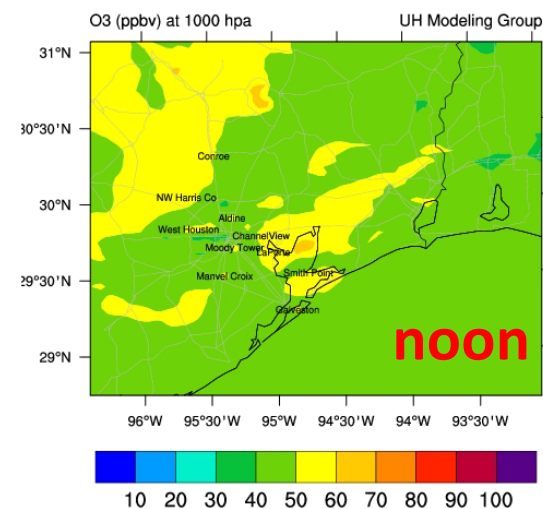


UH-CMAQ

CMAQ 20130918_14:00:00Z

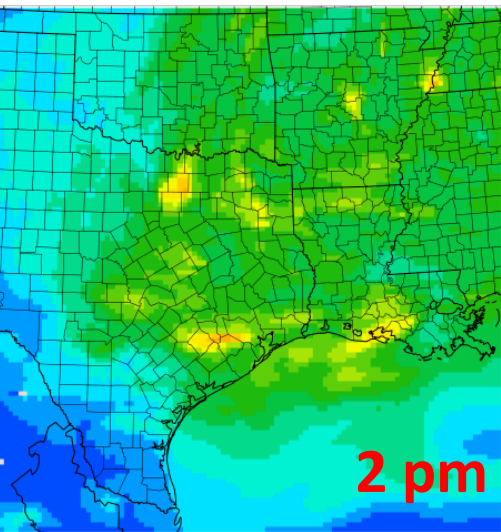


CMAQ 20130918_17:00:00Z



CAMx

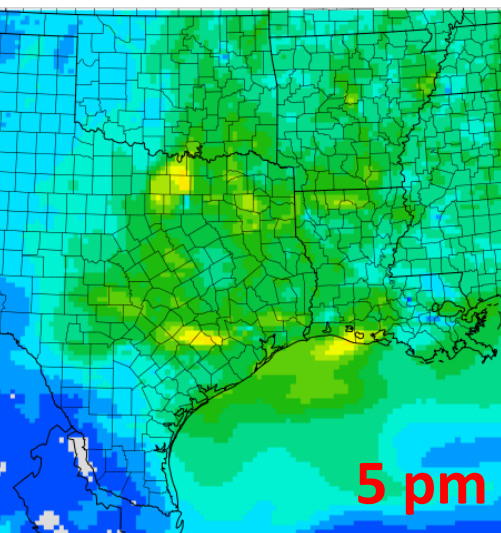
Ozone
Best Case



Min(50,30) = 26.6, Max(90,41) = 93.2

Wed September 18 14:00 CST

Ozone
Best Case



Min(54,4) = 18.9, Max(86,42) = 83.4

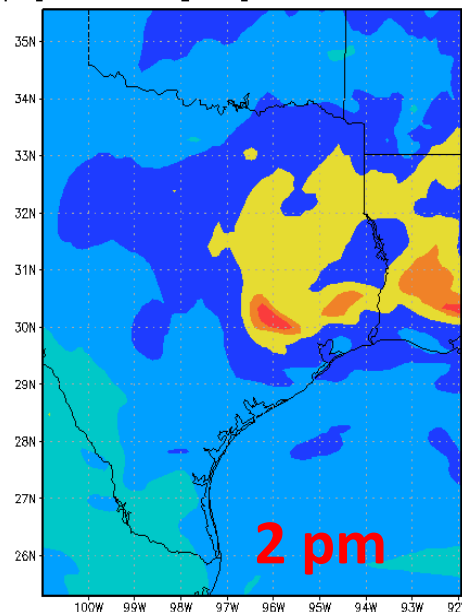
Wed September 18 17:00 CST

ENVIRON

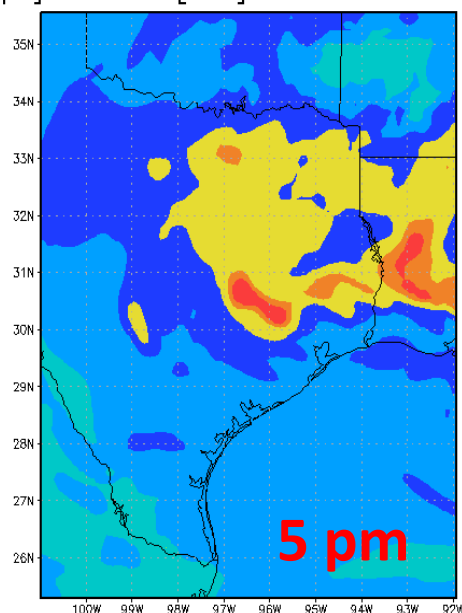
ENVIRON

NOAA-CMAQ Surface O3

O3 [ppb] at 1013 [hPa] Valid 19Z SEP 18 2013

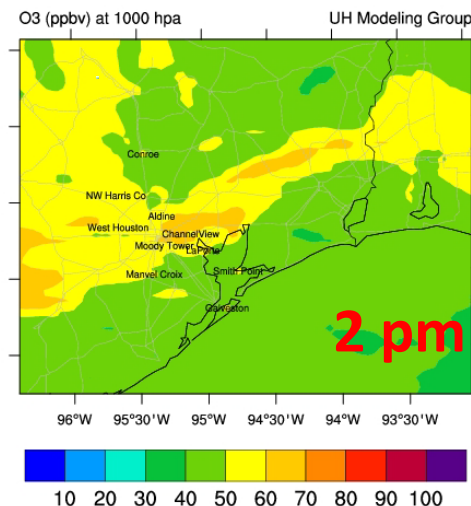


O3 [ppb] at 1013 [hPa] Valid 22Z SEP 18 2013

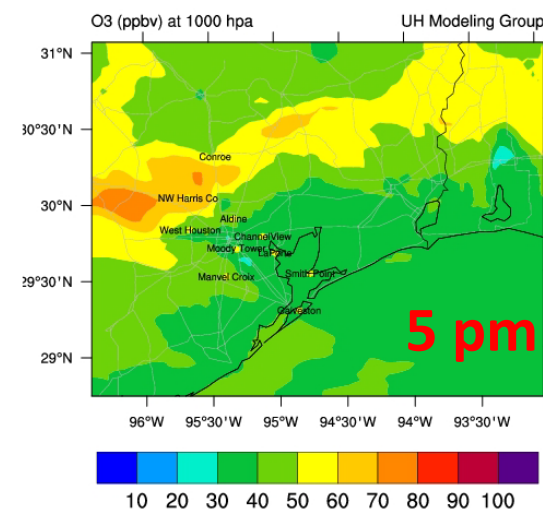


UH-CMAQ

CMAQ 20130918_19:00:00Z



CMAQ 20130918_22:00:00Z



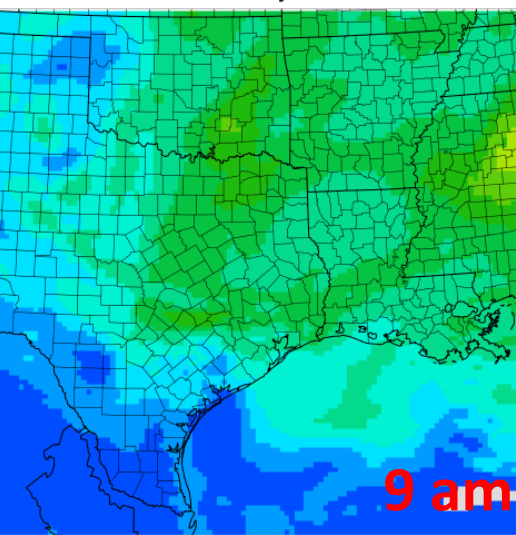
03

CAMx vs. NOAA-CMAQ
vs. UH-CMAQ
Layer 14

CAMx

Ozone

Best Case: CAMx Layer 14

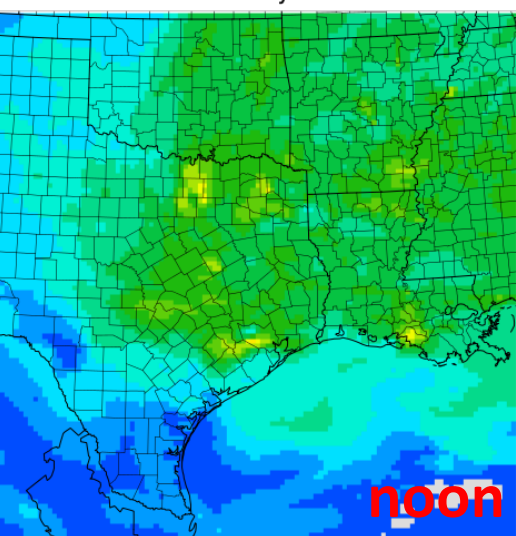


Min(144,10) = 28.8, Max(148,82) = 72.2

Wed September 18 09:00 CST

Ozone

Best Case: CAMx Layer 14

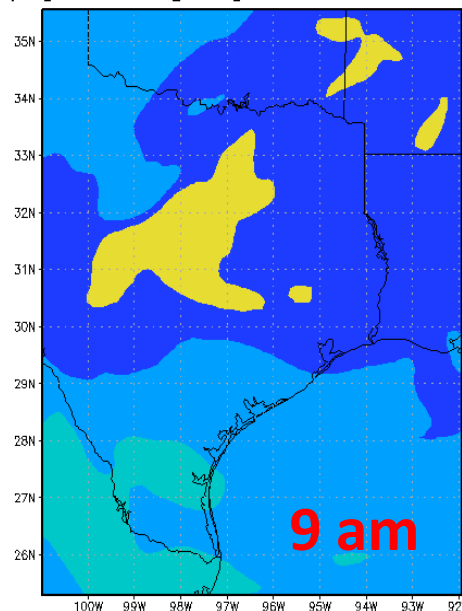


Min(29,2) = 28.2, Max(94,42) = 80.8

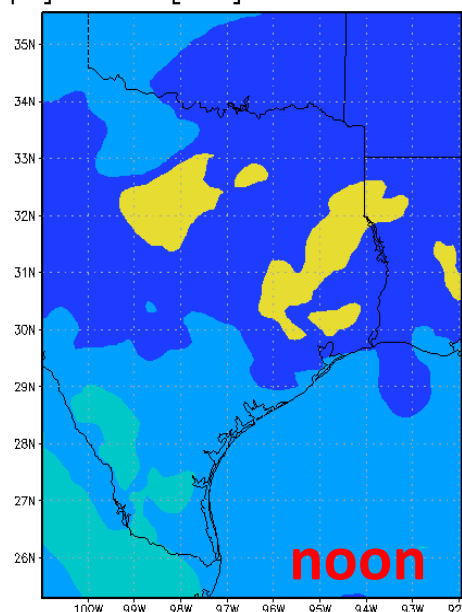
Wed September 18 12:00 CST

NOAA-CMAQ 850 hPa O3

O3 [ppb] at 850 [hPa] Valid 14Z SEP 18 2013

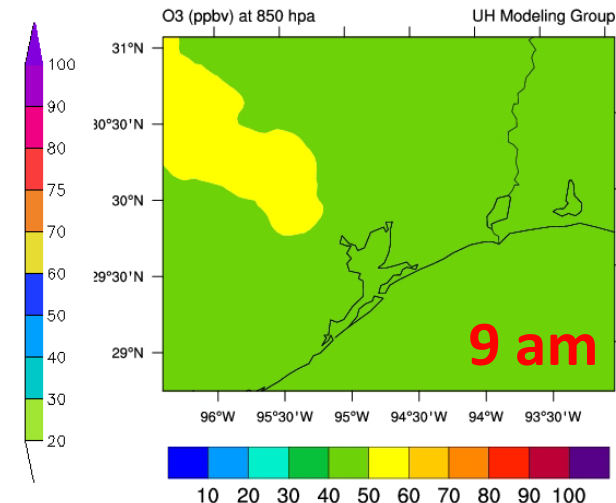


O3 [ppb] at 850 [hPa] Valid 17Z SEP 18 2013

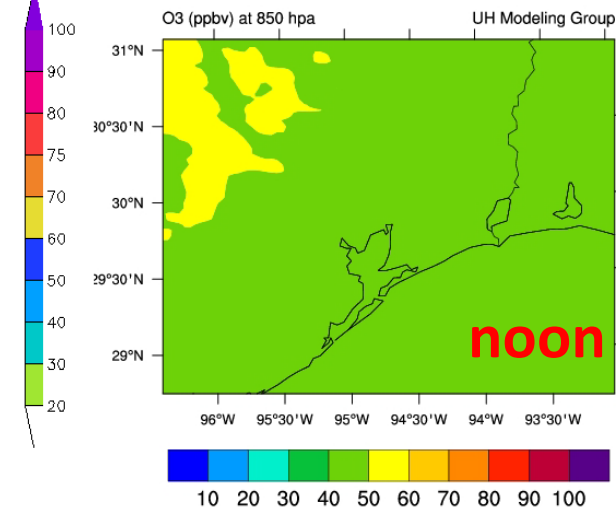


UH-CMAQ

CMAQ 20130918_14:00:00Z



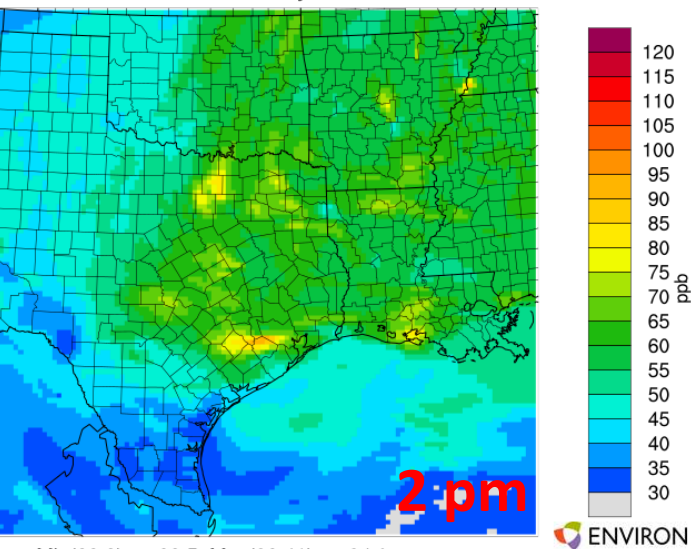
CMAQ 20130918_17:00:00Z



CAMx

Ozone

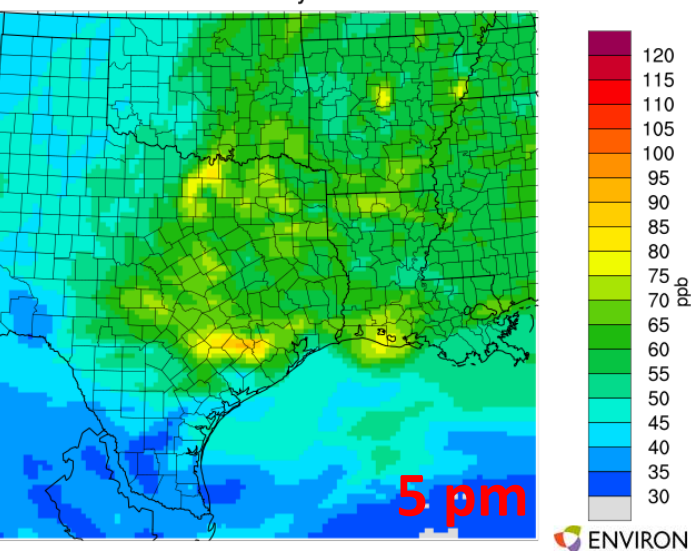
Best Case: CAMx Layer 14



Wed September 18 14:00 CST

Ozone

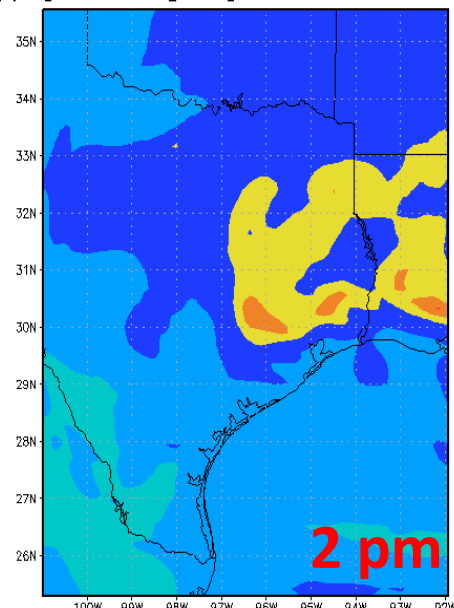
Best Case: CAMx Layer 14



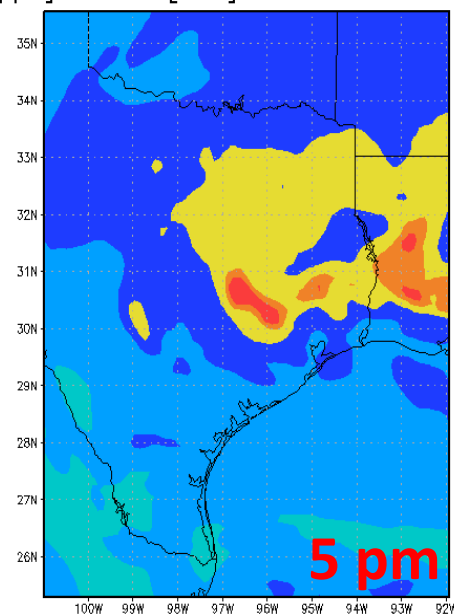
Wed September 18 17:00 CST

NOAA-CMAQ 850 hPa O3

O3 [ppb] at 850 [hPa] Valid 19Z SEP 18 2013

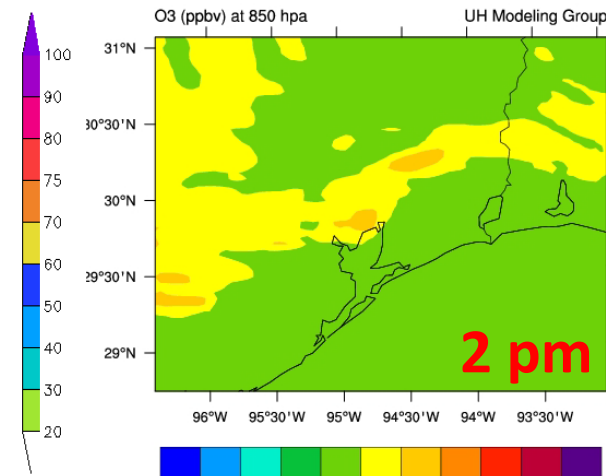


O3 [ppb] at 850 [hPa] Valid 22Z SEP 18 2013

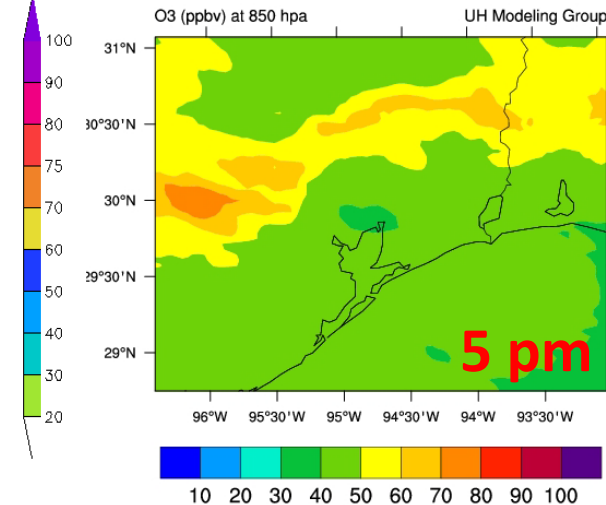


UH-CMAQ

CMAQ 20130918_19:00:00Z



CMAQ 20130918_22:00:00Z



NO₂, NO, NO_x

CAMx vs. NOAA-CMAQ

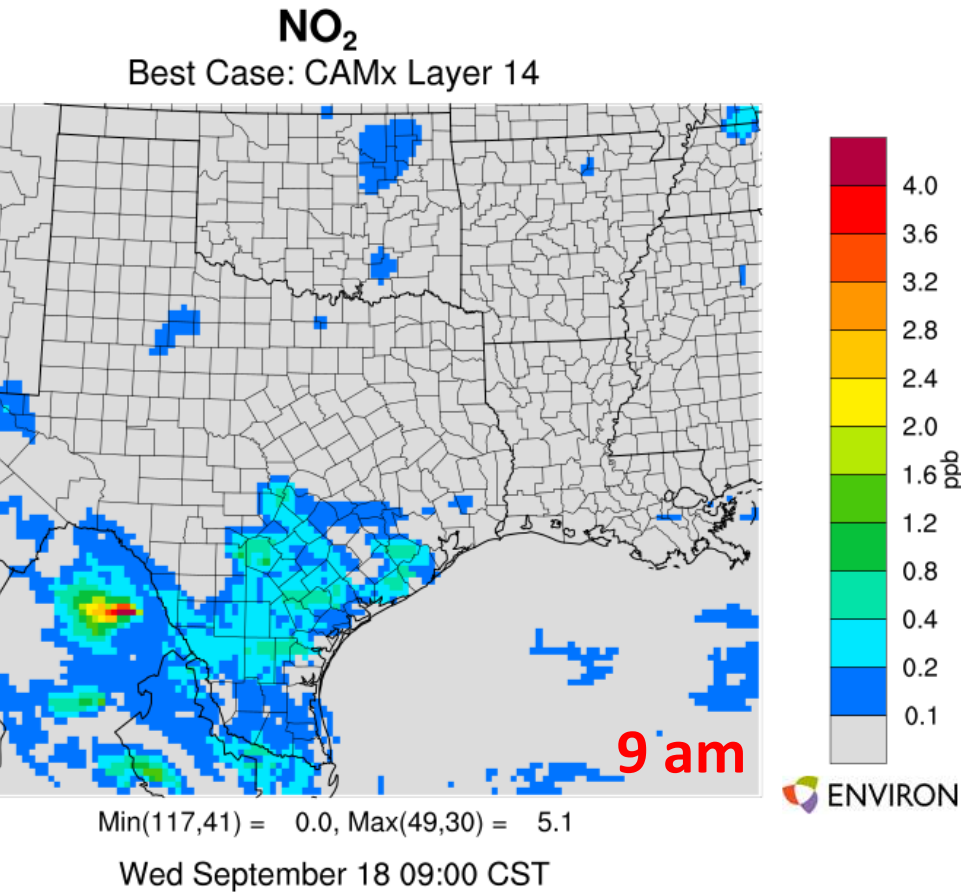
vs. UH-CMAQ

Layer 14

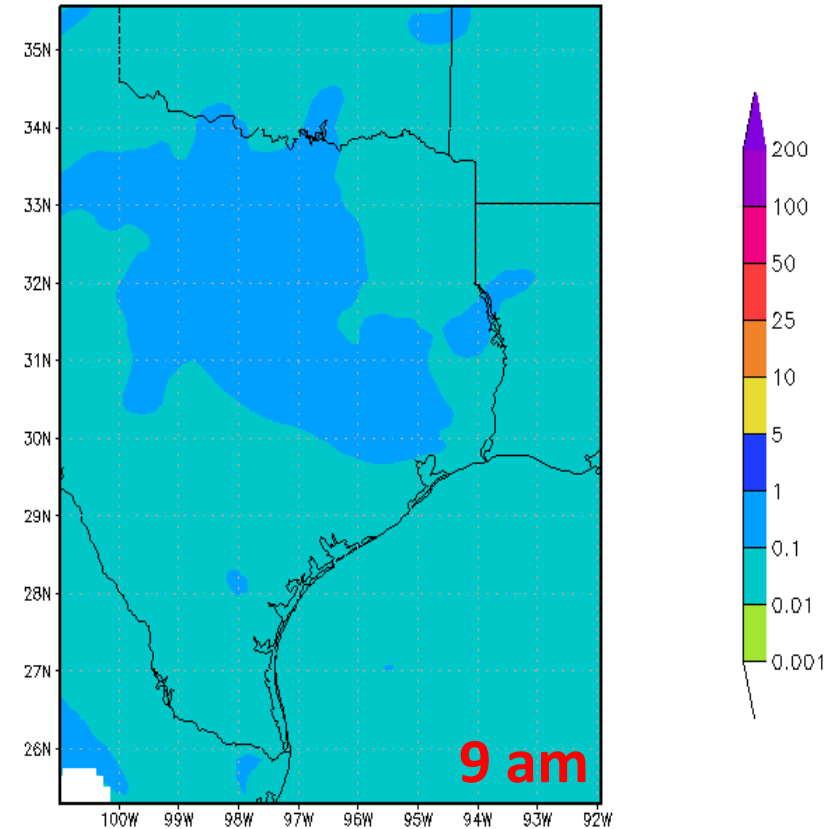
CAMx

NO₂

NOAA-CMAQ



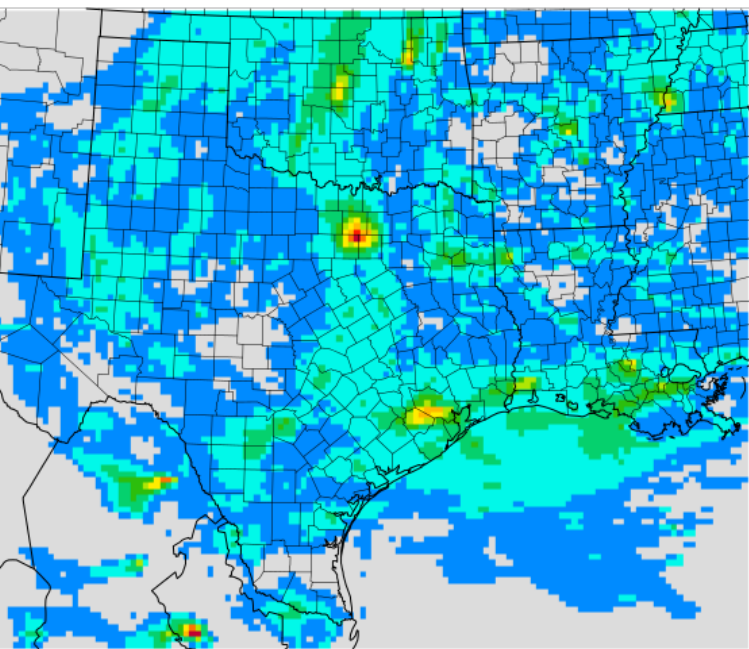
NO₂ [ppb] at 850 [hPa] Valid 14Z SEP 18 2013



CAMx

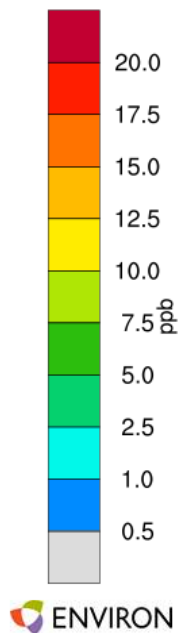
Surface NOx
NOAA-CMAQ

NOx
Best Case

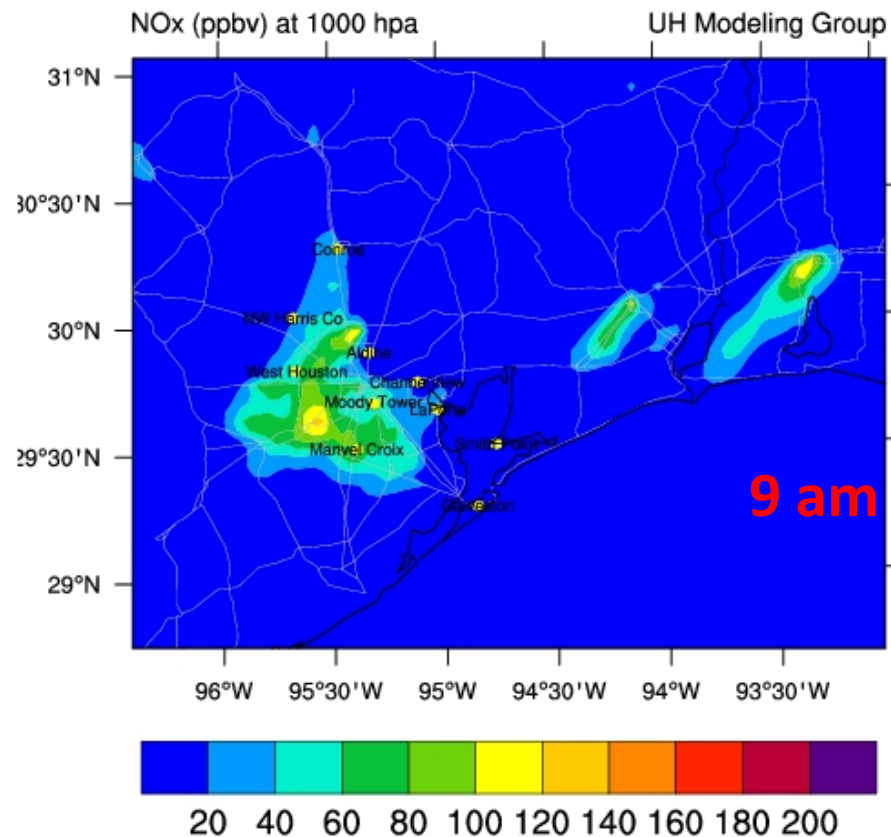


Min(2,10) = 0.1, Max(54,4) = 23.3

Wed September 18 09:00 CST



CMAQ 20130918_14:00:00Z



CH2O

CAMx Best Case vs. NOAA-CMAQ
vs. UH-CMAQ
Layer 14

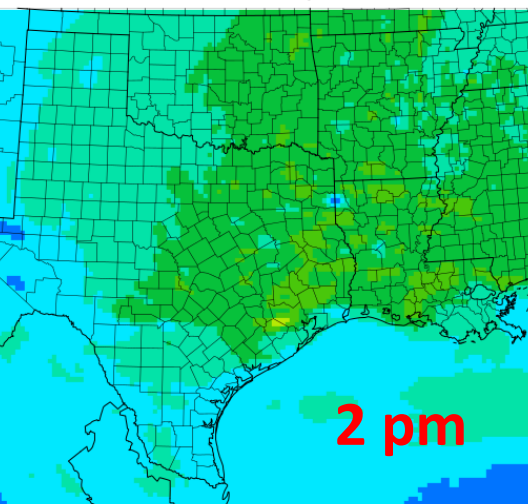
CAMx

NOAA-CMAQ Formaldehyde 850 hPa

UH-CMAQ

FORM [ppb] at 850 [hPa] Valid 19Z SEP 18 2013

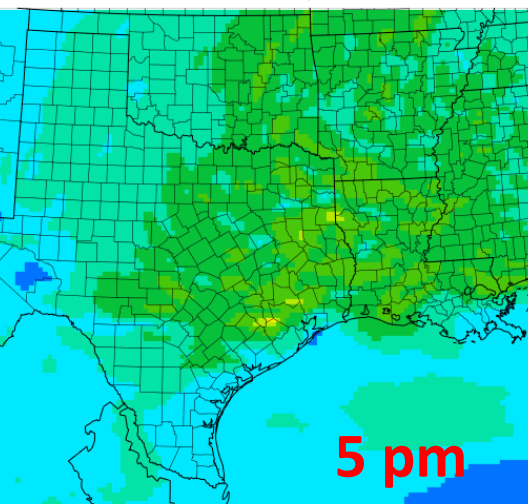
Formaldehyde
Best Case: CAMx Layer 14



Min(14,109) = 0.3, Max(94,42) = 4.7

Wed September 18 14:00 CST

Formaldehyde
Best Case: CAMx Layer 14

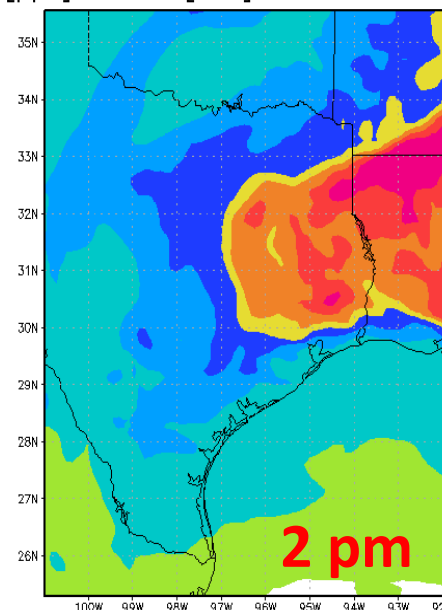


Min(21,109) = 0.3, Max(91,42) = 5.2

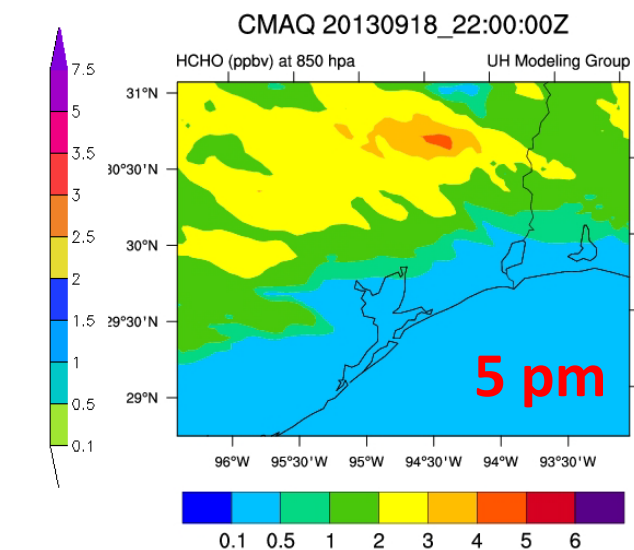
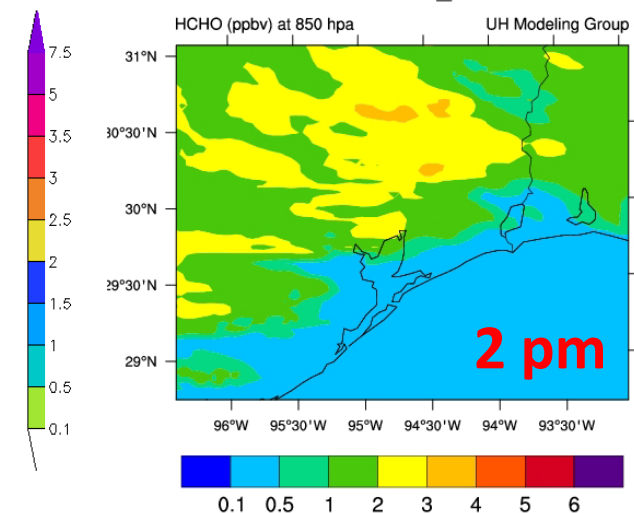
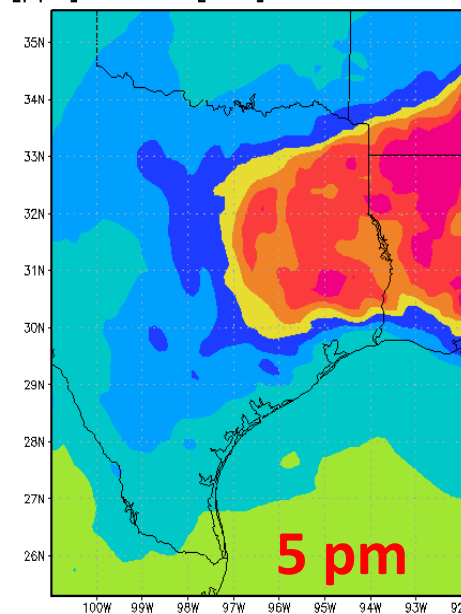
Wed September 18 17:00 CST

ENVIRON

ENVIRON



FORM [ppb] at 850 [hPa] Valid 22Z SEP 18 2013

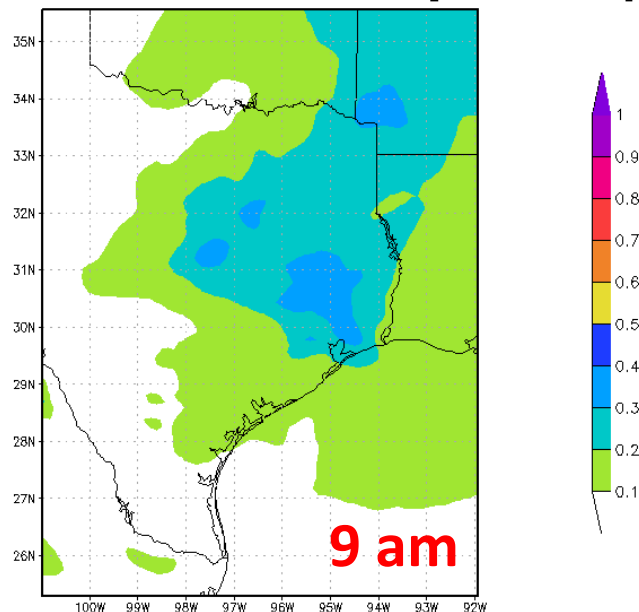


AOD

NOAA-CMAQ vs. UH-CMAQ

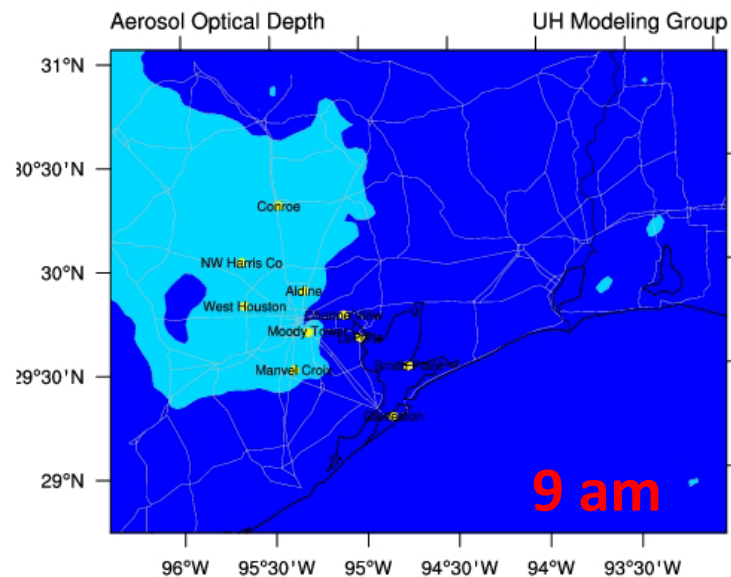
NOAA-CMAQ

(dev) aot 32H VALID 14Z 18 SEP2013 [dimensionless]

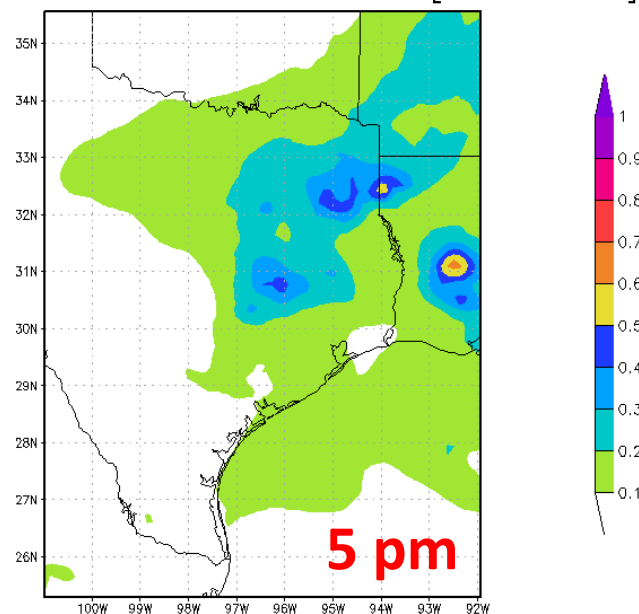


AOD UH-CMAQ

CMAQ 20130918_14:00:00Z



(dev) aot 40H VALID 22Z 18 SEP2013 [dimensionless]



CMAQ 20130918_22:00:00Z

