Meteorological Modeling Update

TexAQS II Episodes

Southeast Texas Photochemical Modeling Technical Committee Meeting

February 27, 2006
Outline

• Episodes
• Modeling Domains
• Performance Stats and Plots
• Future Work
June 15 – 30, 2005: (2005ep1)
Performance Stats: 2005ep1

Houston–Galveston – Region 12 Average

Bias Wind Speed m/s
Performance Stats: 2005ep1

Houston–Galveston – Region 12 Average

Temp K

2005ep1_d4.eta.nafdda

Houston–Galveston – Region 12 Average

Temp K

2005ep1_d4.eta.fdda

Bias Temp K
Performance Stats: 2005ep1

Houston Bayland Park C53/A146

Wind Speed m/s

Obs MM5

Bias Wind Speed m/s
Performance Stats: 2005ep2

2005ep2.4km.eta.dbemis.1hr

Houston–Galveston – Region 12 Average

2005ep2.d4.eta.dbemis.fddc

Houston–Galveston – Region 12 Average

Bias Wind Dir deg
Performance Stats: 2005ep2

2005ep2.4km.eta.dbm6is.1hr

Wind Speed m/s

Houston–Galveston – Region 12 Average

2005ep2.4km.eta.dbm6is.fddc

Wind Speed m/s

Houston–Galveston – Region 12 Average

Bias Wind Speed m/s

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Performance Stats: 2005ep2

2005ep2.4km.eta.dbemis.1hr

Houston–Galveston – Region 12 Average

Temp K

2005ep2.d4.eta.dbemis.fddc

Houston–Galveston – Region 12 Average

Temp K

Bias Temp K

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Performance Stats: 2005ep2

2005ep2.4.km.sta.dbemis.1hr

Wind Dir deg

Houston Bayland Park C53/A146

2005ep2.d4.sta.dbemis.fddc

Wind Dir deg

Houston Bayland Park C53/A146

Bias Wind Dir deg

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Performance Stats: 2005ep2

Wind Speed m/s

Houston Bayland Park C53/A146

Obs vs MMS

Bias Wind Speed m/s

2005ep2.4km.eta.dbemis.1hr

2005ep2.d4.eta.dbemis.fddc
Performance Stats: 2005ep2

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**Houston Bayland Park C53/A146**

Temp K

![Graph of temperature in K for 2005ep2.4km.sta.dbemis.1hr](image)

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**Houston Bayland Park C53/A146**

Temp K

![Graph of temperature in K for 2005ep2.d4.sta.dbemis.fddo](image)

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**Bias Temp K**

![Graph of bias temperature in K](image)
Horizontal Wind (m/s) at Layer 1 (06/17/2005–06/23/2005)

LYNF at (475.2, -1104.3) km (EPA 482011015, C1015/A165, 2003/04/16–now, Lynchburg Ferry, 1001 B Lynchburg Road, Baytown, Harris Co., TX)

MACP at (446.4, -1133.3) km (EPA 480391004, C84, 2001/08/23–now, Manvel Croix Park, 4503 Croix Parkway, Manvel, Brazoria Co., TX)
Horizontal Wind (m/s) at Layer 1 (06/24/2005–06/30/2005)

MM5 2005sep1_eta_idda (cell values)

BAYP at (435.5,-1114.4) km (EPA482010055, C53/A146, 1998/03/24–now, Bayland Park, Harris Co., TX)

DRPK at (471.0,-1115.2) km (EPA482011039, C35/C1001/A139, 1996/10/24–now, Deer Park, Harris Co., TX)

HCQA at (437.9,-1122.2) km (EPA482010051, C409, 2000/02/08–now, Croquet, Houston, Harris Co., TX)

WALV at (483.3,-1097.5) km (EPA482010617, C617, 2003/06/05–now, Wallisville Road, 4727 Wallisville Rd., Baytown, Harris Co., TX)

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Horizontal Wind (m/s) at Layer 1 (07/26/2005–08/01/2005)

MM5 2005ep2_dbemis_fdda (cell values)

BAYP at (435.5,-1114.4) km (EPA482010055, C53/A146, 1998/03/24–now, Bayland Park, Harris Co., TX)

DRPK at (471.0,-1115.2) km (EPA482011039, C35/C1001/A139, 1996/10/24–now, Deer Park, Harris Co., TX)

HCQA at (437.9,-1122.2) km (EPA482010051, C409, 2000/02/08–now, Croquet, Houston, Harris Co., TX)

WALV at (483.3,-1097.5) km (EPA482010617, C617, 2003/06/05–now, Wallisville Road, 4727 Wallisville Rd., Baytown, Harris Co., TX)
Horizontal Wind (m/s) at Layer 1 (07/26/2005–08/01/2005)

LYNF at (47.5, 1104.3) km (EPA482011015, C1015/A165, 2003/04/16–now, Lynchburg Ferry, 1001 B Lynchburg Road, Baytown, Harris Co., TX)

MACP at (44.6, 1133.3) km (EPA480391004, C84, 2001/08/23–now, Manvel Croix Park, 4503 Croix Parkway, Manvel, Brazoria Co., TX)
Horizontal Wind (m/s) at Layer 1 (08/02/2005–08/08/2005)

MM5 2005ep2_dbemis_fdda (cell values)

BAYP at (435.5, -1114.4) km (EPA482010055, C53/A146, 1998/03/24–now, Bayland Park, Harris Co., TX)

DRPK at (471.0, -1115.2) km (EPA482011039, C35/C1001/A139, 1996/10/24–now, Deer Park, Harris Co., TX)

HCGA at (437.9, -1122.2) km (EPA482010051, C409, 2000/02/08–now, Croquet, Houston, Harris Co., TX)

WALV at (483.3, -1097.5) km (EPA482010617, C617, 2003/06/05–now, Wallisville Road, 4727 Wallisville Rd, Baytown, Harris Co., TX)
Horizontal Wind (m/s) at Layer 1 (08/02/2005–08/08/2005)

MM5 2005ep2_dbemis_fdda (cell values)

LYNF at (475.2, -1104.3) km (EPA482011015, C1015/A165, 2003/04/16–now, Lynchburg Perry, 1001 B Lynchburg Road, Baytown, Harris Co., TX)

MACP at (446.4, -1133.3) km (EPA480391004, C84, 2001/08/23–now, Manvel Croix Park, 4503 Croix Parkway, Manvel, Brazoria Co., TX)
Temperature (°C) at Layer 1 (06/17/2005–06/23/2005)

MM5 2005sep1_eta_feeda (cell values)

BAYP at (435.5, -1114.4) km (EPA482010055, C53/A146, 1999/03/24–now, Bayland Park, Harris Co., TX)

DRPK at (471.0, -1115.2) km (EPA482011039, C35/C1001/A139, 1996/10/24–now, Deer Park, Harris Co., TX)

HCQA at (437.9, -1122.2) km (EPA482010051, C409, 2000/02/08–now, Croquet, Houston, Harris Co., TX)

WALV at (483.3, -1097.5) km (EPA482010617, C617, 2003/06/05–now, Wallisville Road, 4727 Wallisville Rd, Baytown, Harris Co., TX)
Temperature (°C) at Layer 1 (06/17/2005–06/23/2005)

LYNF at (475.2, -1104.3) km (EPA482011015, C1015/A165, 2003/04/16–now, Lynchburg Ferry, 1001 B Lynchburg Road, Baytown, Harris Co., TX)

MACP at (446.4, -1133.3) km (EPA480391004, C84, 2001/08/23–now, Manvel Croix Park, 4503 Croix Parkway, Manvel, Brazoria Co., TX)
Temperature (°C) at Layer 1 (06/24/2005–06/30/2005)

MM5 2005sep1_eta_dda (cell values)

BAYP at (435.5, -1114.4) km (EPA482010005, C53/A146, 1998/03/24–now, Bayland Park, Harris Co., TX)

DRPK at (471.0, -1115.2) km (EPA482011039, C35/C1001/A139, 1996/10/24–now, Deer Park, Harris Co., TX)

HCQA at (437.9, -1122.2) km (EPA482010081, C409, 2000/02/08–now, Croquet, Houston, Harris Co., TX)

WALV at (483.3, -1097.5) km (EPA482010617, C617, 2003/06/05–now, Wallisville Road 4727 Wallisville Rd., Baytown, Harris Co., TX)
Temperature (°C) at Layer 1 (06/24/2005–06/30/2005)

MM5 2005sep1_eta_fdda (cell values)

LYNF at (475.2, -1104.3) km (EPA482011015, C1015/A165, 2003/04/16–now, Lynchburg Ferry, 1001 B Lynchburg Road, Baytown, Harris Co., TX)

MACP at (446.4, -1133.3) km (EPA480391004, C84, 2001/08/23–now, Manvel Croix Park, 4503 Croix Parkway, Manvel, Brazoria Co., TX)
Temperature (°C) at Layer 1 (07/26/2005–08/01/2005)

MM5 2005ep2_dbemis_fdda (cell values)

BAYP at (435.5, -1114.4) km (EPA482010055, C53/A146, 1998/03/24–now, Bayland Park, Harris Co., TX)

DRPK at (471.0, -1115.2) km (EPA482011039, C35/C1001/A139, 1996/10/24–now, Deer Park, Harris Co., TX)

HCQA at (437.9, -1122.2) km (EPA482010051, C409, 2000/02/08–now, Croquet, Houston, Harris Co., TX)

WALV at (483.3, -1097.5) km (EPA482010617, C617, 2003/06/05–now, Wallisville Road, 4727 Wallisville Rd., Baytown, Harris Co., TX)
Temperature (°C) at Layer 1 (07/26/2005–08/01/2005)
MM5 2005ep2_dbemis_fd (cell values)

LYNF at (475.2, -1104.3) km (EPA482011015, C1015/A165, 2003/04/16–now, Lynchburg Ferry, 1001 B Lynchburg Road, Baytown, Harris Co., TX)

MACP at (446.4, -1133.3) km (EPA480391004, C84, 2001/08/23–now, Manvel Croix Park, 4503 Croix Parkway, Manvel, Brazoria Co., TX)
Temperature (°C) at Layer 1 (08/02/2005–08/08/2005)

MM5 2005ep2_dbemis_fdda (cell values)

BAYP at (435.5, -1114.4) km (EPA482010055, C53/A146, 1998/03/24–now, Bayland Park, Harris Co., TX)

DRPK at (471.0, -1115.2) km (EPA482011039, C35/C1001/A139, 1996/10/24–now, Deer Park, Harris Co., TX)

HCQA at (437.9, -1122.2) km (EPA482010051, C409, 2000/02/08–now, Croquet, Houston, Harris Co., TX)

WALV at (483.3, -1097.5) km (EPA482010617, C617, 2003/06/05–now, Wallisville Road, 4727 Wallisville Rd., Baytown, Harris Co., TX)
Temperature (°C) at Layer 1 (08/02/2005–08/08/2005)

LMNF at (475.2, -1104.3) km (EPA482011015, C1015/A165, 2003/04/16–now, Lynchburg Ferry, 1001 B Lynchburg Road, Baytown, Harris Co., TX)

MACP at (446.4, -1133.3) km (EPA480391004, C84, 2001/08/23–now, Manvel Croix Park, 4503 Croix Parkway, Manvel, Brazoria Co., TX)
Future Work

• Create PBL Plots, Plume Plots, other evaluation tools/products
• Use different PBL schemes
• Update Land use
• Incorporate Sea Surface Temps