Today (Sunday) was a “no fly” day. A low-level cloud deck cleared from north to south this morning, but broken stratus appeared in the afternoon. There was a brisk northerly/northeasterly wind. The air quality was good for both ozone and PM, indicative of clean continental air.

Tomorrow (Monday) through Friday are potential fly days, but we will need to watch the cloud forecast as a pesky area of low pressure is lurking just off the Texas coast. Consequently, we will have a 6 am “go/no go” meeting to assess the cloud situation. The conditions will likely be similarly uncertain on Tuesday, which may require another 6 am meeting.

The surface flow will likely be northerly & northeasterly (continental air) until Thursday when winds will likely shift to southerly flow (marine air) as a front approaches the region. Early indications are that the weekend will be a washout.
9/22/2013 Weather Briefing

Ryan Stauffer
Recommendations

• Monday: *Fly Day.* Conditions not ideal, but have model uncertainty, low confidence in aggressive model cloud forecasts and northward progress of Gulf Low

• Tuesday: *Likely Fly.* Similar to Monday, weak low pressure that has been giving us the business lately is picked up by upper level trough late in the day.

• Wed/Thur...Fri?: *Probable Fly Days.* Upper level ridge takes control. Will have to watch timing of next cold front.

• Note: we will meet Monday 6am in Homewood Suites lobby to confirm Monday flight.
Conroe:

- **THIS AFTERNOON**: Sunny
- **TONIGHT**: Partly Cloudy
- **MONDAY**: Partly Cloudy
- **MONDAY NIGHT**: Mostly Cloudy
- **TUESDAY**: Mostly Cloudy
- **TUESDAY NIGHT**: Mostly Sunny
- **WEDNESDAY**: Mostly Sunny
- **WEDNESDAY NIGHT**: Mostly Sunny
- **THURSDAY**: Slight Chc Thunderstorms

Temperature:
- **High**: 84 °F
- **Low**: 60 °F

Houston Hobby:

- **THIS AFTERNOON**: Mostly Sunny
- **TONIGHT**: Partly Cloudy
- **MONDAY**: Slight Chc Thunderstorms
- **MONDAY NIGHT**: Mostly Cloudy
- **TUESDAY**: Partly Cloudy
- **TUESDAY NIGHT**: Mostly Cloudy
- **WEDNESDAY**: Partly Cloudy
- **WEDNESDAY NIGHT**: Partly Cloudy
- **THURSDAY**: Slight Chc Thunderstorms

Temperature:
- **High**: 83 °F
- **Low**: 65 °F

Galveston:

- **THIS AFTERNOON**: Mostly Cloudy
- **TONIGHT**: Slight Chc Thunderstorms
- **MONDAY**: Slight Chc Thunderstorms
- **MONDAY NIGHT**: Slight Chc Thunderstorms
- **TUESDAY**: Slight Chc Thunderstorms
- **TUESDAY NIGHT**: Mostly Cloudy
- **WEDNESDAY**: Mostly Cloudy
- **WEDNESDAY NIGHT**: Mostly Cloudy
- **THURSDAY**: Slight Chc Thunderstorms

Temperature:
- **High**: 82 °F
- **Low**: 72 °F
Current Conditions

Conroe:

Far

84°F
29°C

Houston Hobby:

Mostly Cloudy

83°F
28°C

Humidity 33%
Wind Speed N 10 G 18 mph
Barometer 29.80 in (1008.7 mb)
Dewpoint 52°F (11°C)
Visibility 10.00 mi
Heat Index 82°F (28°C)
Last Update on 22 Sep 2:53 pm CDT

Humidity 49%
Wind Speed NE 14 mph
Barometer 29.76 in (1008.3 mb)
Dewpoint 62°F (17°C)
Visibility 10.00 mi
Heat Index 84°F (28°C)
Last Update on 22 Sep 2:53 pm CDT
Current Conditions

Galveston:

Humidity: 85%
Wind Speed: N 18 G 26 mph
Barometer: 29.78 in (1007.6 mb)
Dewpoint: 66°F (19°C)
Visibility: 10.00 mi
Heat Index: 81°F (27°C)

Overcast

79°F
26°C

Last Update on 22 Sep 2:52 pm CDT
2pm CDT 850mb dew points – extreme moisture gradient
The back edge of the Deck this morning at Ellington Field.
Deck moved out, but winds stiff.
Tomorrow: Low continues to spin menacingly and drifts NE, throwing some moisture our way. Only a slight chance of coastal showers, but low clouds will be the bigger consideration. Less cloud cover north

12z Surface Forecast

1 PM CDT NAM
700 mb RH
10 m winds at 1 PM tomorrow

Don’t let the 2hPa isopleths scare you. Expecting 5-10kts, a bit more near coast.
Tuesday: Low pressure center begins moving NE, quickly later in the day as it connects with 500mb trough. The earlier the better, but maybe another marginal day with cloud cover especially early.
10 m winds at 1 PM Tuesday

Winds similar to Monday, perhaps a bit more northerly
Wednesday: The low is finally clear of the region. Upper level ridge takes control and will remain in control until likely Friday night.

12z Surface Forecast

7 AM CDT NAM
700 mb RH
Tomorrow (Monday): GEOS-5 – 0Z forecast

10 am

High

1 pm

High

4 pm

Mid

7 pm

Low
Tuesday: GEOS-5 –

10 am

High Cloud Fraction

1 pm

High Cloud Fraction

4 pm

High Cloud Fraction

7 pm

High Cloud Fraction

Mid Cloud Fraction

Low Cloud Fraction

63 hr forecast valid Tue 15z 2013-09-24

66 hr forecast valid Tue 18z 2013-09-24

69 hr forecast valid Tue 21z 2013-09-24

72 hr forecast valid Wed 00z 2013-09-25
Wednesday: GEOS-5 –

10 am

1 pm

4 pm

7 pm

High

Mid

Low
Summary

• Monday: Fly Day. Uncertainty in model handling of Gulf Low and aggressive (too much) cloud forecasts.

• Tuesday: Likely Fly. Similar to Monday, will monitor progress of low. Will be moving from region late

• Wed/Thur...Fri?: Probable Fly Days. Chance to build some pollution. Wind shift expected to S by Friday though. Front passes during weekend

• Note: we will meet Monday 6am in Homewood Suites lobby to confirm Monday flight.
DISCOVER-AQ Air Quality Outlook
September 22, 2013

Bryan Duncan
Mariel Friberg
Very few fire-counts today due to heavy rains last week, but we will keep an eye out for agricultural fires in the Mississippi Valley to begin again in the next few days.
Hourly Ozone (airnowtech.org)**

September 2\textsuperscript{nd} – 20\textsuperscript{th} **EVERY 7\textsuperscript{th} HOUR PLOTTED!!!!!**

marine air = low ozone
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:
Switch to northerly/northeasterly flow.

Marine air.

Continental air.

Southerly flow.

UTC
MONDAY

9 am
Ozone
Best Case

noon
Ozone
Best Case

2 pm
Ozone
Best Case

5 pm
Ozone
Best Case

CAMx Model
Surface Ozone

Mon September 23 09:00 CST

Mon September 23 12:00 CST

Mon September 23 14:00 CST

Mon September 23 17:00 CST

Min(49,32) = 14.2, Max(53,2) = 60.7
Mon September 23 09:00 CST

Min(52,30) = 19.2, Max(56,2) = 65.4
Mon September 23 12:00 CST

Min(52,29) = 22.2, Max(92,27) = 66.5
Mon September 23 14:00 CST

Min(134,46) = 13.0, Max(91,20) = 66.8
Mon September 23 17:00 CST
**MONDAY**

**Ozone**

Best Case: CAMx Layer 14

**9 am**

Min(109,32) = 24.7, Max(52,2) = 85.0

Mon September 23 09:00 CST

**1.2 km Ozone**

**2 pm**

Min(116,38) = 27.5, Max(51,2) = 86.1

Mon September 23 14:00 CST

**5 pm**

Min(104,61) = 27.8, Max(51,2) = 81.4

Mon September 23 17:00 CST
For Monday’s flight:

- Clean conditions should be the rule – low ozone, low PM.
- However, there could be some interesting vertical structure in ozone and other trace gases due to the pesky low.
Hourly PM$_{2.5}$ (airnowtech.org)**
September 2$^{nd}$ – 20$^{th}$

** EVERY 7$^{th}$ HOUR PLOTTED!!!!!

Marine air
Low AOD expected.
Low AOD expected.