Houston’s 2011 Ozone Season: Year in Review

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Houston Regional Office
What was it “really” like?
June-August 2011 Statewide Ranks
National Climatic Data Center/NESDIS/NOAA

Temperature

1 = Coldest
117 = Warmest
June-August 2011 Statewide Ranks
National Climatic Data Center/NESDIS/NOAA

Precipitation

1 = Driest
117 = Wettest
Warmest Statewide Summer (JJA) Temperatures: 1895-2011
NOAA's National Climatic Data Center

Year | Temperature
--- | ---
2010 Florida | 86.5
1998 Florida | 86.3
1980 Louisiana | 86.3
1954 Arkansas | 86.3
1954 Texas | 86.3
1953 Texas | 86.3
1918 Texas | 86.3
2010 Louisiana | 84.5
1954 Oklahoma | 84.5
1934 Texas | 84.5
1998 Louisiana | 84.5
1998 Oklahoma | 84.5
1936 Oklahoma | 84.5
2011 Louisiana | 84.5
1934 Oklahoma | 84.5
2011 Texas | 84.5
2011 Texas | 84.5
How Hot was It?

- August 27, 2011: Hottest Day in Houston’s History (109° F)
- 30 out of 31 days of August > 100° F
- Additionally, it was the driest summer of ALL time (5.6 inches May – Sept.). (Normal = 22.69 inches)

(Data from National Weather Service Houston Office)
So... How did this Affect O3 Concentration?
Ozone Standards

- 0.075 ppm (2008)

- Based on the annual 4\textsuperscript{th} highest concentration, averaged over 3 years.

- 1997 Standard: 0.08 ppm (rounded to 85 ppb), attainment due date June 15, 2019
2011: Year In Review

- Highest 8 Hr. Average: 112 ppb (Galveston, 06/06/2011)
- 2010: 97 ppb (Houston Aldine)
- Highest 1 Hr. Average: 140 ppb (Galveston, 06/06/2011)
- 2010: 130 ppb (Lynchburg Ferry)

Note: Although these are federal reference monitors, these are the highest values recorded in the HGB Area.
Mean Design Values by Year (EPA FRMS)

Year

Ozone Design Value (ppb)
2010 HGB 8hr Exceedence Days (≥75ppb) by monitor
The troublemaker: Manvel

2011 8 Hour Ozone Exceedances (2008 standard)
<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
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<tbody>
<tr>
<td>2006</td>
<td>94</td>
</tr>
<tr>
<td>2007</td>
<td>86</td>
</tr>
<tr>
<td>2008</td>
<td>75</td>
</tr>
<tr>
<td>2009</td>
<td>91</td>
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<td>2010</td>
<td>88</td>
</tr>
<tr>
<td>2011</td>
<td>90</td>
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Manvel has experienced the highest design values from 2009-2011.

- 2008: Bayland Park / Aldine
- 2007: NW Harris County
- 2006: Bayland Park / Park Place
<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Ozone Concentration (ppb)</th>
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</thead>
<tbody>
<tr>
<td>Galveston</td>
<td>June 6, 2011</td>
<td>140</td>
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<tr>
<td>Houston East</td>
<td>August 26, 2011</td>
<td>128</td>
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<td>Houston North Wayside</td>
<td>August 26, 2011</td>
<td>131</td>
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<td>Houston Aldine</td>
<td>August 26, 2011</td>
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<td>August 29, 2011</td>
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<td>August 29, 2011</td>
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<tr>
<td>Manvel Croix Park</td>
<td>September 8, 2011</td>
<td>130</td>
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<td>Location</td>
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<td>July 16, 2010</td>
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<td>Channelview</td>
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<td>Houston East</td>
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2011 was a record year for “HOT” and “DRY”

With this in mind, 2011 was nothing special in terms of mean design value (slide 12).

- Manvel: Design value of 89 ppb (8 hour standard)
- Reference monitors have exceeded 1 hour standard of 125 ppb ever year.
- Clean Air Act Section 185 fees may be implemented.
Questions / Discussion

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