

Summary of R/V Ronald H. Brown activities in TexAQS/GOMACCS 2006

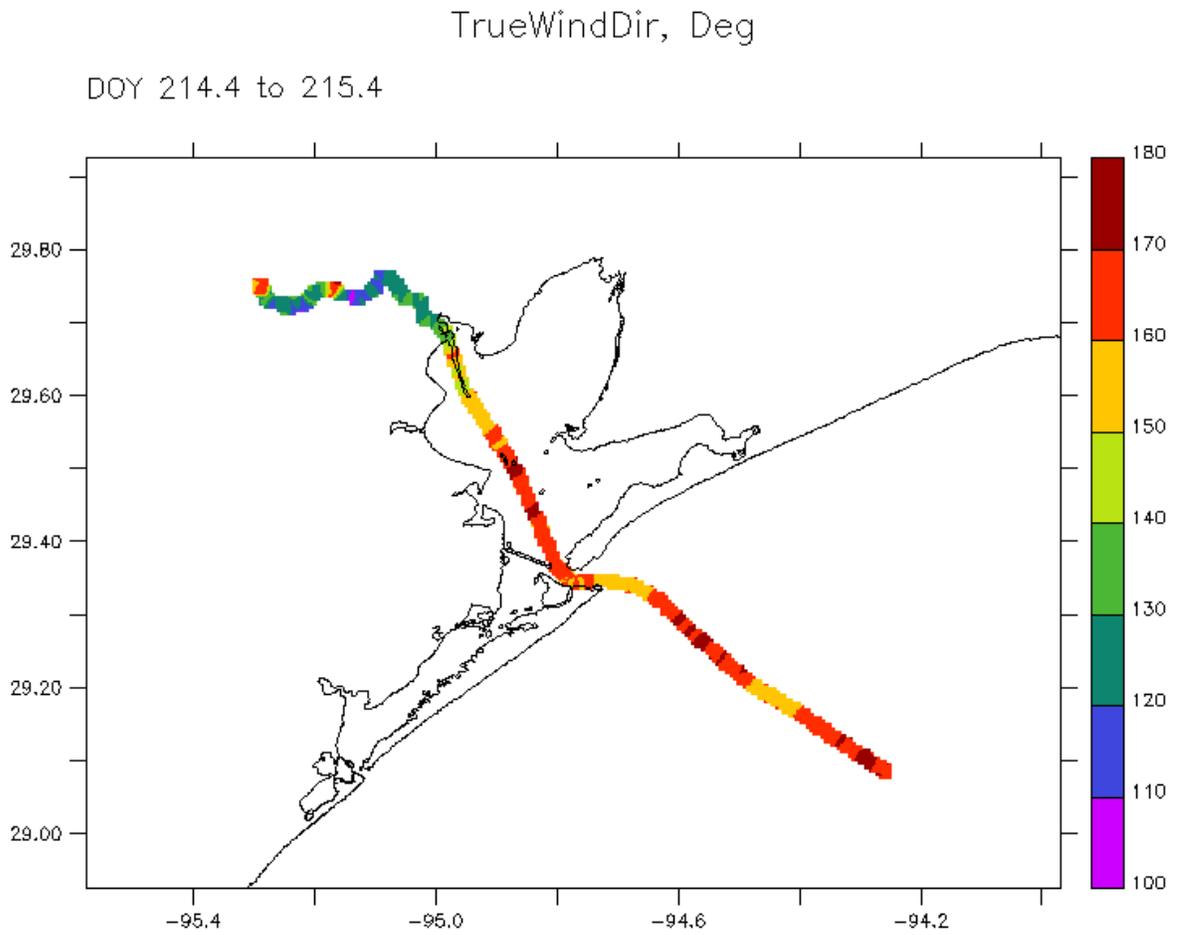
This document is intended as a basic guide to the activities of the ship. It is very much a work in progress. It contains some notes to myself. No effort has been made to write elegant prose. Figures are not necessarily publication-quality. All data is definitely preliminary. No figures or data should be published without consulting the instrument PIs. Please contact me with questions and requests for additions:

Wayne Angevine
NOAA ESRL
Wayne.M.Angevine@noaa.gov
phone 303-497-3747

2 August

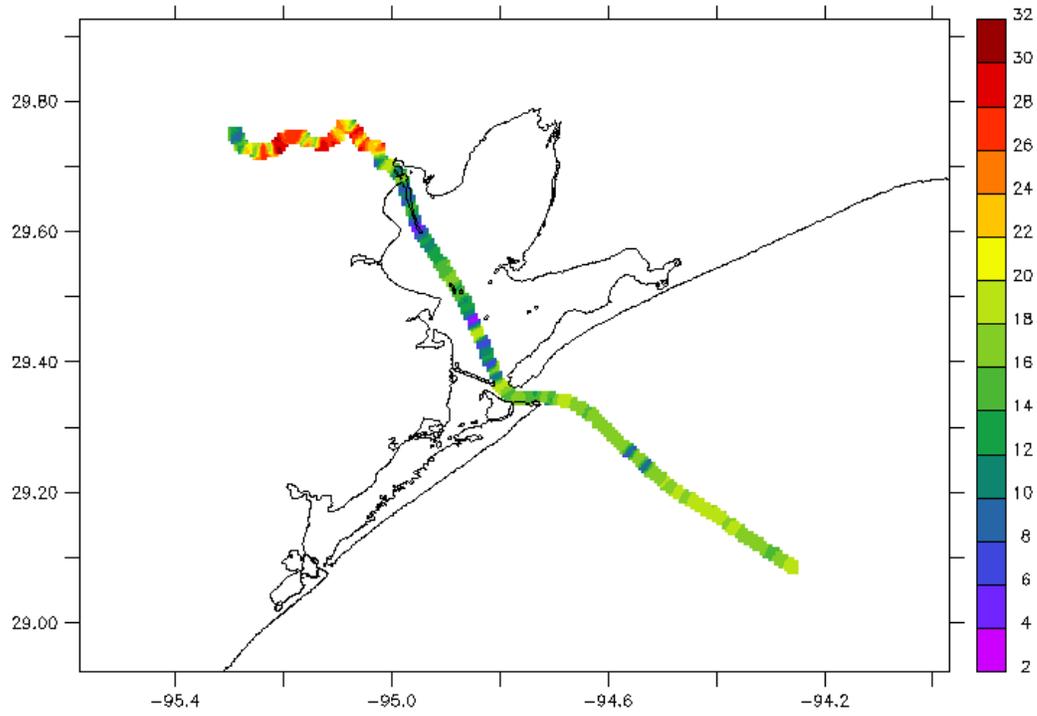
RHB arrived in area and transited ship channel to turning basin. Primary objective was emissions characterization in the ship channel area. Clean background.

BL height



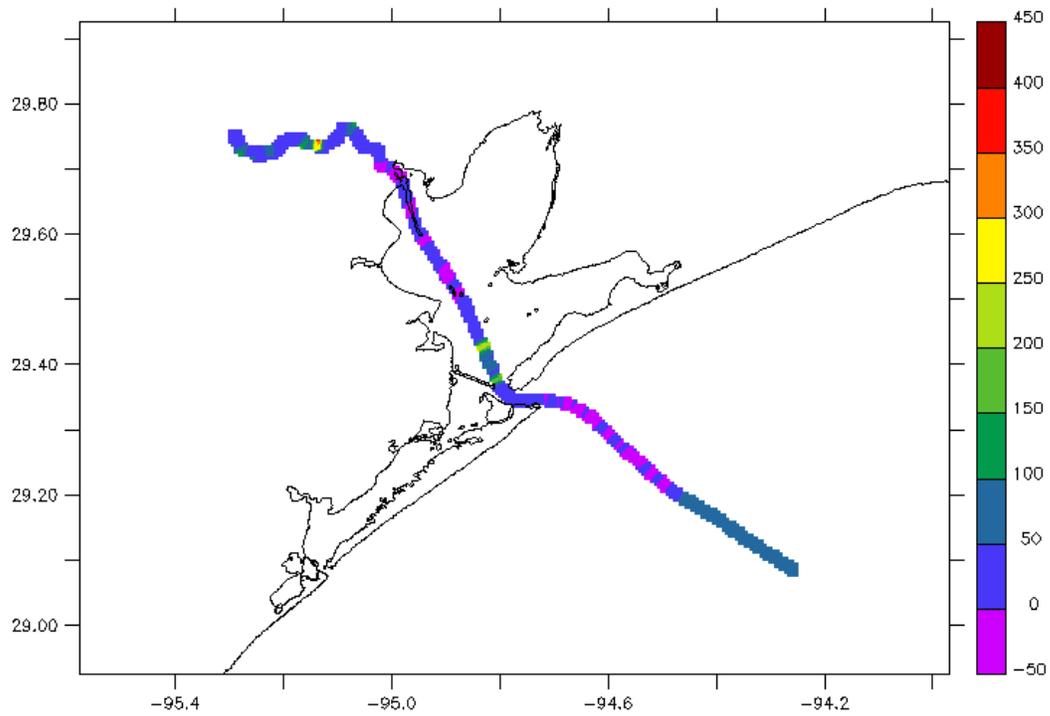
O3, ppb

DOY 214.4 to 215.4



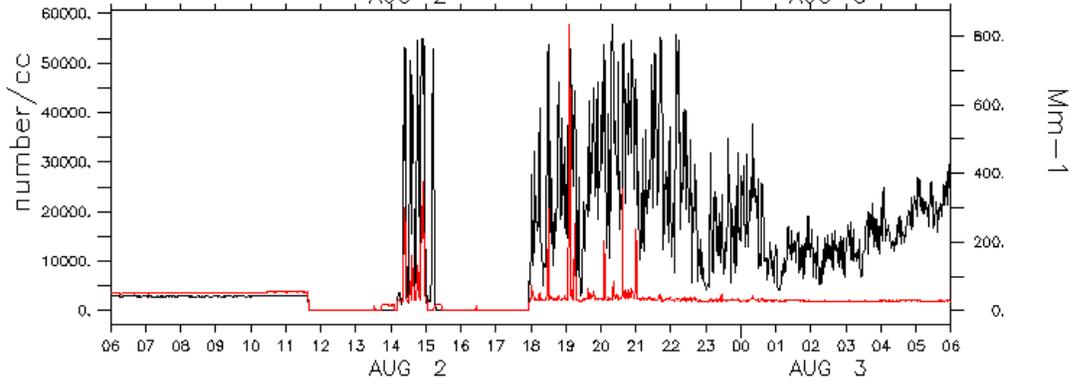
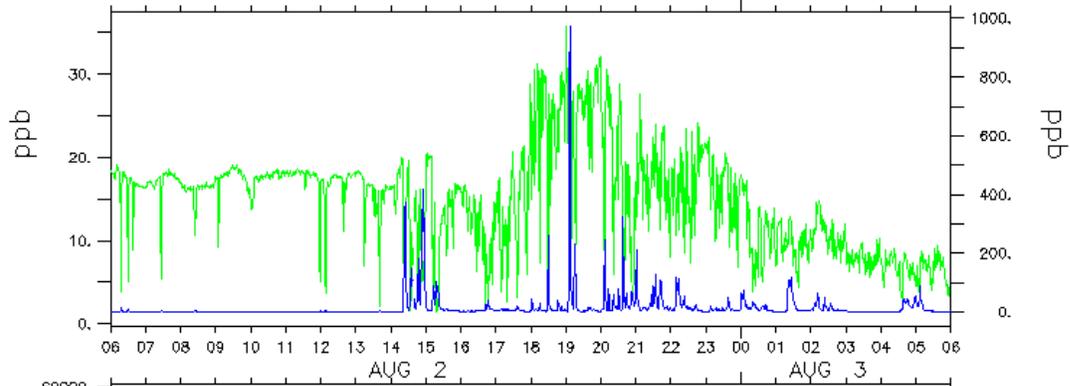
AerosolScatGreen, Mm-1

DOY 214.4 to 215.4



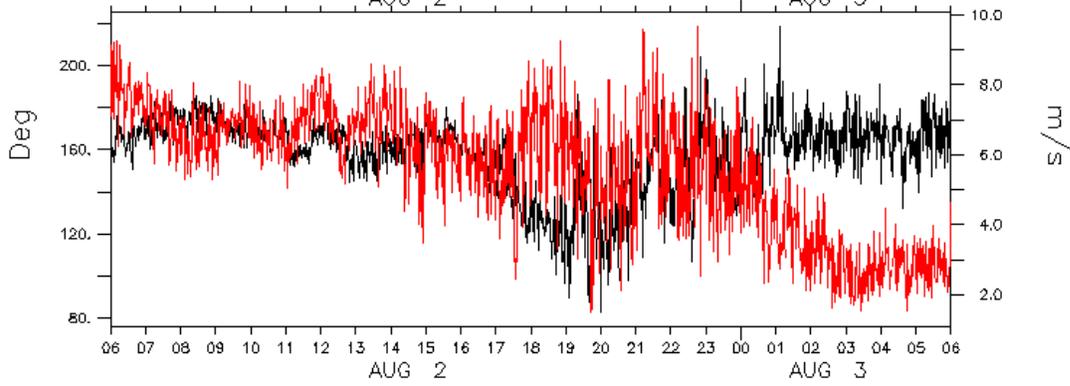
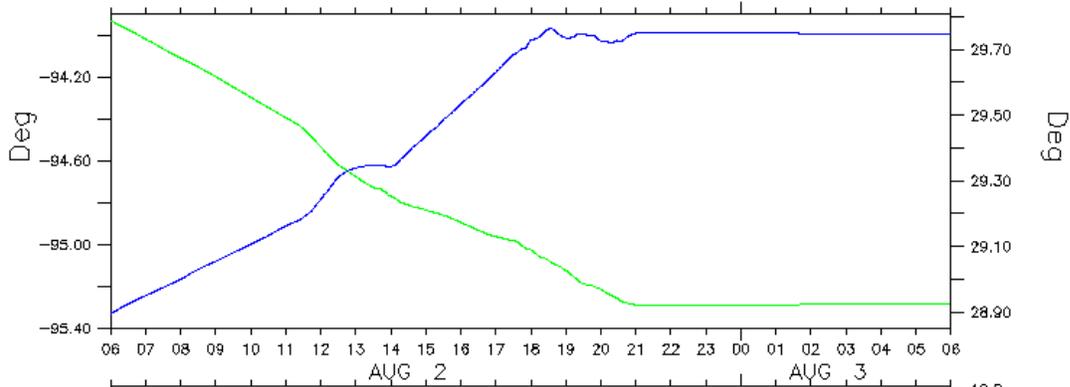
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

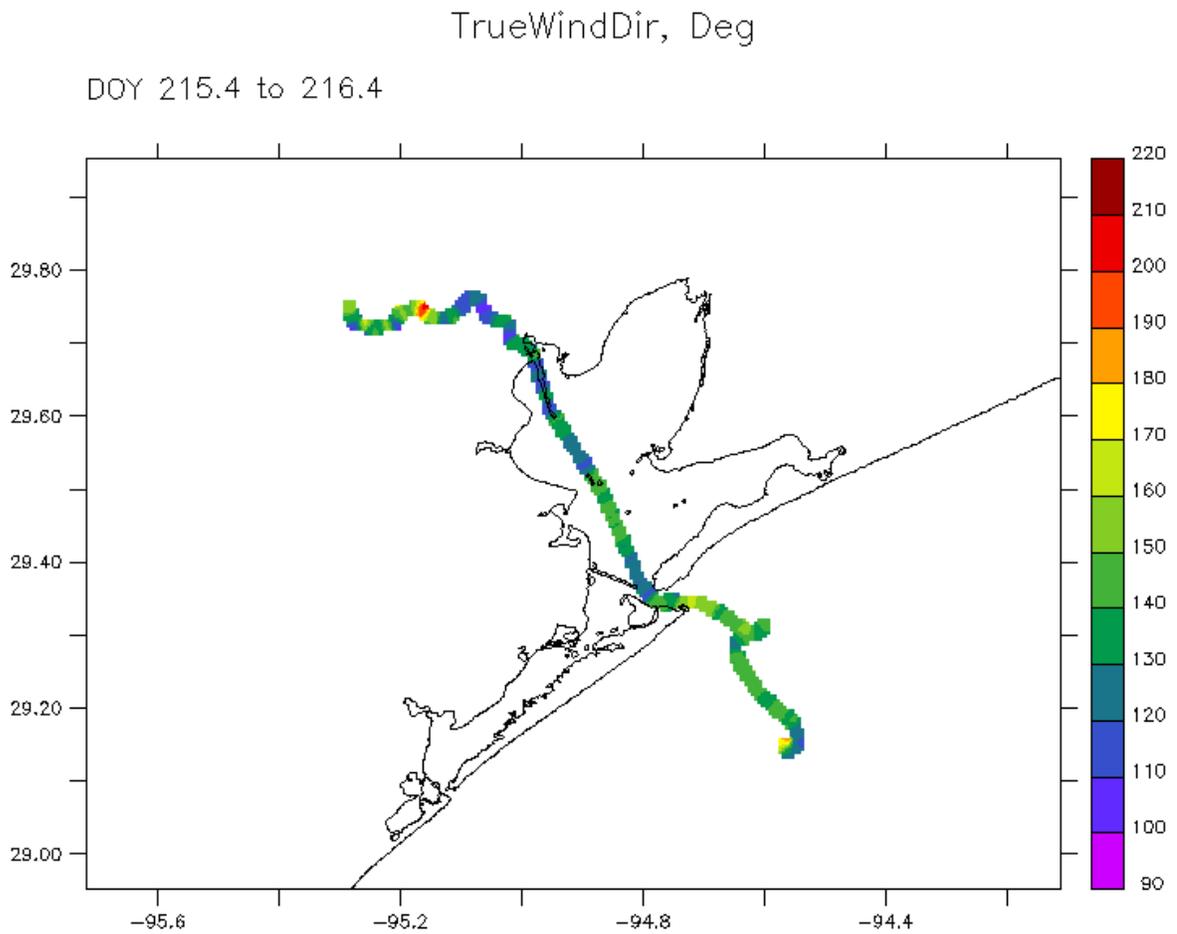
TrueWindSp
DLat



3 August

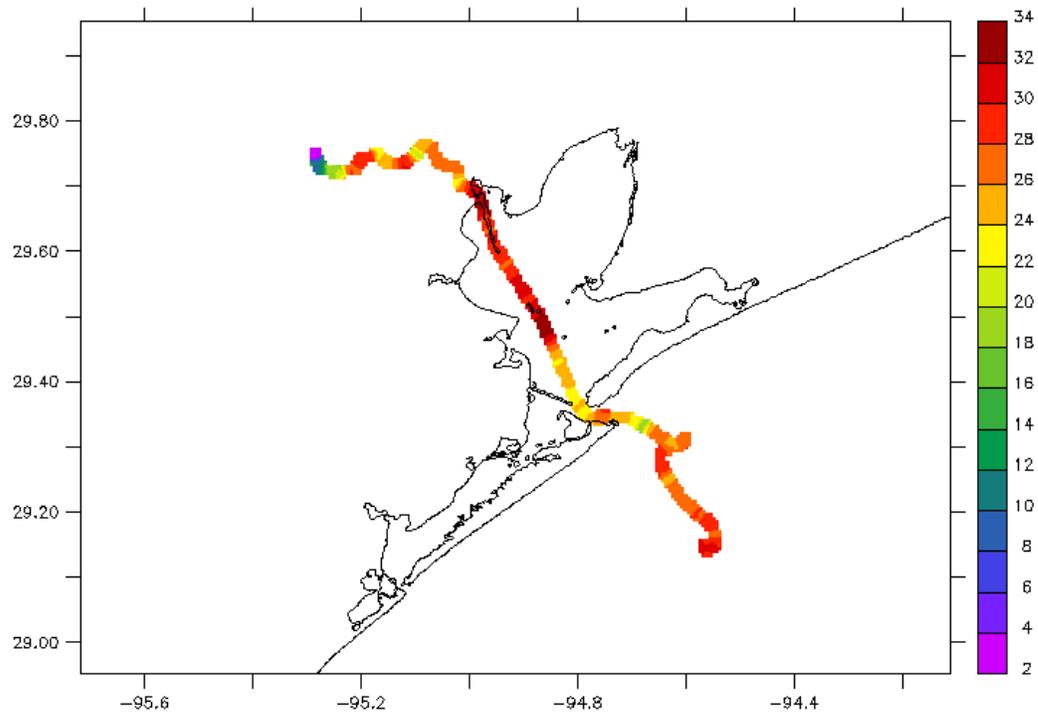
RHB transited from turning basin to off Galveston. Objective was emissions verification. Clean background.

Flux in bay and Gulf
BL height



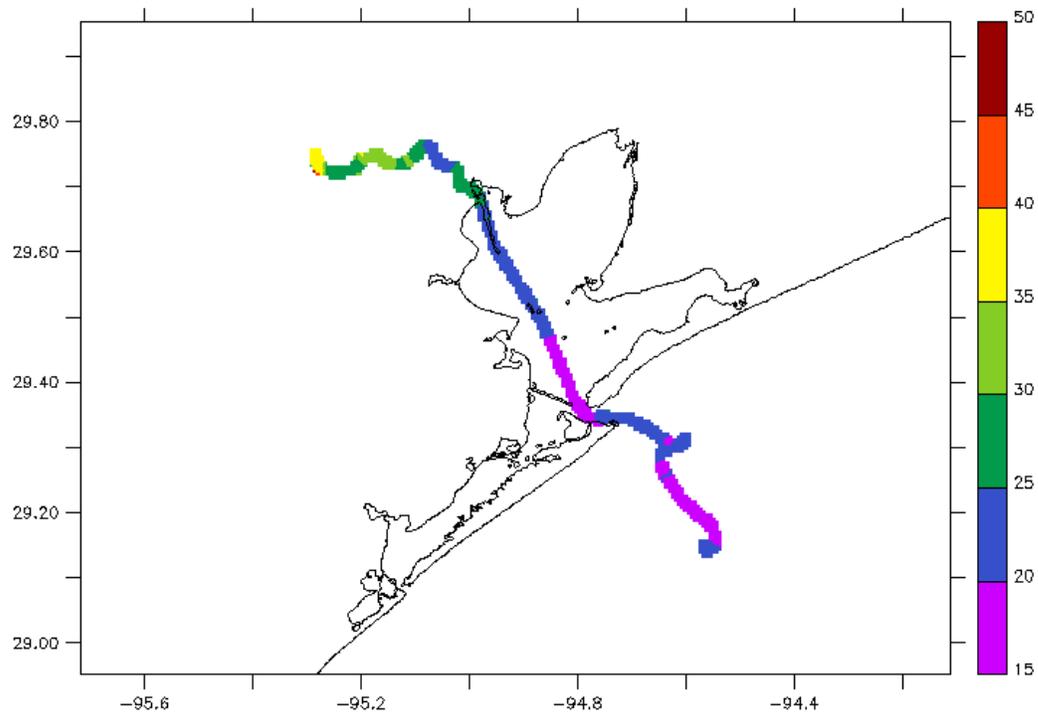
O3, ppb

DOY 215.4 to 216.4



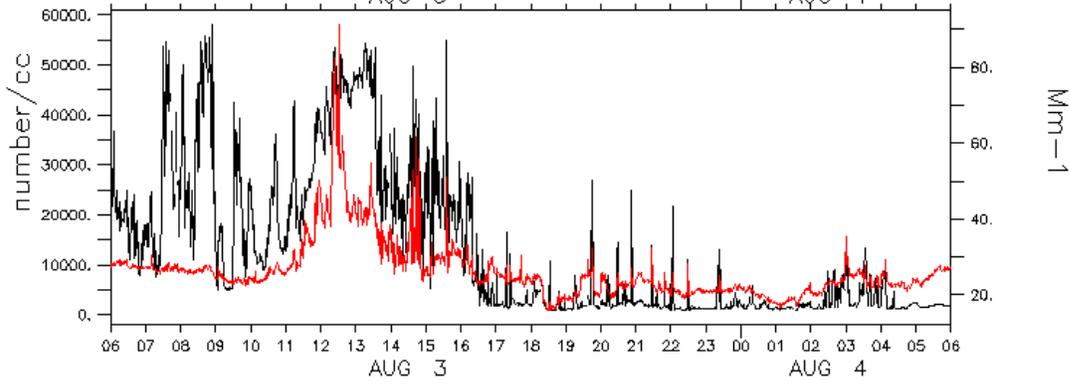
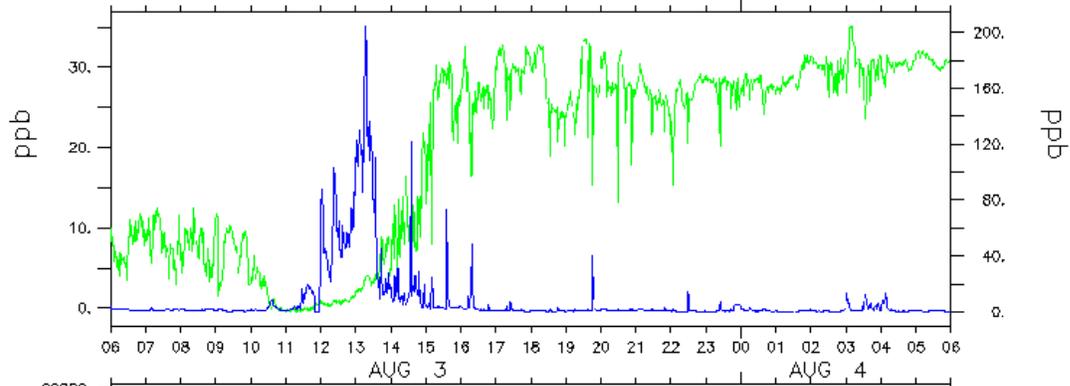
AerosolScatGreen, Mm-1

DOY 215.4 to 216.4



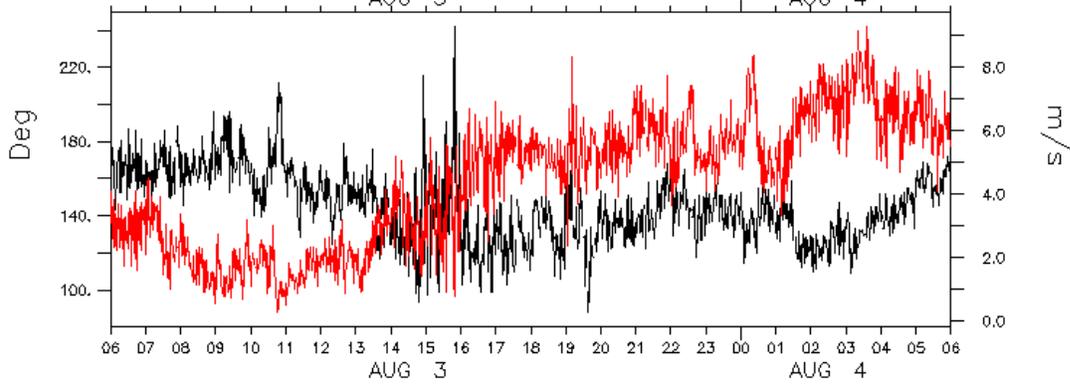
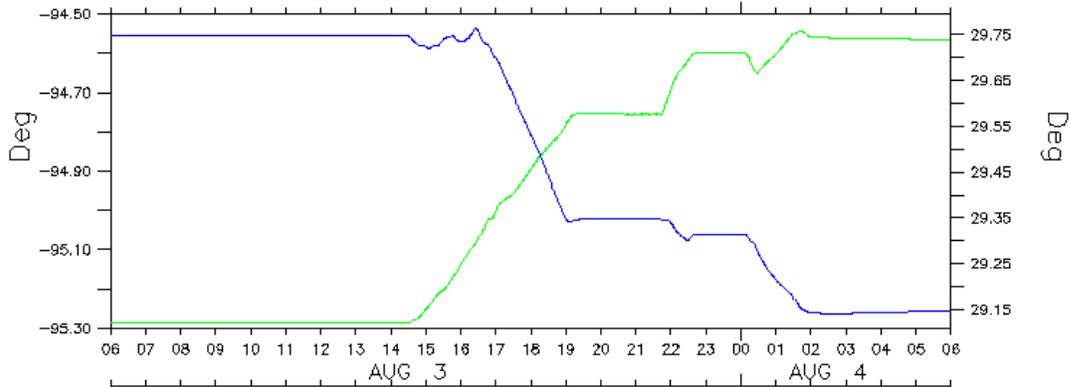
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

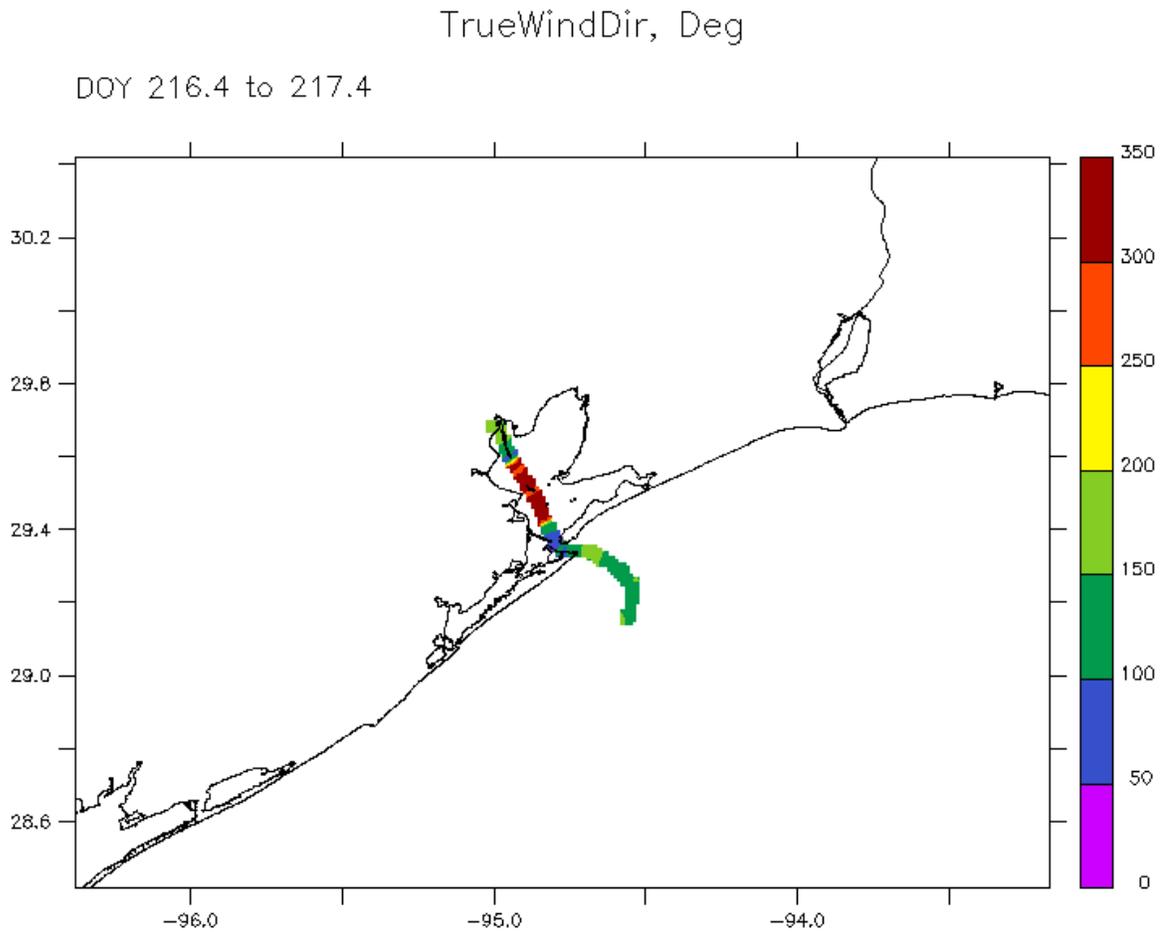
TrueWindSp
DLat



4 August

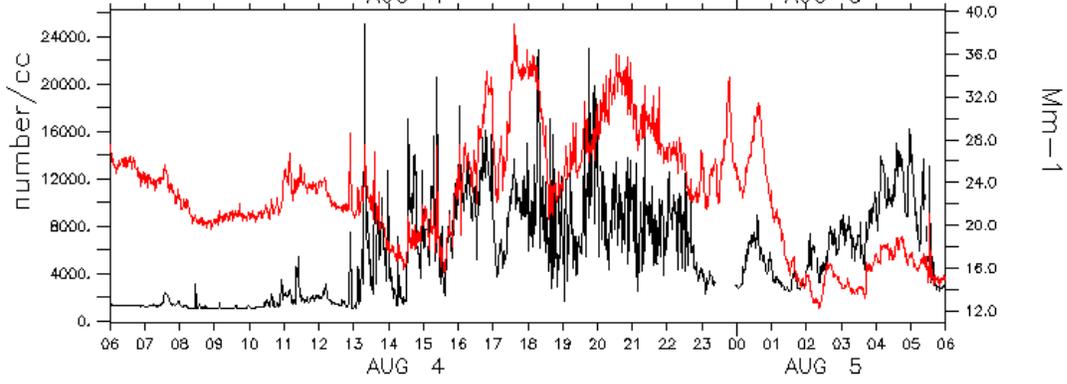
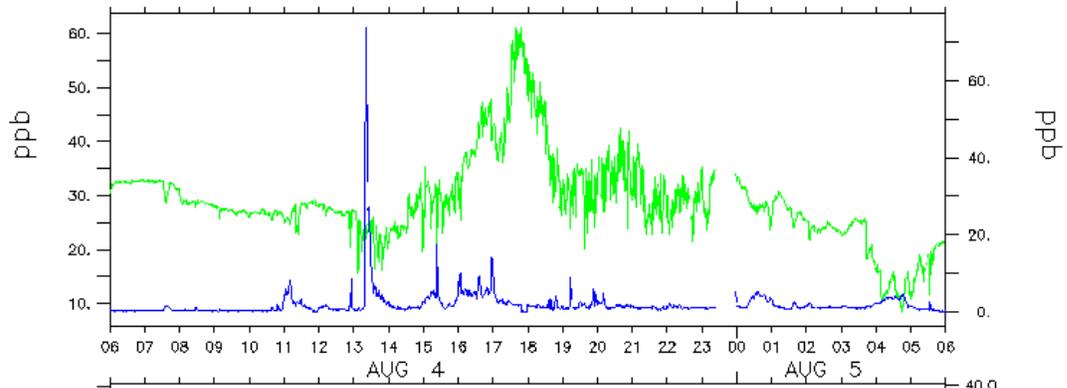
RHB from off Galveston to Barbour's Cut. High ozone event day in Houston, see:
<http://www.tceq.state.tx.us/assets/public/compliance/monops/air/sigevents/06/event2006-08-04hou.html>

Flux in bay during NW flow portion?
BL height in Gulf and Bay



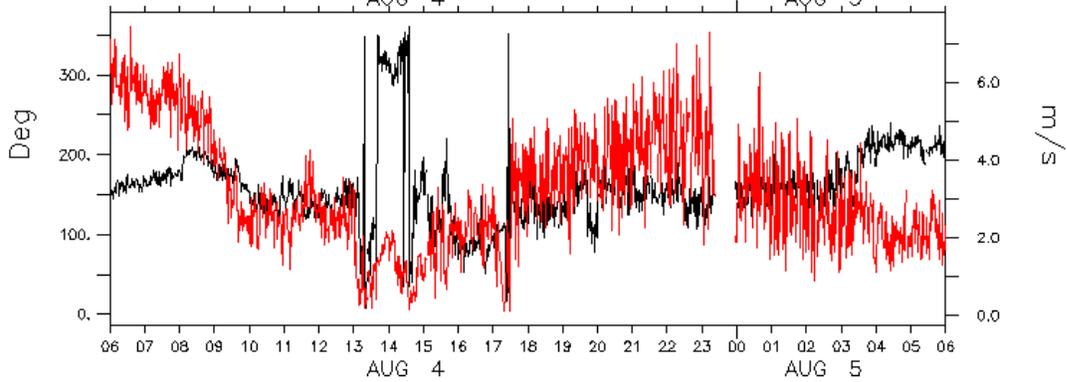
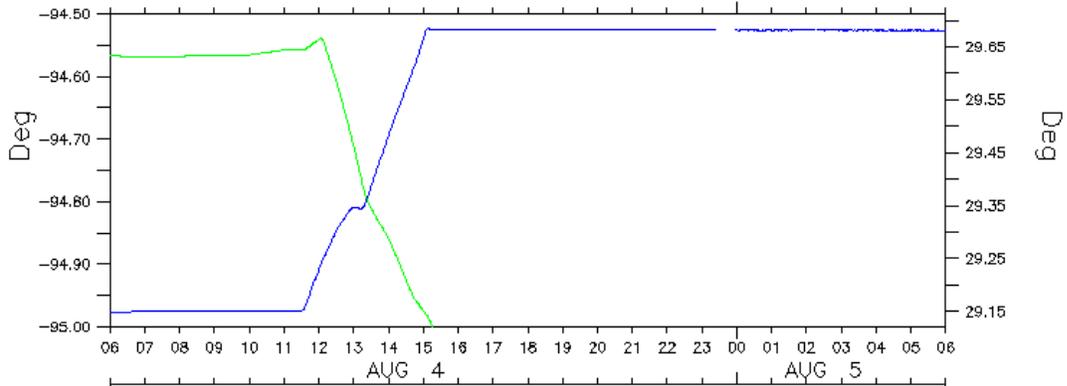
CN
03

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

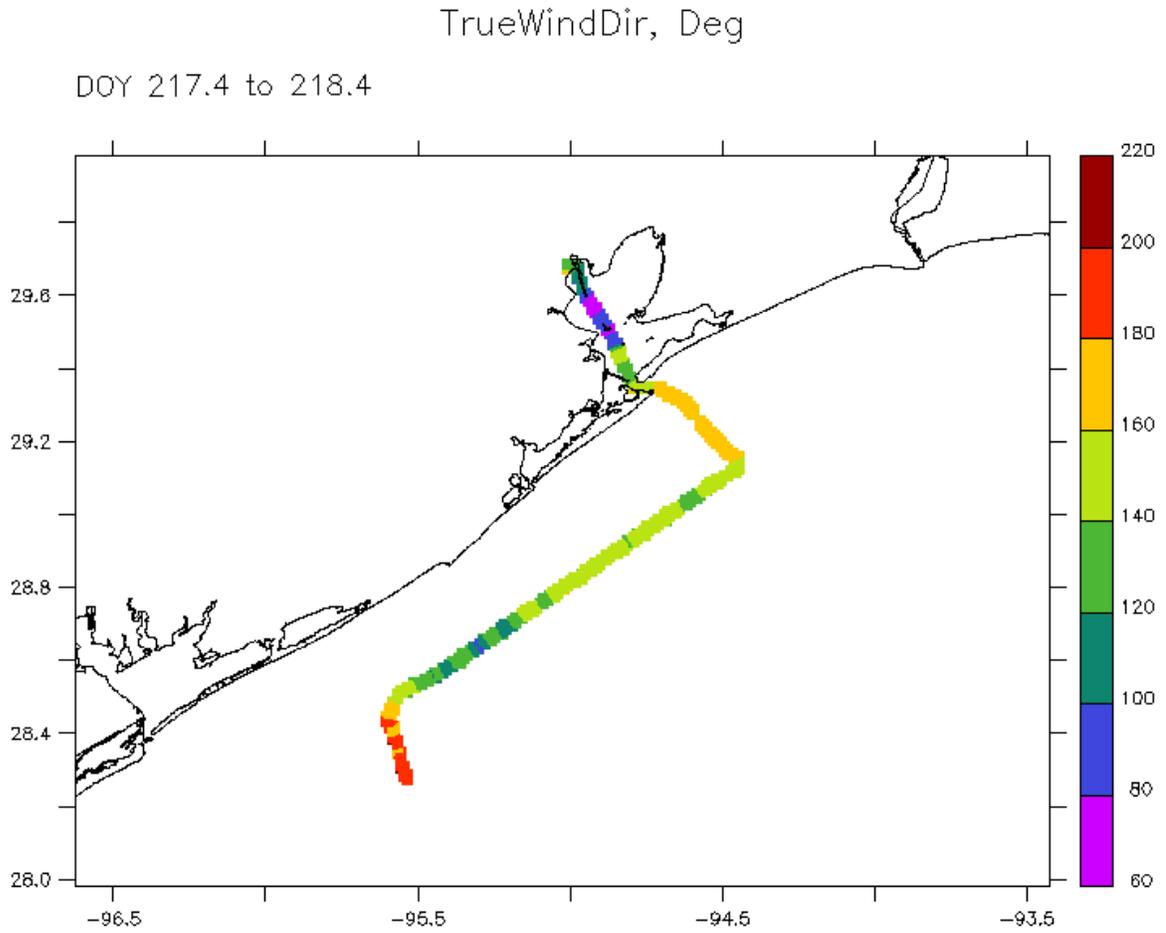


5 August

RHB from Barbour's Cut to the Gulf. Relatively clean conditions.

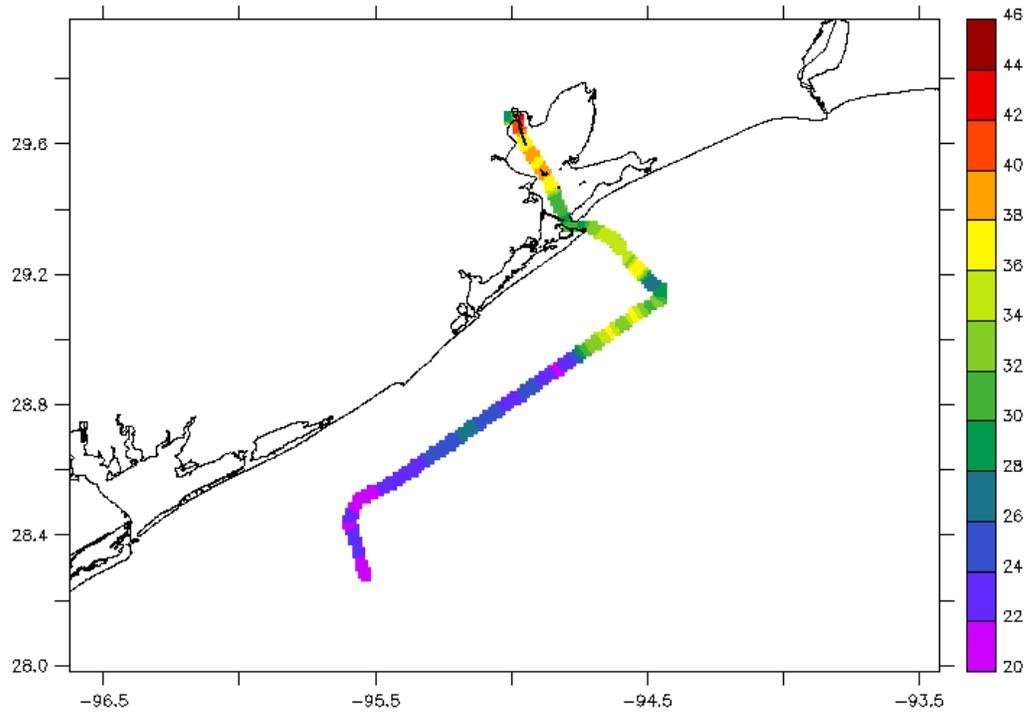
Flux in Gulf

BL height in bay and Gulf



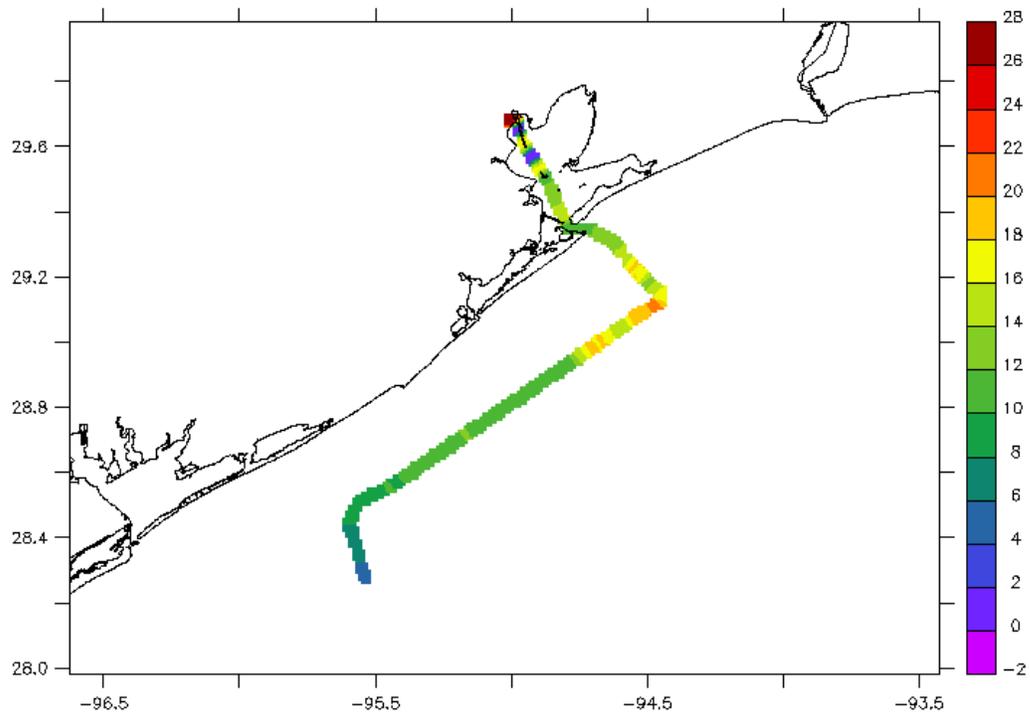
O3, ppb

DOY 217.4 to 218.4



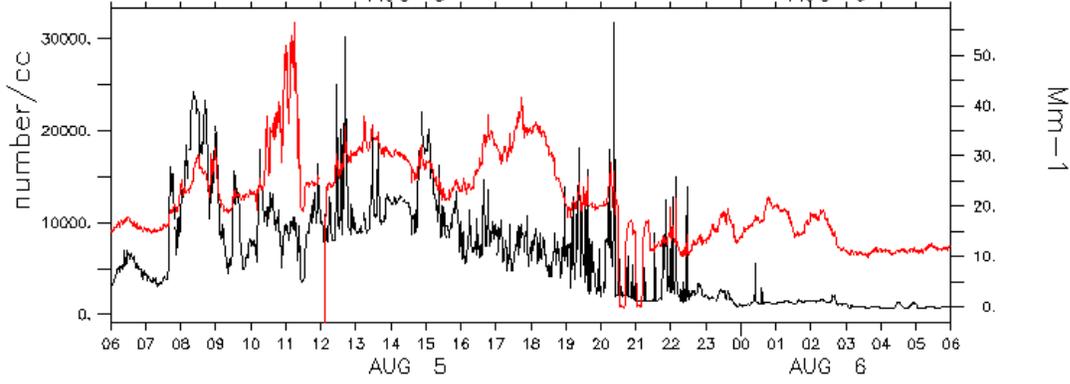
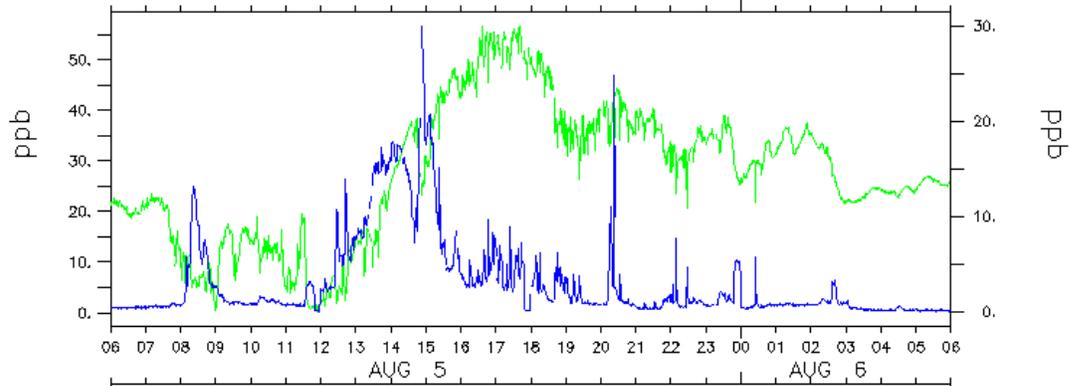
AerosolScatGreen, Mm-1

DOY 217.4 to 218.4



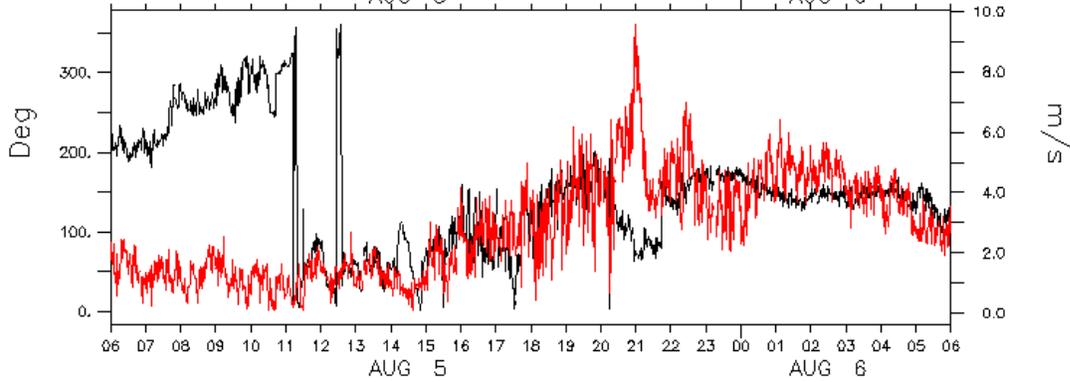
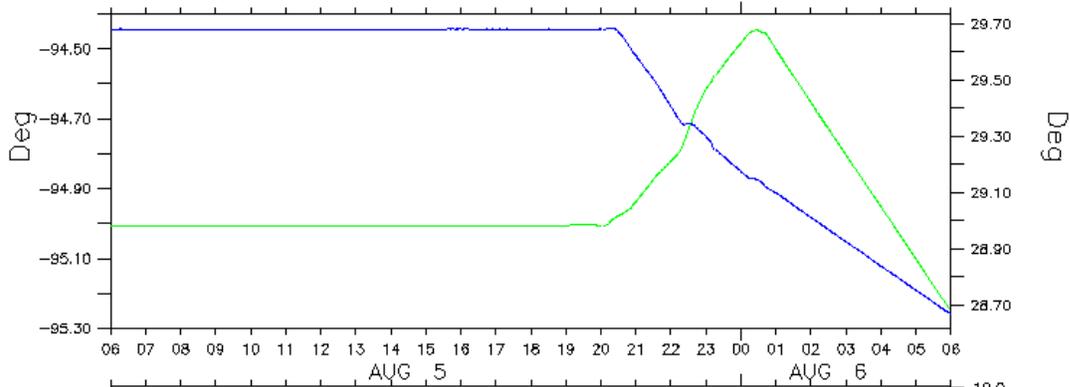
CN
O3

AerosolScatGreen
SO2



TrueWindDir
DLon

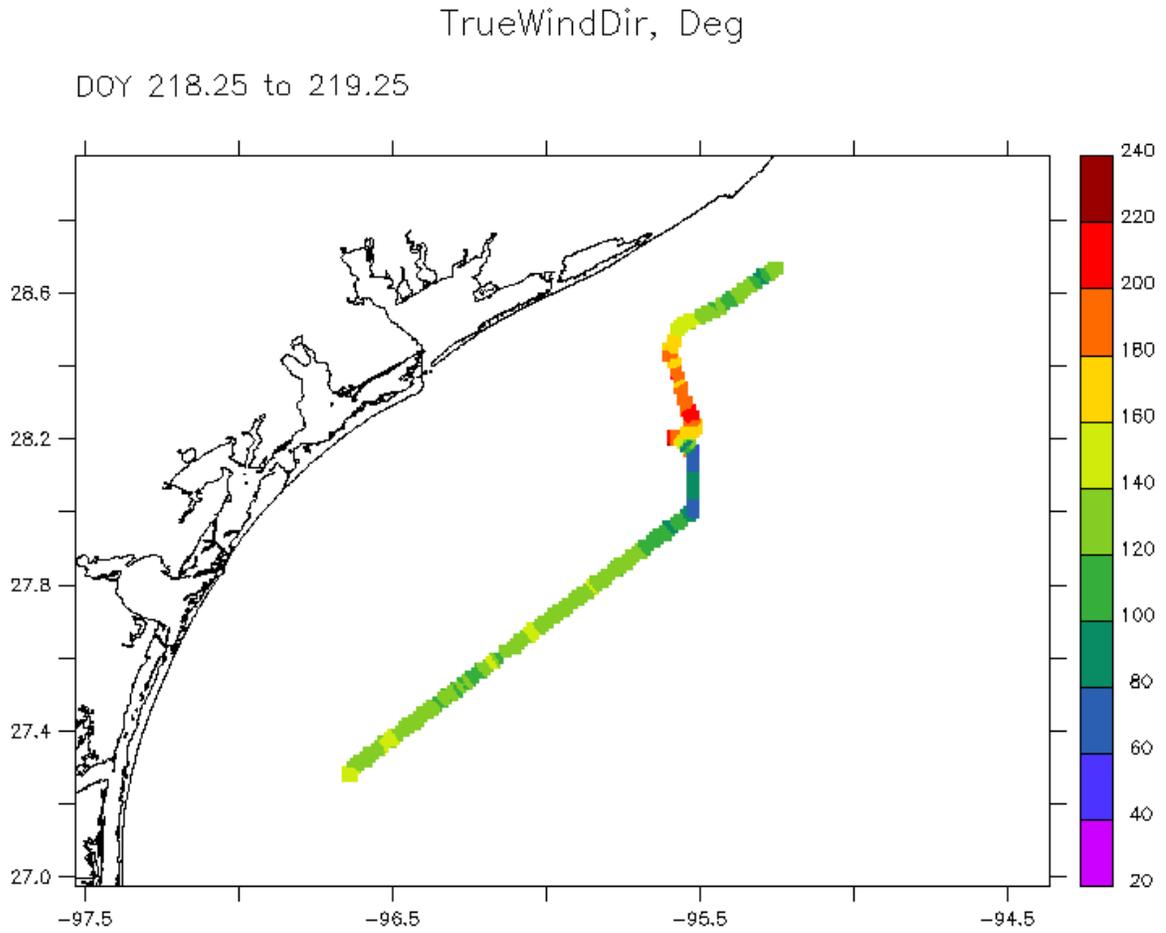
TrueWindSp
DLat

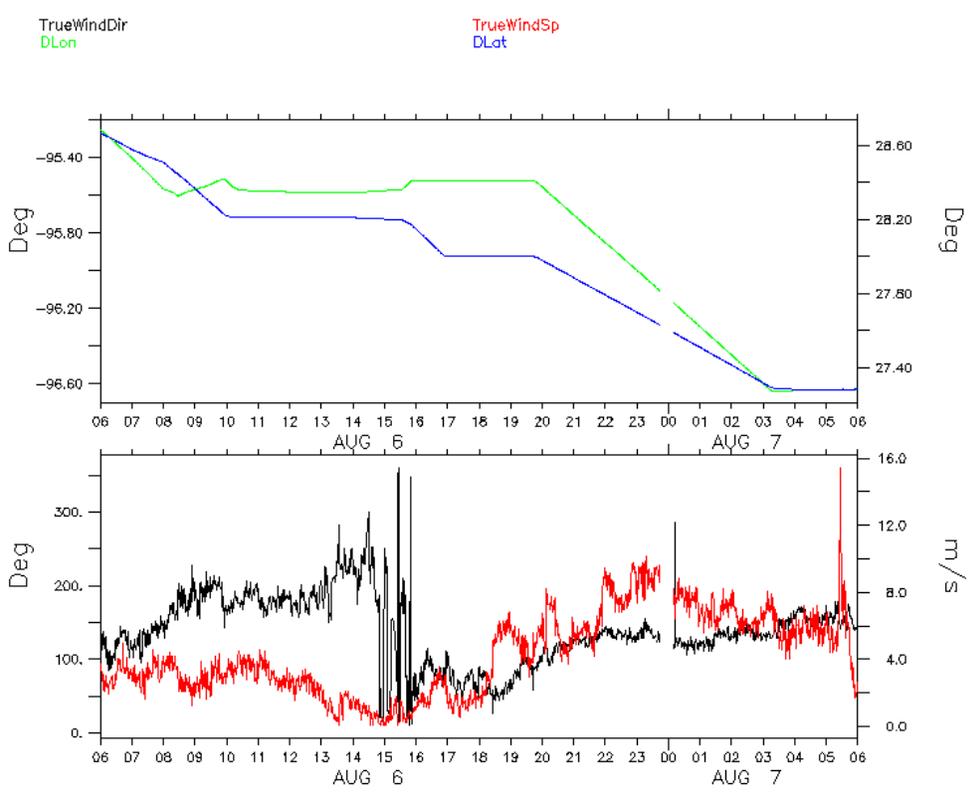
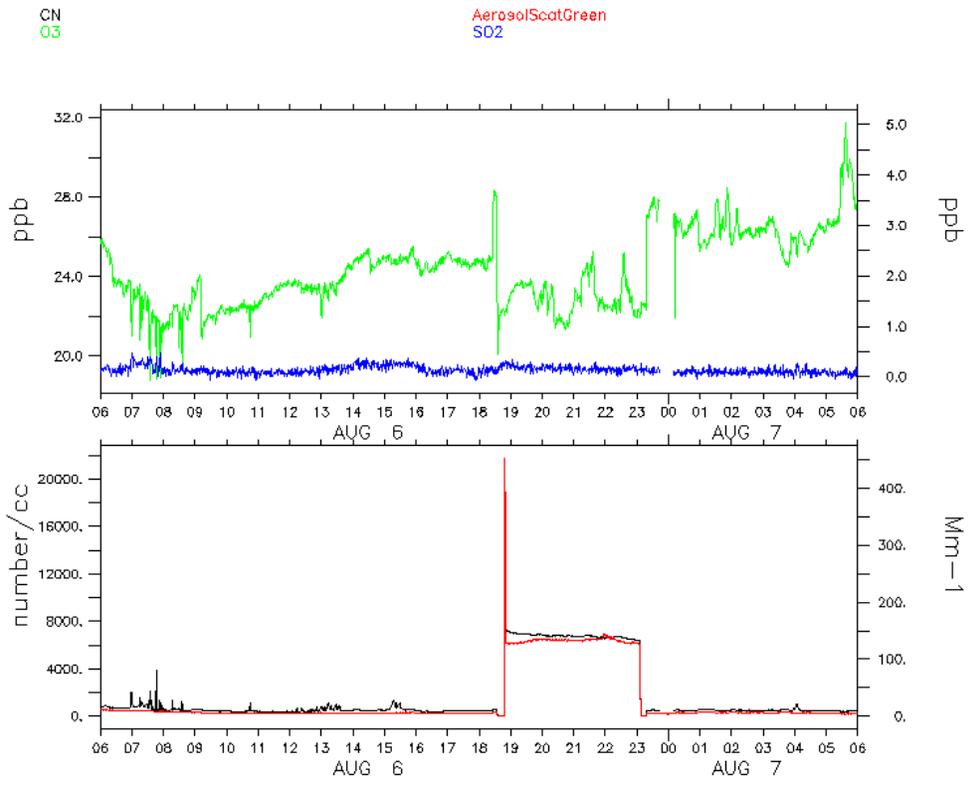


6 August

RHB in the Gulf off Freeport to Corpus Christi vicinity. Relatively clean.

Flux in Gulf
BL height

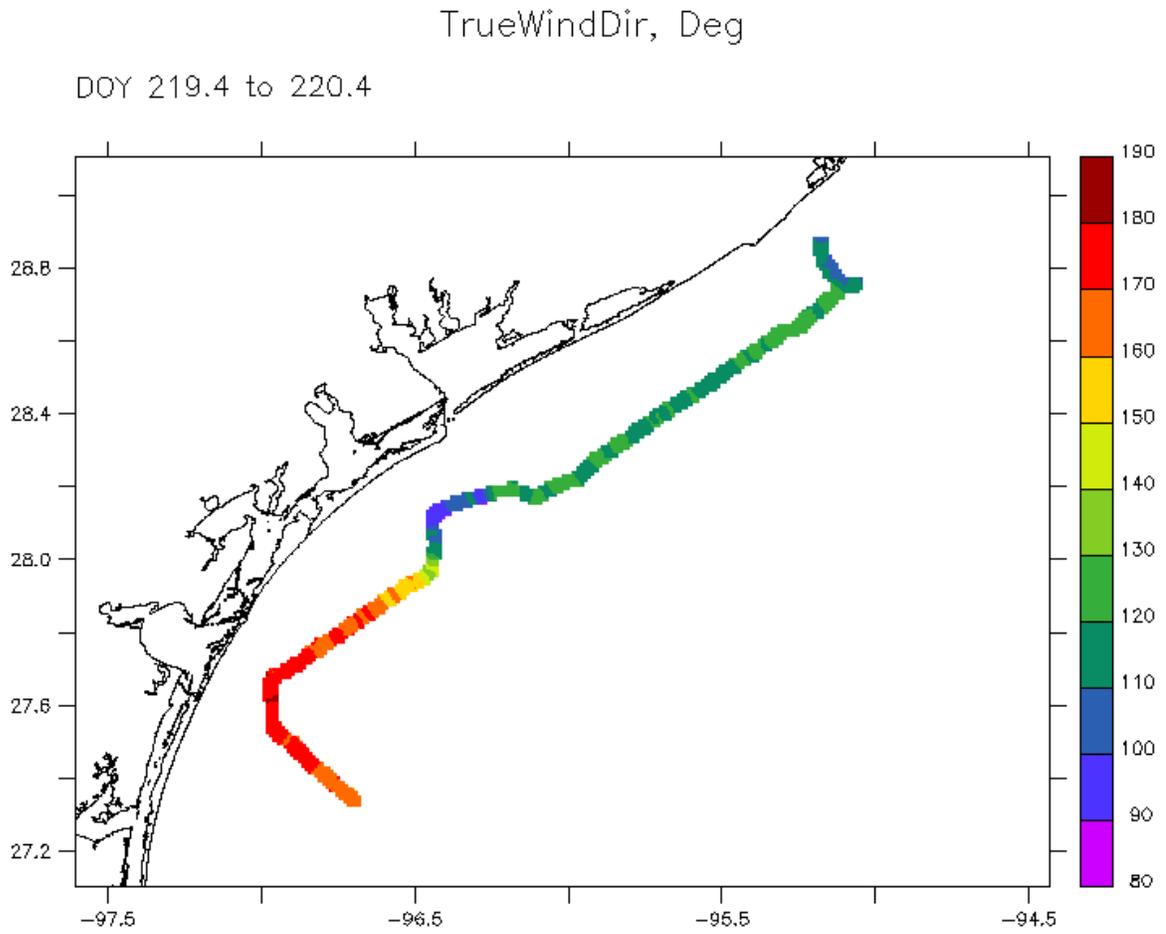




7 August

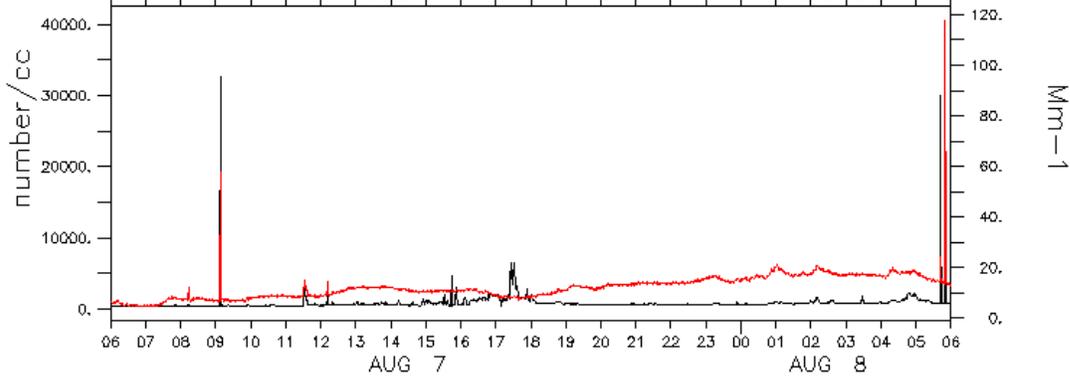
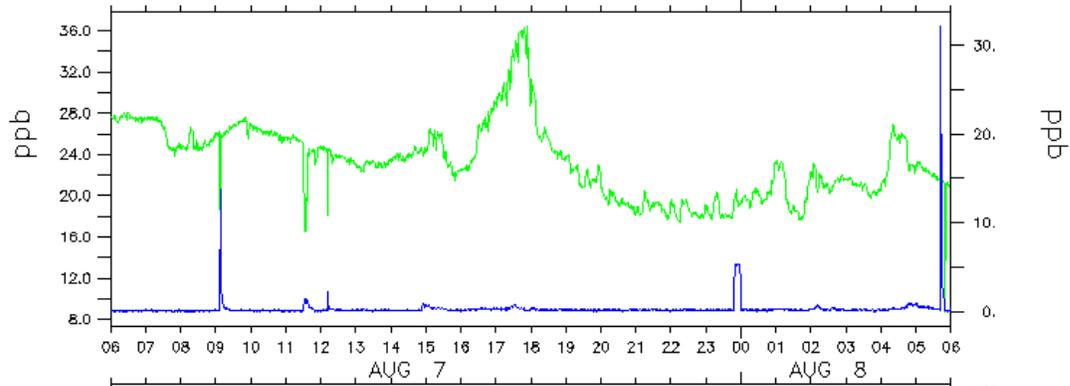
RHB in the Gulf from Corpus Christi vicinity to near Freeport. Relatively clean.

BL height



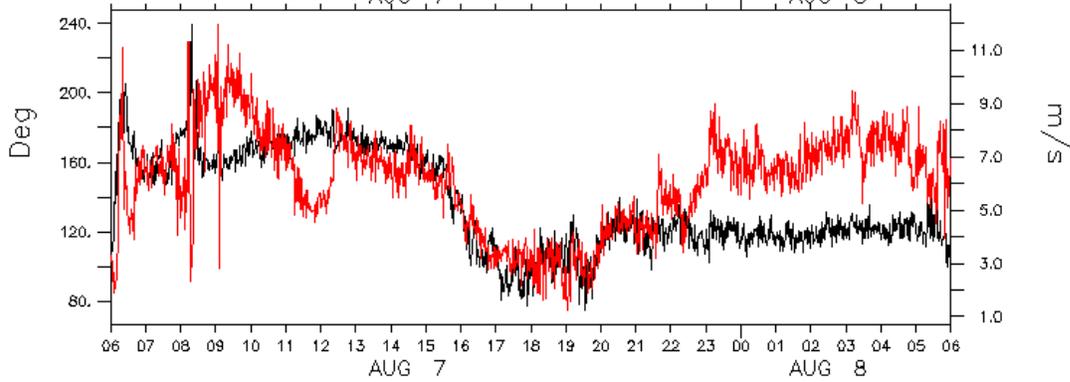
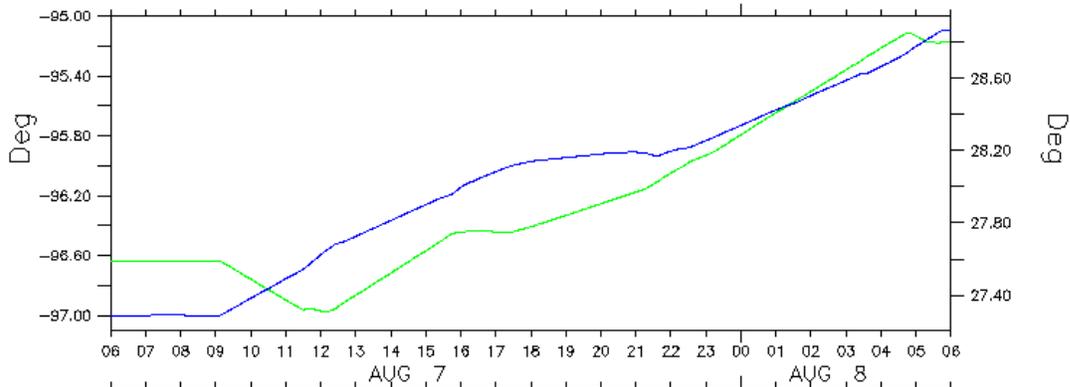
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

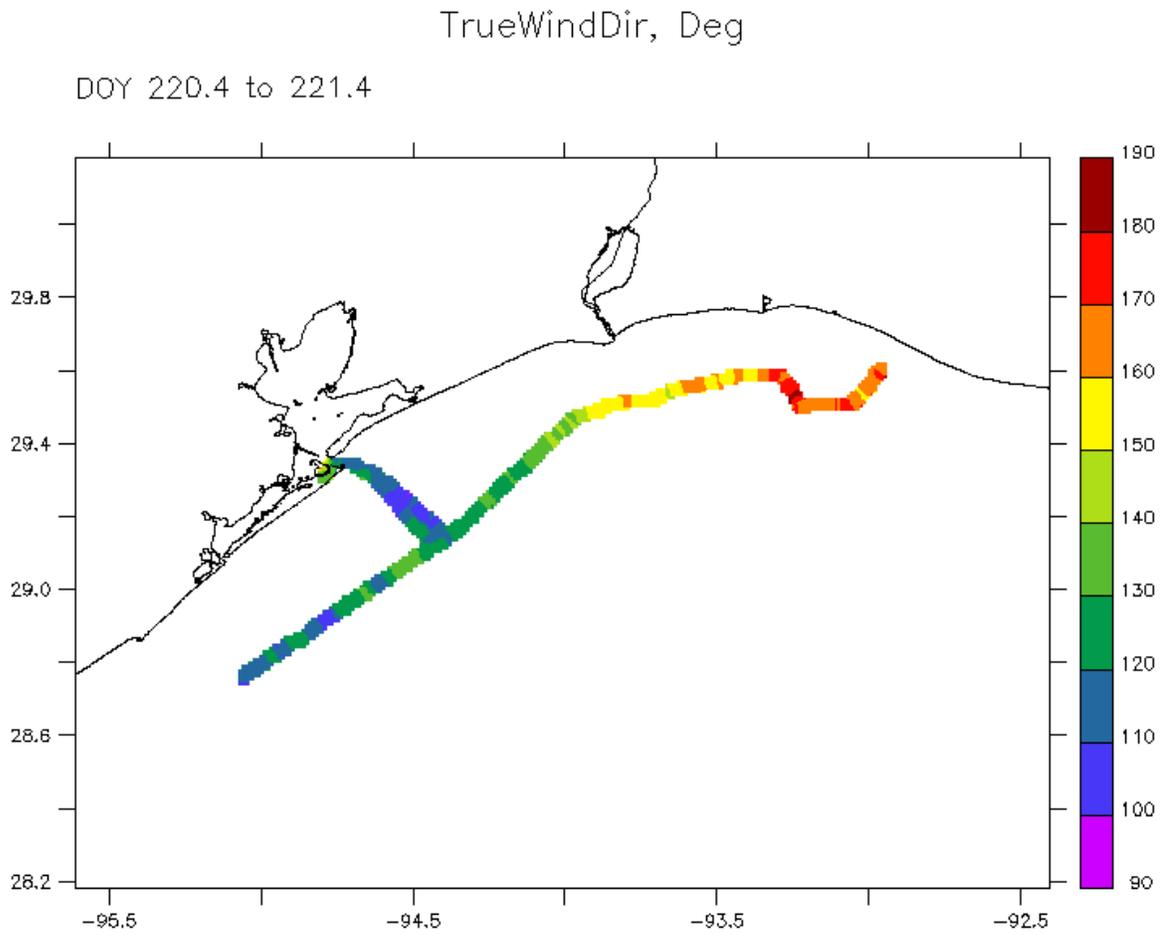


8 August

RHB from off Freeport to Galveston, then along coast to western Louisiana. Relatively clean.

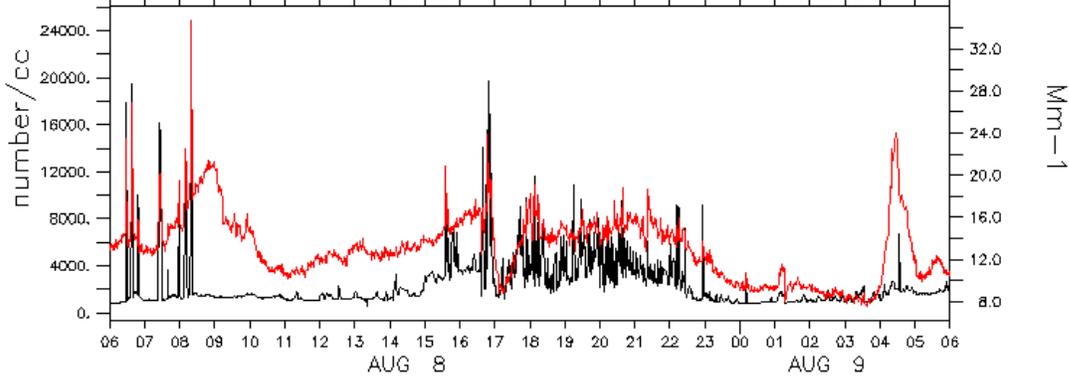
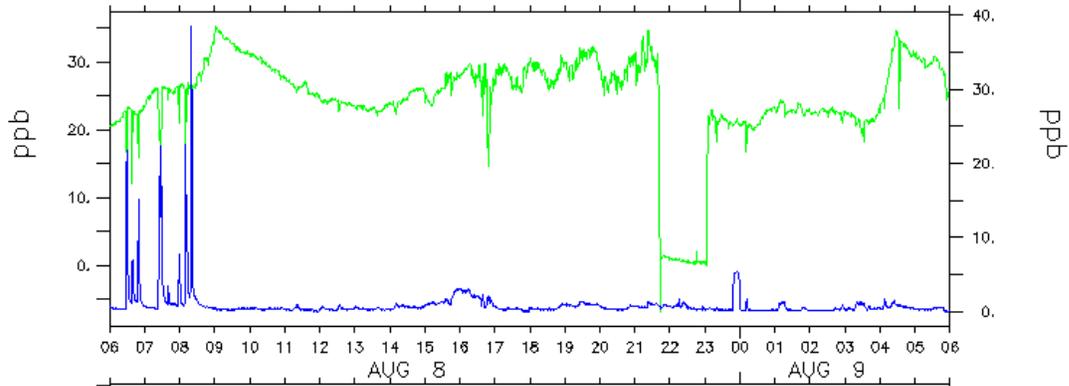
Flux?

BL height



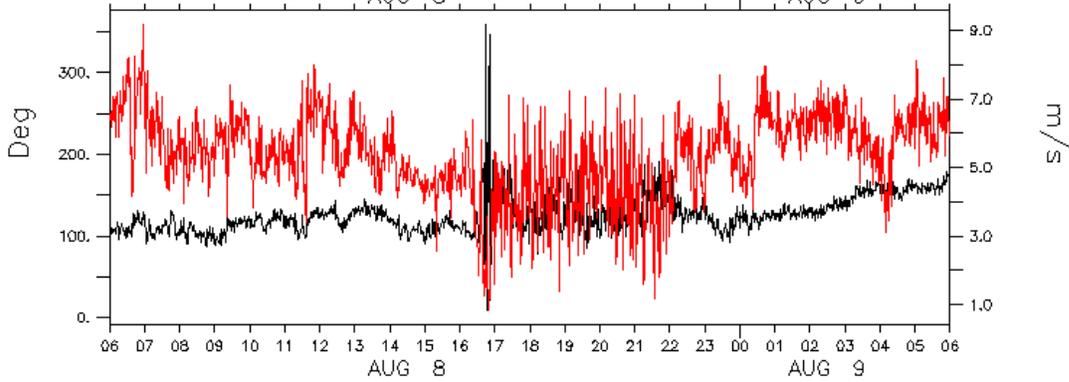
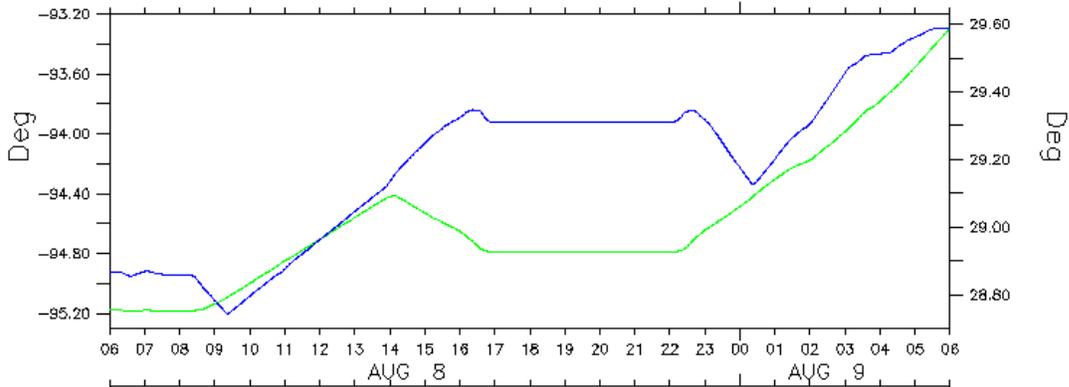
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

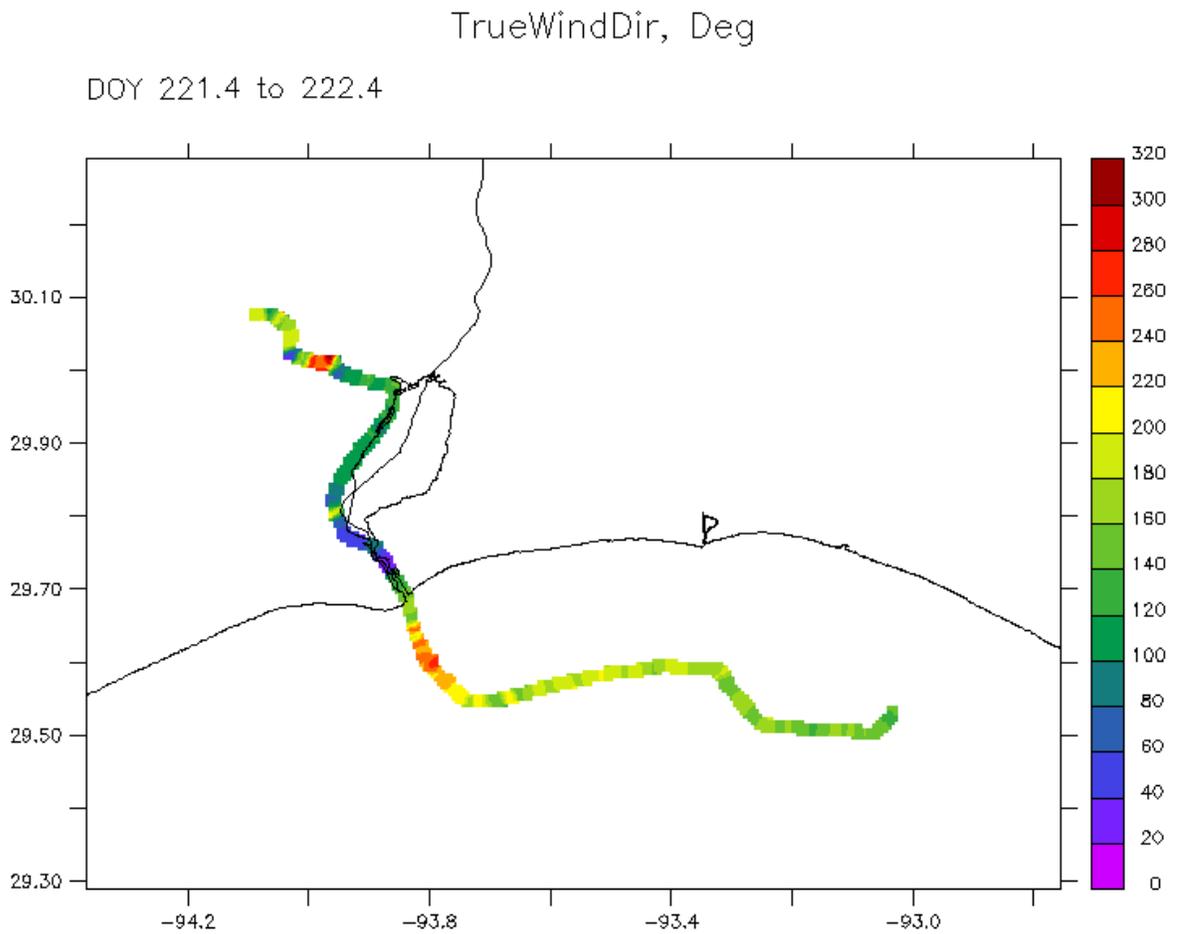


9 August

RHB from Louisiana coast to Beaumont. Southerly to southeasterly flow. Moderate ozone and backscatter observed in Beaumont vicinity.

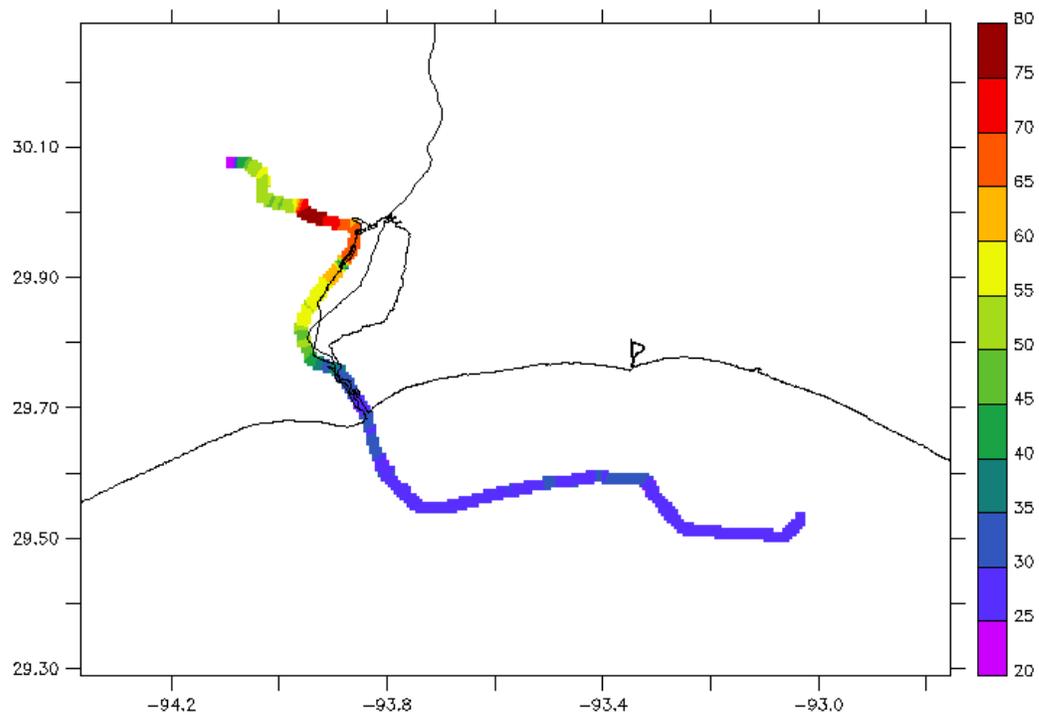
Flux?

BL height



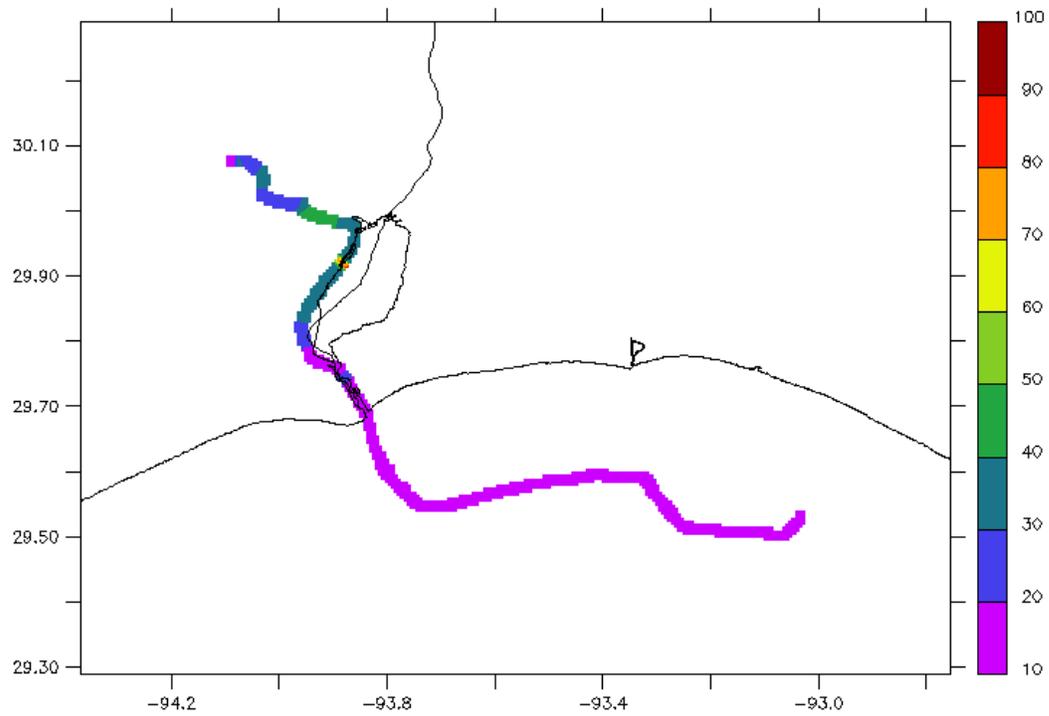
O3, ppb

DOY 221.4 to 222.4



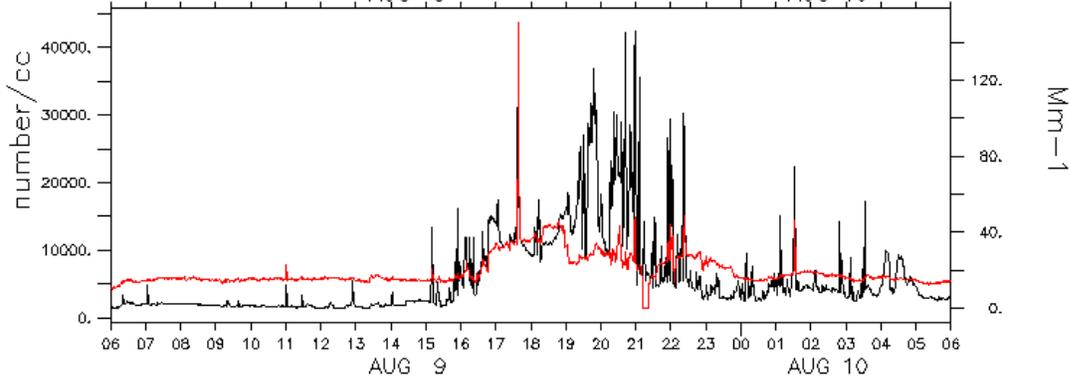
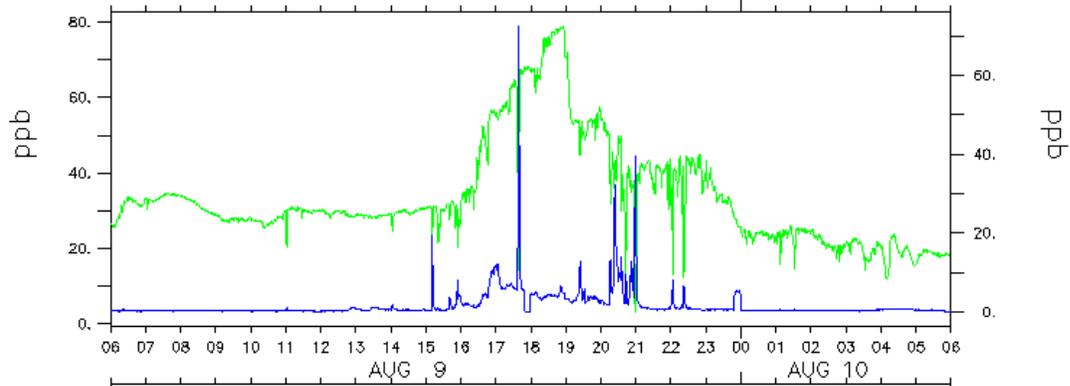
AerosolScatGreen, Mm-1

DOY 221.4 to 222.4



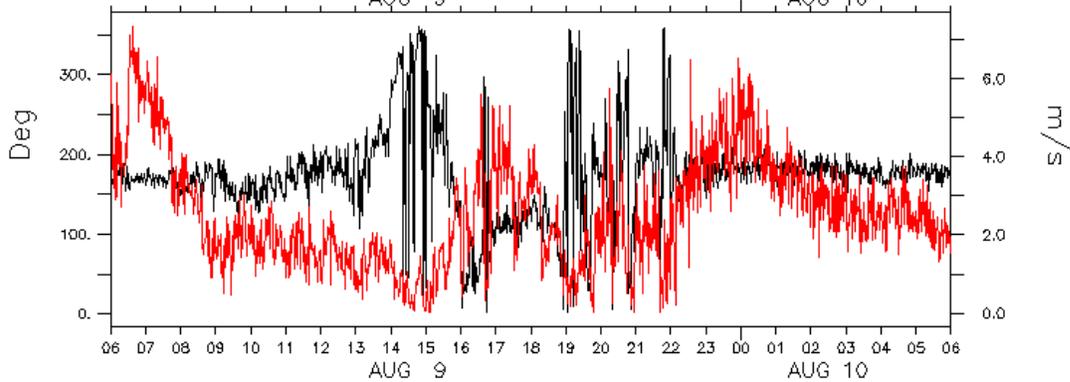
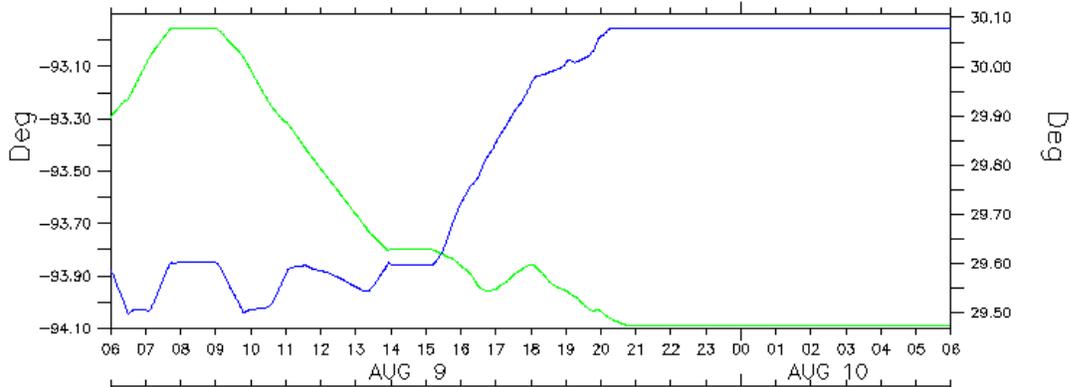
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

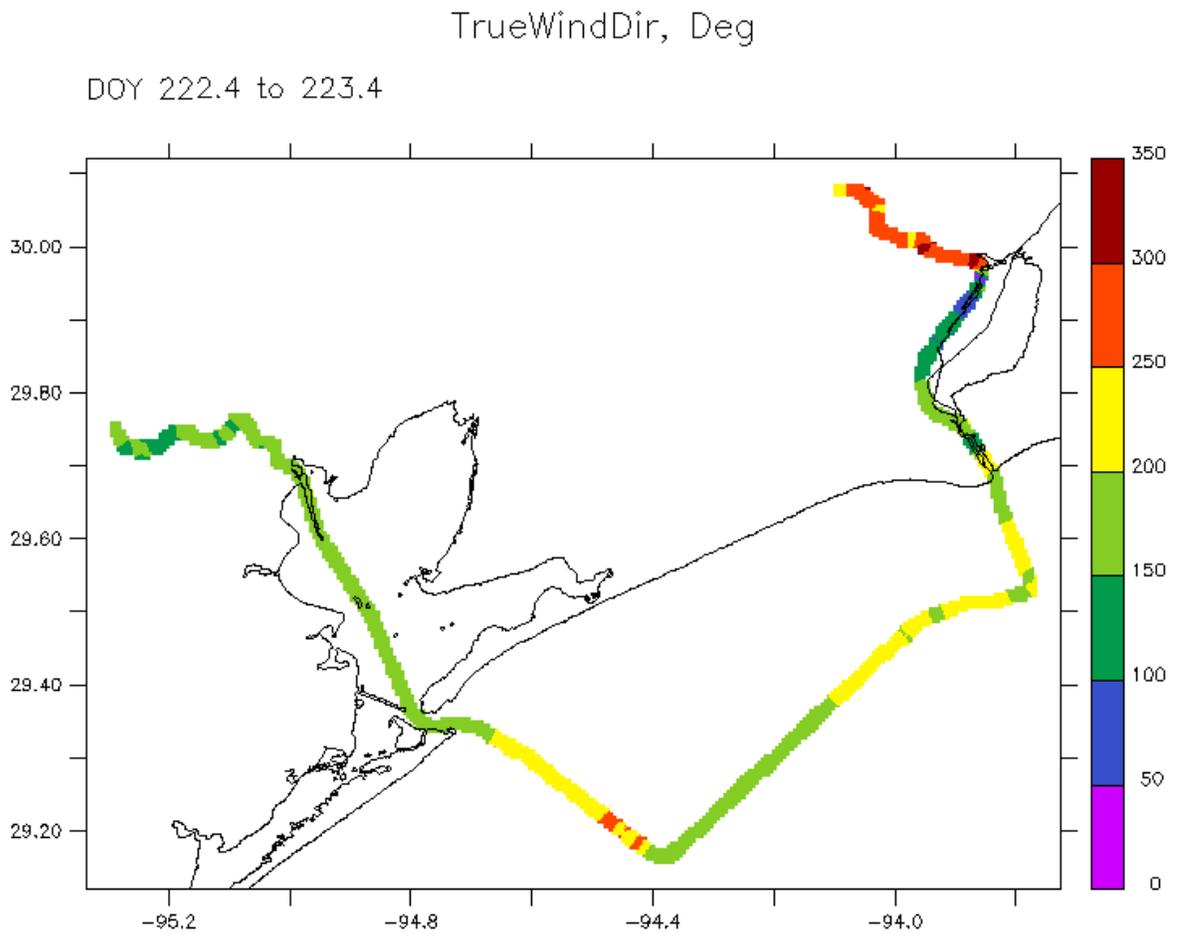


10 August

RHB from Beaumont to turning basin. Generally SE flow. Some ozone offshore but little aerosol; some ozone and moderate aerosol in ship channel and Beaumont vicinity.

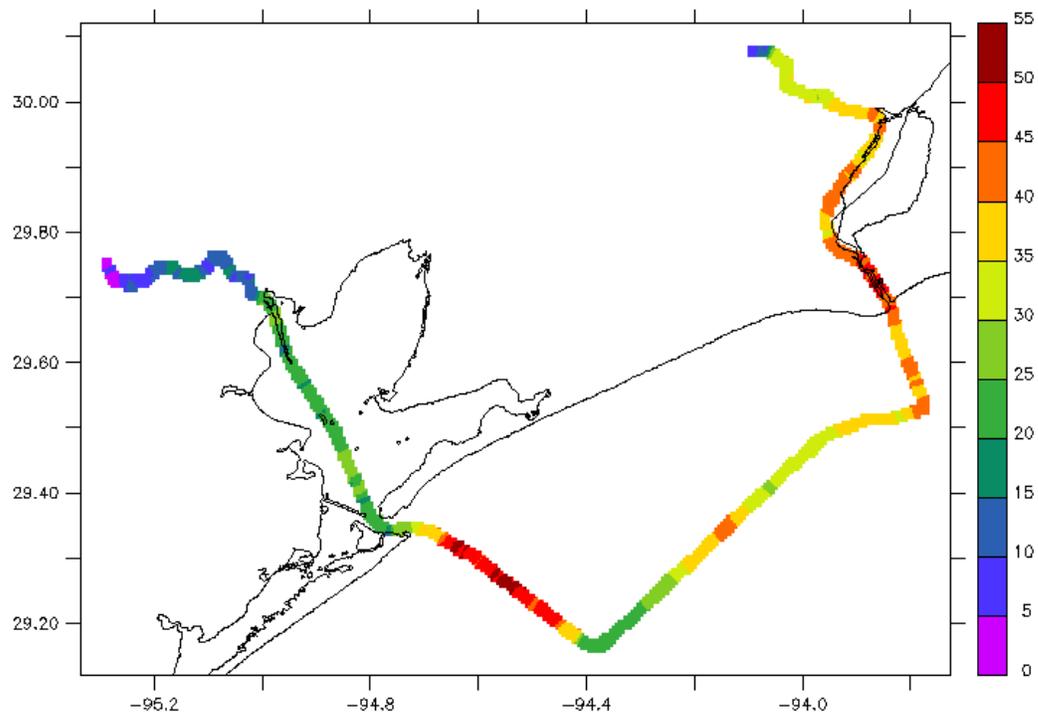
Flux in Gulf?

BL height



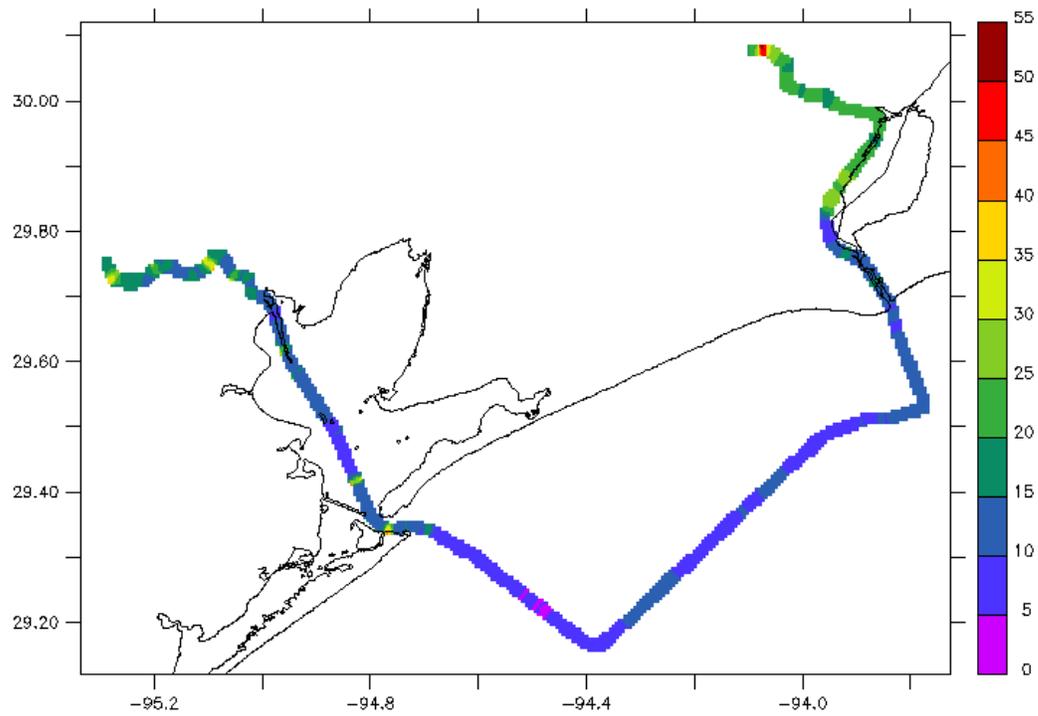
O3, ppb

DOY 222.4 to 223.4



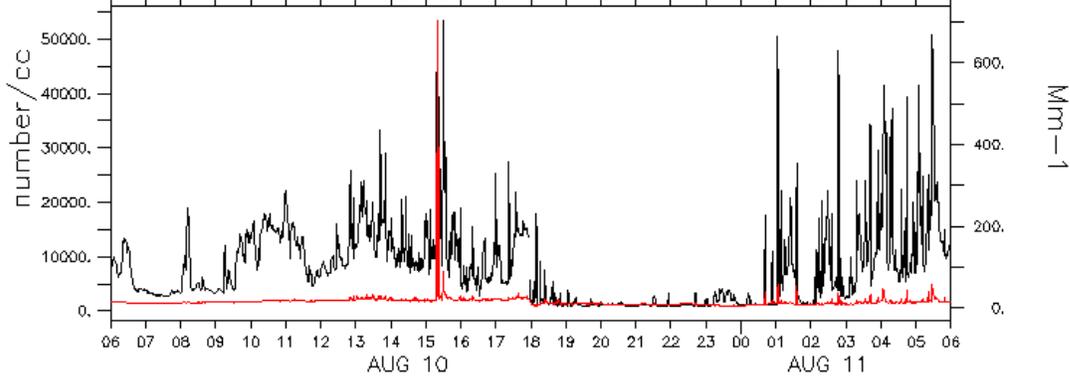
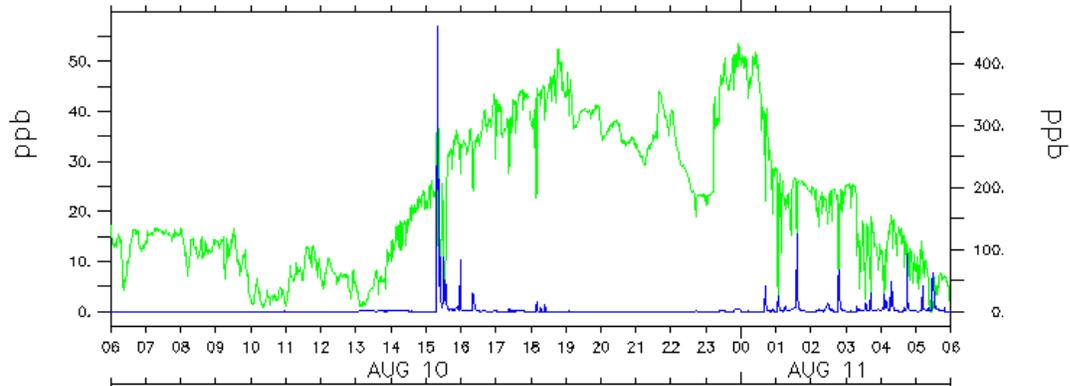
AerosolScatGreen, Mm-1

DOY 222.4 to 223.4



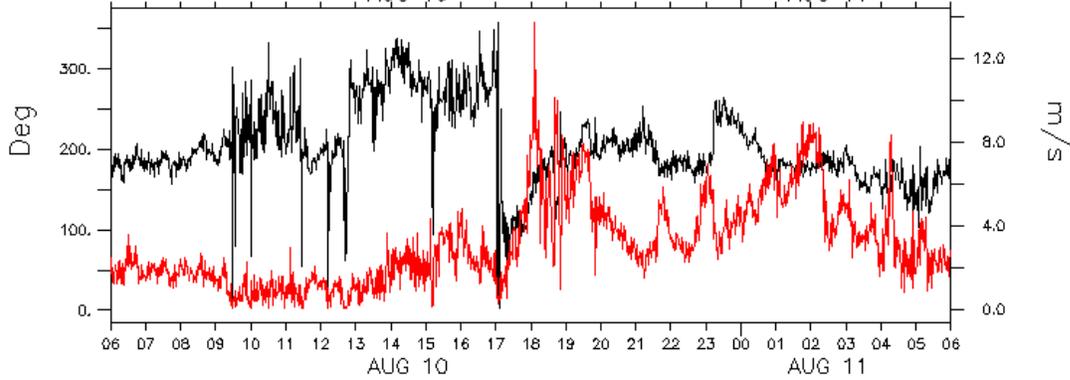
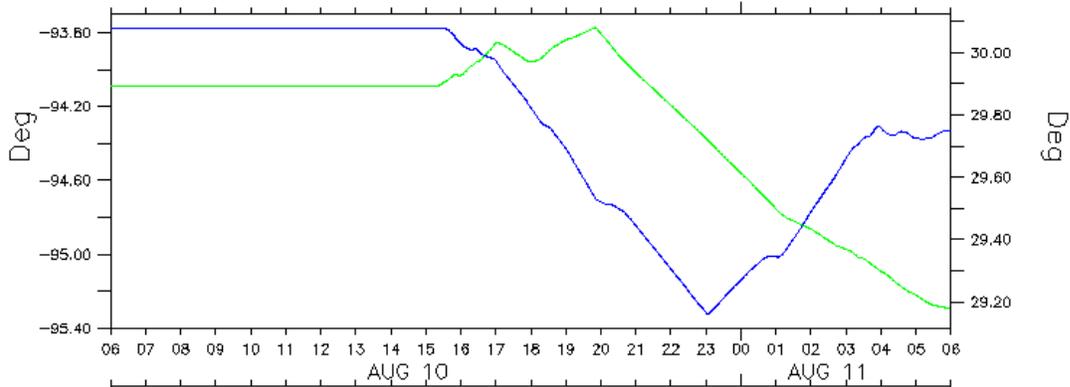
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

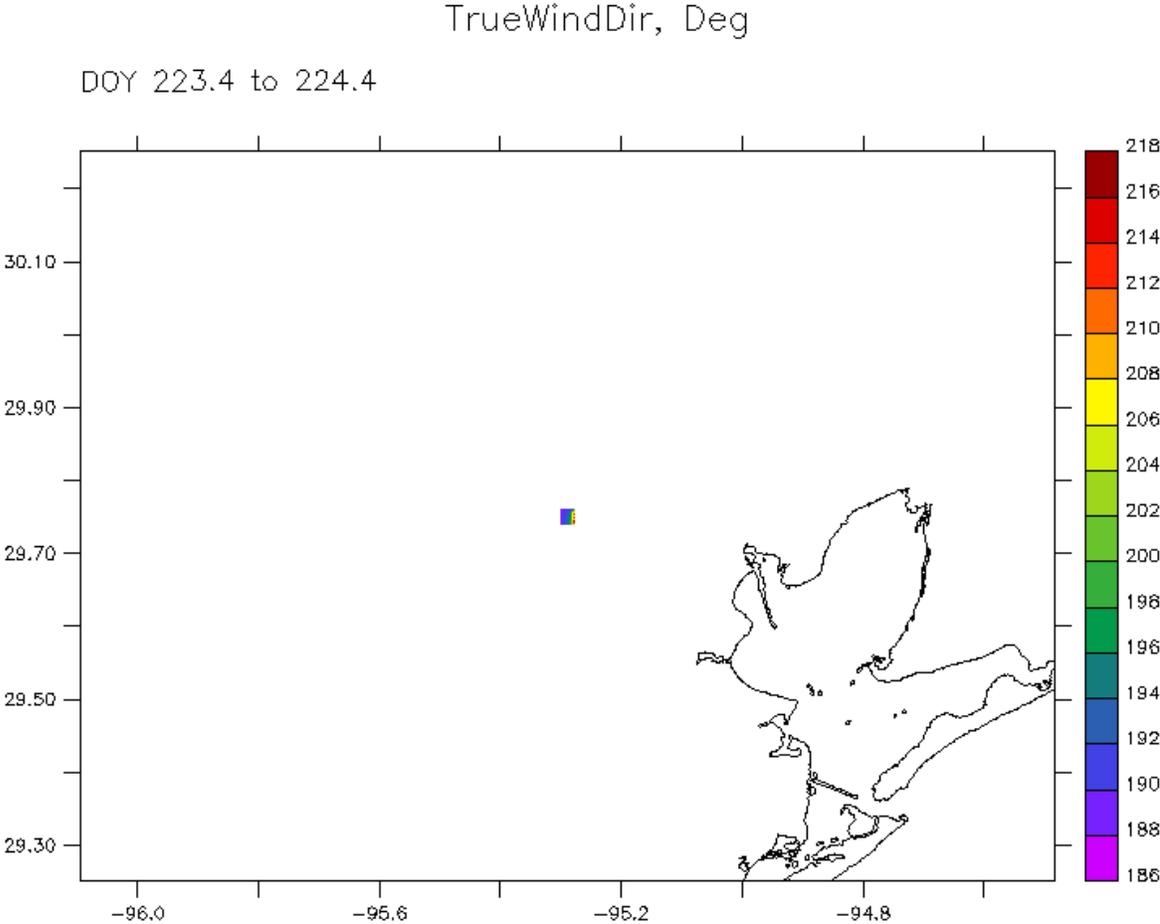
TrueWindSp
DLat



11 August

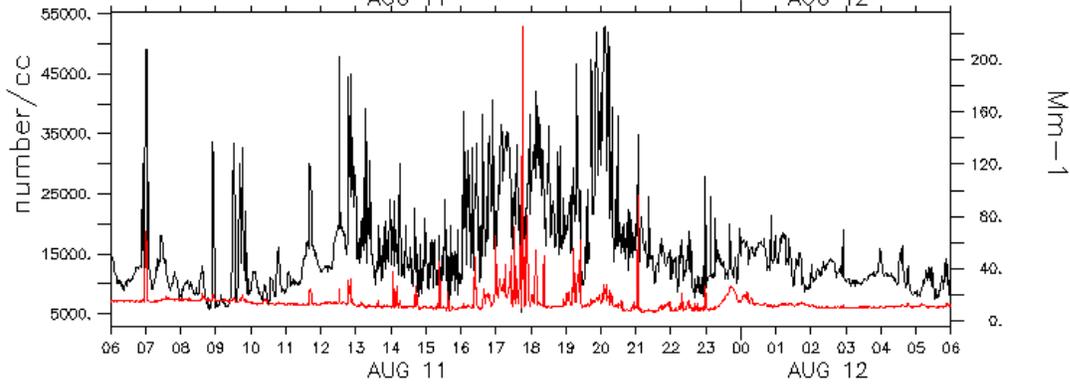
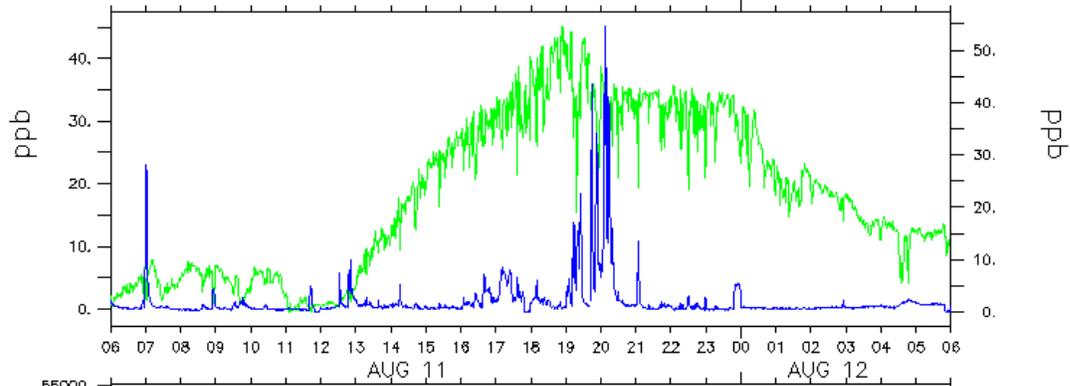
RHB in turning basin. S to SW flow.

BL height



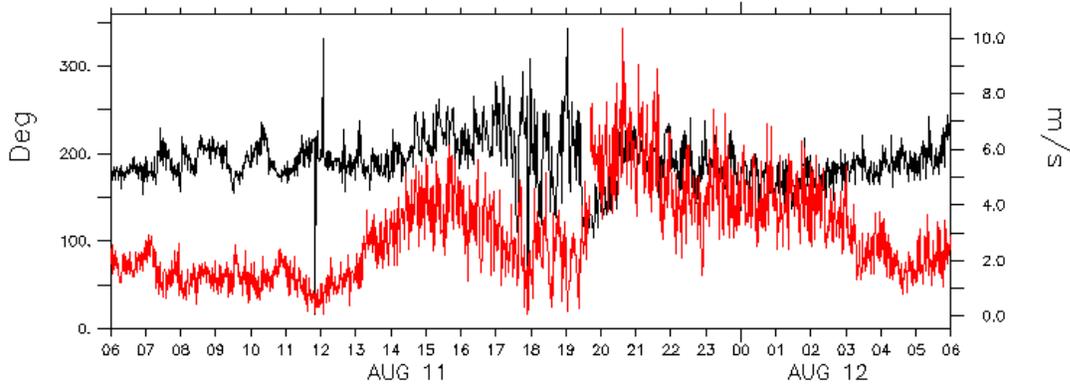
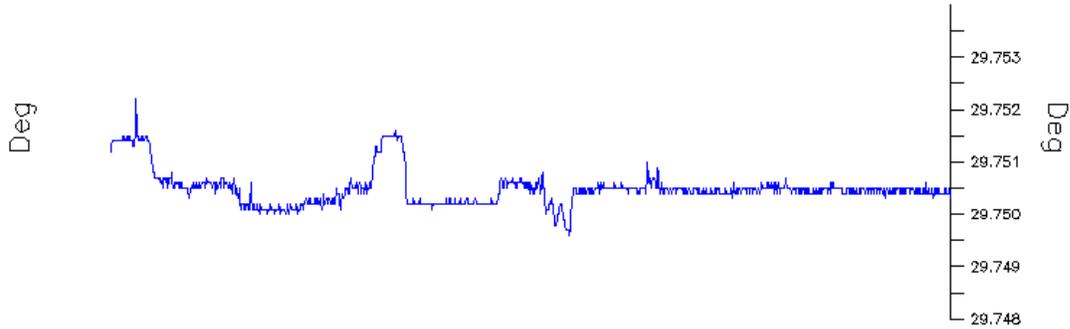
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

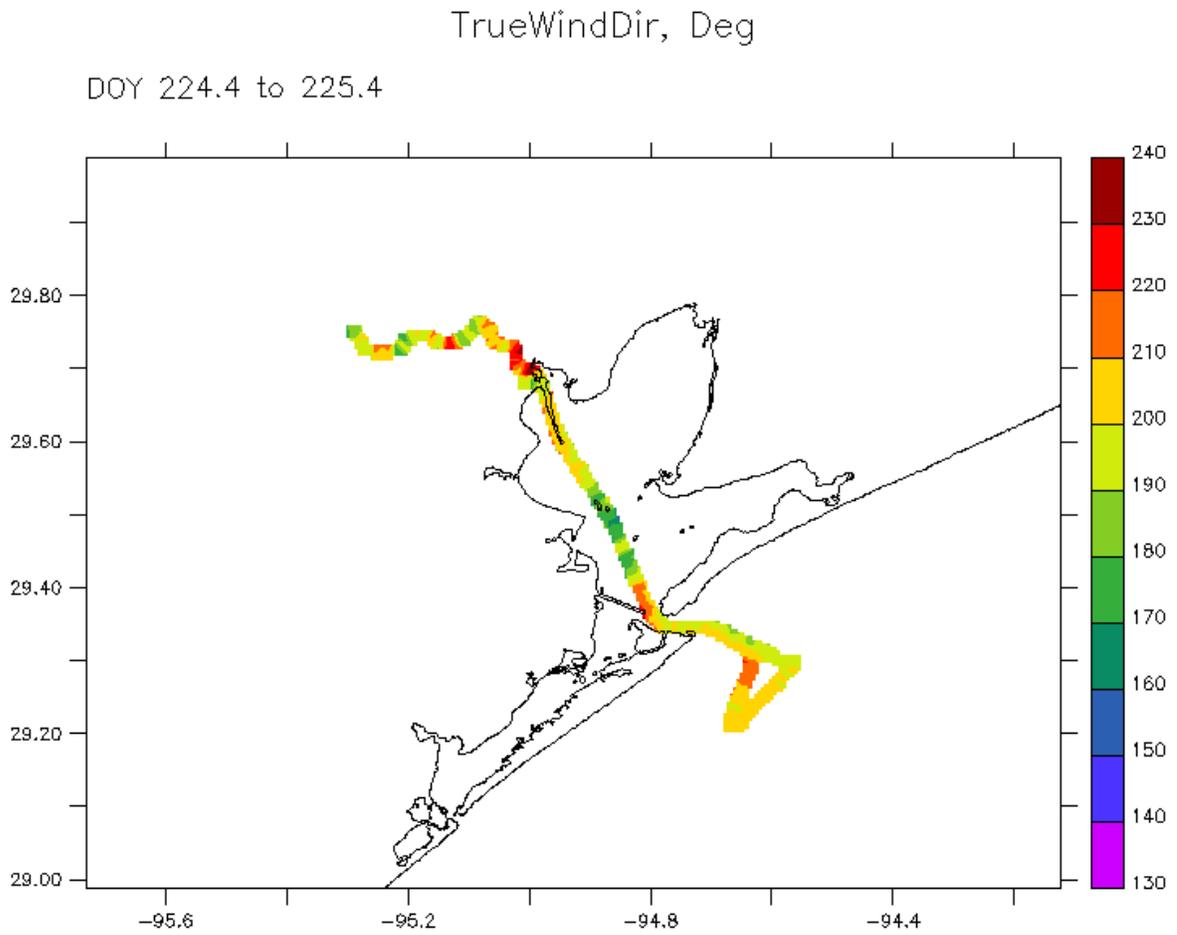


12 August

RHB from turning basin to off Galveston, then back to Barbour's Cut. SW flow, relatively clean.

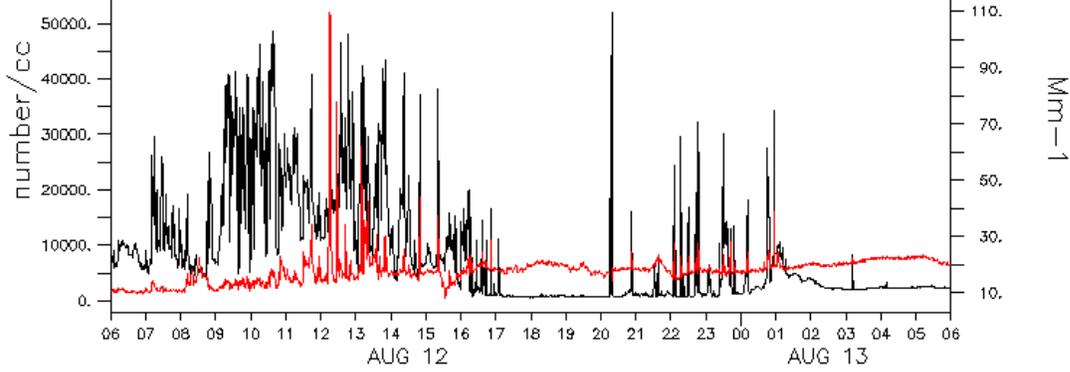
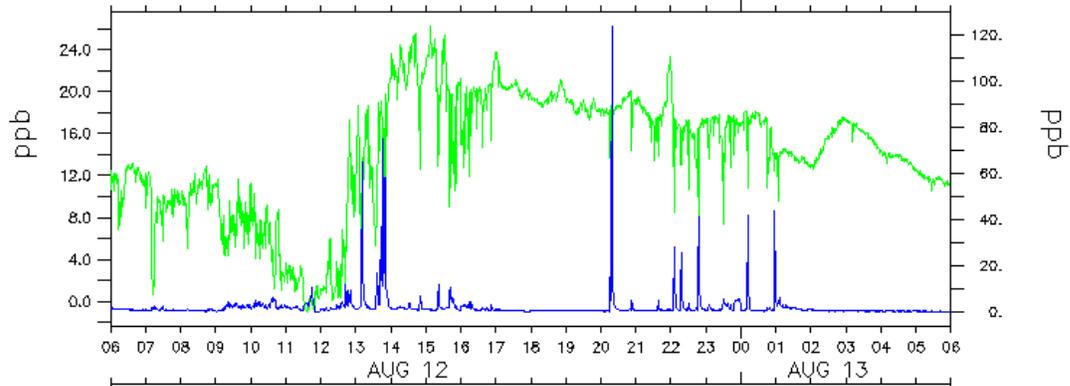
Flux in bay on outbound leg

BL height



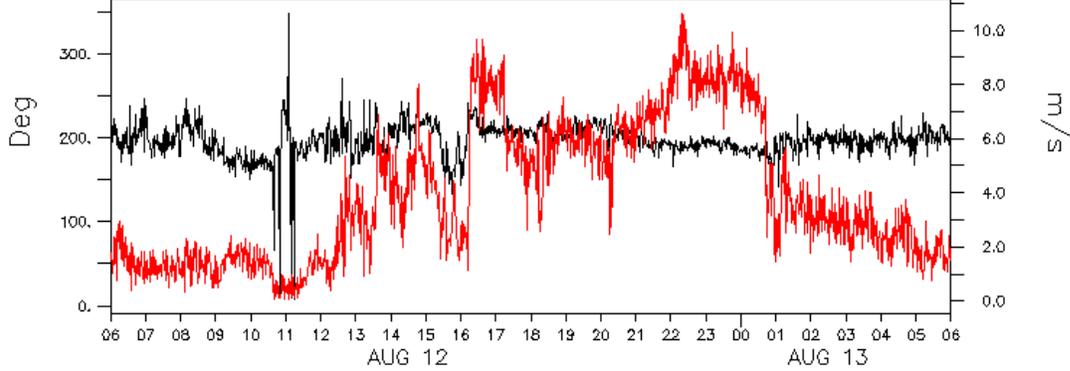
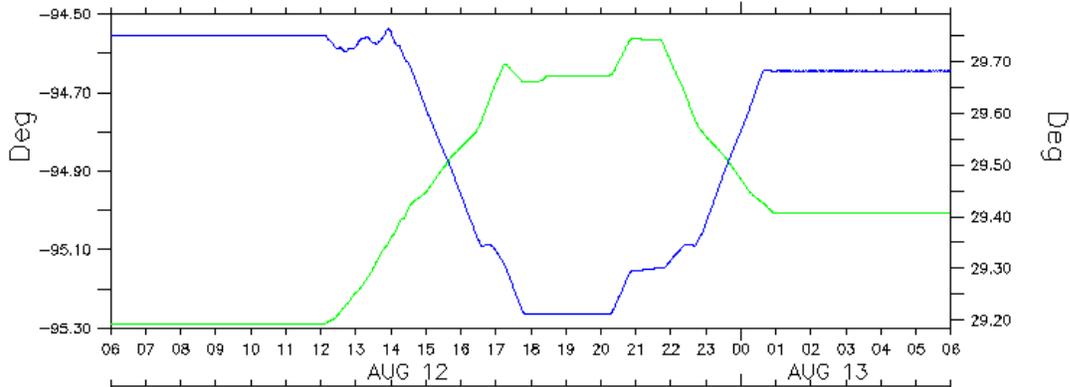
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

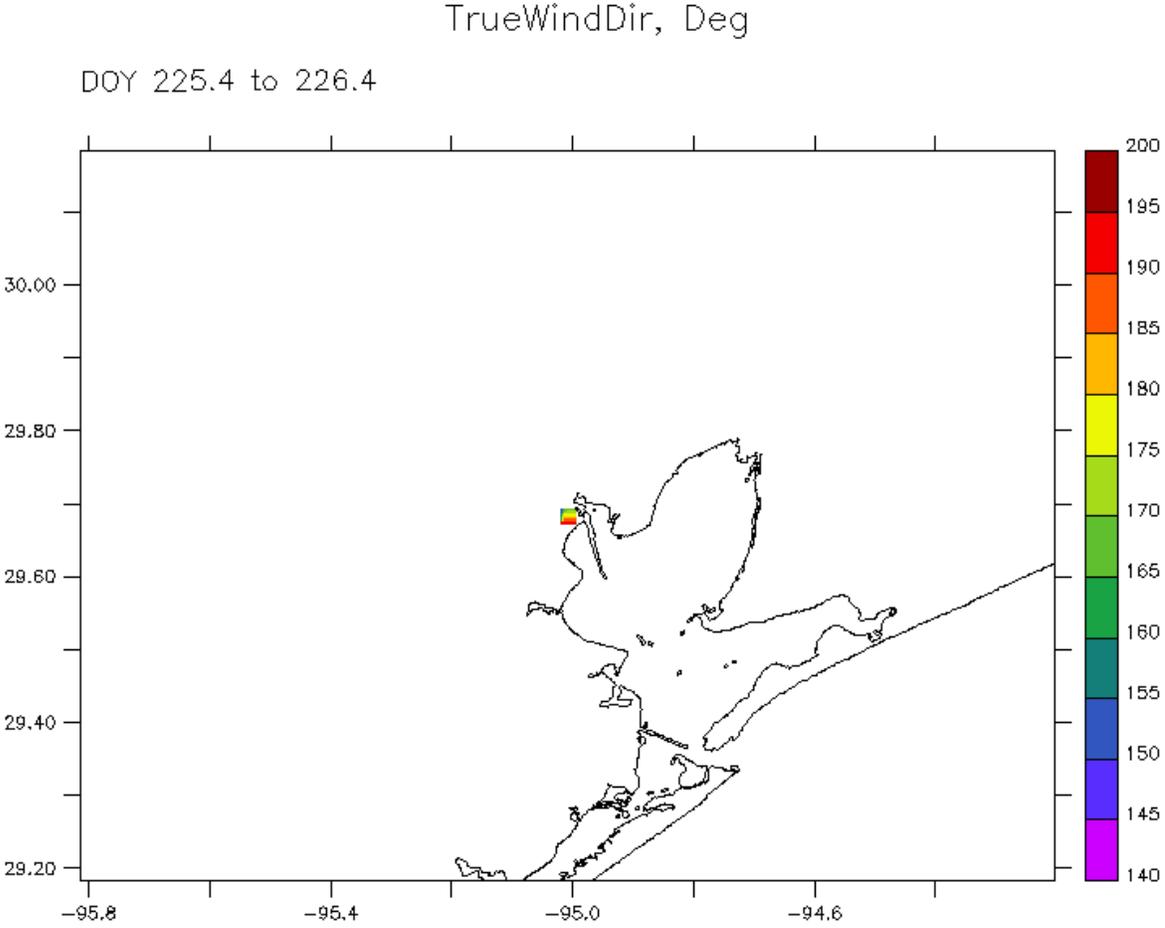
TrueWindSp
DLat



13 August

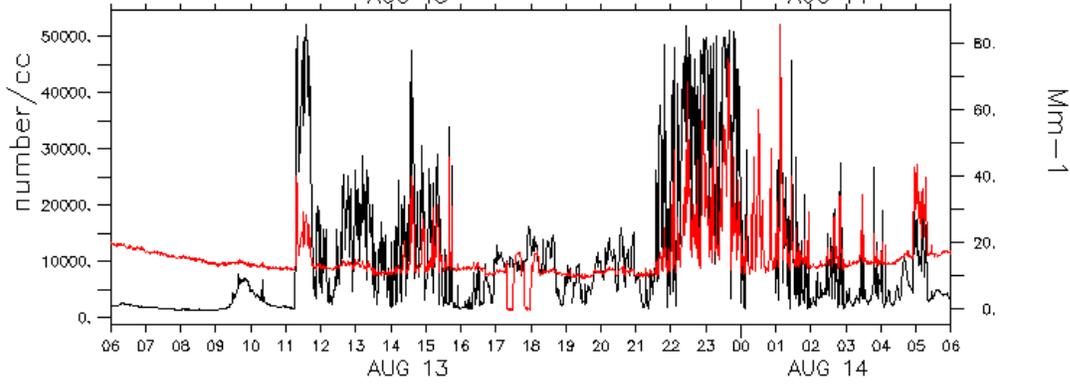
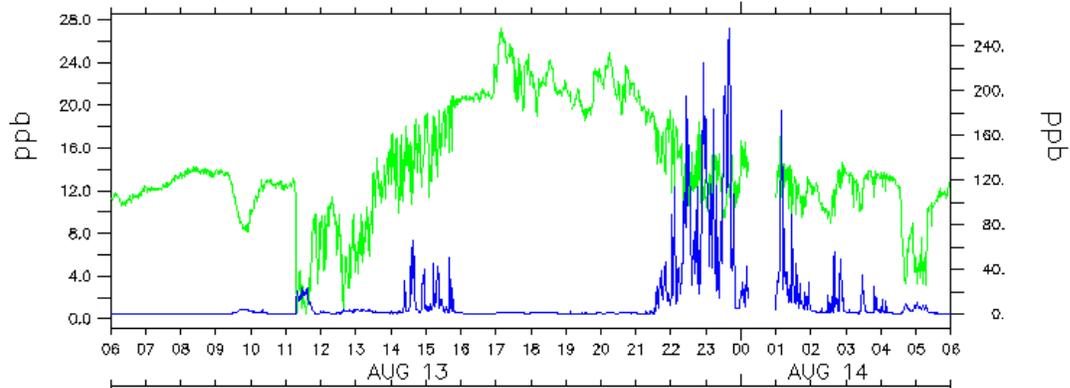
RHB in Barbour's Cut. Relatively clean SW to SE flow.

BL height



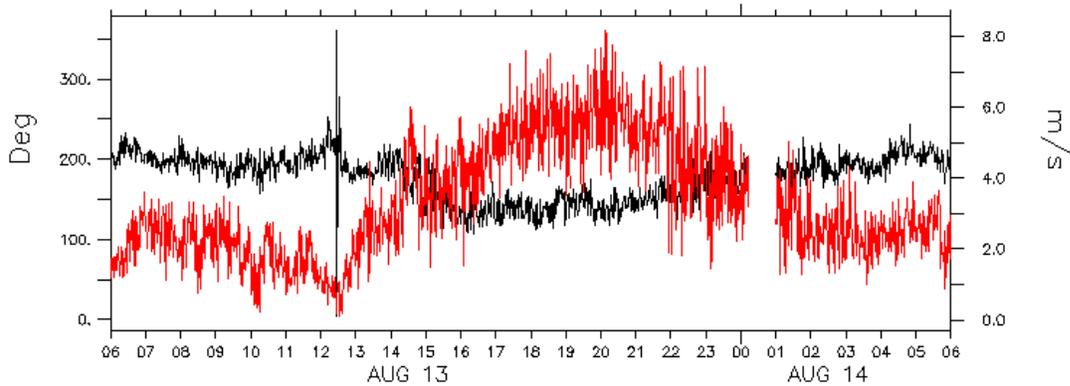
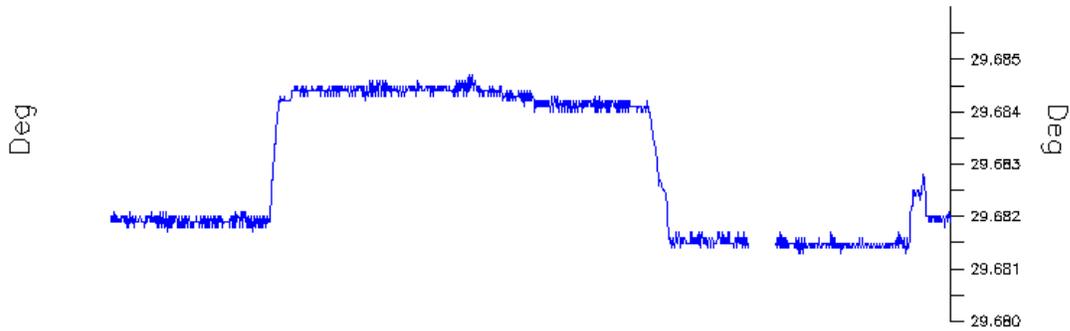
CN
O3

AerosolScatGreen
SO2



TrueWindDir
DLon

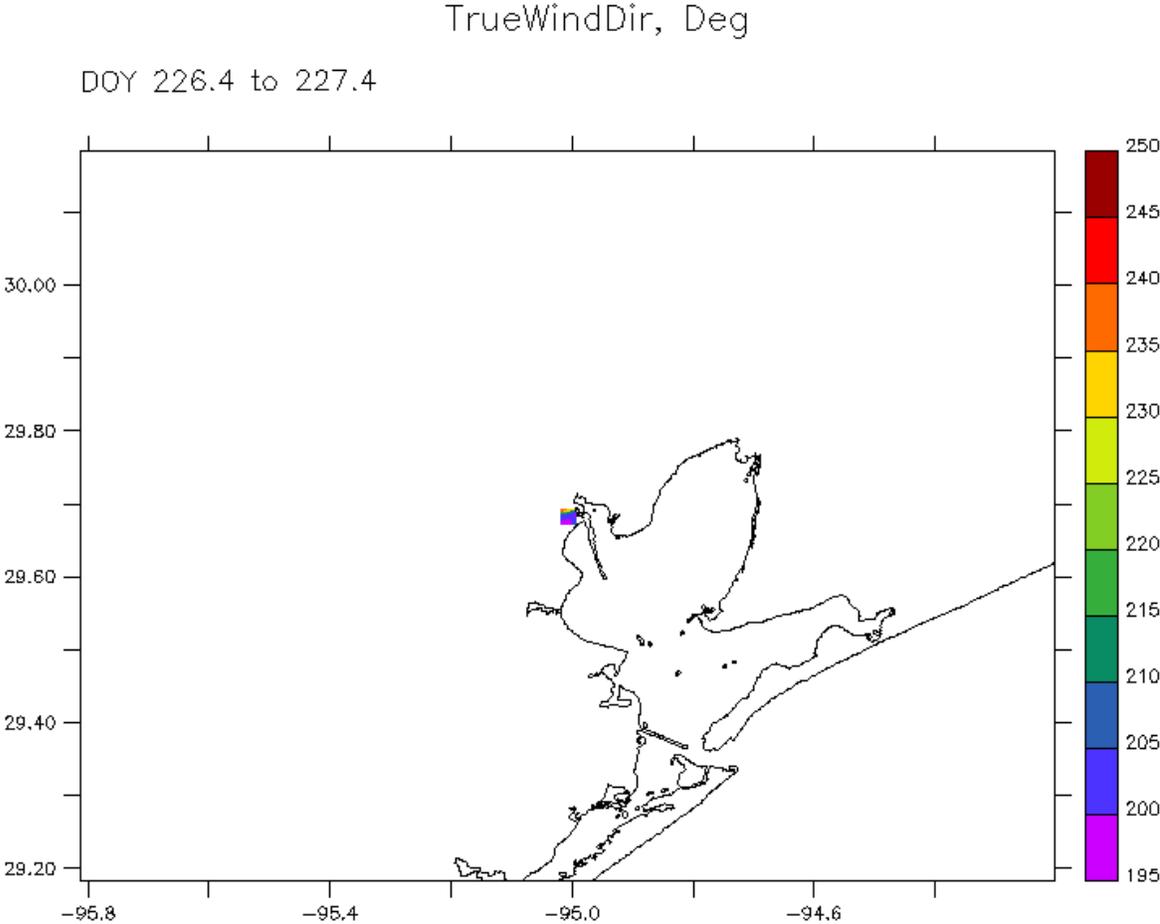
TrueWindSp
DLat



14 August

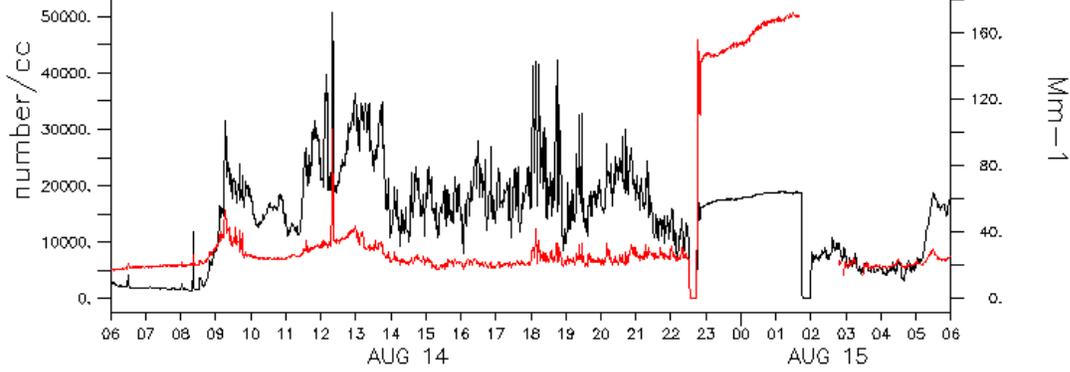
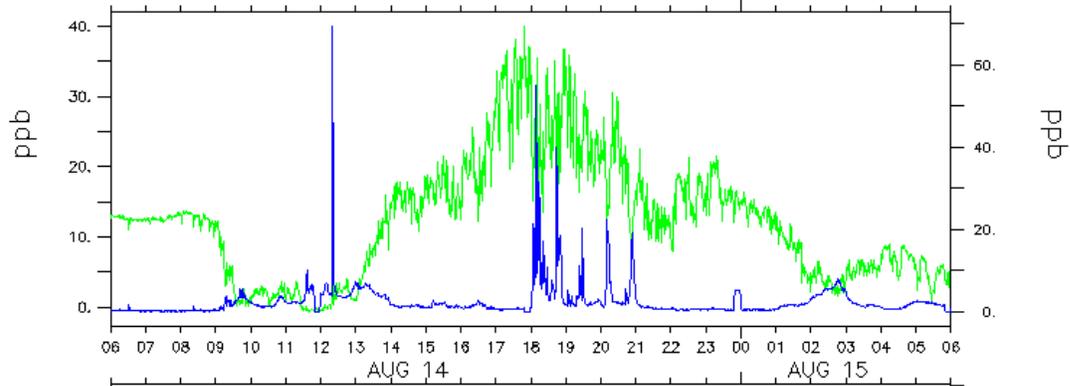
RHB in Barbour's Cut. SW to SE flow.

BL height



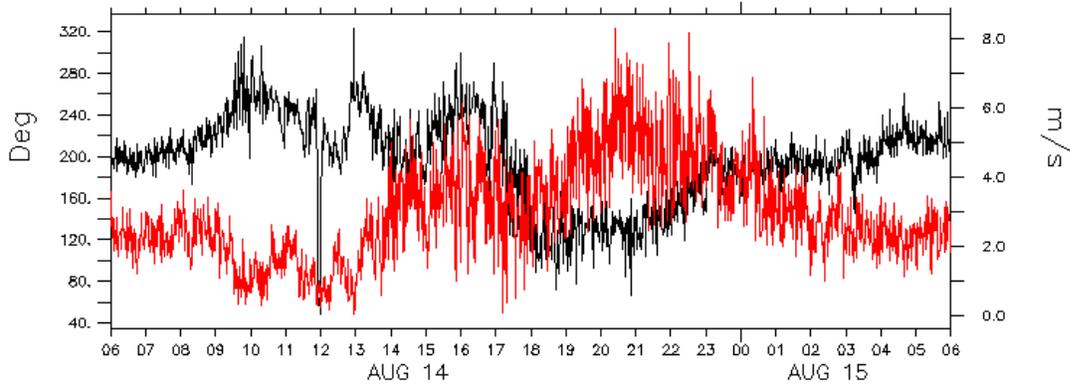
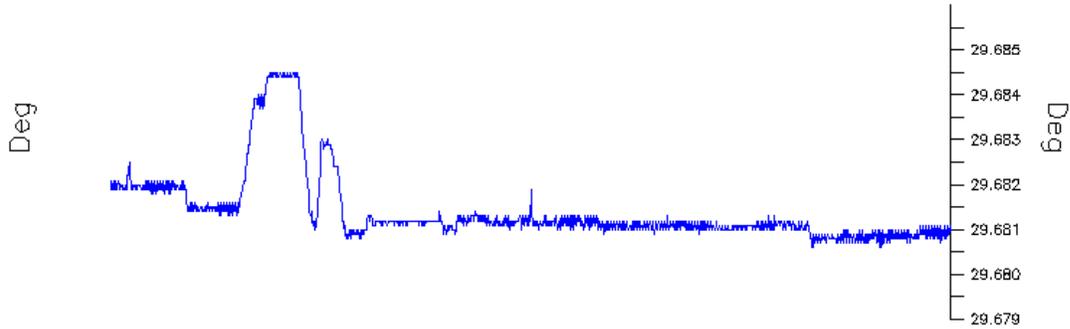
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

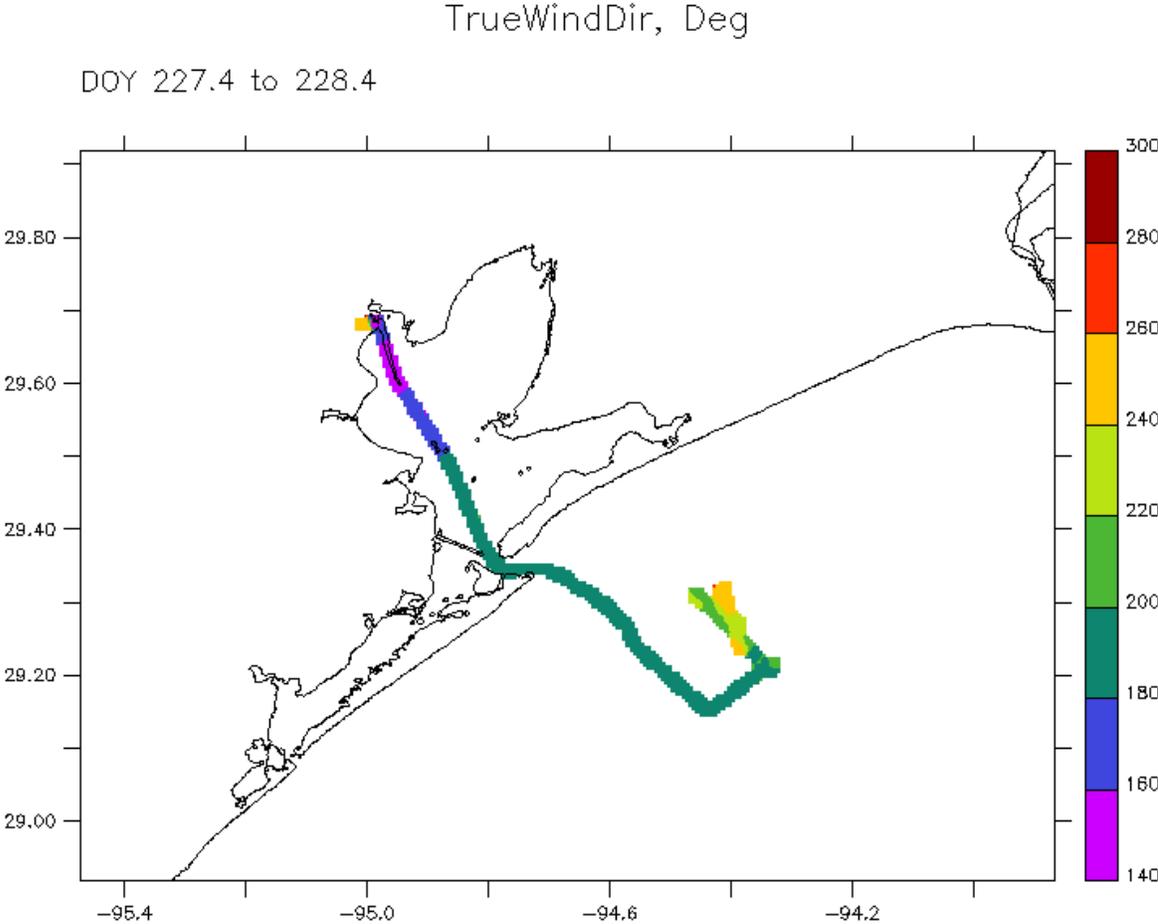
TrueWindSp
DLat



15 August

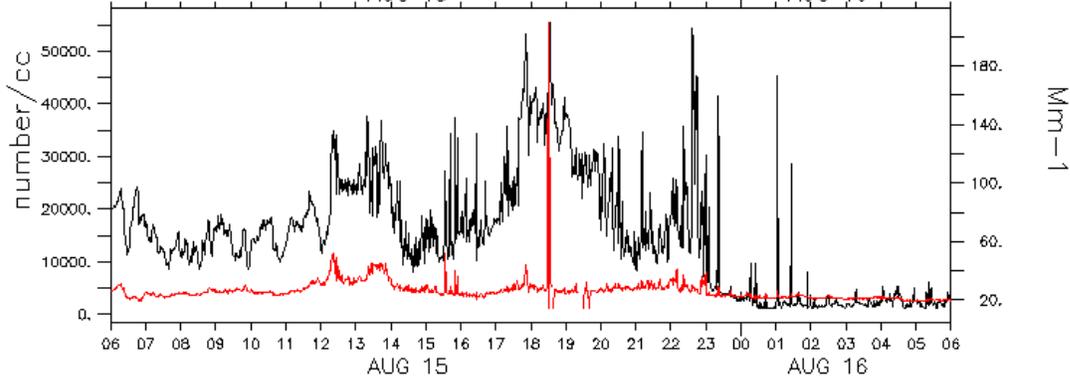
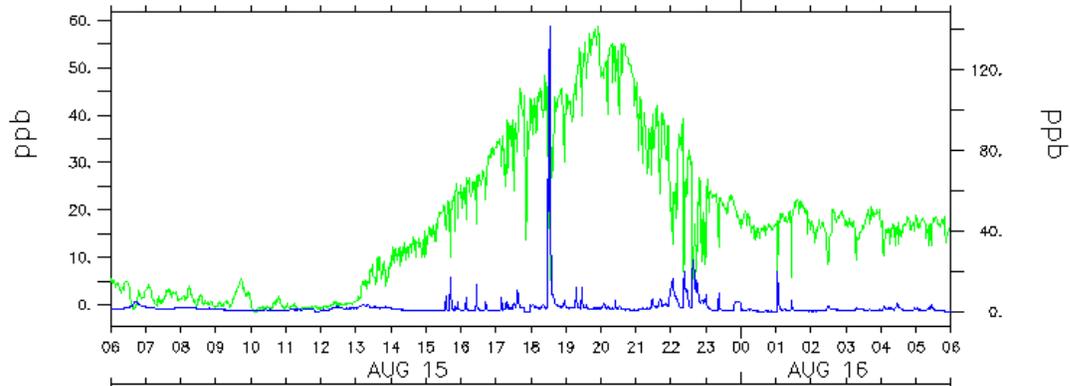
RHB from Barbour's Cut to off Galveston. Some ozone and aerosol in and near Barbour's Cut.

BL height



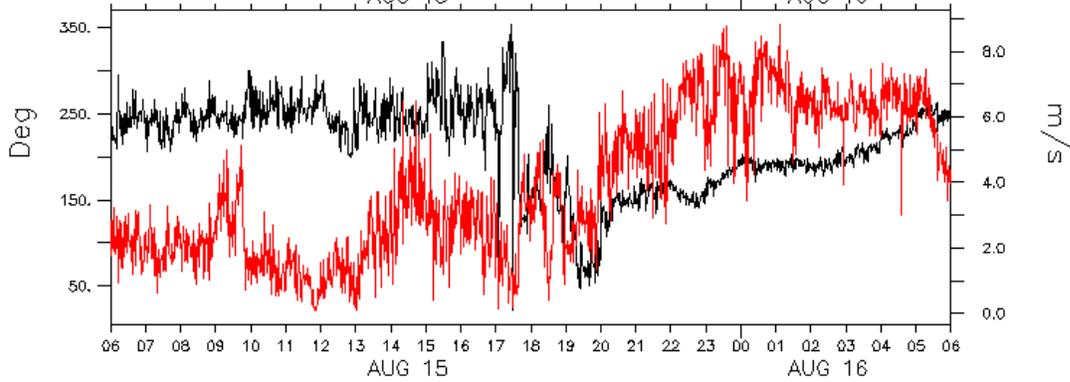
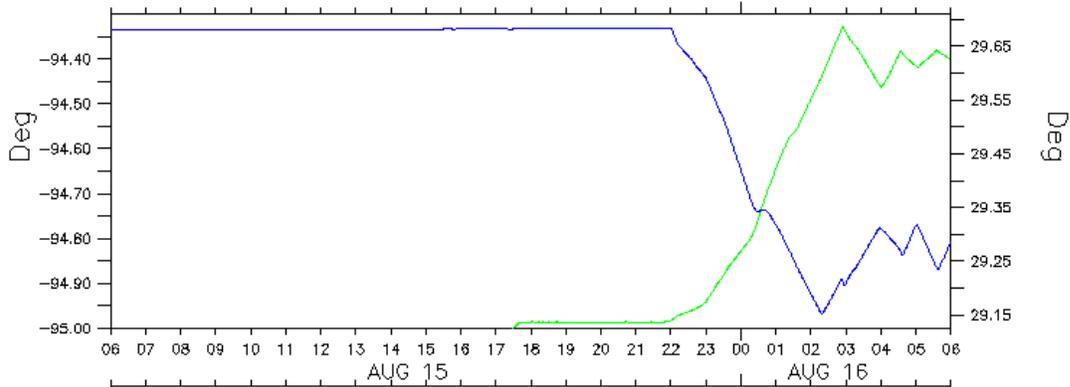
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

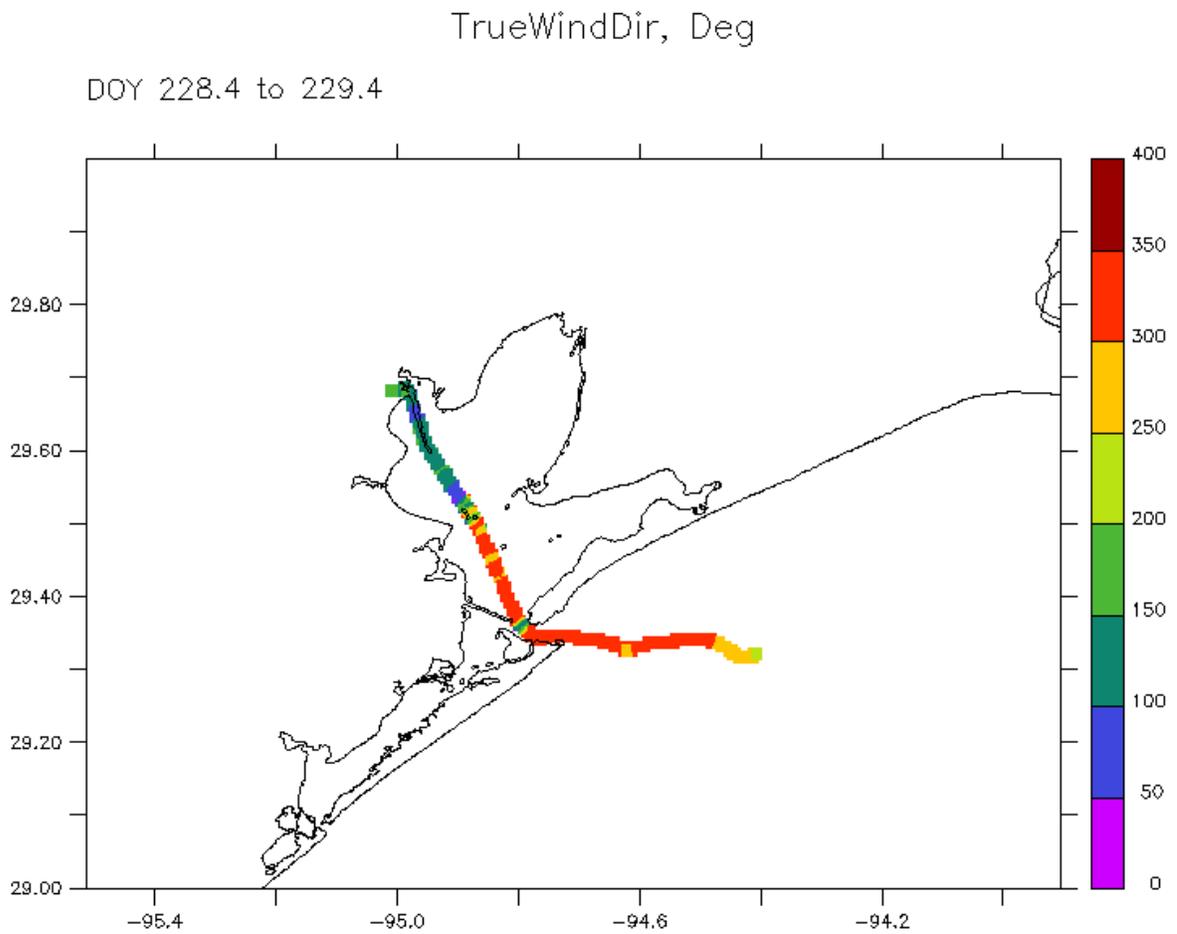


16 August

RHB from off Galveston to Barbour's Cut. Flow NW in the morning, SE in the afternoon. Moderate ozone and aerosol observed on the ship in Barbour's Cut. High ozone event day in Houston, see:

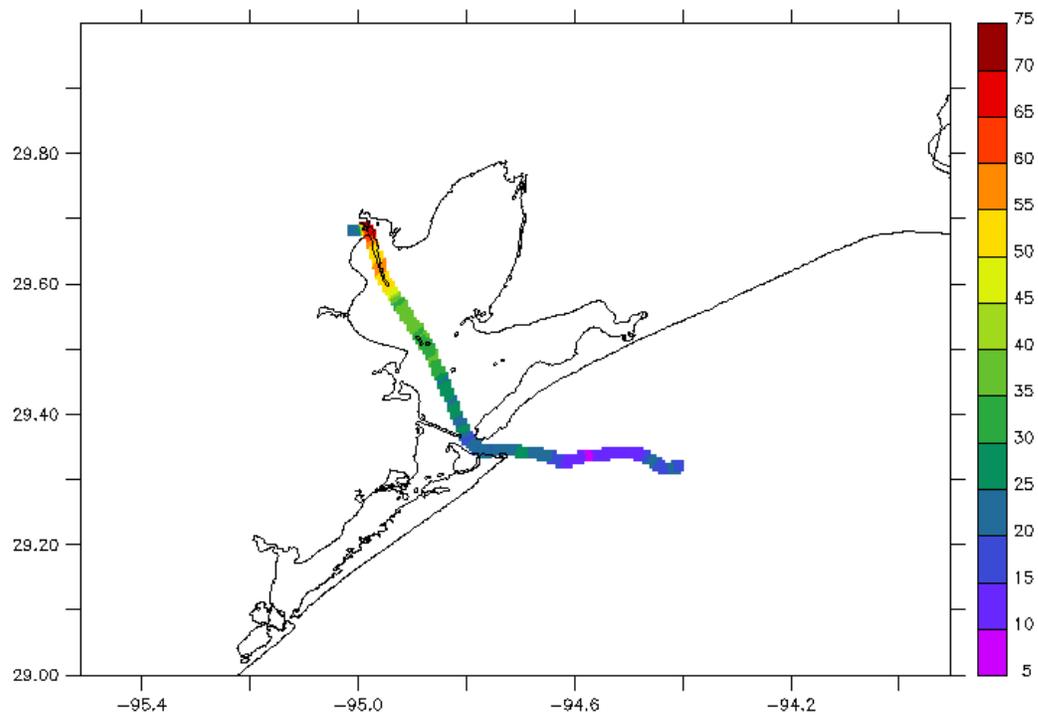
<http://www.tceq.state.tx.us/assets/public/compliance/monops/air/sigevents/06/event2006-08-16hou.html>

Flux in Gulf and Bay
BL height



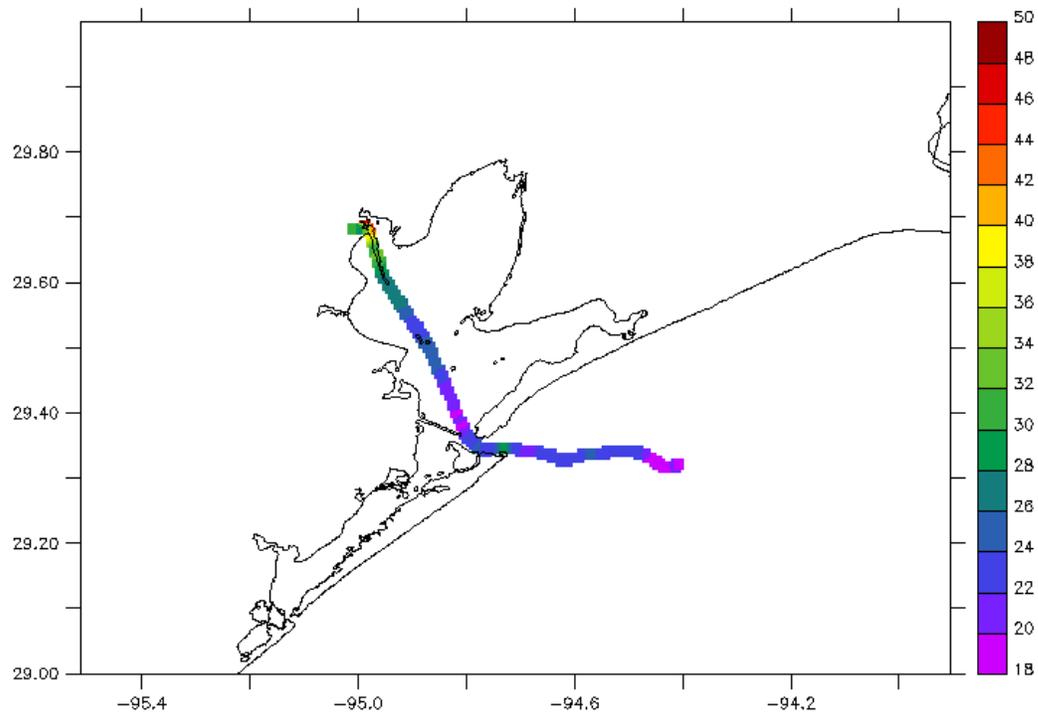
O3, ppb

DOY 228.4 to 229.4



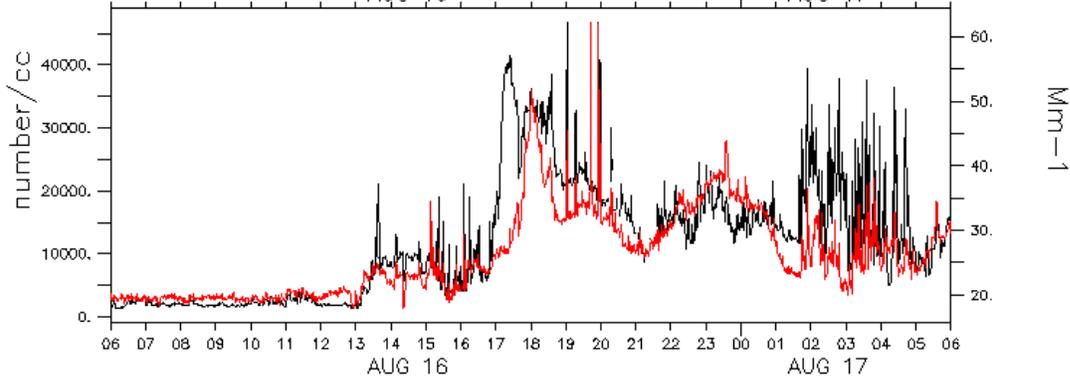
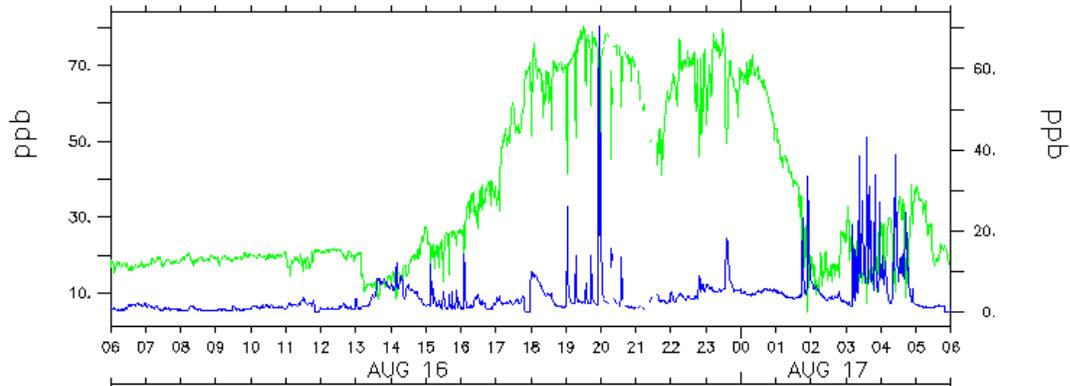
AerosolScatGreen, Mm-1

DOY 228.4 to 229.4



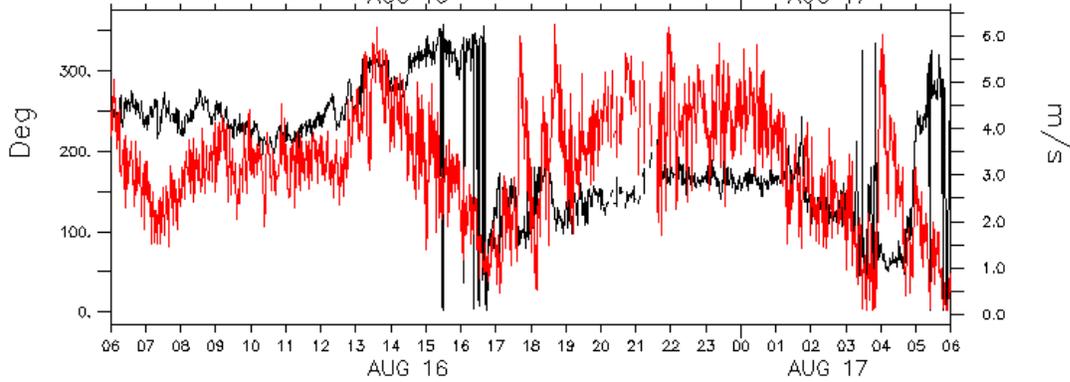
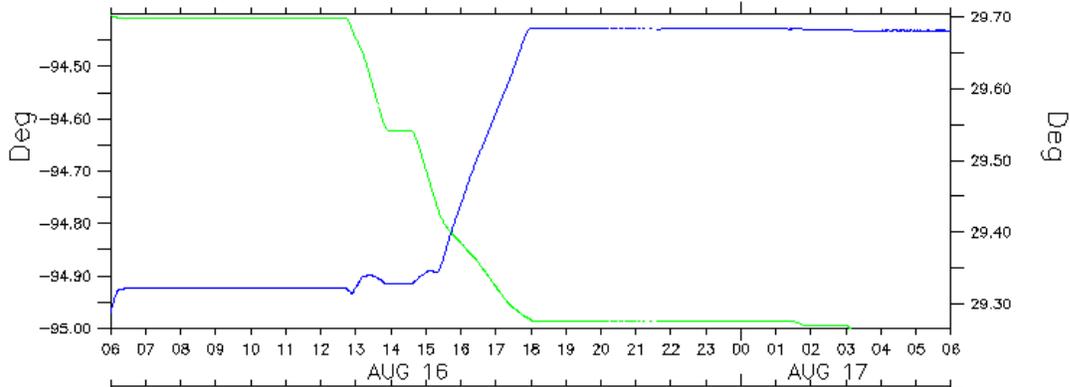
CN
O3

AerosolScatGreen
SO2



TrueWindDir
DLon

TrueWindSp
DLat



17 August

RHB from Barbour's Cut to off Galveston and return, then back to off Galveston. Wind NW in the morning to SE in the afternoon. High ozone observed at the ship on the afternoon transect.

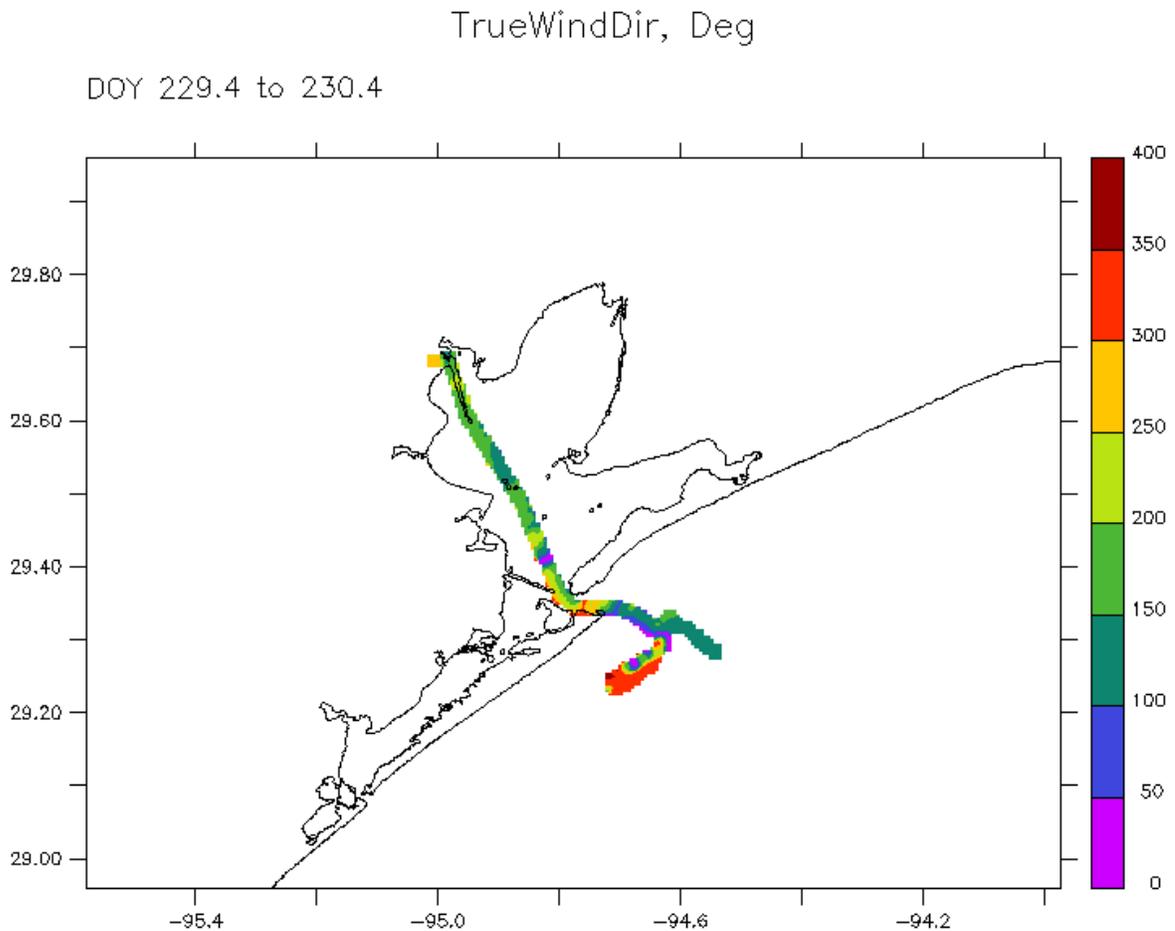
High ozone event day in Houston, see:

<http://www.tceq.state.tx.us/assets/public/compliance/monops/air/sigevents/06/event2006-08-17hou.html>

Flux on afternoon transect from Galveston to BC

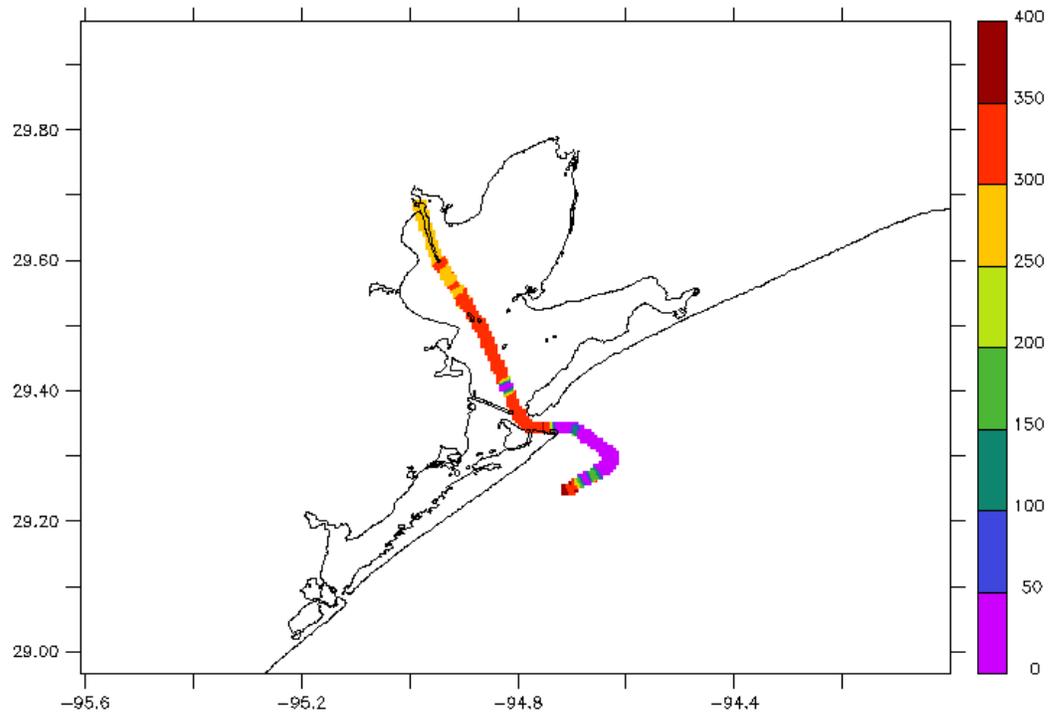
BL height

Trajectories for BC and mid-bay at times of high ozone



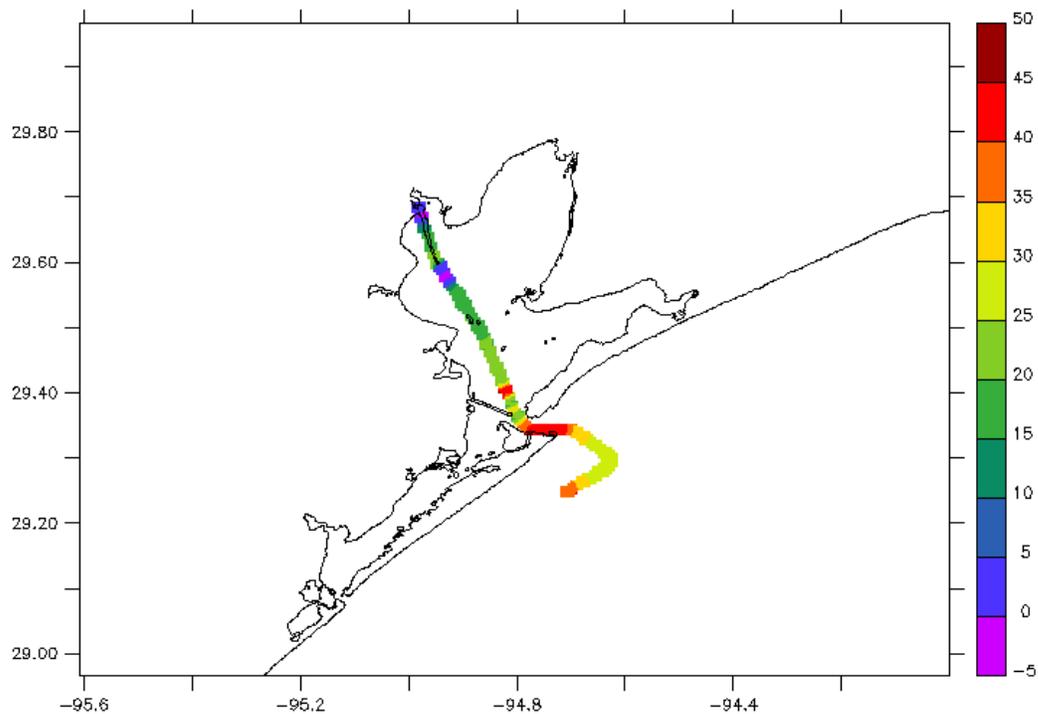
TrueWindDir, Deg

DOY 229.5 to 229.63



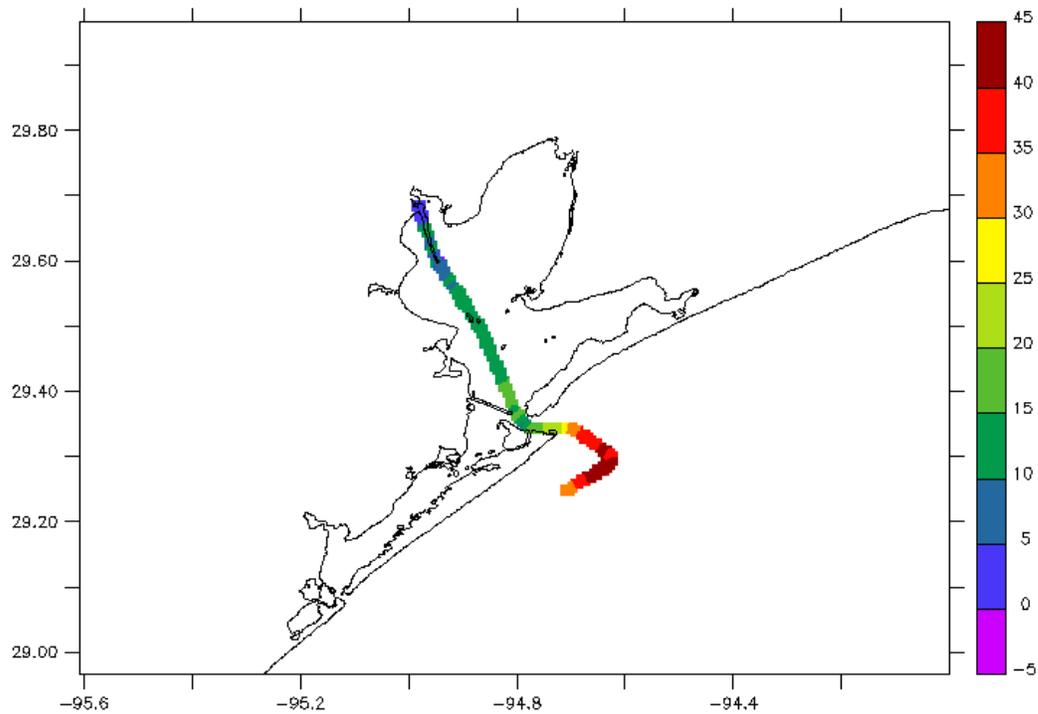
AerosolScatGreen, Mm-1

DOY 229.5 to 229.63



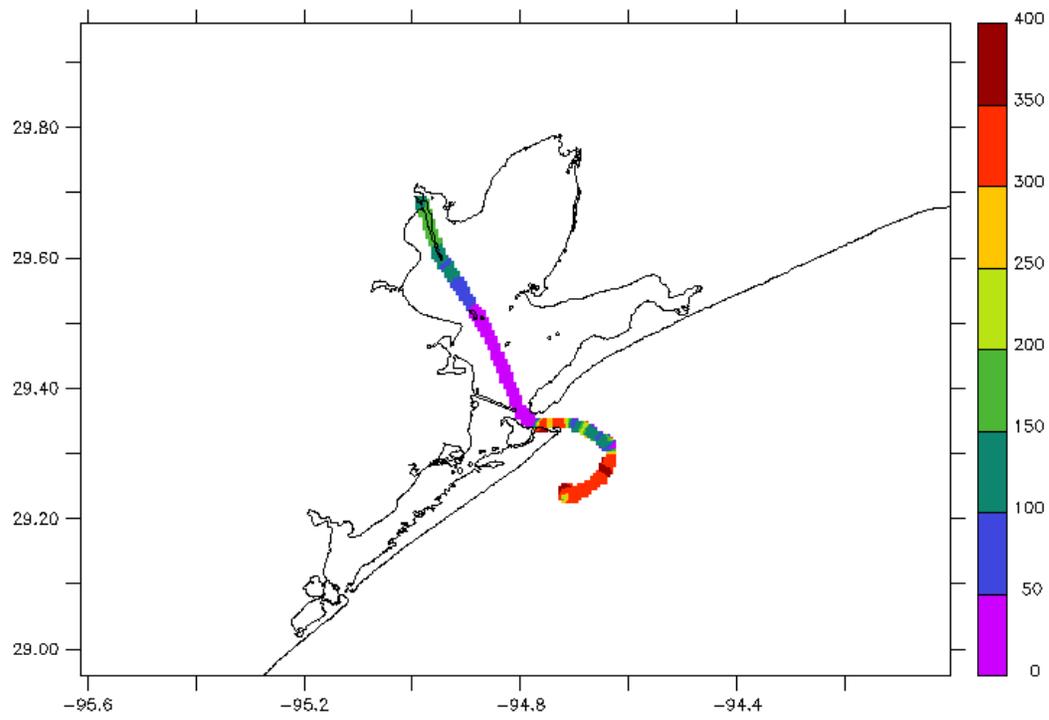
O3, ppb

DOY 229.5 to 229.63



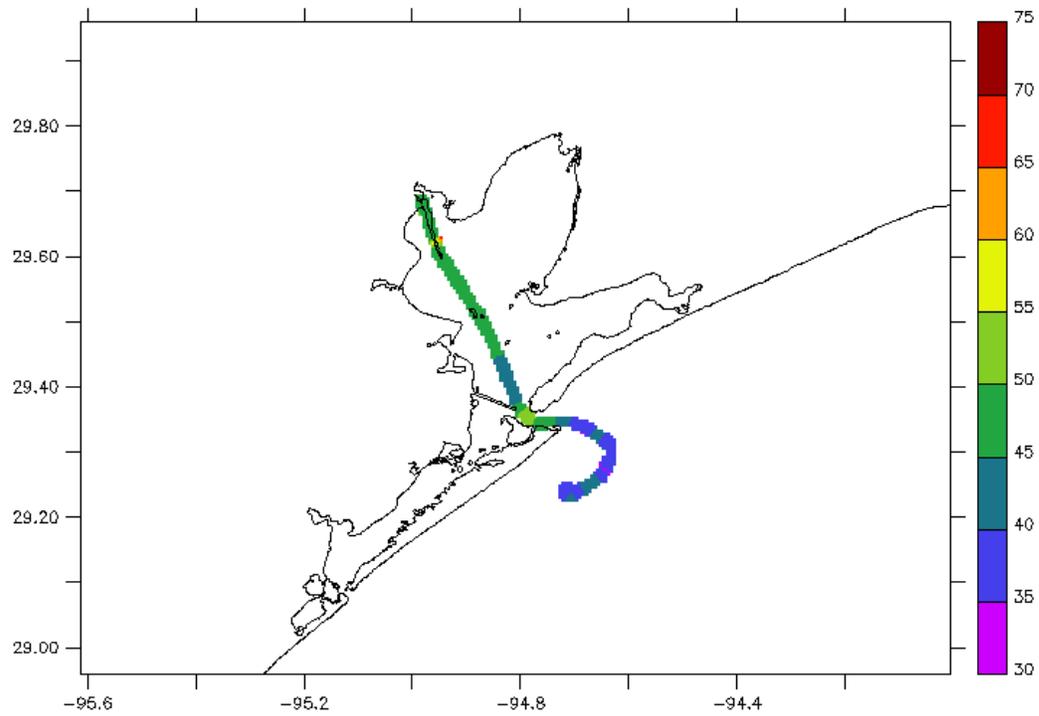
TrueWindDir, Deg

DOY 229.63 to 229.9



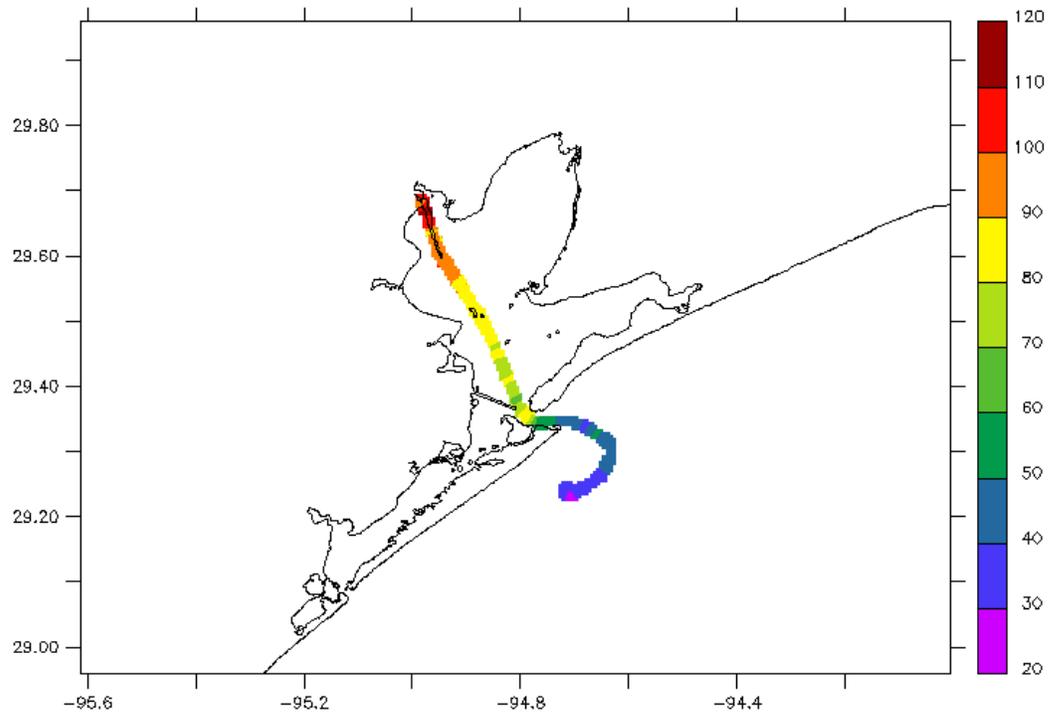
AerosolScatGreen, Mm-1

DOY 229.63 to 229.9



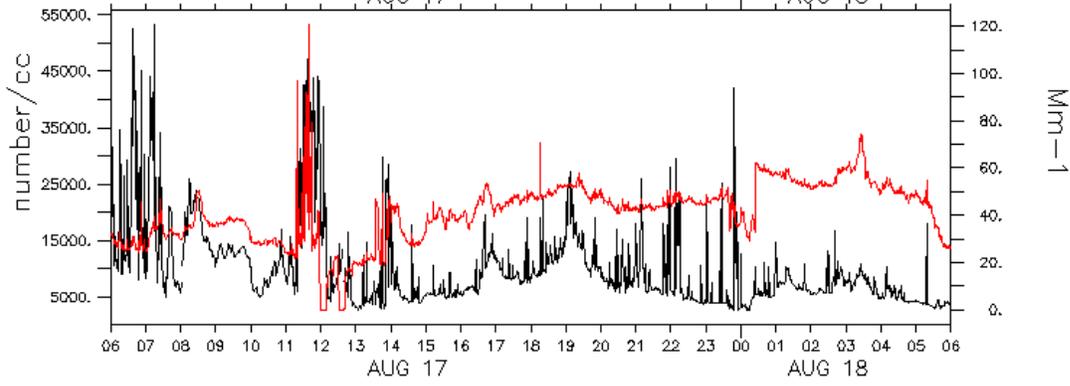
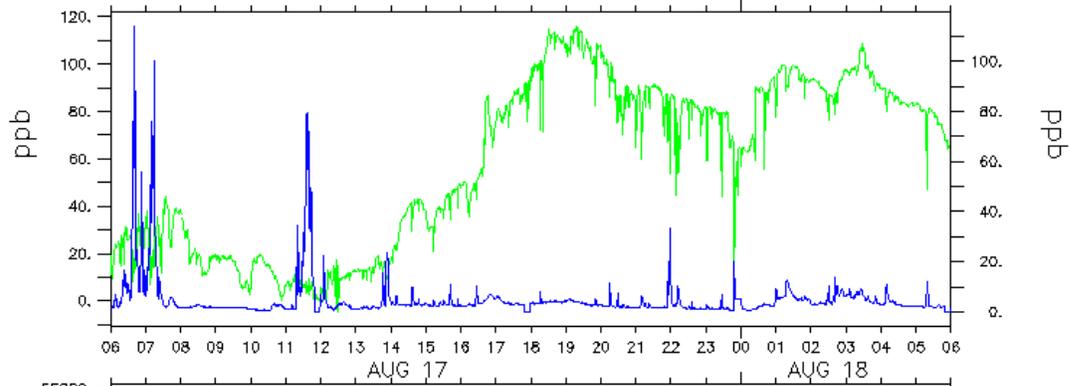
O3, ppb

DOY 229.63 to 229.9



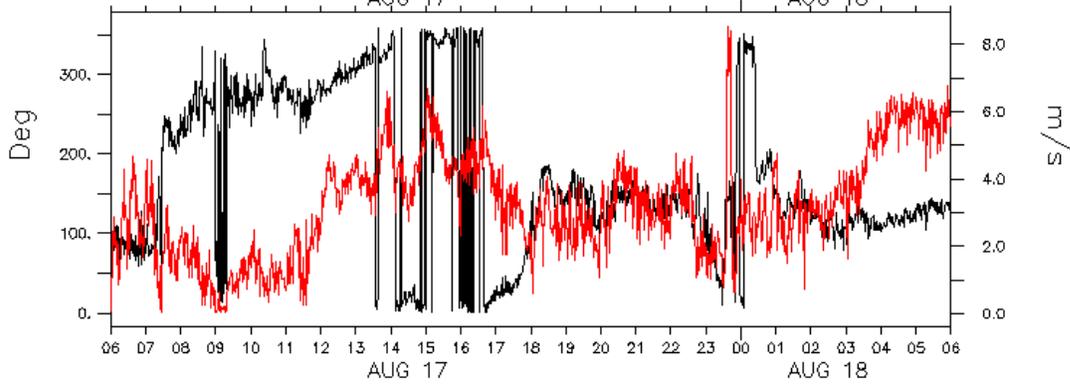
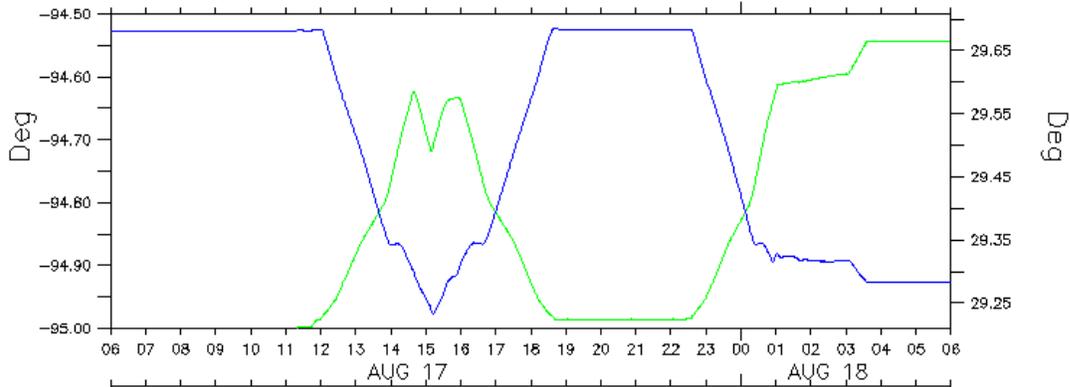
CN
03

AerosolScatGreen
SD2

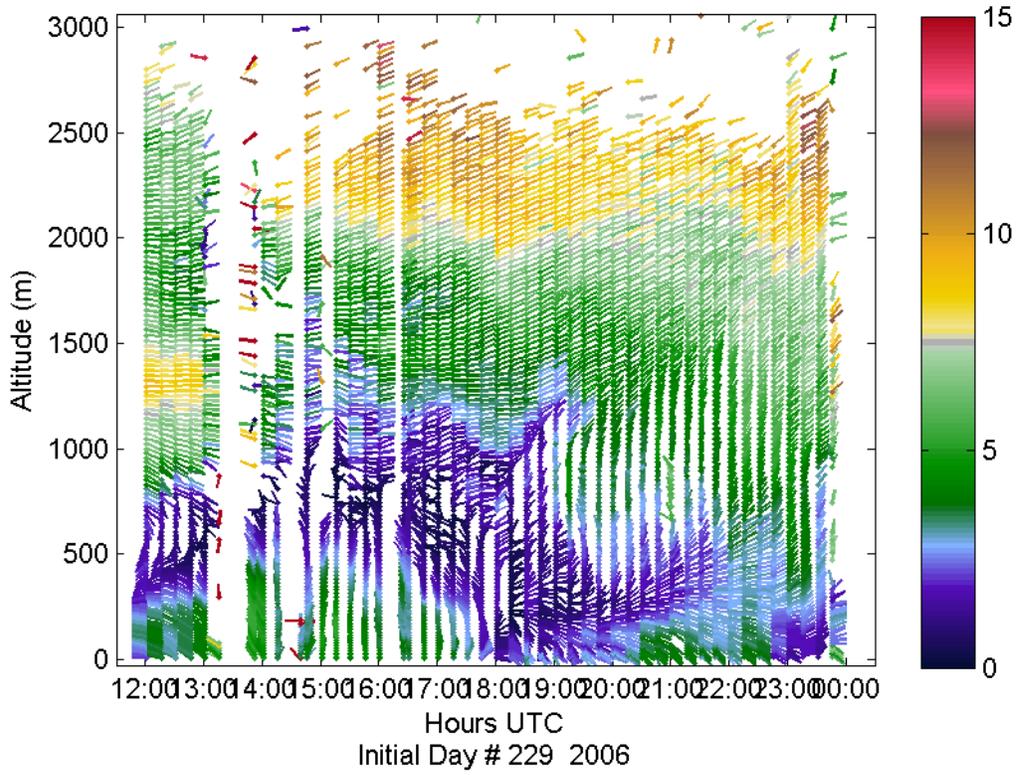


TrueWindDir
DLon

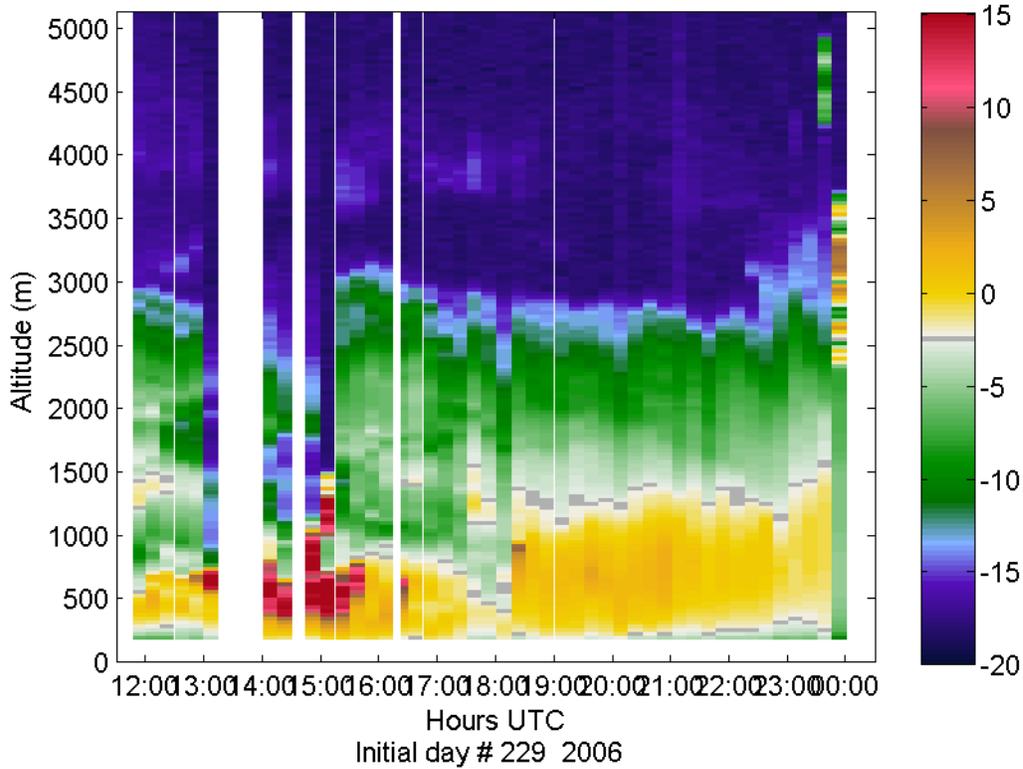
TrueWindSp
DLat



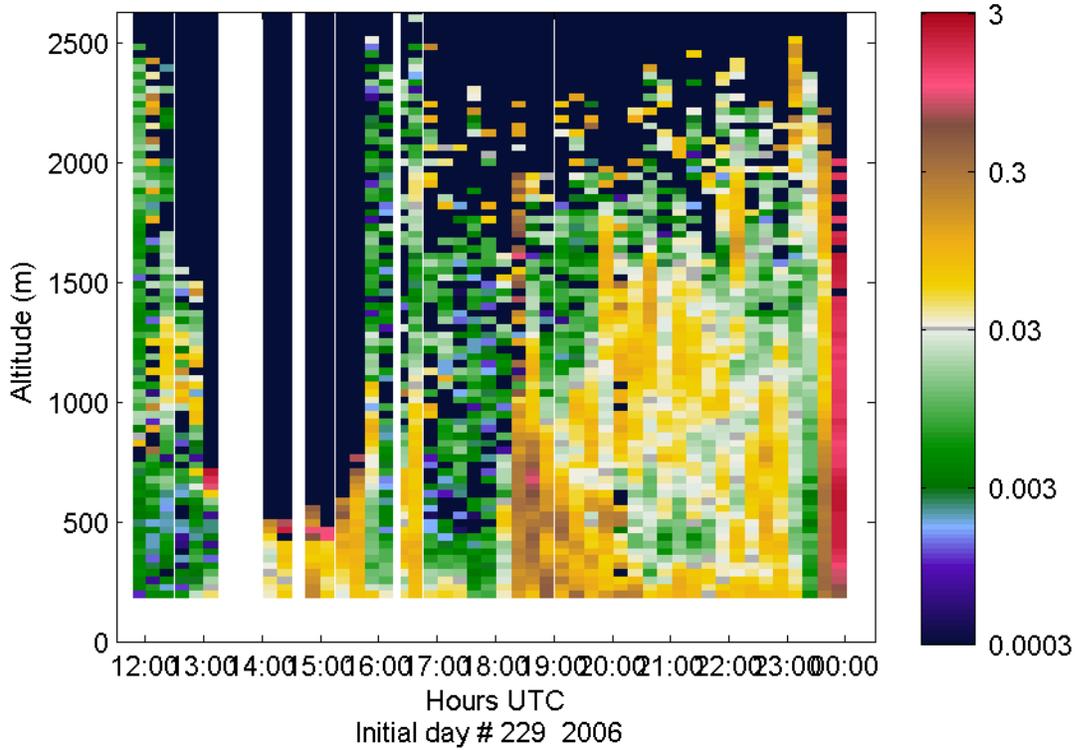
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 08/17/06 to 00:00 08/18/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 08/17/06 to 00:00 08/18/06



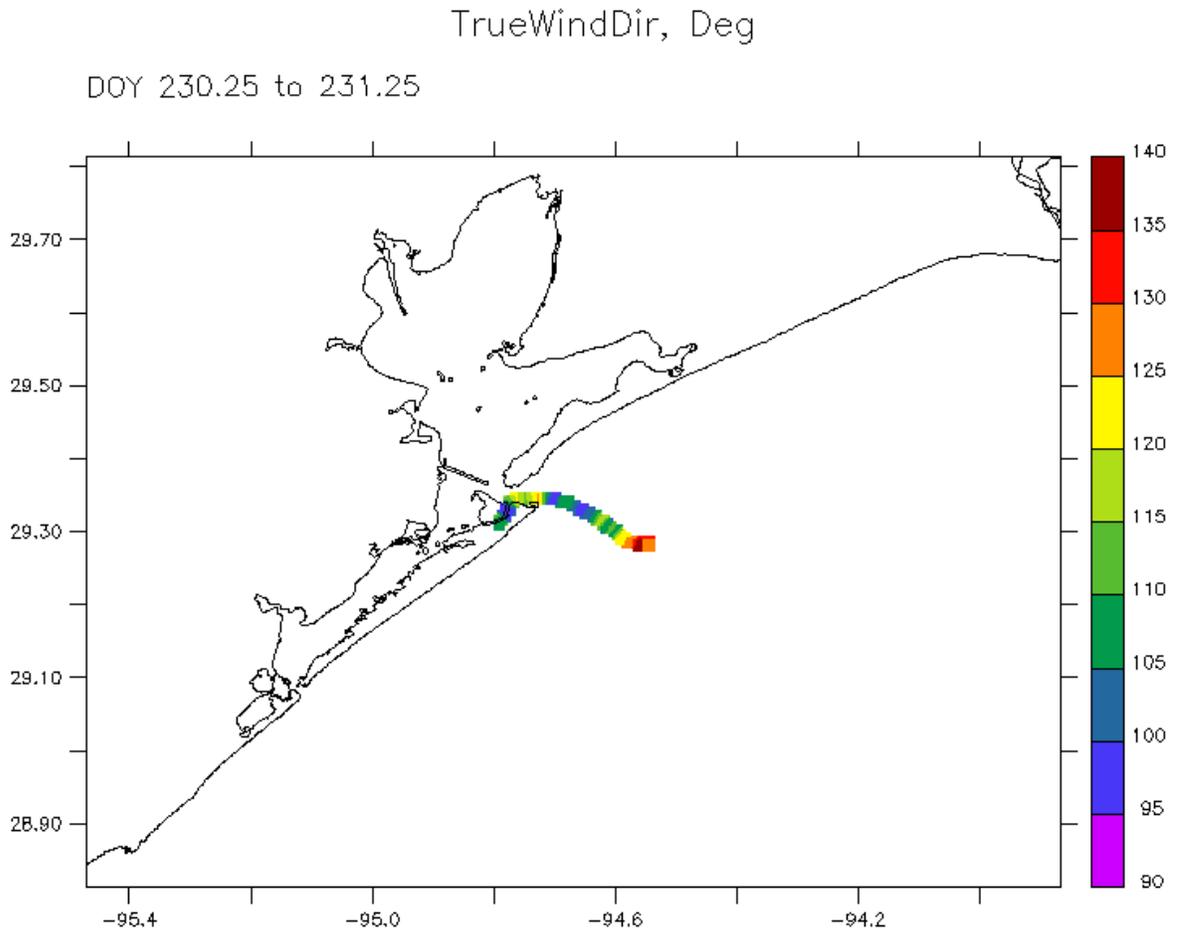
HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 08/17/06 to 00:00 08/18/06



18 August

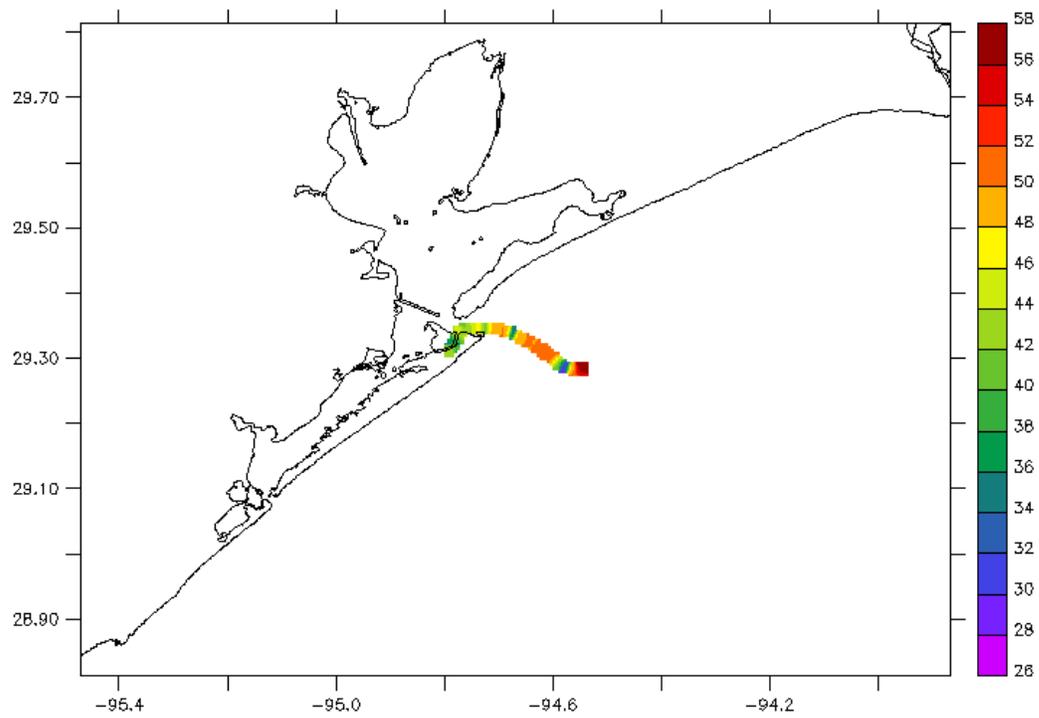
RHB from off Galveston to port at approximately 1300 UTC. High ozone event day in Houston, see: <http://www.tceq.state.tx.us/assets/public/compliance/monops/air/sigevents/06/event2006-08-18hou.html>

BL height



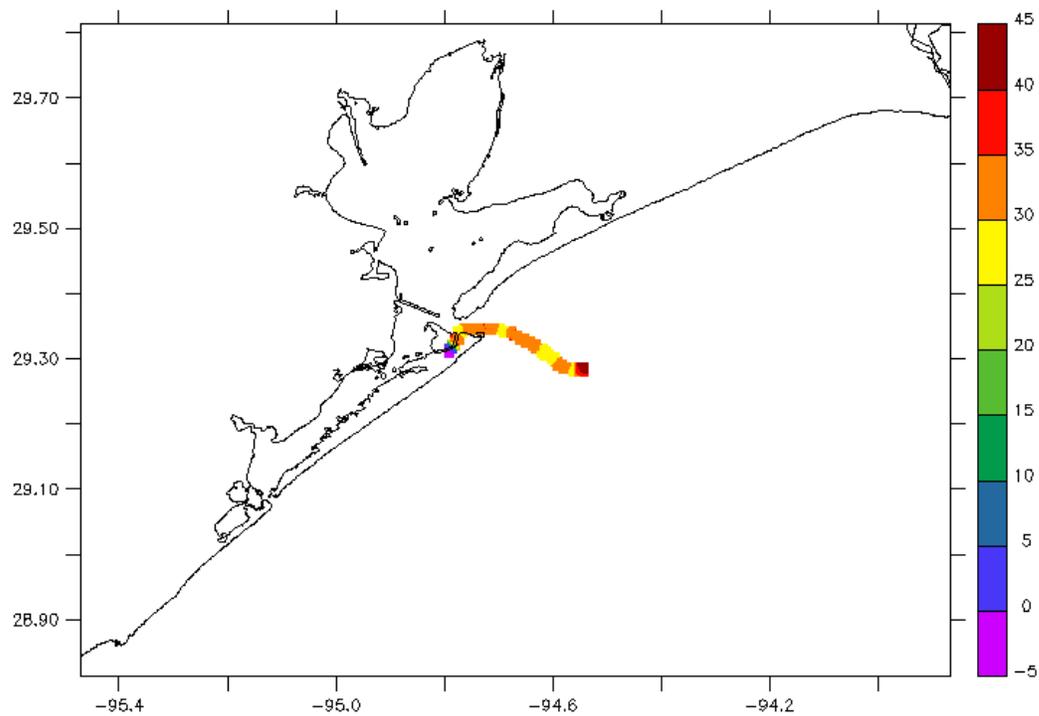
O3, ppb

DOY 230.25 to 231.25



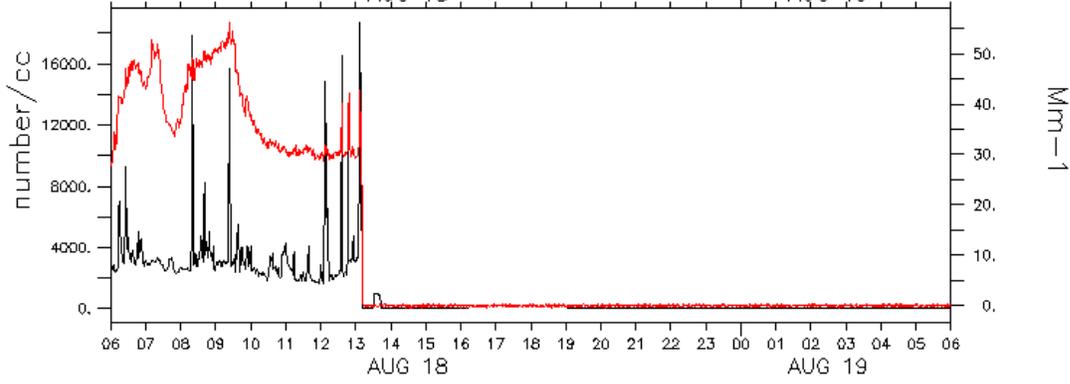
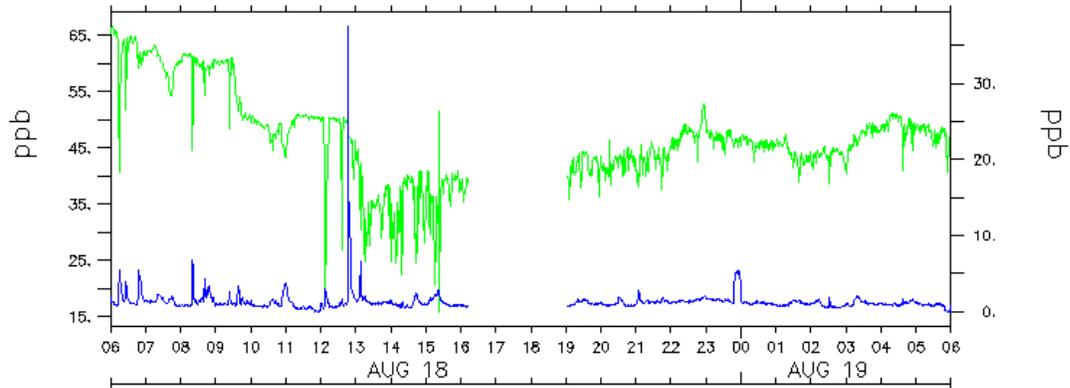
AerosolScatGreen, Mm-1

DOY 230.25 to 231.25



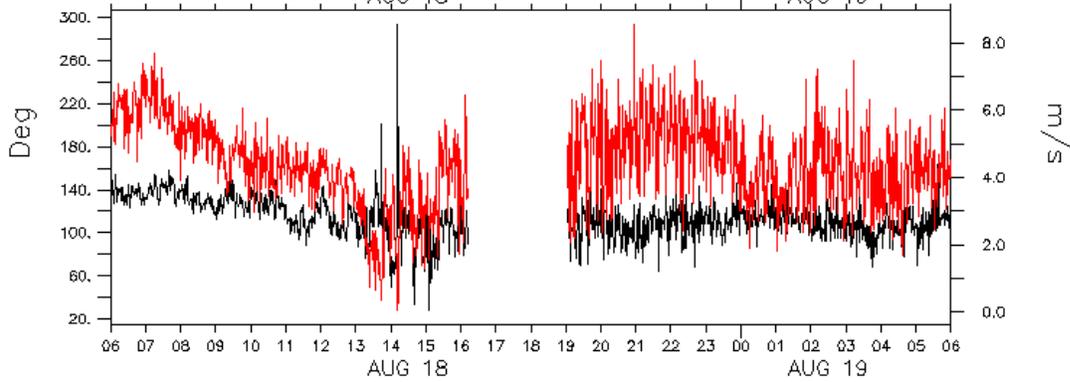
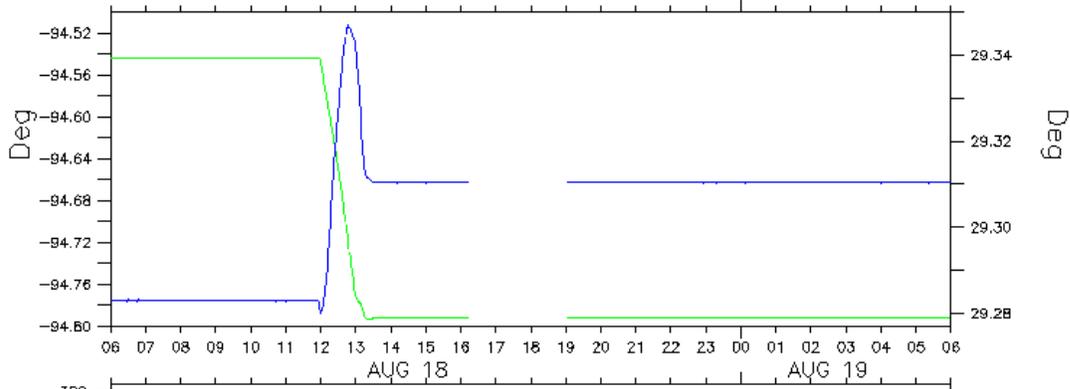
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat



19-20 August

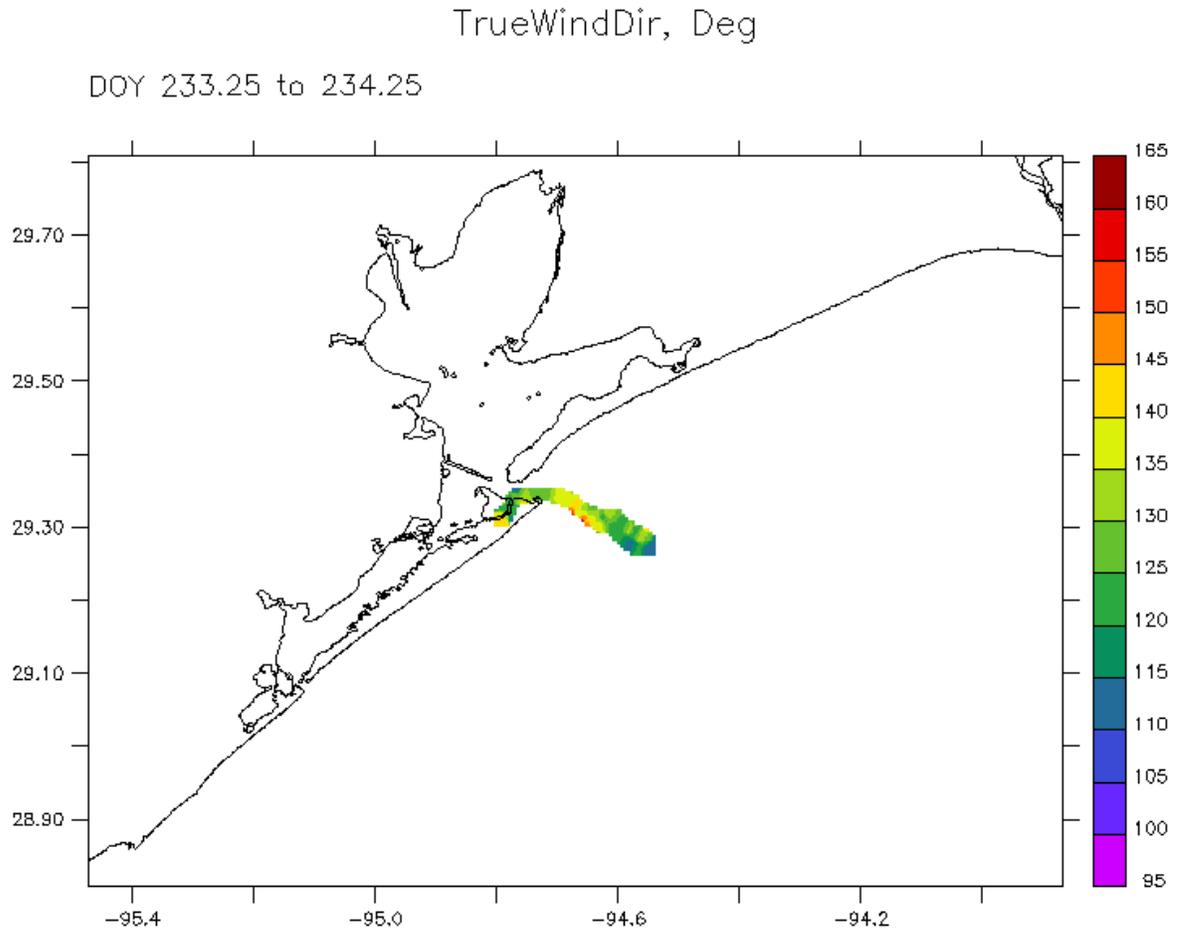
In port.

21 August

In port AM; Media cruise PM. Moderately high aerosol but low ozone observed in SE flow.

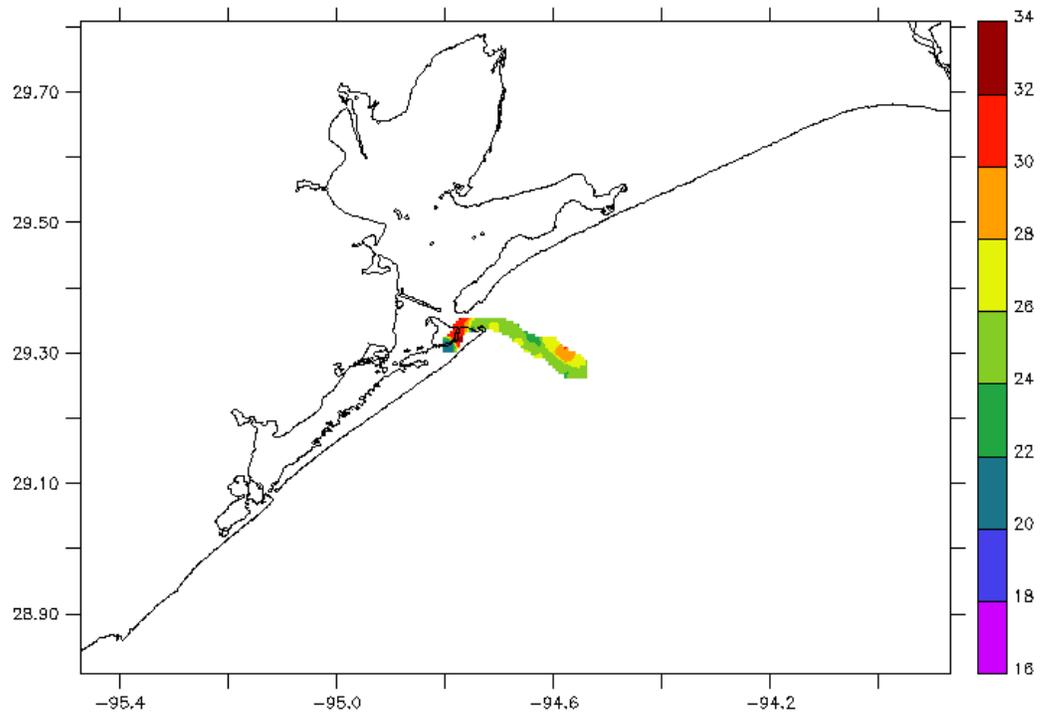
BL height

Trajectories for aerosol peak ~20-21Z



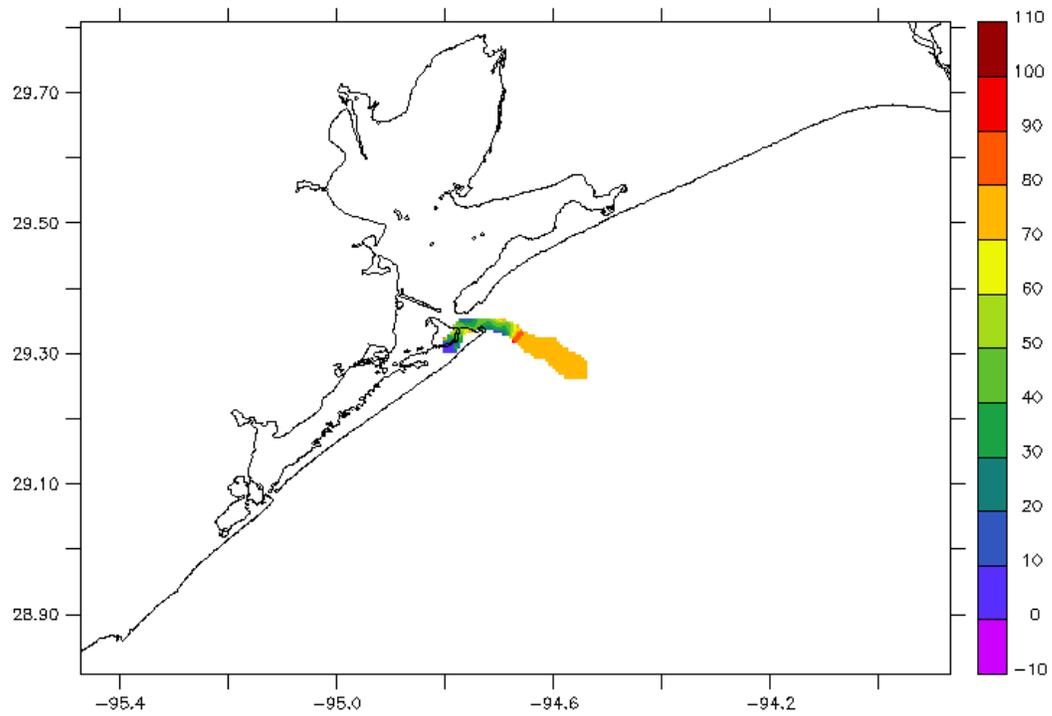
O3, ppb

DOY 233.25 to 234.25



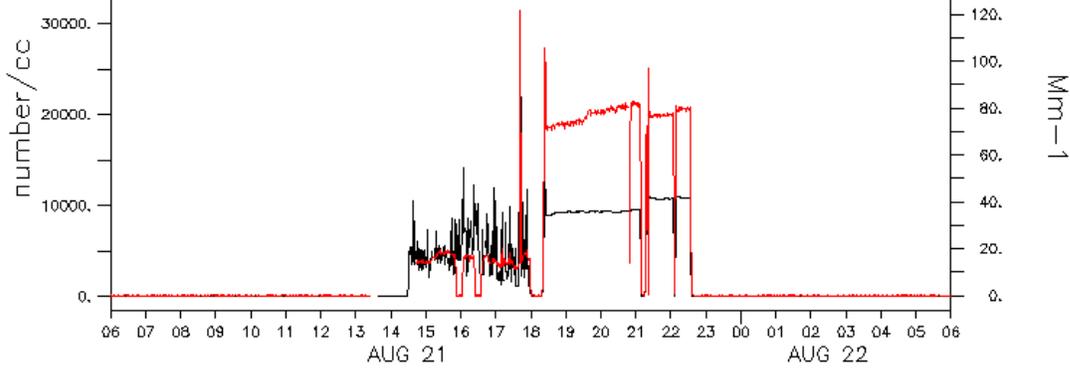
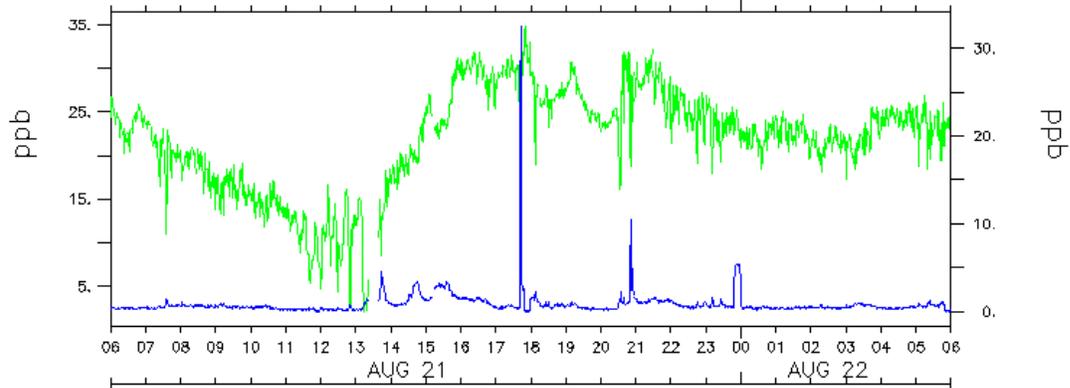
AerosolScatGreen, Mm-1

DOY 233.25 to 234.25



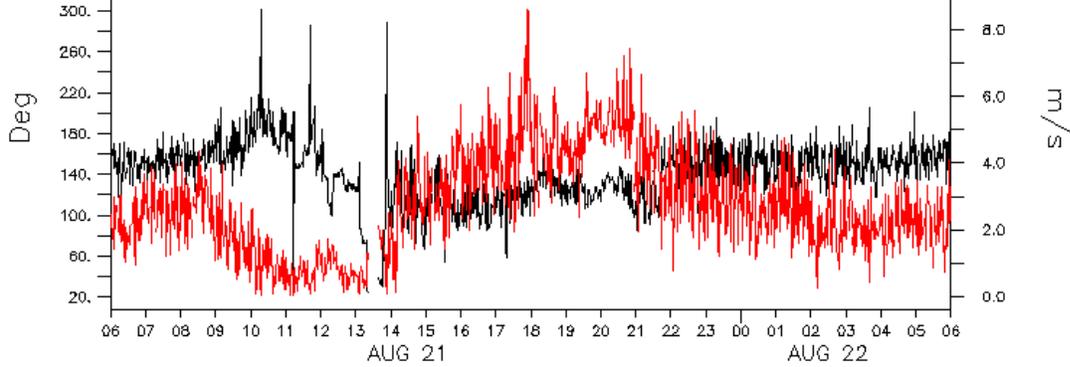
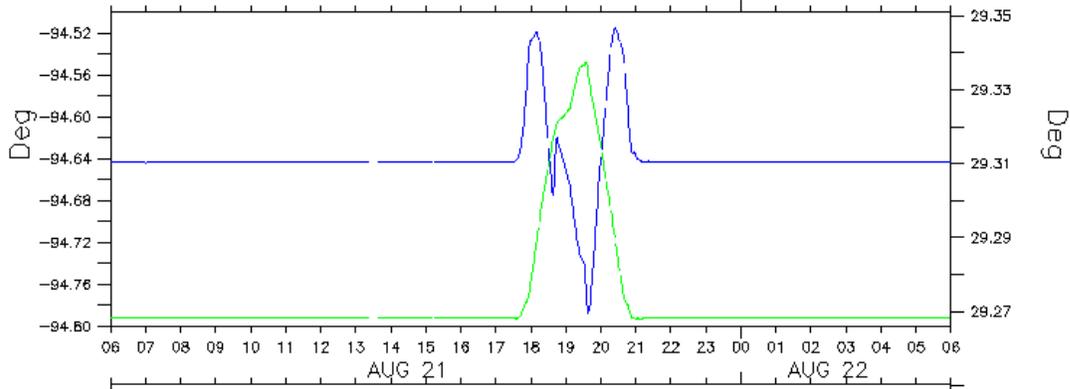
CN
O3

AerosolScatGreen
SD2

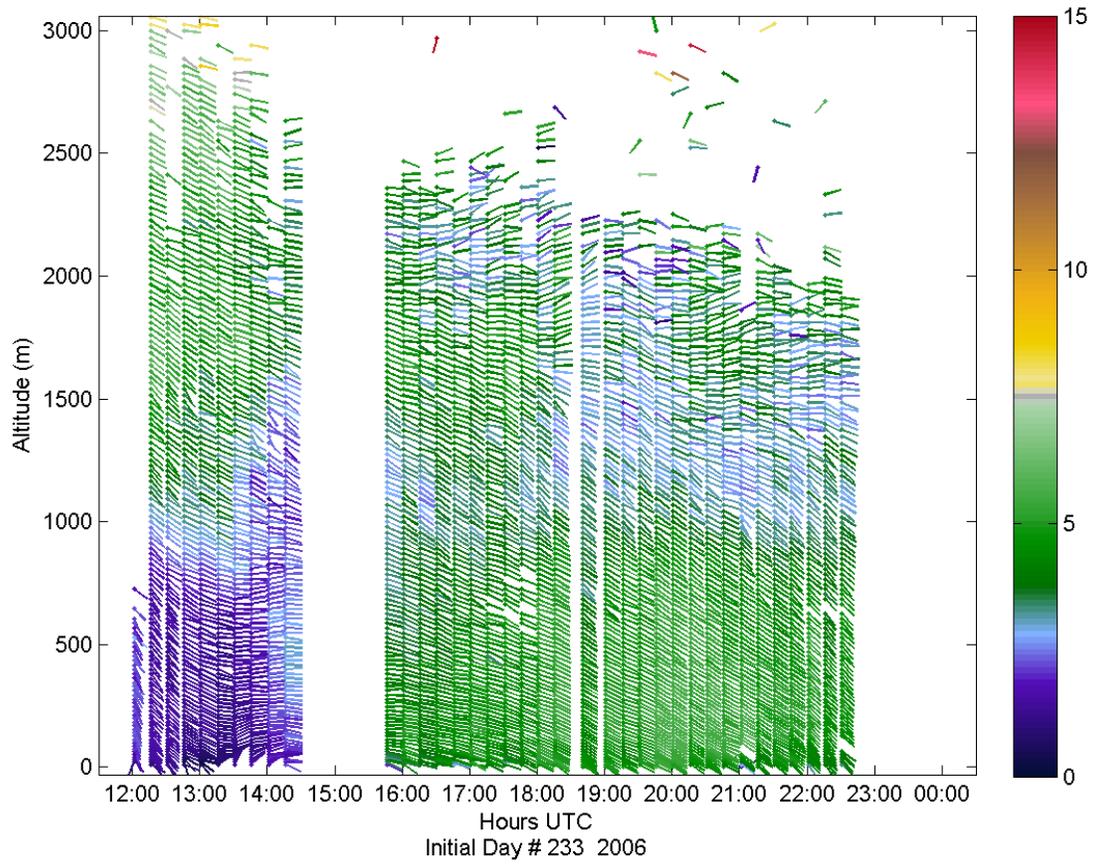


TrueWindDir
DLon

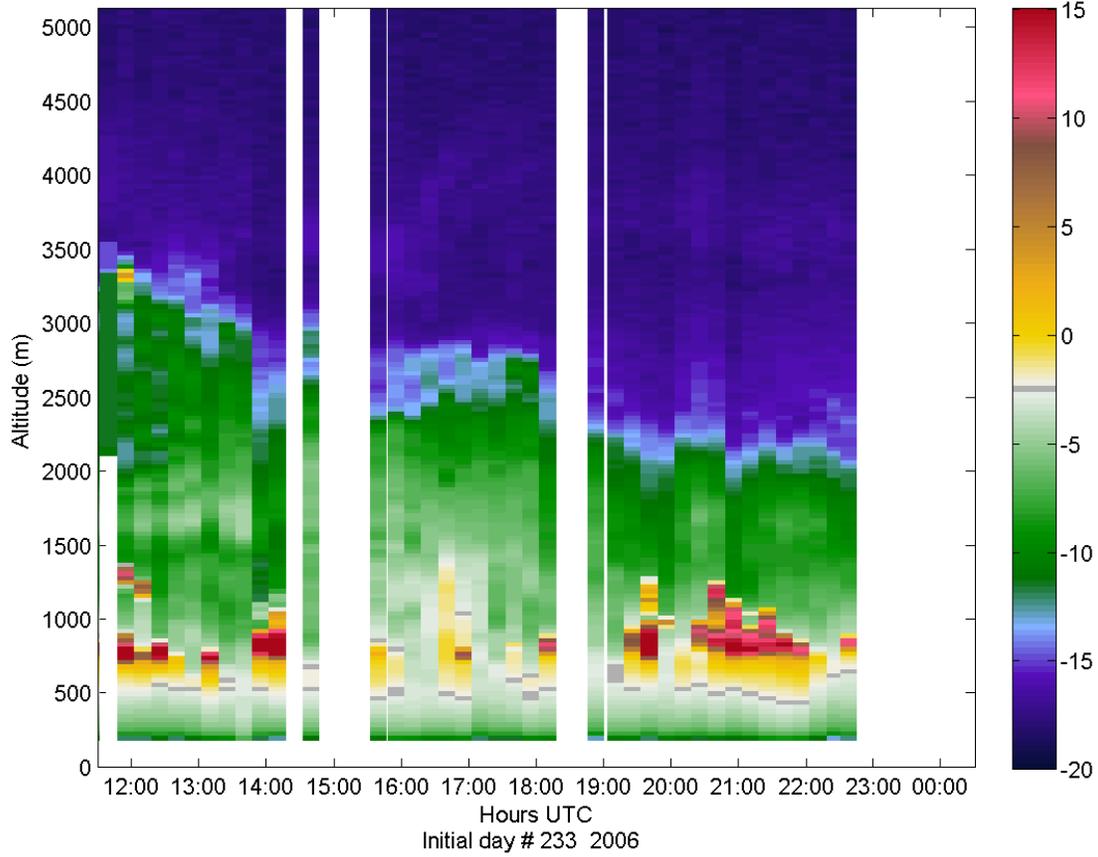
TrueWindSp
DLat



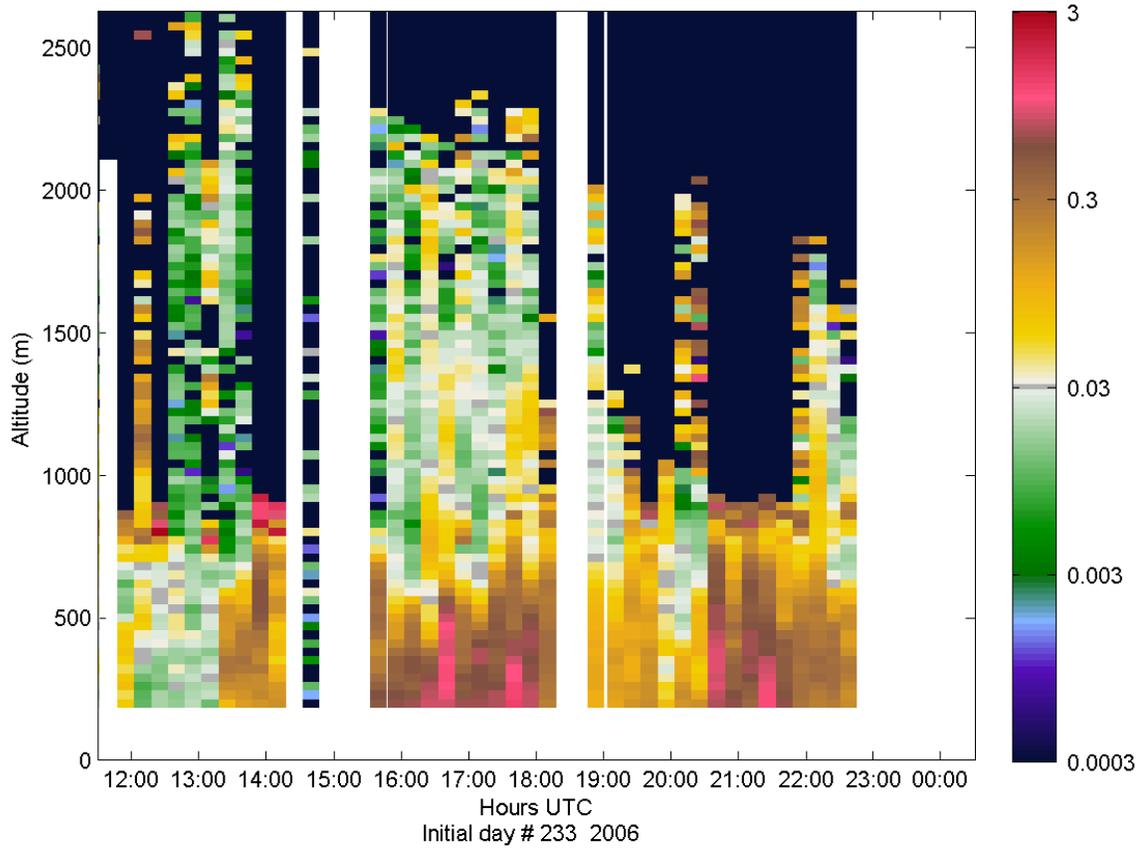
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 08/21/06 to 00:00 08/22/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 08/21/06 to 00:00 08/22/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 08/21/06 to 00:00 08/22/06



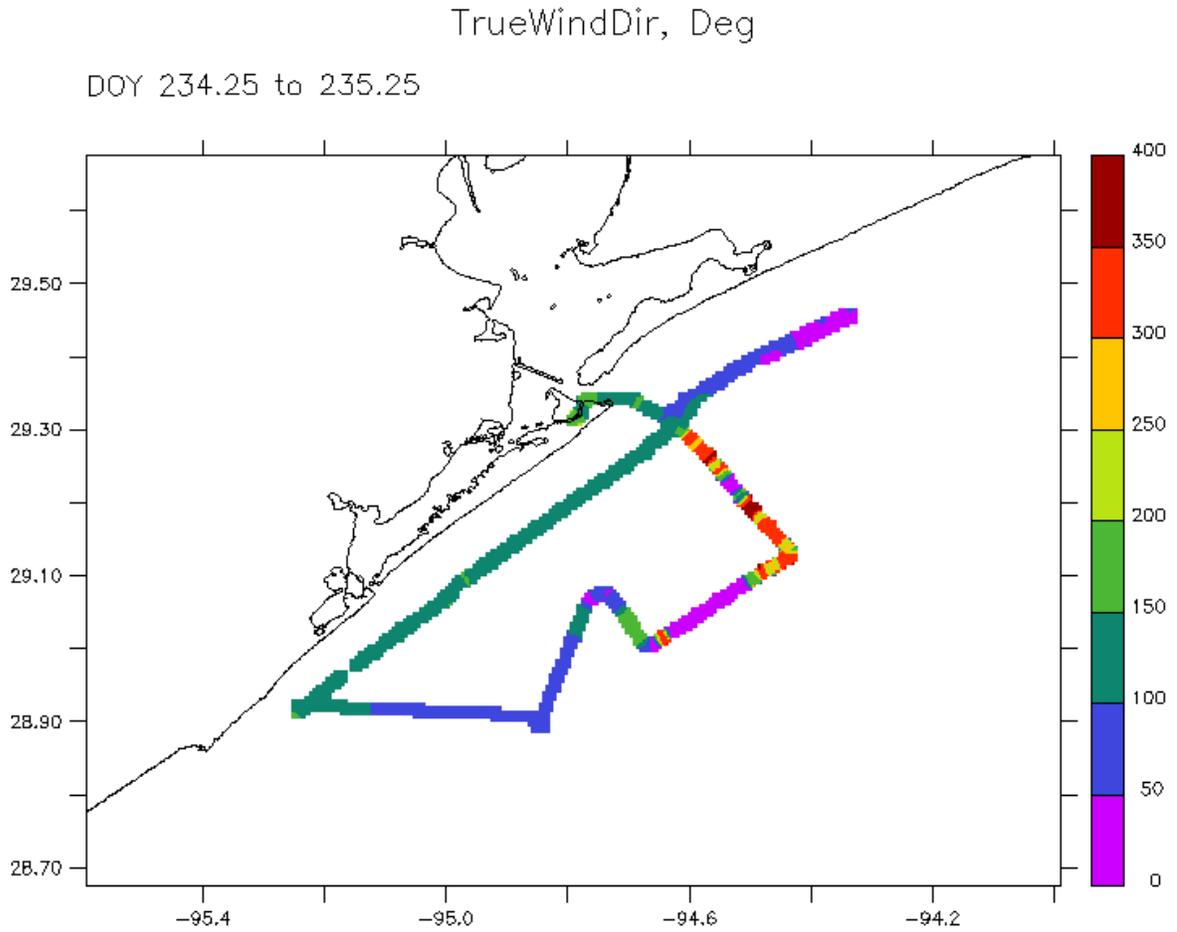
22 August

RHB patrolling in the Gulf between Freeport and east of Galveston. Moderately high aerosol with only moderate ozone observed at east end of track in the afternoon, with NE flow.

Flux?

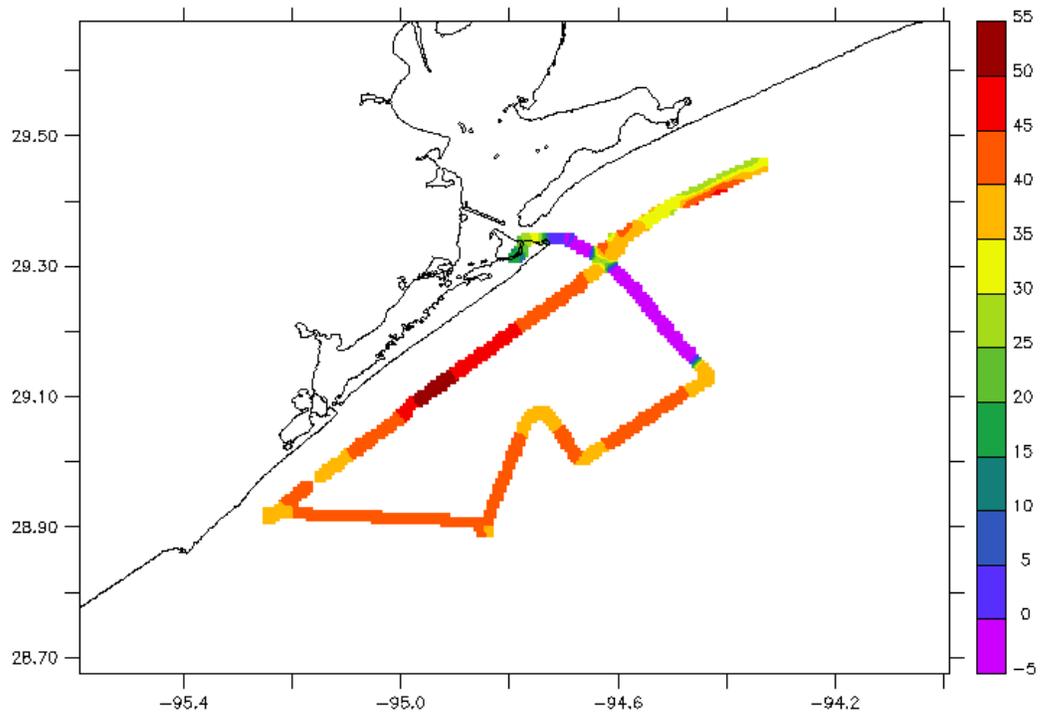
BL height

Trajectories for aerosol peak ~04Z 23rd



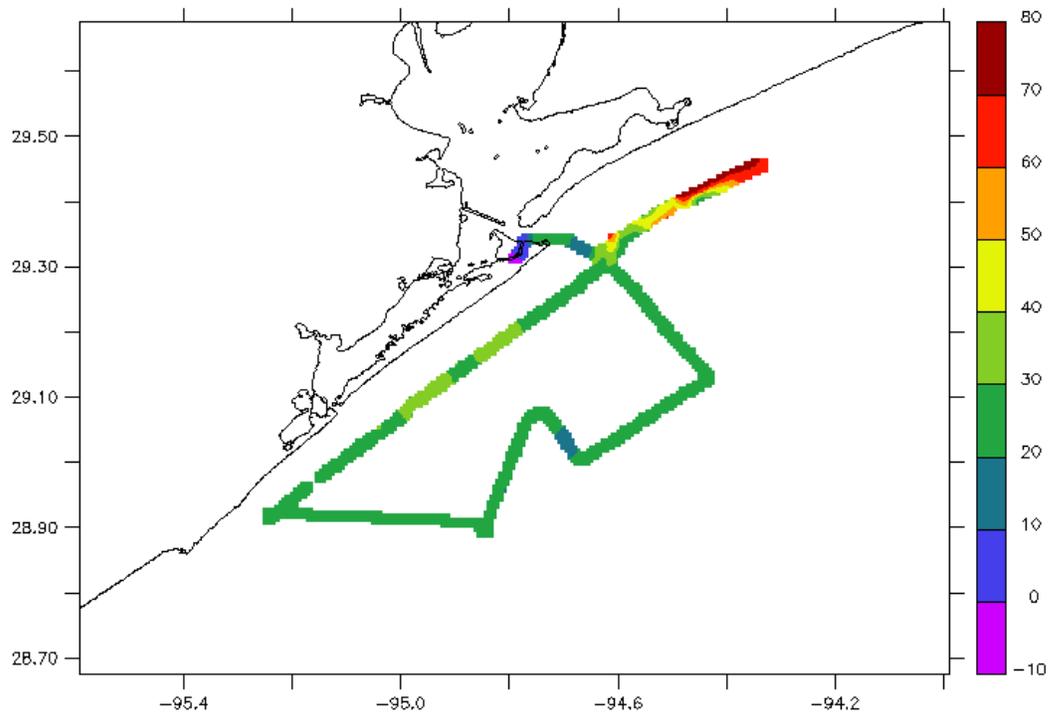
O3, ppb

DOY 234.25 to 235.25



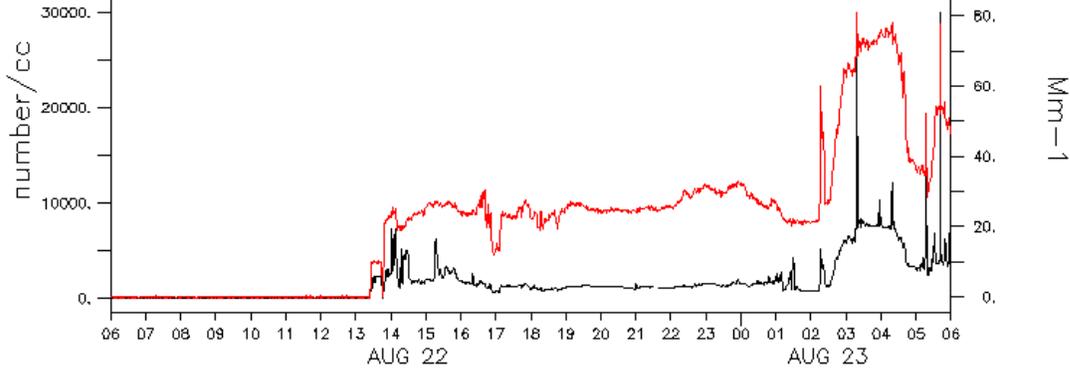
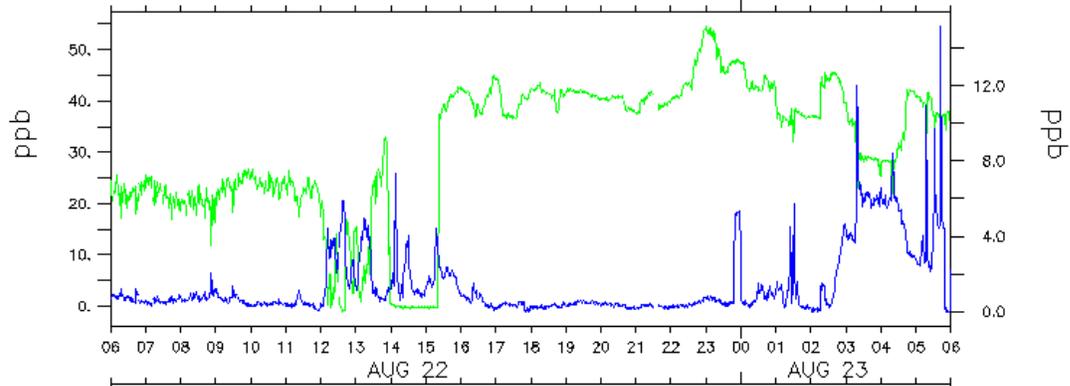
AerosolScatGreen, Mm-1

DOY 234.25 to 235.25



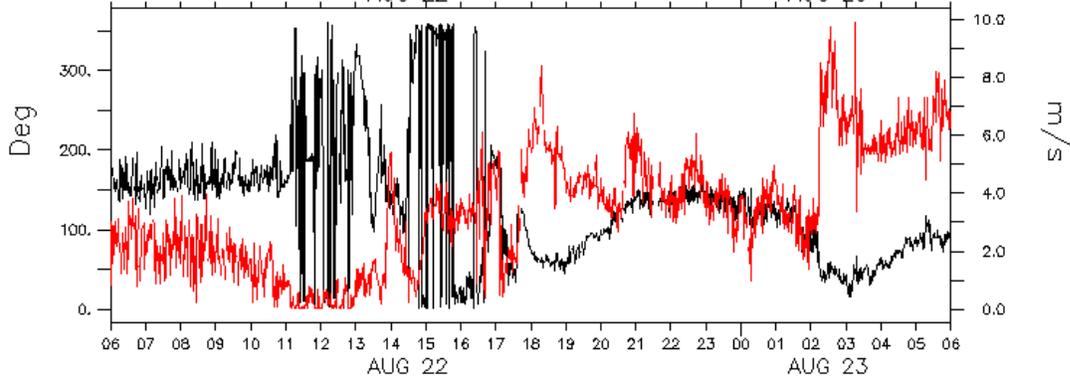
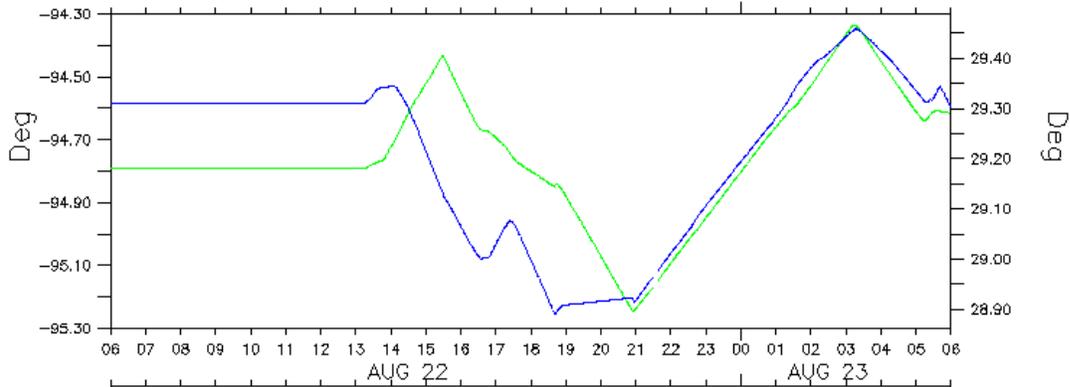
CN
O3

AerosolScatGreen
SO2

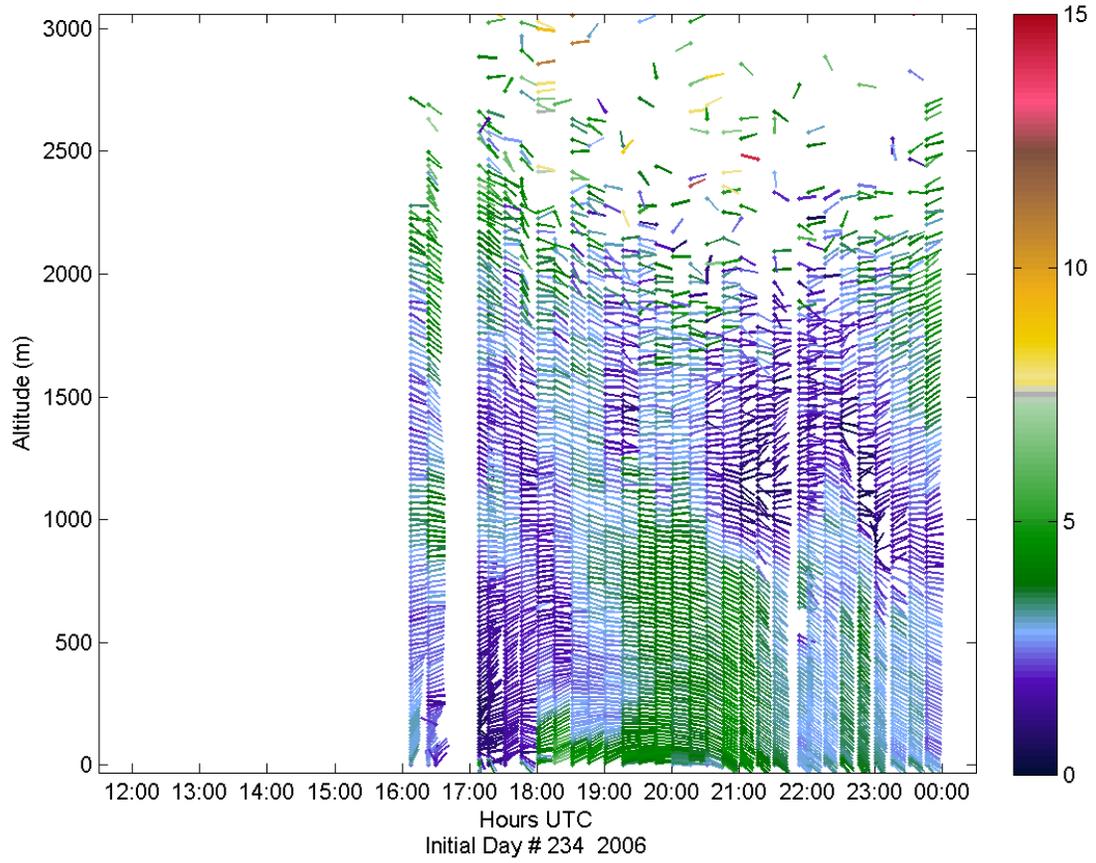


TrueWindDir
DLon

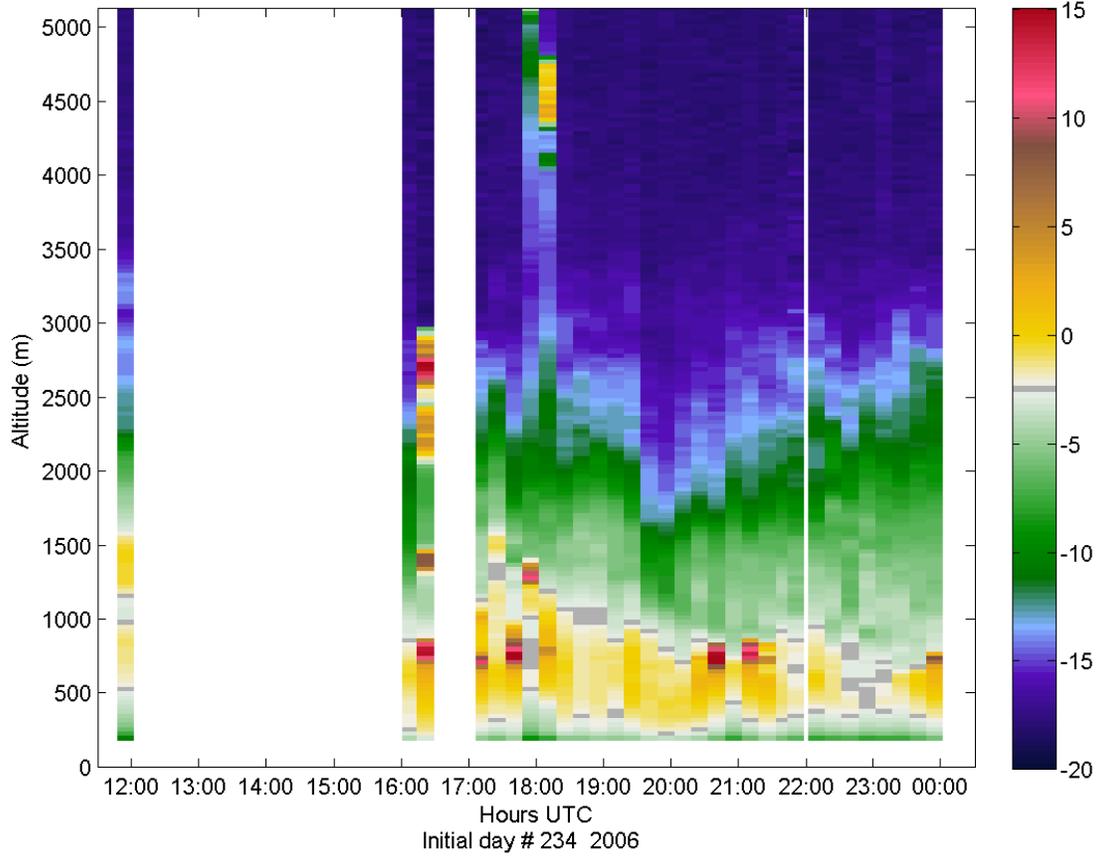
TrueWindSp
DLat



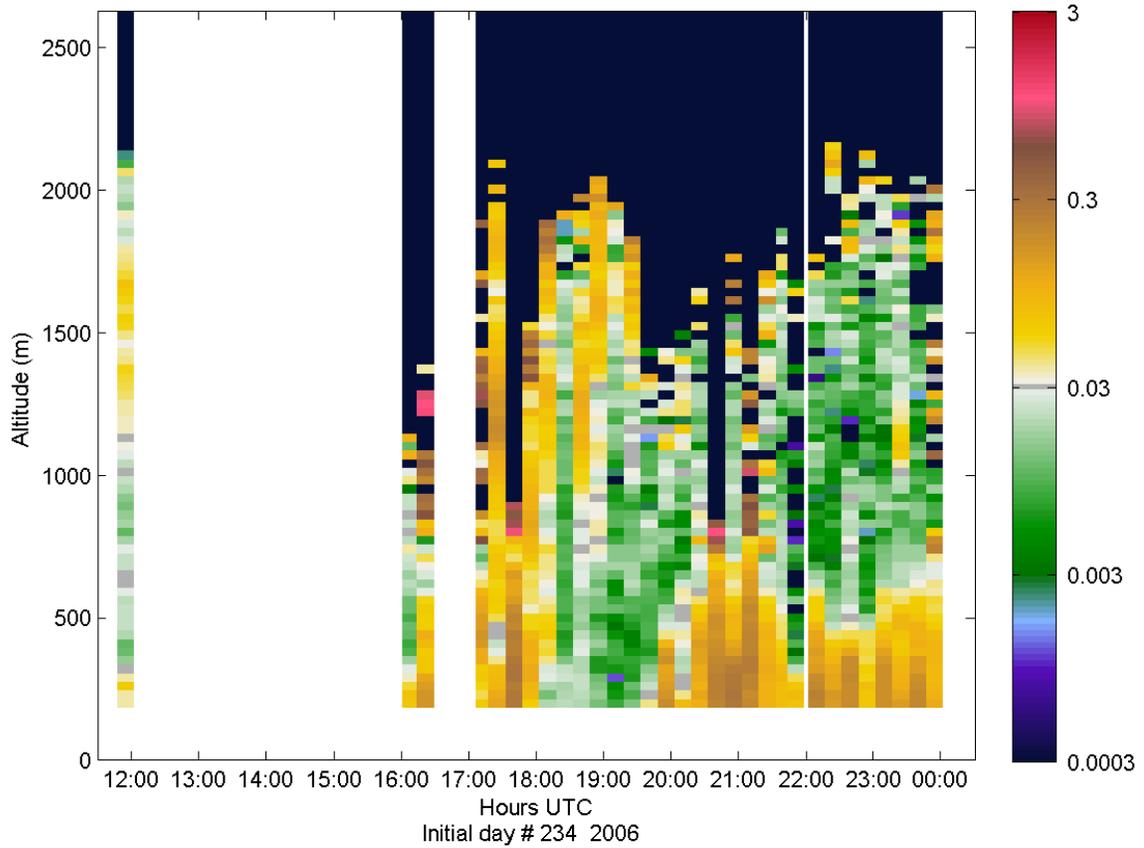
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 08/22/06 to 00:00 08/23/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 08/22/06 to 00:00 08/23/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 08/22/06 to 00:00 08/23/06

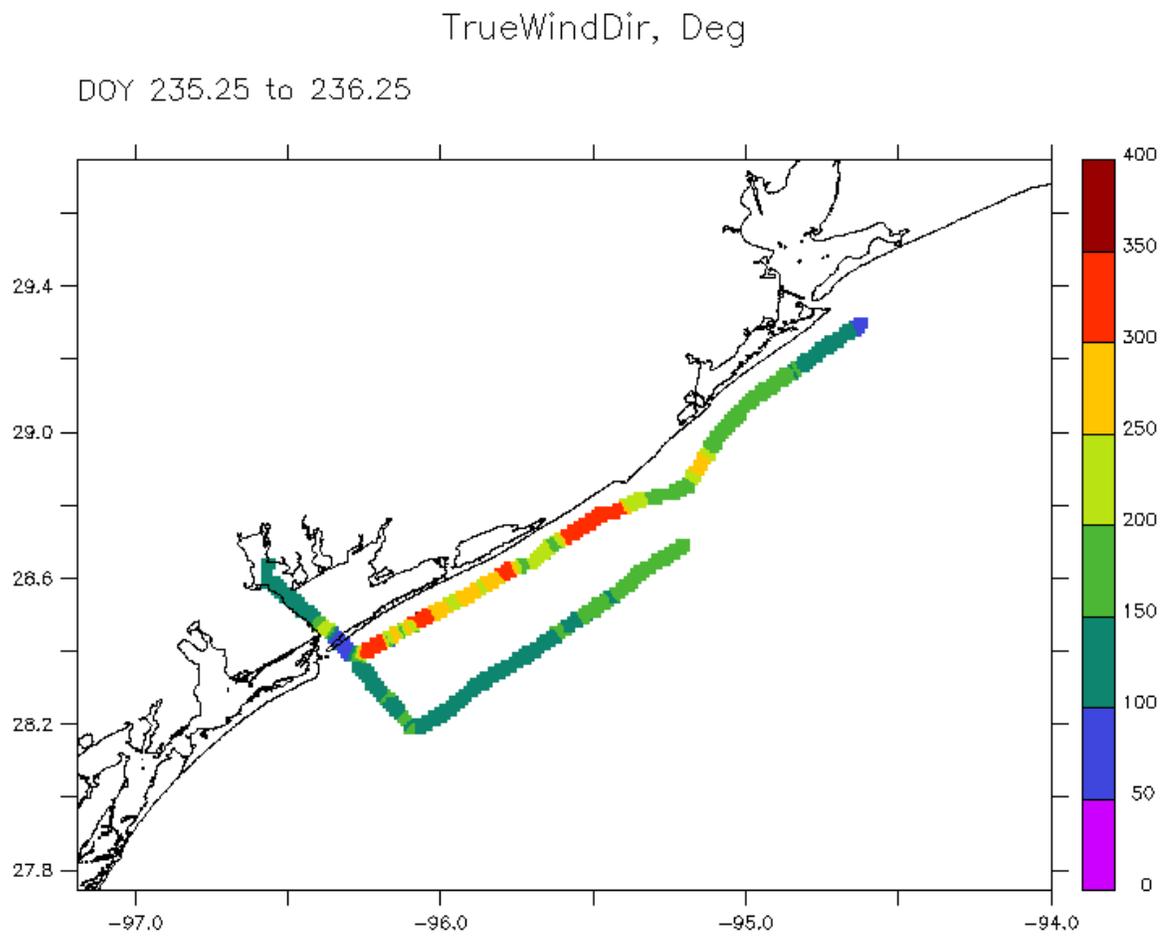


23 August

Cruised along coast and into Matagorda.

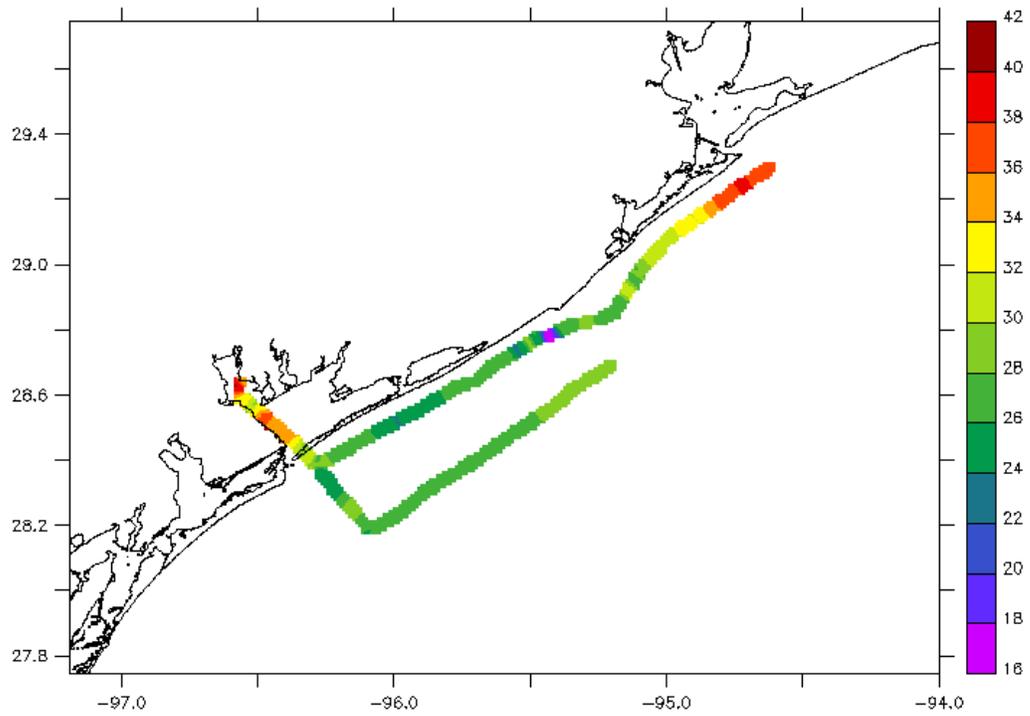
Flux?

BL height



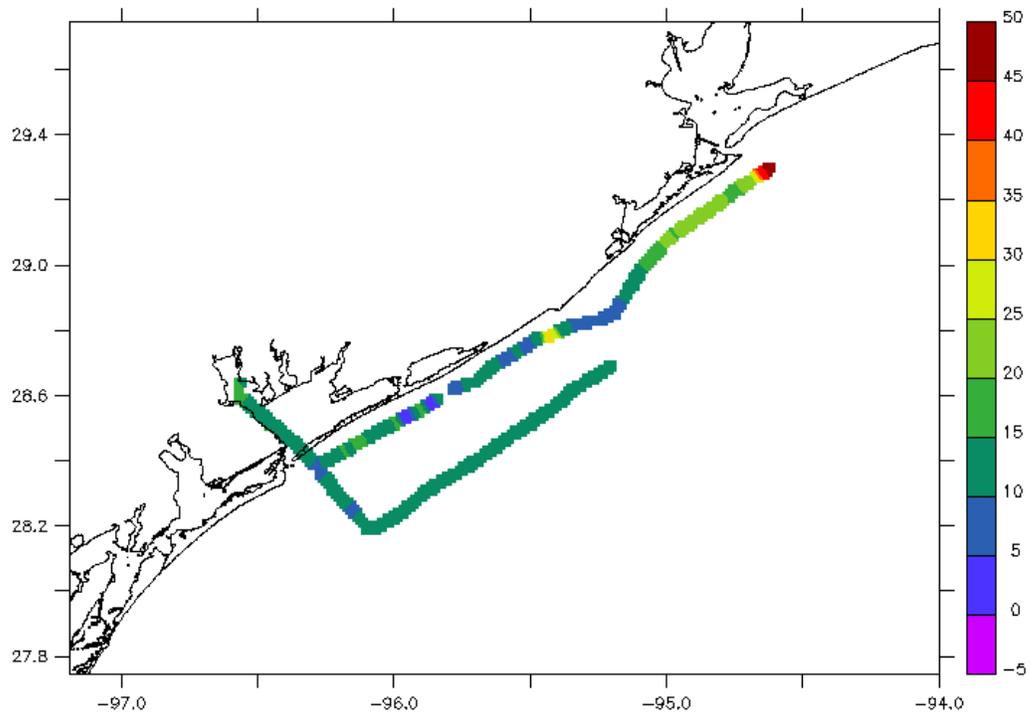
O3, ppb

DOY 235.25 to 236.25



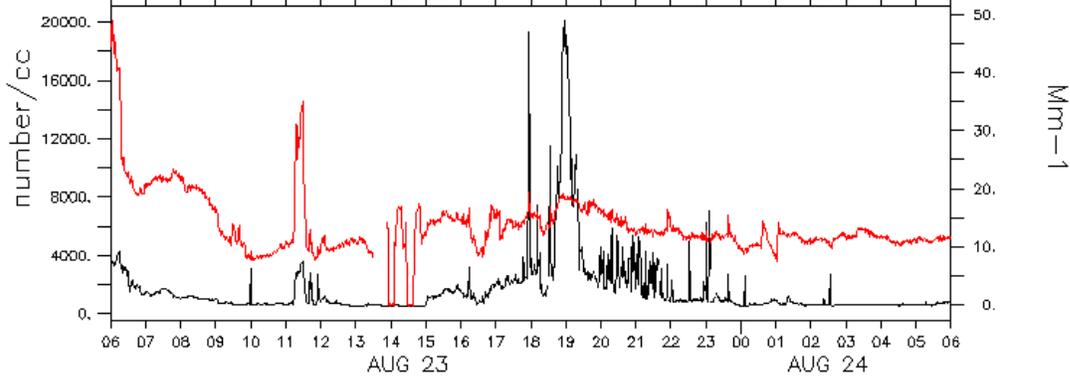
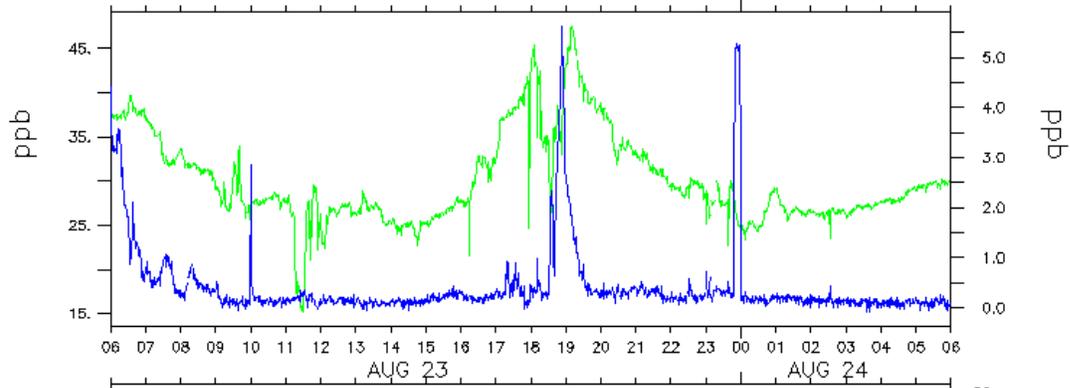
AerosolScatGreen, Mm-1

DOY 235.25 to 236.25



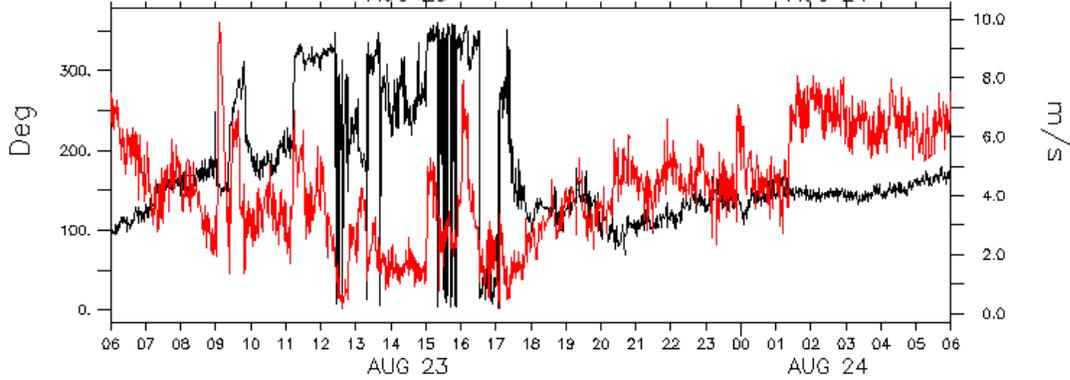
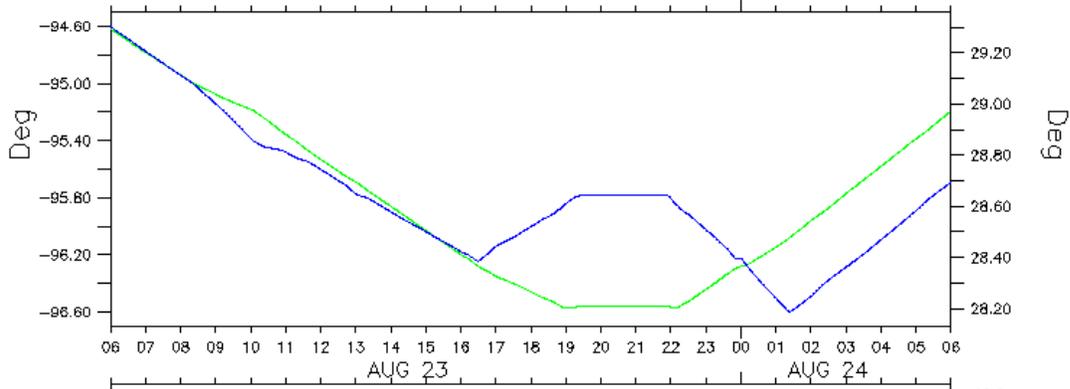
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

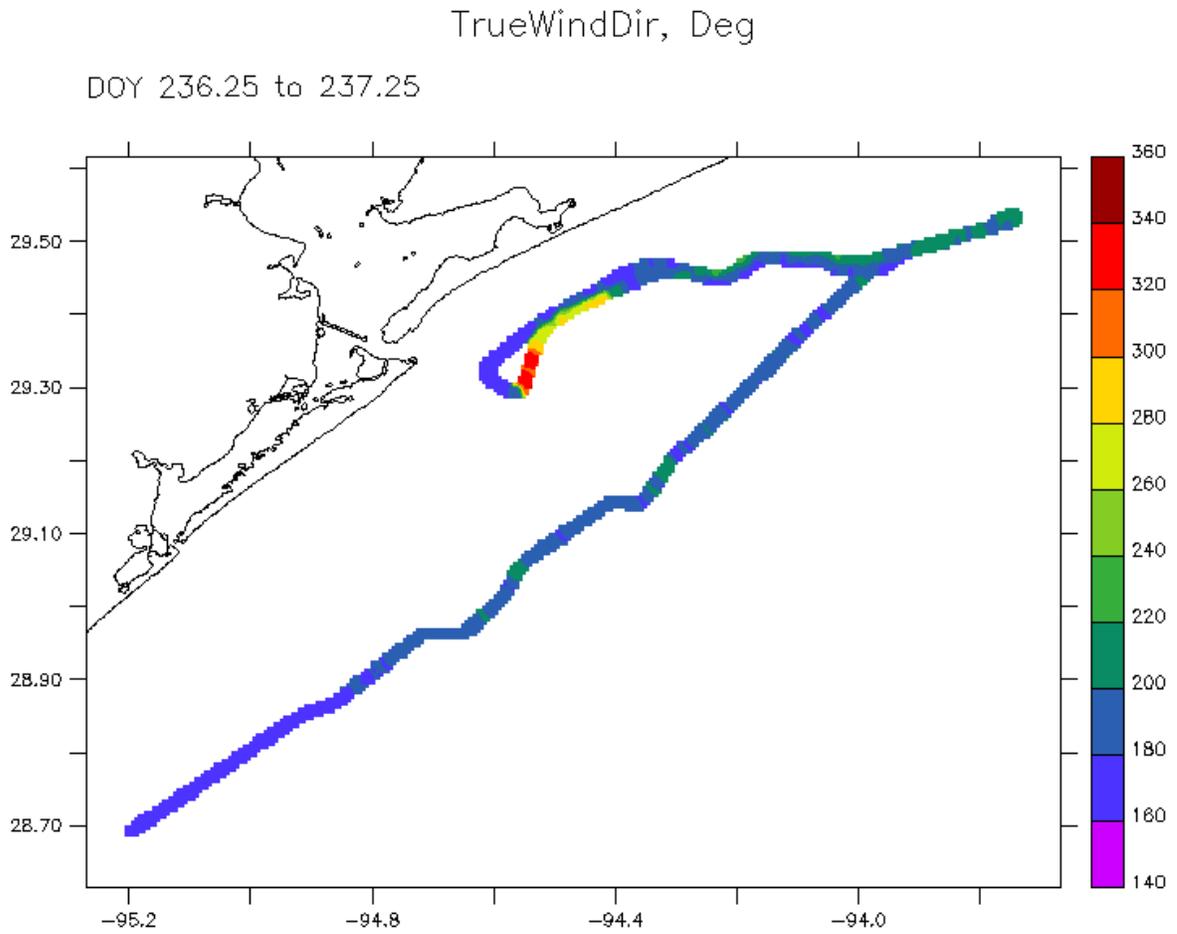


24 August

Along coast between Matagorda and Port Arthur. Relatively clean.

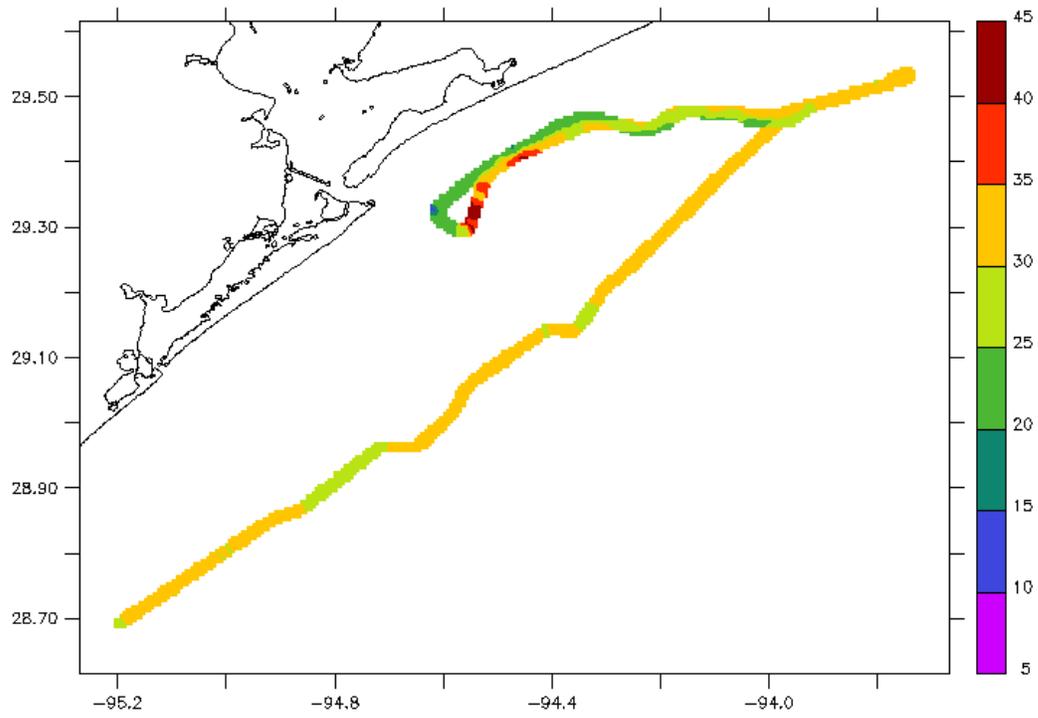
Flux on westbound leg?

BL height



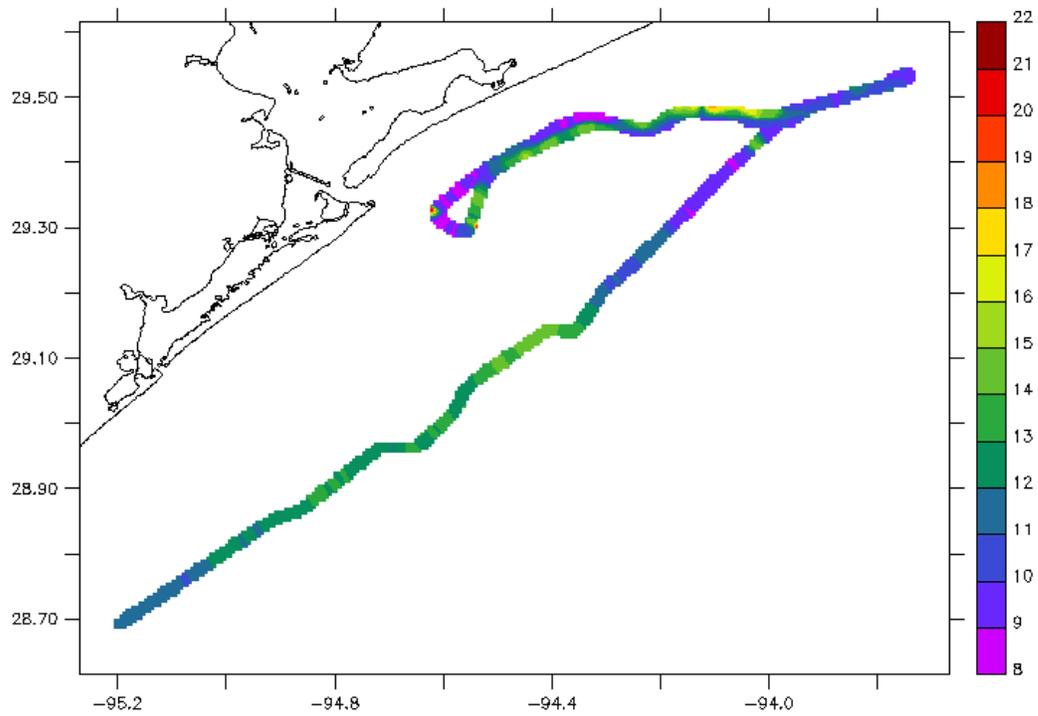
O3, ppb

DOY 236.25 to 237.25



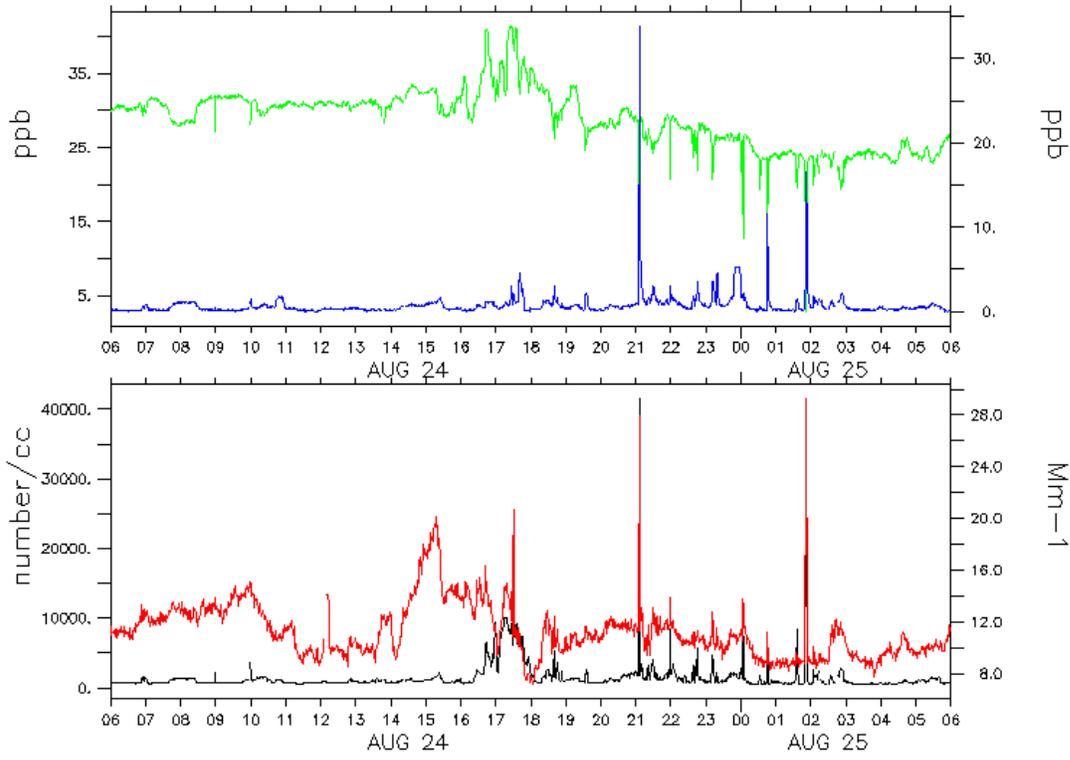
AerosolScatGreen, Mm-1

DOY 236.25 to 237.25



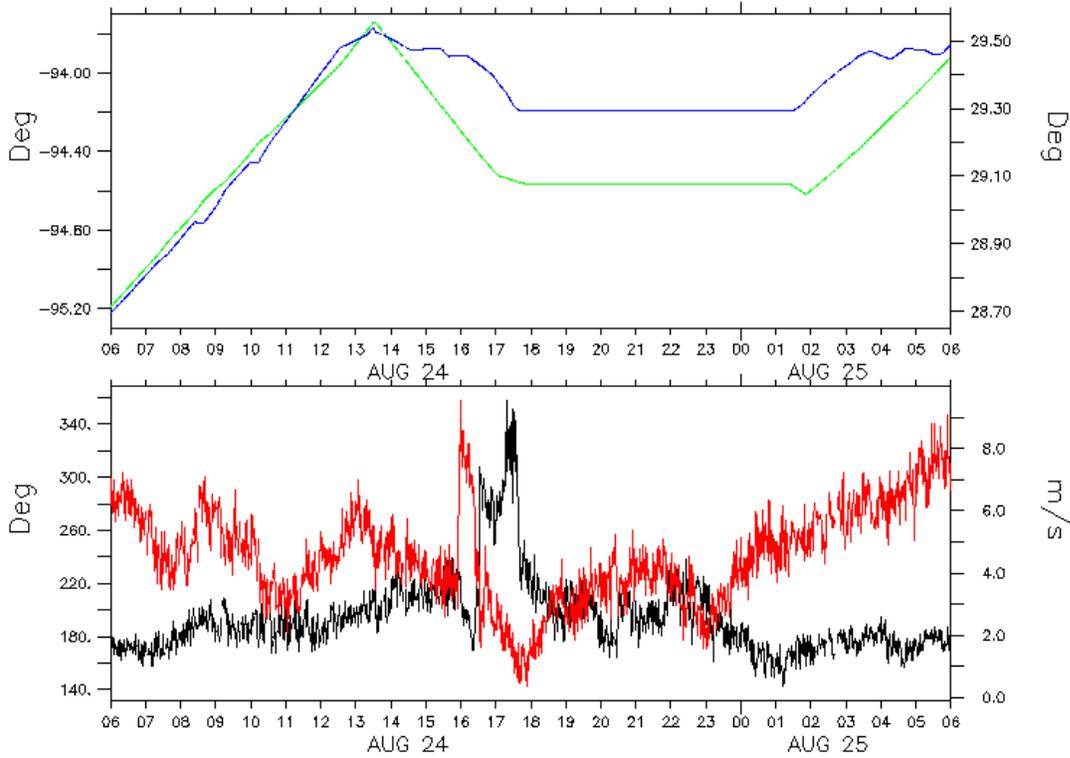
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

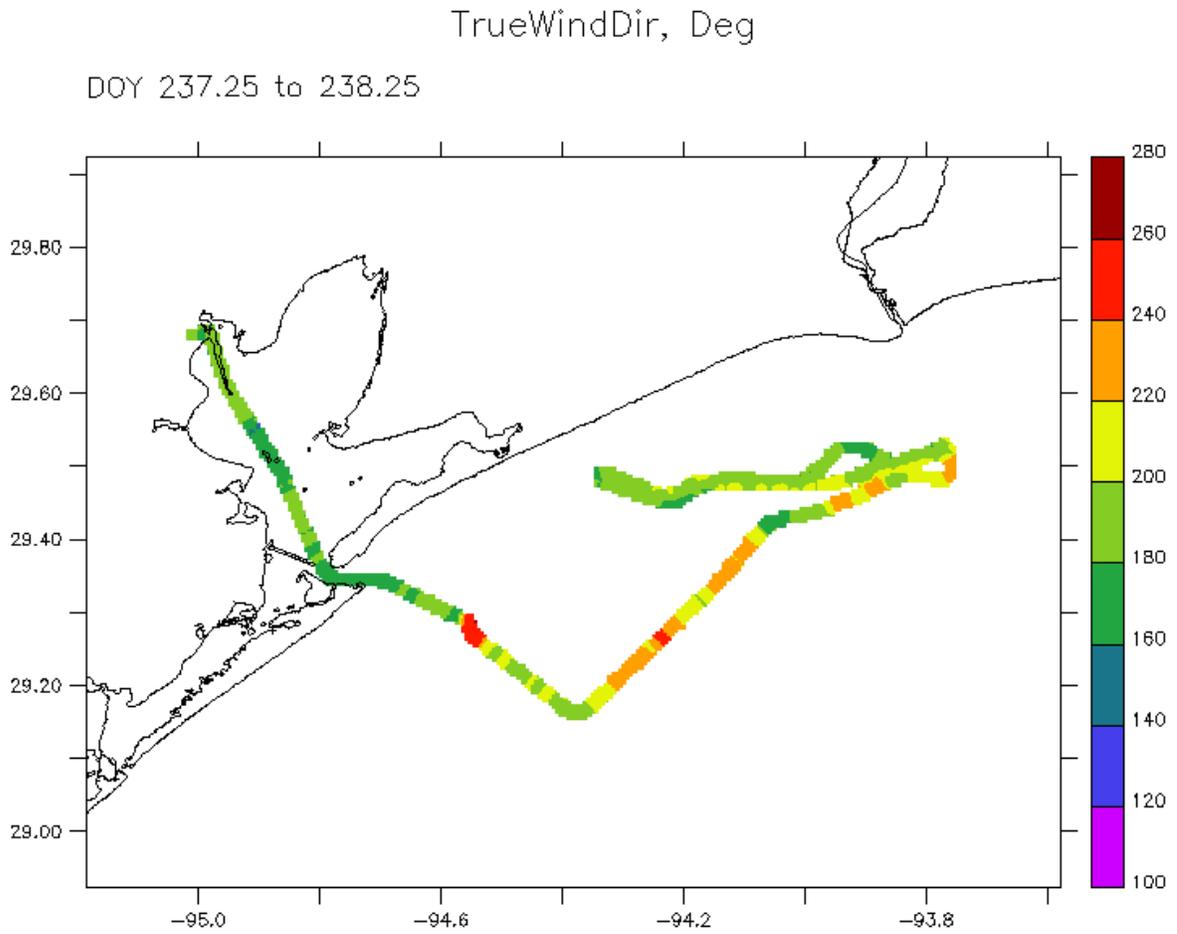
TrueWindSp
DLat



25 August

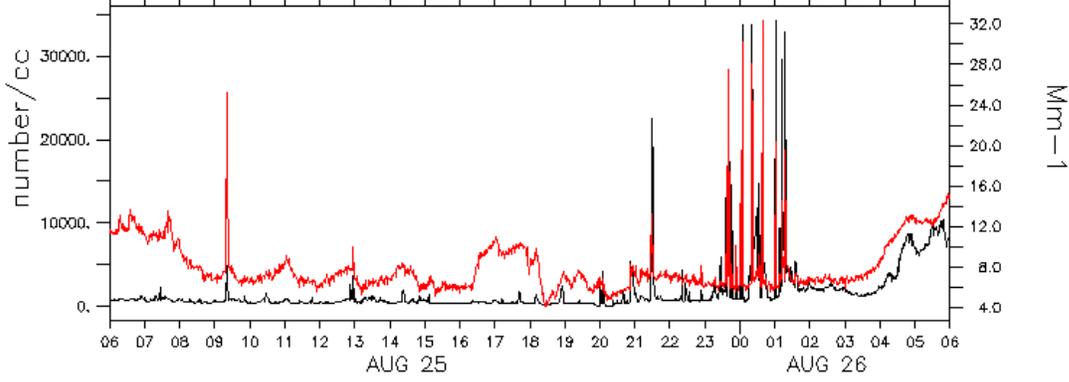
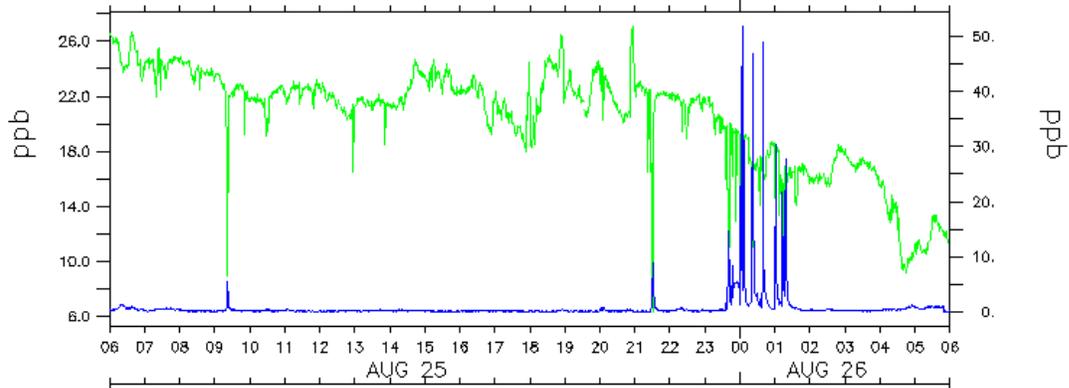
Along coast between Port Arthur and High Island, then up to Barbour's Cut. Clean.

Flux in Gulf
BL height



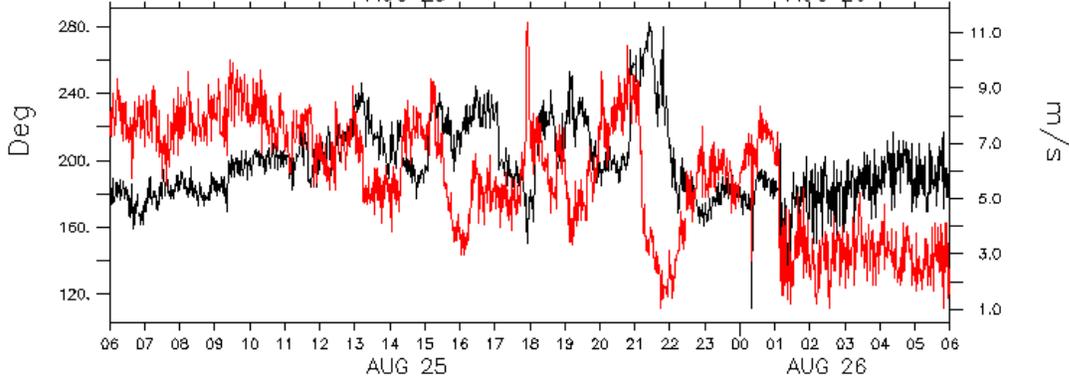
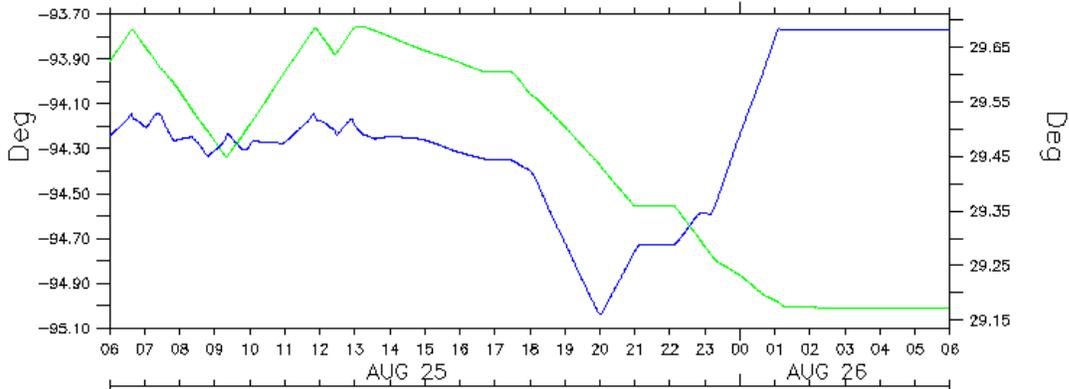
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat



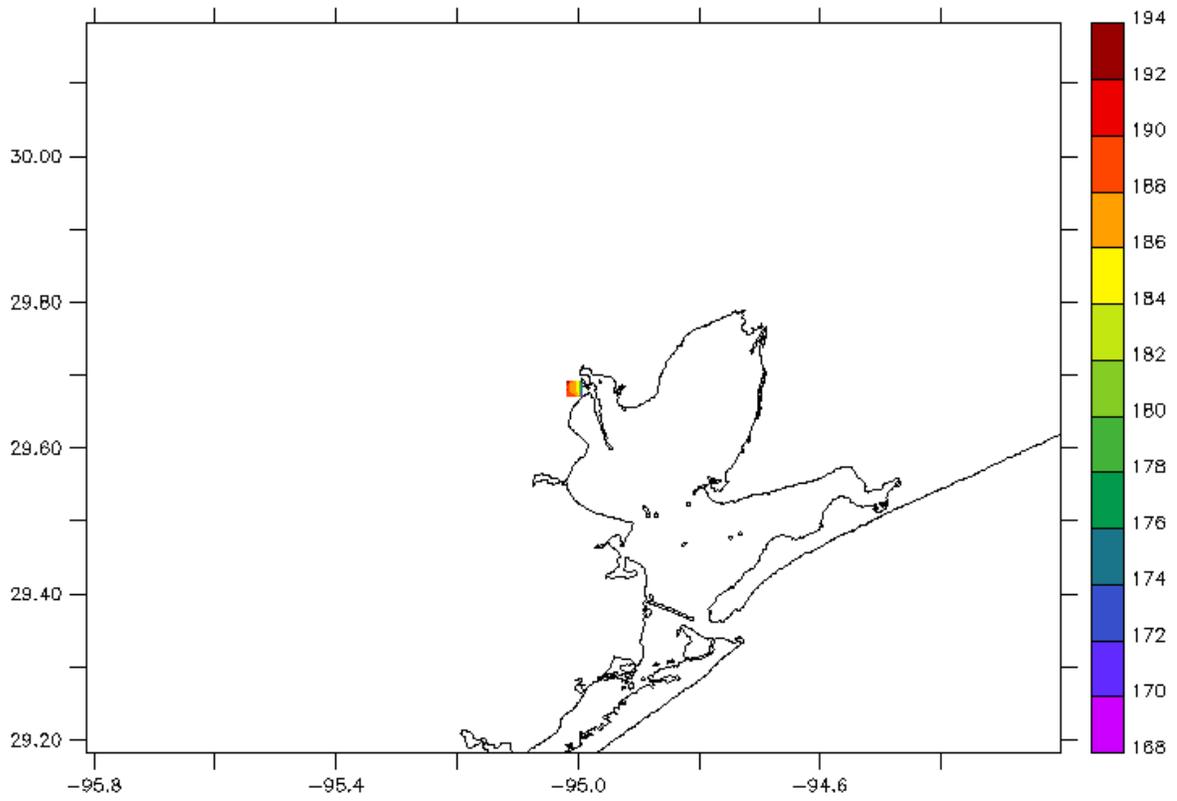
26 August

In Barbour's Cut.

BL height

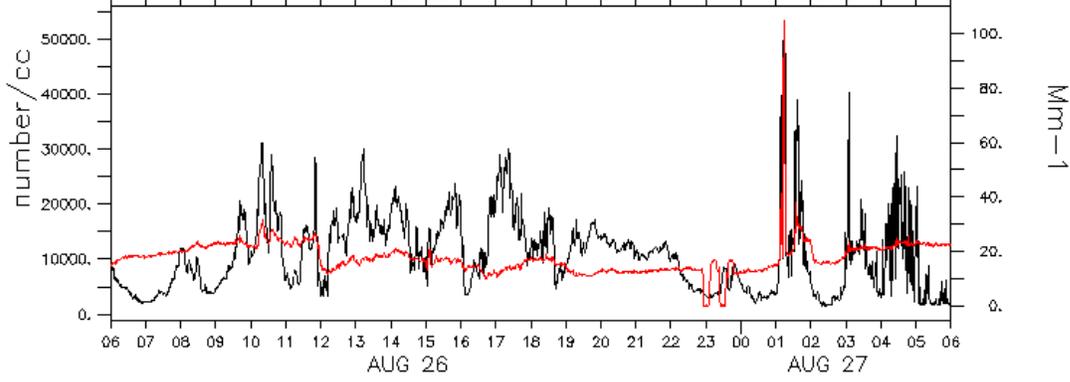
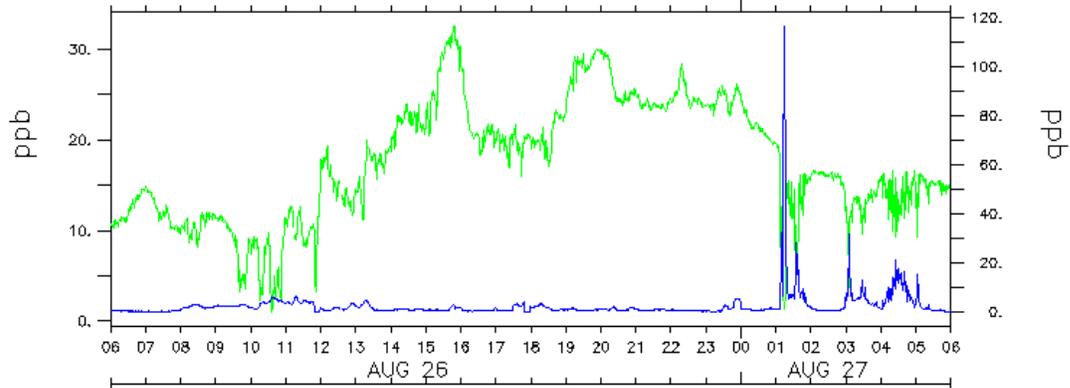
TrueWindDir, Deg

DOY 238.25 to 239.25



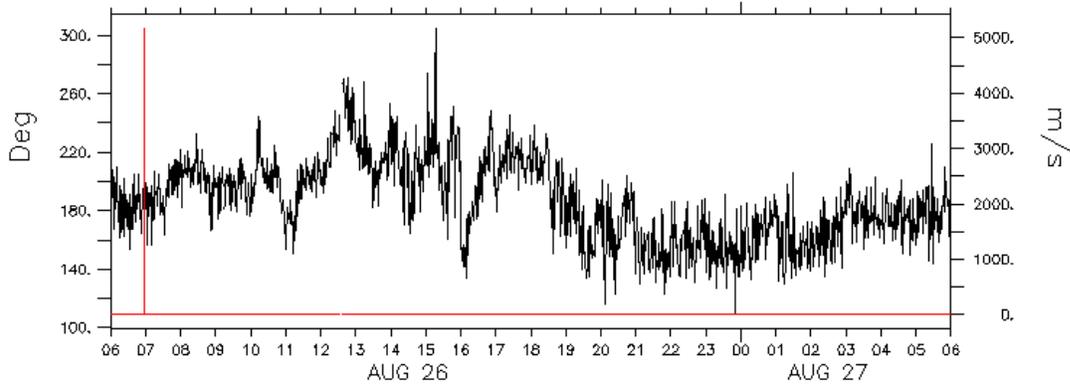
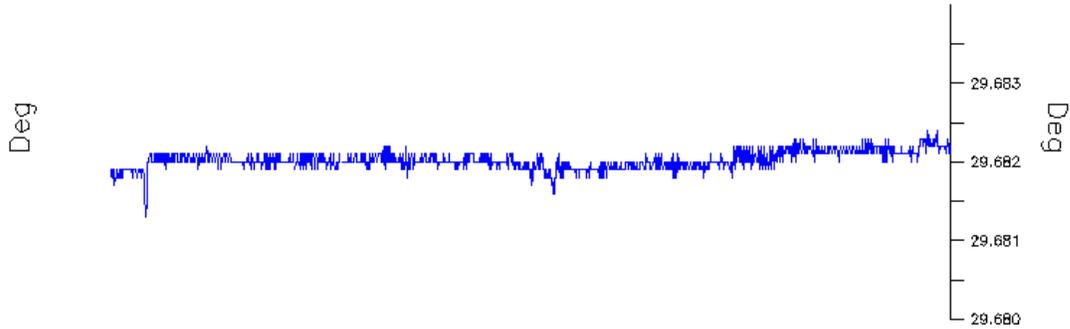
CN
O3

AerosolScatGreen
SO2



TrueWindDir
DLon

TrueWindSp
DLat



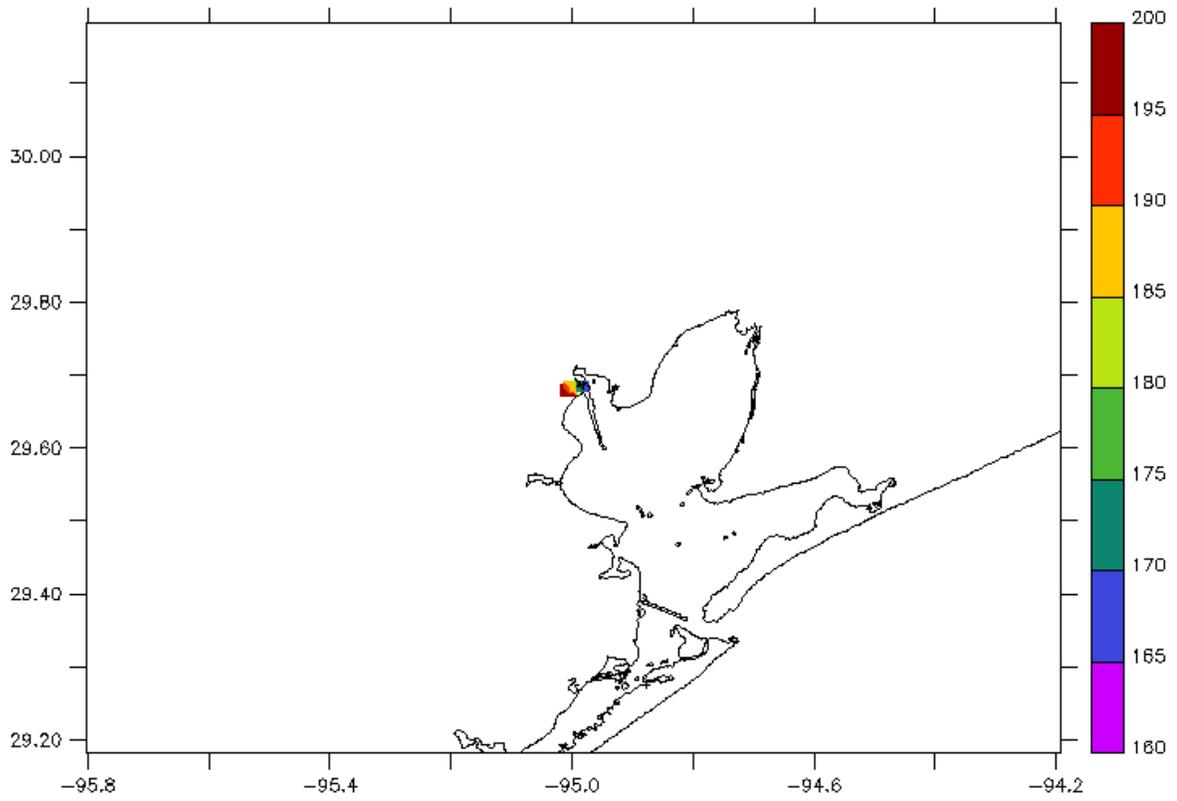
27 August

In Barbour's Cut.

BL height

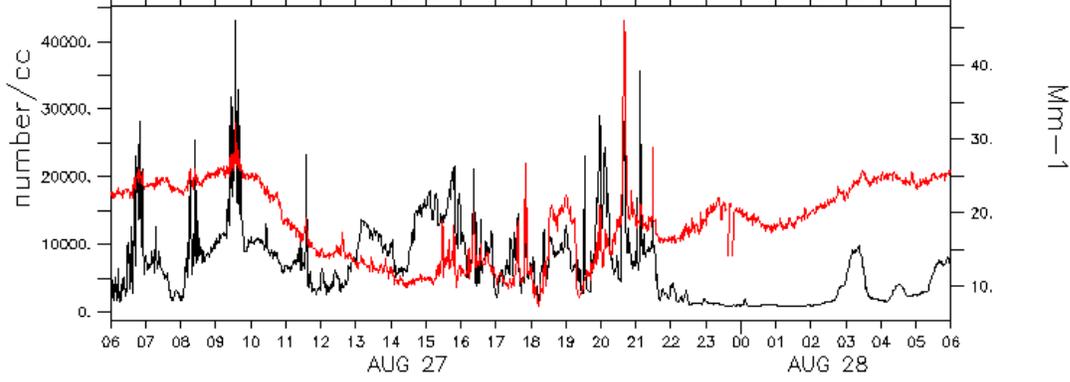
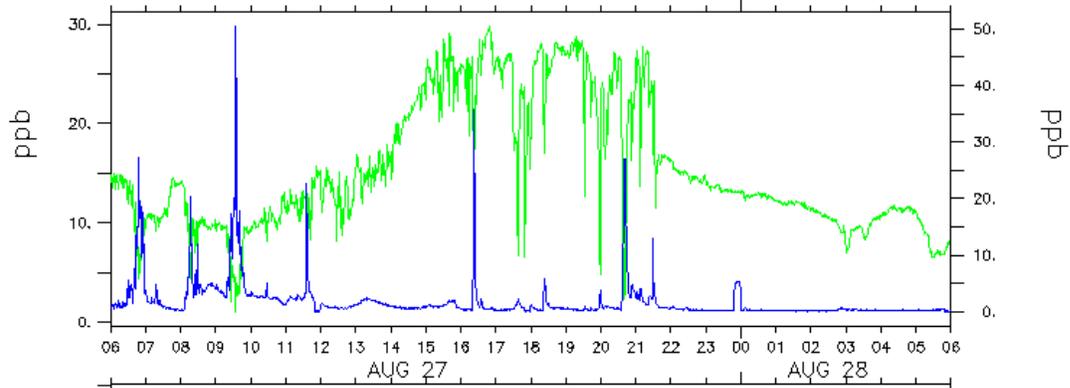
TrueWindDir, Deg

DOY 239.25 to 240.25



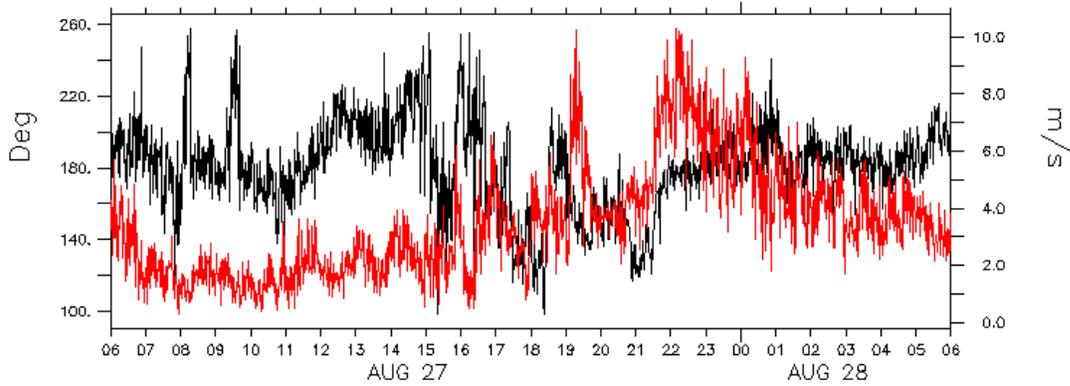
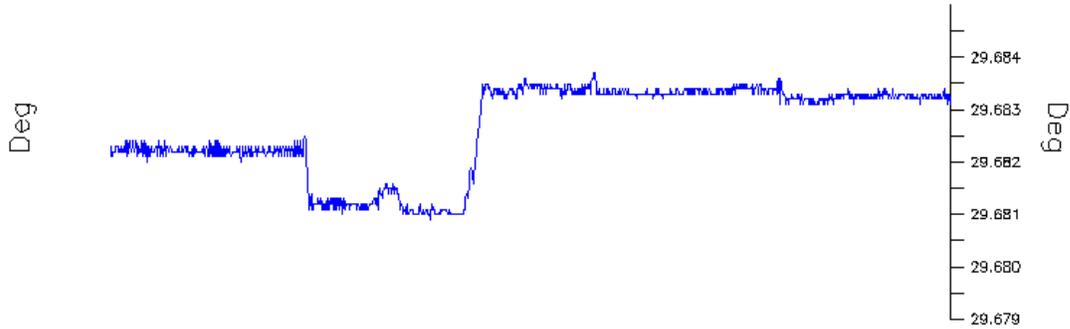
CN
O3

AerosolScatGreen
SO2



TrueWindDir
DLon

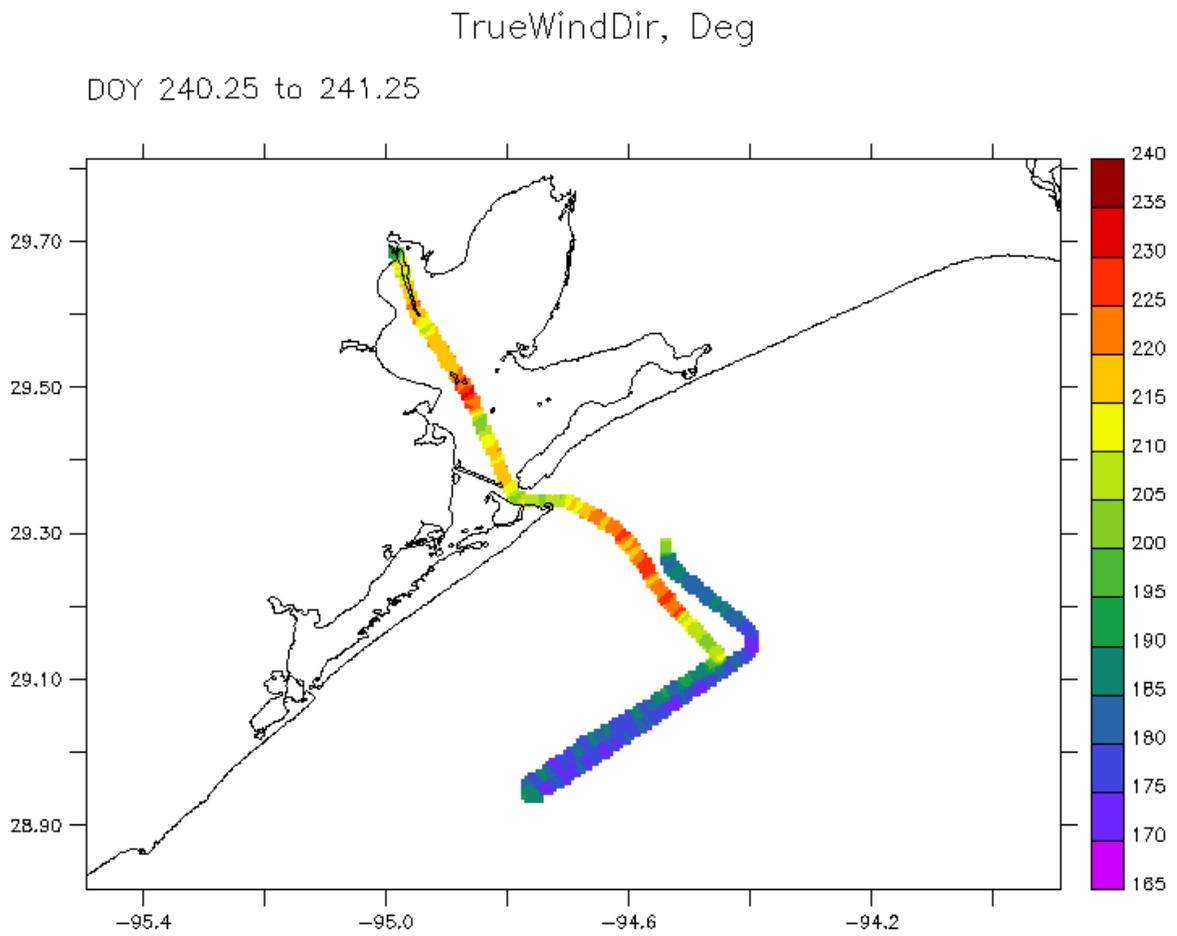
TrueWindSp
DLat



28 August

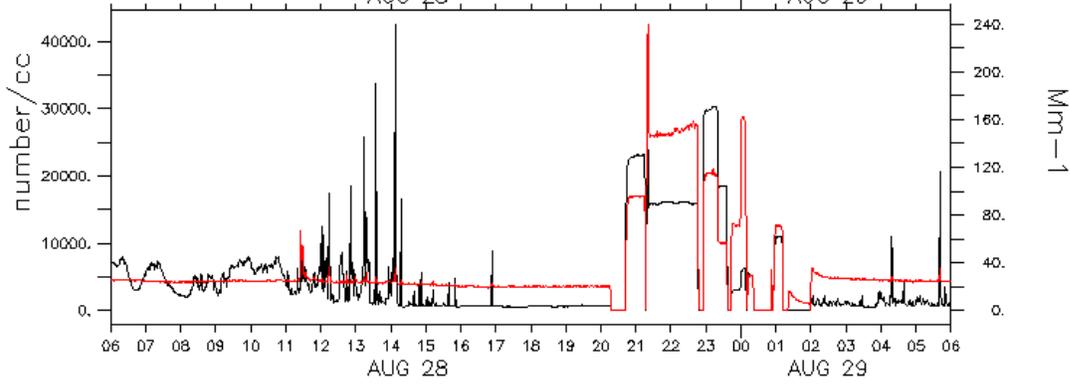
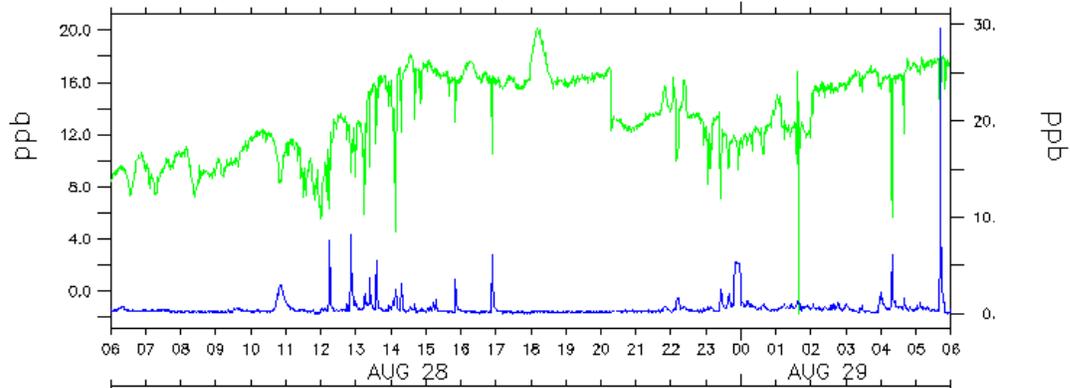
From Barbour's Cut to offshore of Galveston. Clean.

Flux in Gulf
BL height



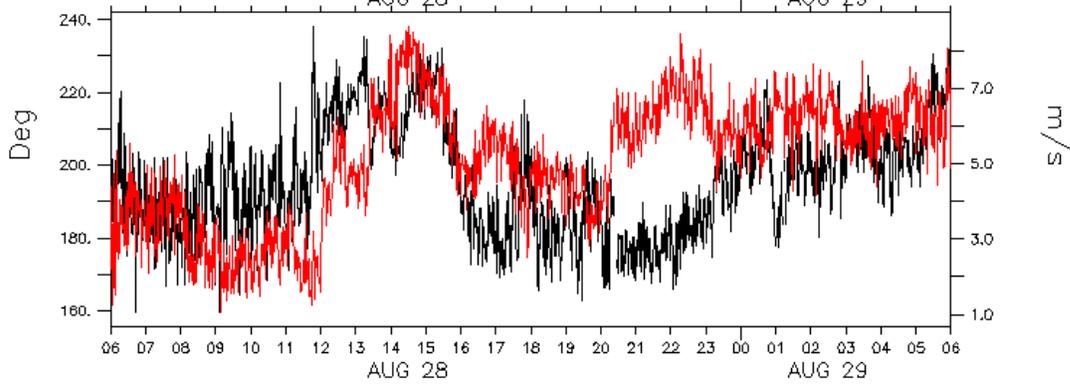
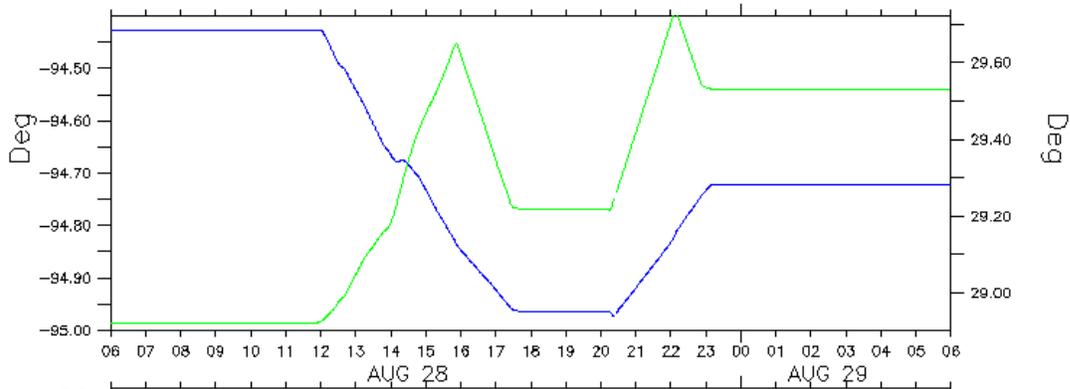
CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat



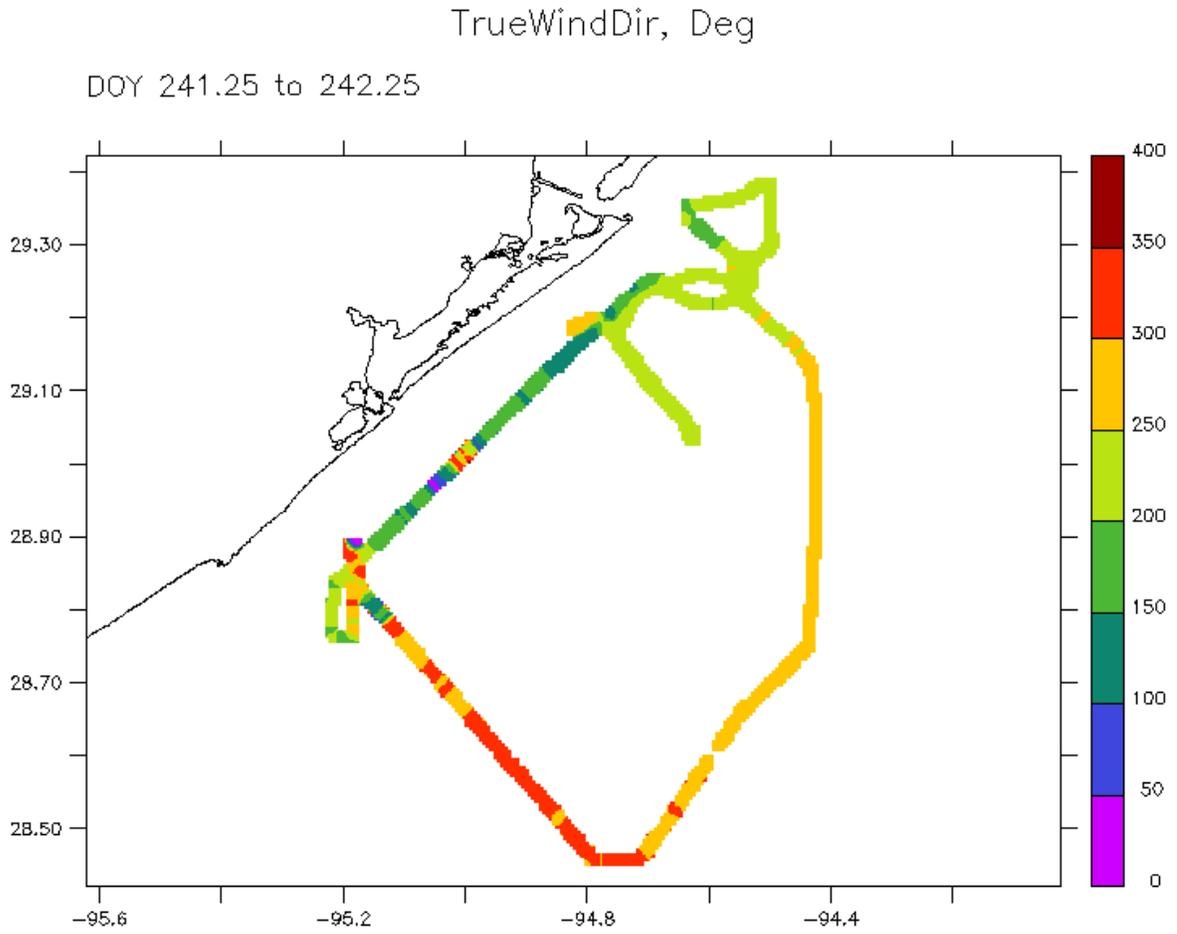
29 August

Offshore near Galveston. Intercepted ozone and aerosol plume in the afternoon and evening.

Flux?

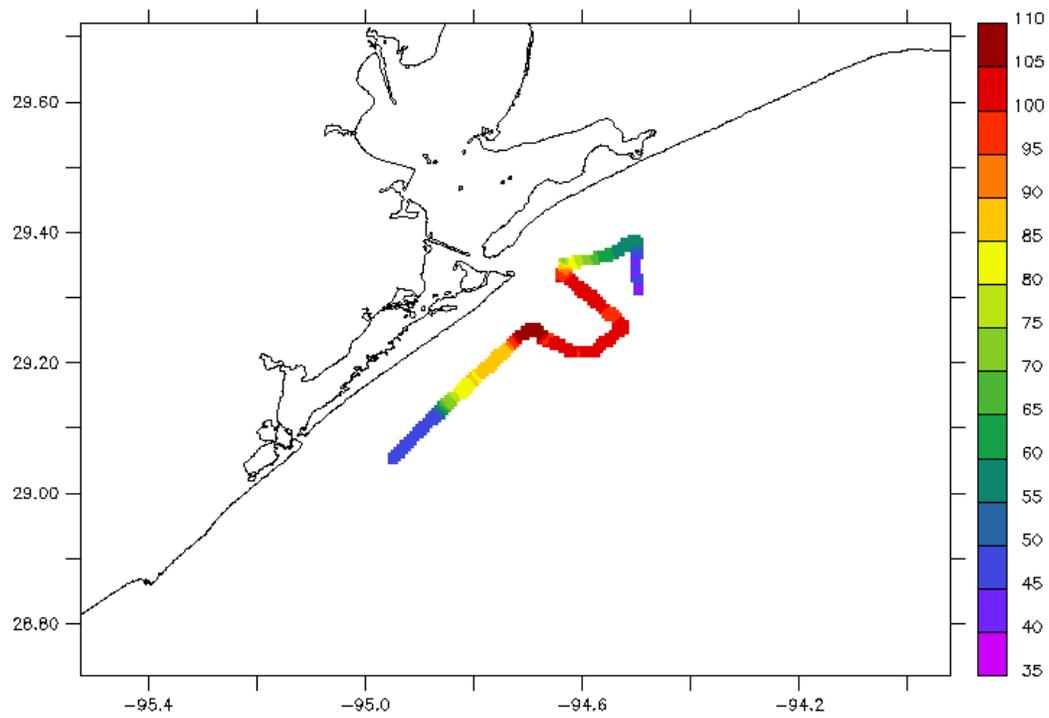
BL height

Trajectories for ozone and aerosol peak ~23Z



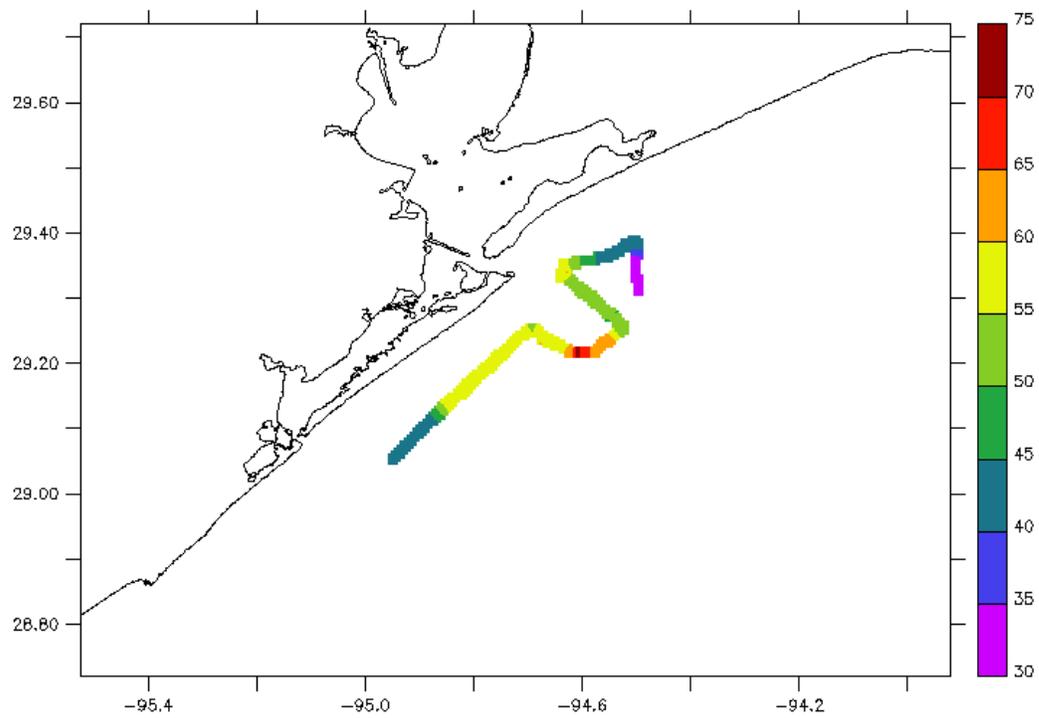
O3, ppb

DOY 241.9 to 242.1



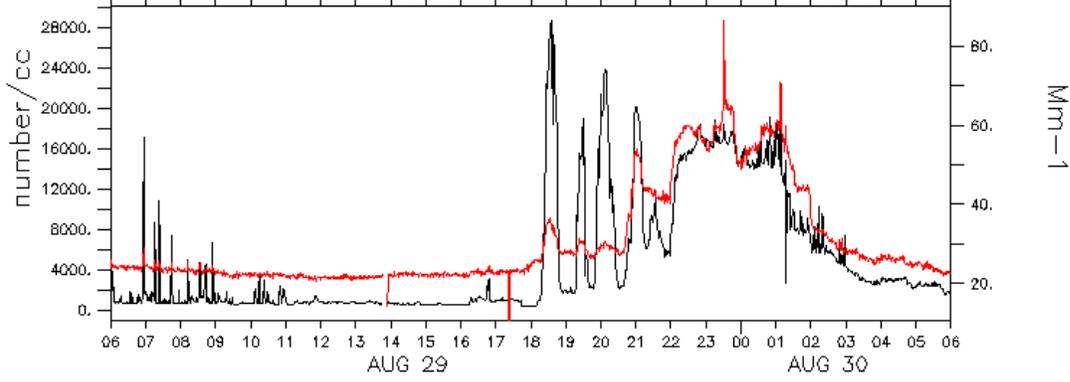
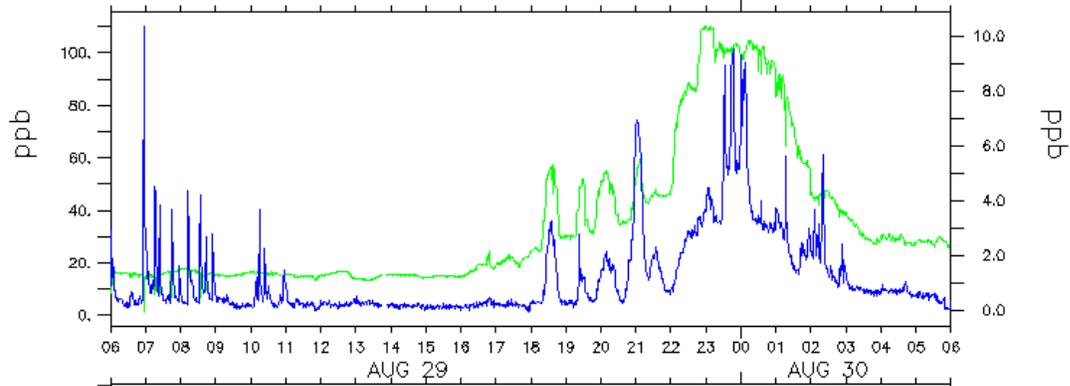
AerosolScatGreen, Mm-1

DOY 241.9 to 242.1



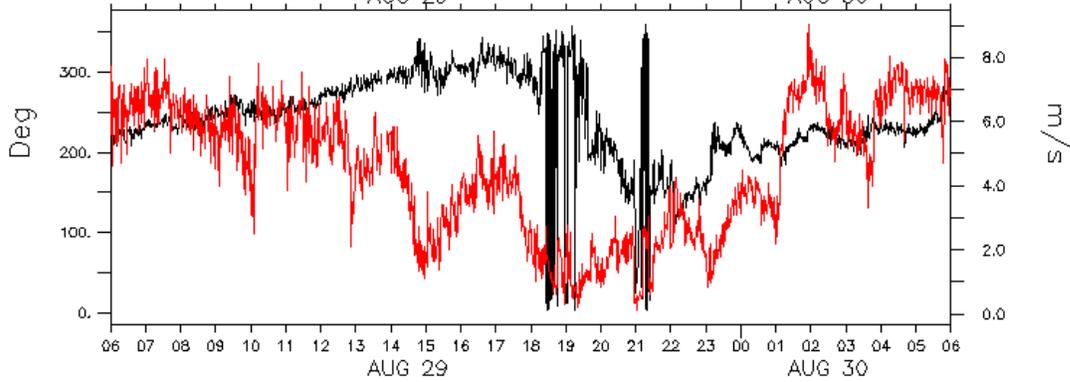
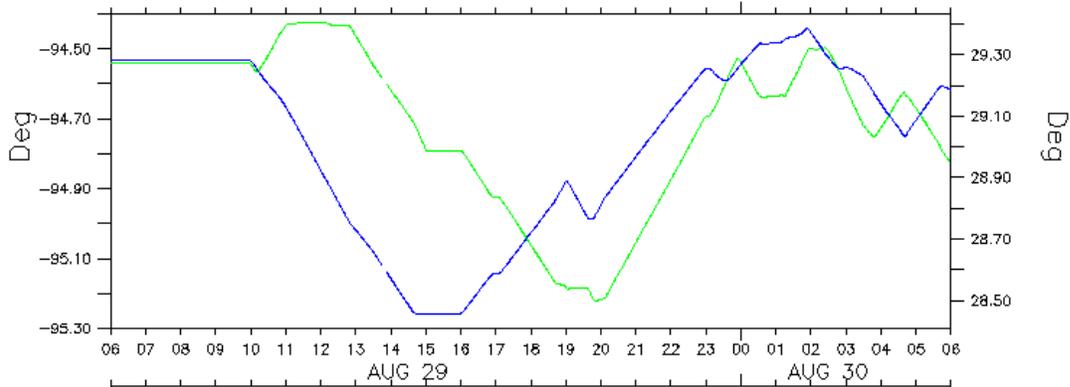
CN
O3

AerosolScatGreen
SD2

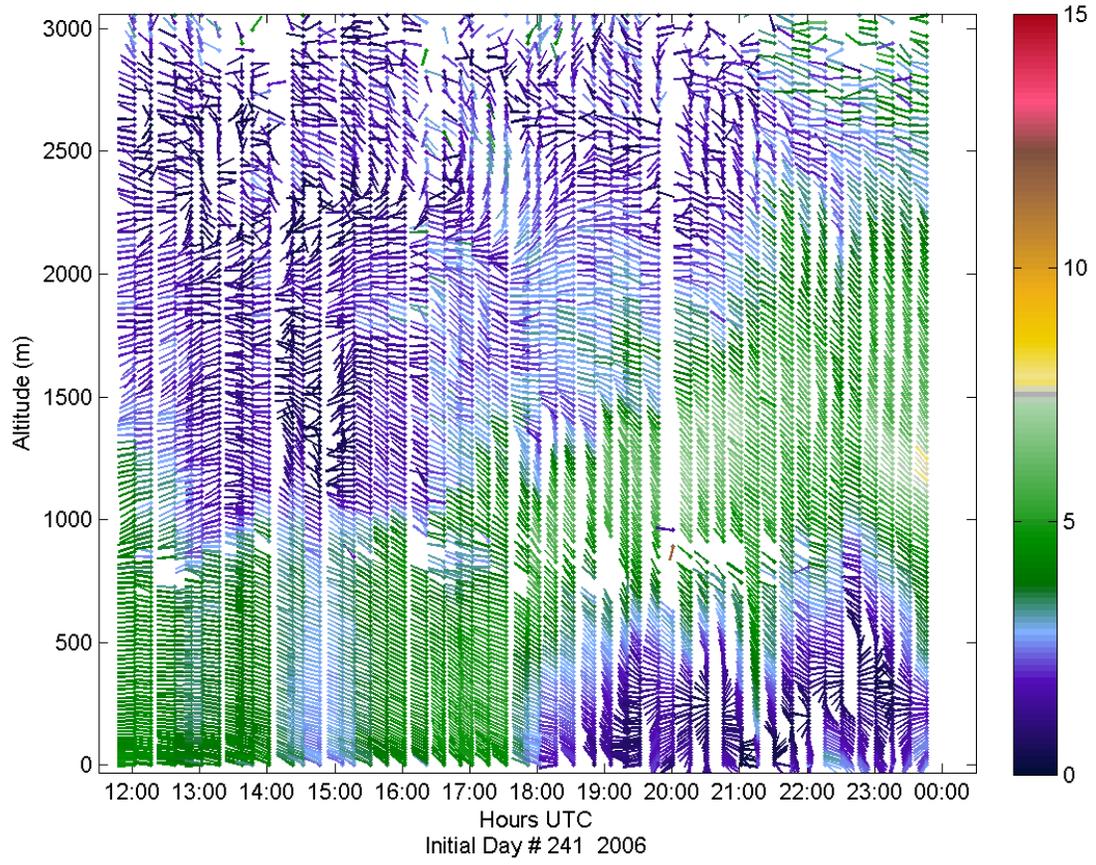


TrueWindDir
DLon

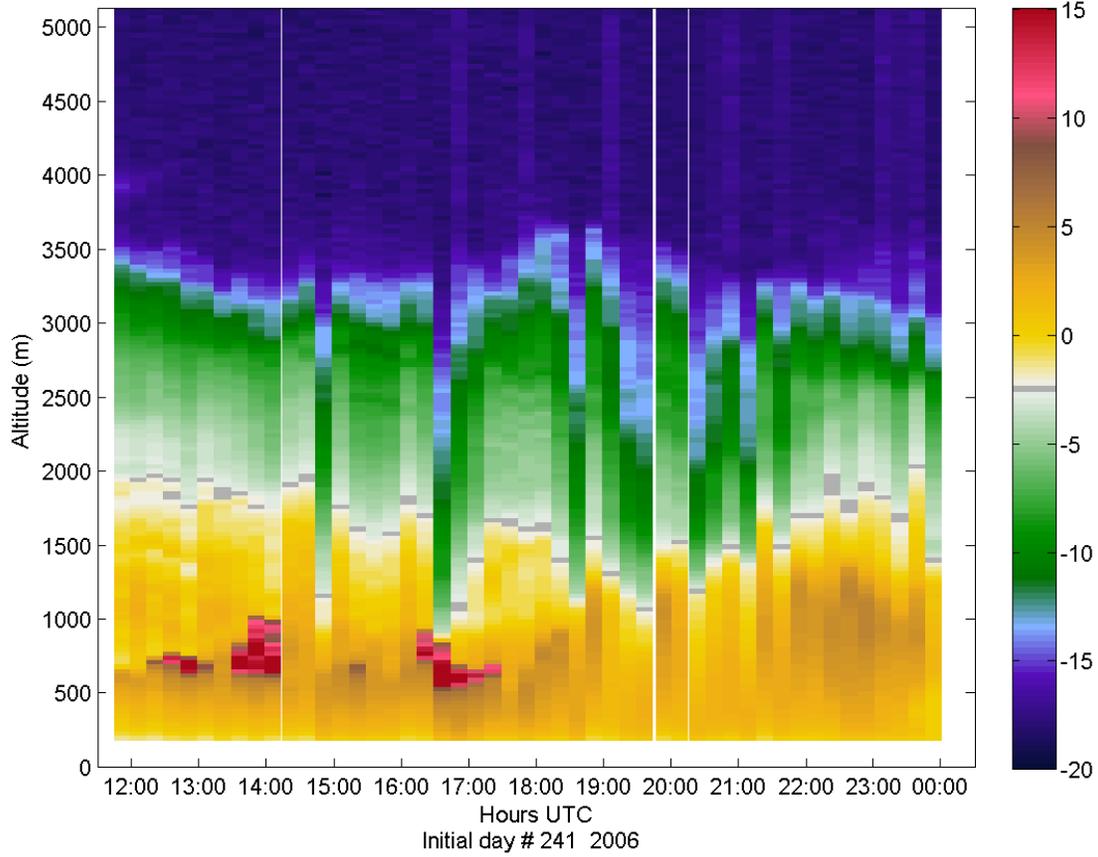
TrueWindSp
DLat



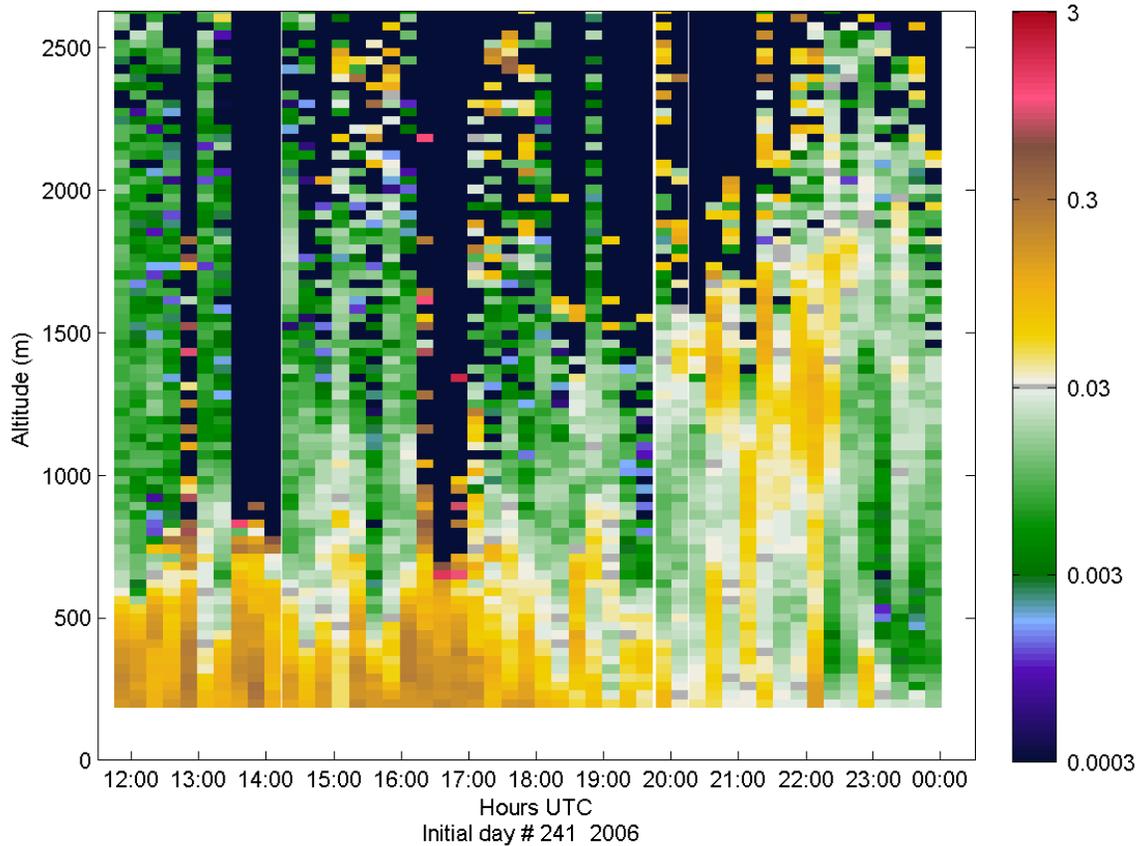
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 08/29/06 to 00:00 08/30/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 08/29/06 to 00:00 08/30/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance α_w^2 (m^2/s^2) Profiles
12:00 08/29/06 to 00:00 08/30/06



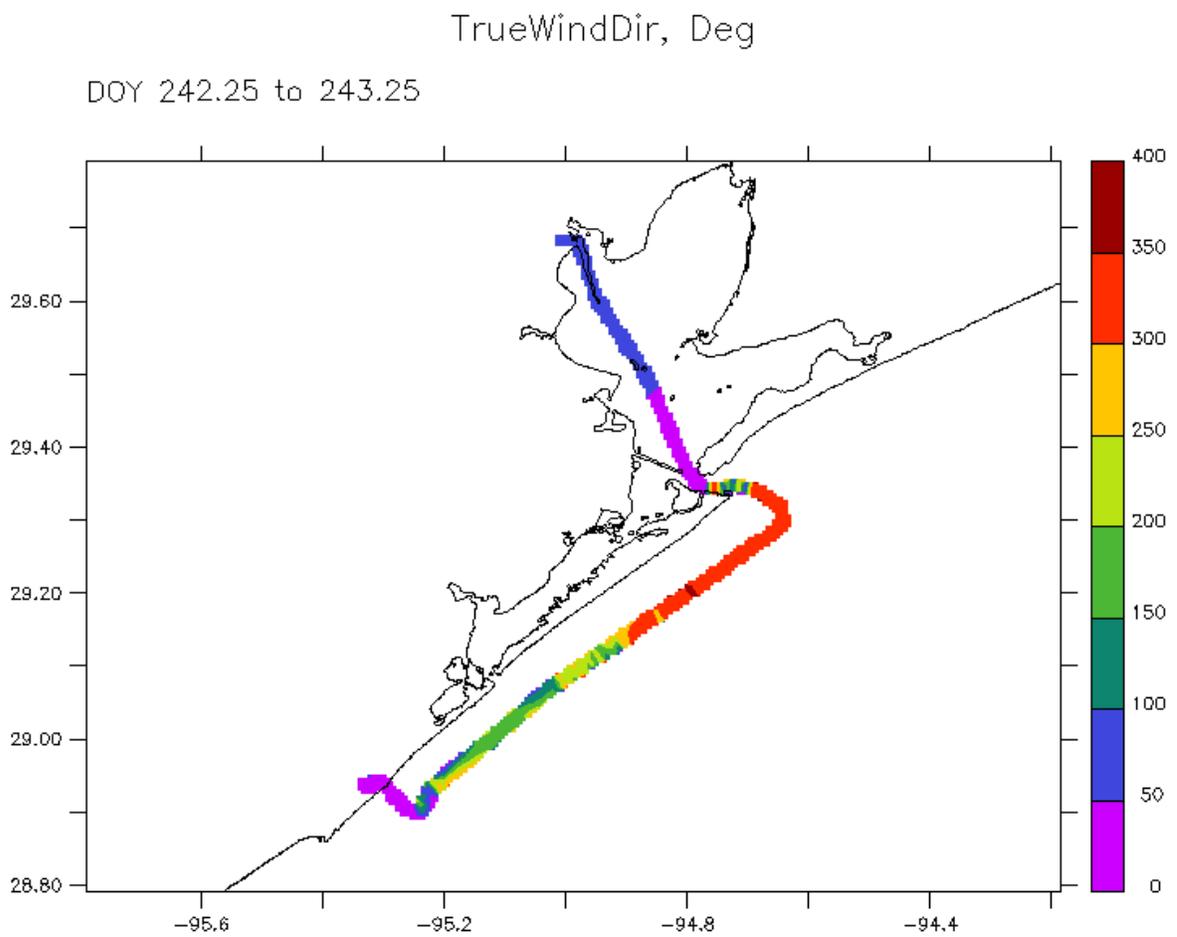
30 August

Into Freeport, then return to Barbour's Cut. Moderate ozone and aerosol in Freeport and in the afternoon.

Flux on northeasterly leg

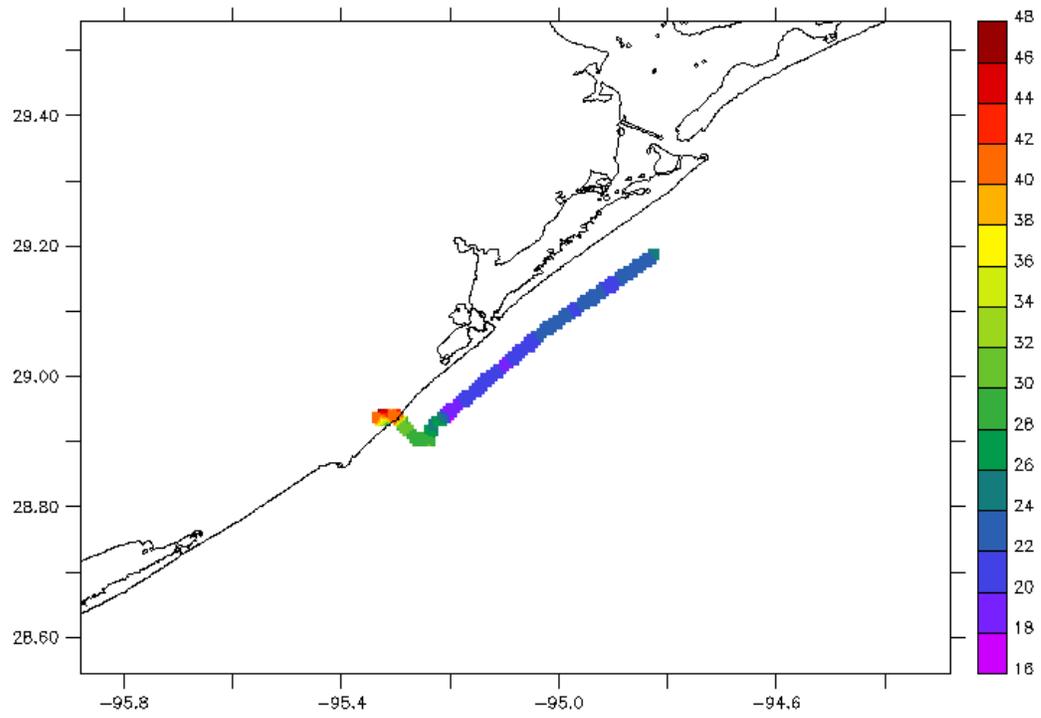
BL height

Trajectories for ozone peaks at 1630 and 1930 Z (broad aerosol peak in earlier part of that range)



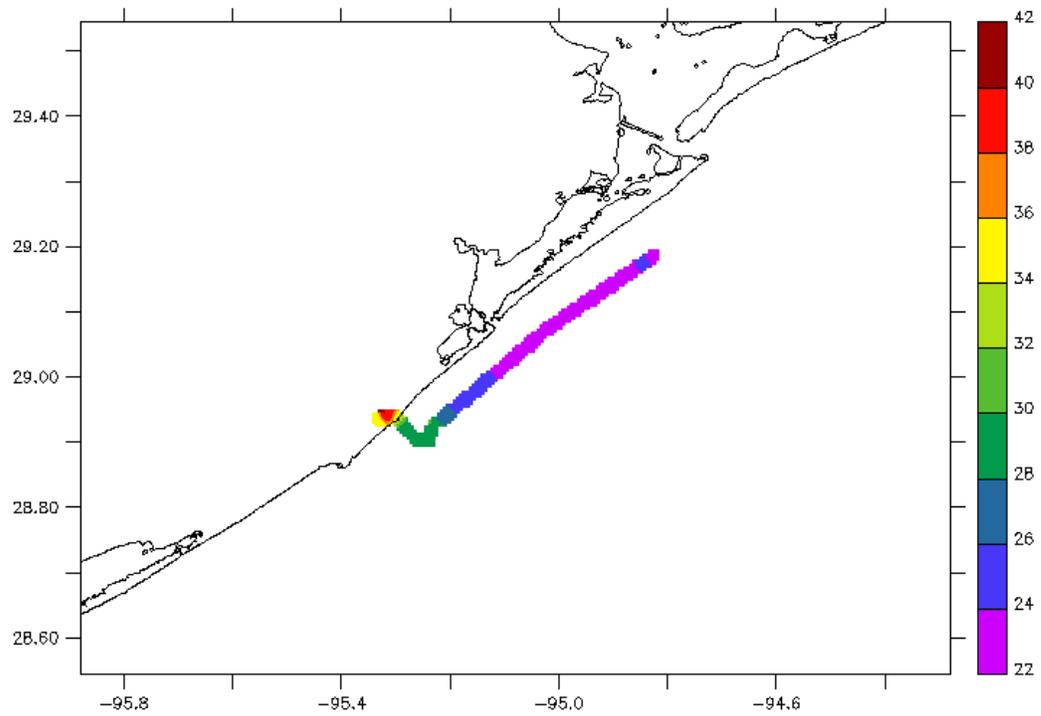
O3, ppb

DOY 242.25 to 242.65



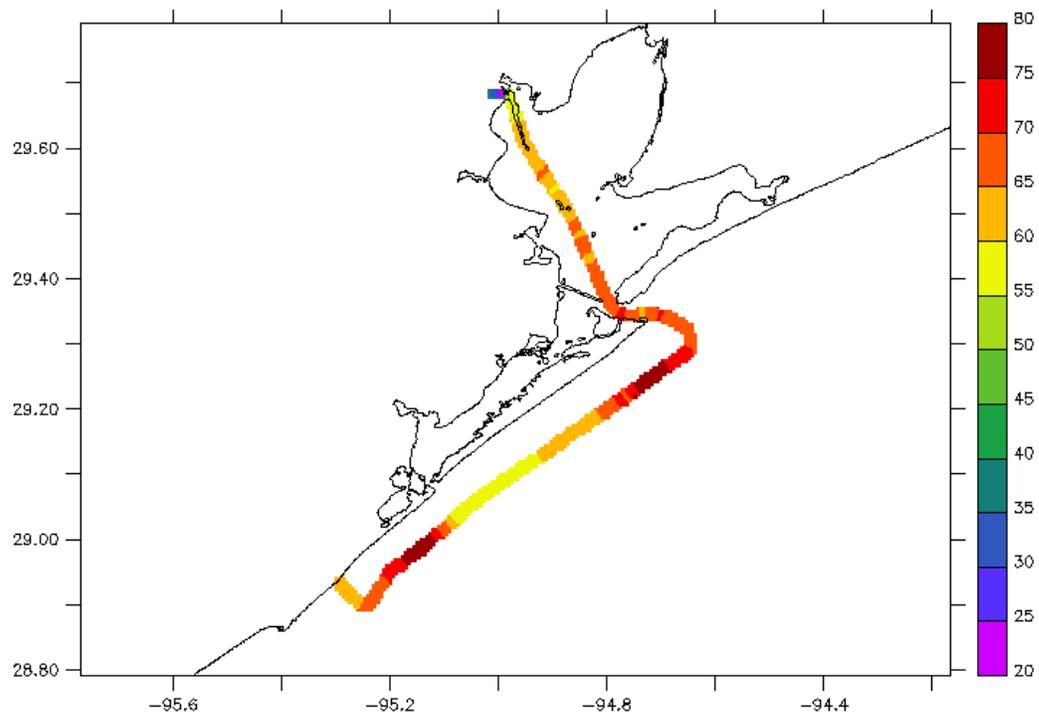
AerosolScatGreen, Mm-1

DOY 242.25 to 242.65



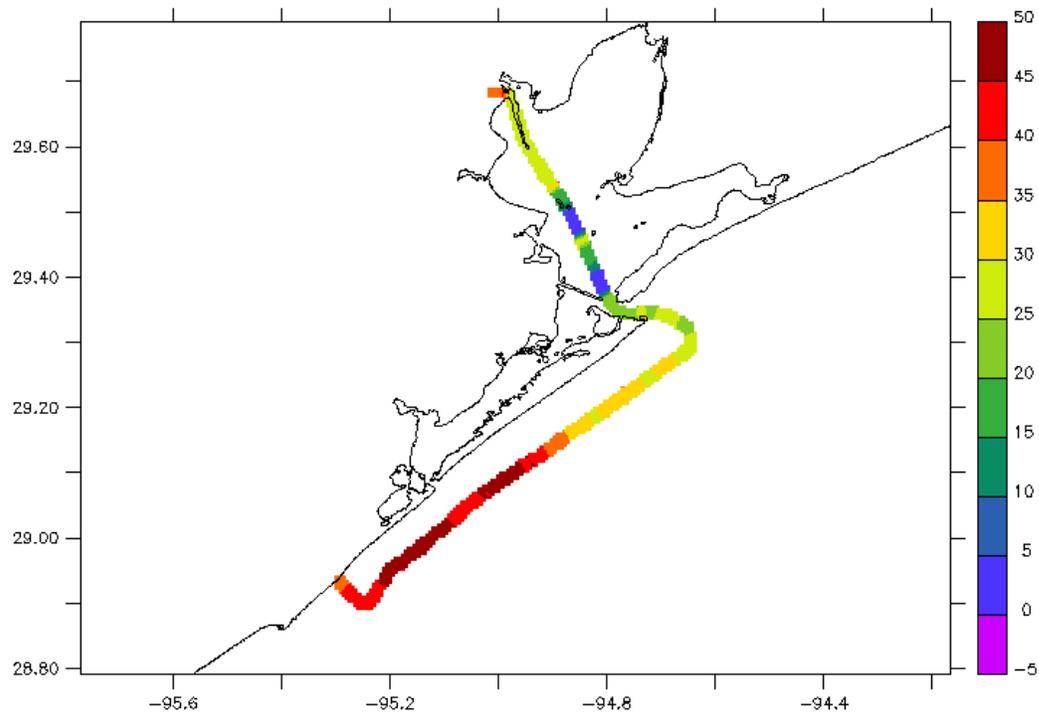
O3, ppb

DOY 242.65 to 243.25



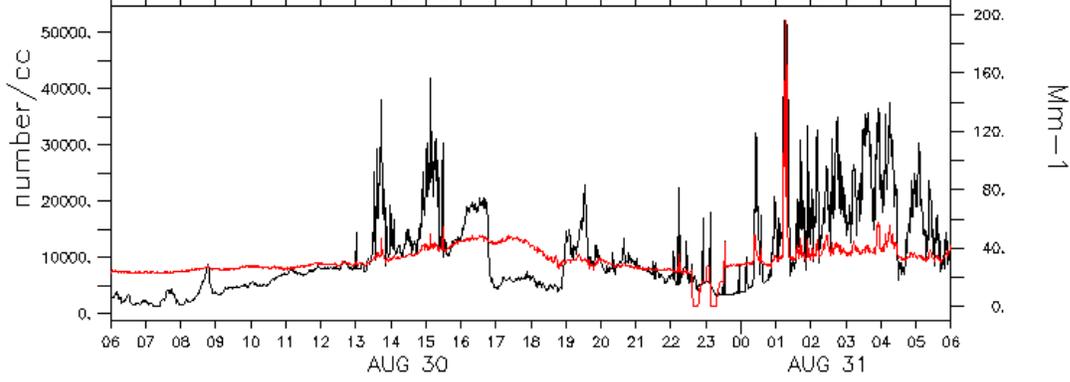
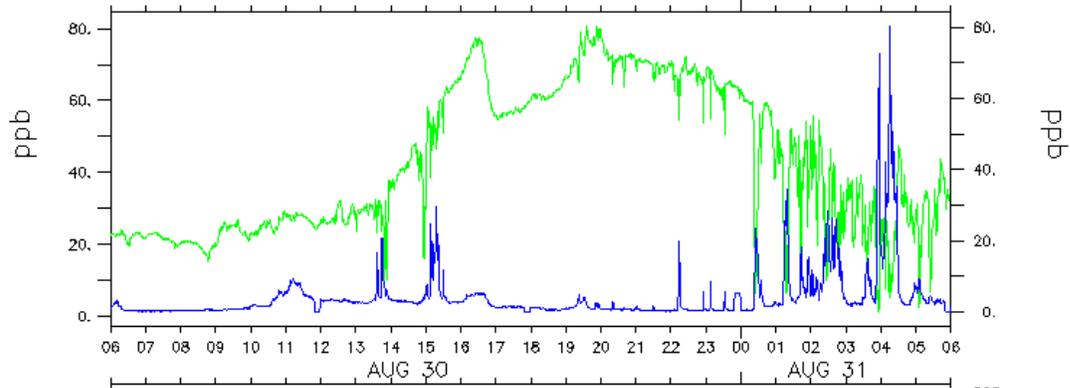
AerosolScatGreen, Mm-1

DOY 242.65 to 243.25



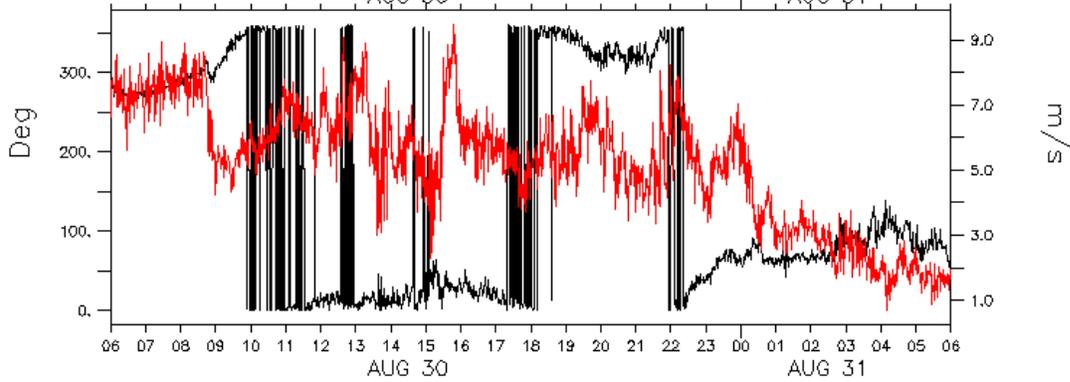
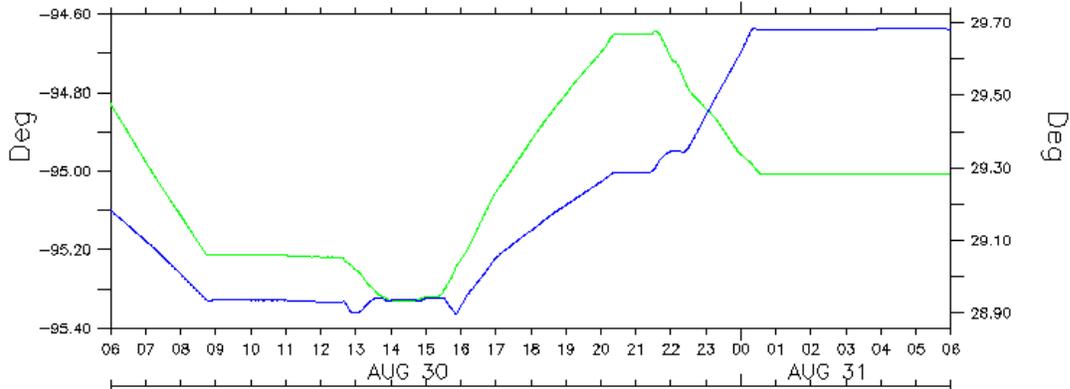
CN
O3

AerosolScatGreen
SO2

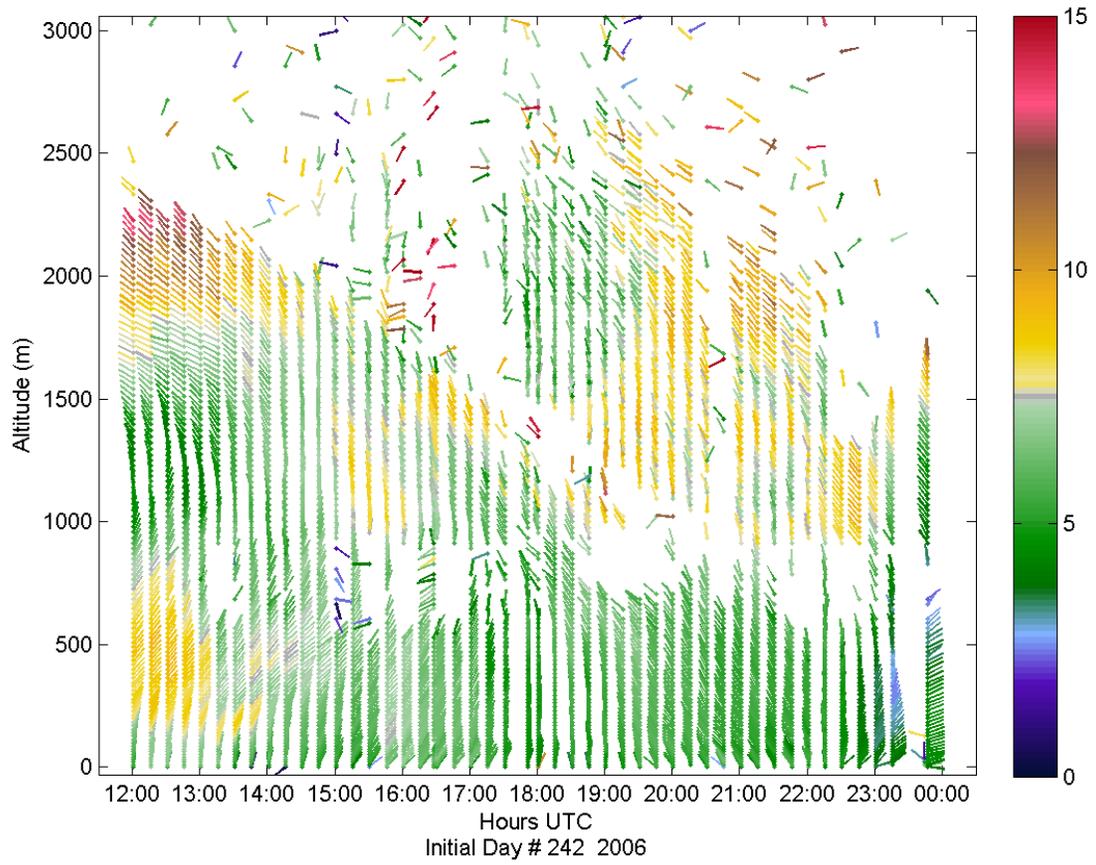


TrueWindDir
DLon

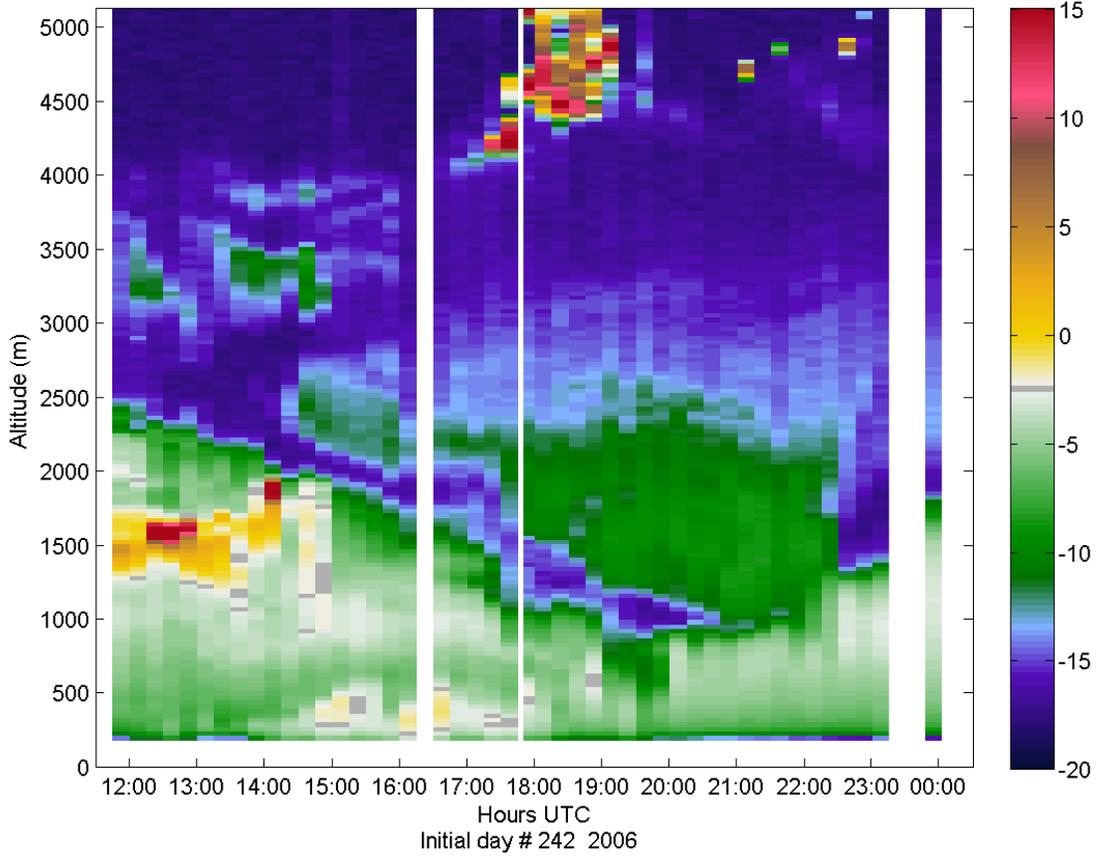
TrueWindSp
DLat



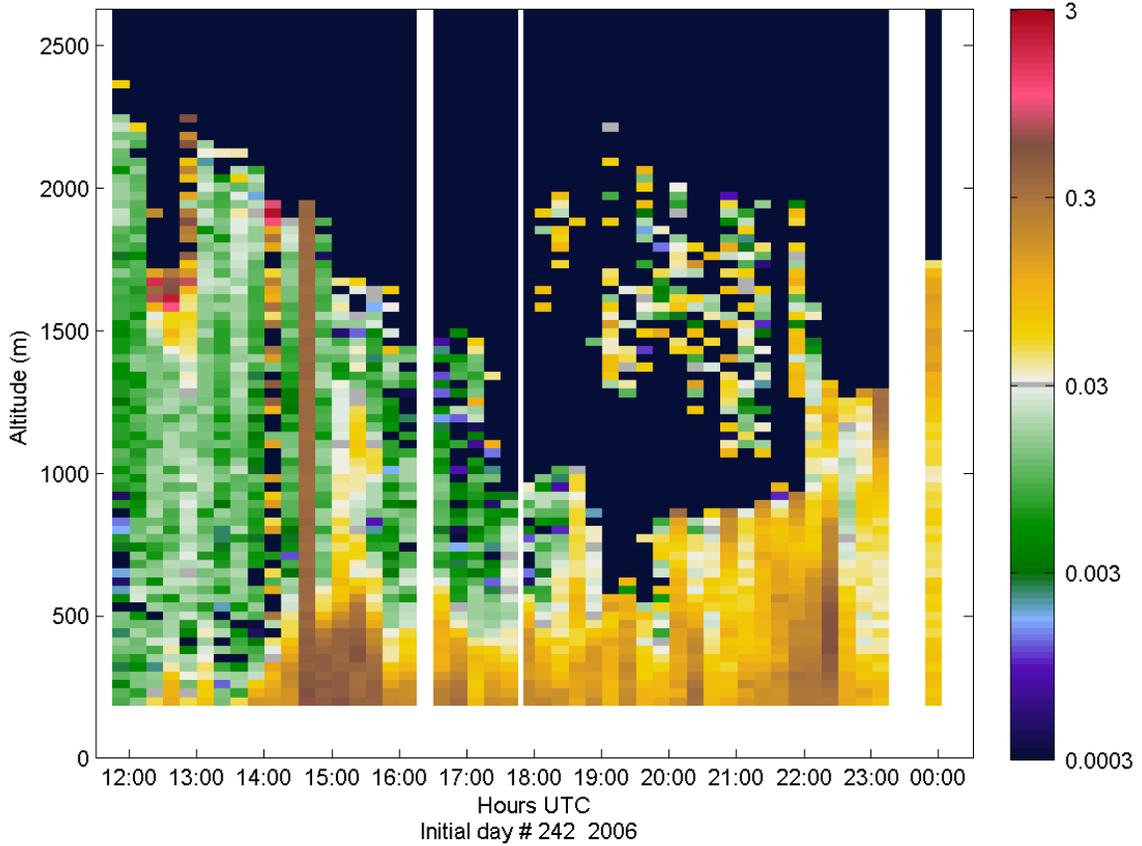
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 08/30/06 to 00:00 08/31/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 08/30/06 to 00:00 08/31/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 08/30/06 to 00:00 08/31/06



31 August

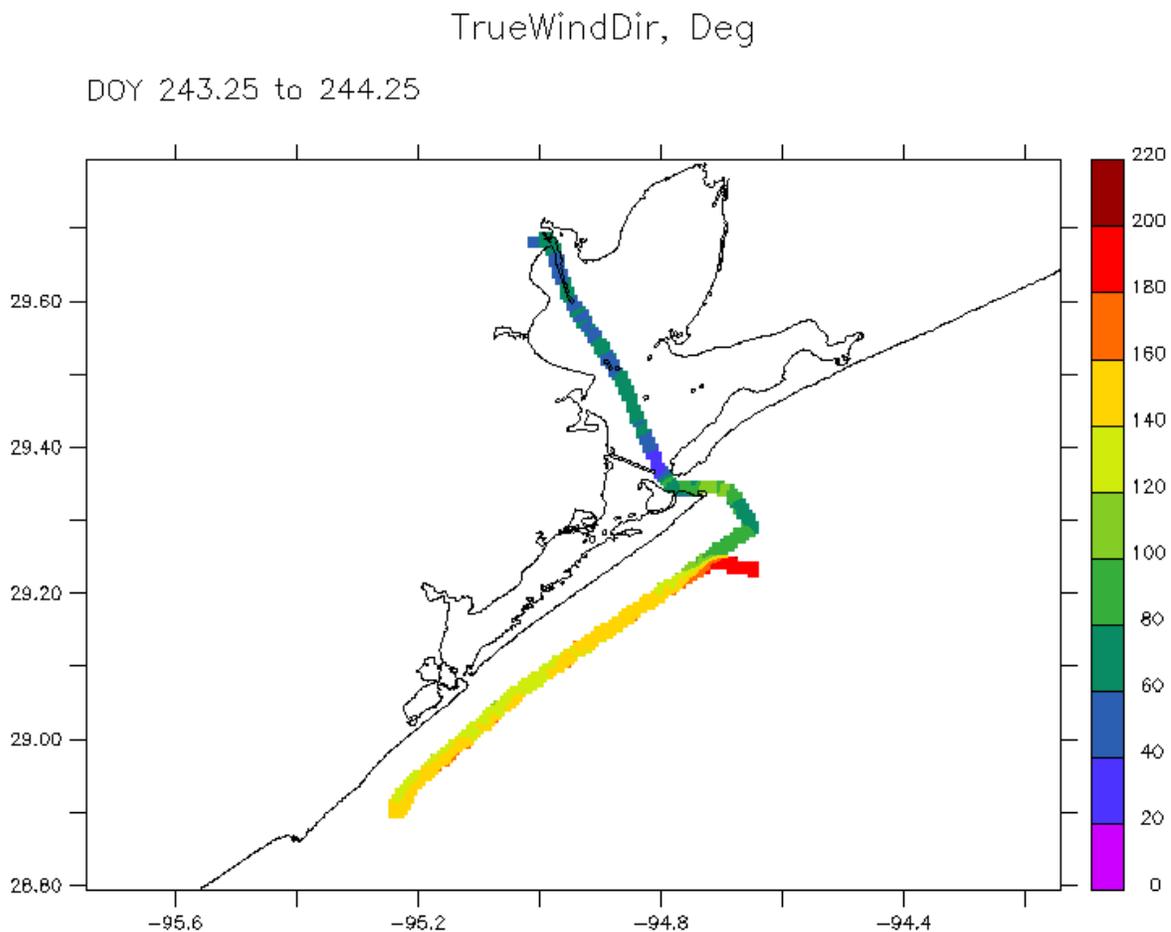
RHB from Barbour's Cut to Freeport, then back to off Galveston. Moderate ozone and aerosol alongshore. High ozone event day in Houston, see:

<http://www.tceq.state.tx.us/assets/public/compliance/monops/air/sigevents/06/event2006-08-31hou.html>

Flux in Gulf

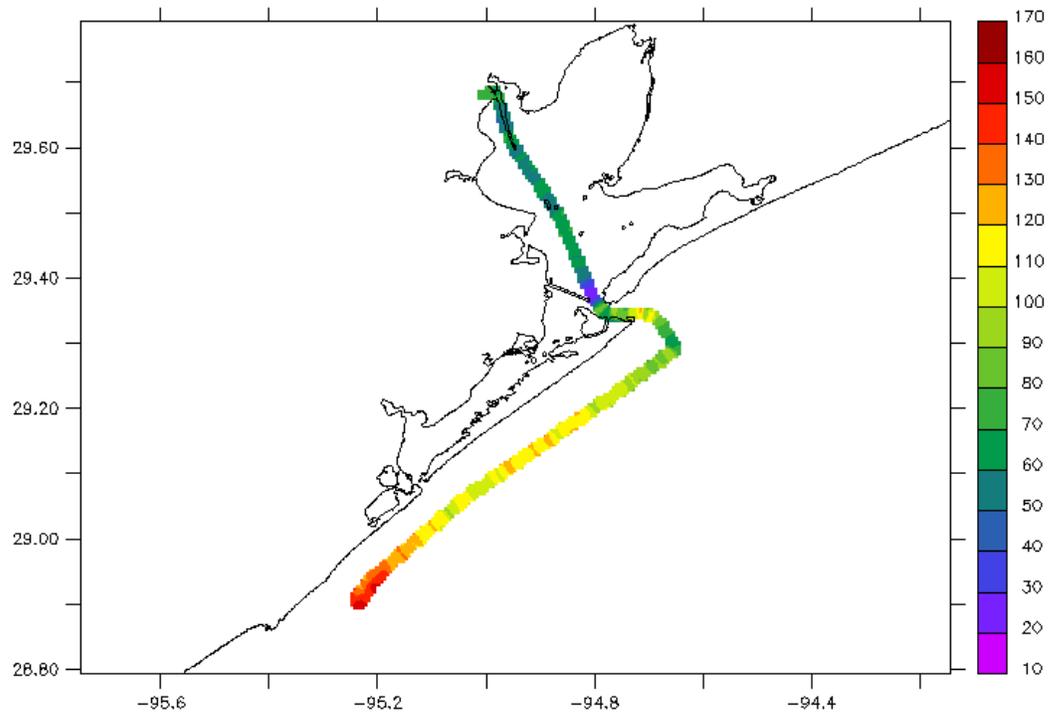
BL height

Trajectories for ozone peak ~24Z



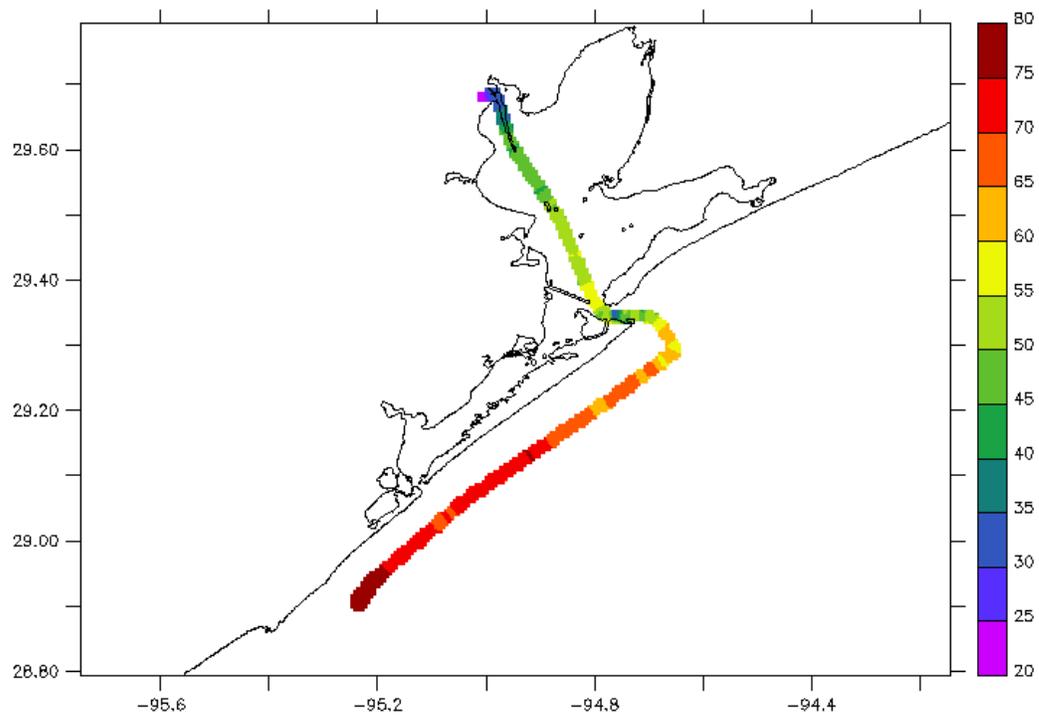
TrueWindDir, Deg

DOY 243.5 to 243.95



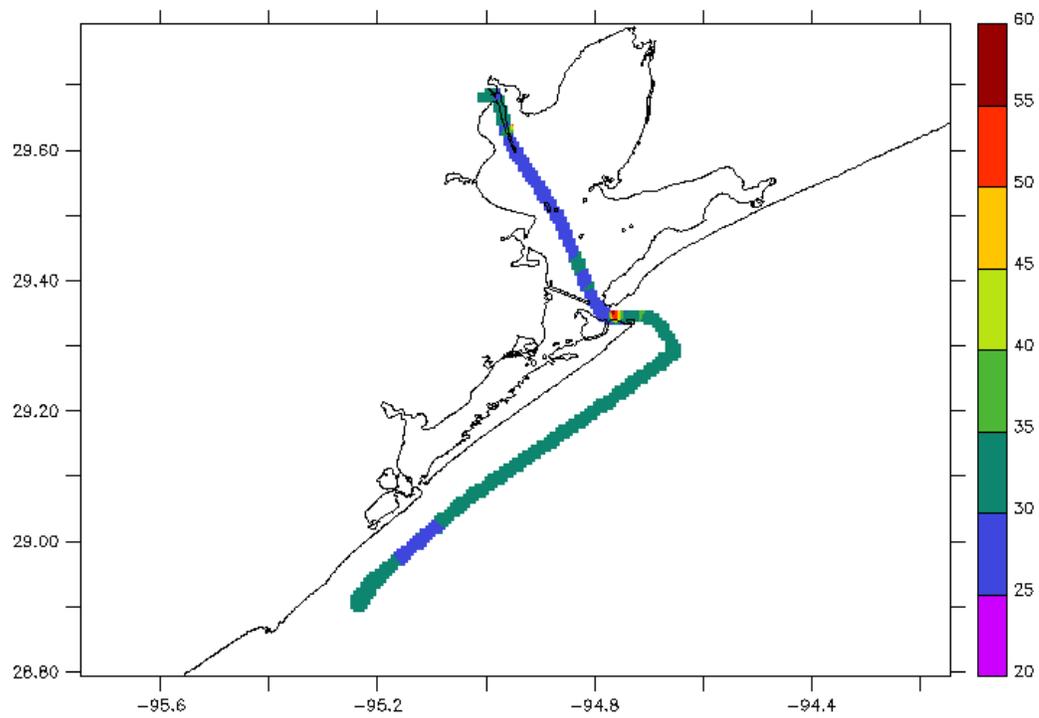
O3, ppb

DOY 243.5 to 243.95



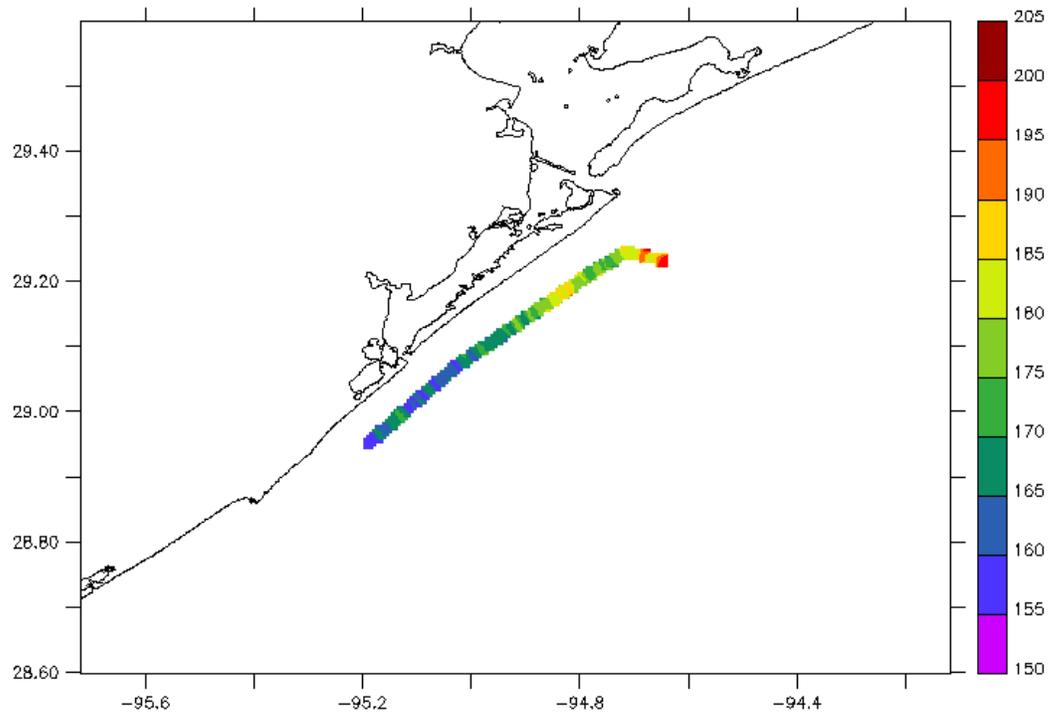
AerosolScatGreen, Mm-1

DOY 243.5 to 243.95



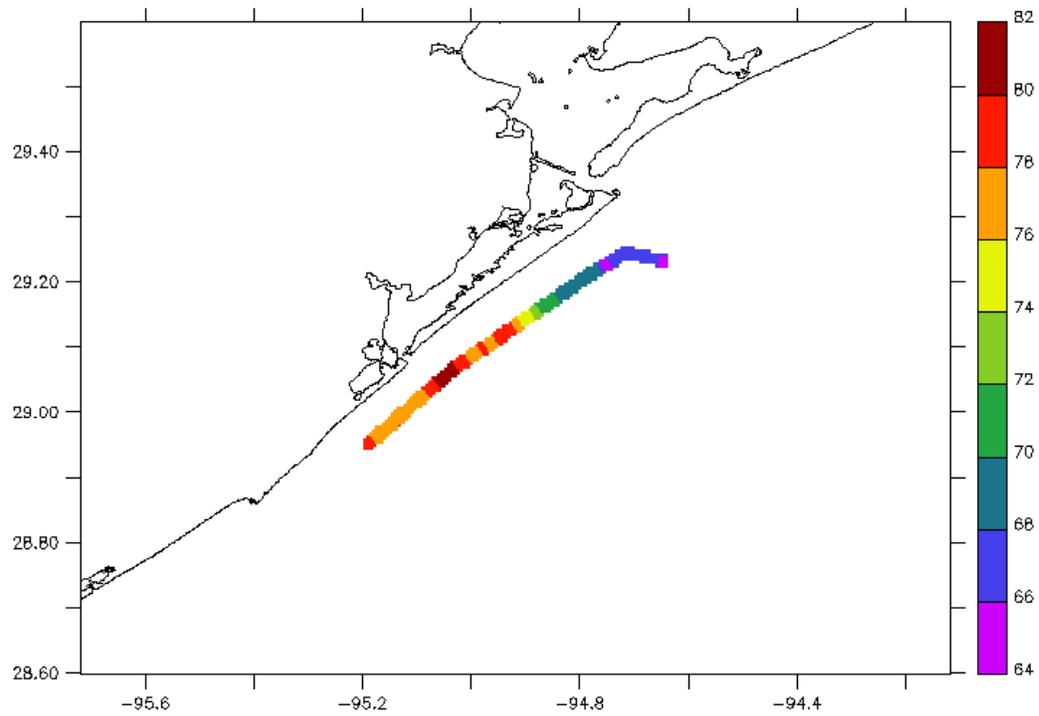
TrueWindDir, Deg

DOY 243.95 to 244.25



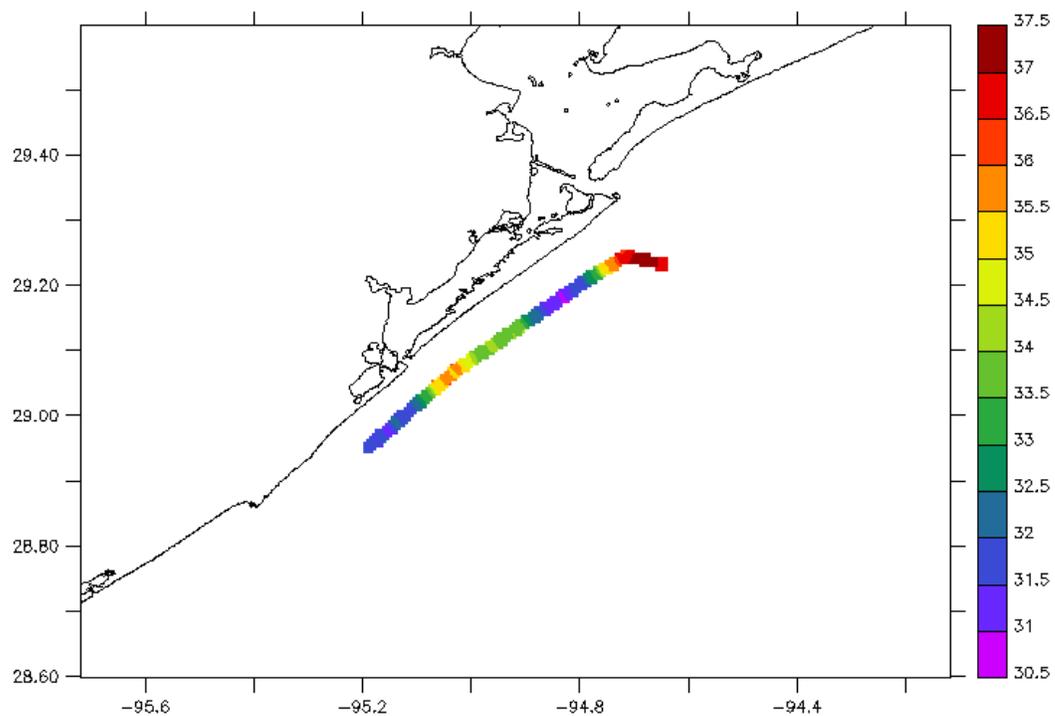
O3, ppb

DOY 243.95 to 244.25



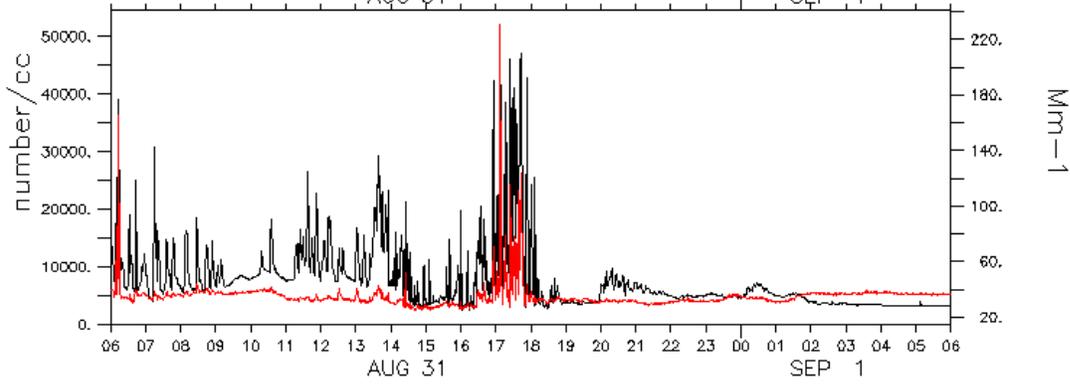
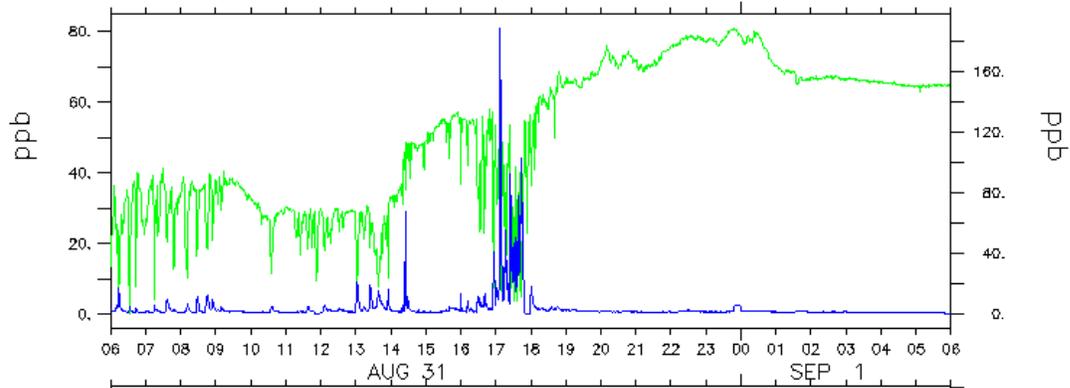
AerosolScatGreen, Mm-1

DOY 243.95 to 244.25



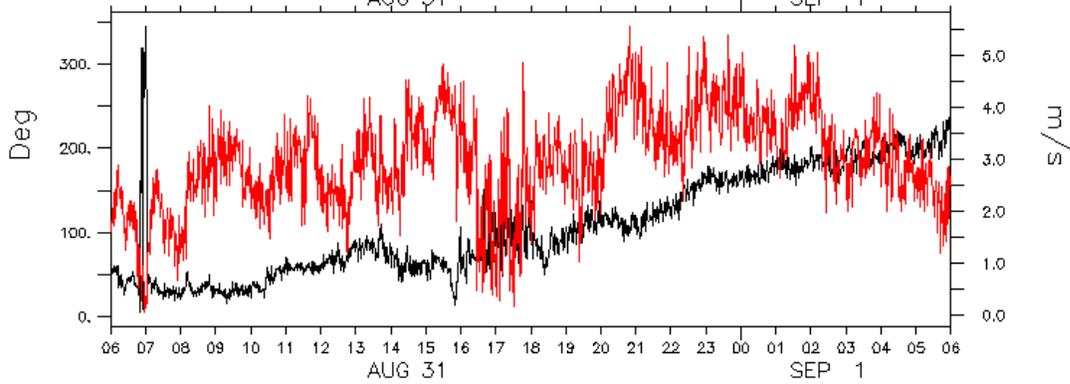
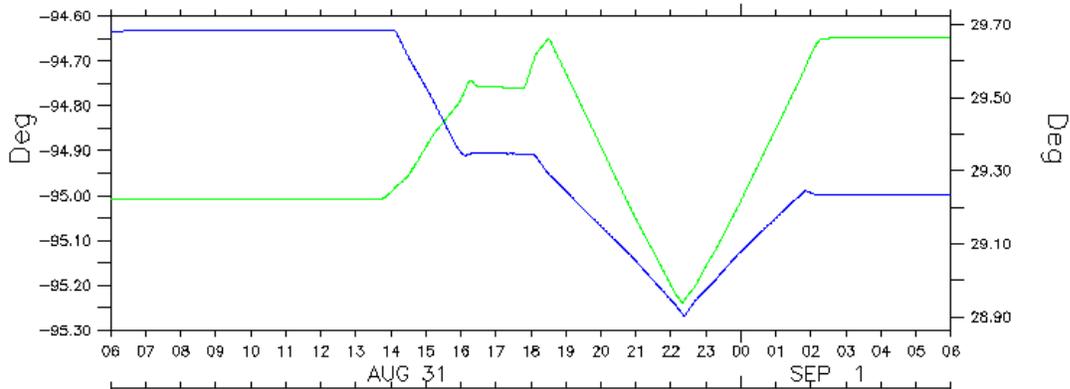
CN
O3

AerosolScatGreen
SD2

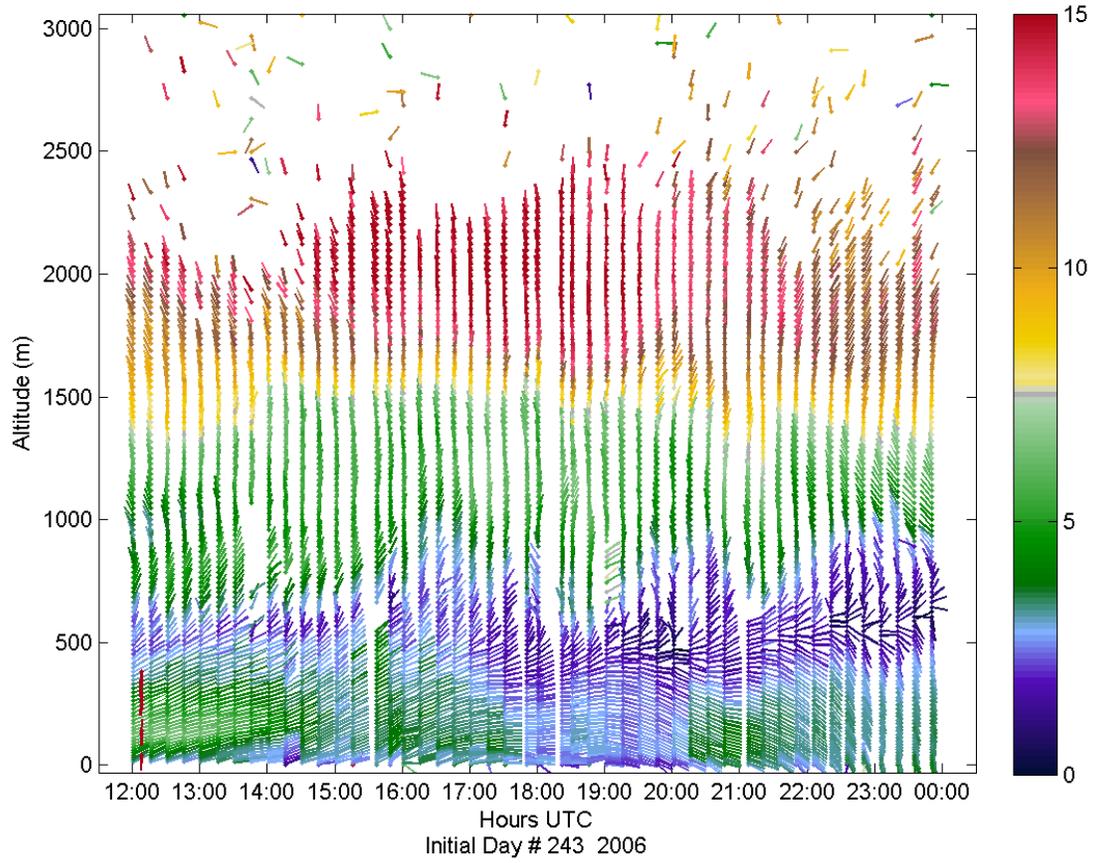


TrueWindDir
DLon

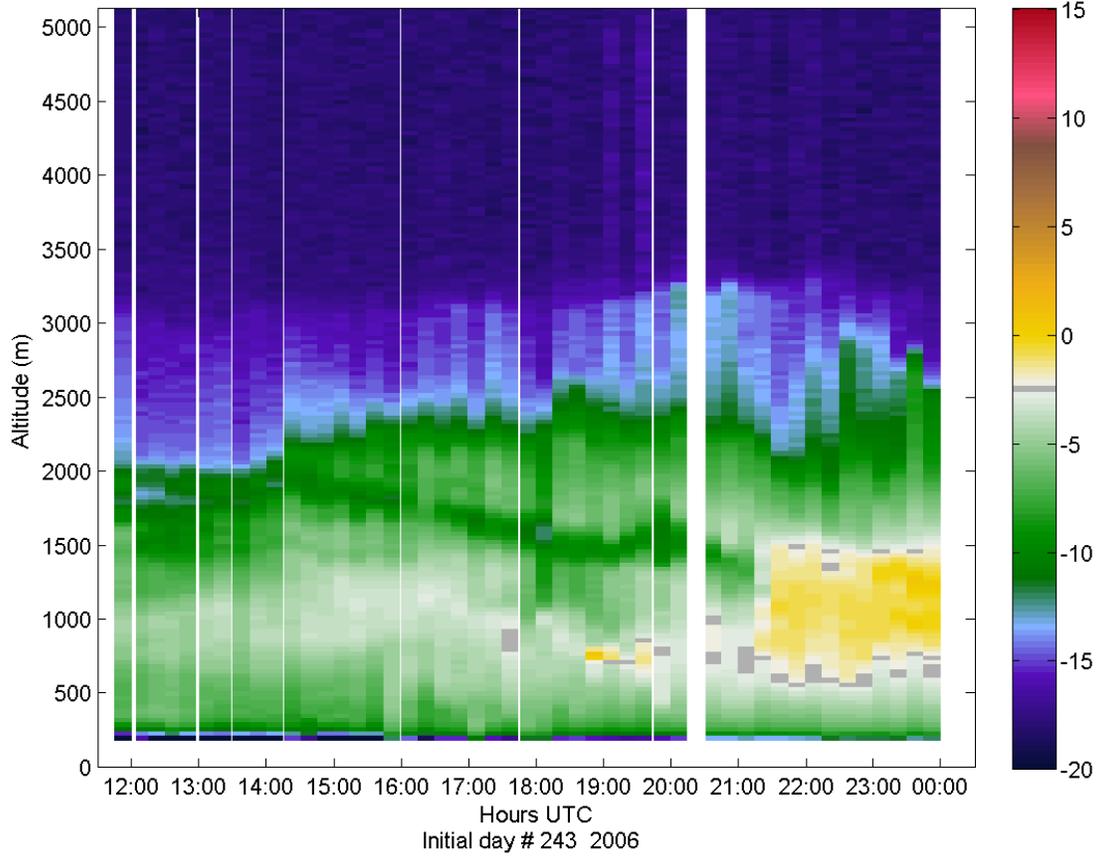
TrueWindSp
DLat



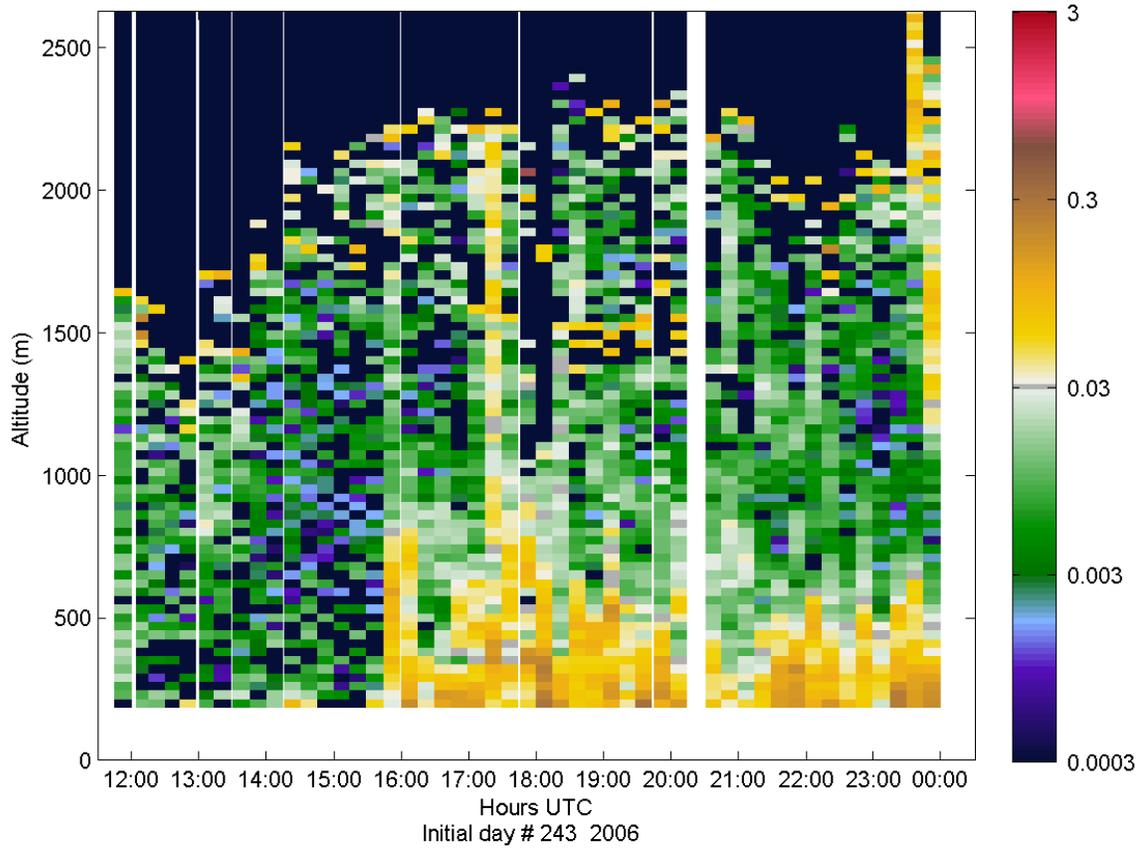
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 08/31/06 to 00:00 09/01/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 08/31/06 to 00:00 09/01/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 08/31/06 to 00:00 09/01/06



1 September

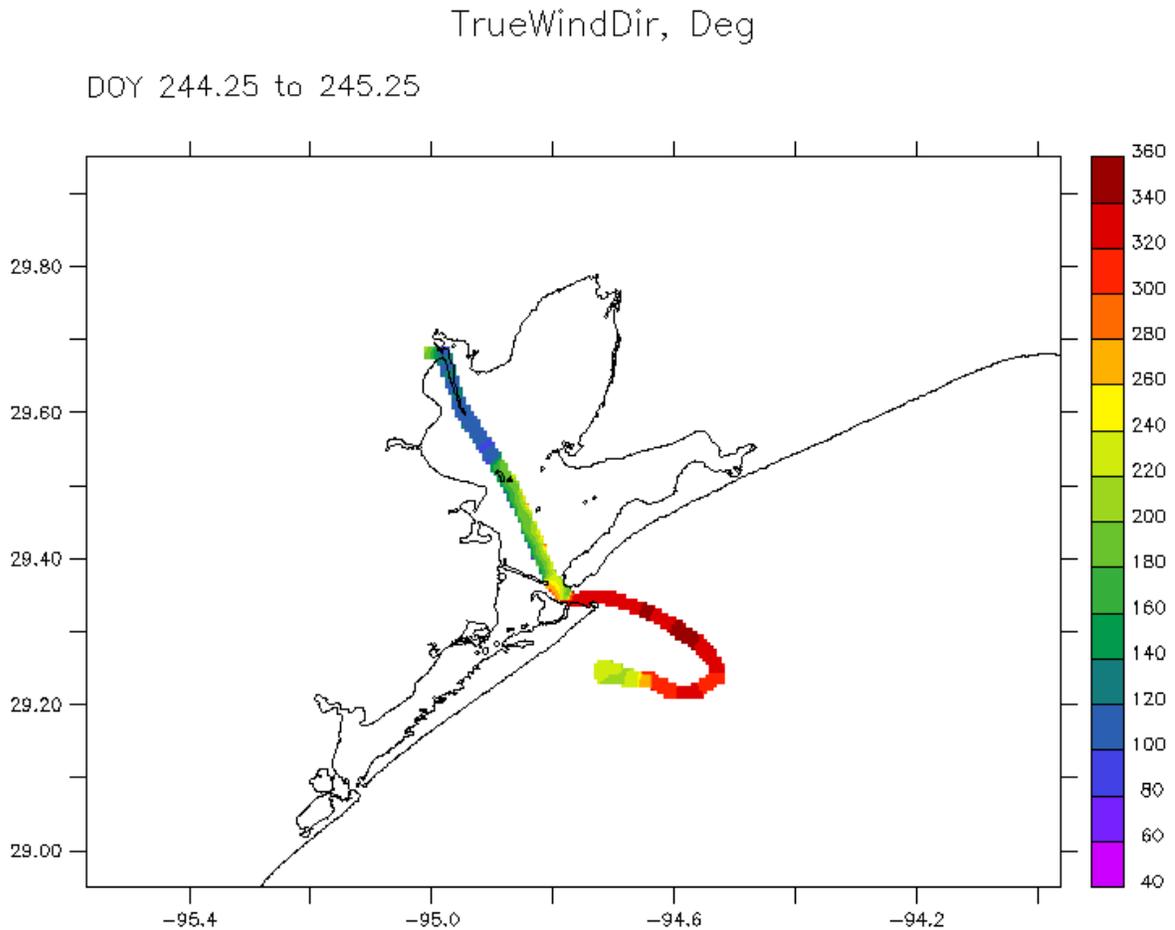
RHB from Galveston to Barbour's Cut, Galveston, Barbour's Cut. Very high ozone and aerosol encountered in the Bay on all three transects. Peak ozone of the campaign. High ozone event day in Houston, see:

<http://www.tceq.state.tx.us/assets/public/compliance/monops/air/sigevents/06/event2006-09-01hou.html>

BL height from lidar:

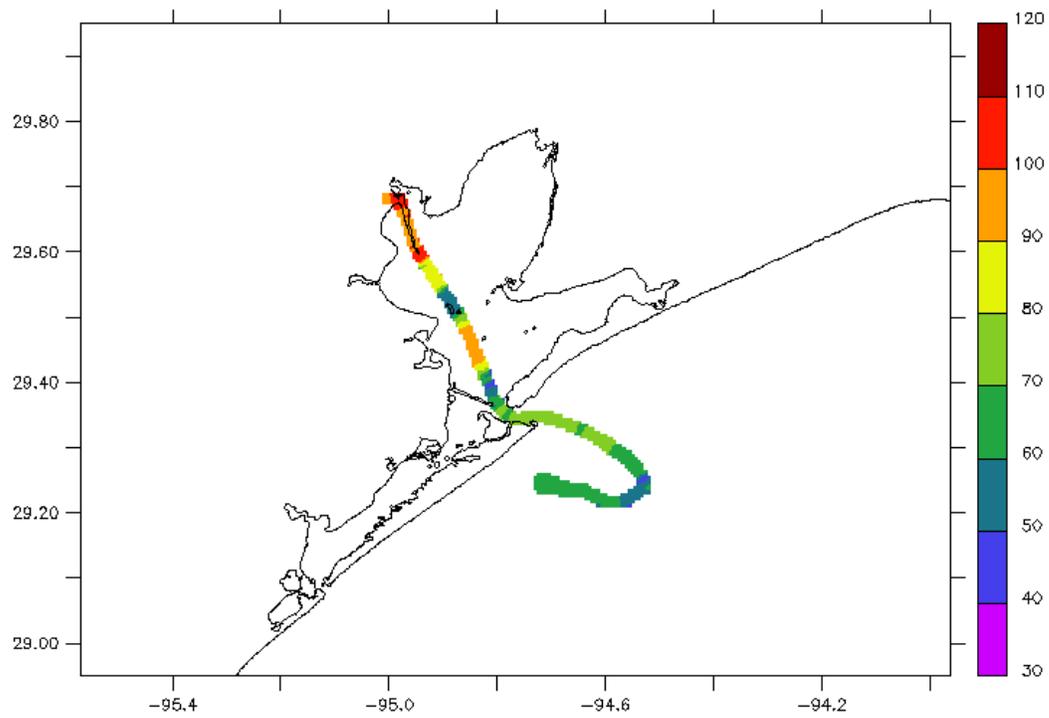
BL height from sondes: 11Z 300 m; 18Z 200 m; 2325Z 400 m; 05Z 200 m (jet nose).

Flux in bay on first two transects



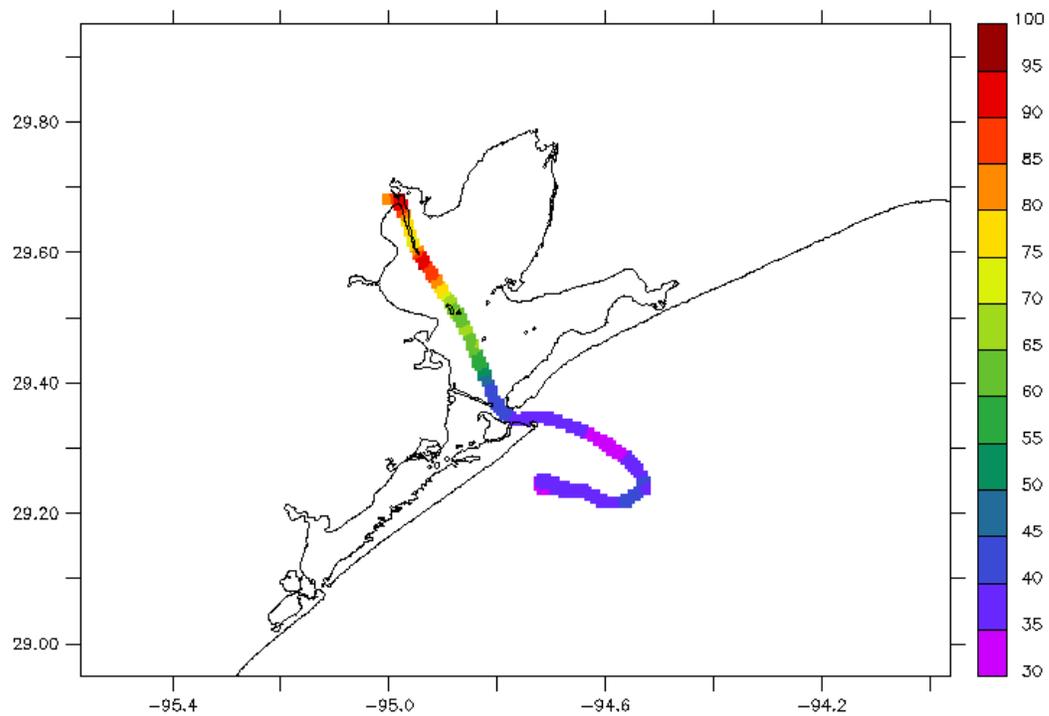
O3, ppb

DOY 244.25 to 244.7



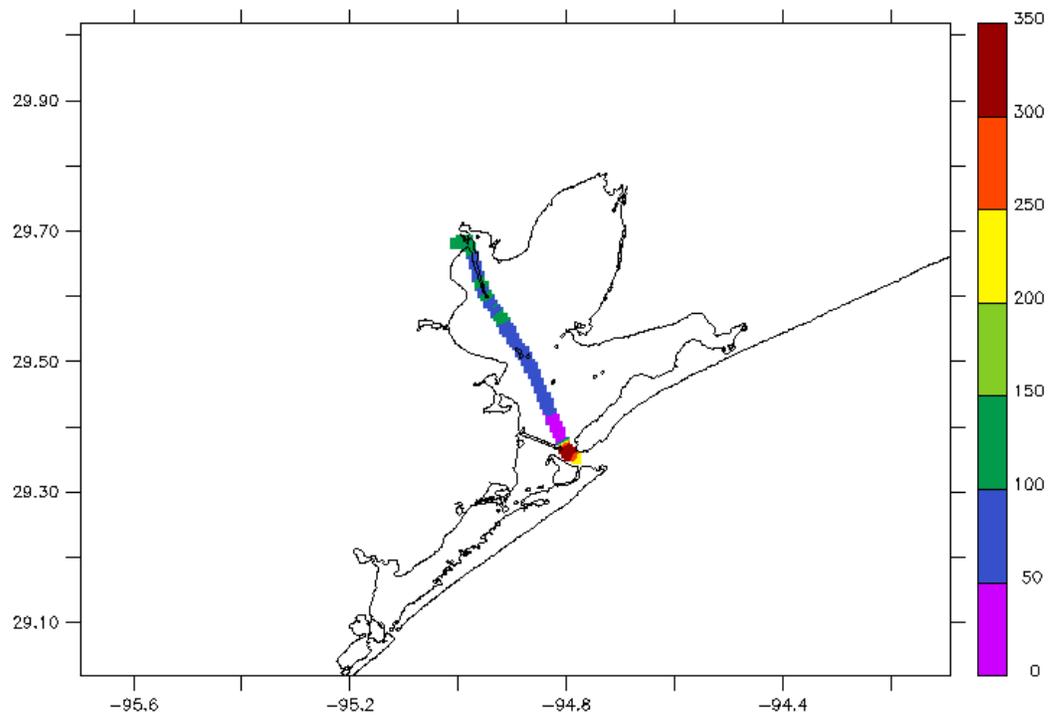
AerosolScatGreen, Mm-1

DOY 244.25 to 244.7



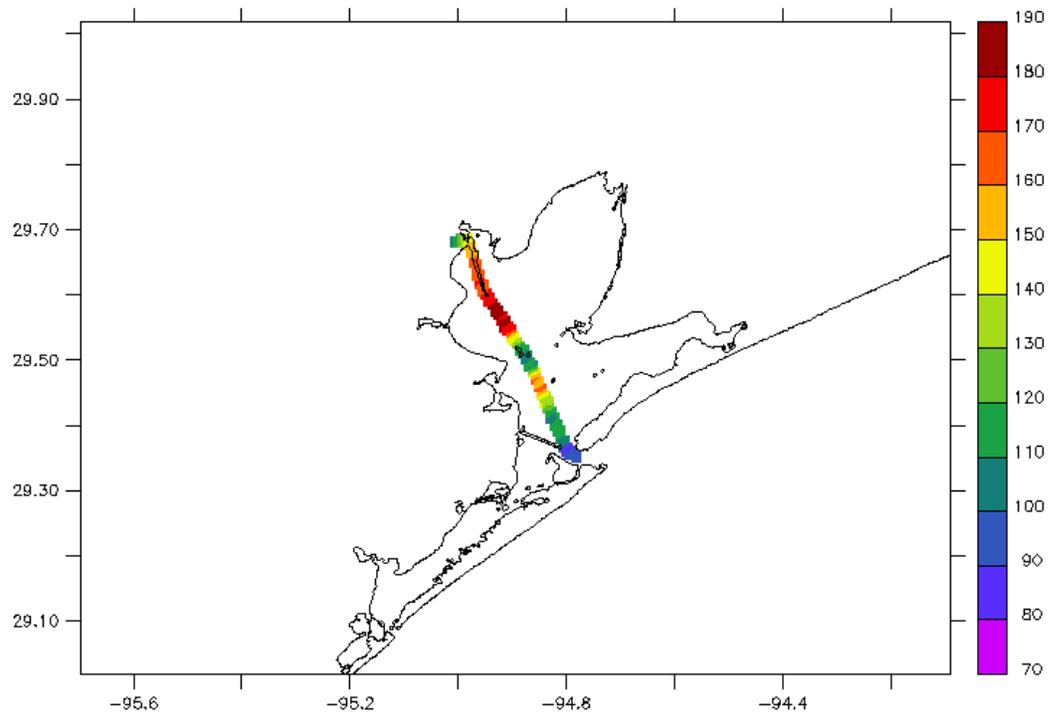
TrueWindDir, Deg

DOY 244.7 to 244.82



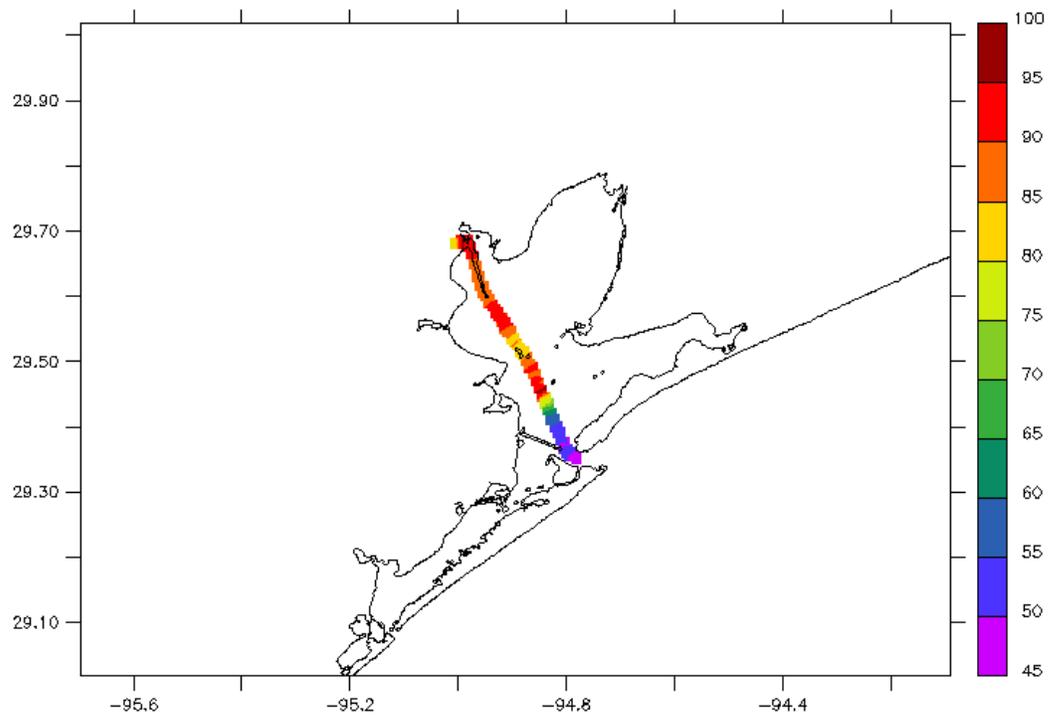
O3, ppb

DOY 244.7 to 244.82



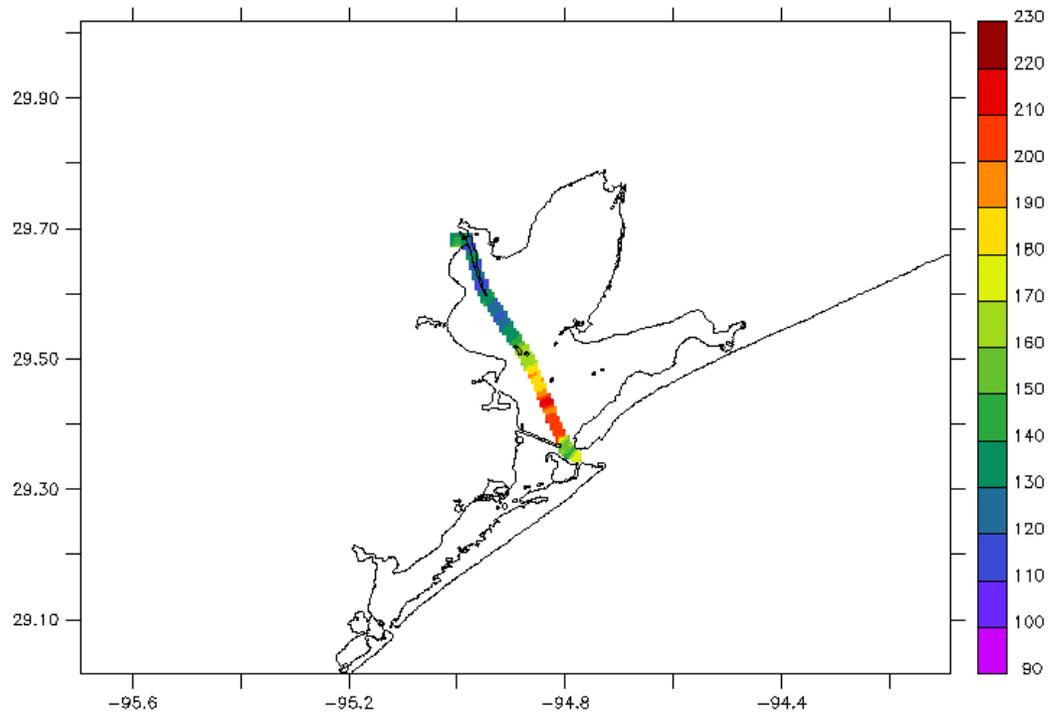
AerosolScatGreen, Mm-1

DOY 244.7 to 244.82



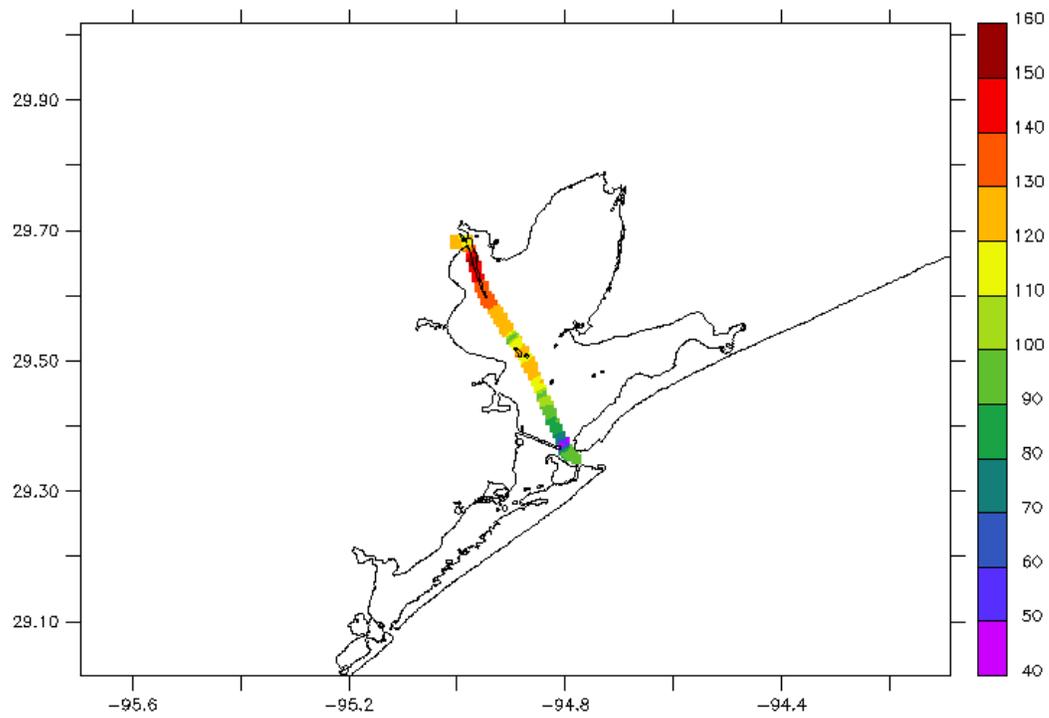
TrueWindDir, Deg

DOY 244.82 to 245



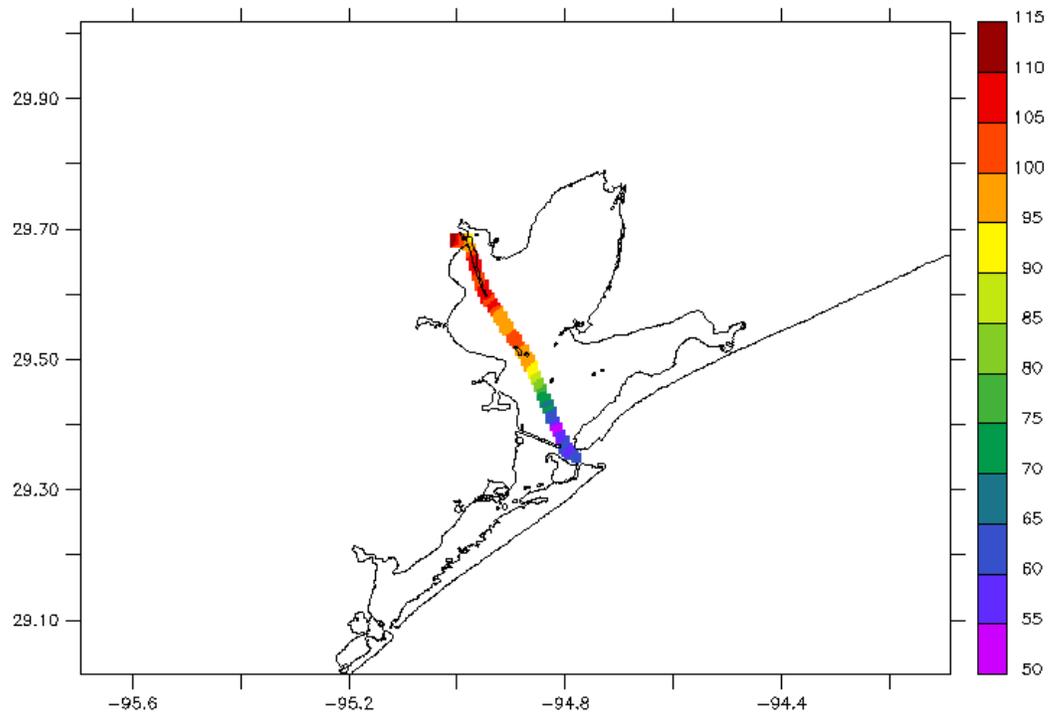
O3, ppb

DOY 244.82 to 245



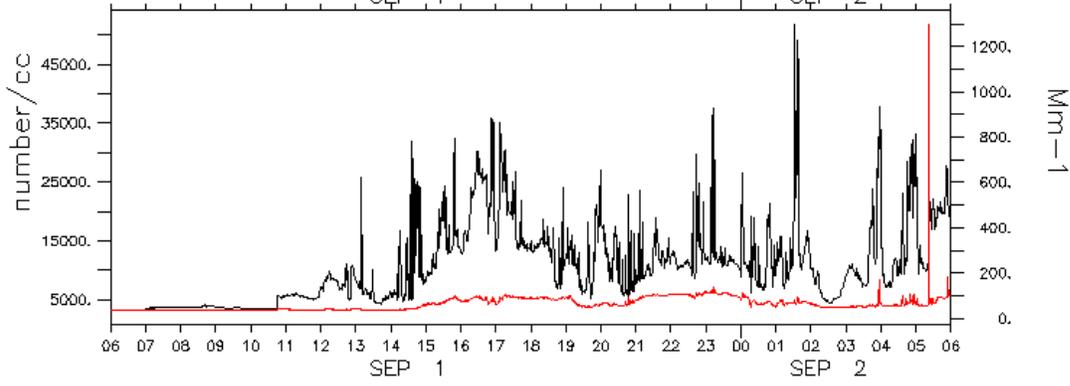
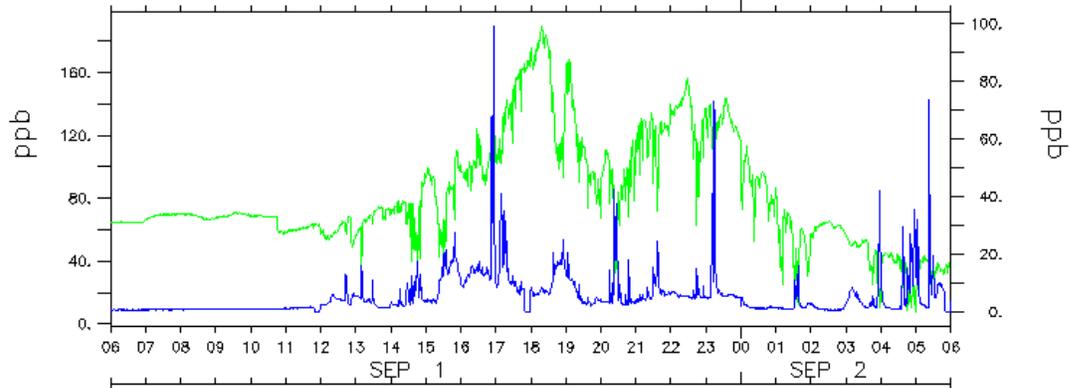
AerosolScatGreen, Mm-1

DOY 244.82 to 245



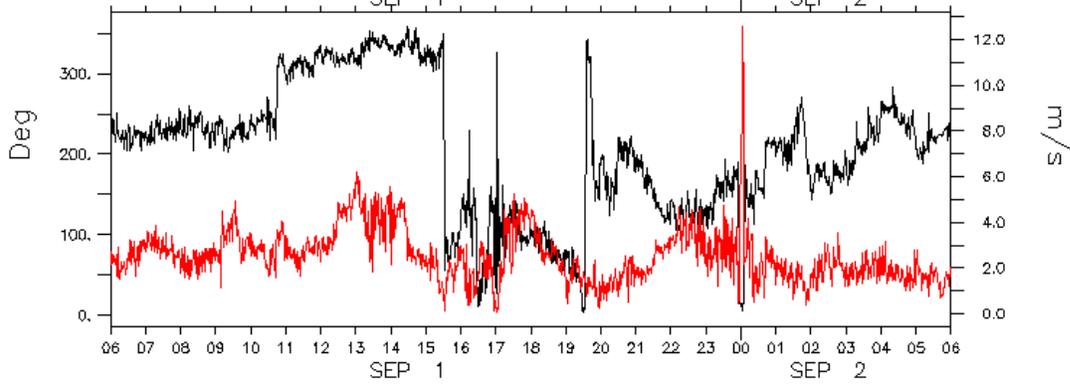
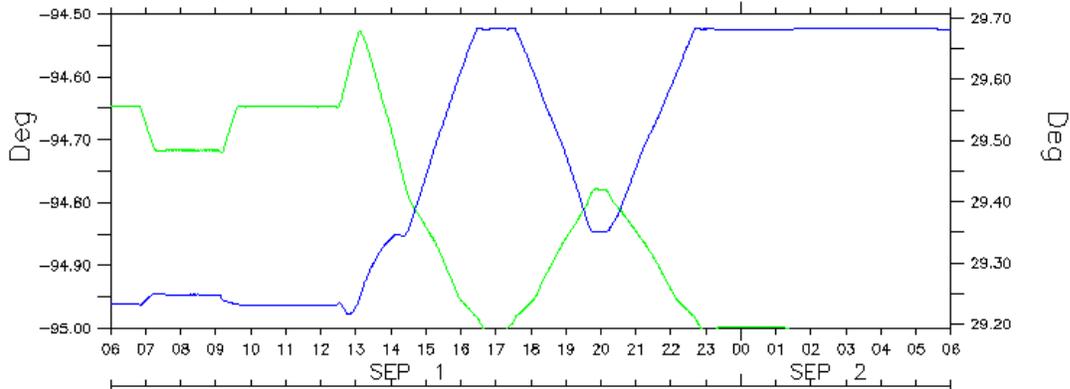
CN
O3

AerosolScatGreen
SD2

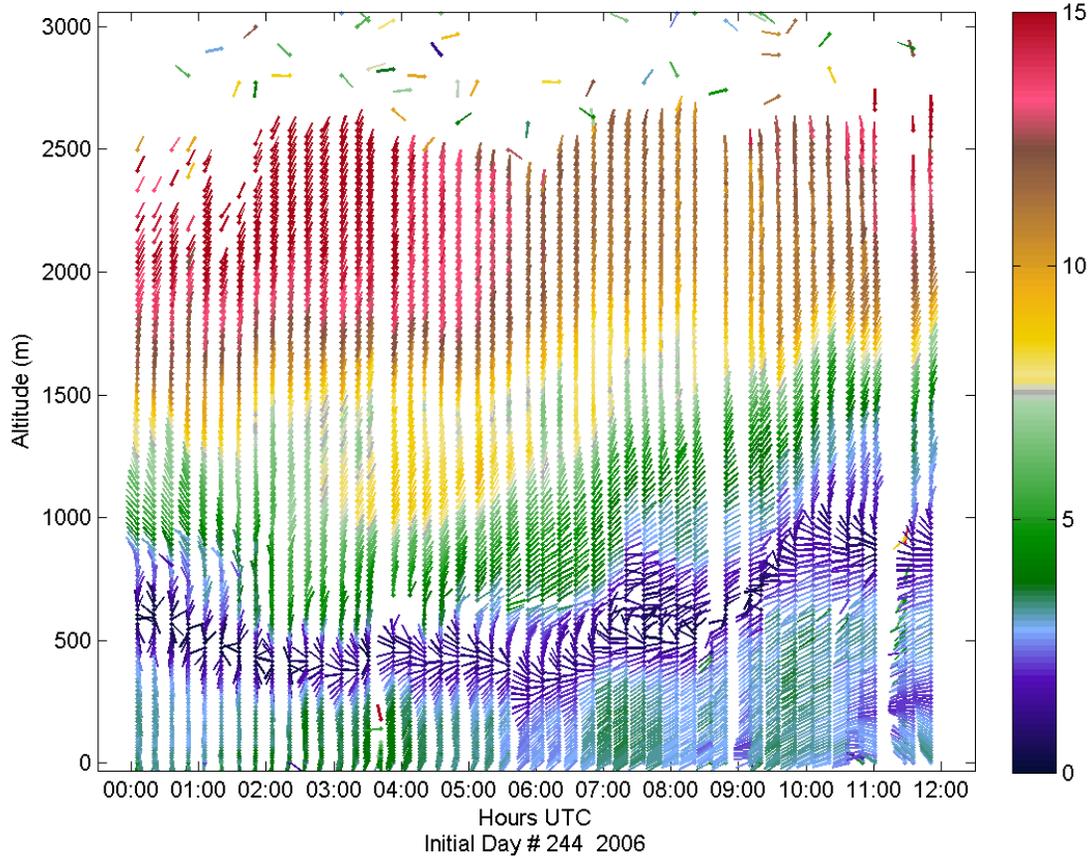


TrueWindDir
DLon

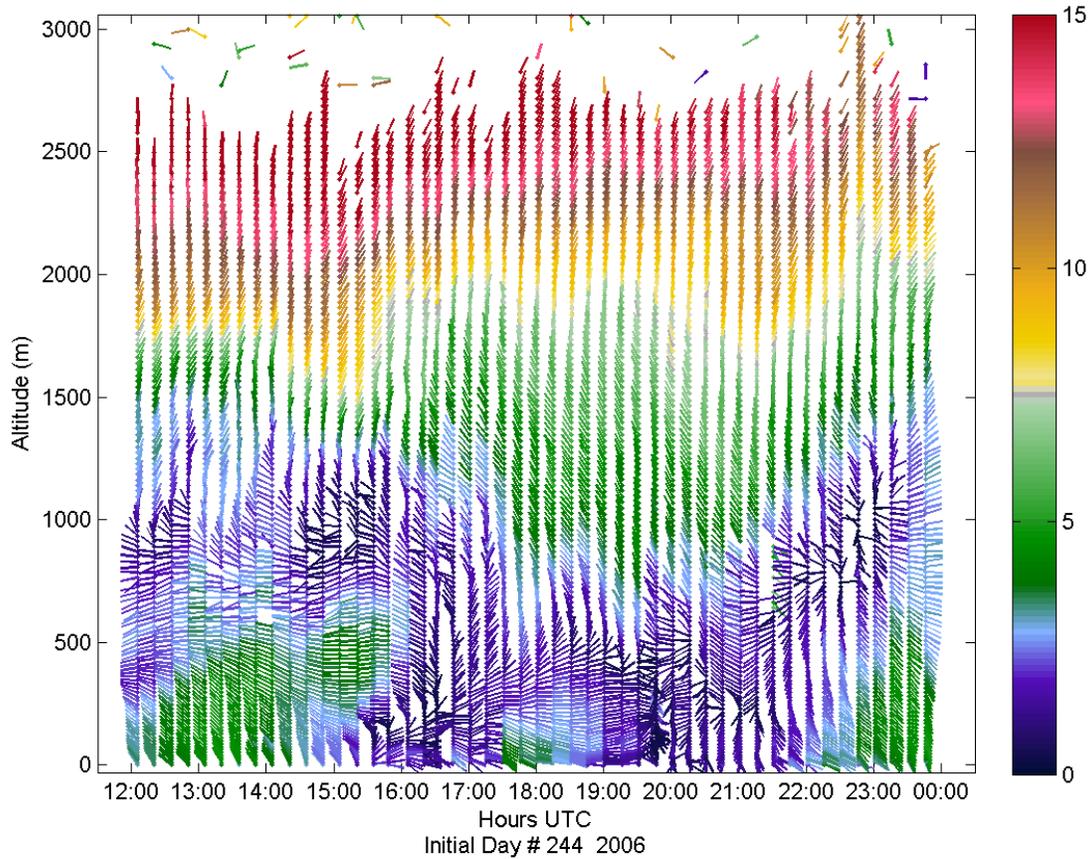
TrueWindSp
DLat



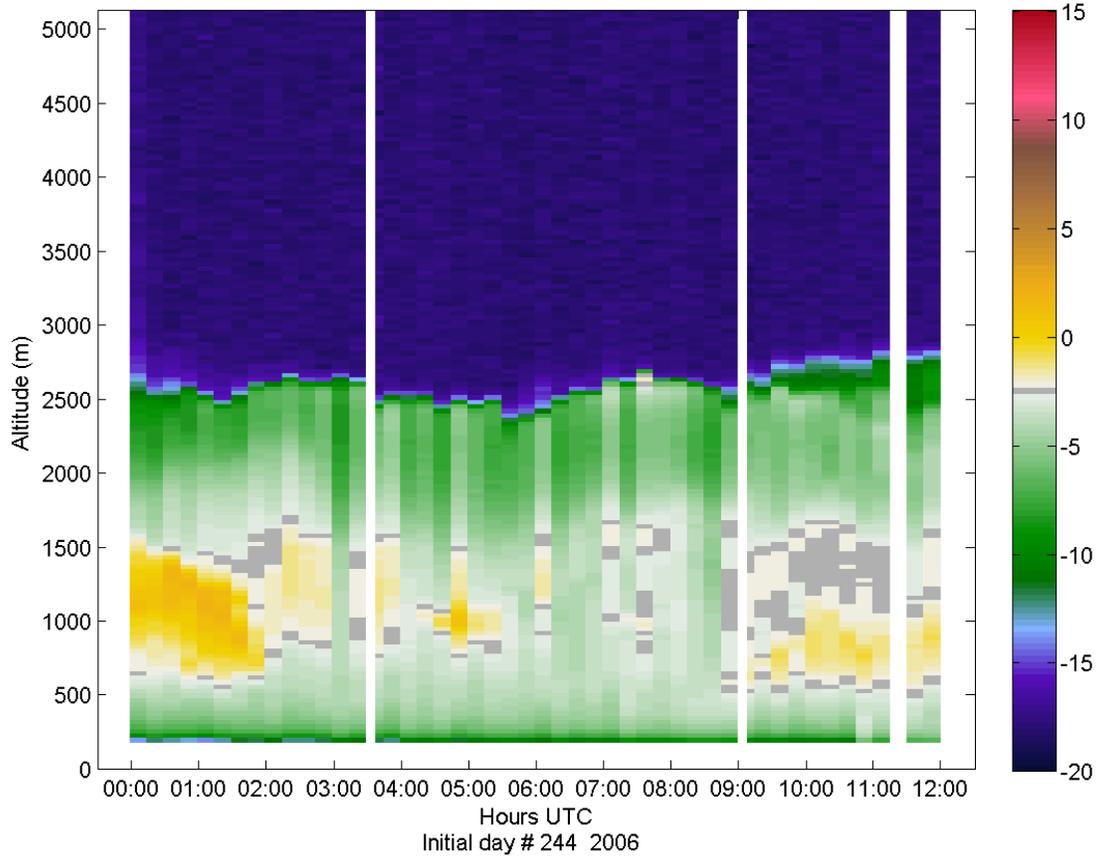
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
00:00 09/01/06 to 12:00 09/01/06 UTC



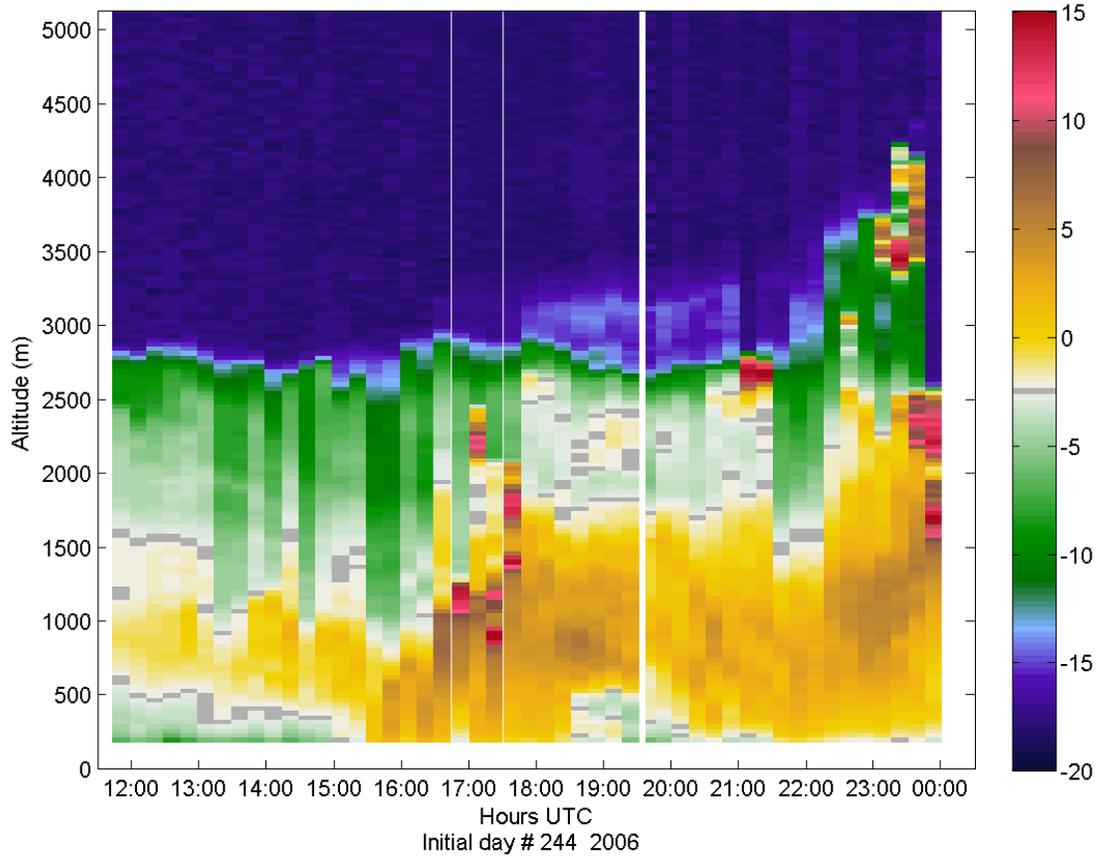
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/01/06 to 00:00 09/02/06 UTC



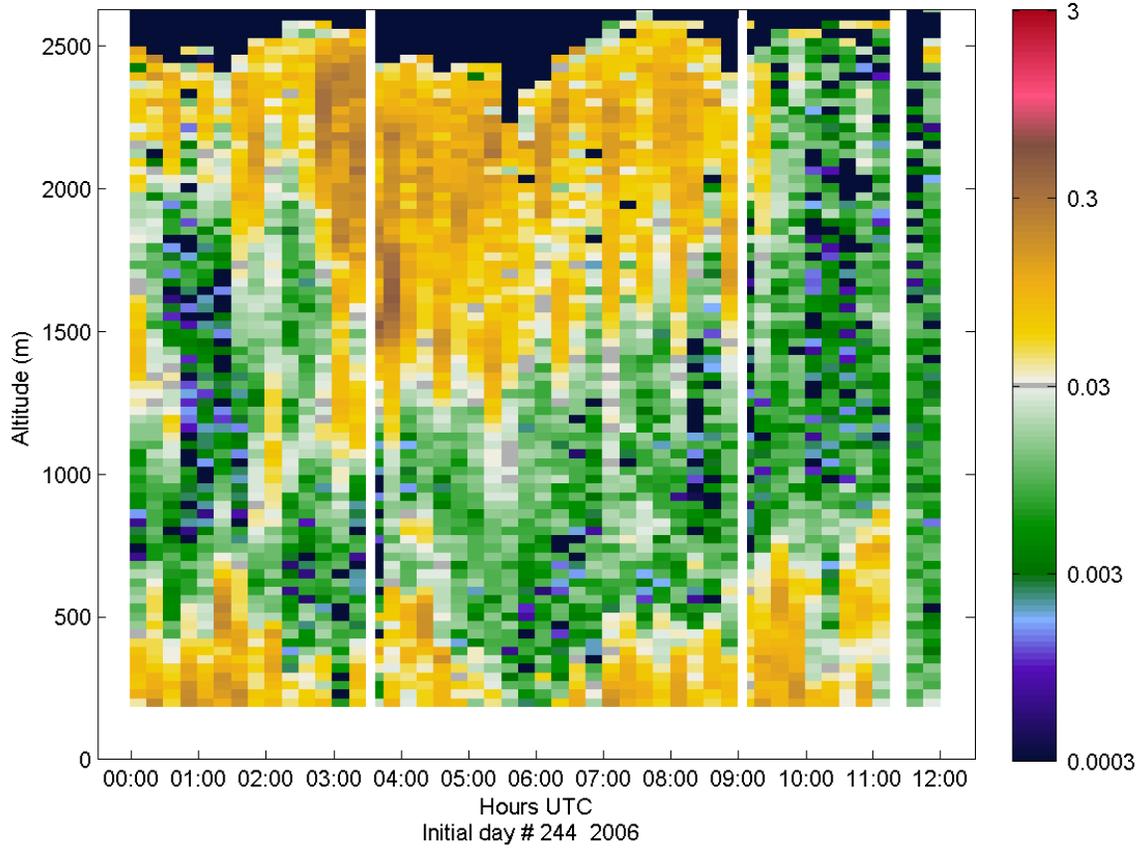
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
00:00 09/01/06 to 12:00 09/01/06



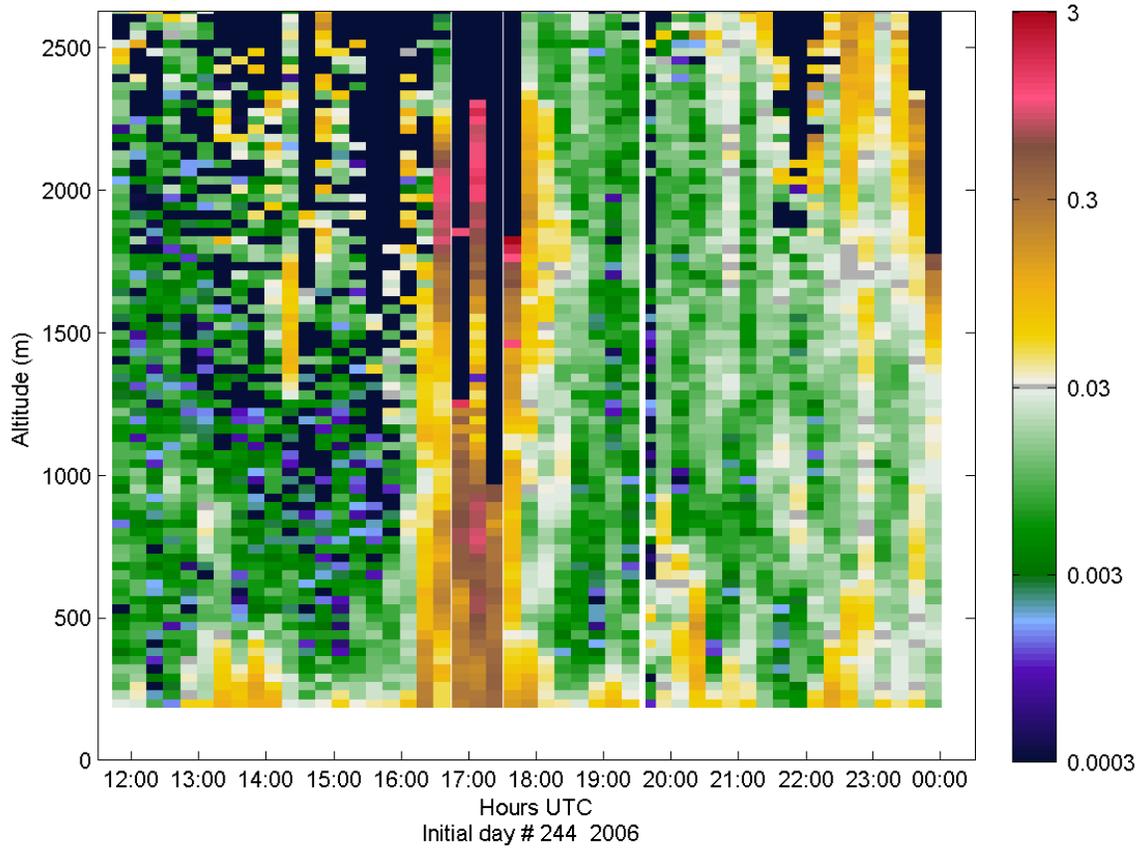
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/01/06 to 00:00 09/02/06

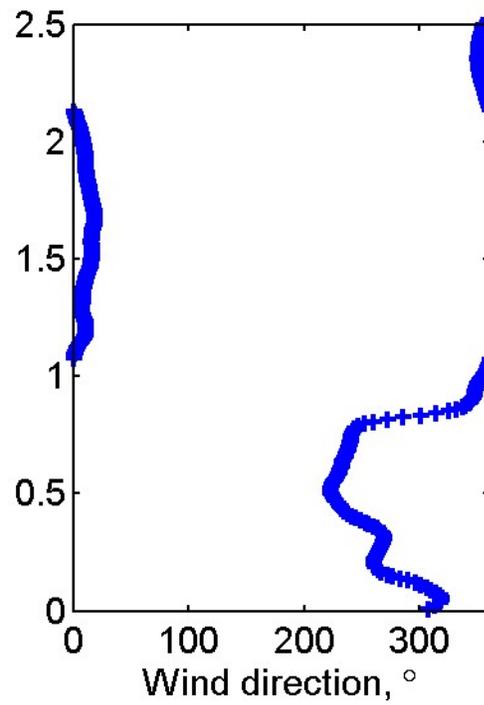
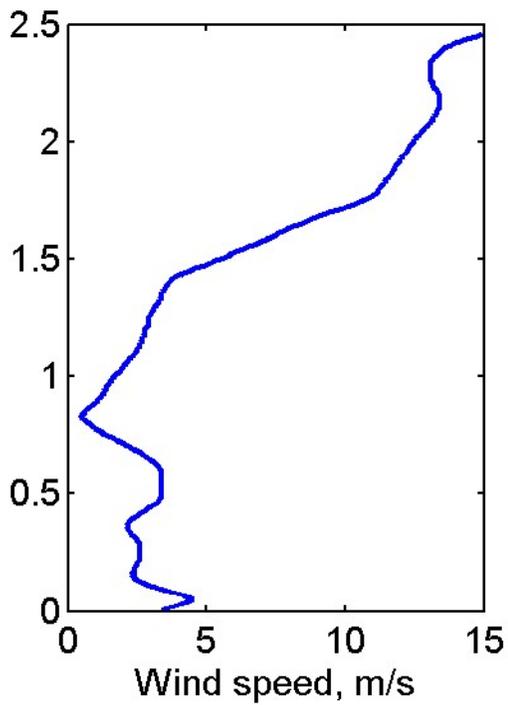
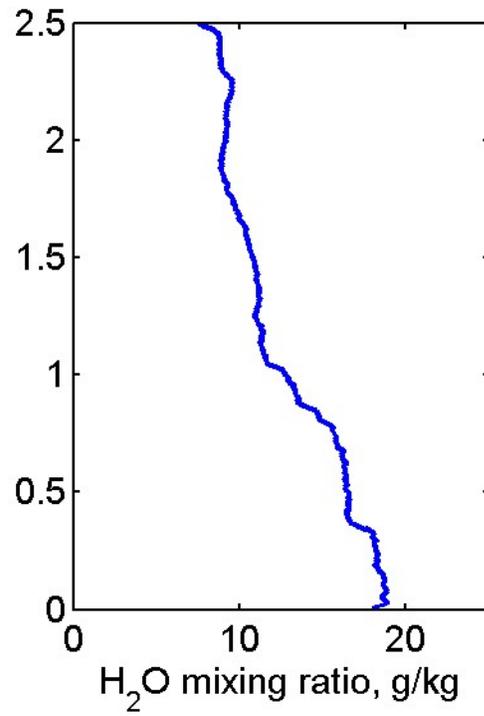
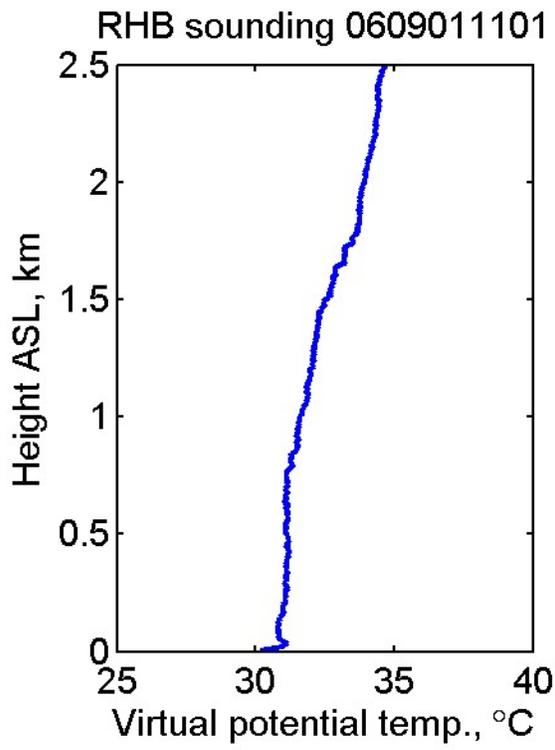


HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
00:00 09/01/06 to 12:00 09/01/06

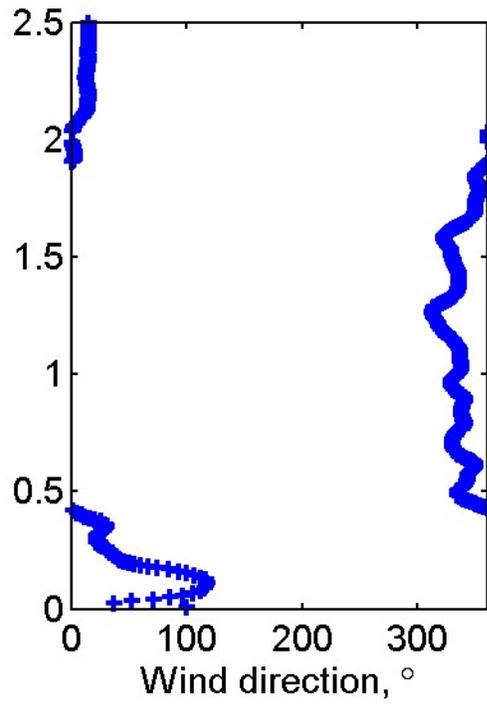
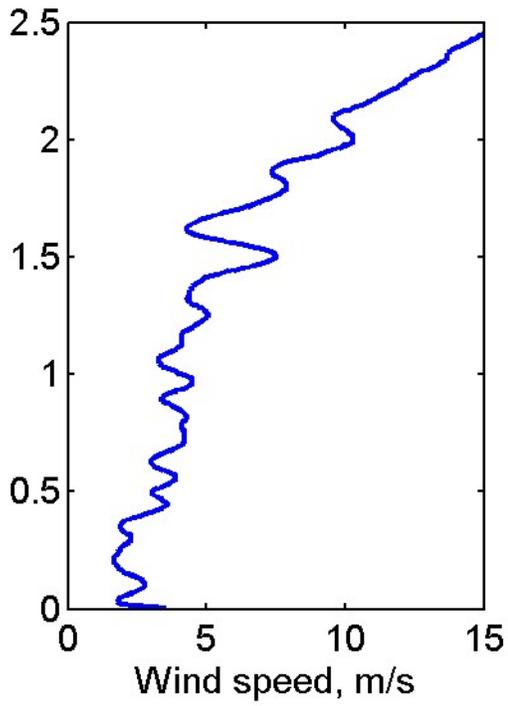
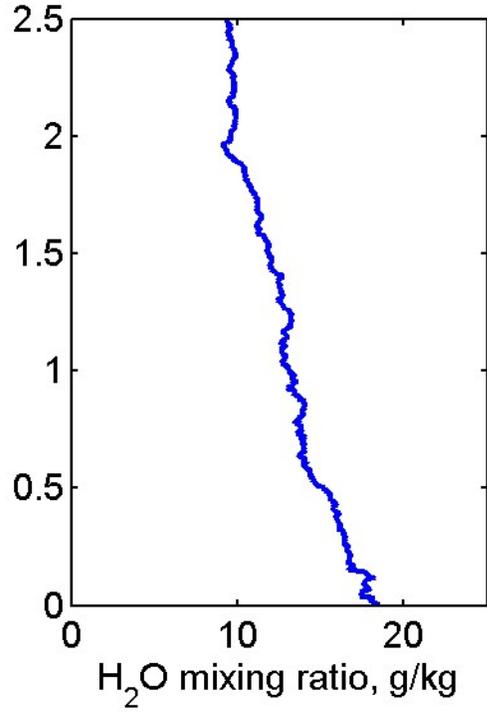
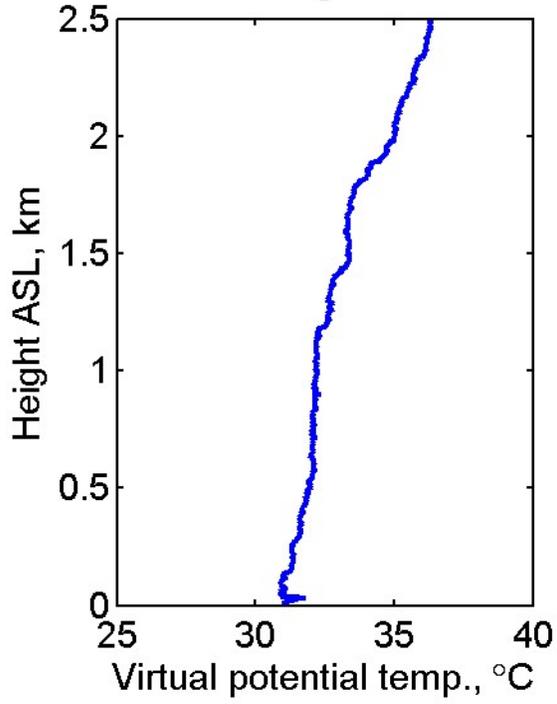


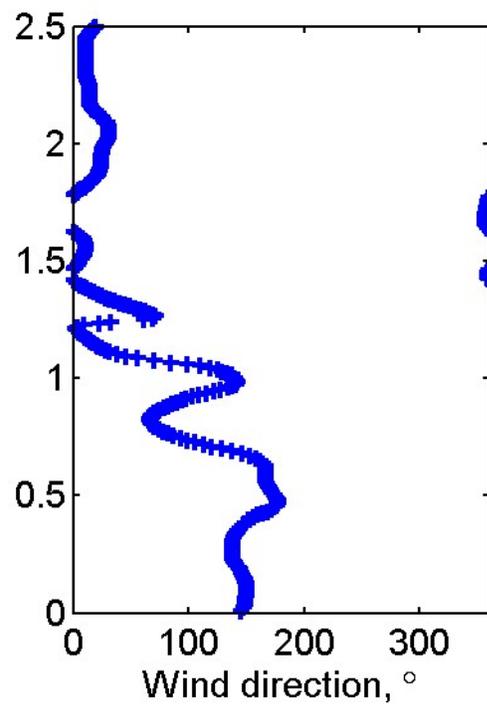
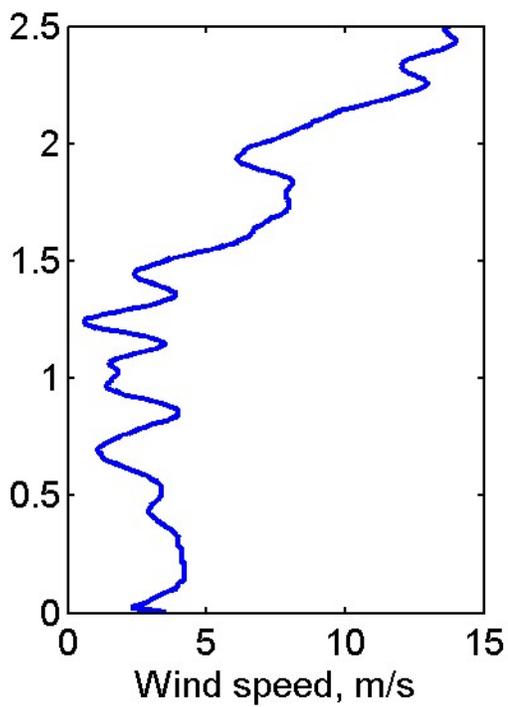
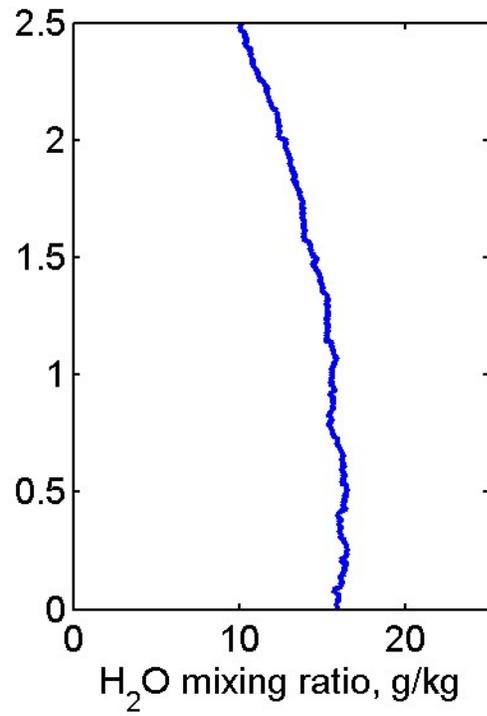
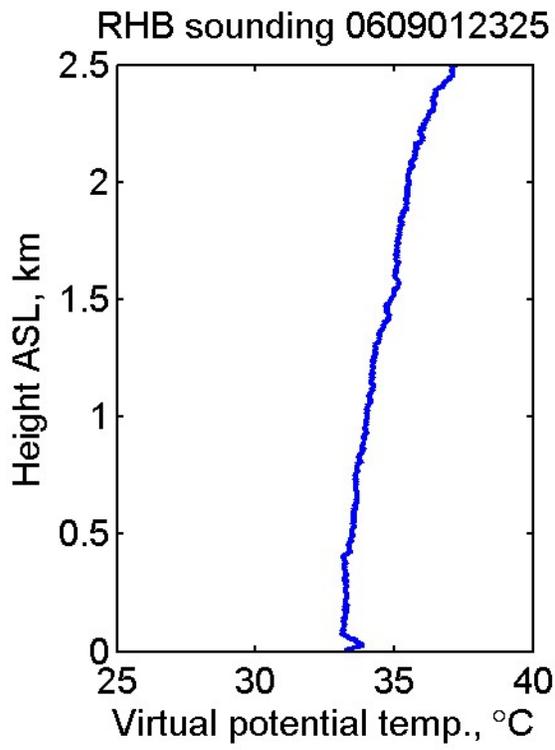
HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 09/01/06 to 00:00 09/02/06

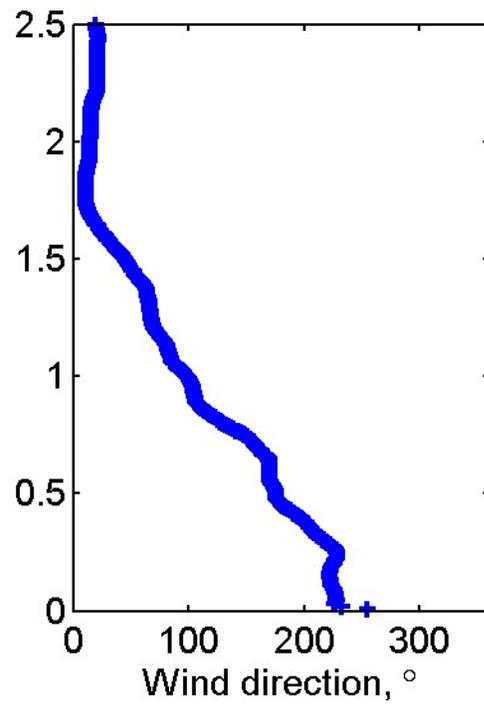
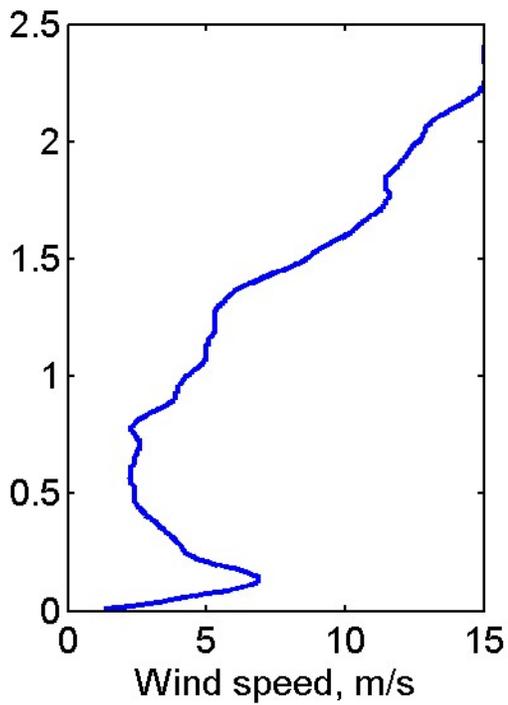
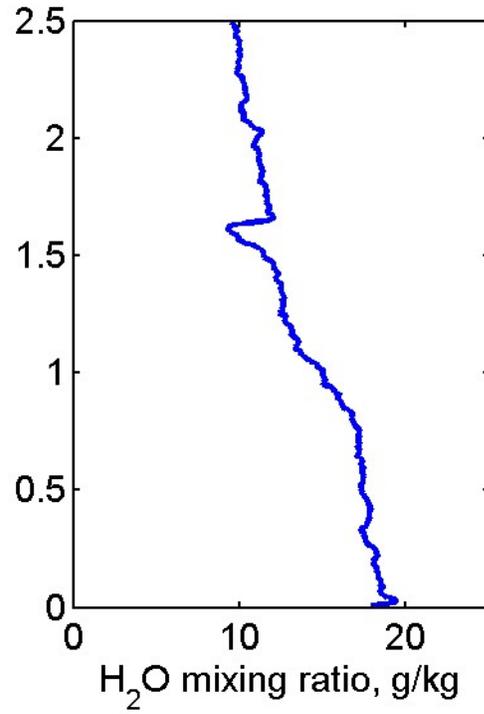
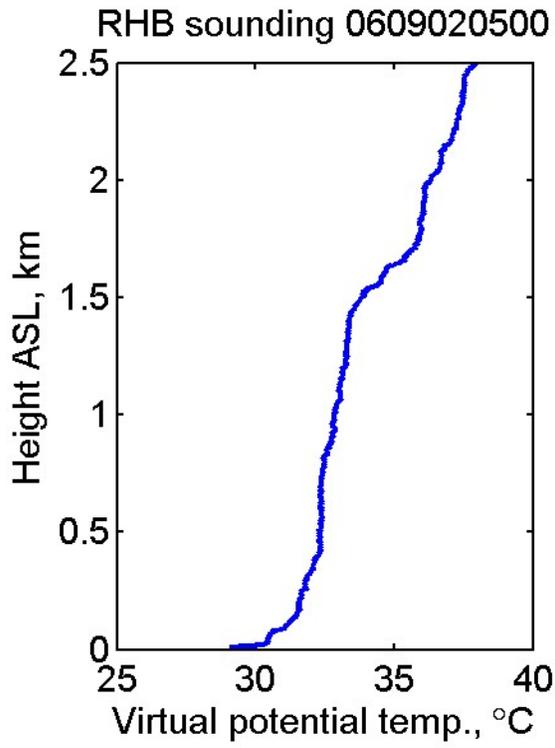




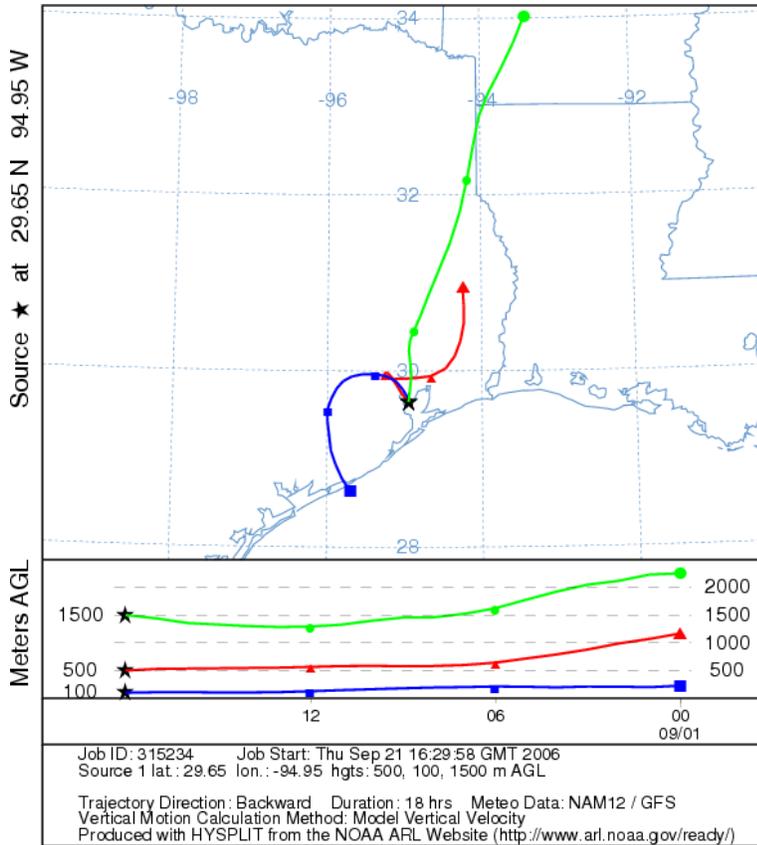
RHB sounding 0609011752



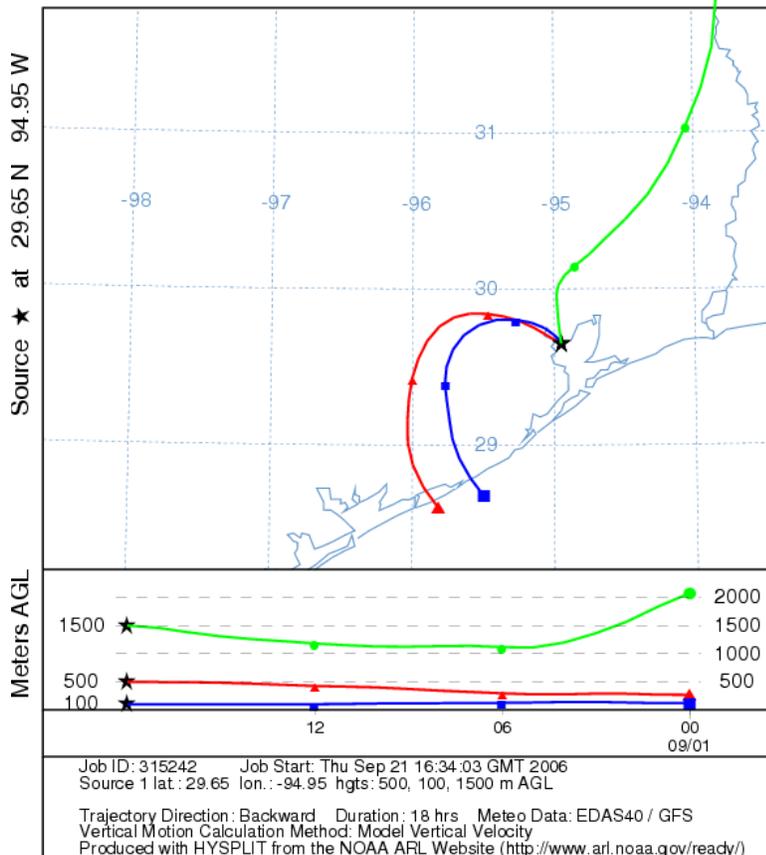




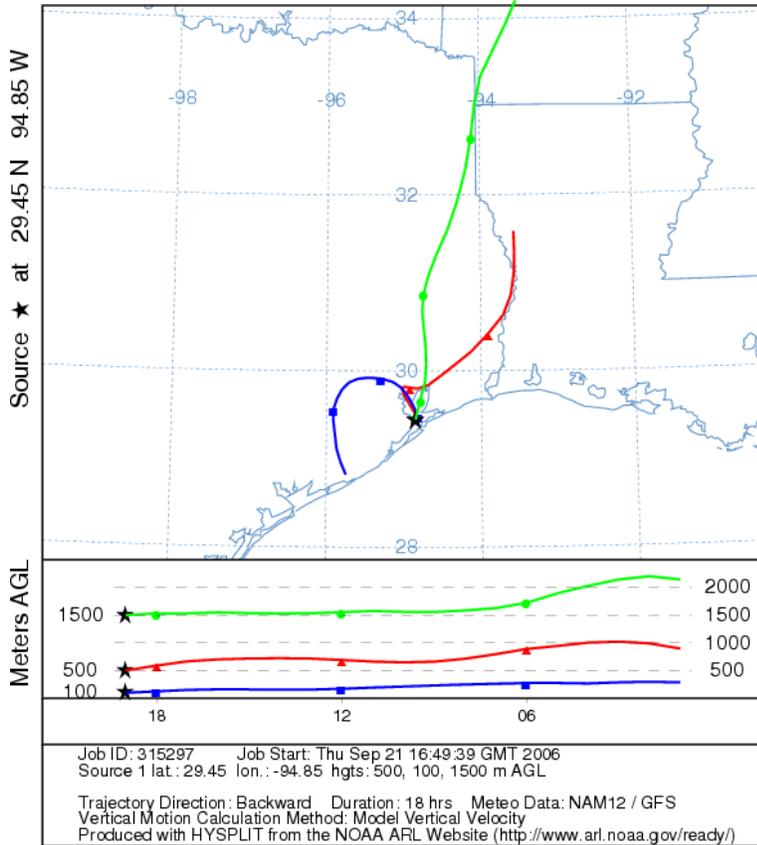
NOAA HYSPLIT MODEL
 Backward trajectories ending at 18 UTC 01 Sep 06
 NAM Meteorological Data



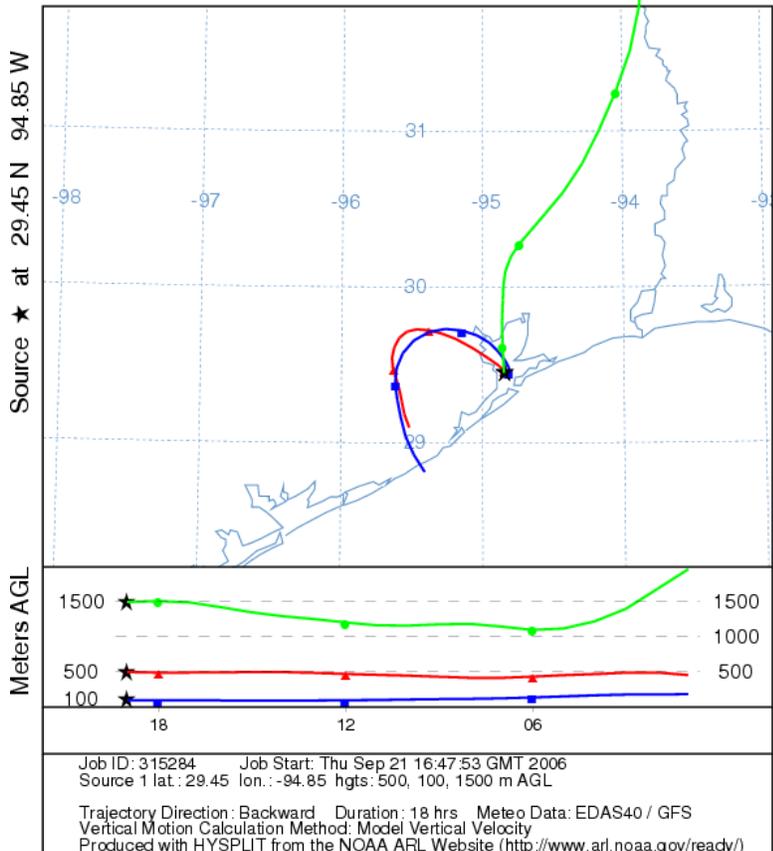
NOAA HYSPLIT MODEL
 Backward trajectories ending at 18 UTC 01 Sep 06
 EDAS Meteorological Data



NOAA HYSPLIT MODEL
 Backward trajectories ending at 19 UTC 01 Sep 06
 NAM Meteorological Data



NOAA HYSPLIT MODEL
 Backward trajectories ending at 19 UTC 01 Sep 06
 EDAS Meteorological Data



2 September

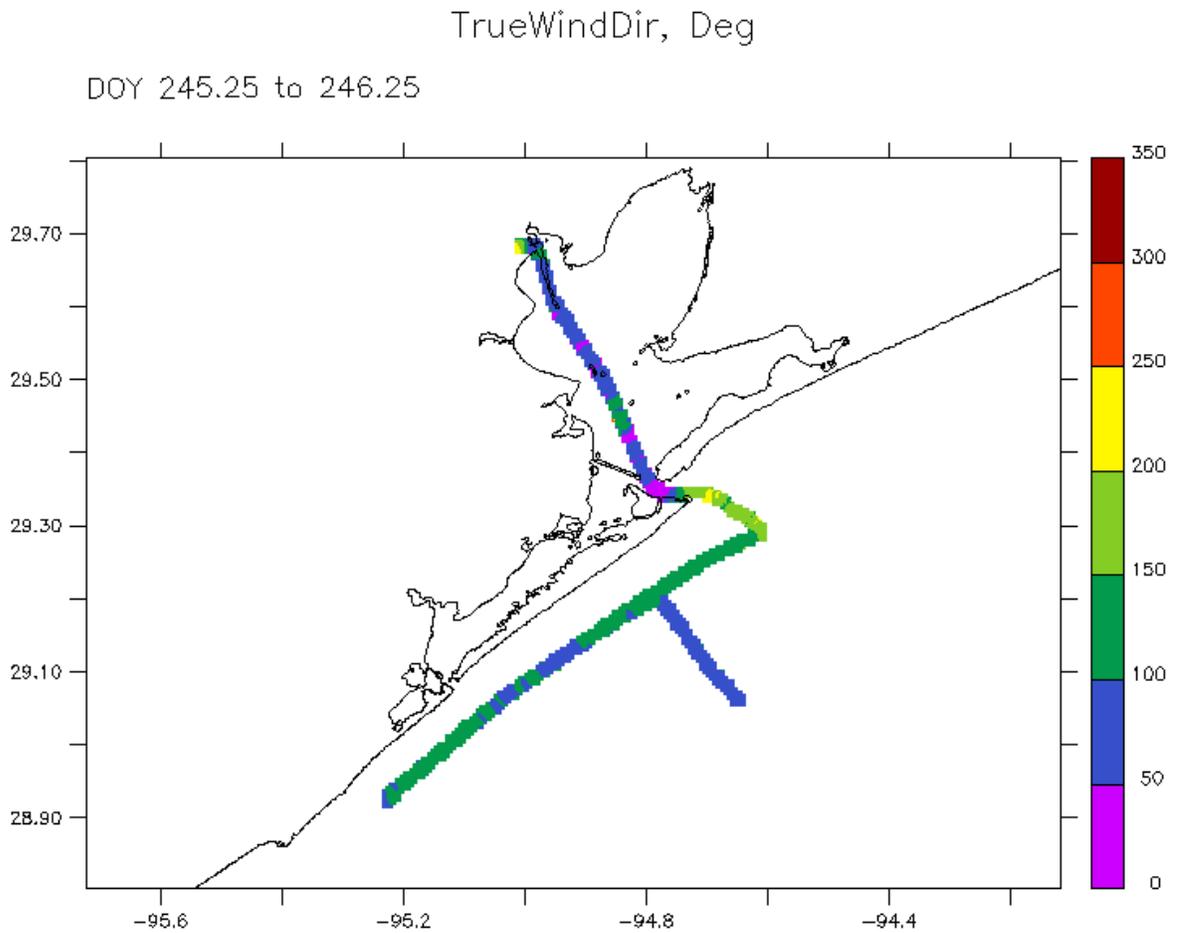
RHB from Barbour's Cut to Galveston to Barbour's Cut to Freeport, then return to off Galveston and a leg to the SE. High ozone and aerosol encountered alongshore. High aerosol with only moderate ozone on SE leg evening.

Trajectories show that ozone and aerosol in the Gulf are coming from Beaumont/Port Arthur.

BL heights from HRDL: 06Z 500 m (BC); 12Z 200 m NE wind layer, 1000 m NW->E shift (BC); 16Z 500 m (Galveston); 19Z ~1500 m (BC); 23Z 700 m (high aerosol alongshore); 02Z 3rd ambiguous (700 m w'w', 1300 m LLJ nose) (off Freeport); 05Z 3rd ambiguous (500 m w'w', 1700 m LLJ nose) (high aerosol alongshore).

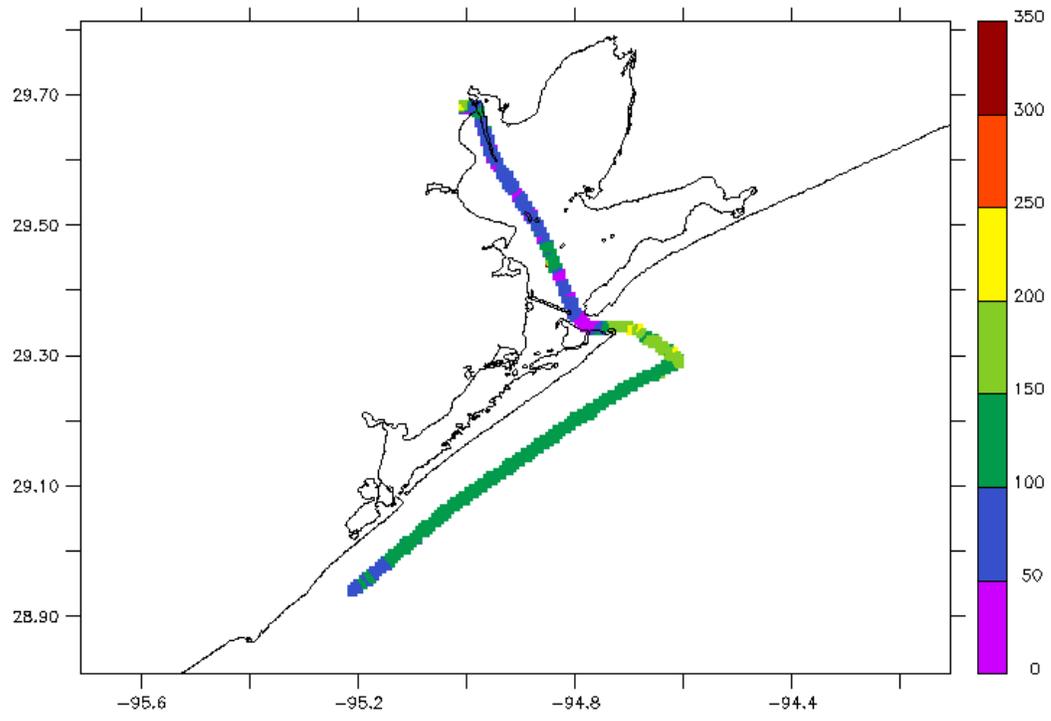
BL heights from sondes: 11Z 100 m (BC); 17Z 300 m lower layer, 1000 m upper layer; 1938Z 400 m (wind direction); 23Z 700 m.

Fluxes on some legs



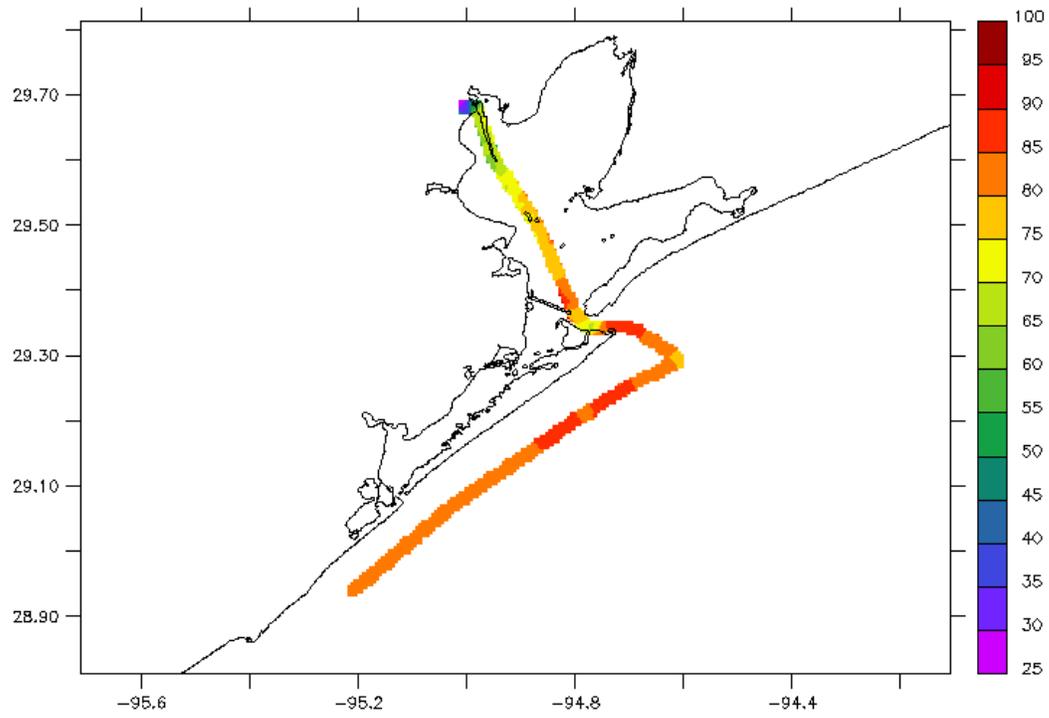
TrueWindDir, Deg

DOY 245.25 to 246.07



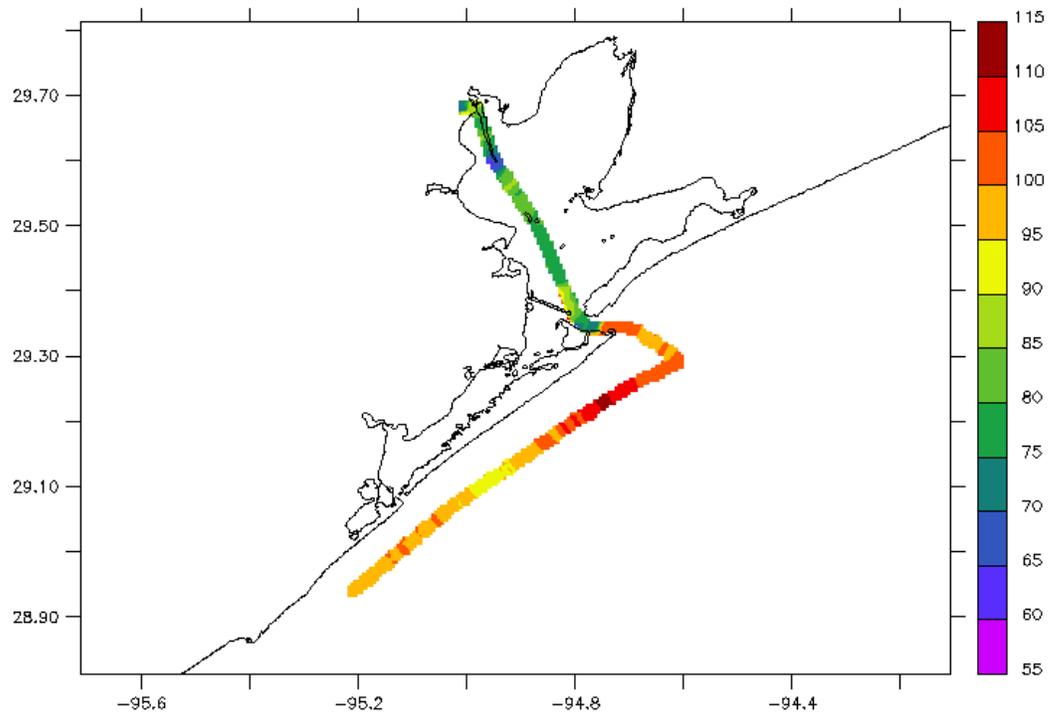
O3, ppb

DOY 245.25 to 246.07



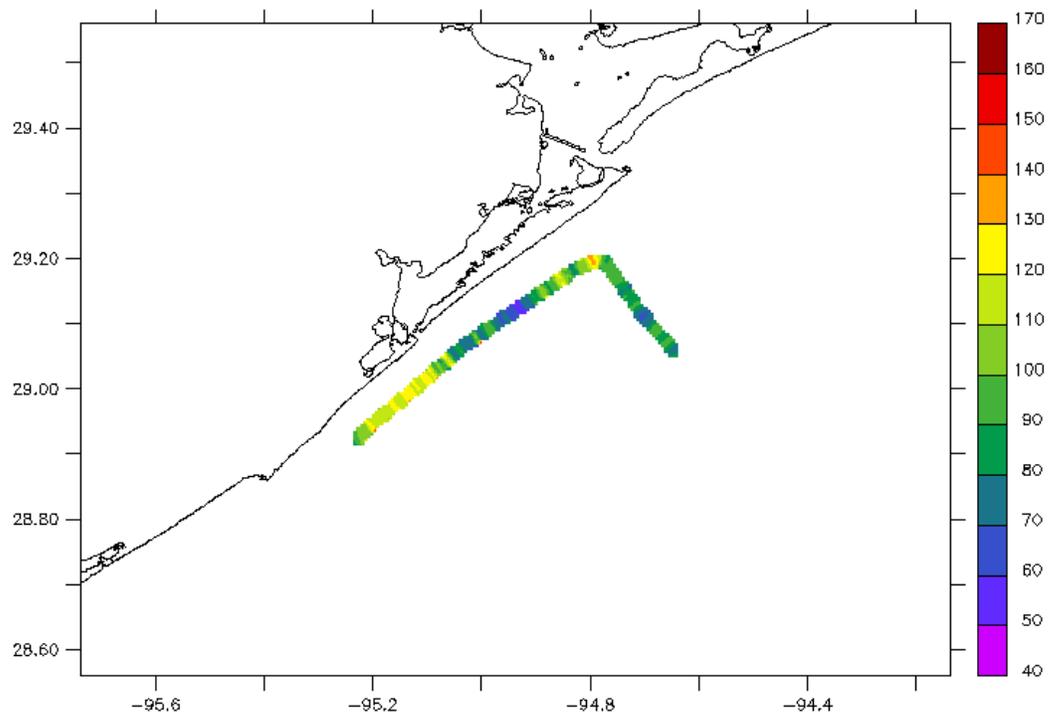
AerosolScatGreen, Mm-1

DOY 245.25 to 246.07



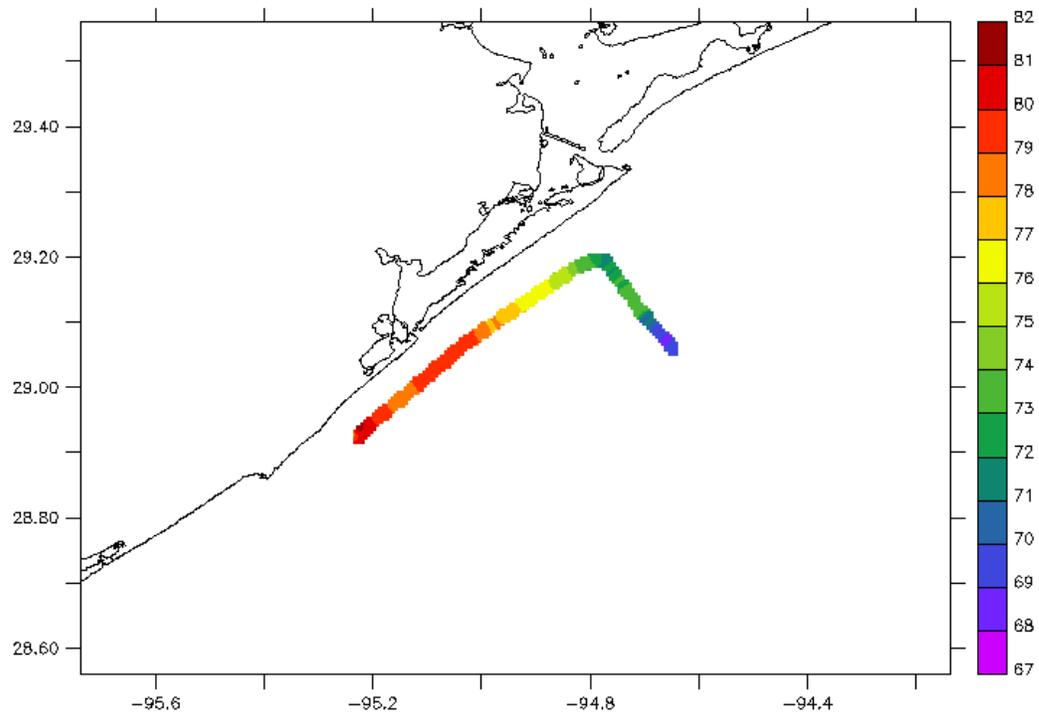
TrueWindDir, Deg

DOY 246.07 to 246.25



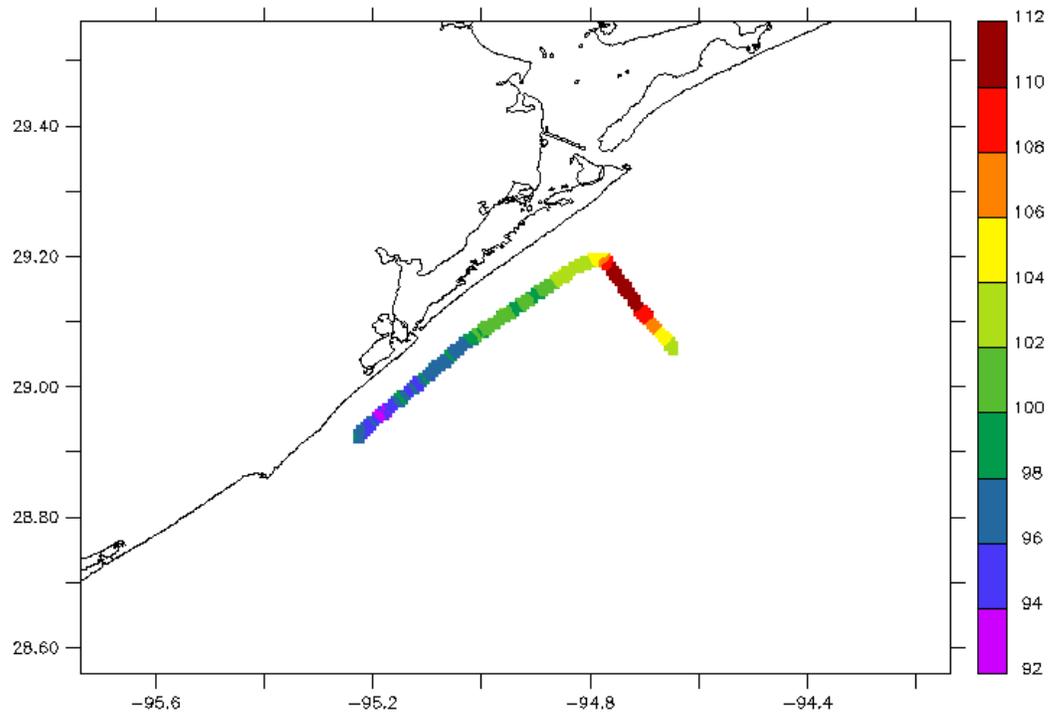
O3, ppb

DOY 246.07 to 246.25



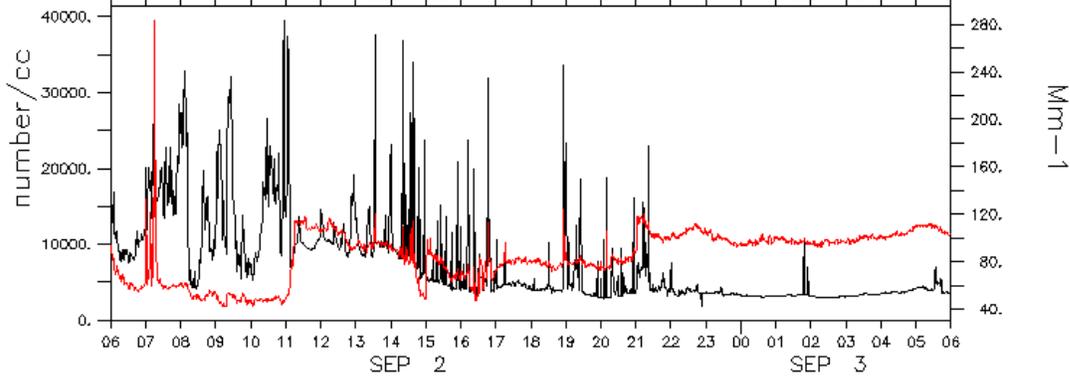
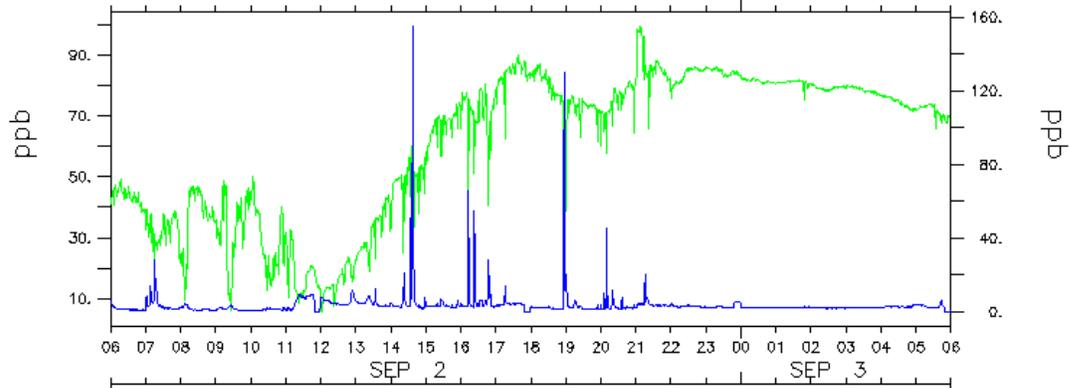
AerosolScatGreen, Mm-1

DOY 246.07 to 246.25



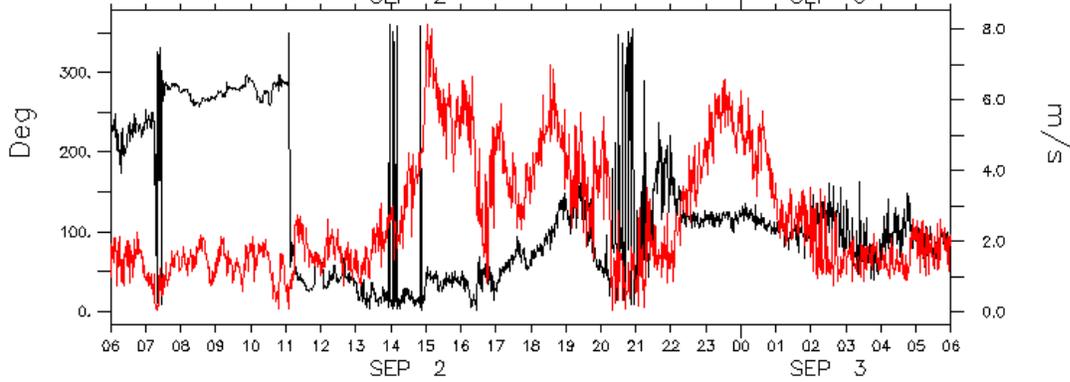
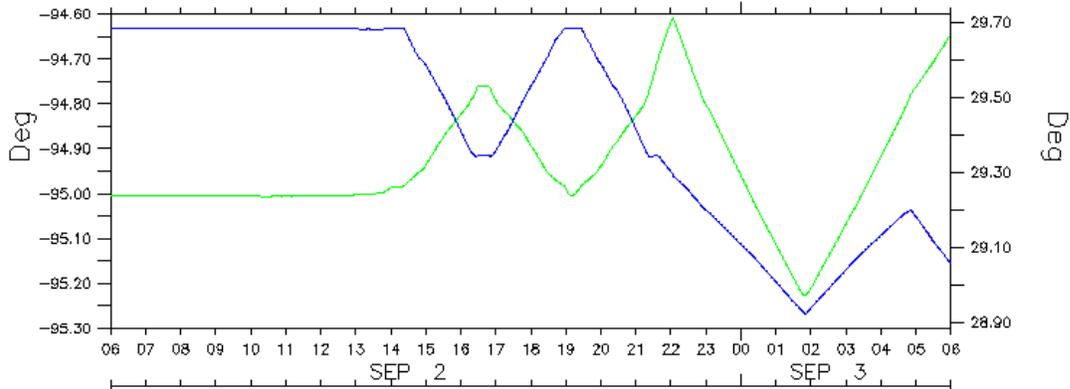
CN
03

AerosolScatGreen
SD2

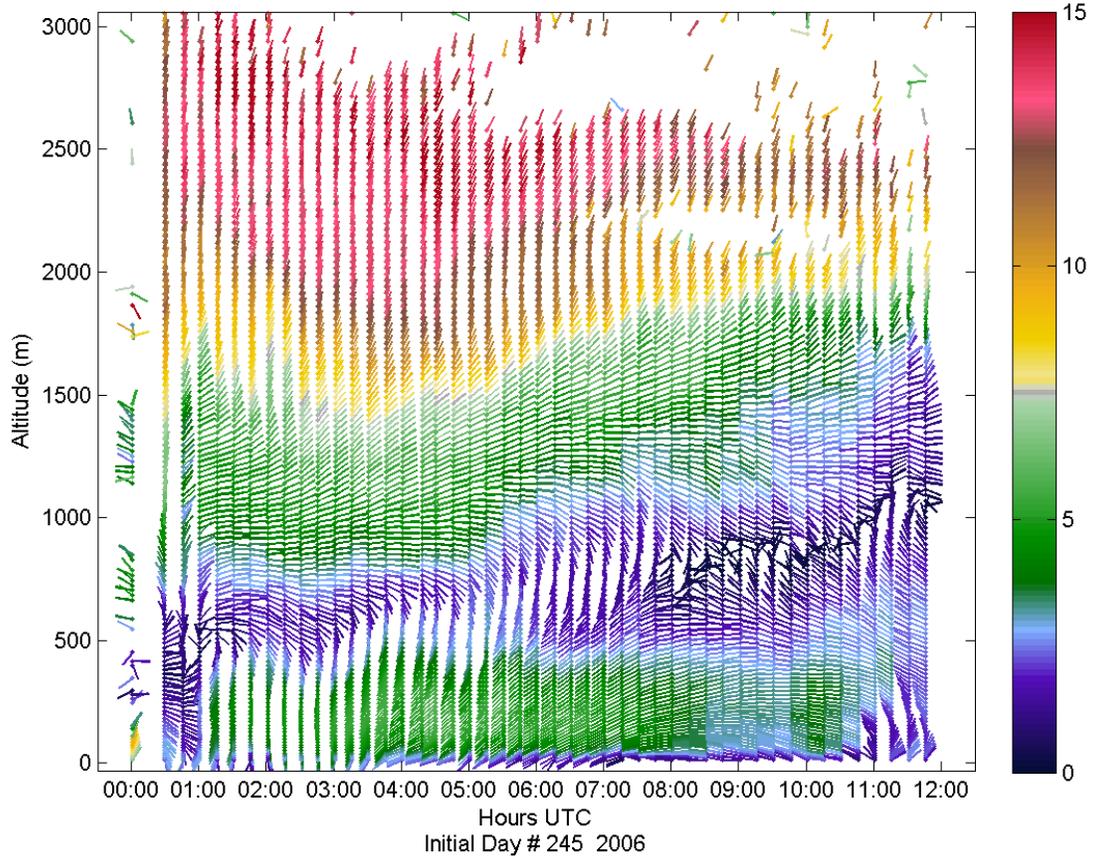


TrueWindDir
DLon

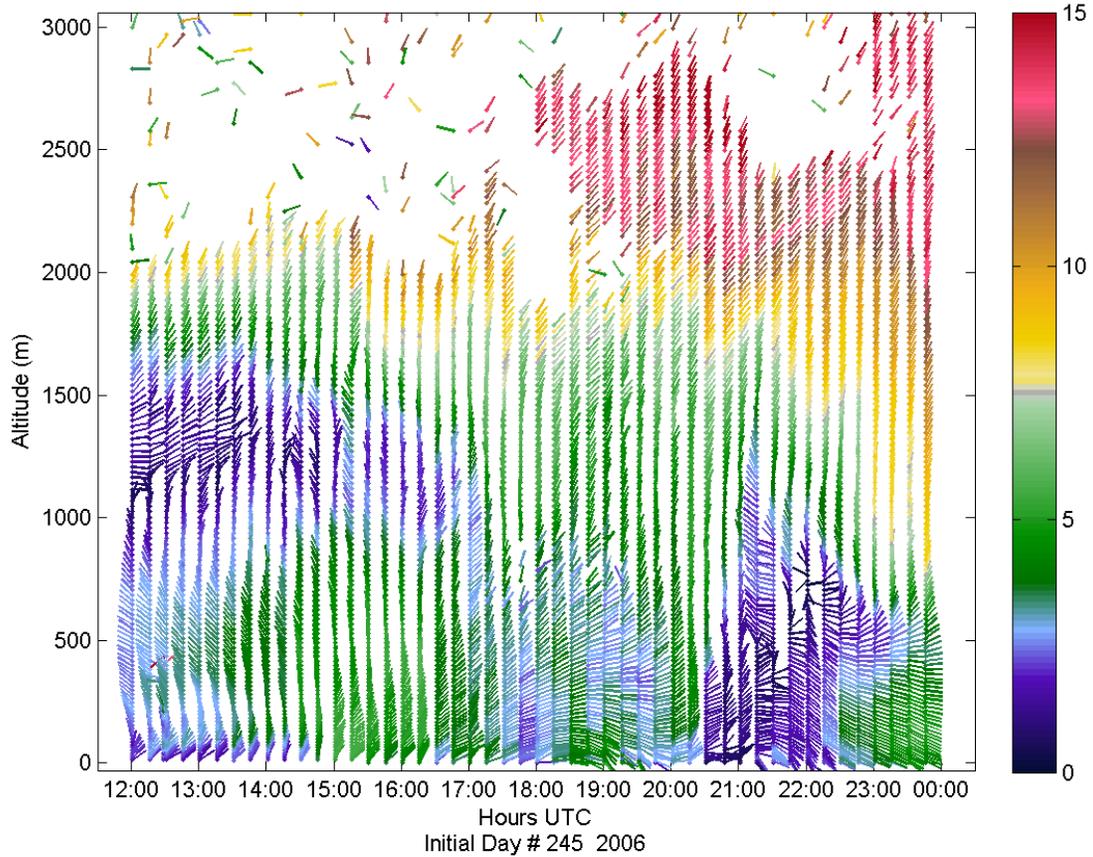
TrueWindSp
DLat



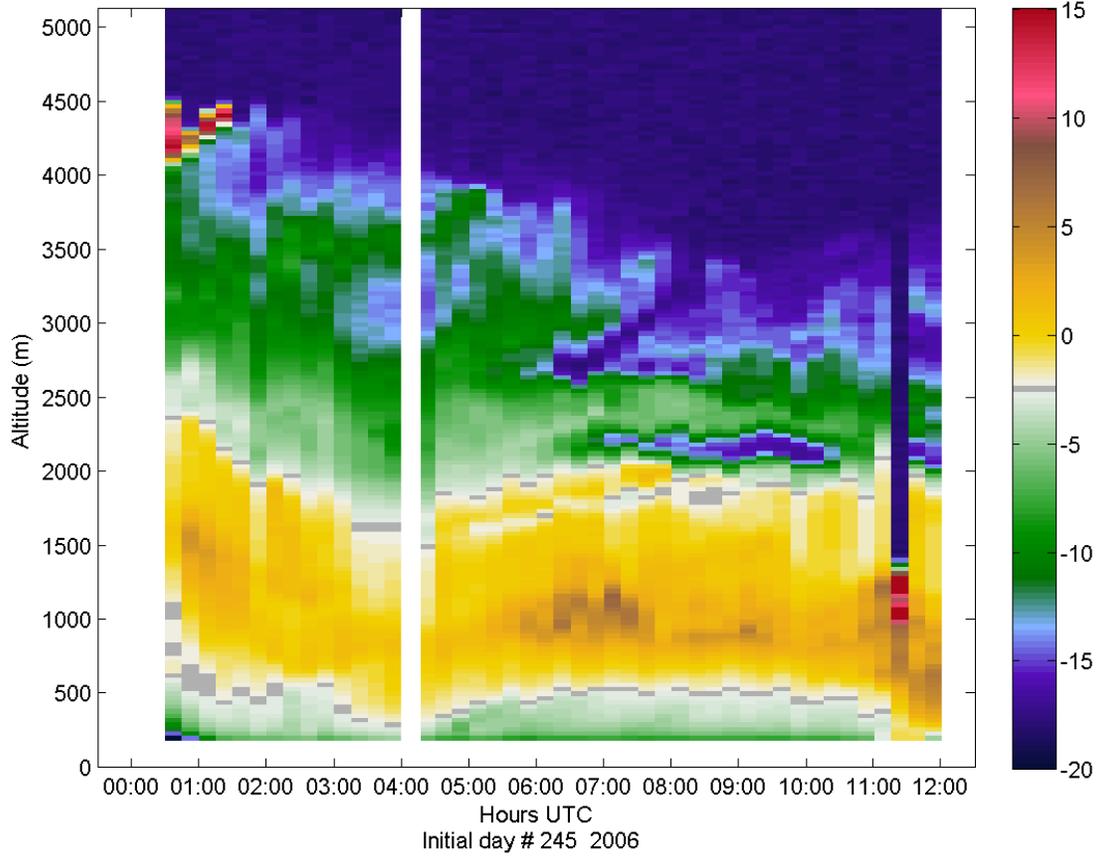
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
00:00 09/02/06 to 12:00 09/02/06 UTC



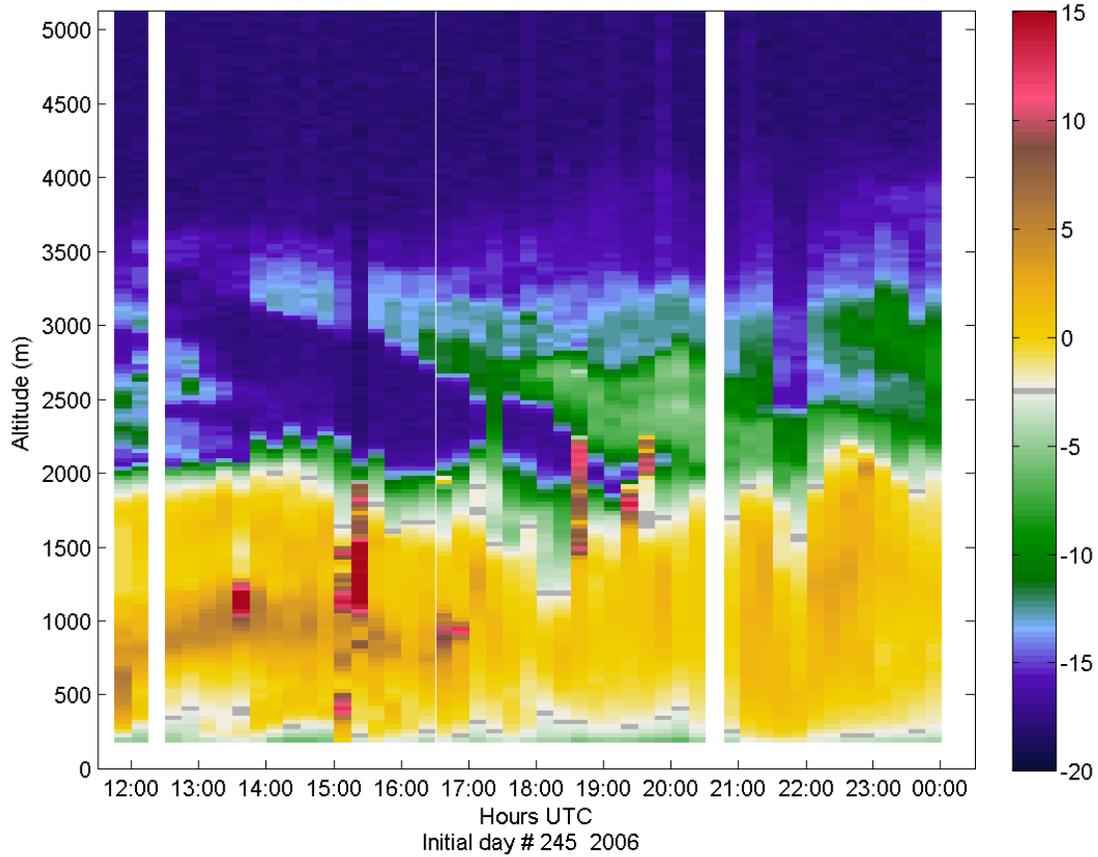
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/02/06 to 00:00 09/03/06 UTC



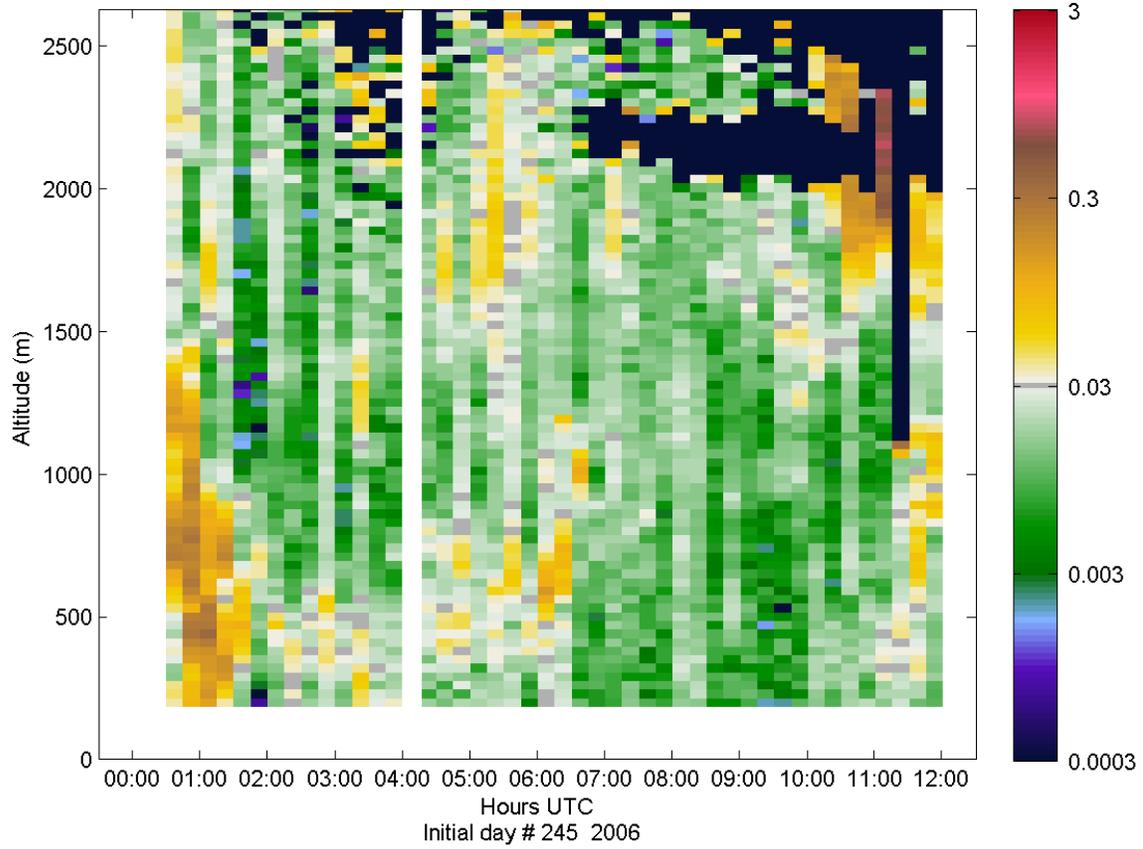
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
00:00 09/02/06 to 12:00 09/02/06



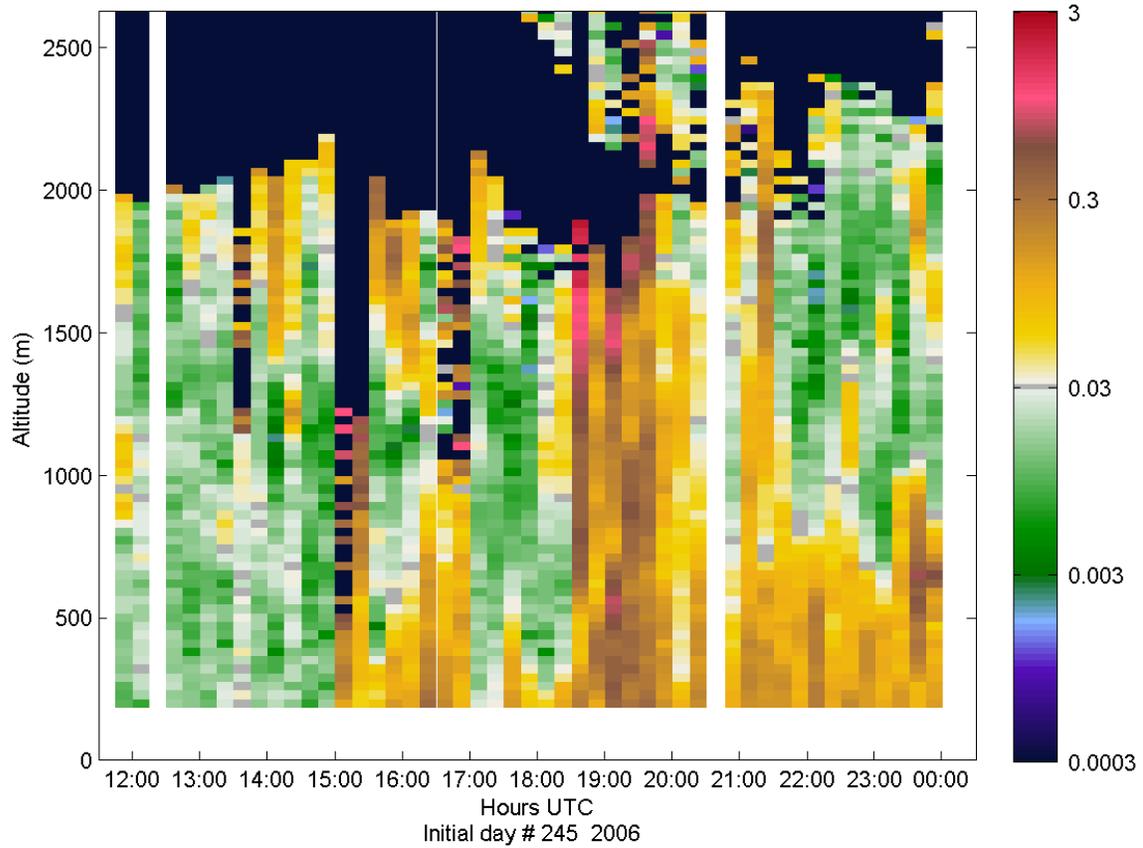
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/02/06 to 00:00 09/03/06

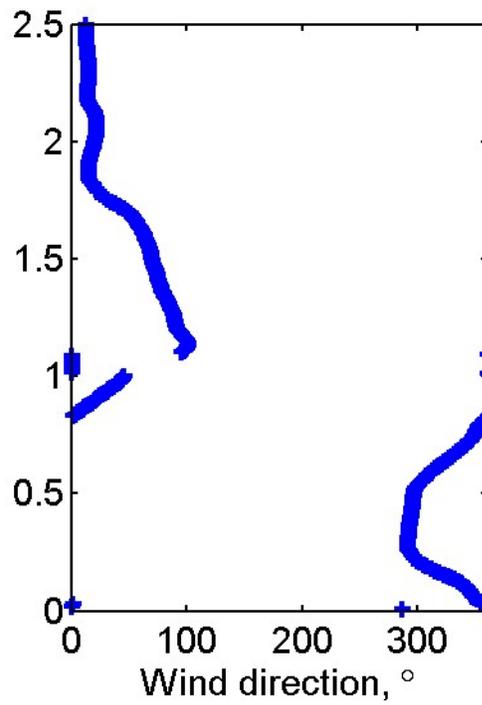
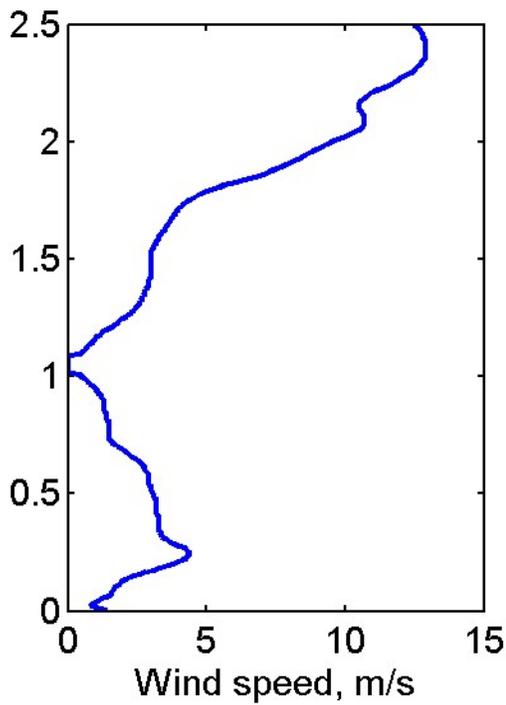
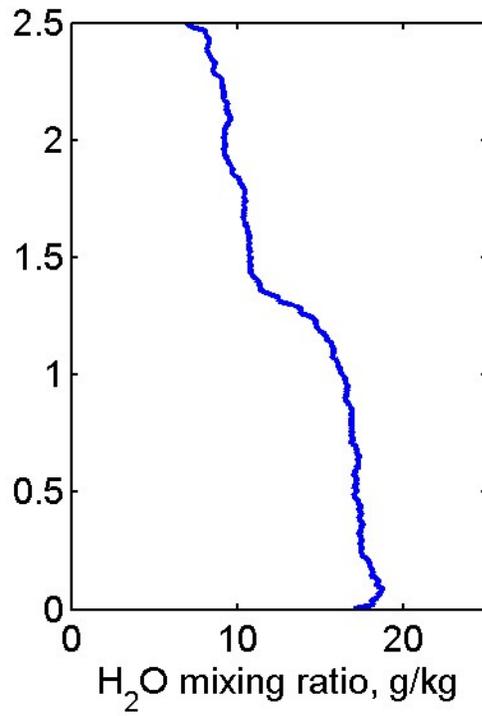
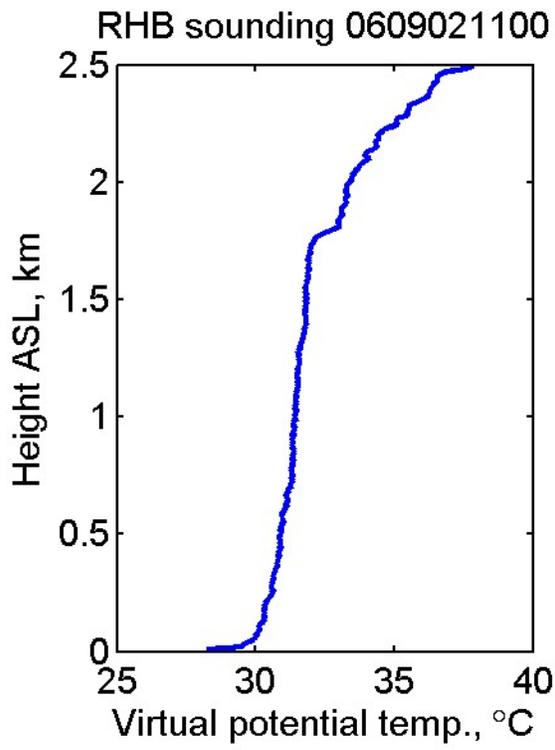


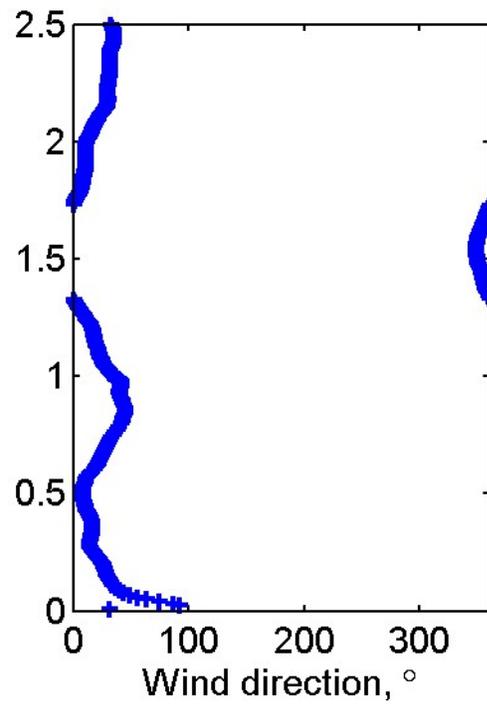
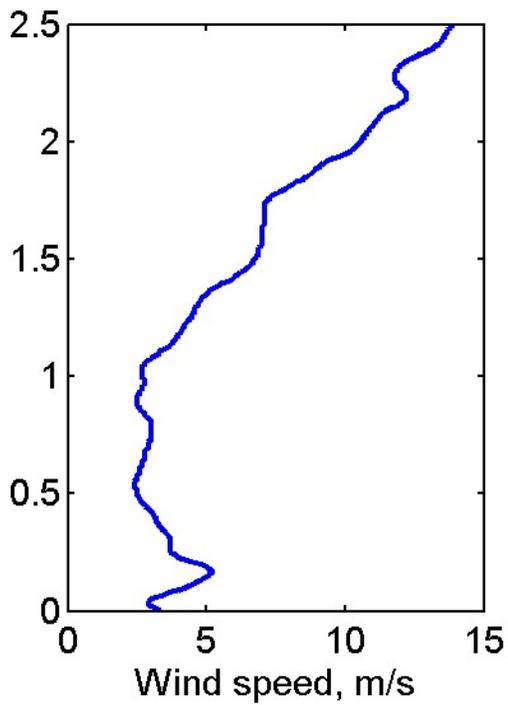
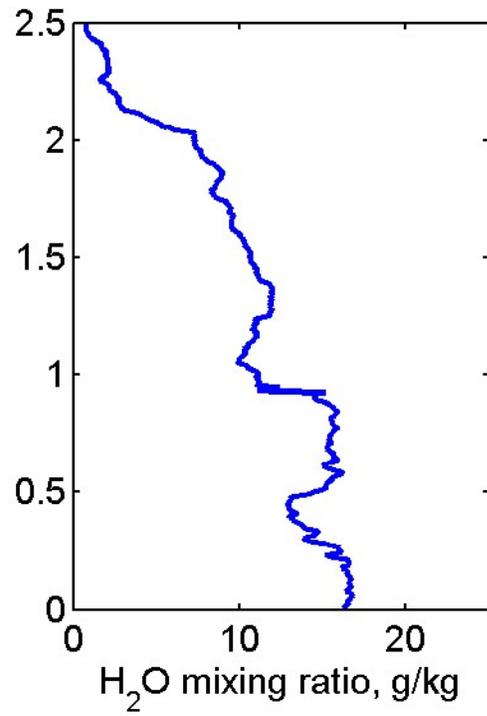
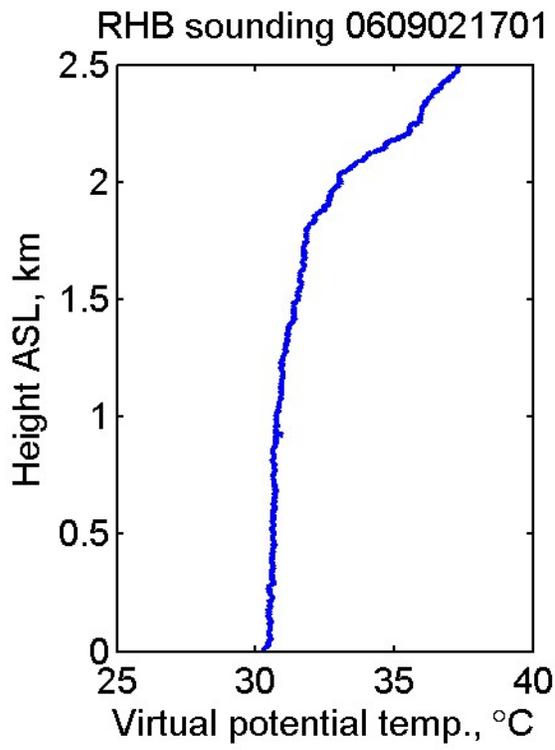
HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
00:00 09/02/06 to 12:00 09/02/06

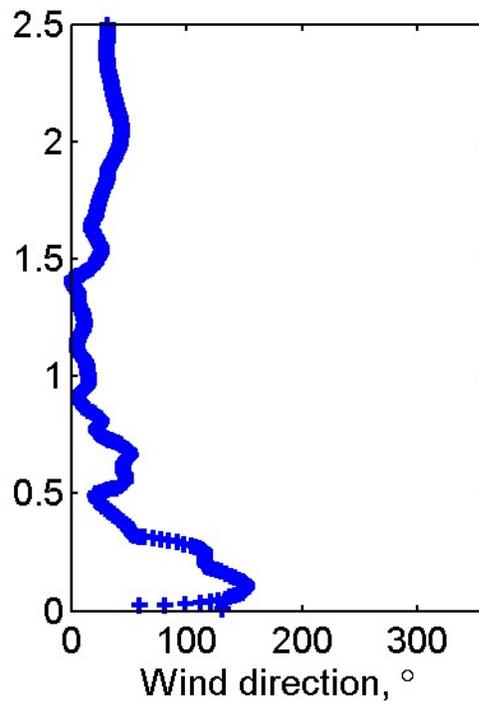
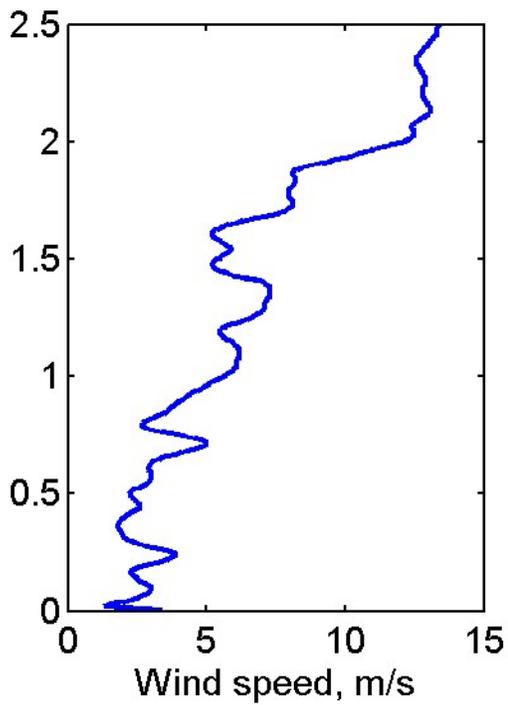
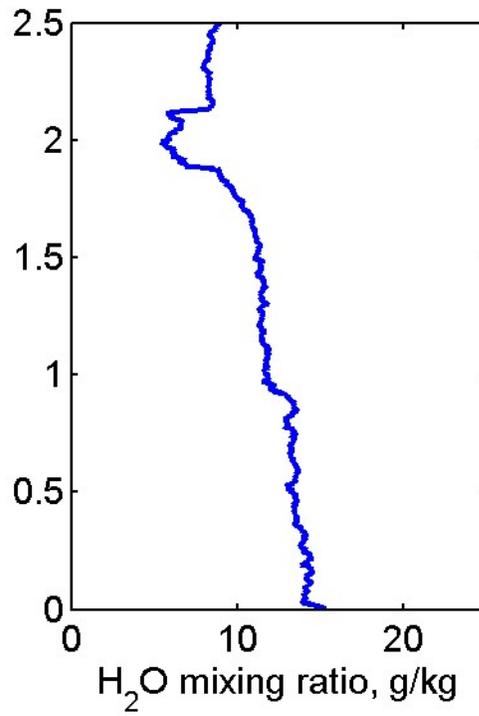
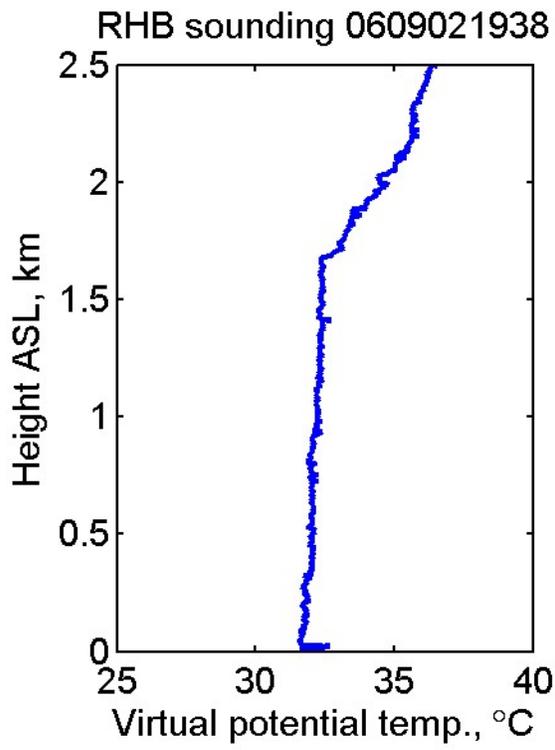


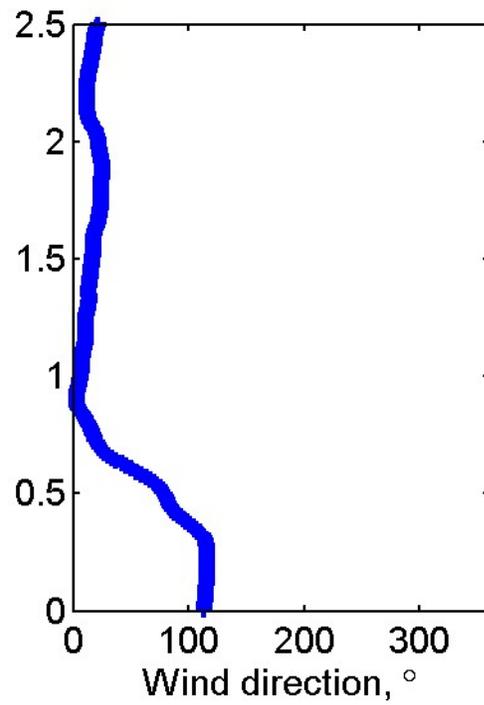
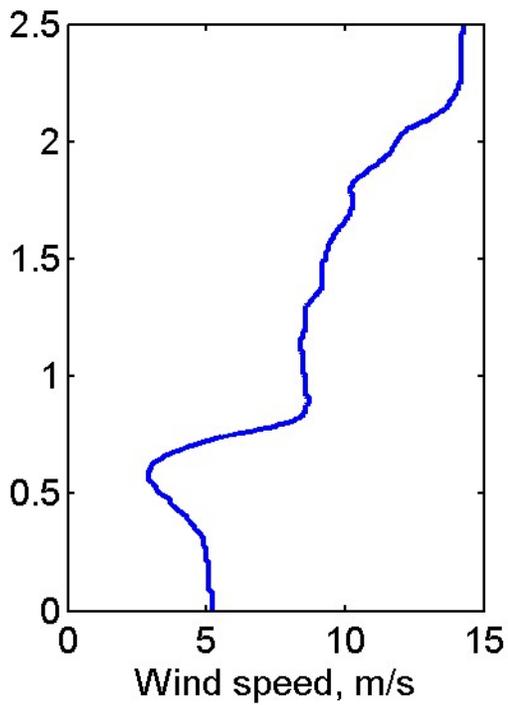
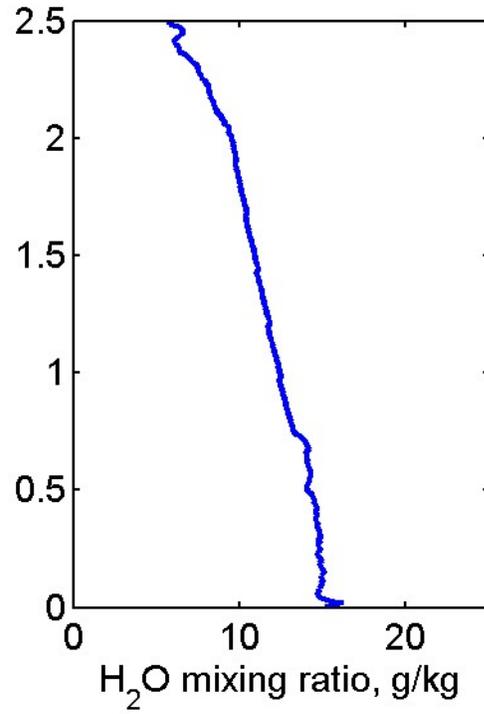
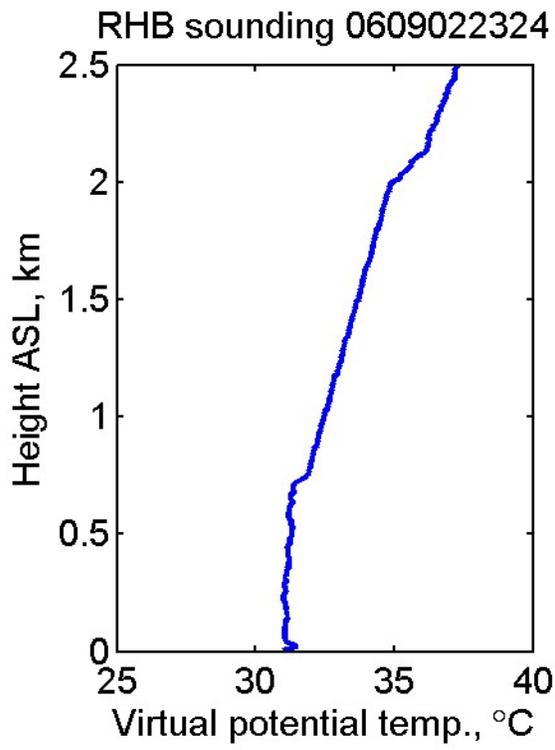
HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 09/02/06 to 00:00 09/03/06

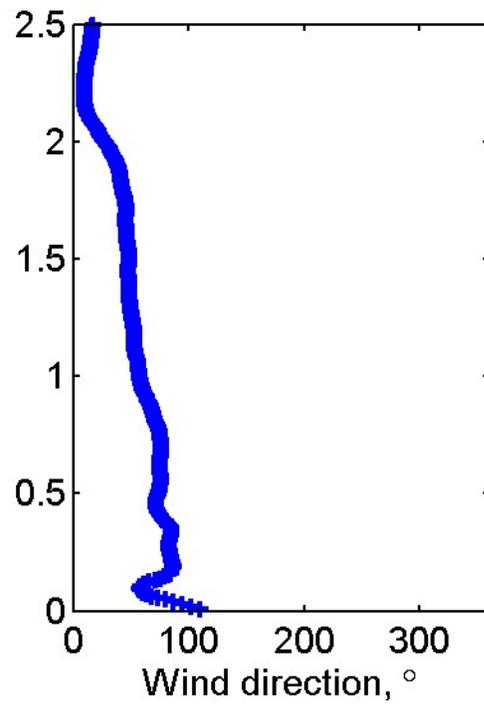
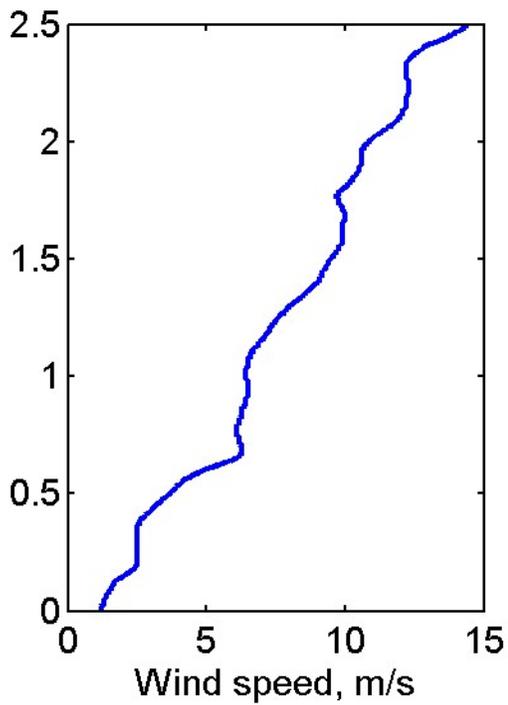
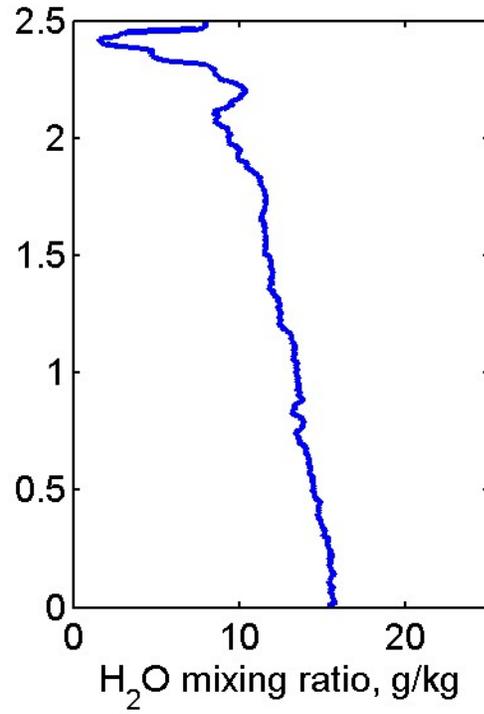
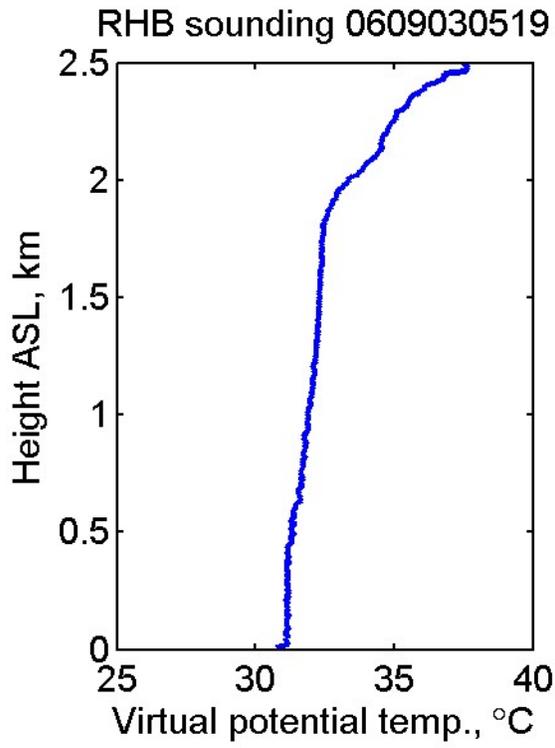




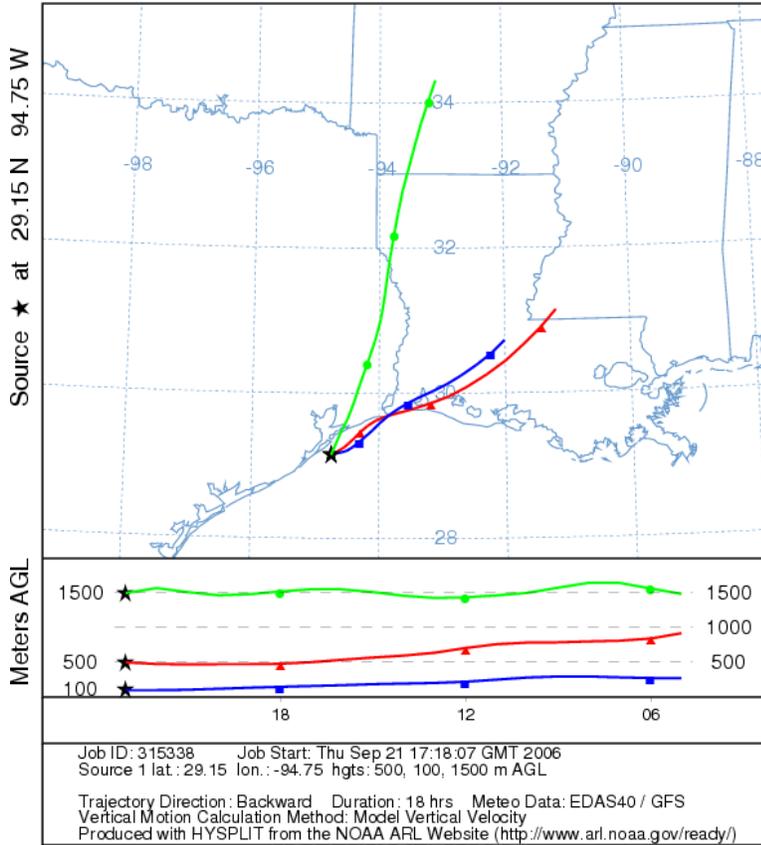




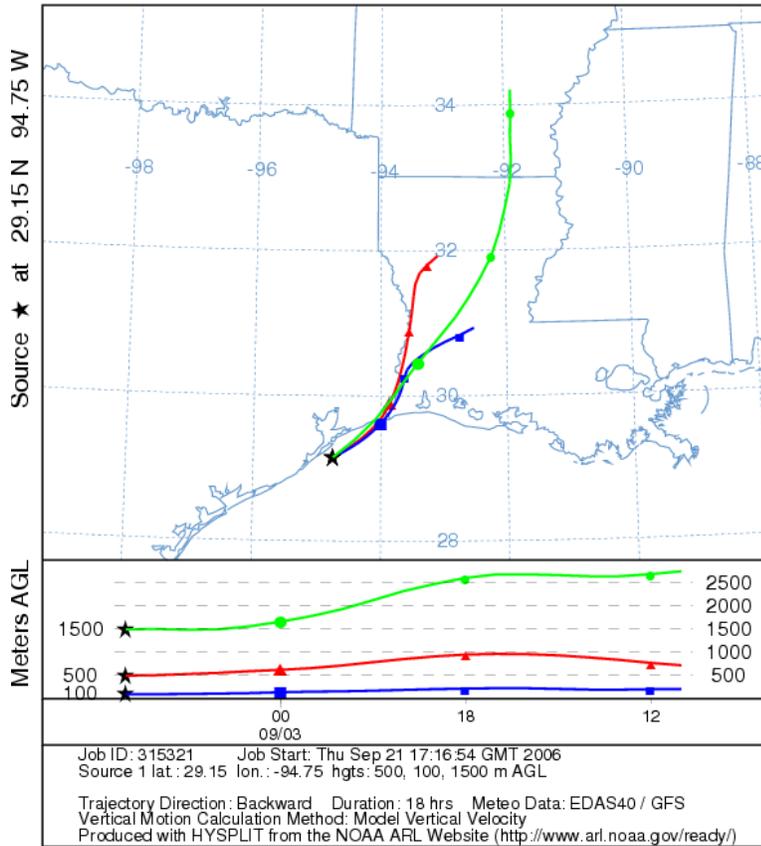




NOAA HYSPLIT MODEL
 Backward trajectories ending at 23 UTC 02 Sep 06
 EDAS Meteorological Data



NOAA HYSPLIT MODEL
 Backward trajectories ending at 05 UTC 03 Sep 06
 EDAS Meteorological Data



3 September

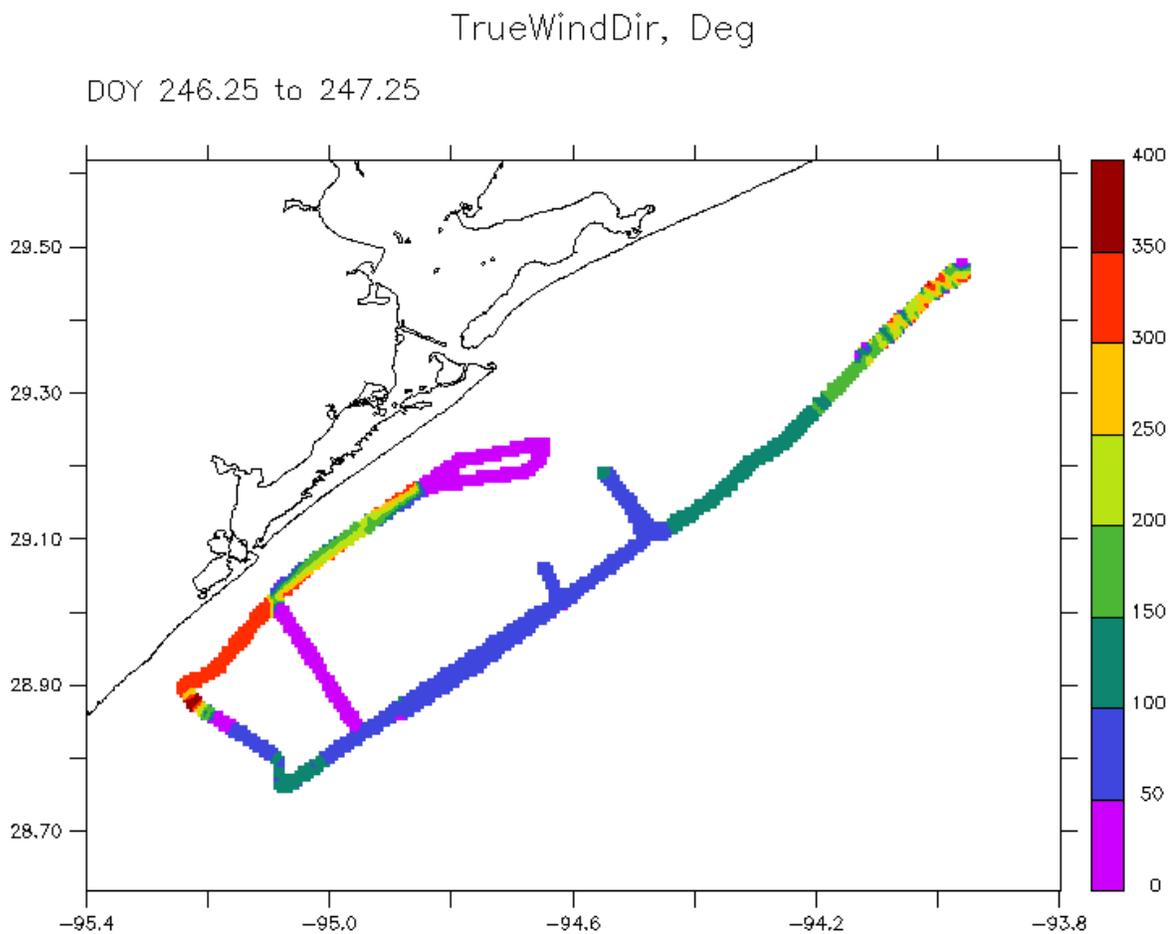
RHB from off Galveston to Port Arthur offshore, back to Freeport, in toward shore, then alongshore to Galveston and back toward Freeport. Very high aerosol with only moderate ozone observed throughout the area.

Trajectories suggest aerosol is from SE U.S. with possible recent contributions from Beaumont/Port Arthur.

BL heights from HRDL: 09Z jet 1500 m, w'w' 1100 m; 14Z wind 800 m, w'w' 400 m; 18Z w'w' 1500 m; 20Z w'w' 500 m.

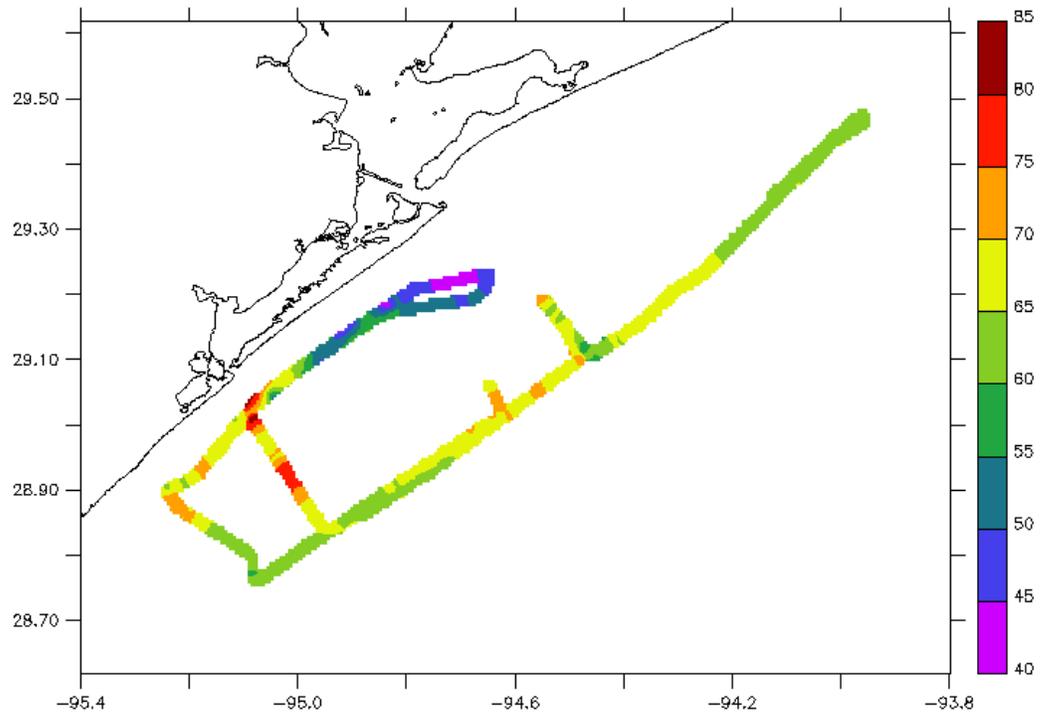
BL heights from sondes: 11Z 200 m; 18Z 900 m; 23Z 400 m; 05Z 800 m?

Fluxes on some legs



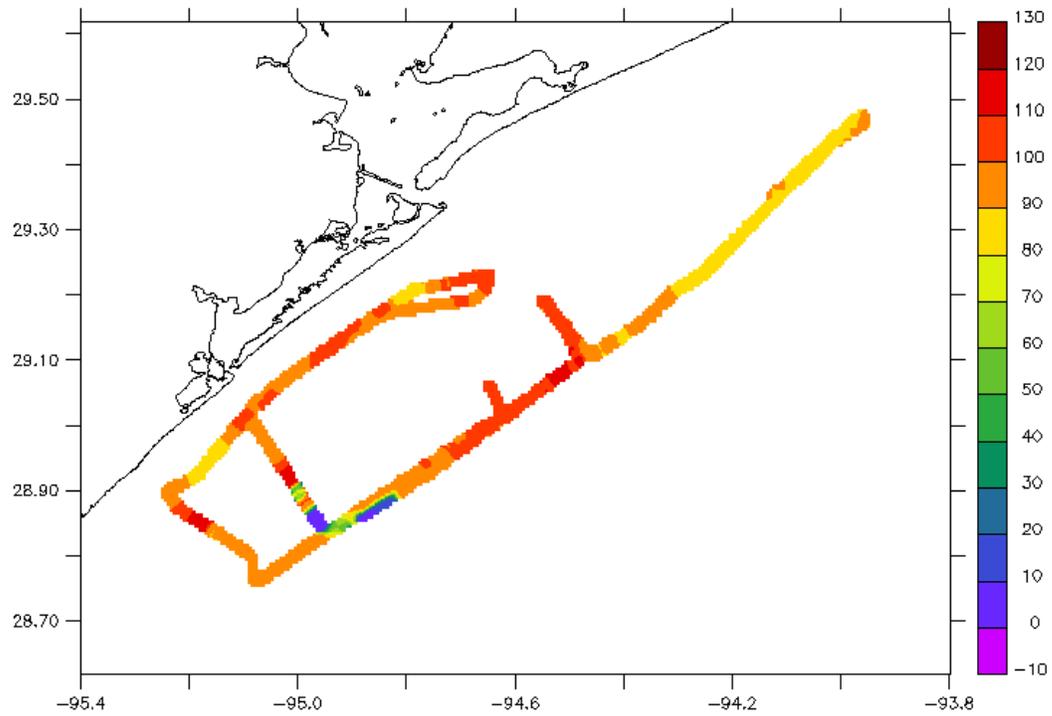
O3, ppb

DOY 246.25 to 247.25



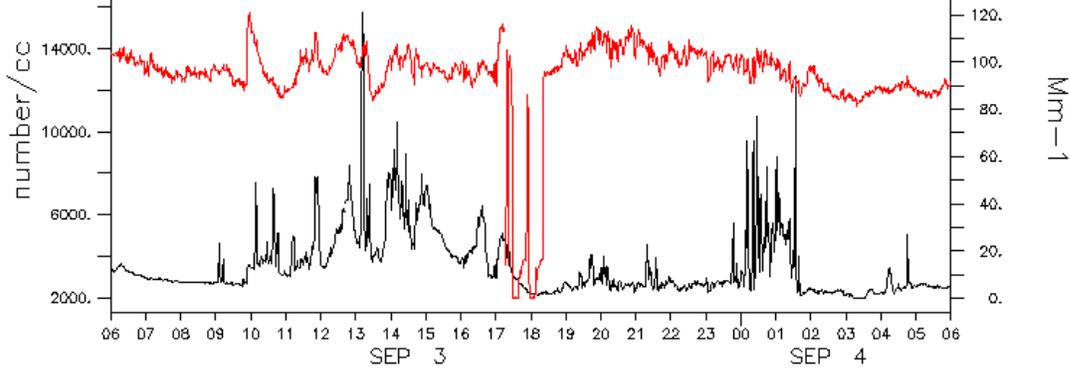
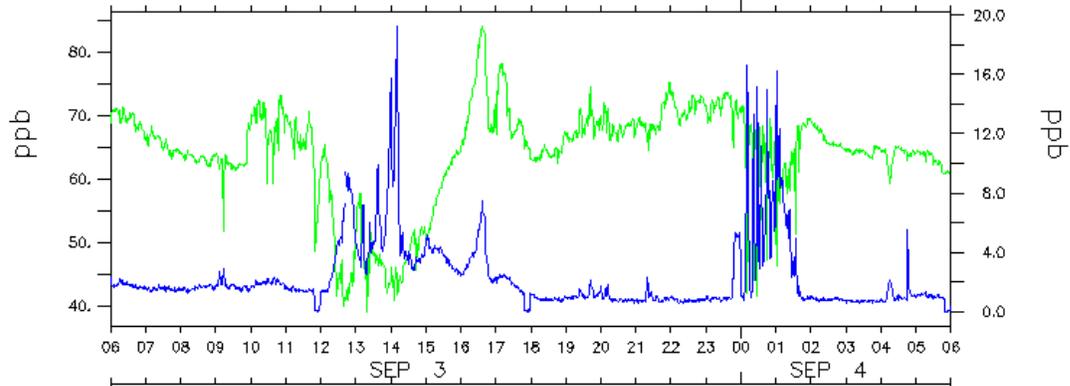
AerosolScatGreen, Mm-1

DOY 246.25 to 247.25



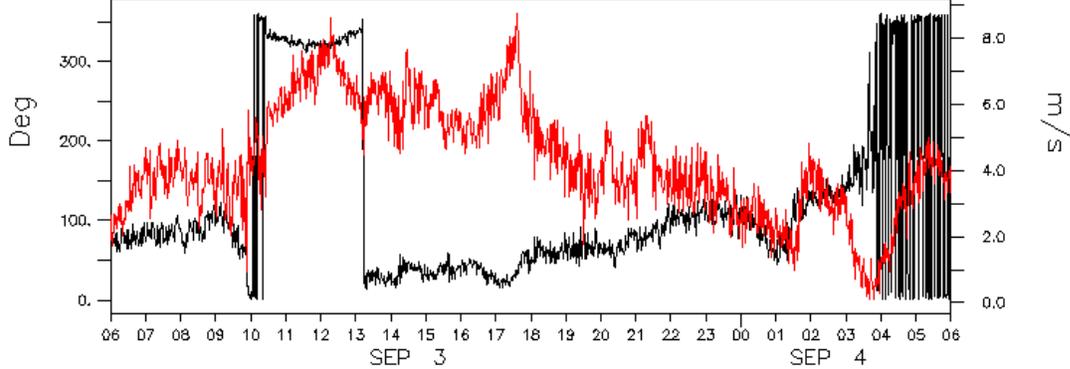
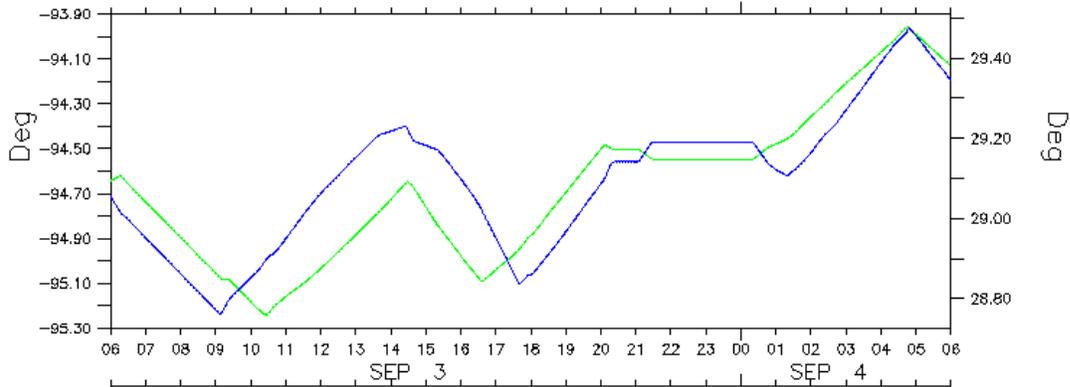
CN
O3

AerosolScatGreen
SD2

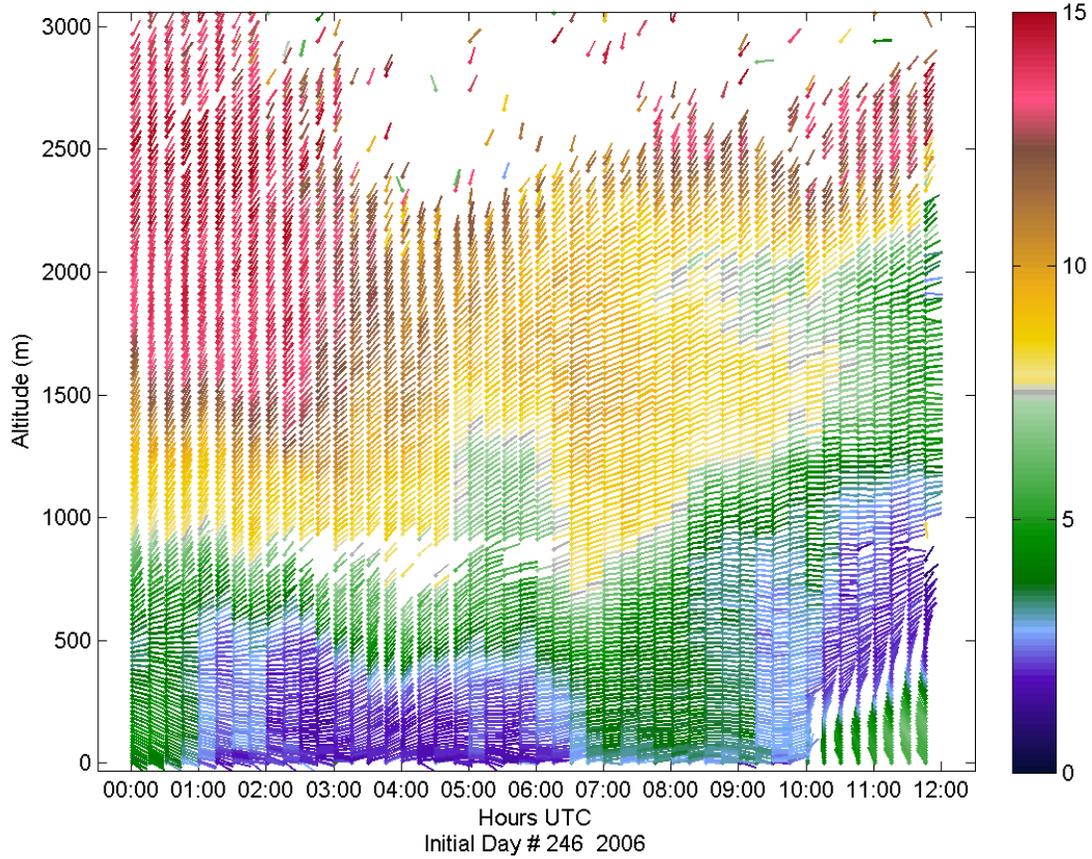


TrueWindDir
DLon

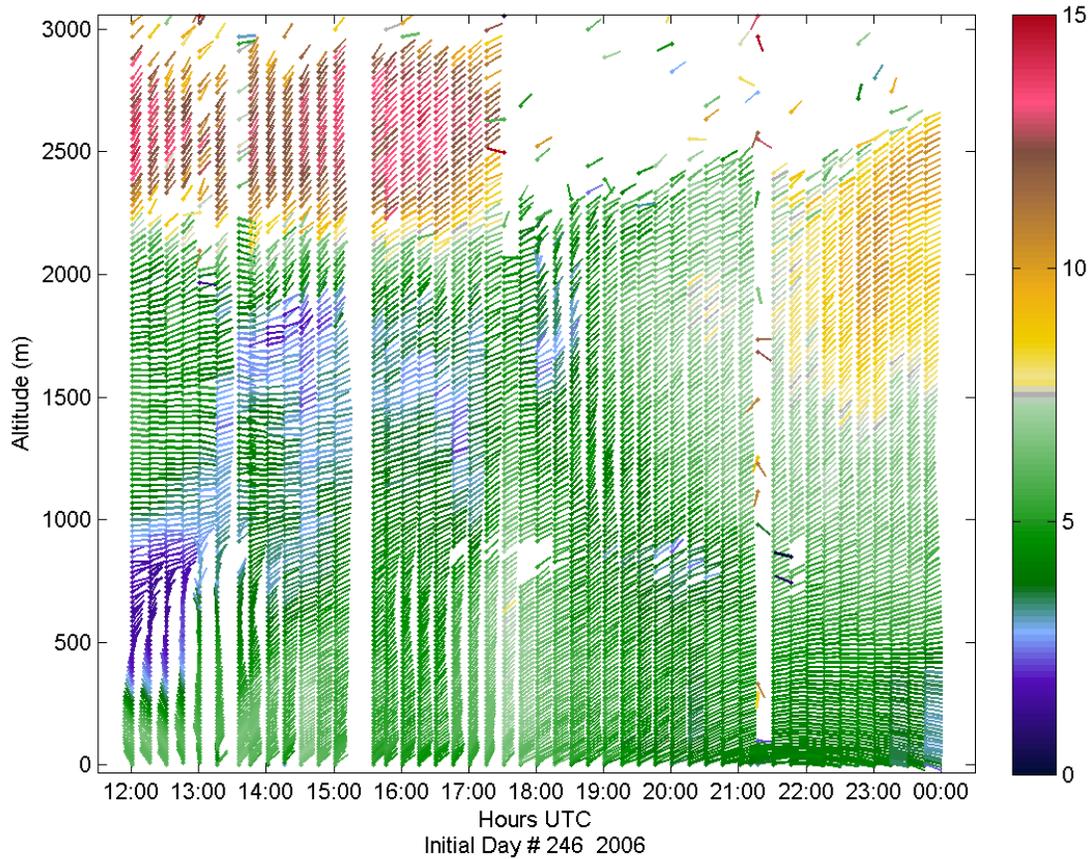
TrueWindSp
DLat



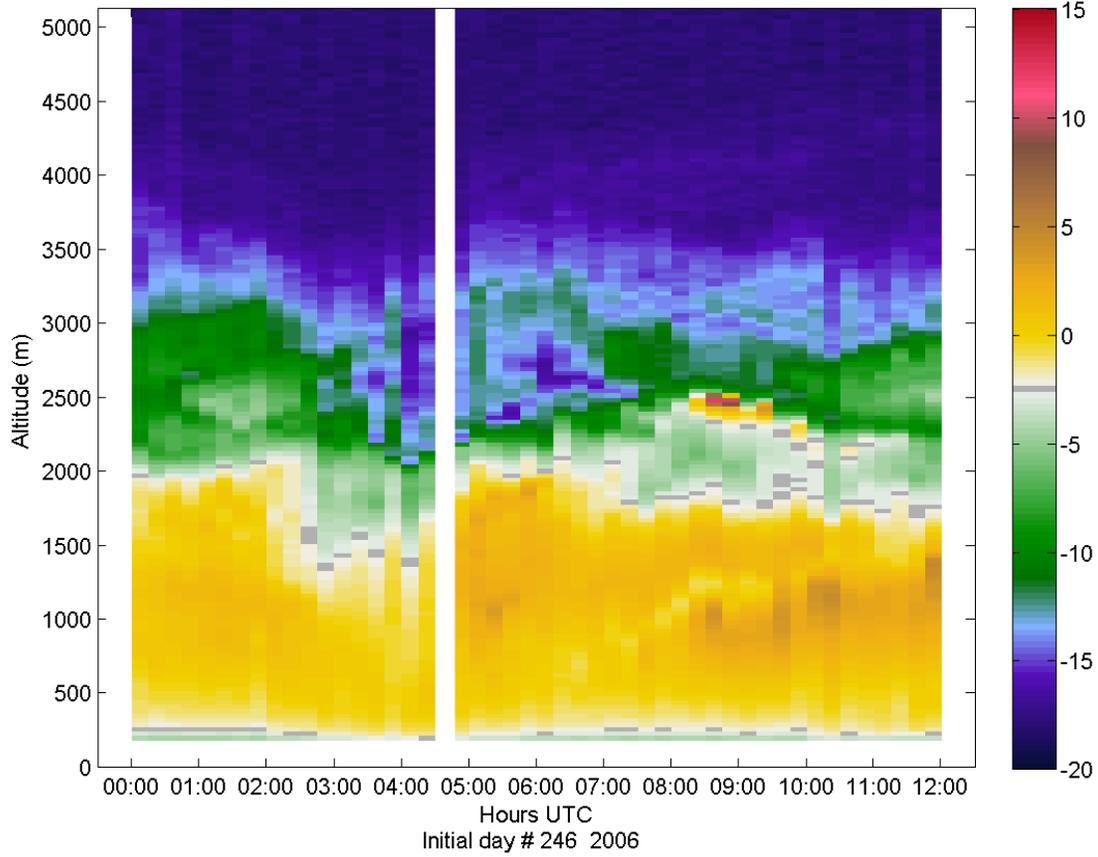
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
00:00 09/03/06 to 12:00 09/03/06 UTC



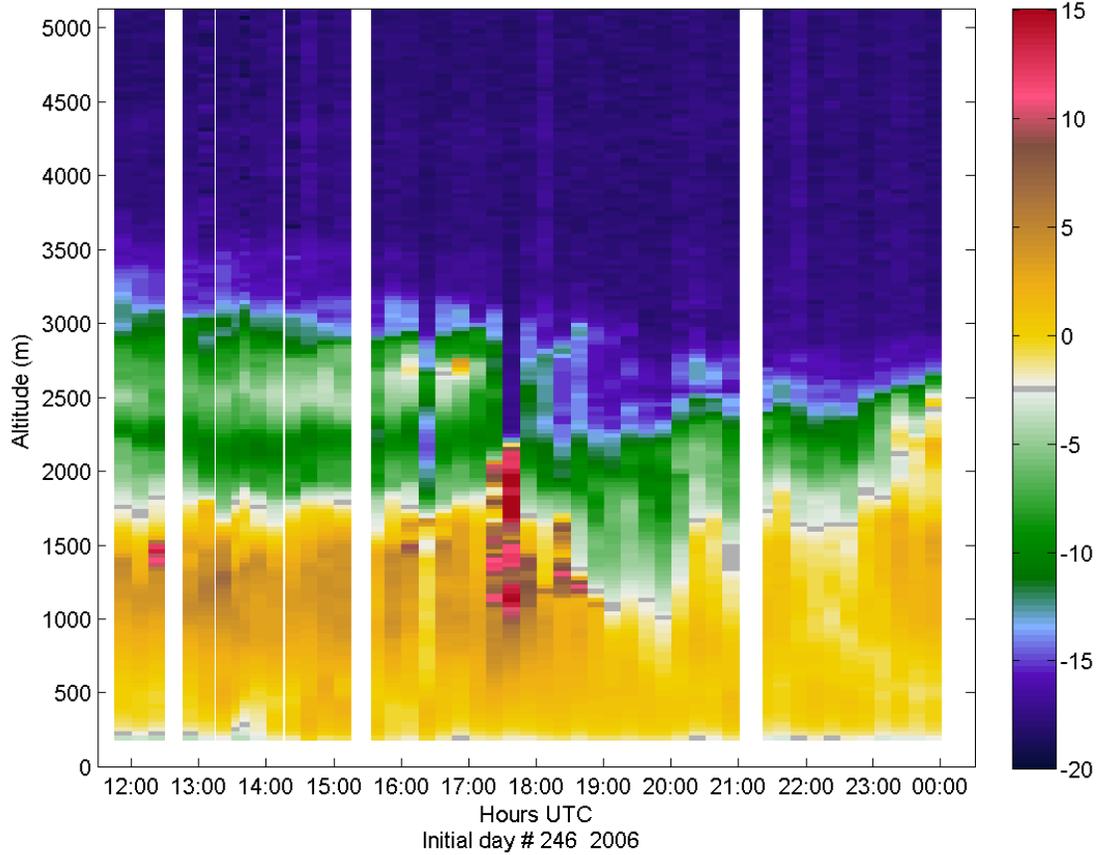
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/03/06 to 00:00 09/04/06 UTC



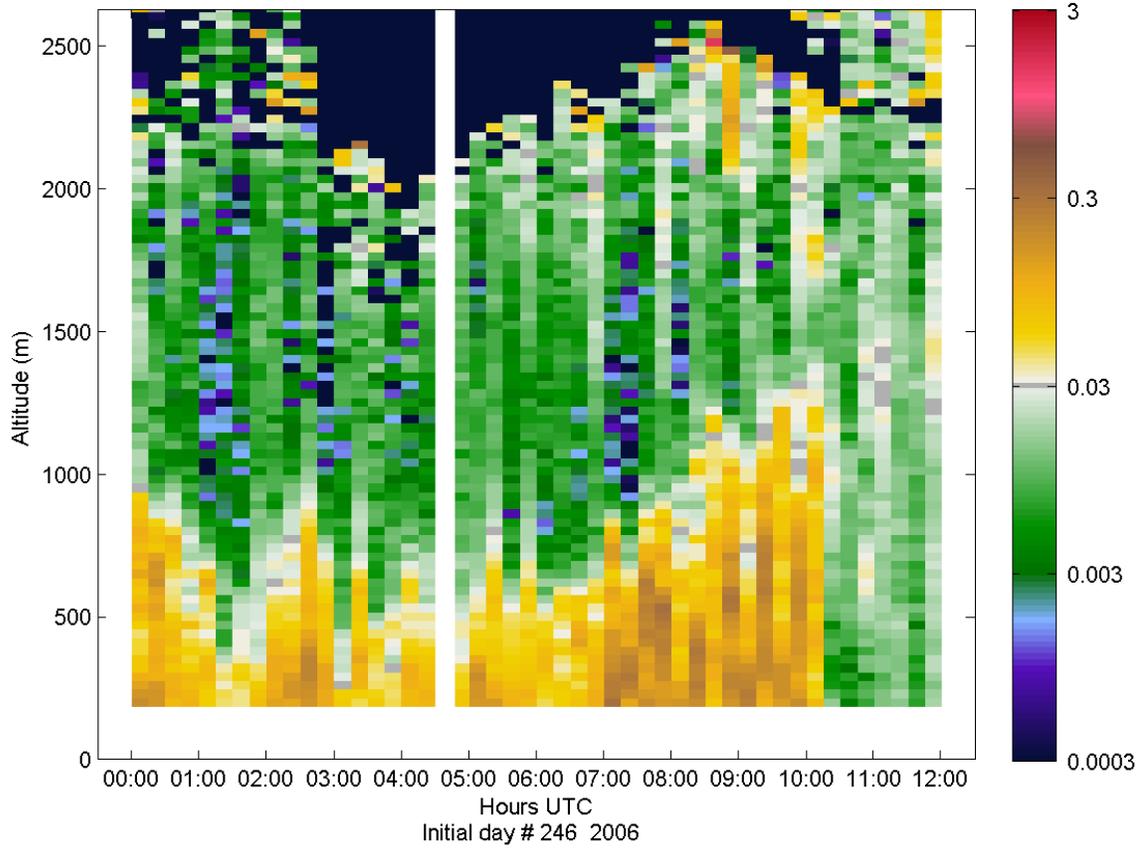
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
00:00 09/03/06 to 12:00 09/03/06



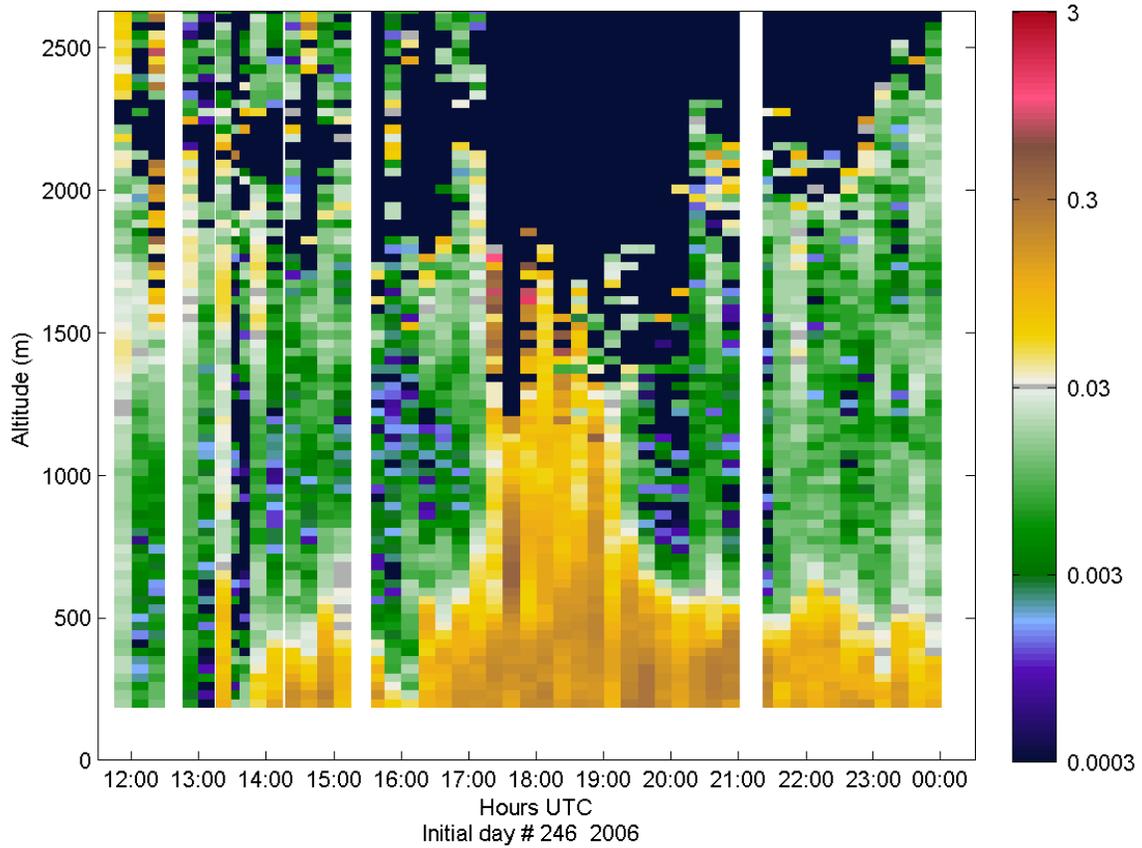
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/03/06 to 00:00 09/04/06

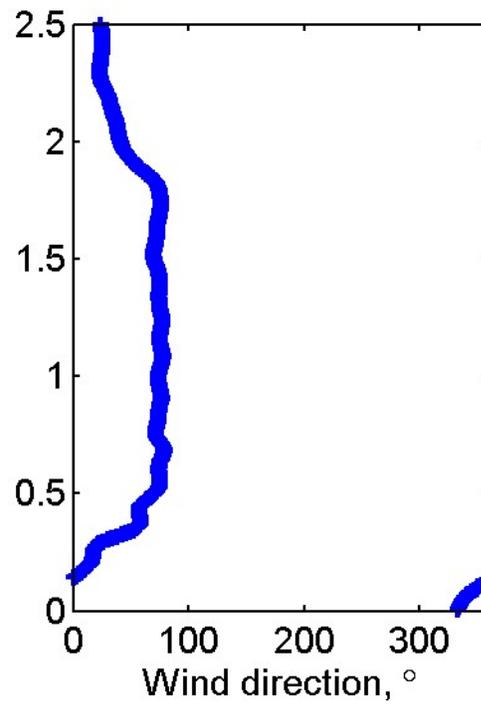
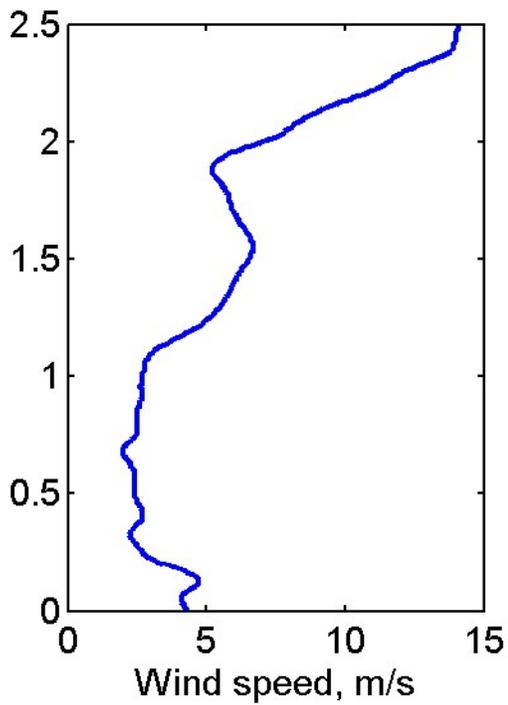
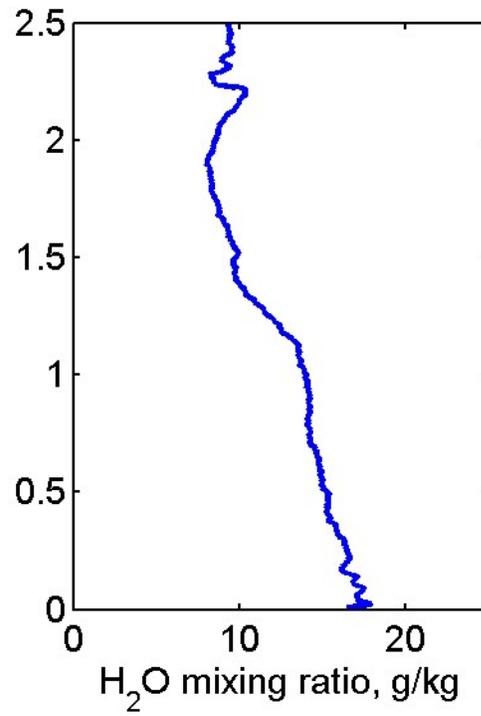
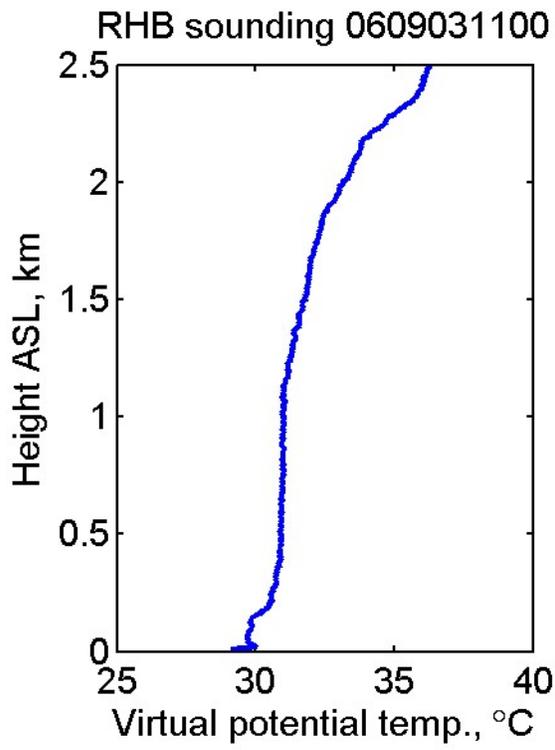


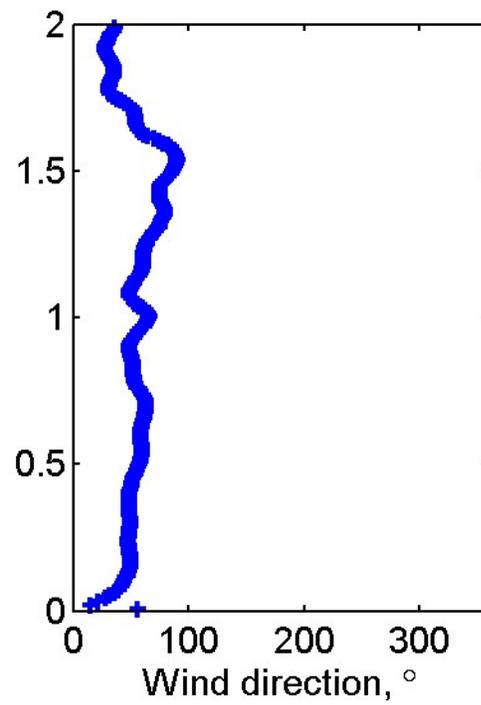
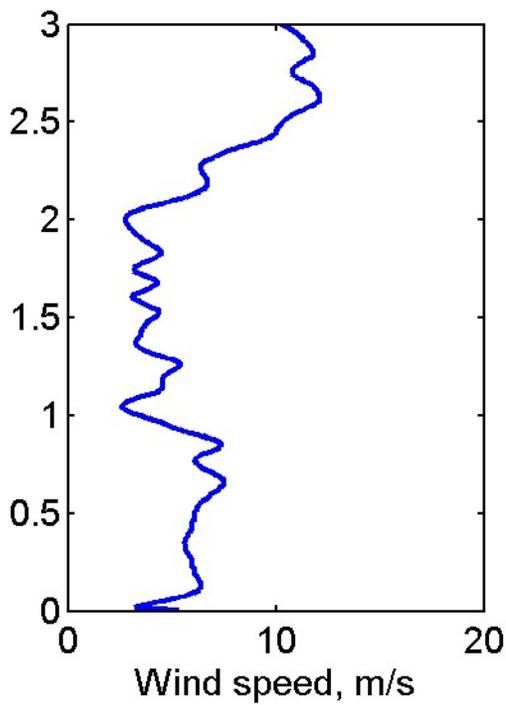
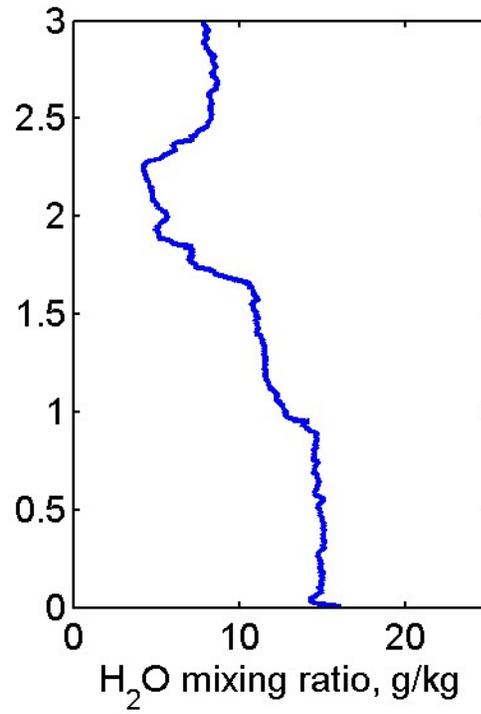
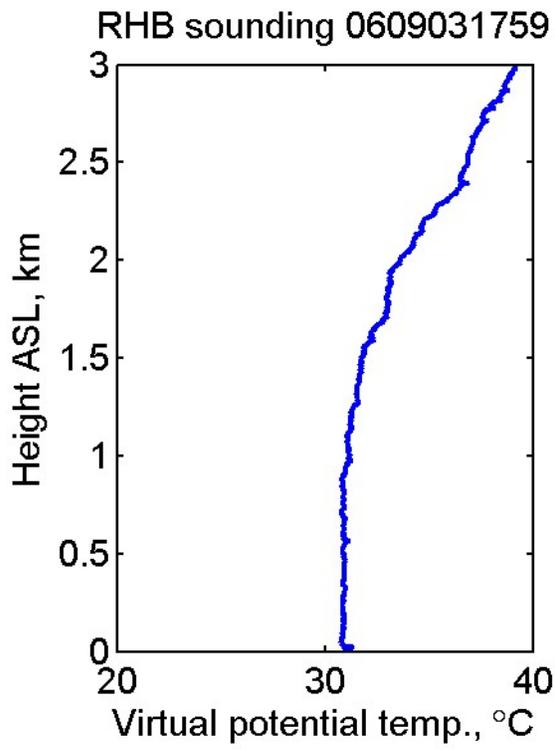
HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
00:00 09/03/06 to 12:00 09/03/06

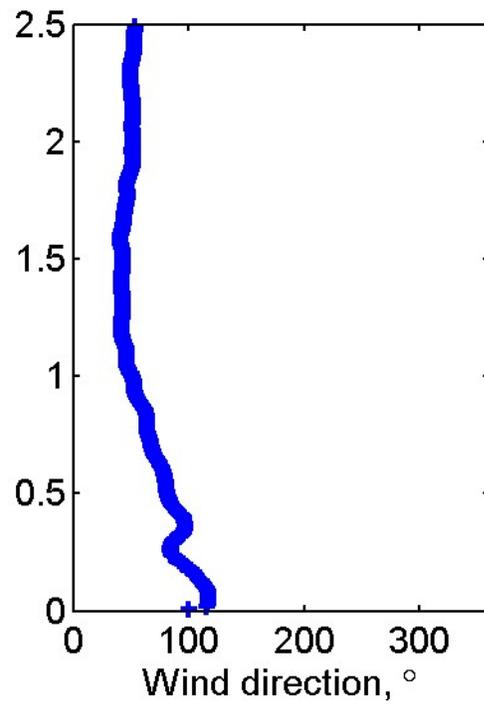
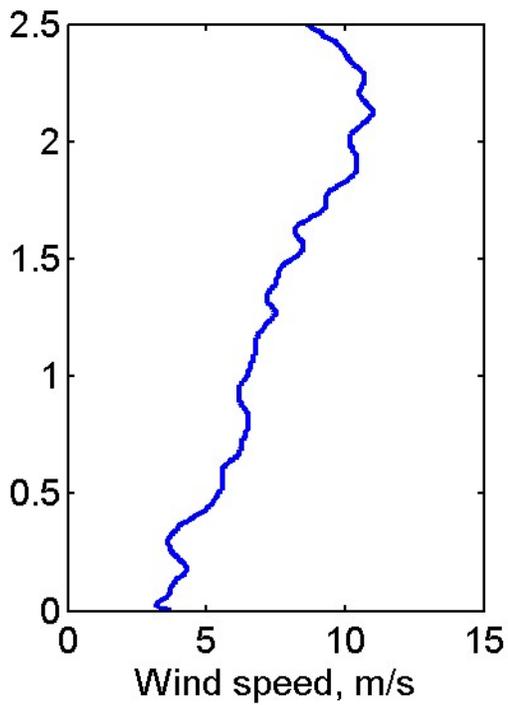
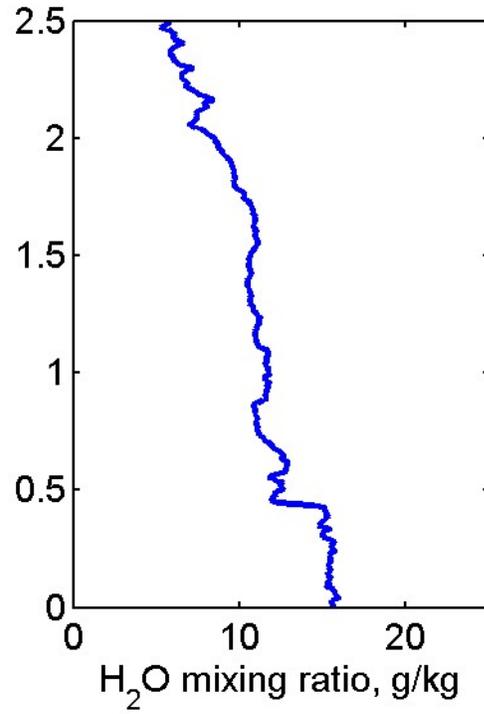
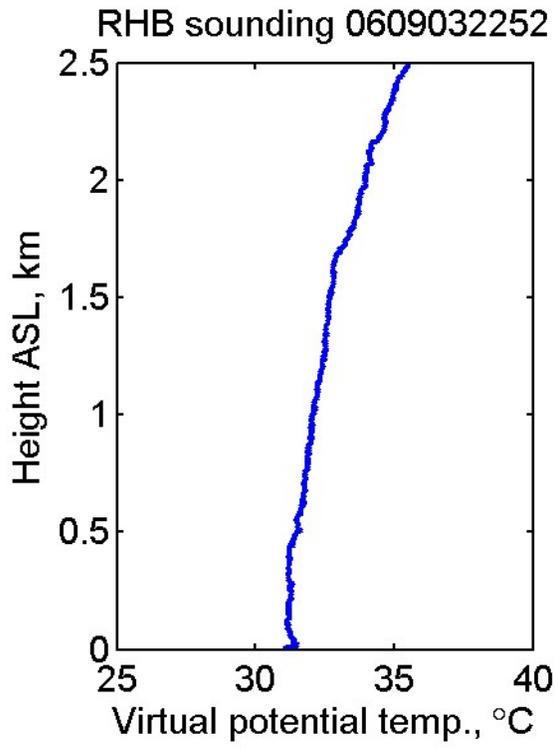


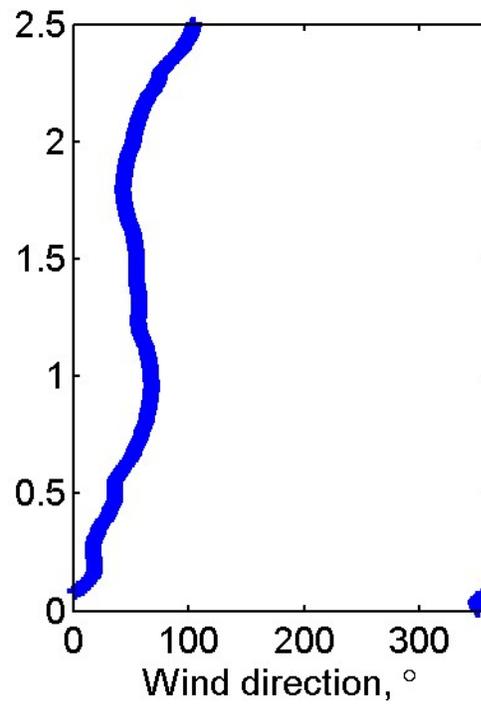
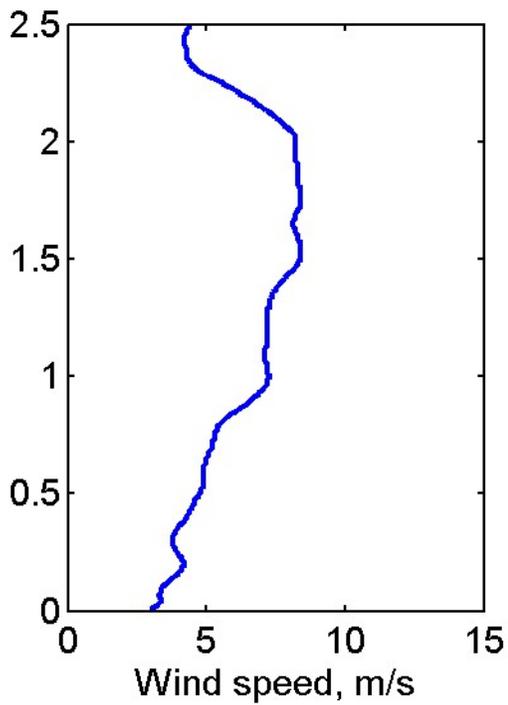
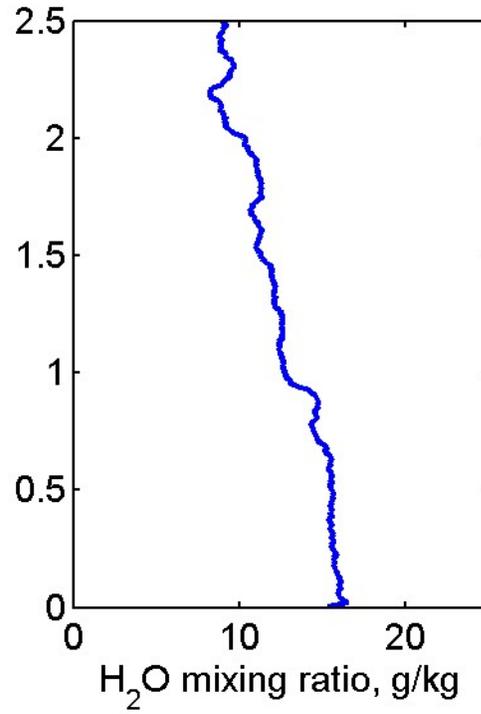
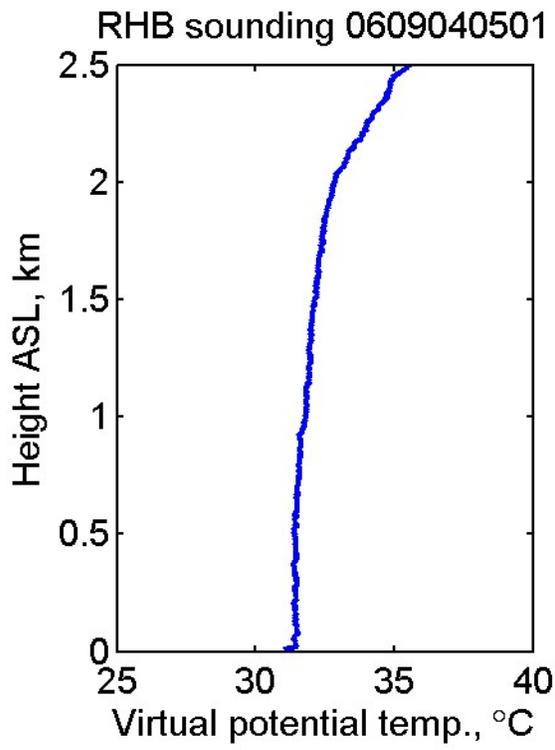
HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 09/03/06 to 00:00 09/04/06



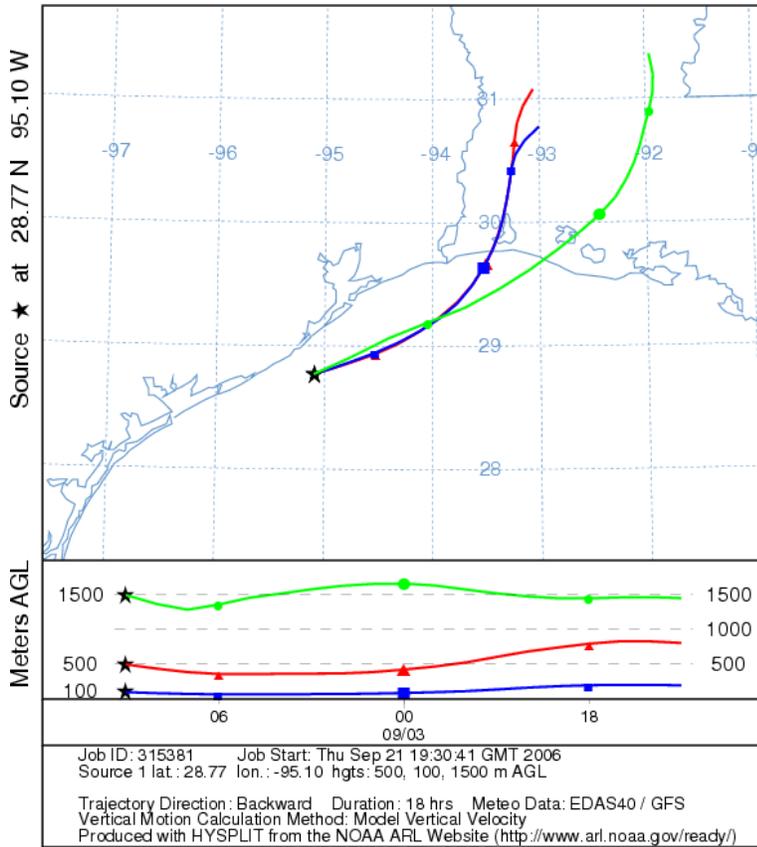




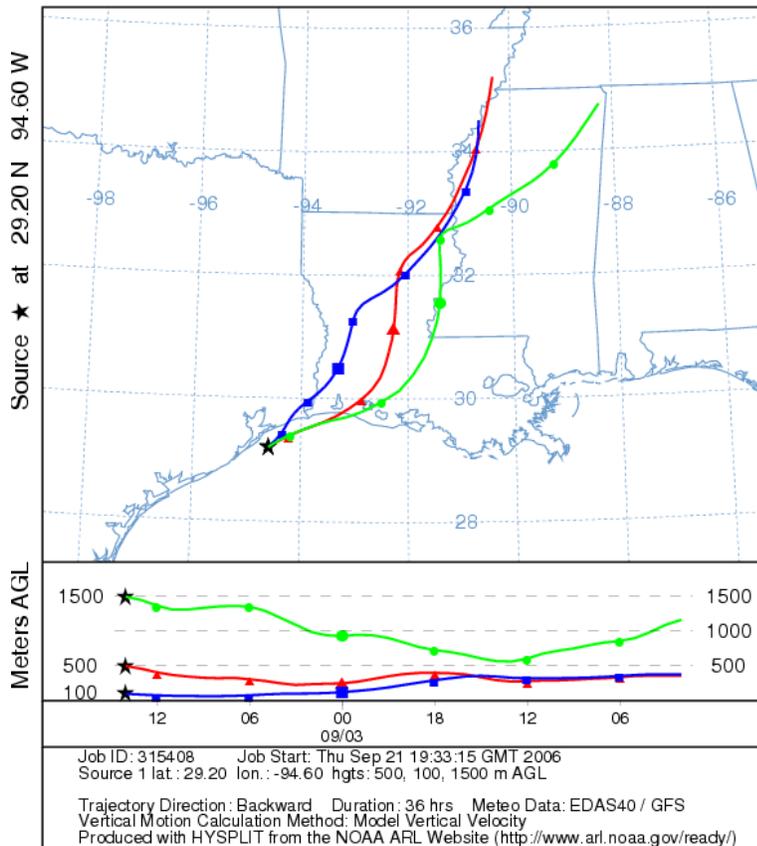




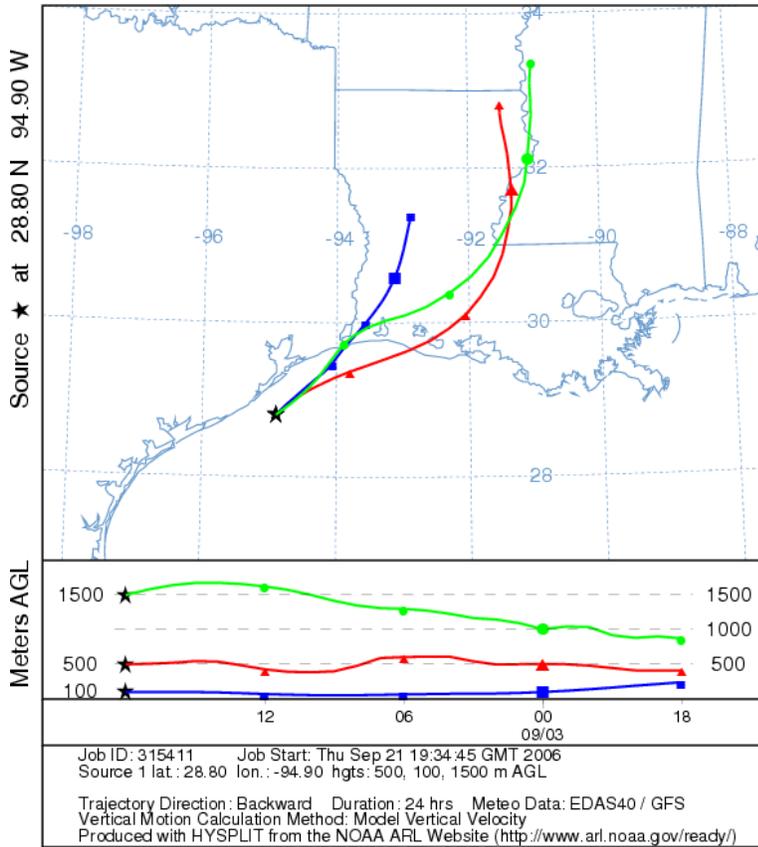
NOAA HYSPLIT MODEL
 Backward trajectories ending at 09 UTC 03 Sep 06
 EDAS Meteorological Data



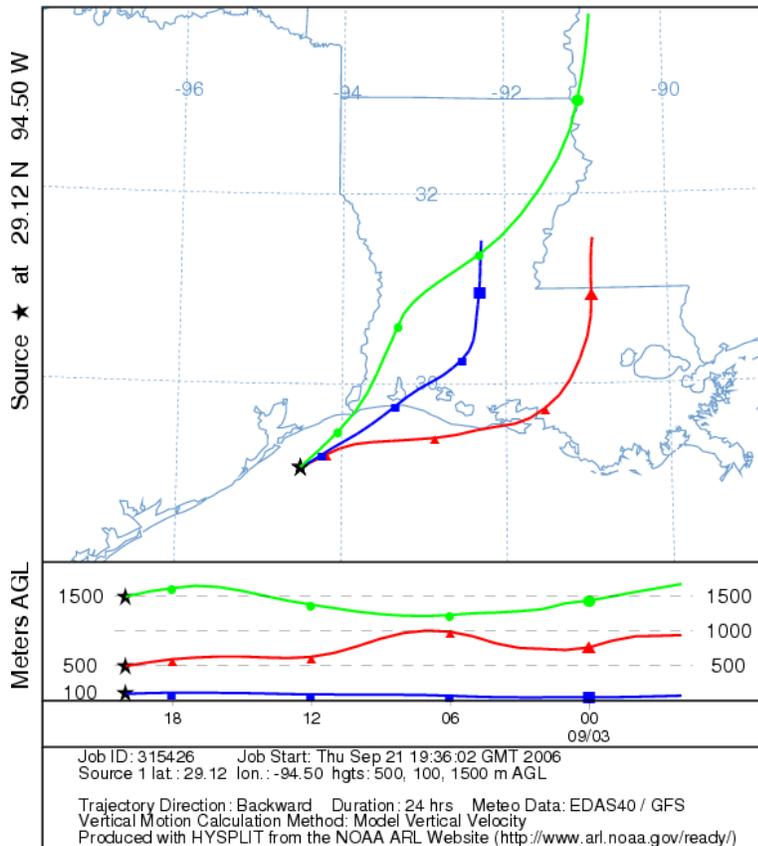
NOAA HYSPLIT MODEL
 Backward trajectories ending at 14 UTC 03 Sep 06
 EDAS Meteorological Data



NOAA HYSPLIT MODEL
 Backward trajectories ending at 18 UTC 03 Sep 06
 EDAS Meteorological Data



NOAA HYSPLIT MODEL
 Backward trajectories ending at 20 UTC 03 Sep 06
 EDAS Meteorological Data



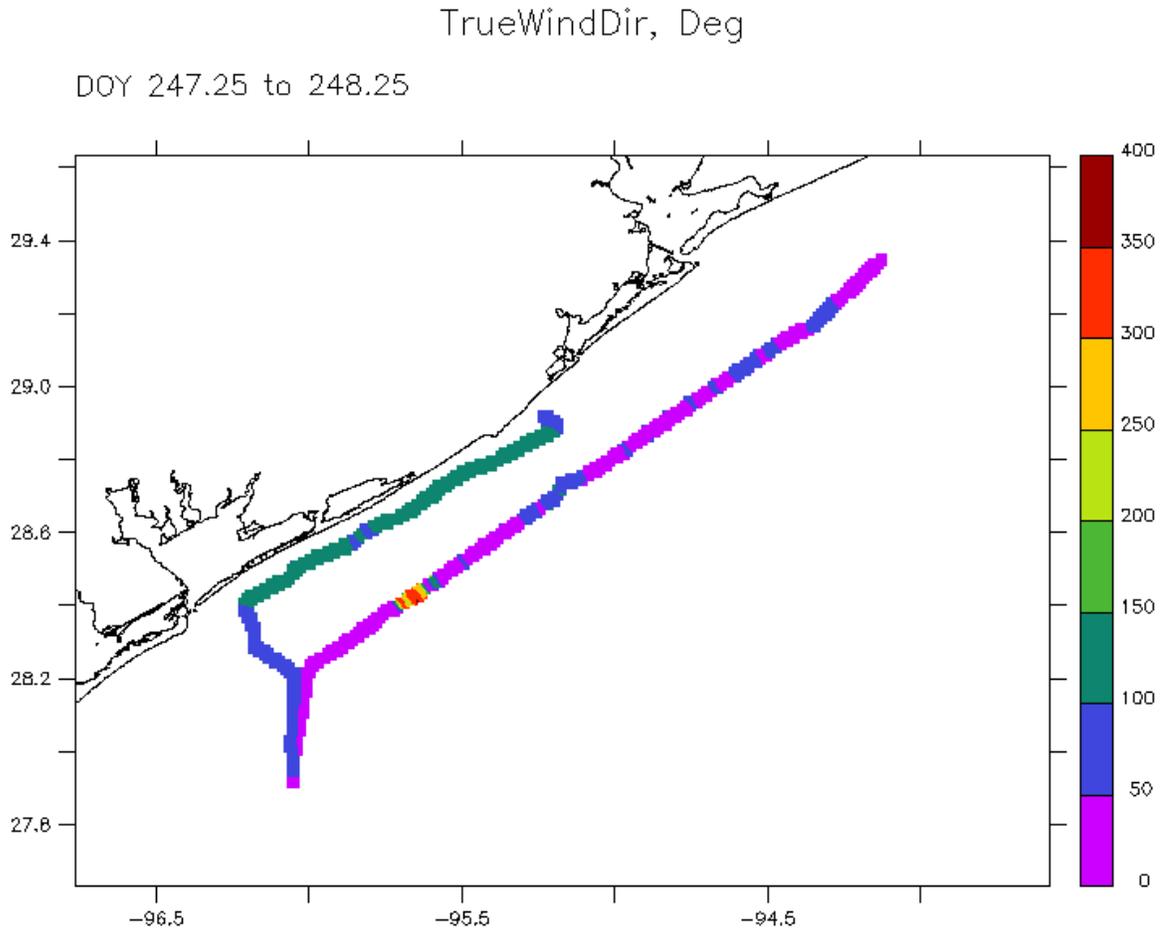
4 September

RHB to S of Matagorda for satellite overpass, then return. Generally high aerosol and moderate ozone throughout the area.

Fluxes on some legs

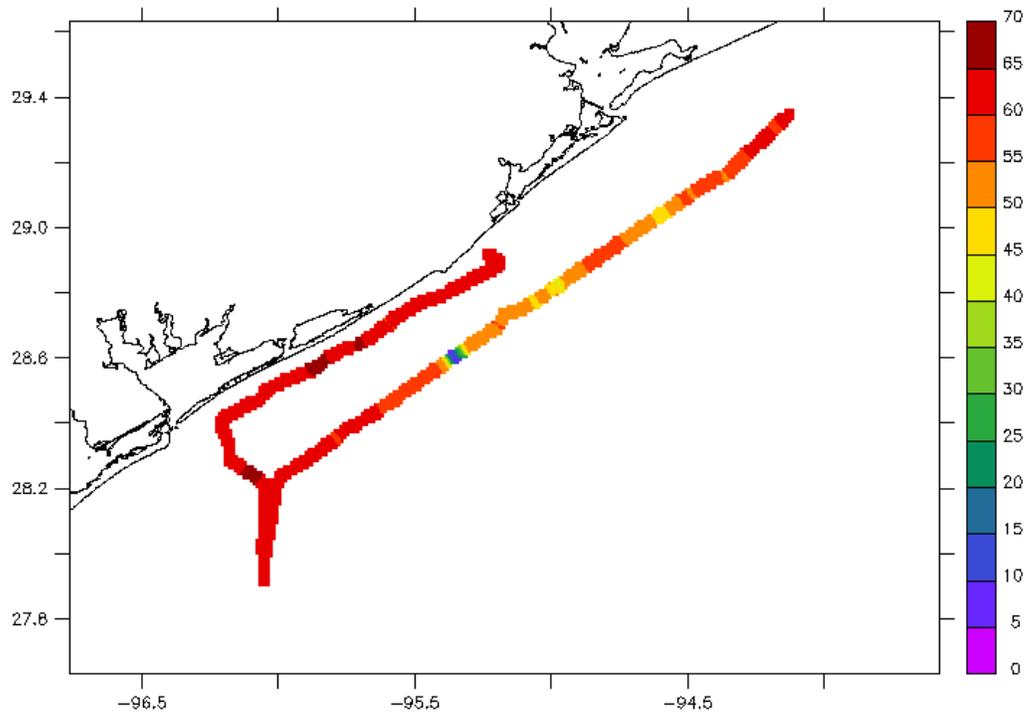
BL height

Trajectories for representative points



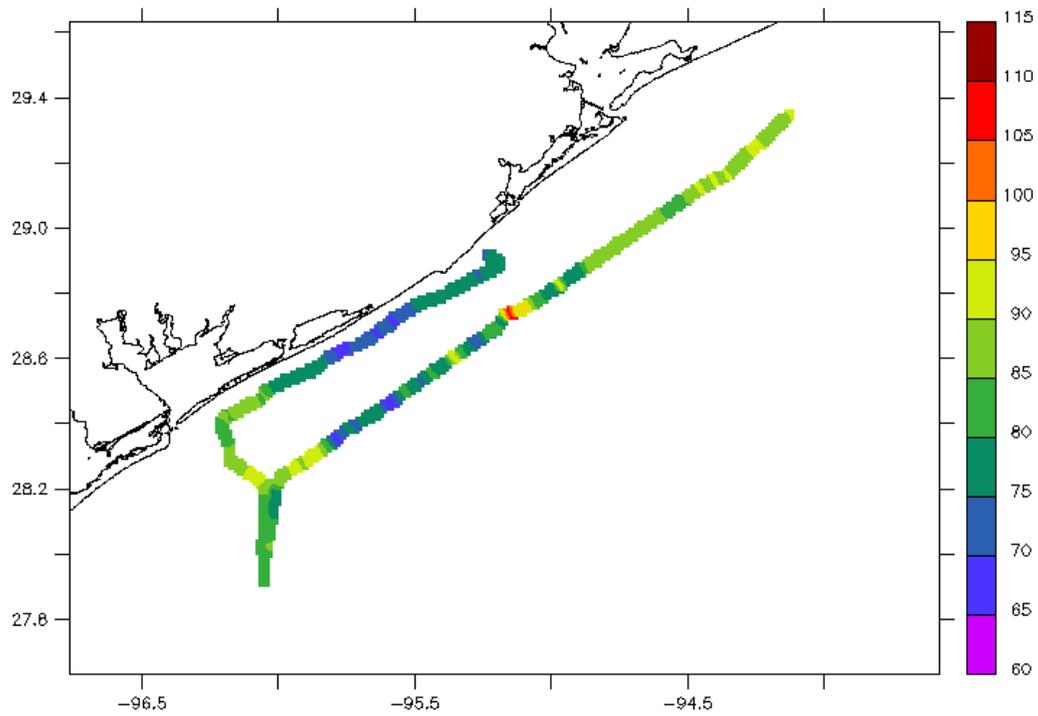
O3, ppb

DOY 247.25 to 248.25



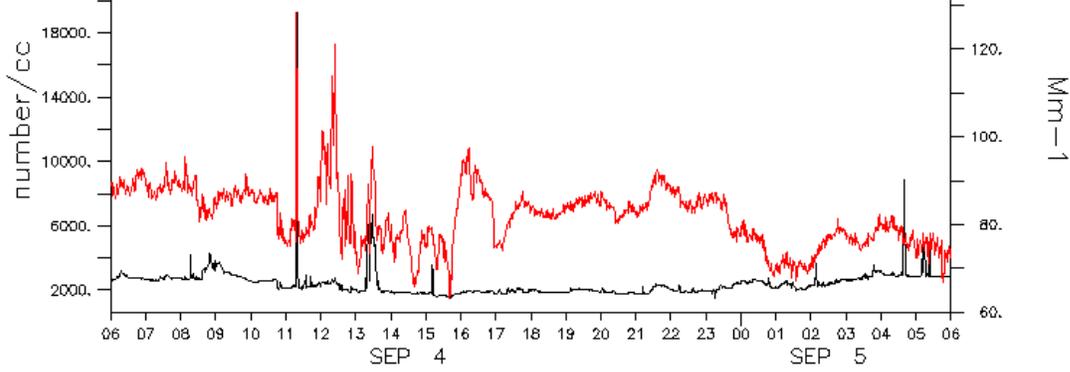
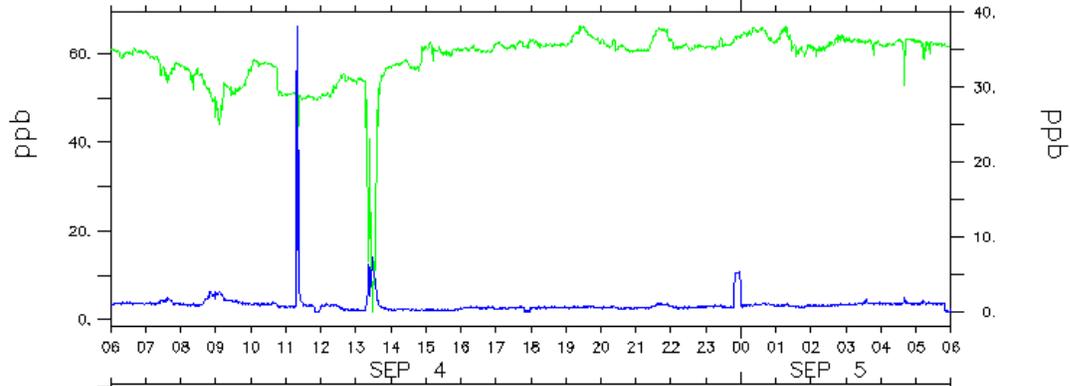
AerosolScatGreen, Mm-1

DOY 247.25 to 248.25



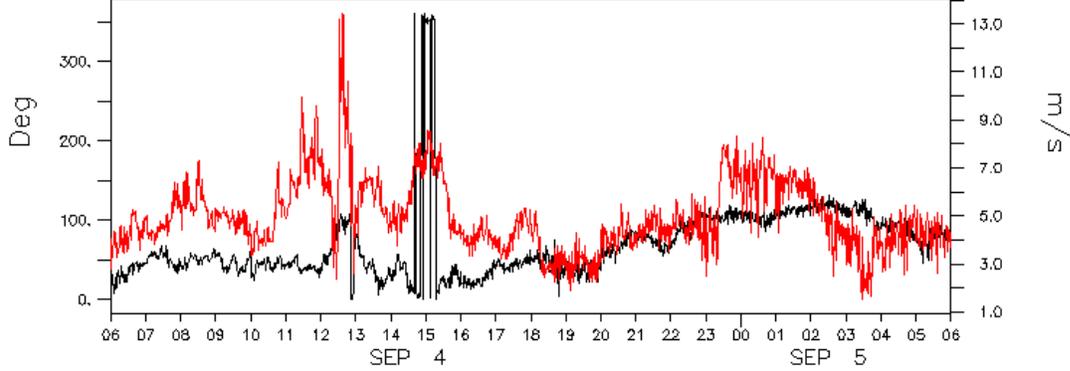
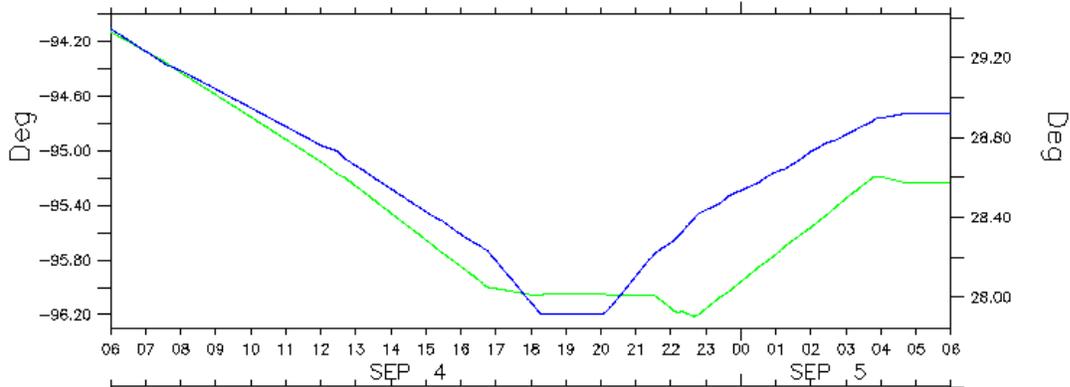
CN
O3

AerosolScatGreen
SD2

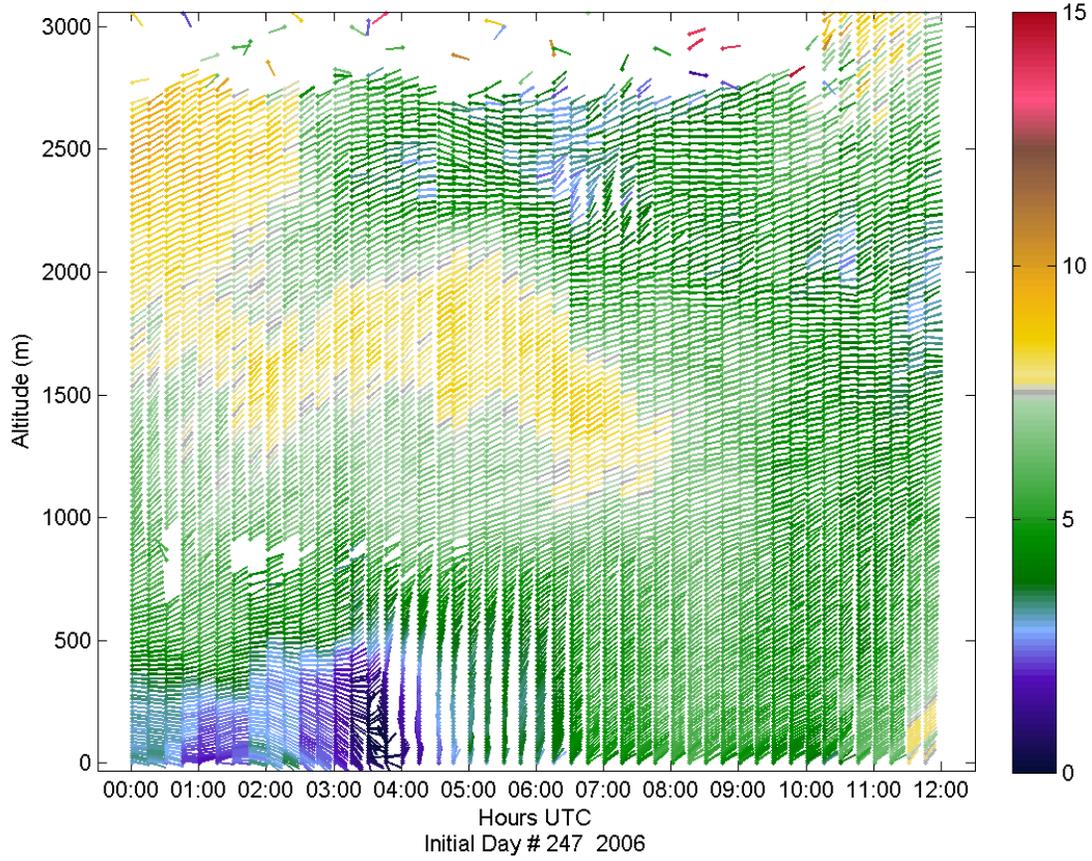


TrueWindDir
DLon

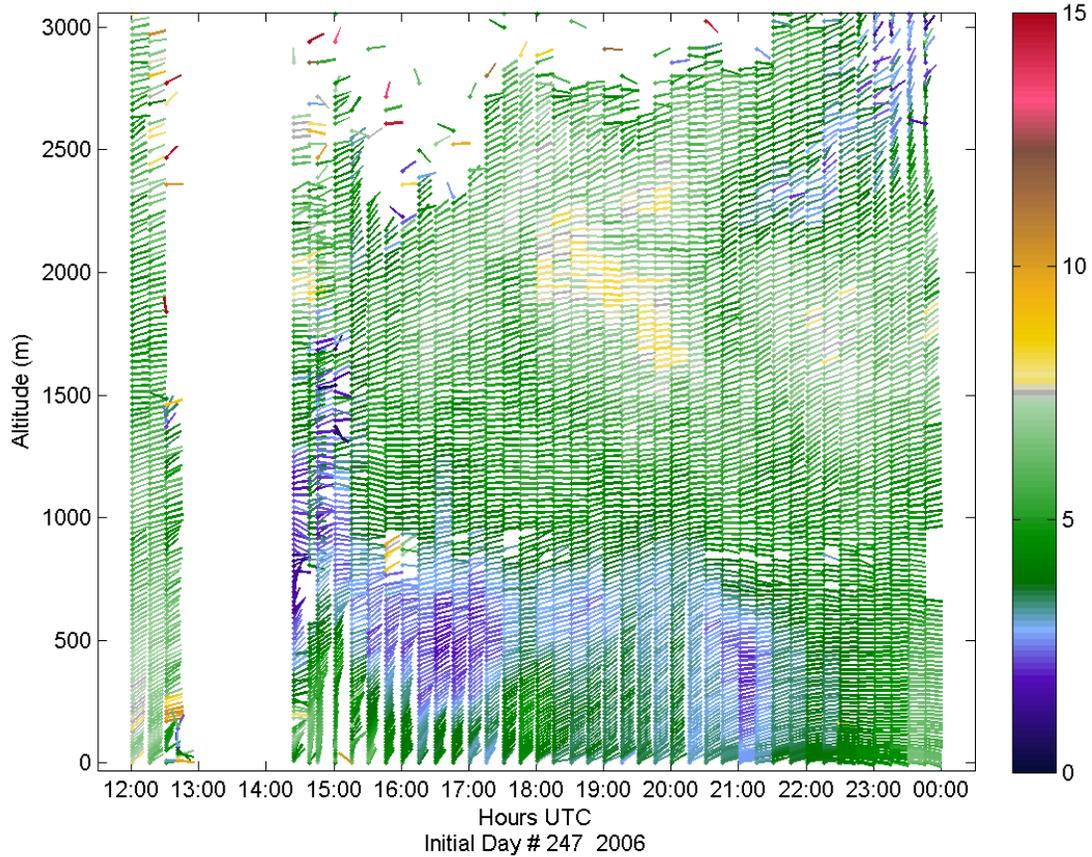
TrueWindSp
DLat



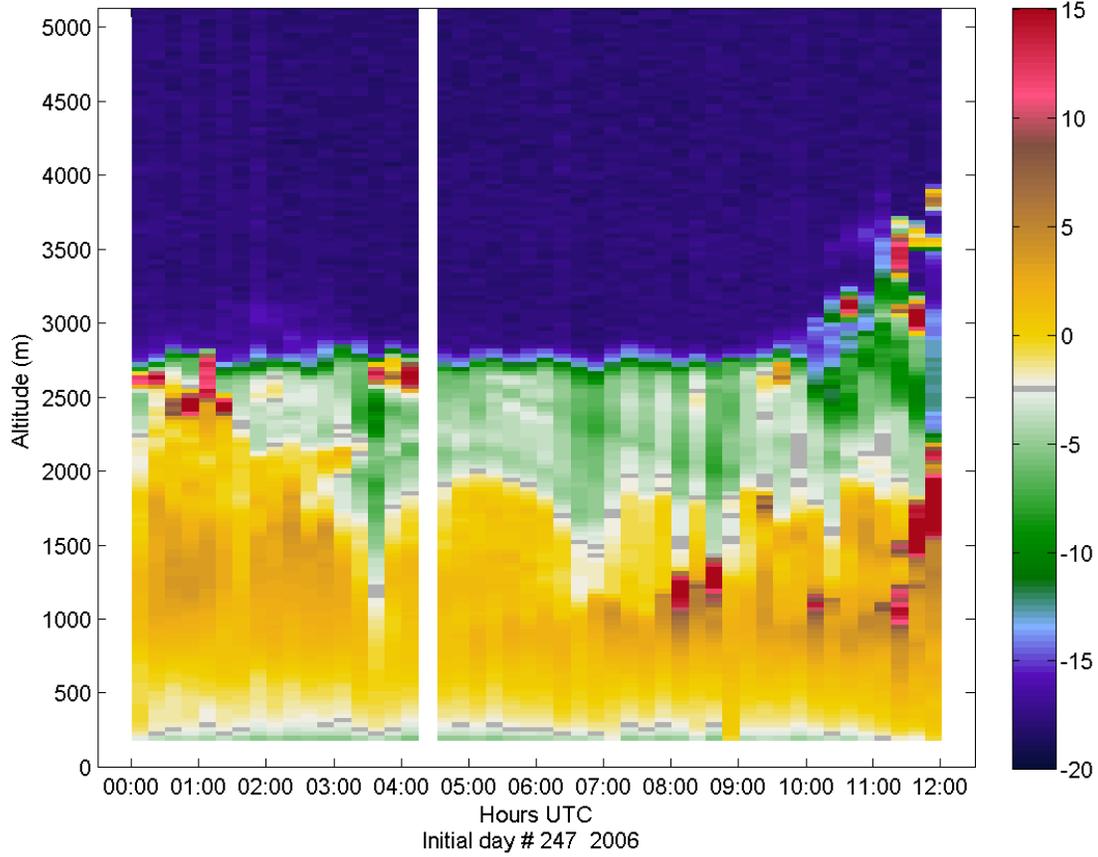
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
00:00 09/04/06 to 12:00 09/04/06 UTC



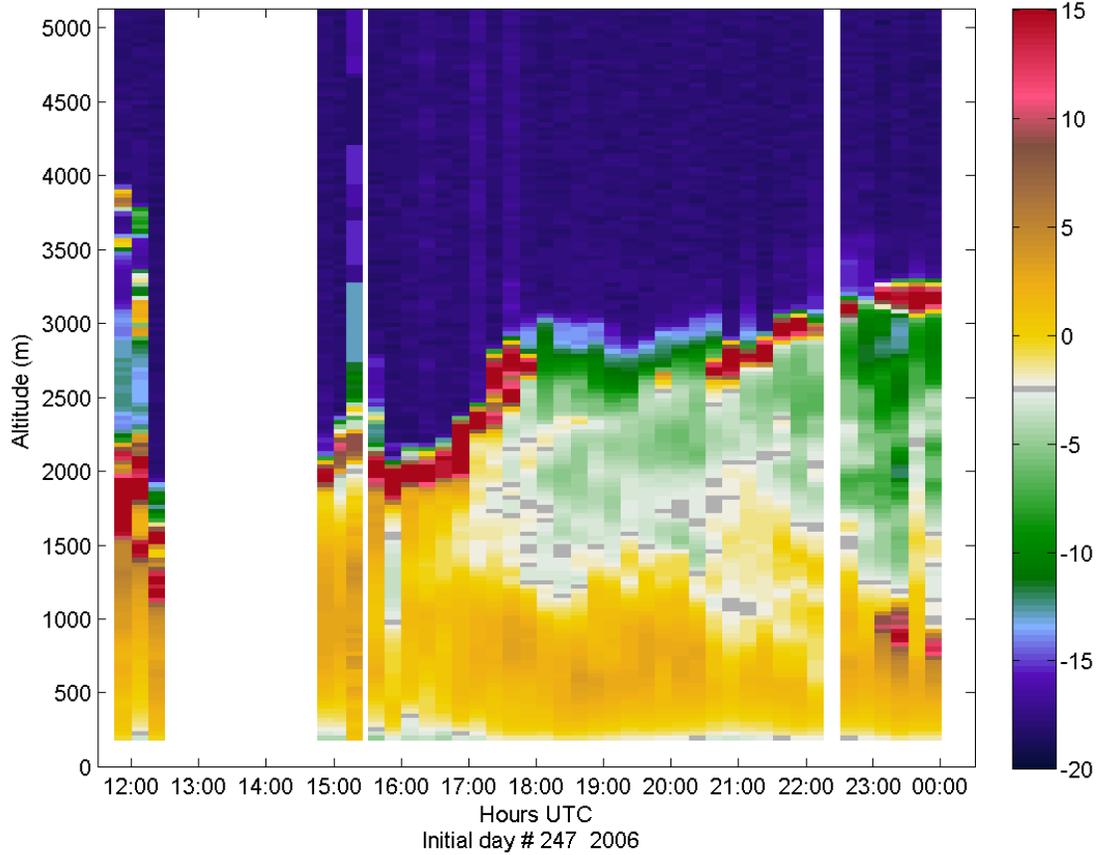
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/04/06 to 00:00 09/05/06 UTC



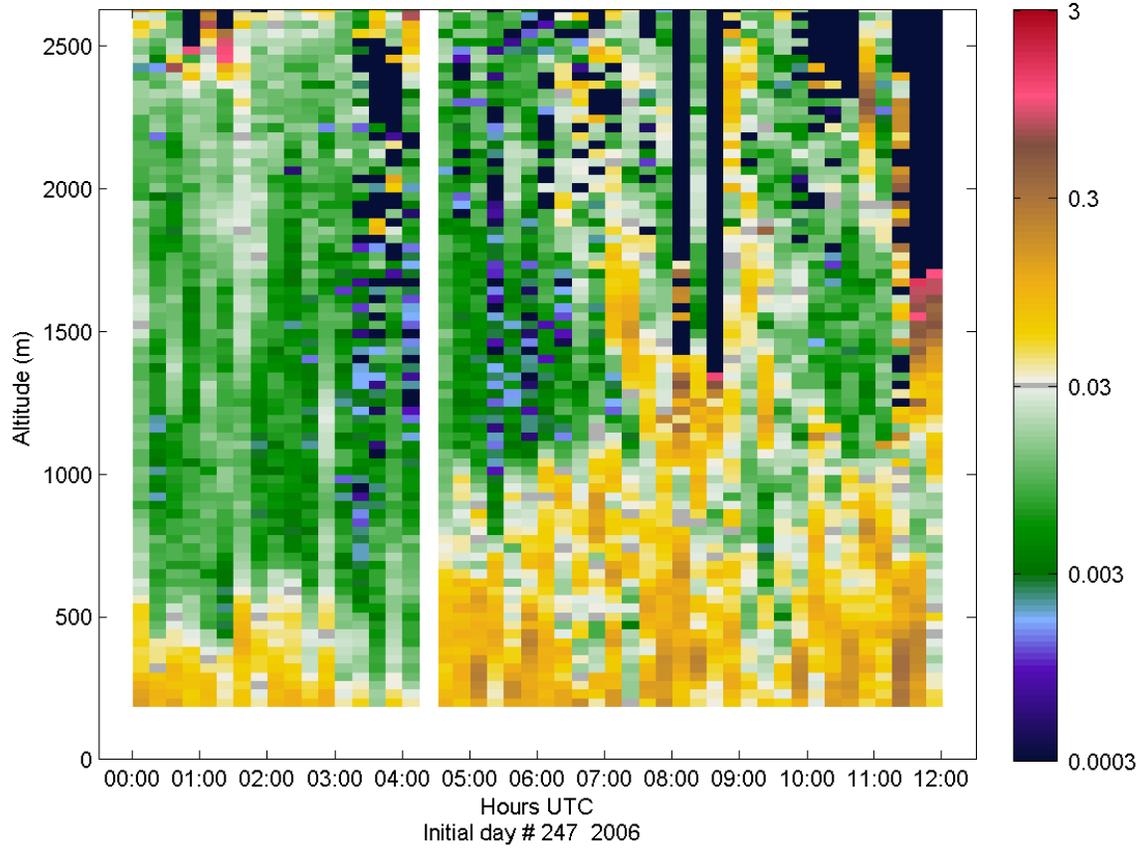
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
00:00 09/04/06 to 12:00 09/04/06



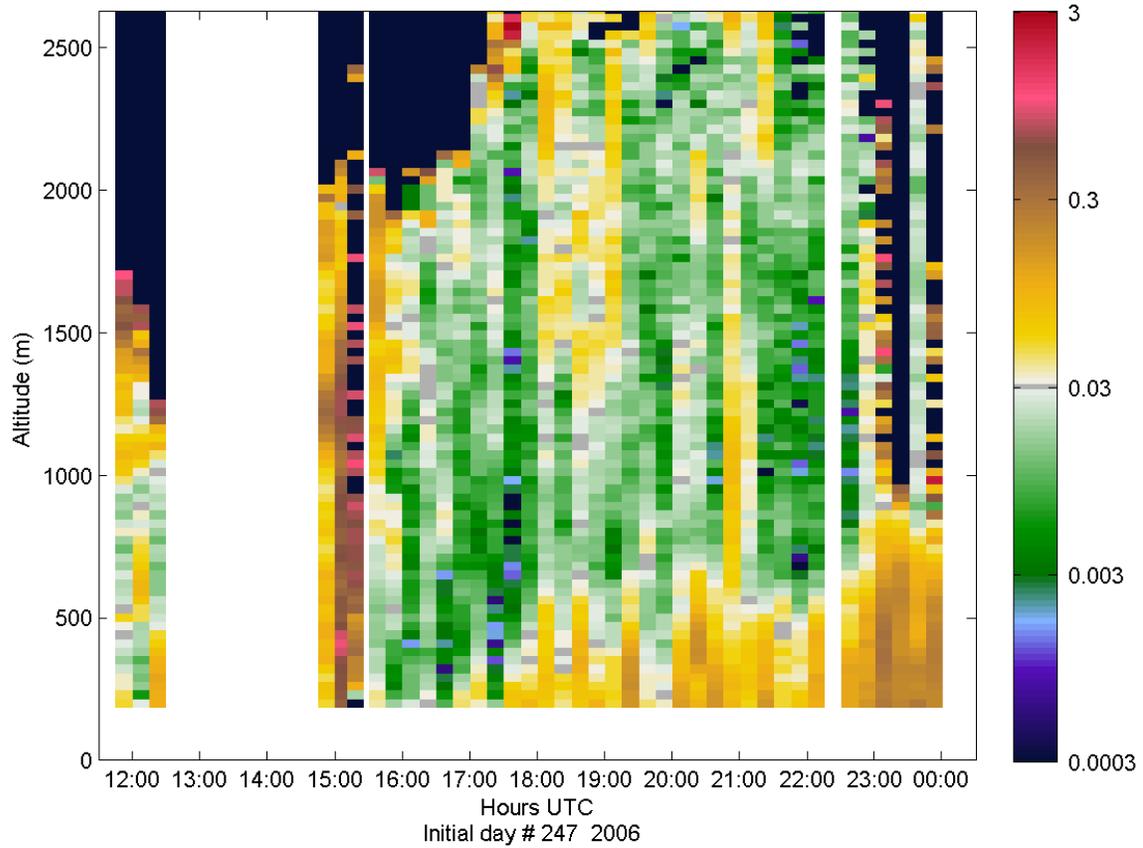
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/04/06 to 00:00 09/05/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
00:00 09/04/06 to 12:00 09/04/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 09/04/06 to 00:00 09/05/06



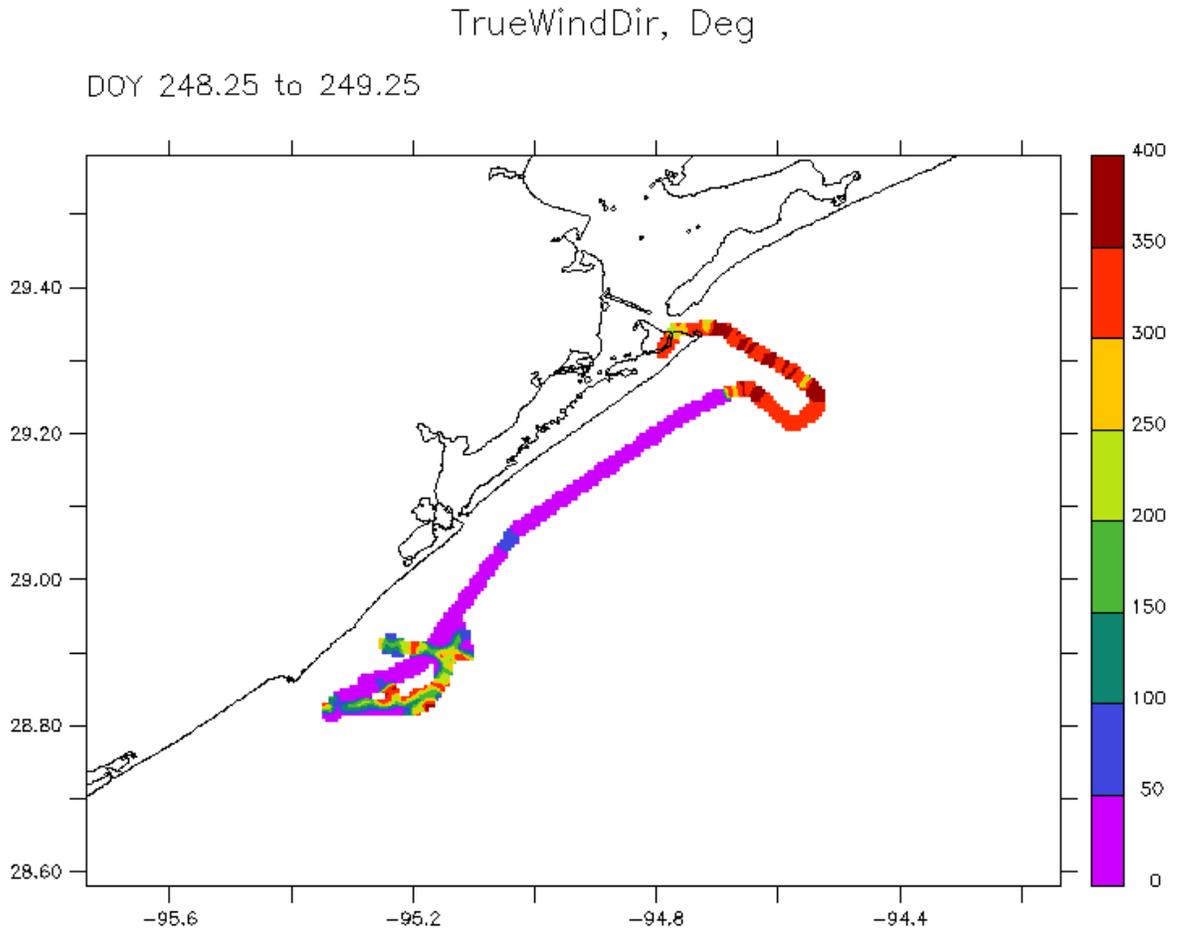
5 September

RHB from Freeport area to Galveston, tied up approximately 1600 CDT. High aerosol and moderate ozone, becoming cleaner with "cold front" passage and northerly winds.

Fluxes on long leg!

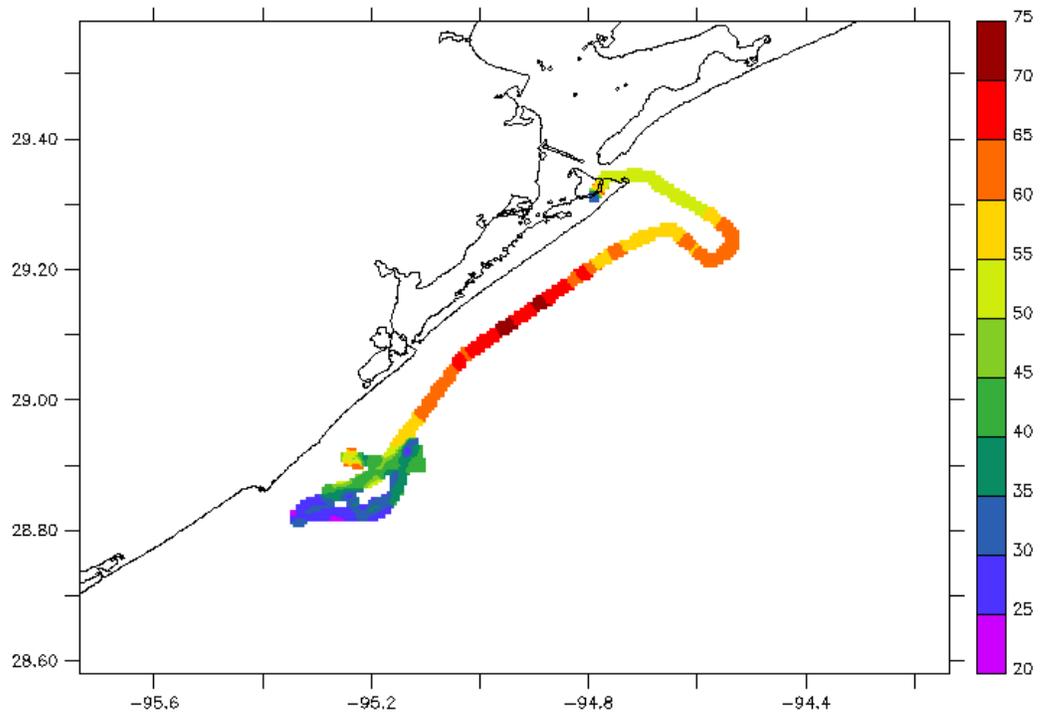
BL height

Trajectories for aerosol peak ~17Z



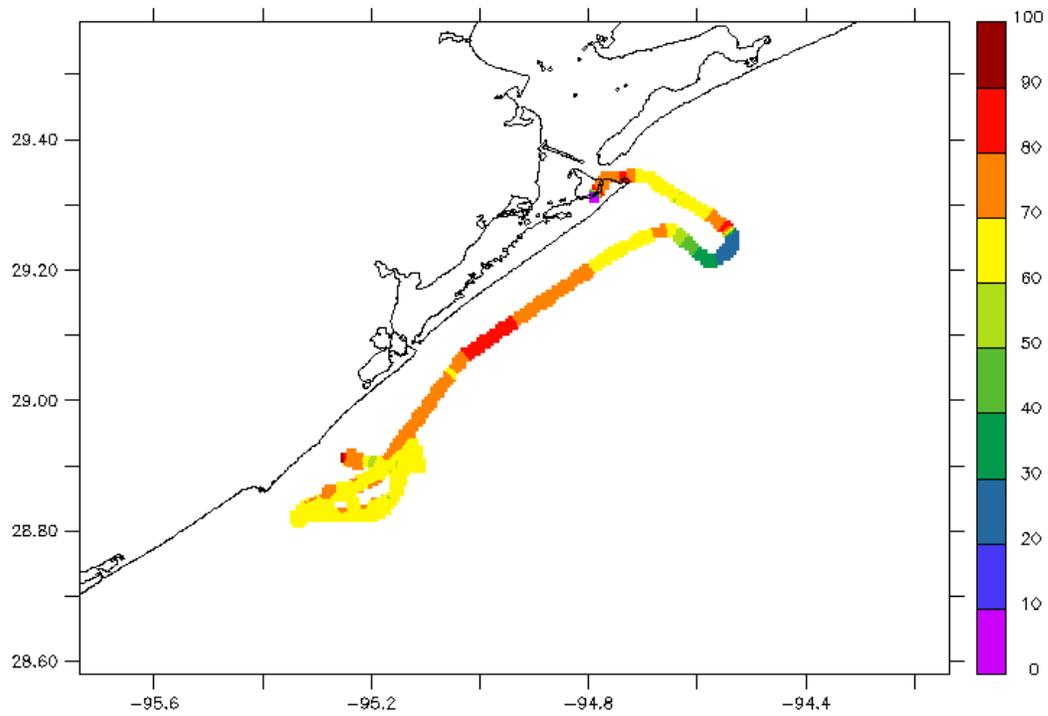
O3, ppb

DOY 248.25 to 249.25



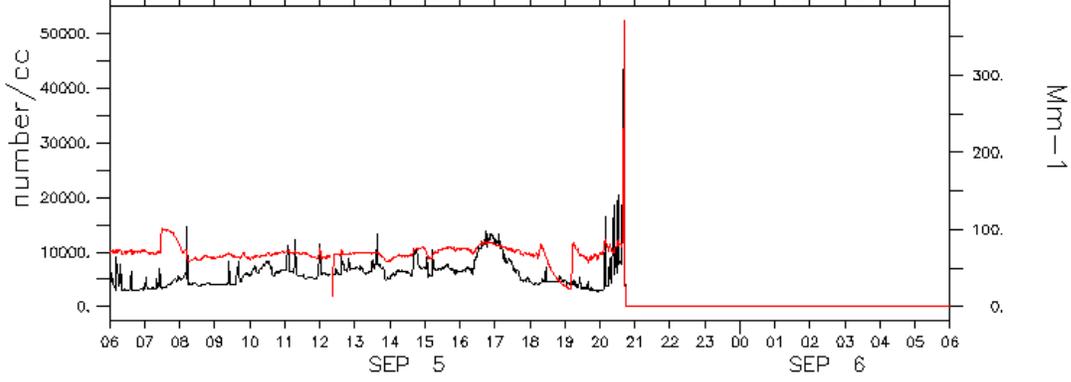
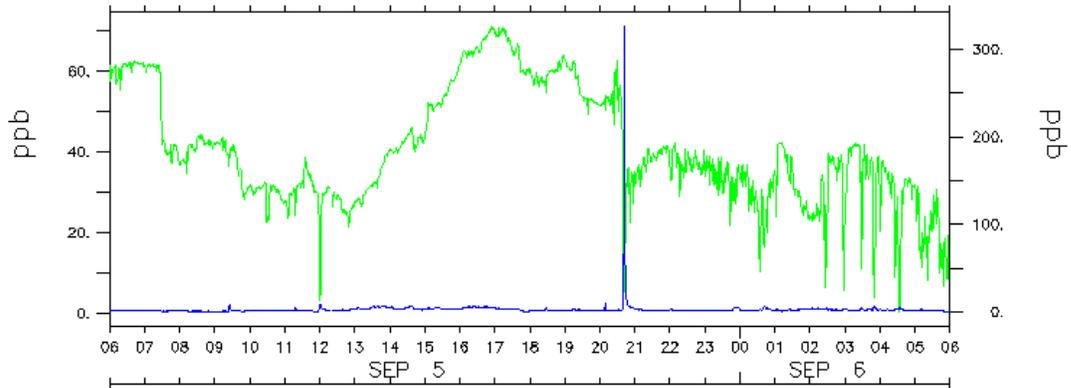
AerosolScatGreen, Mm-1

DOY 248.25 to 249.25



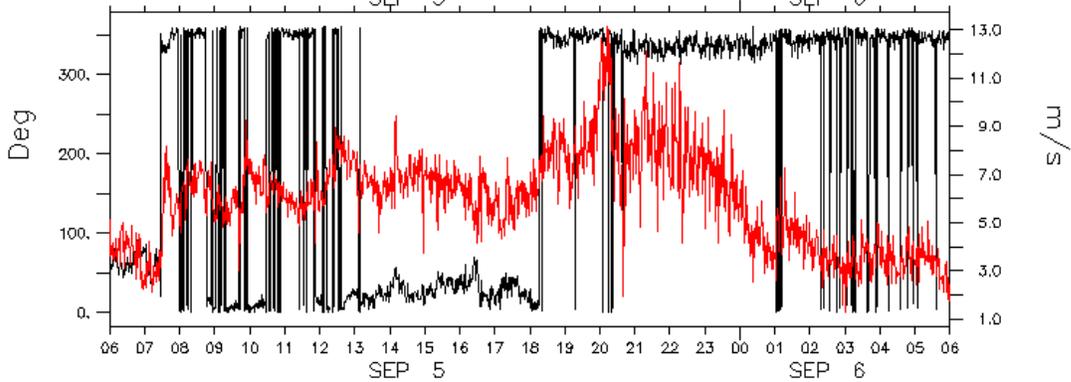
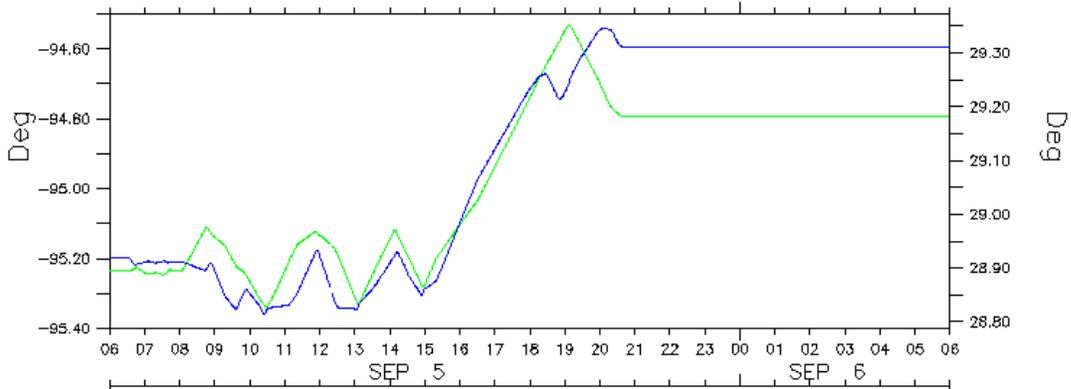
CN
O3

AerosolScatGreen
SO2

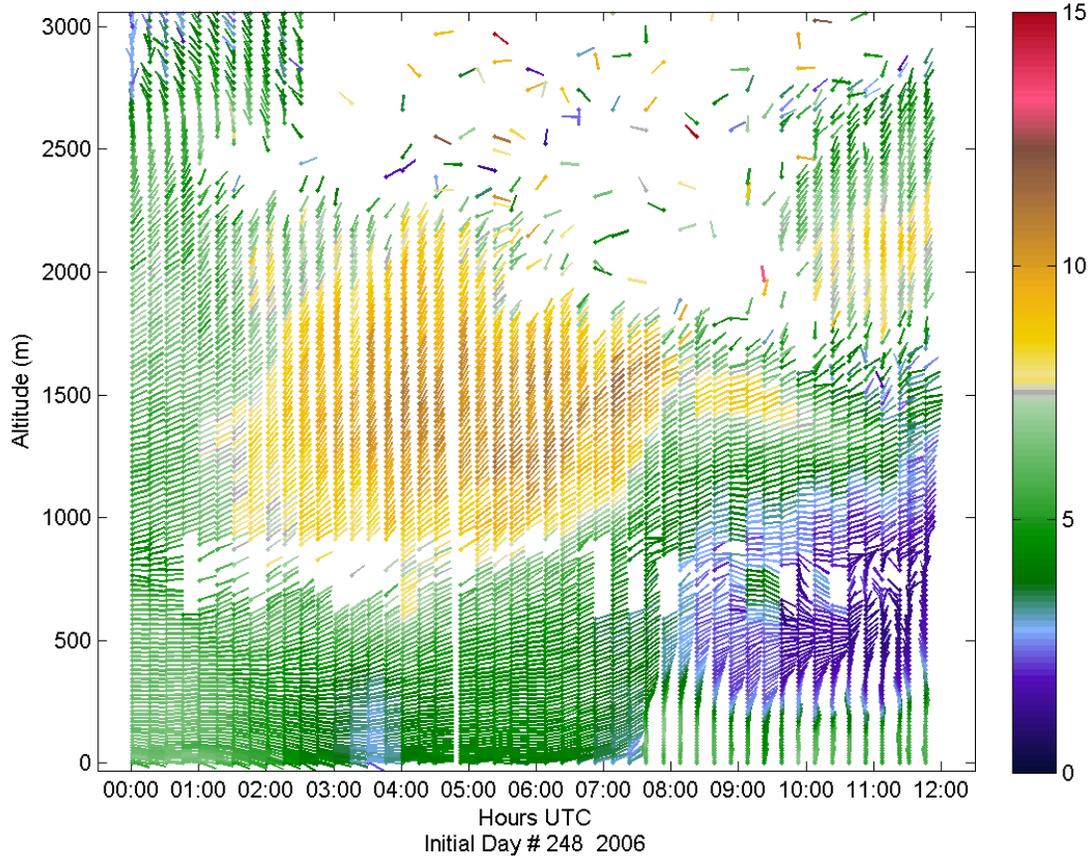


TrueWindDir
DLon

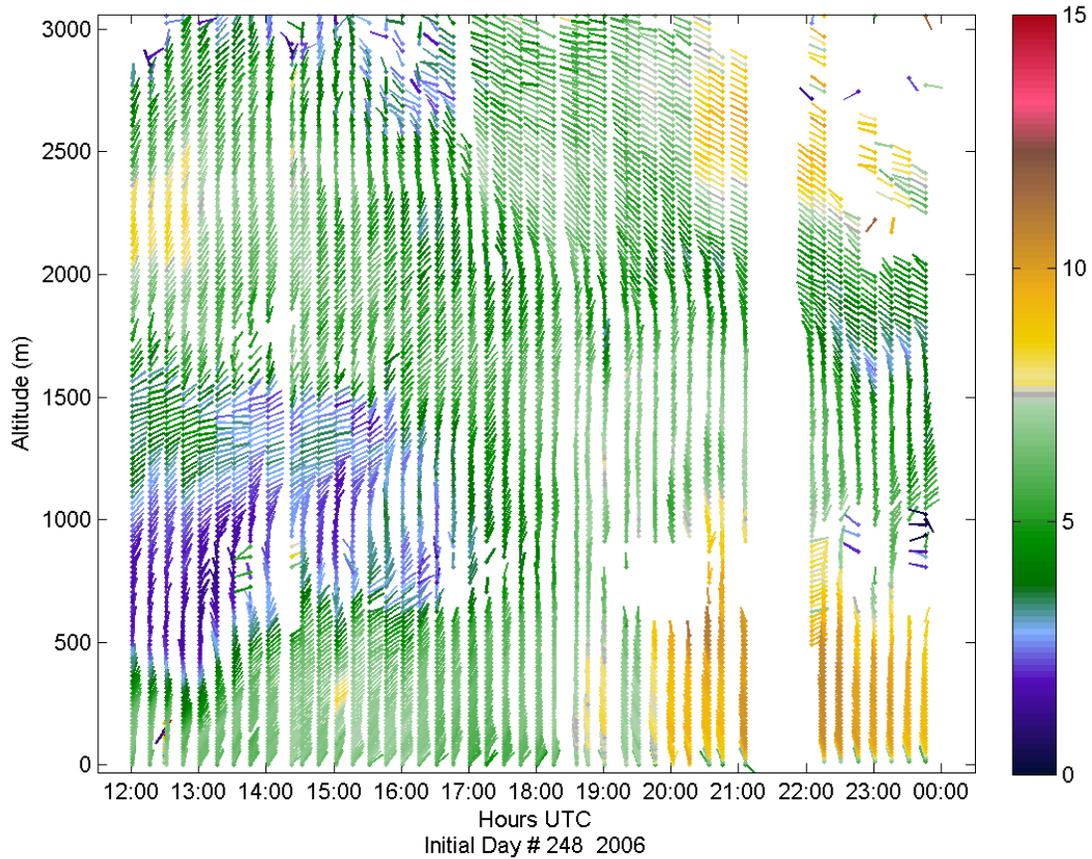
TrueWindSp
DLat



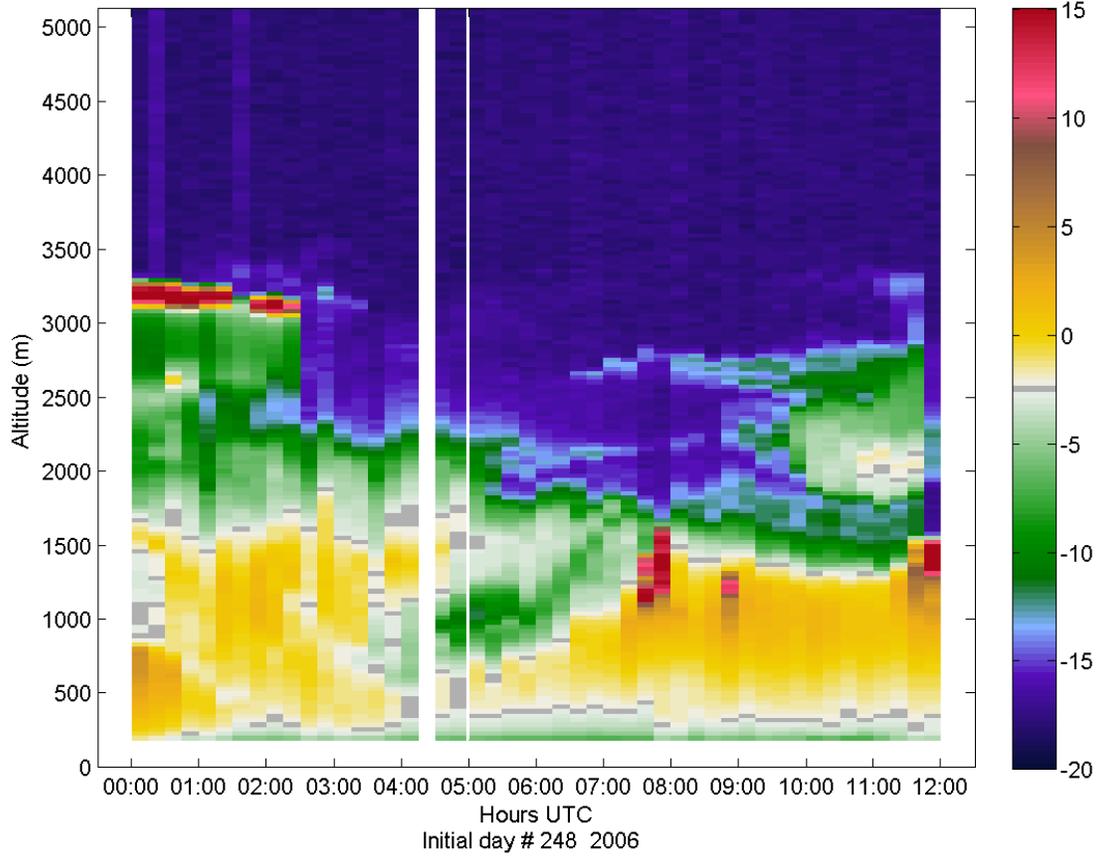
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
00:00 09/05/06 to 12:00 09/05/06 UTC



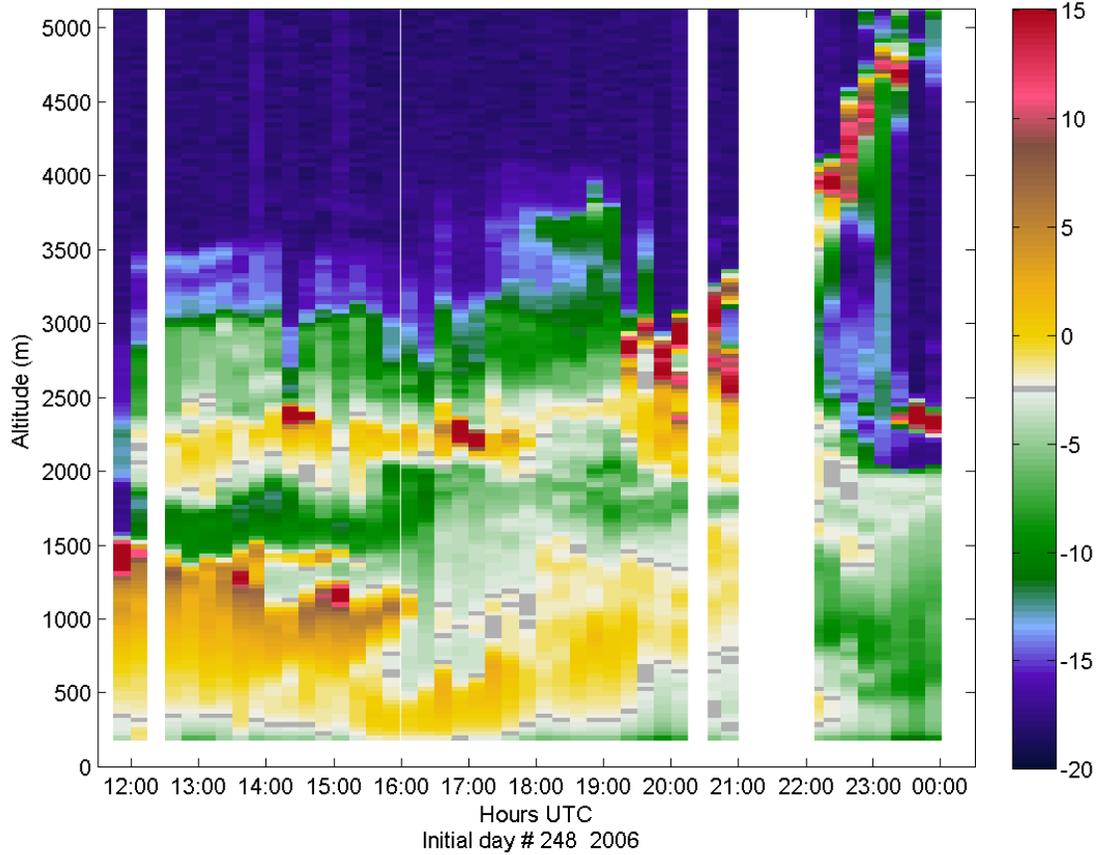
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/05/06 to 00:00 09/06/06 UTC



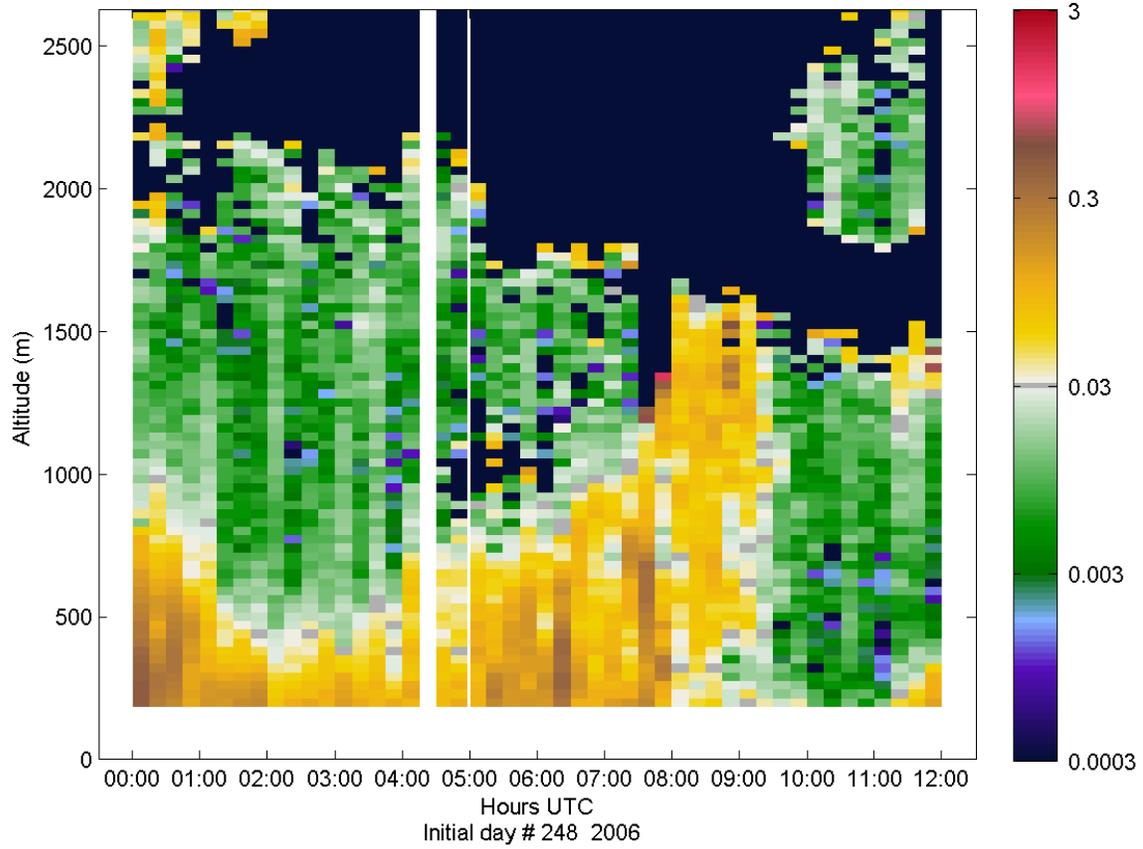
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
00:00 09/05/06 to 12:00 09/05/06



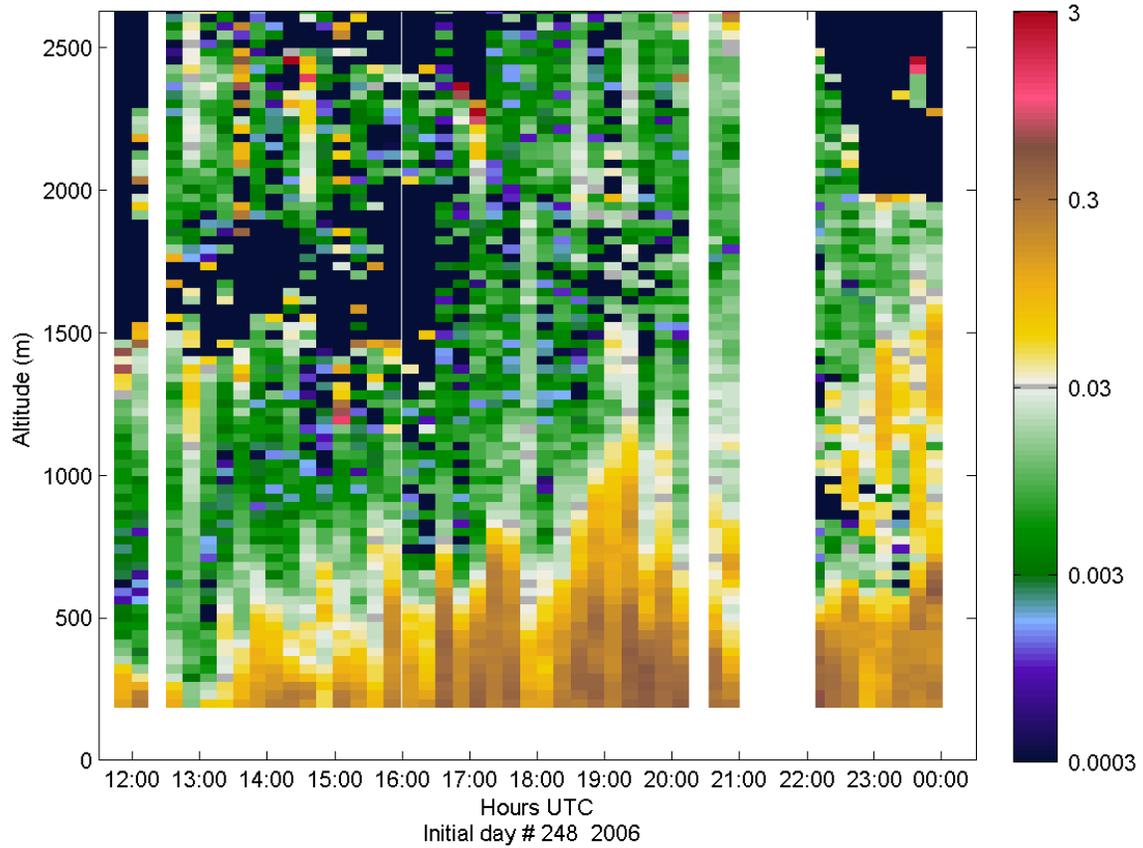
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/05/06 to 00:00 09/06/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance α_w^2 (m^2/s^2) Profiles
00:00 09/05/06 to 12:00 09/05/06



HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance α_w^2 (m^2/s^2) Profiles
12:00 09/05/06 to 00:00 09/06/06

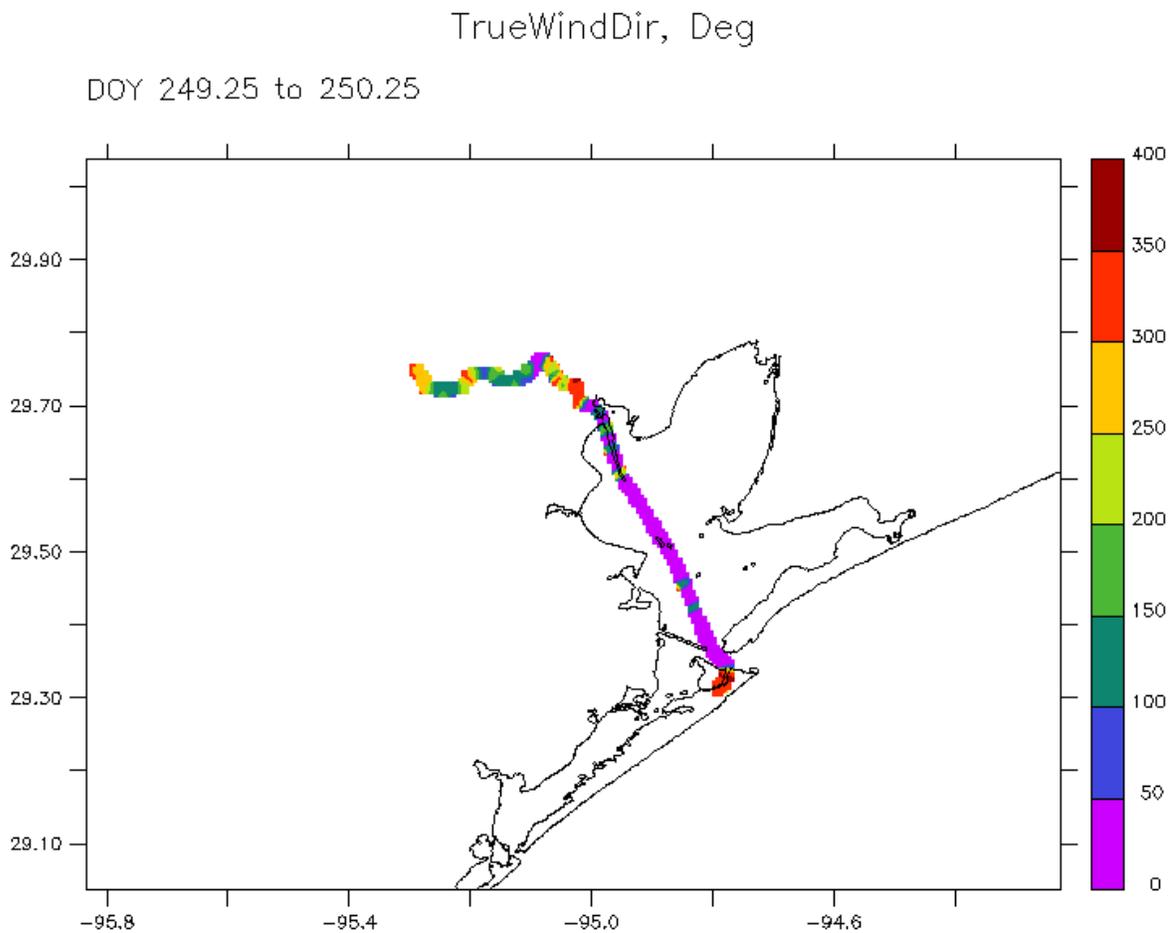


6 September

RHB from Galveston to Turning Basin, then back to Jacinto Port for overnight. High aerosol and moderate ozone in the inner channel. Light north to northeast winds.

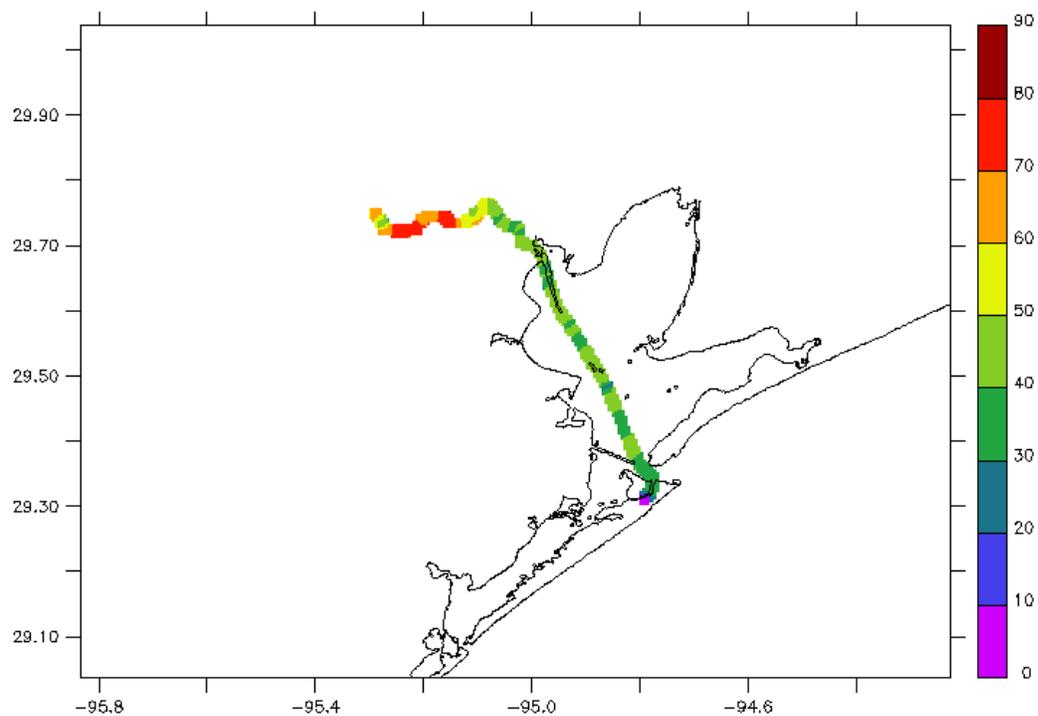
BL heights: 18Z 1600 m, all methods ~agree (TB); 23Z 800 m, possible shallower layer, lidar unavailable (Jac Port); 05Z 200 m.

Flux in bay on northbound leg



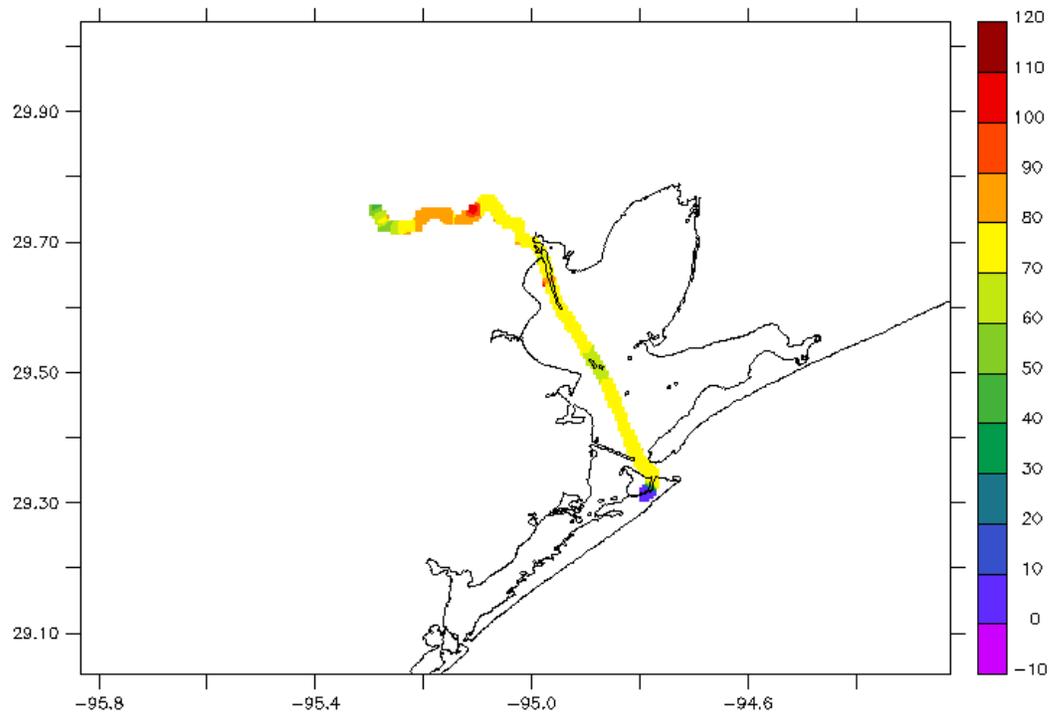
O3, ppb

DOY 249.25 to 250.25



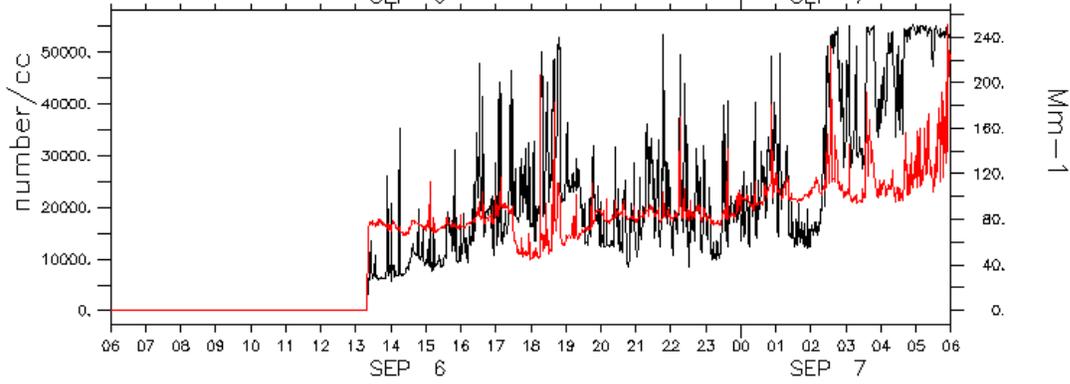
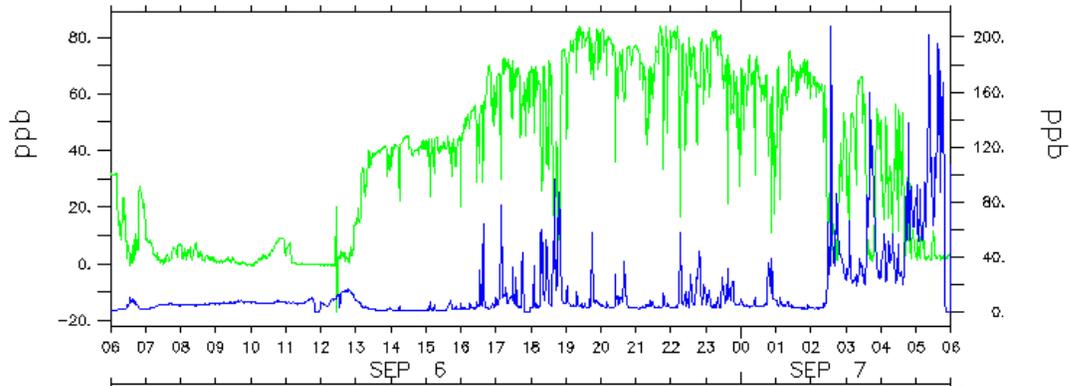
AerosolScatGreen, Mm-1

DOY 249.25 to 250.25



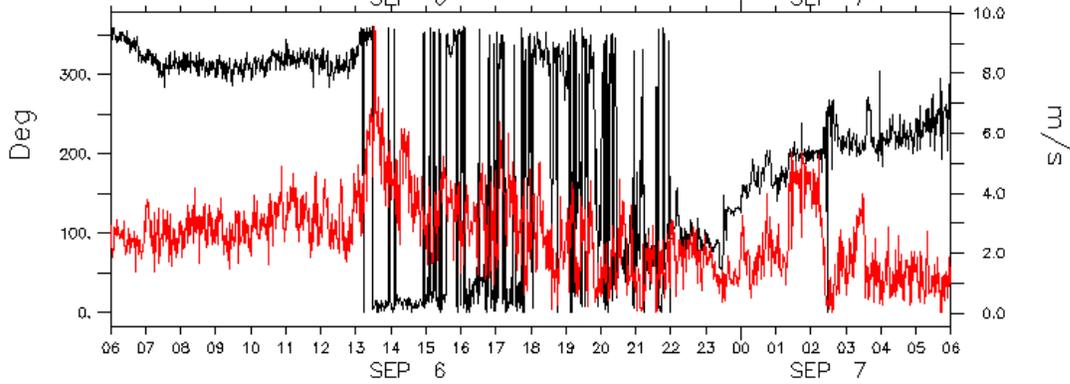
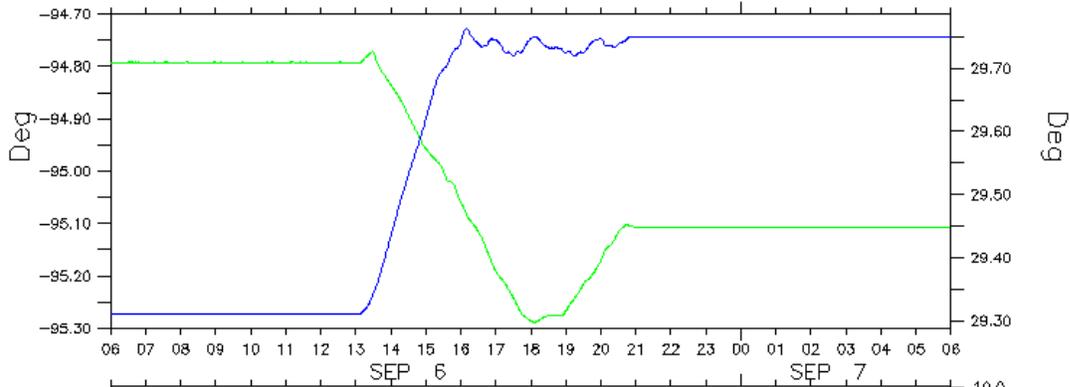
CN
O3

AerosolScatGreen
SD2

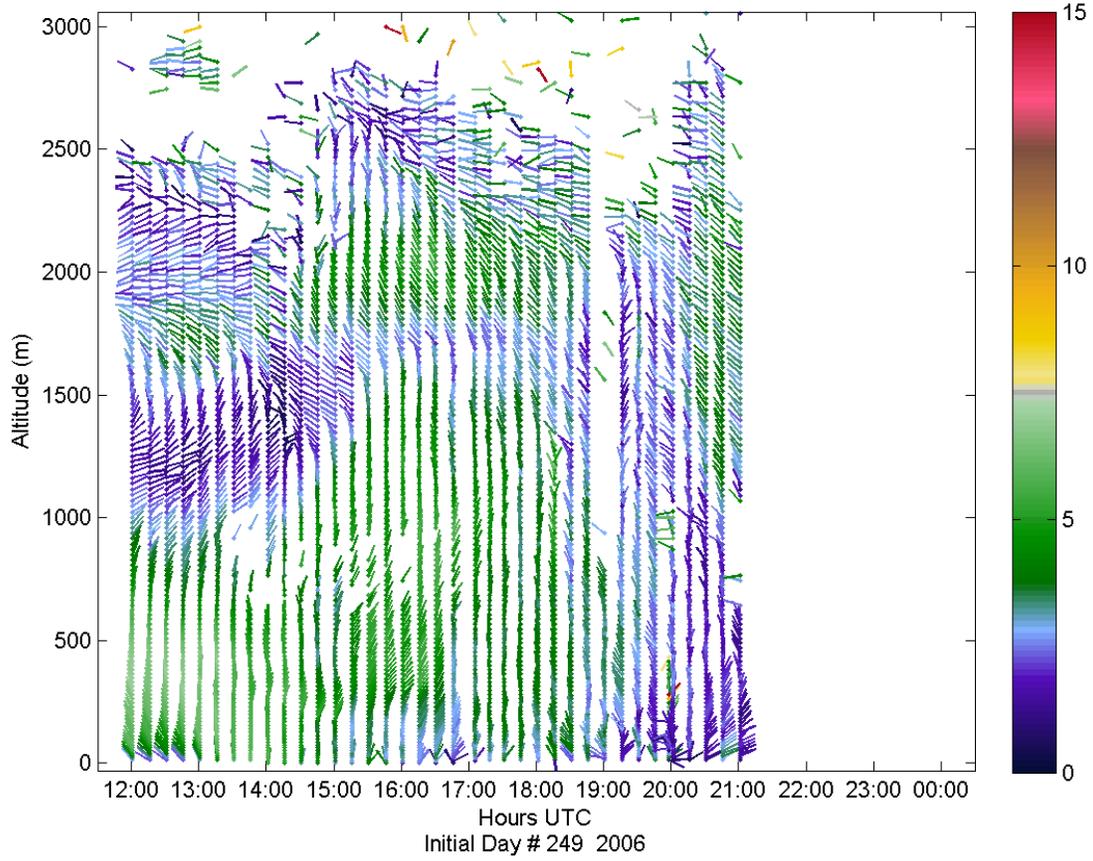


TrueWindDir
DLon

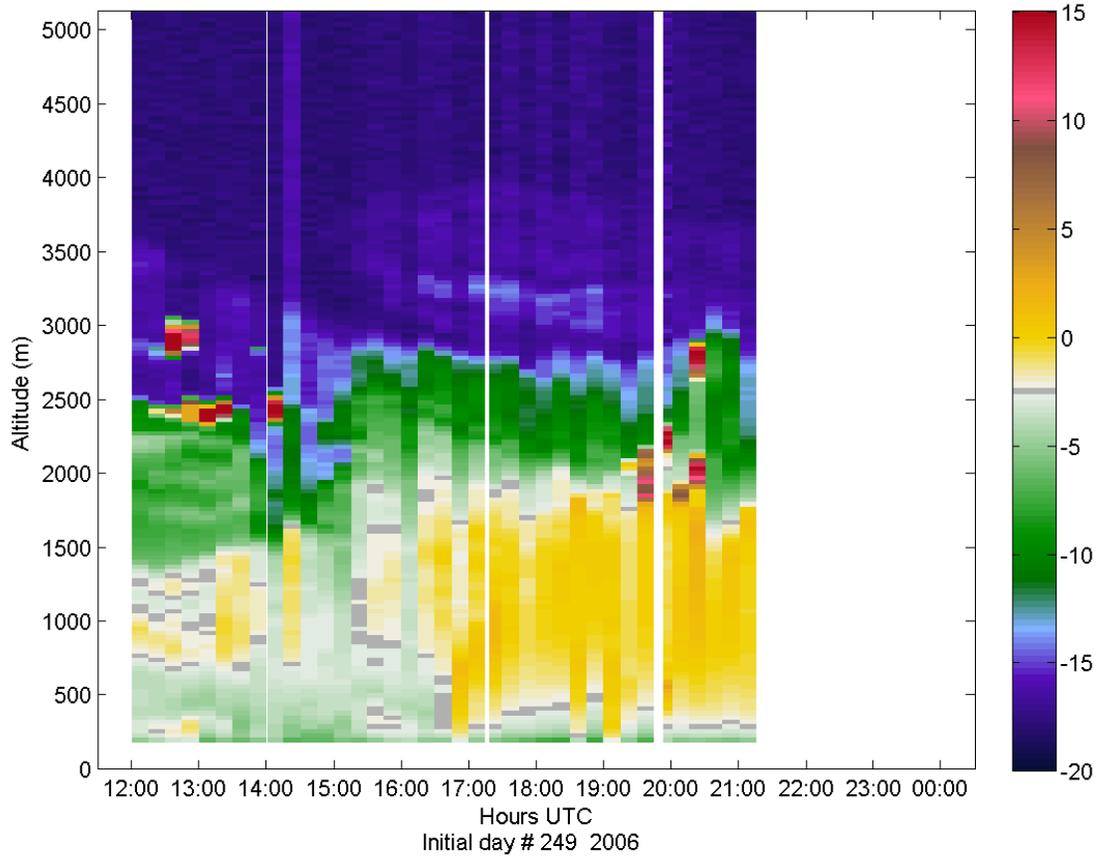
TrueWindSp
DLat



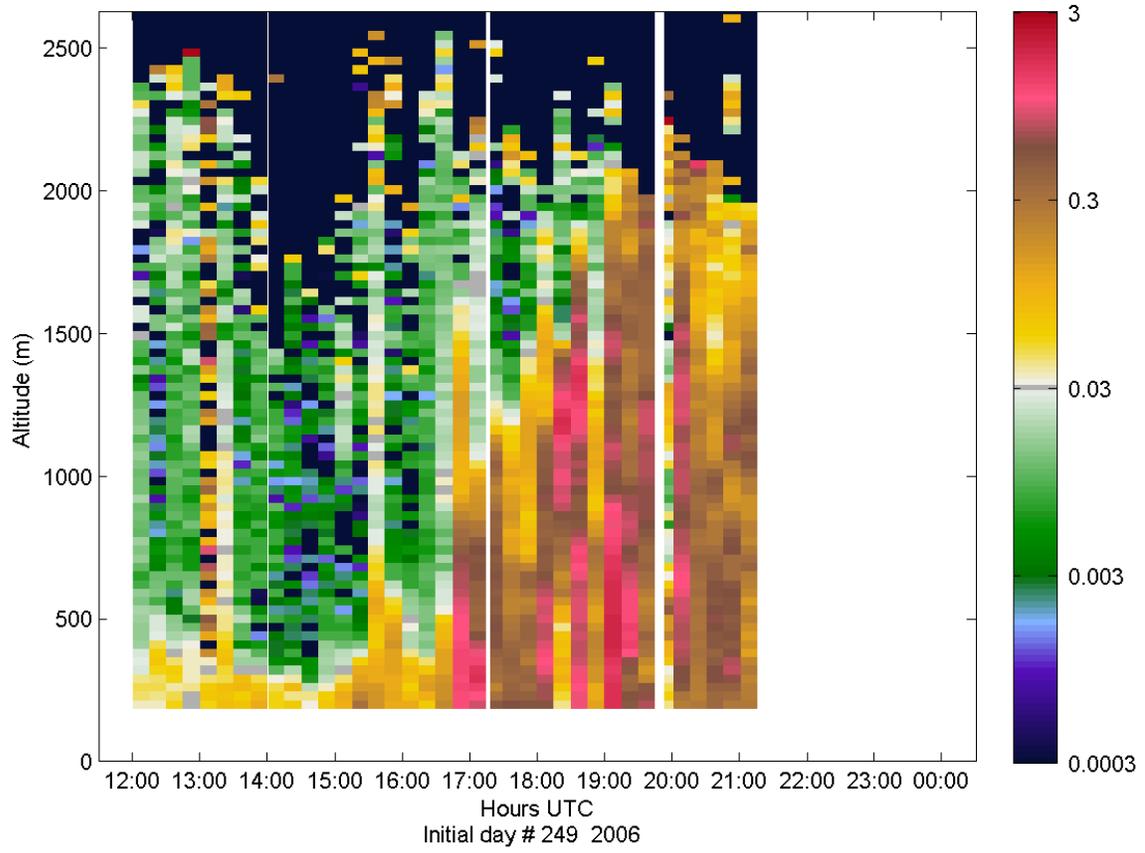
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/06/06 to 00:00 09/07/06 UTC

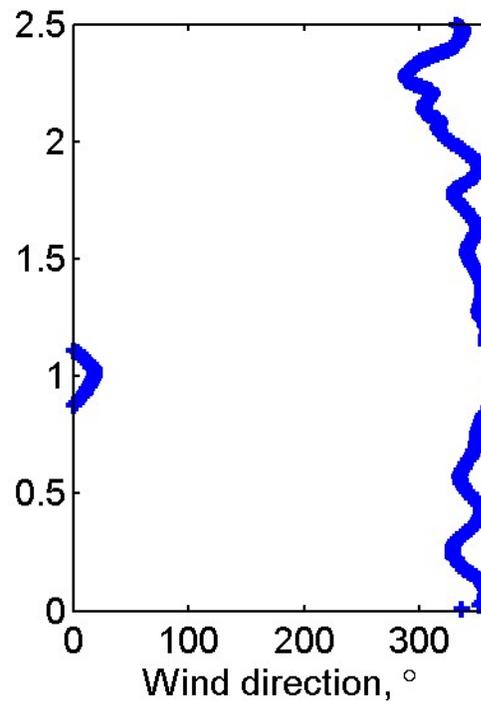
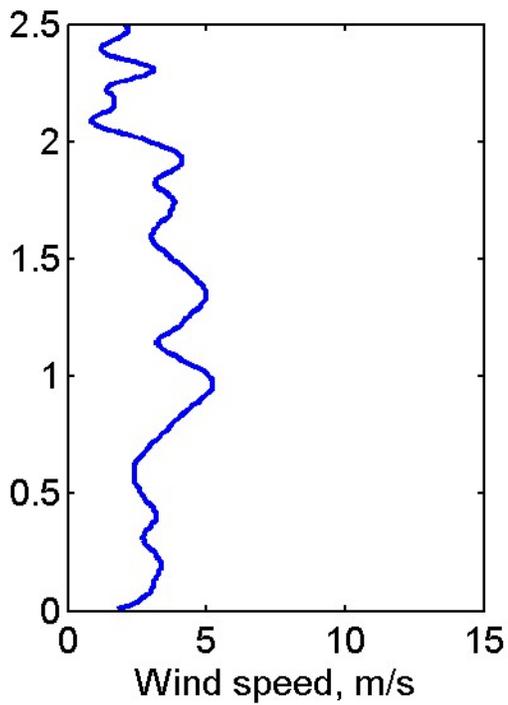
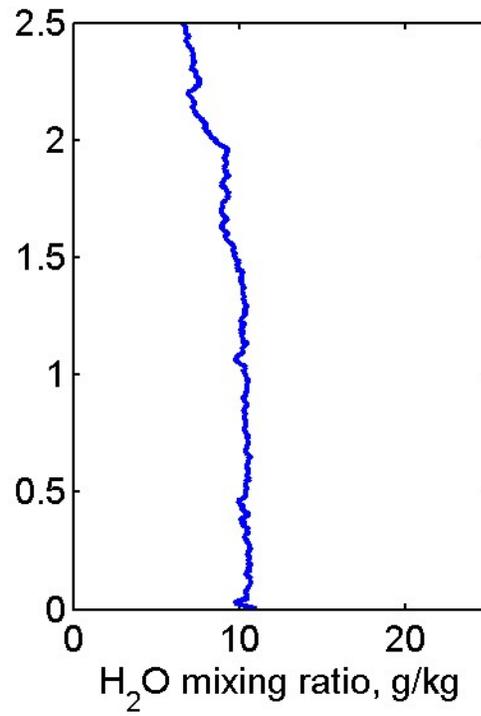
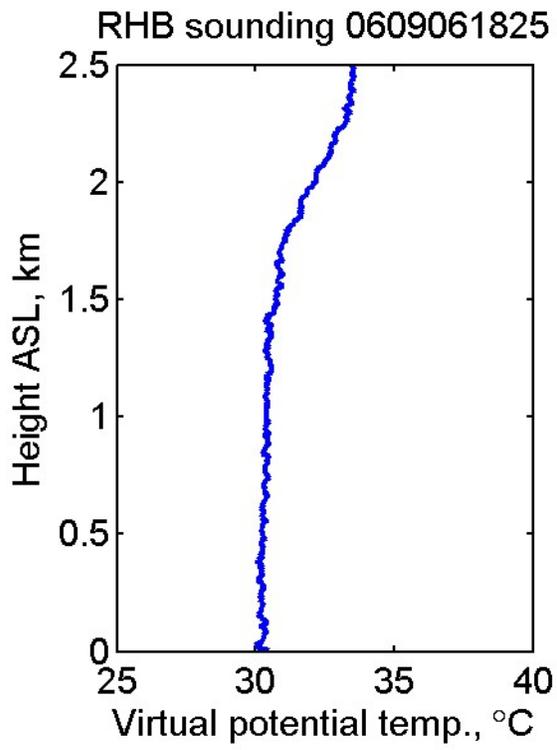


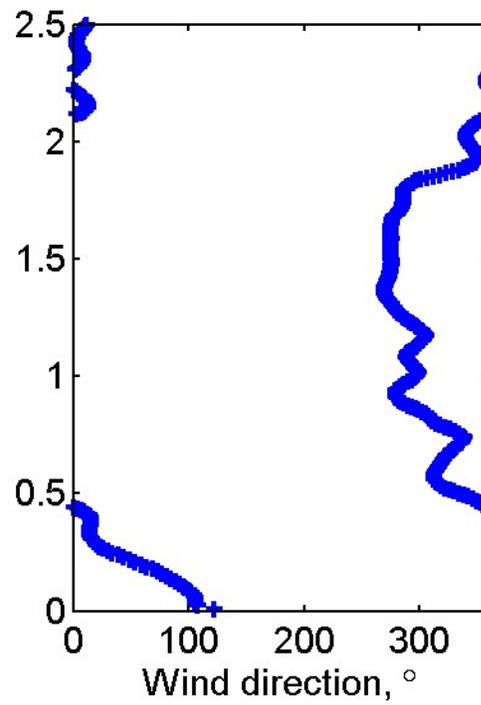
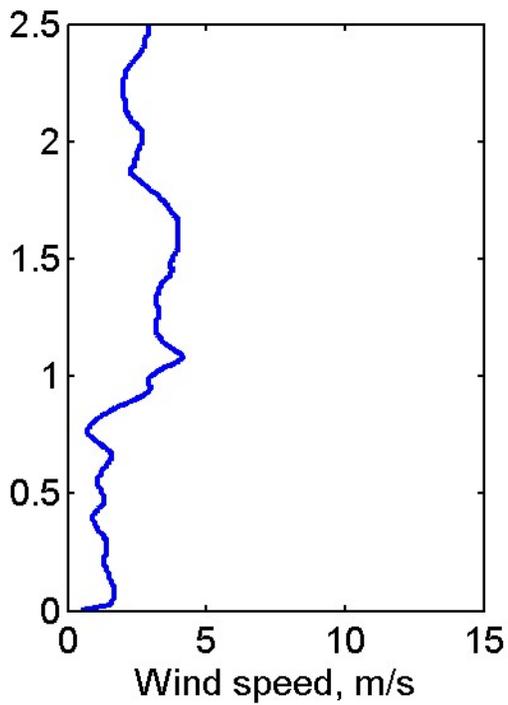
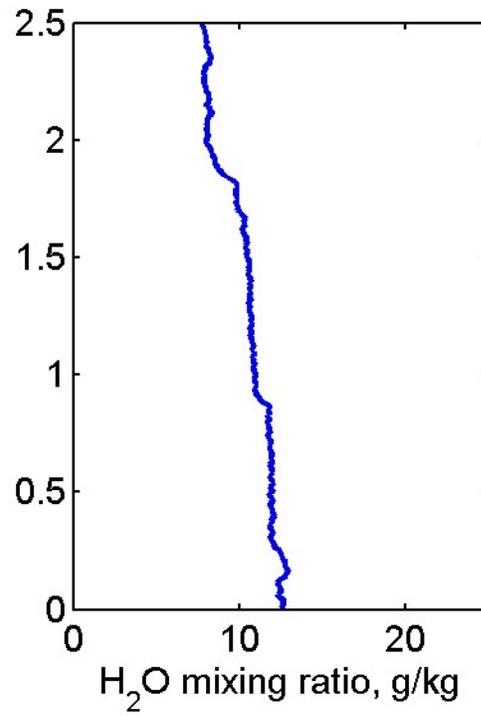
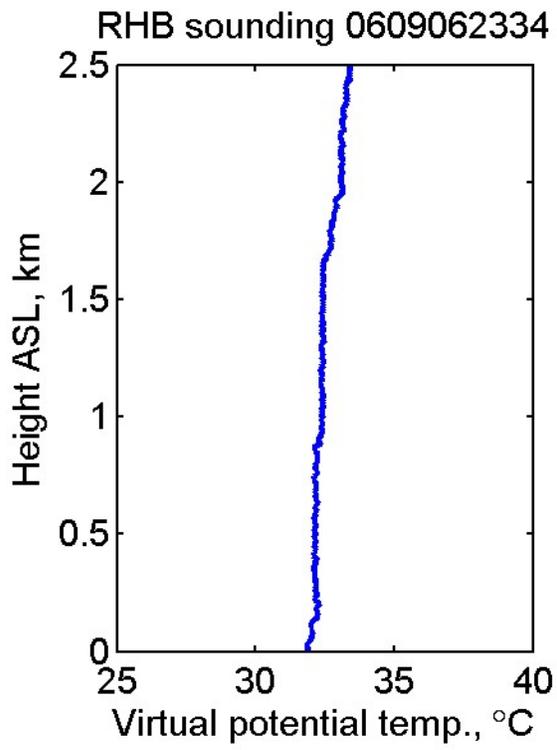
HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/06/06 to 00:00 09/07/06

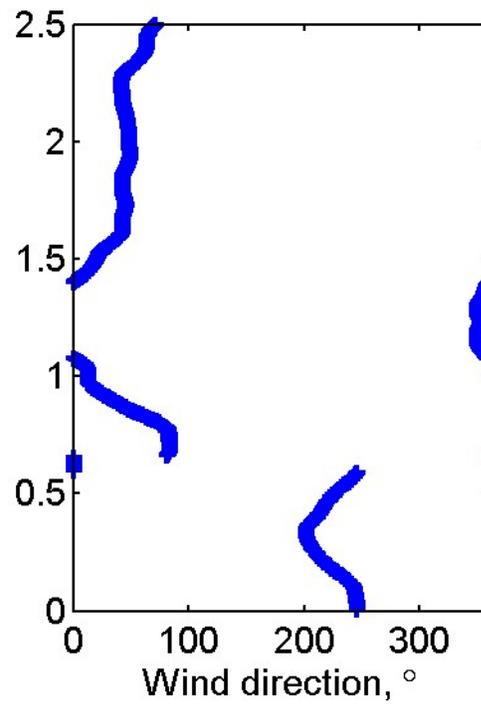
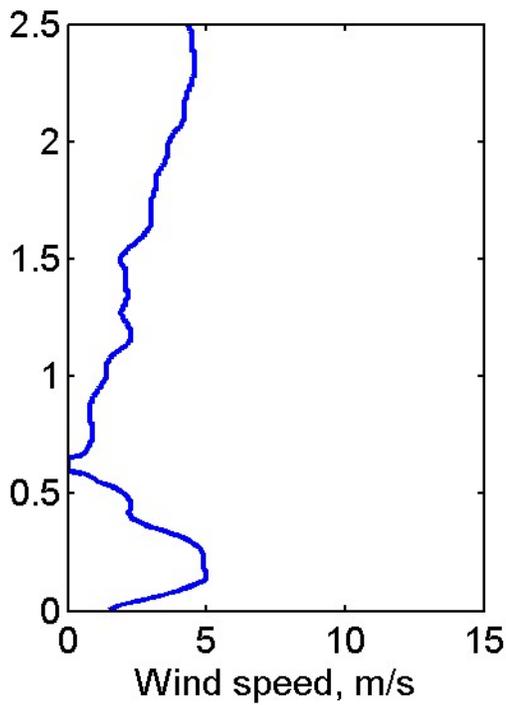
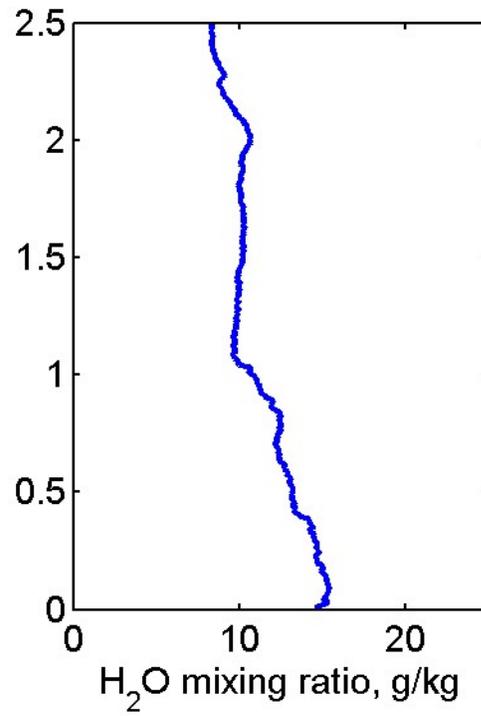
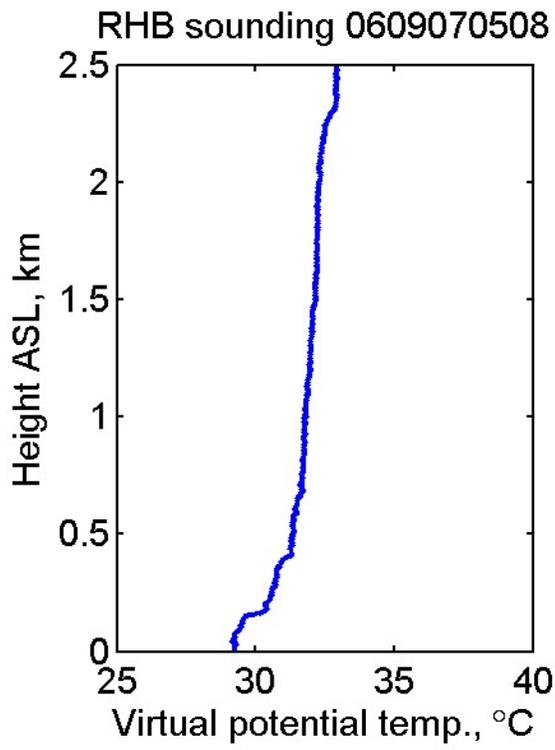


HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 09/06/06 to 00:00 09/07/06





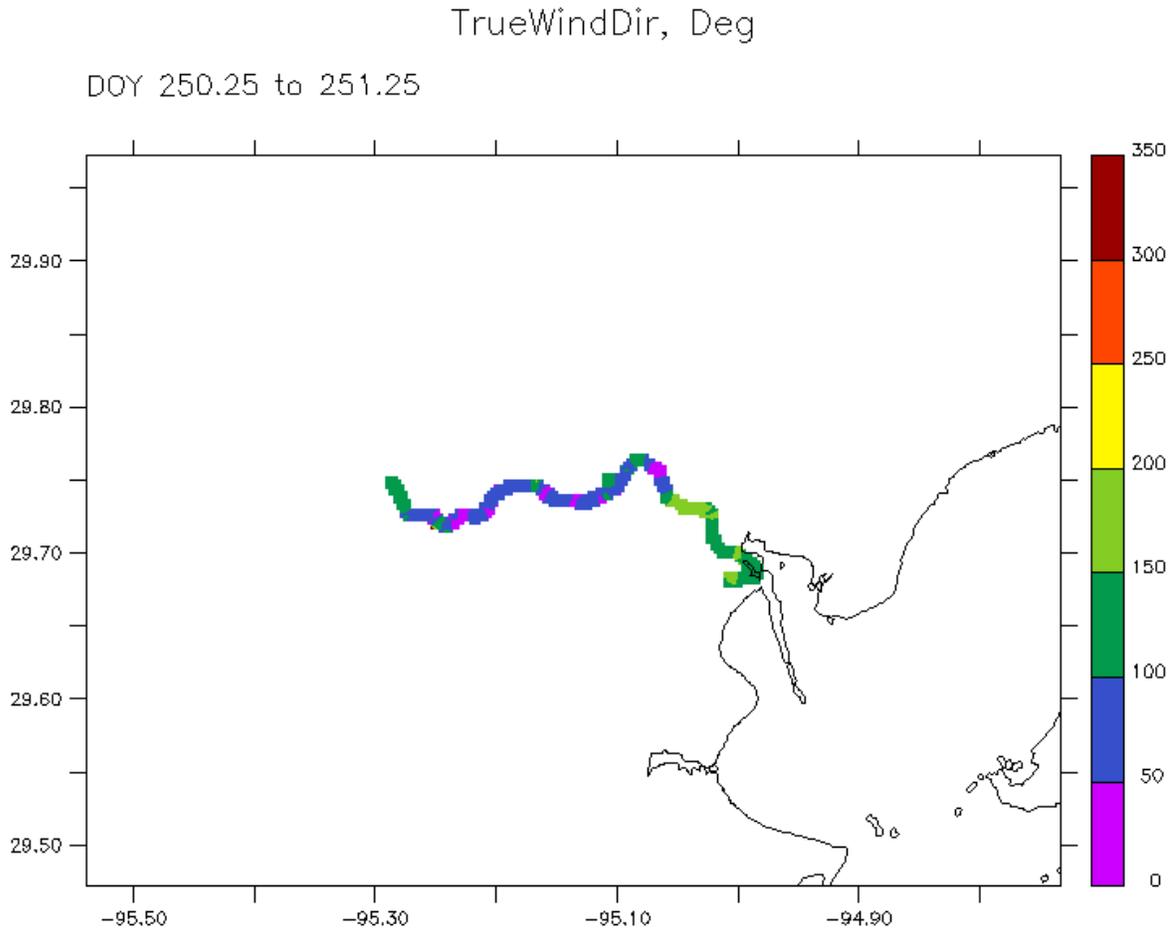




7 September

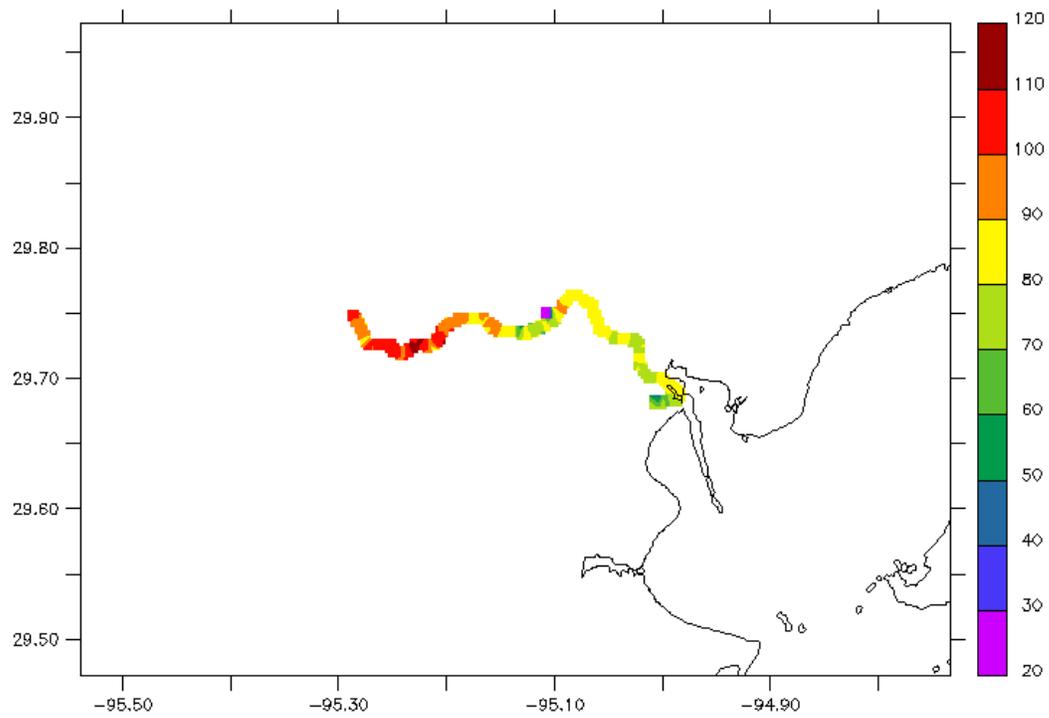
RHB from Jacinto Port ~1200 CDT to Turning Basin and return to Barbour's Cut. High aerosol and ozone. Light north to northeast winds. High ozone event day in Houston, see: <http://www.tceq.state.tx.us/assets/public/compliance/monops/air/sigevents/06/event2006-09-07hou.html>

BL heights: 11Z 200 m (Jac Port); 17Z 5-600 m (Jac Port); 23Z 300 m (BC); 05Z 200 m (BC).



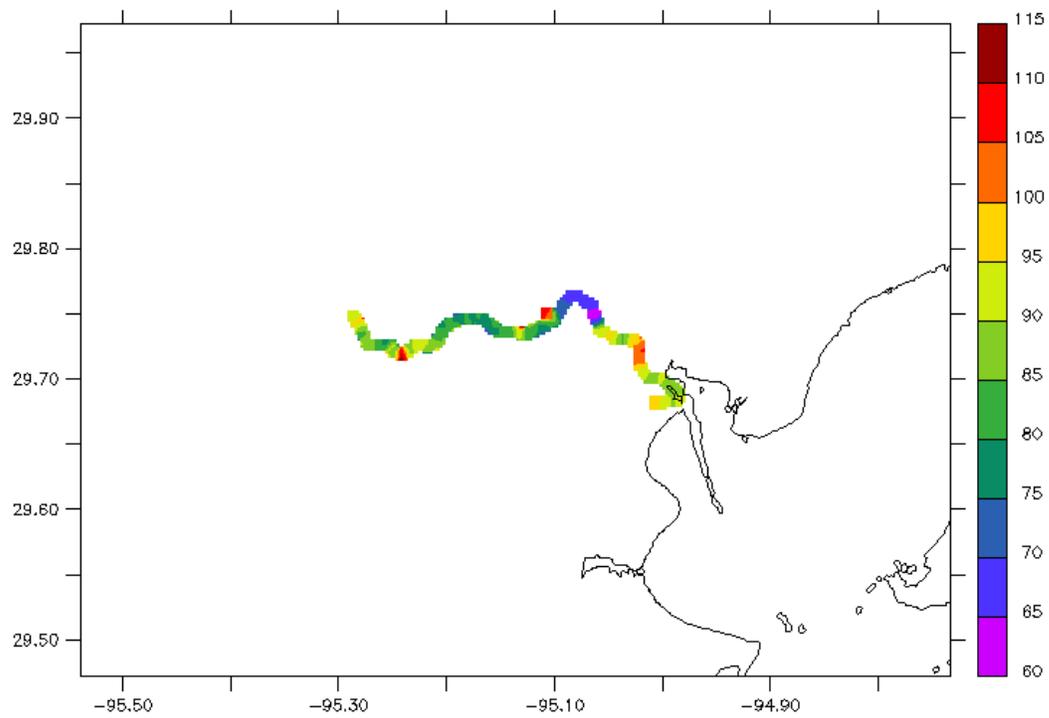
O3, ppb

DOY 250.25 to 251.25



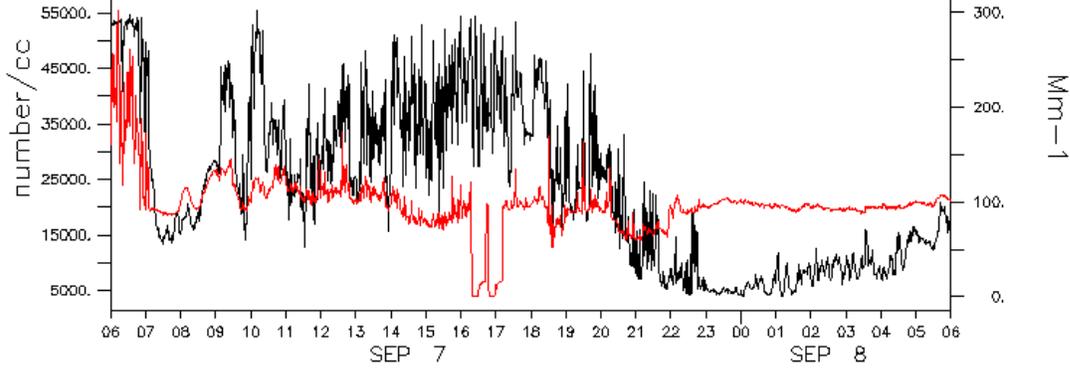
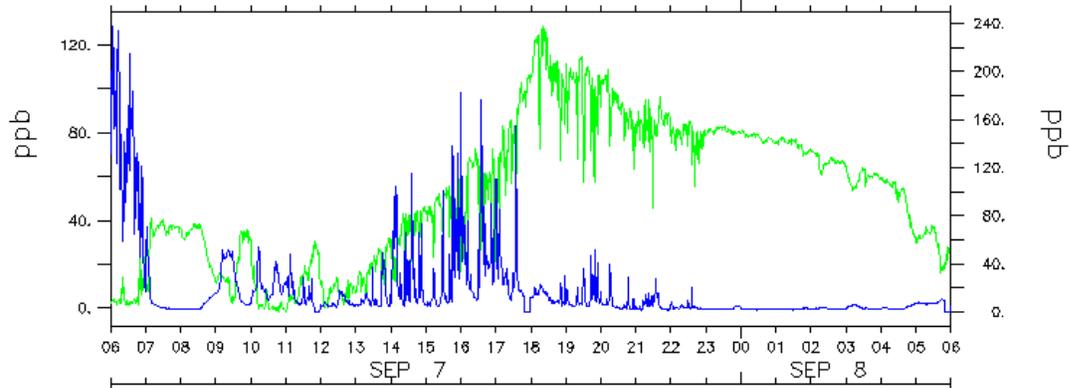
AerosolScatGreen, Mm-1

DOY 250.25 to 251.25



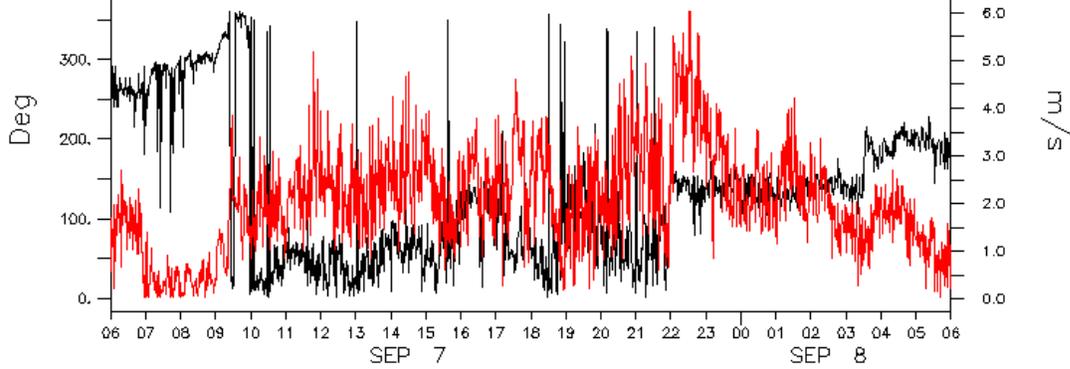
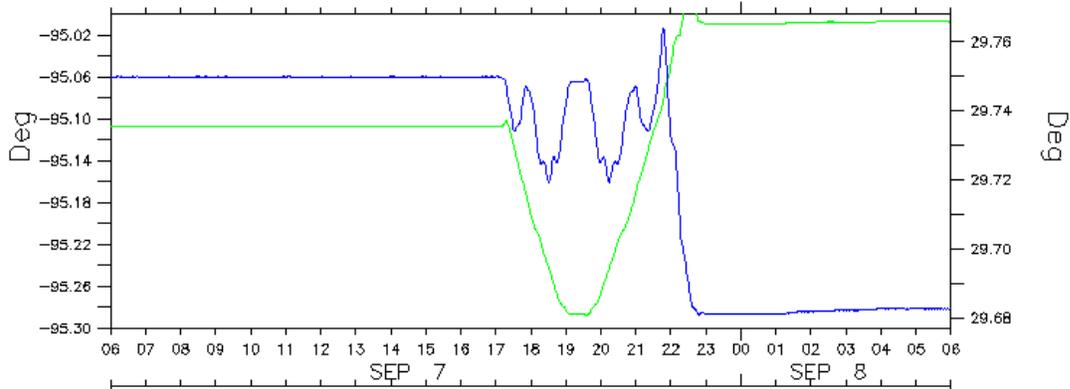
CN
O3

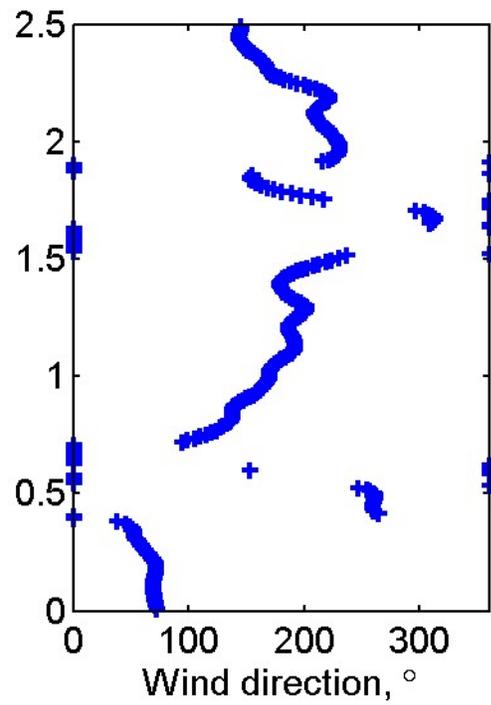
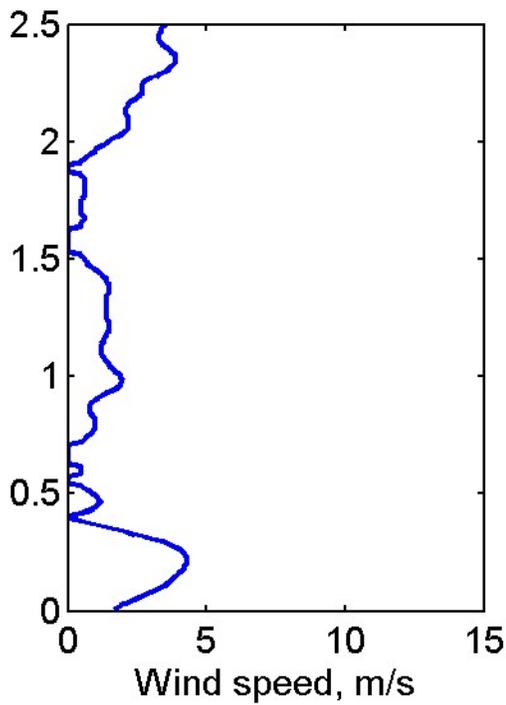
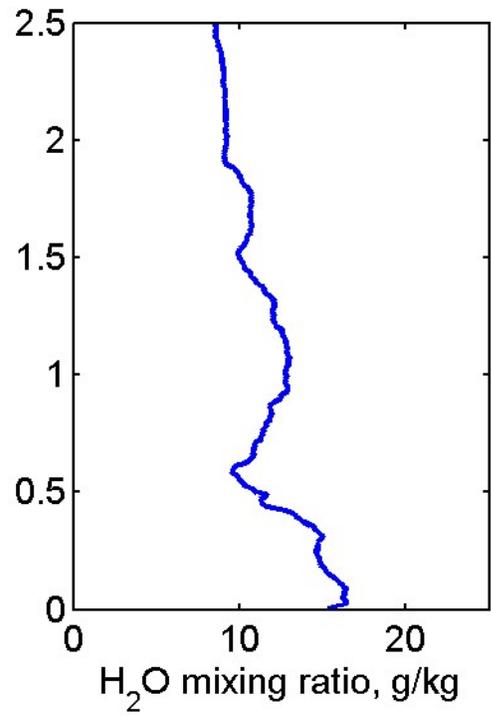
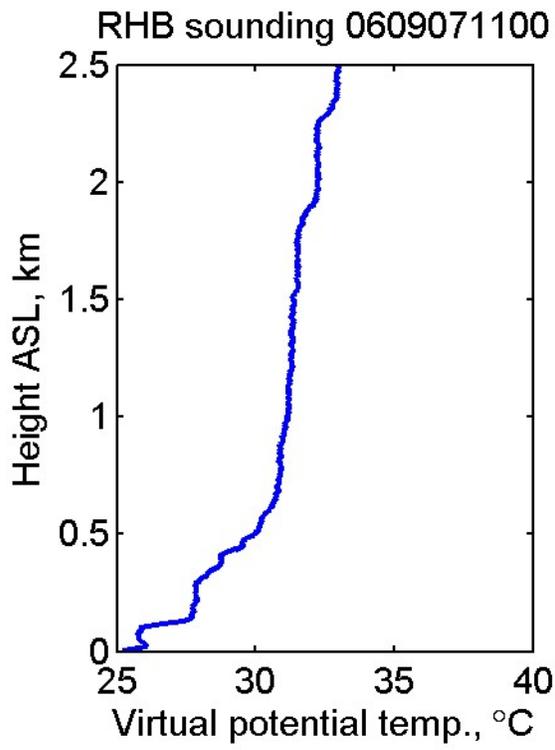
AerosolScatGreen
SO2

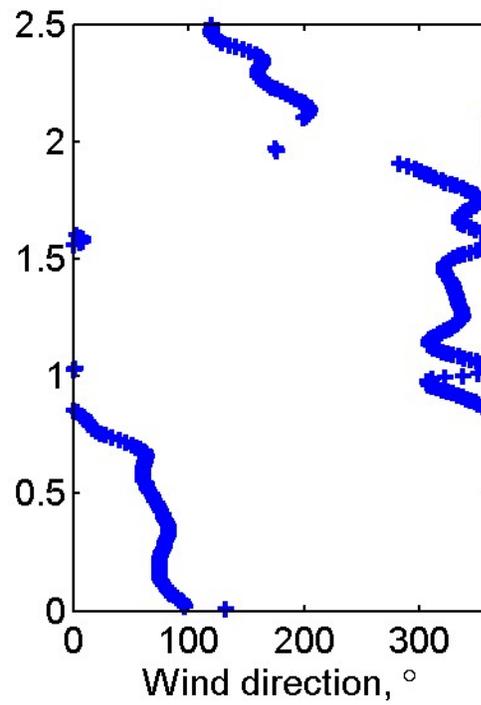
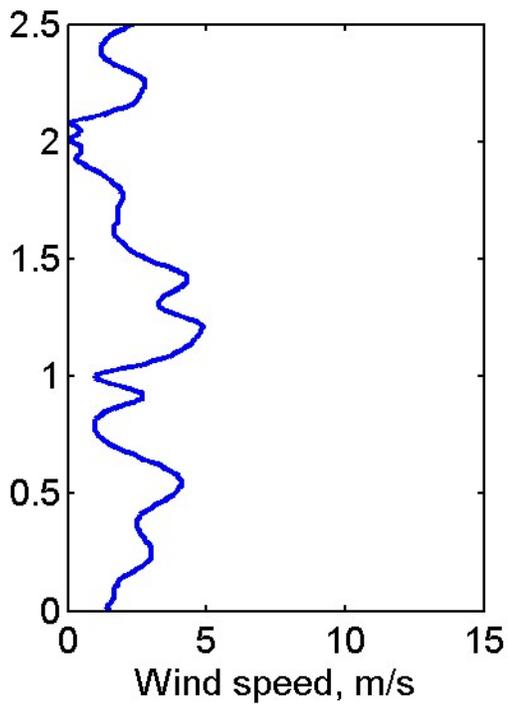
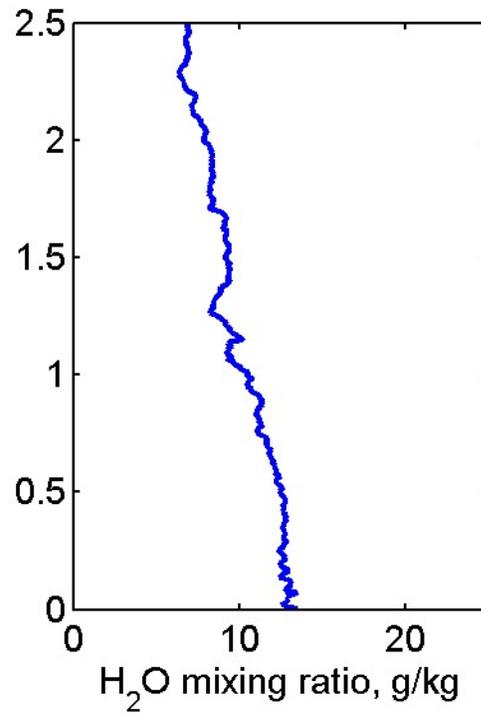
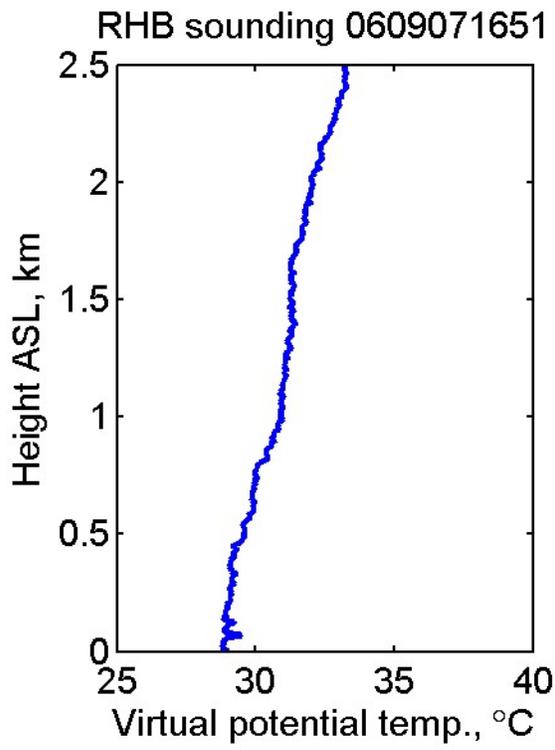


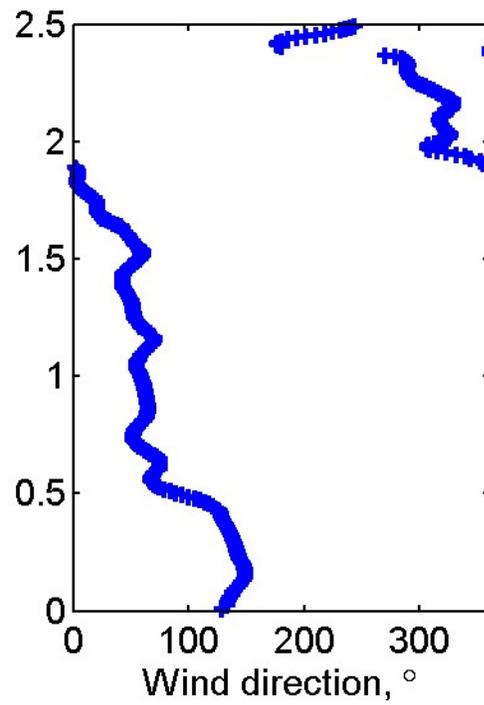
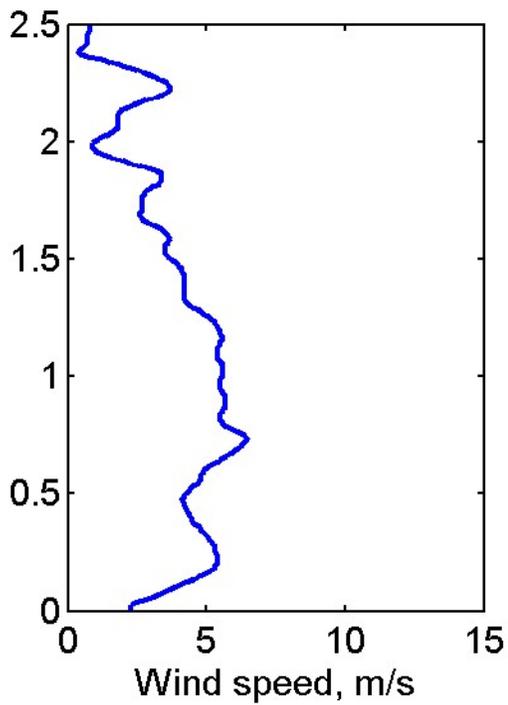
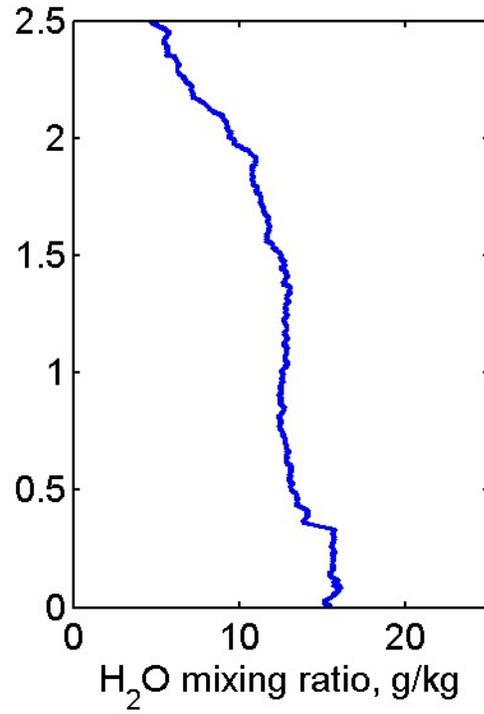
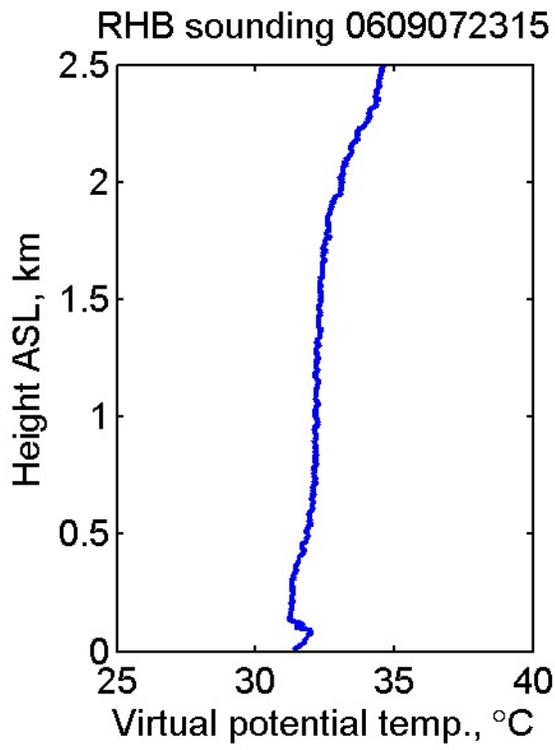
TrueWindDir
DLon

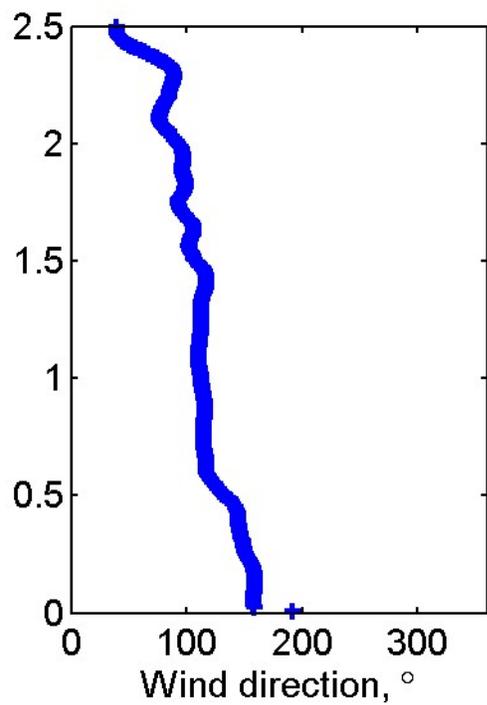
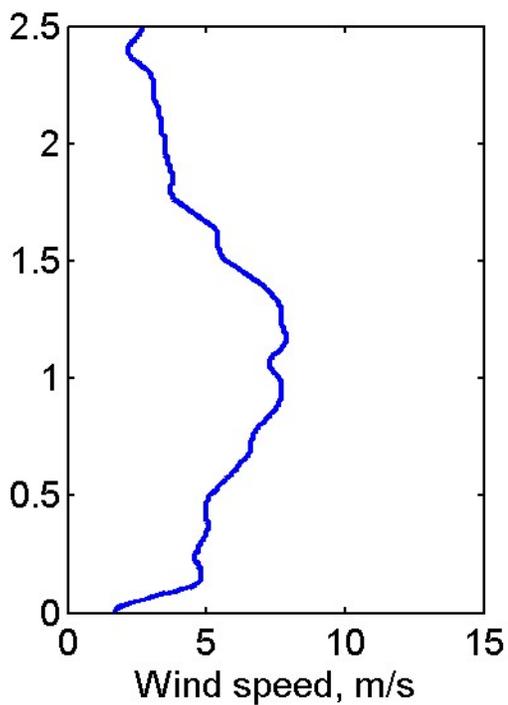
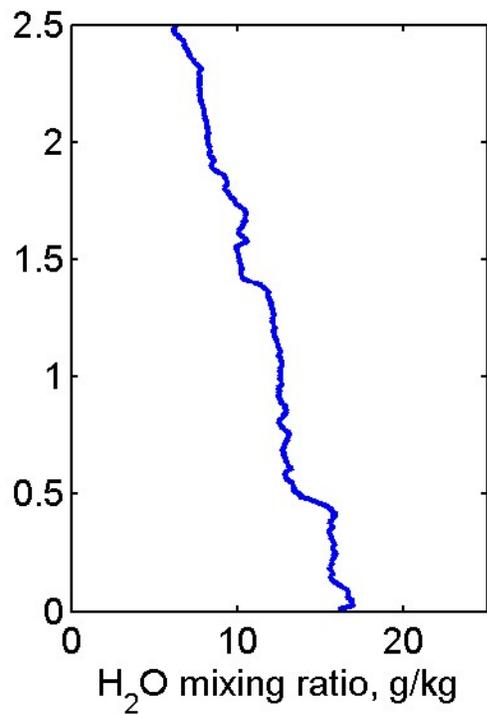
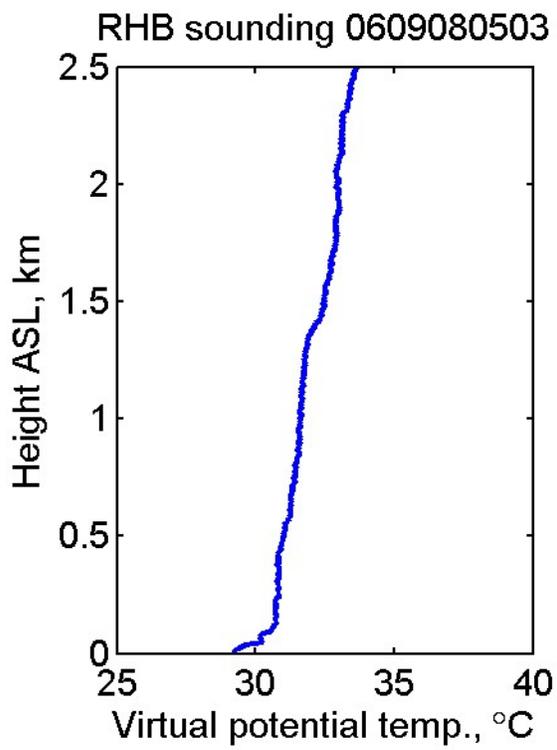
TrueWindSp
DLat











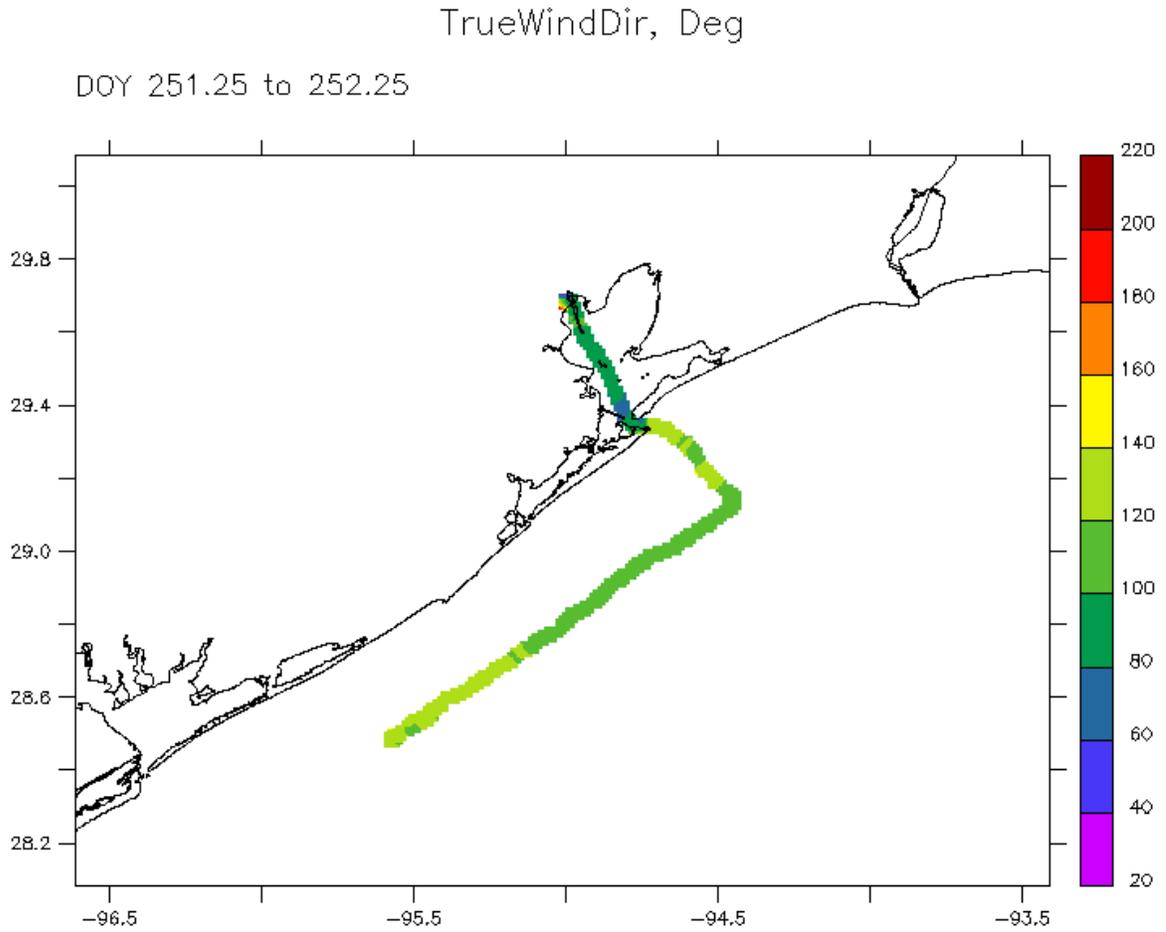
8 September

RHB from Barbour's Cut to Freeport vicinity. Moderate to high aerosol and ozone in the Bay, lower in the Gulf. East to southeast winds.

Flux on southbound leg

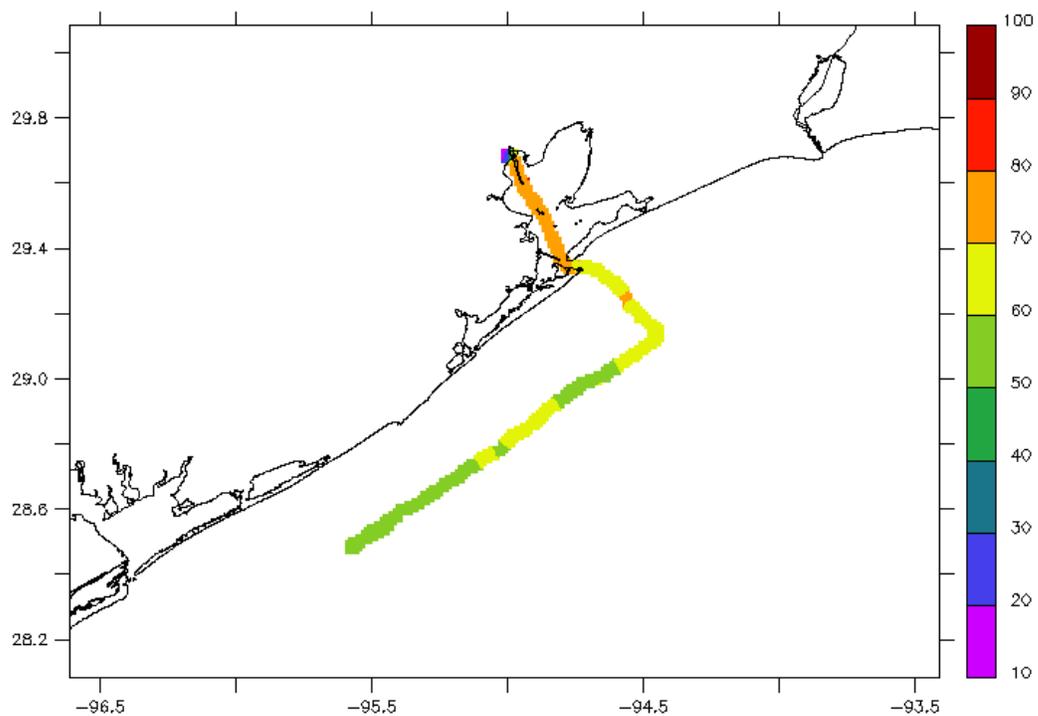
BL height

Trajectories for aerosol peak ~22Z



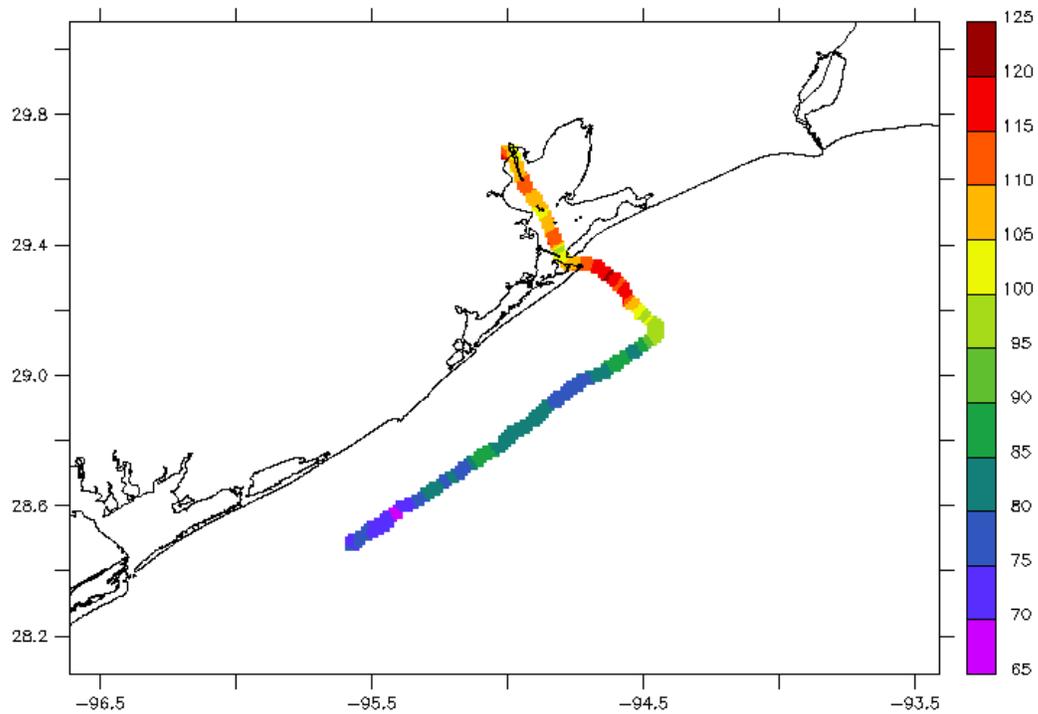
O3, ppb

DOY 251.25 to 252.25



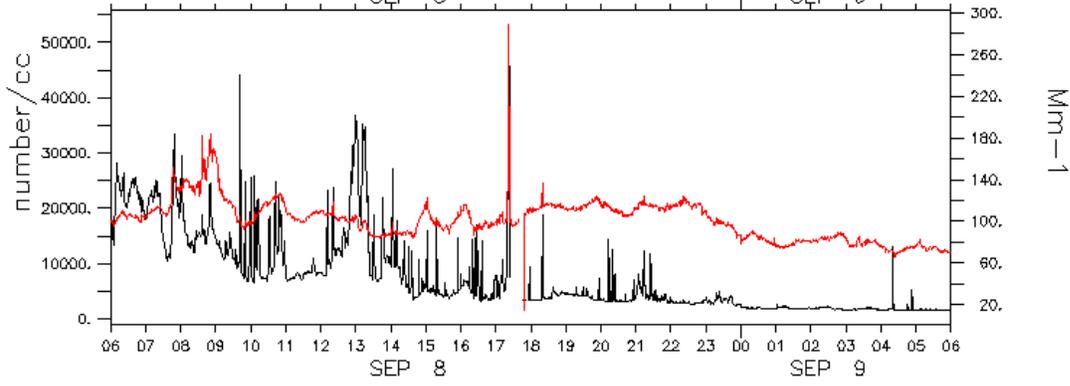
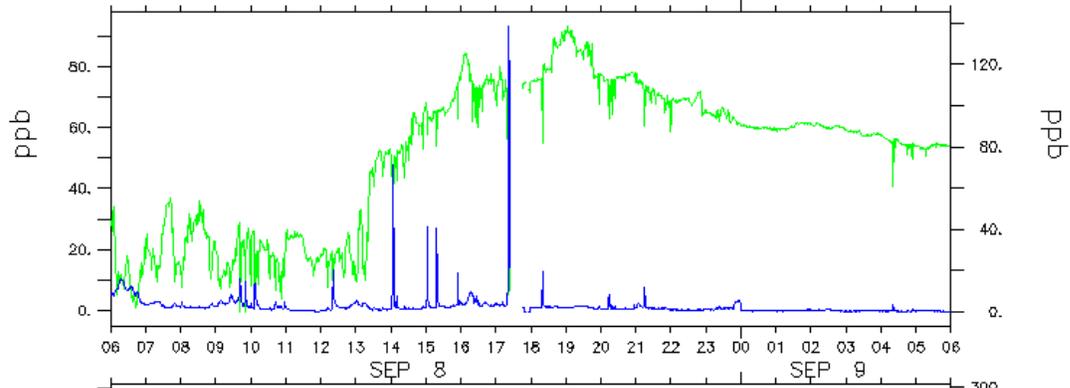
AerosolScatGreen, Mm-1

DOY 251.25 to 252.25



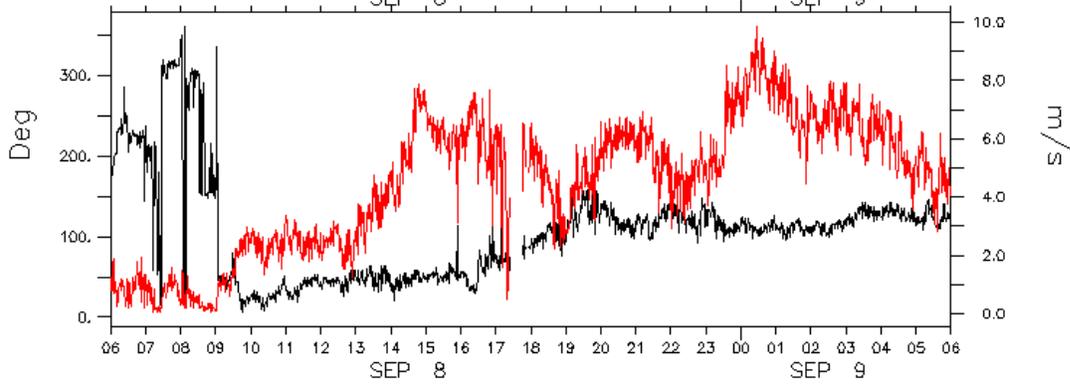
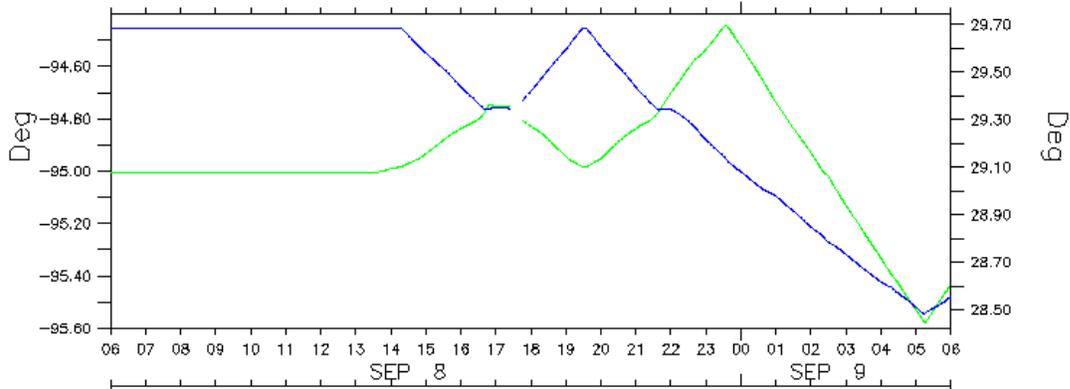
CN
O3

AerosolScatGreen
SD2

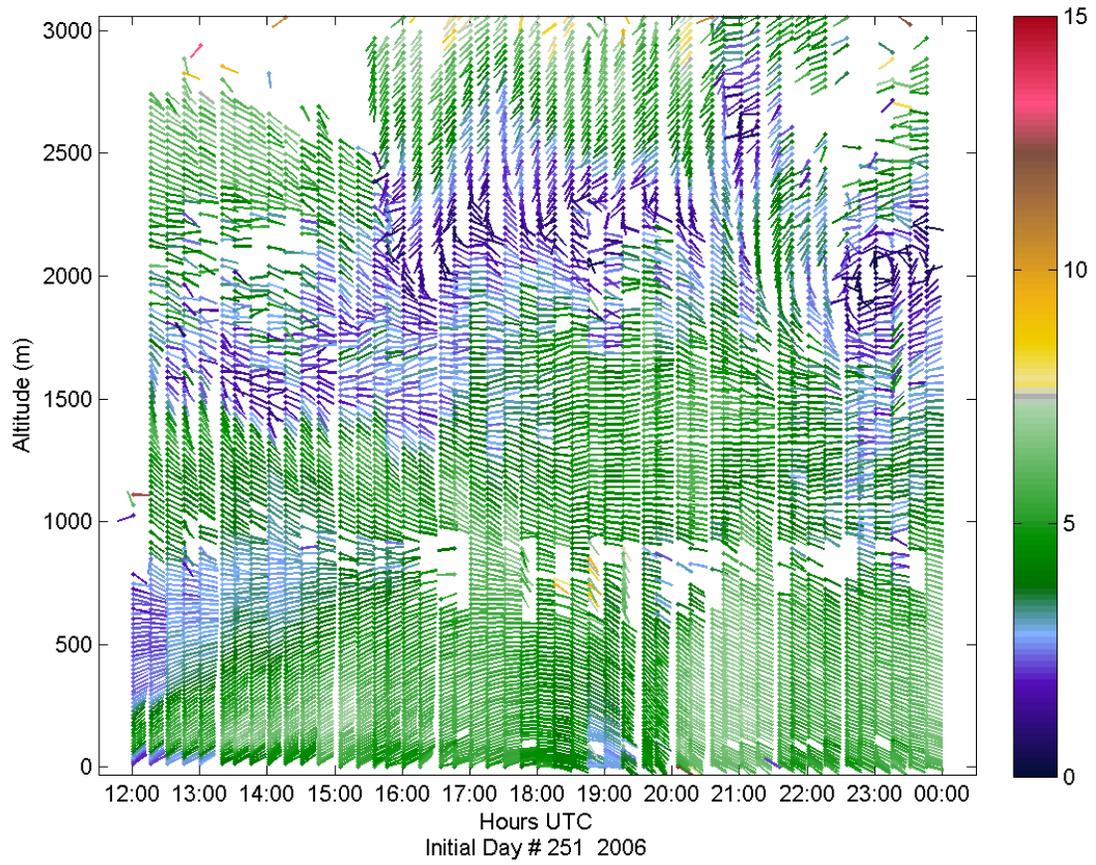


TrueWindDir
DLon

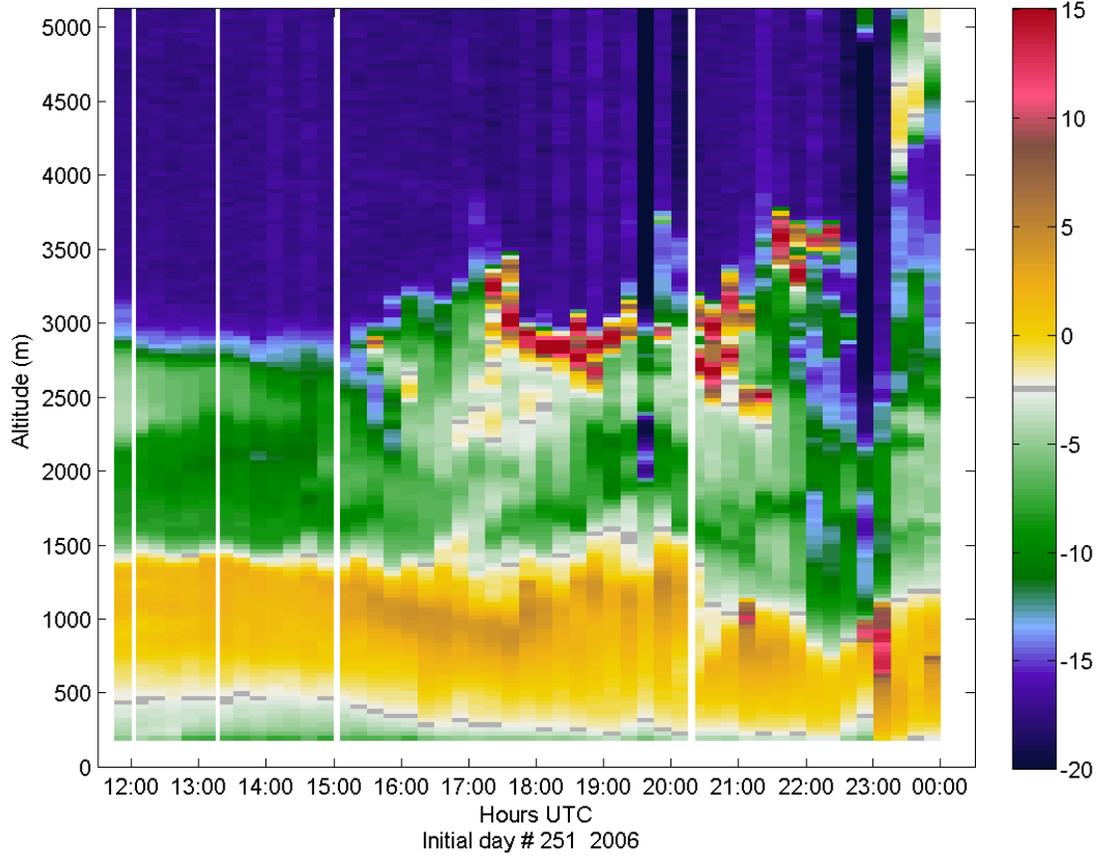
TrueWindSp
DLat



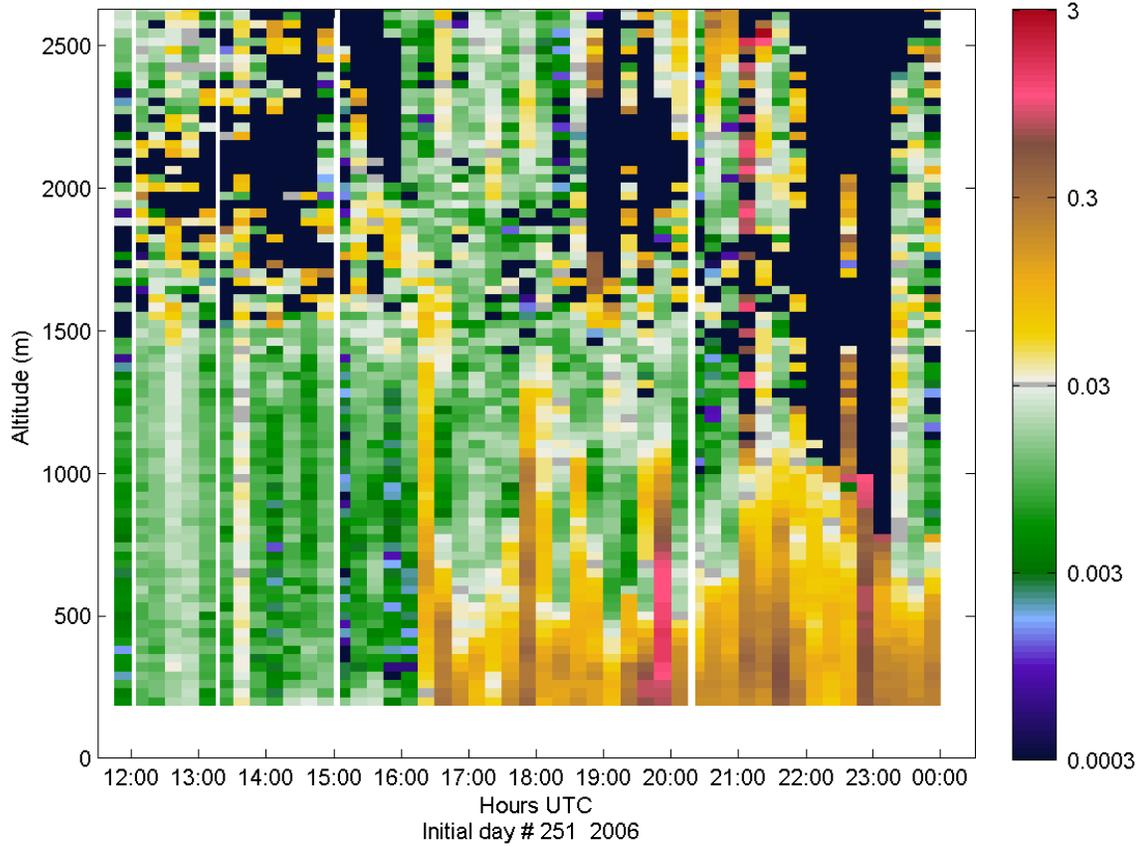
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/08/06 to 00:00 09/09/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/08/06 to 00:00 09/09/06

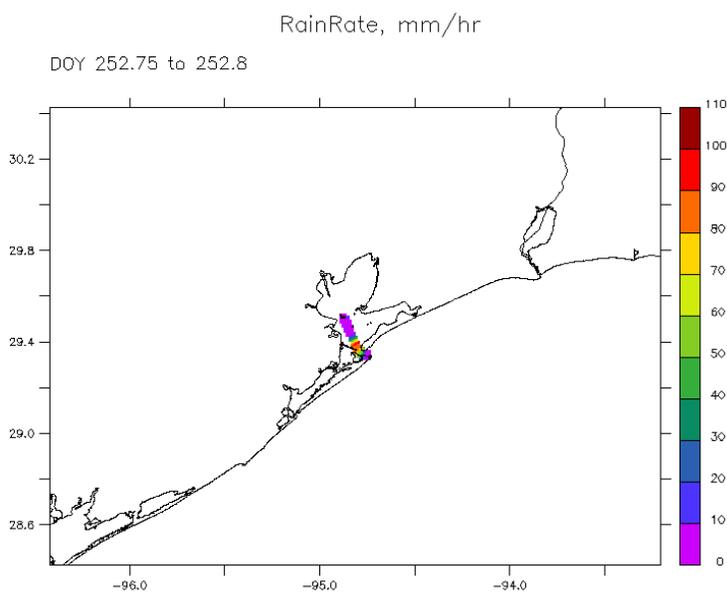
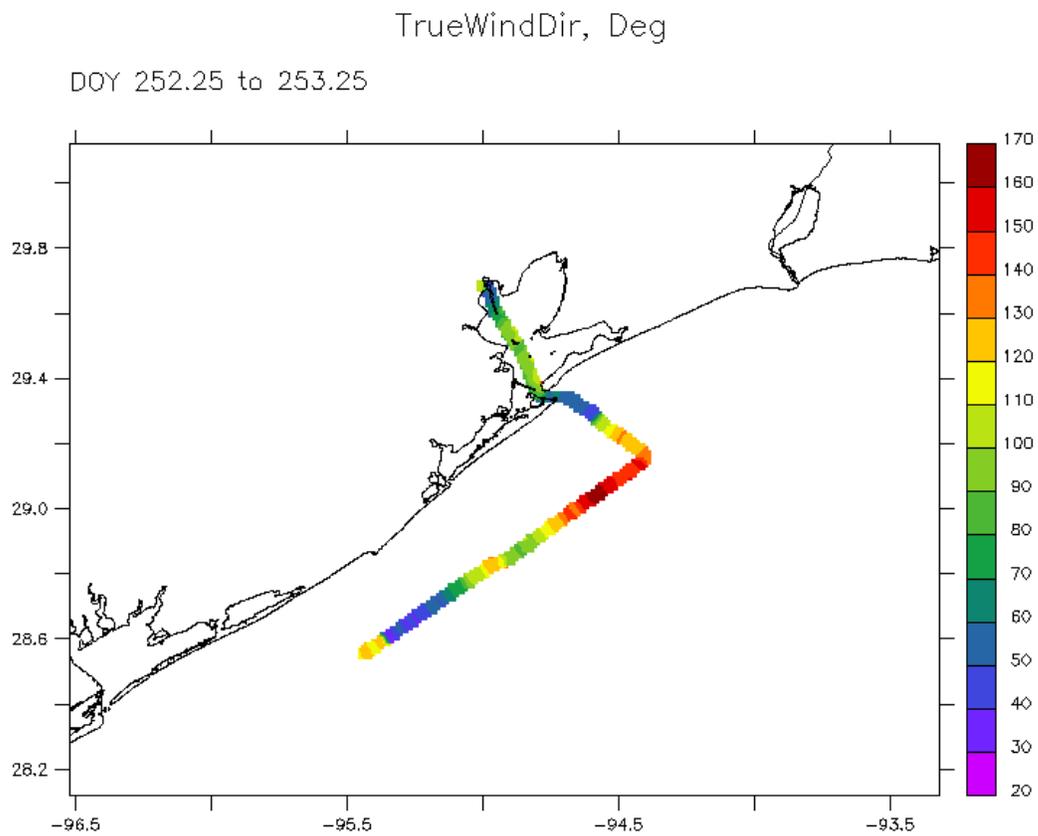


HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 09/08/06 to 00:00 09/09/06



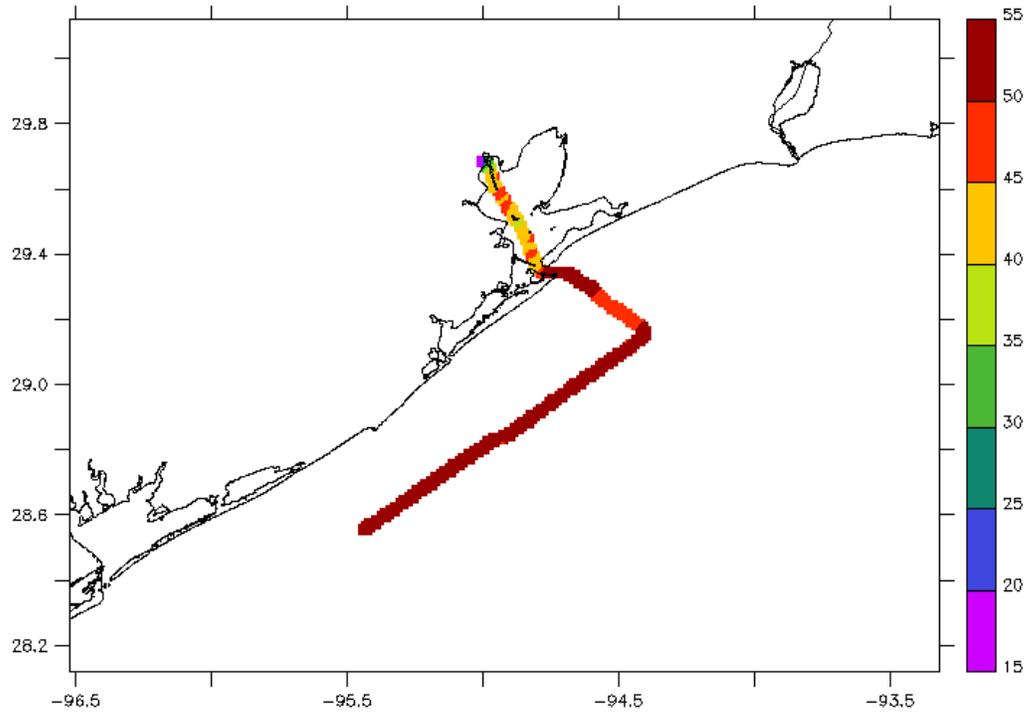
9 September

RHB from off Freeport to Barbour's Cut, back to Galveston, and back to Barbour's Cut. Moderate aerosol and ozone. East to southeast winds. Heavy rain near Galveston at the end of the second transect.



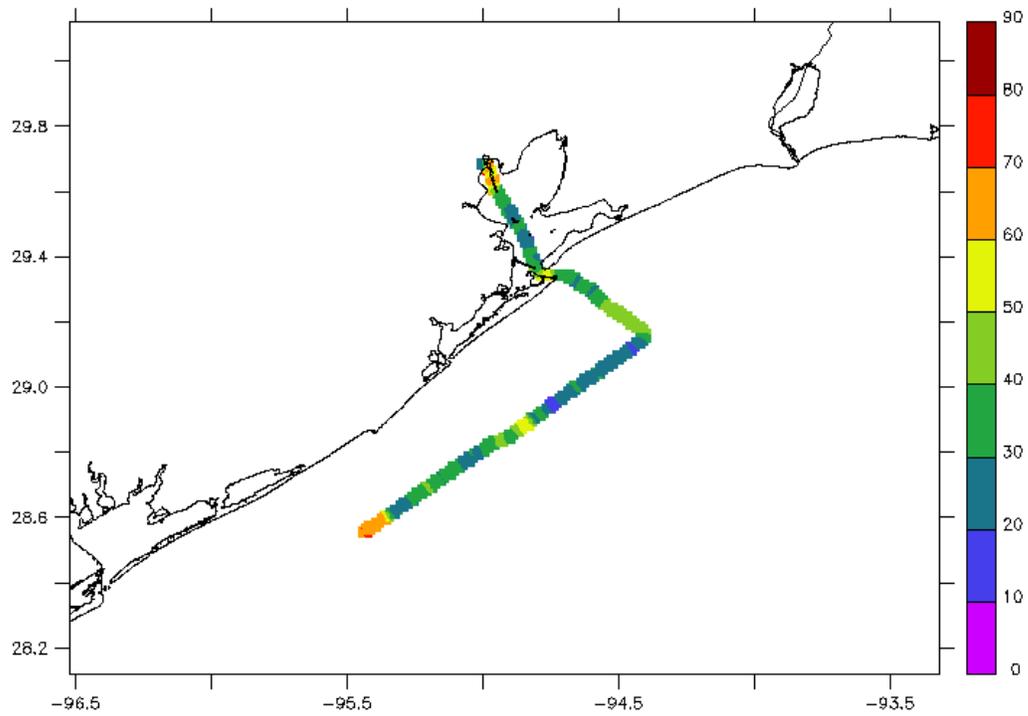
O3, ppb

DOY 252.25 to 253.25



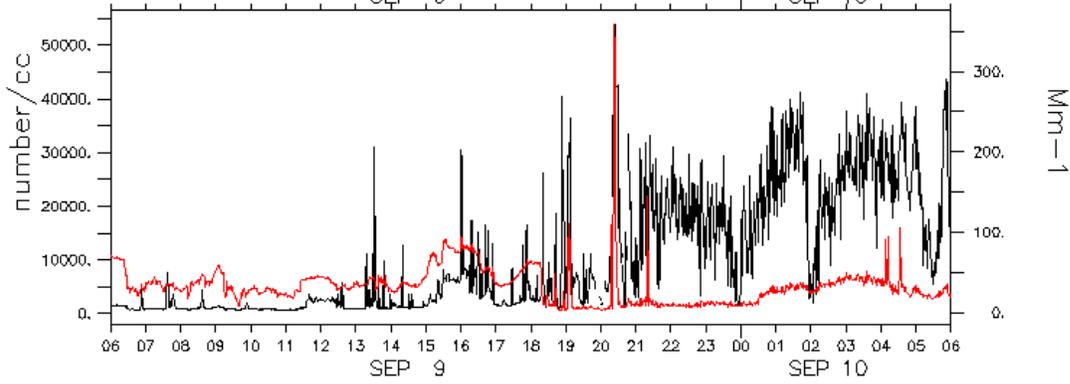
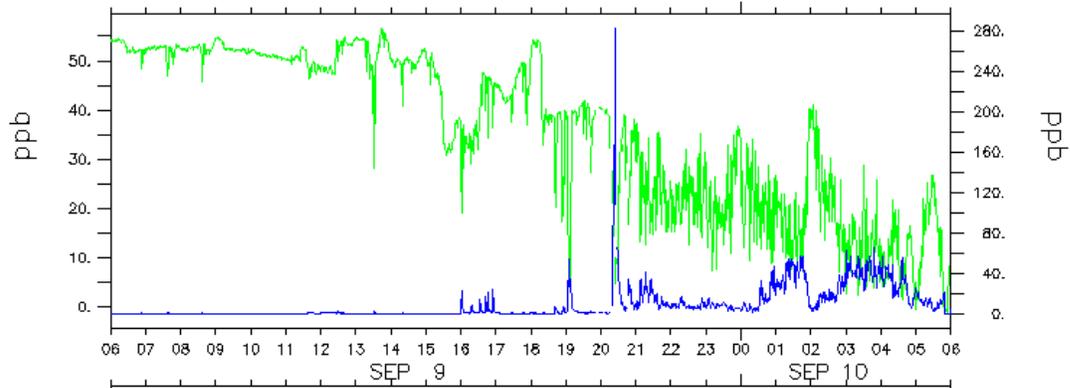
AerosolScatGreen, Mm-1

DOY 252.25 to 253.25



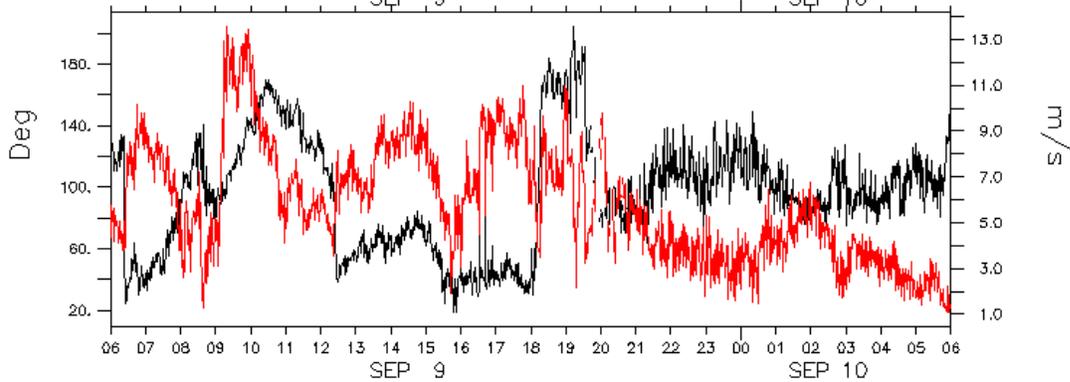
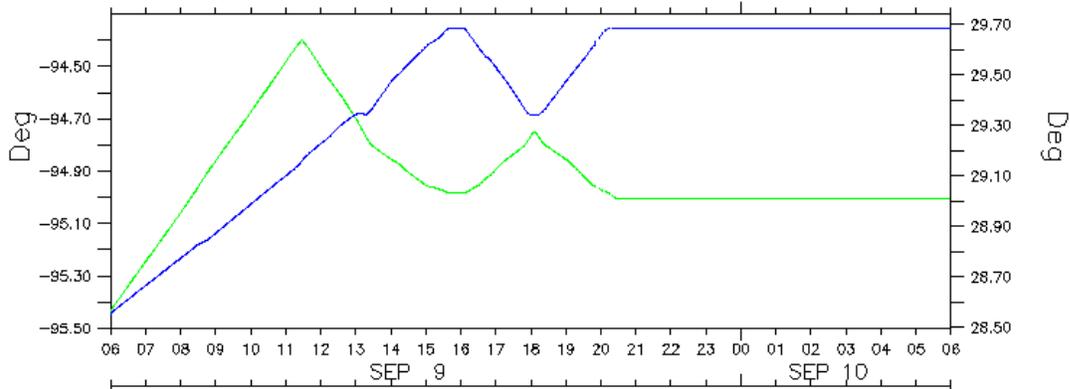
CN
O3

AerosolScatGreen
SD2

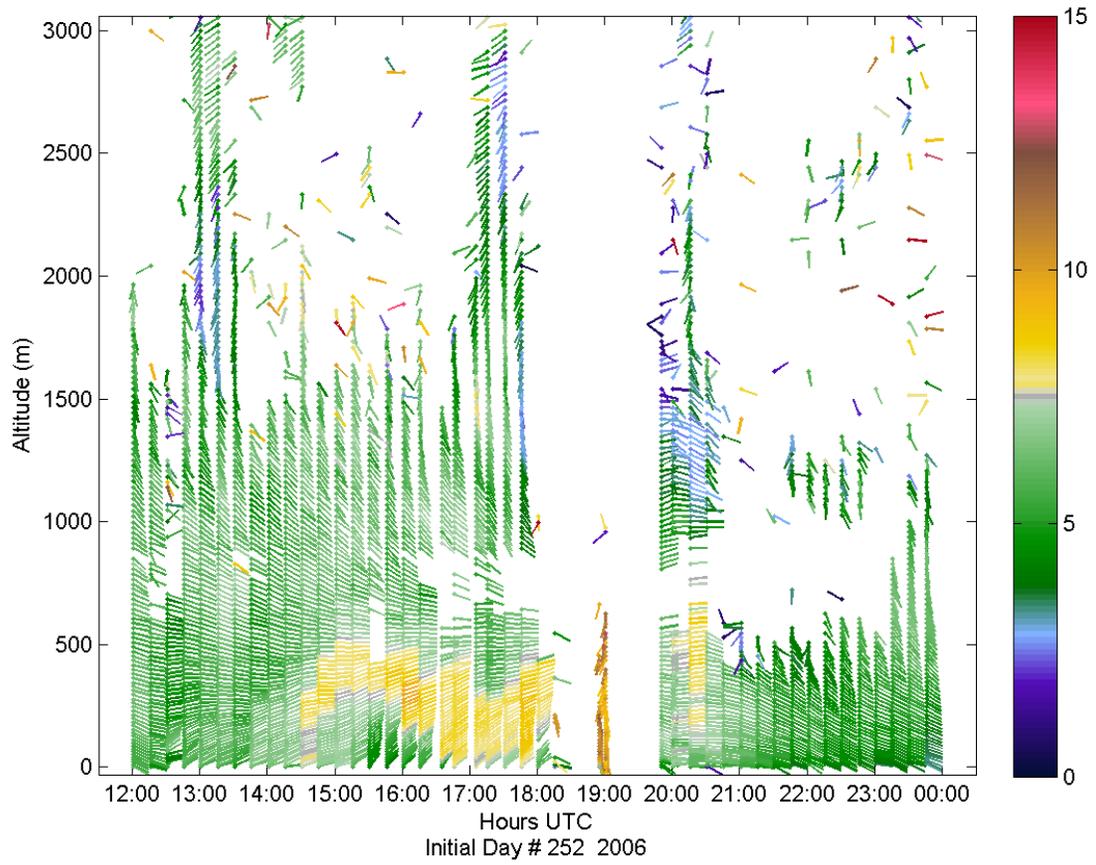


TrueWindDir
DLon

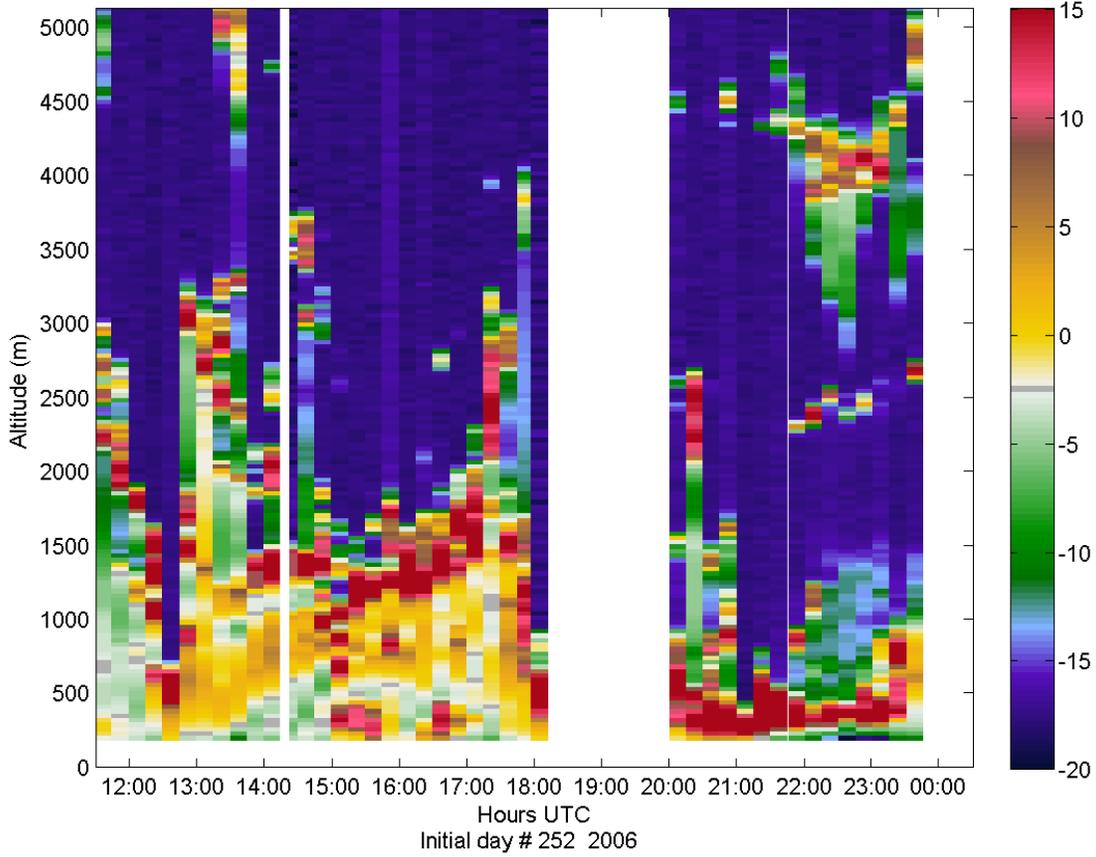
TrueWindSp
DLat



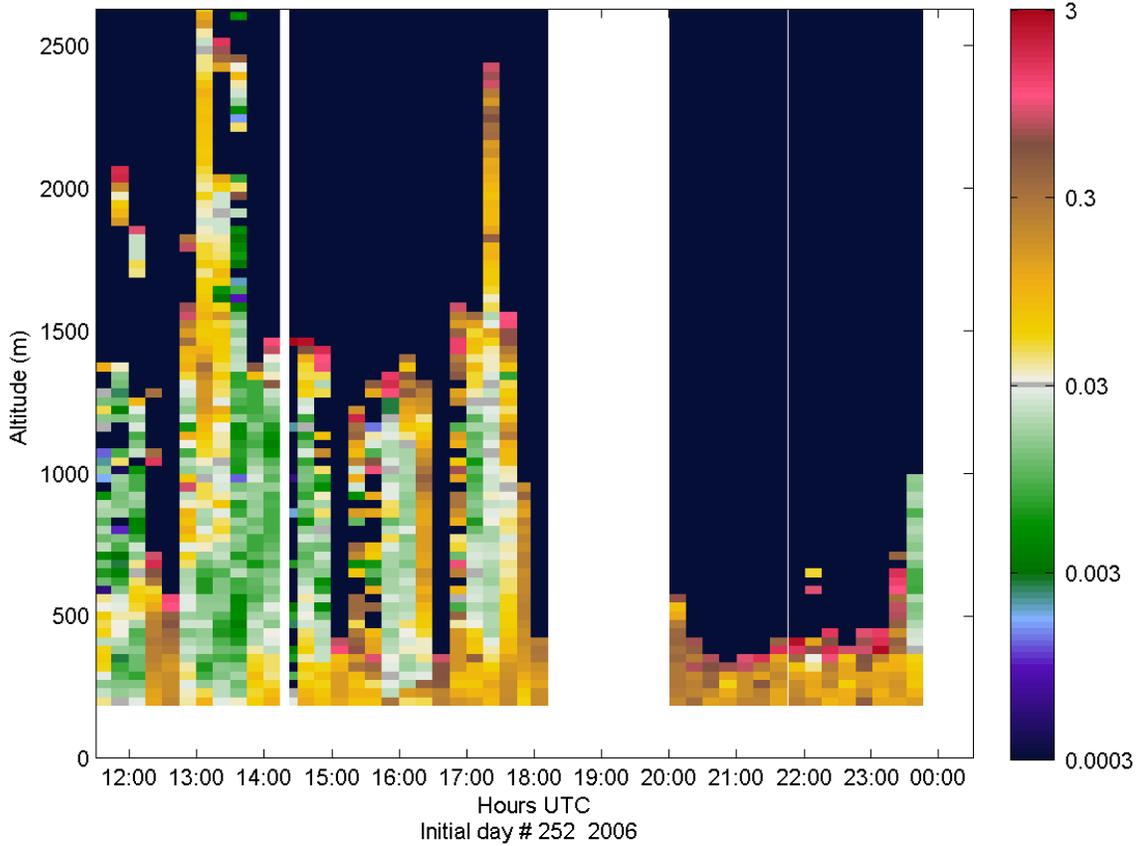
HRDL RV Brown TEXAQS 2006 - Wind Speed (m/s) and Direction Profiles
12:00 09/09/06 to 00:00 09/10/06 UTC



HRDL RV Brown TexAQS 2006 - Signal Strength (dB) Profiles
12:00 09/09/06 to 00:00 09/10/06



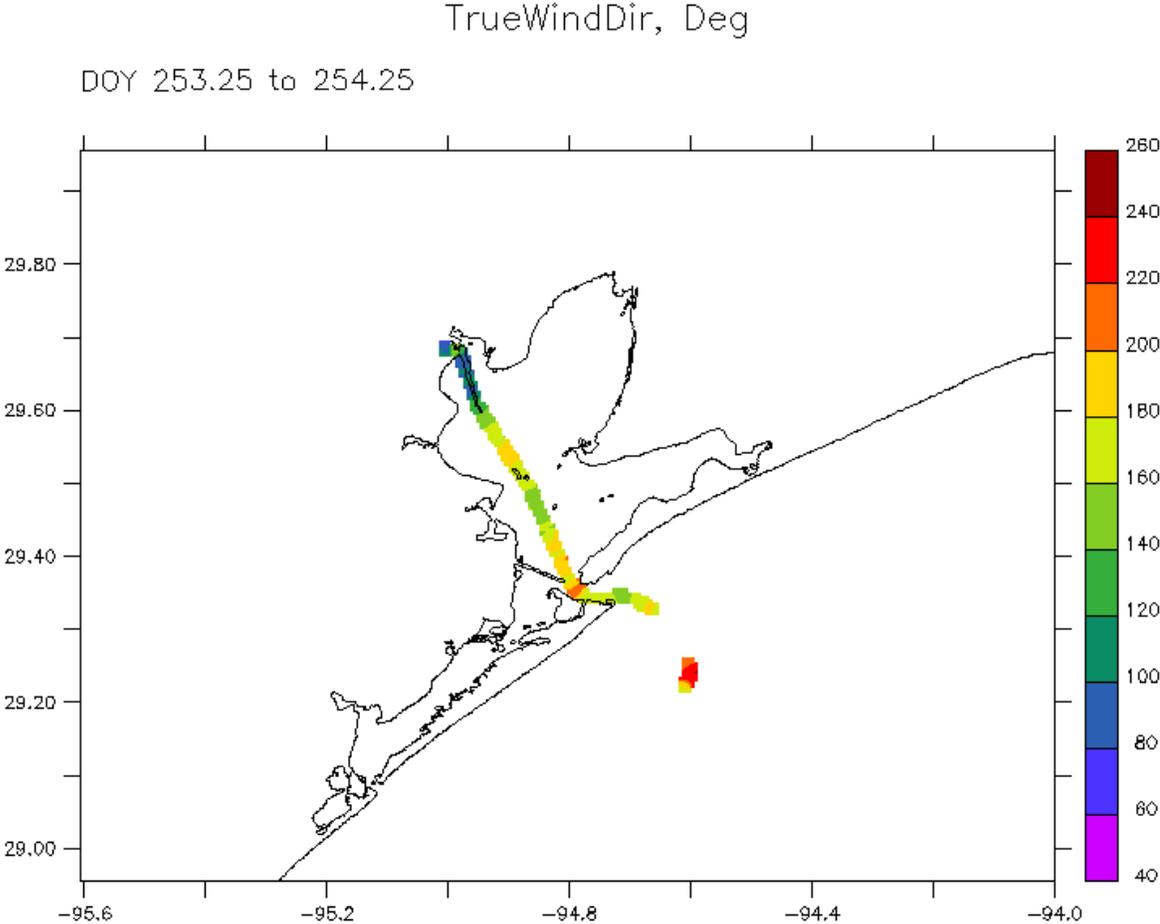
HRDL RV Brown TexAQS 2006 - Vertical Velocity Variance σ_w^2 (m^2/s^2) Profiles
12:00 09/09/06 to 00:00 09/10/06



10 September

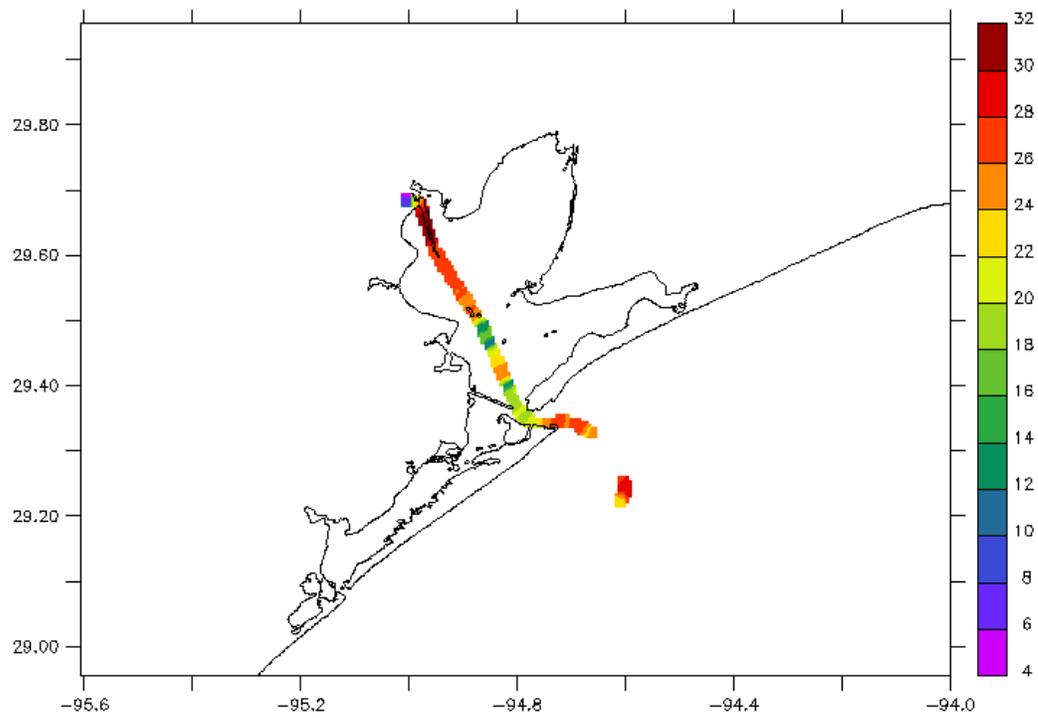
RHB from Barbour's Cut to off Galveston. Relatively clean. Calibrations underway on many instruments.

Flux in bay
BL height



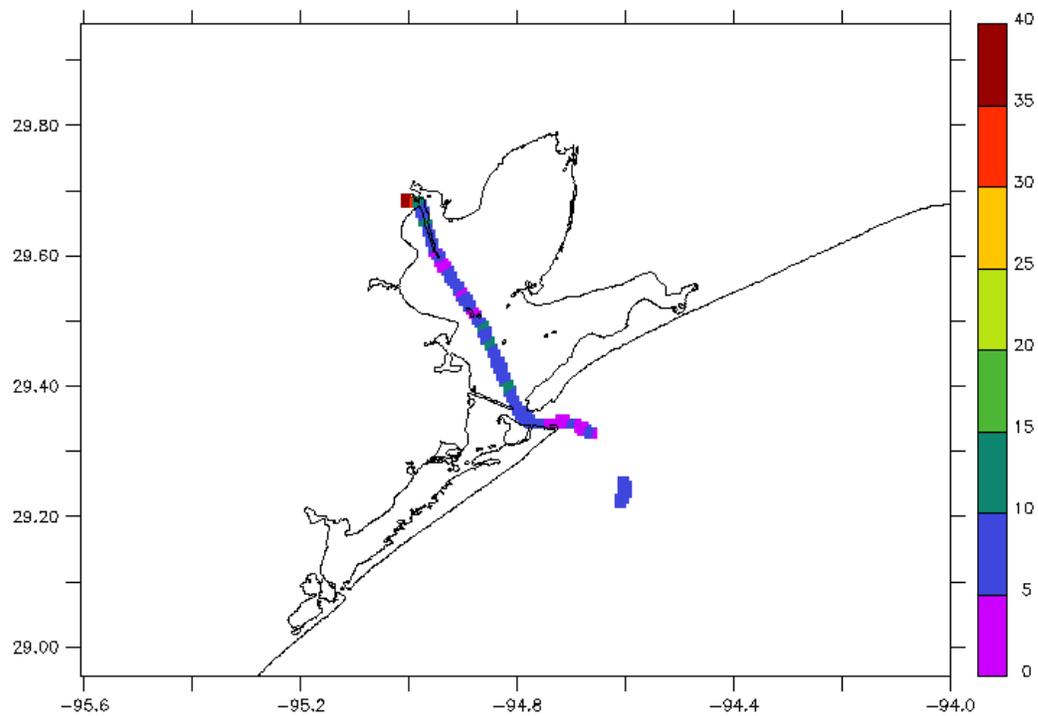
O3, ppb

DOY 253.25 to 254.25



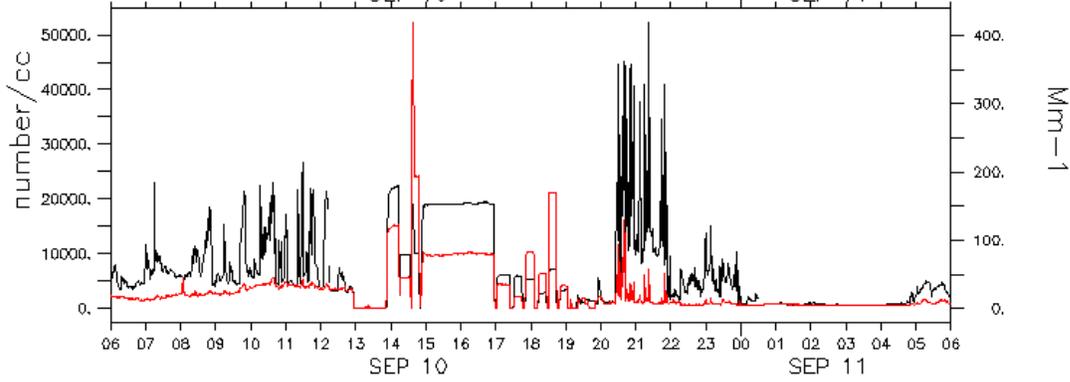
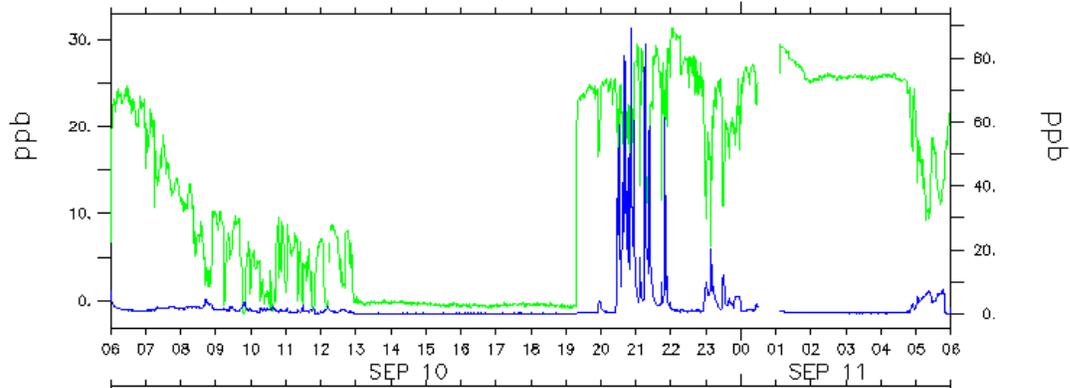
AerosolScatGreen, Mm-1

DOY 253.25 to 254.25



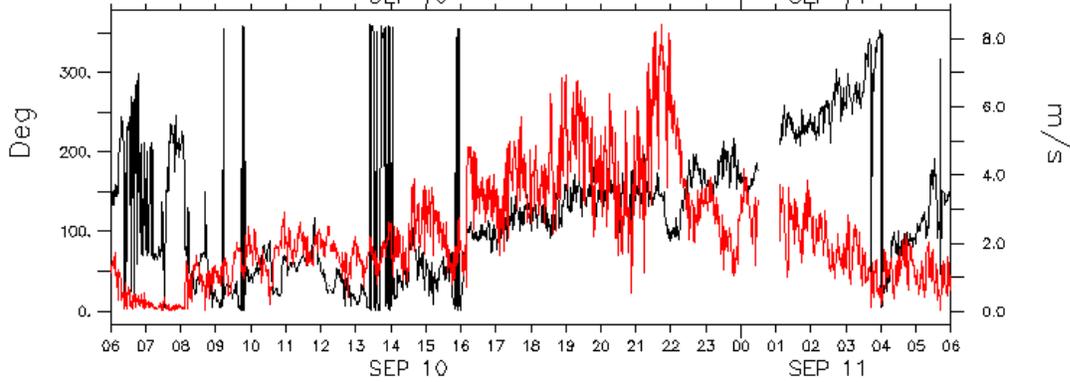
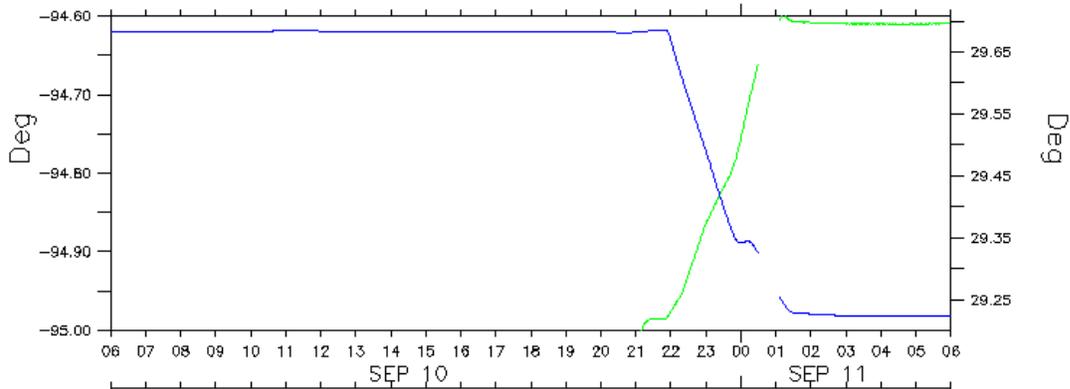
CN
O3

AerosolScatGreen
SD2



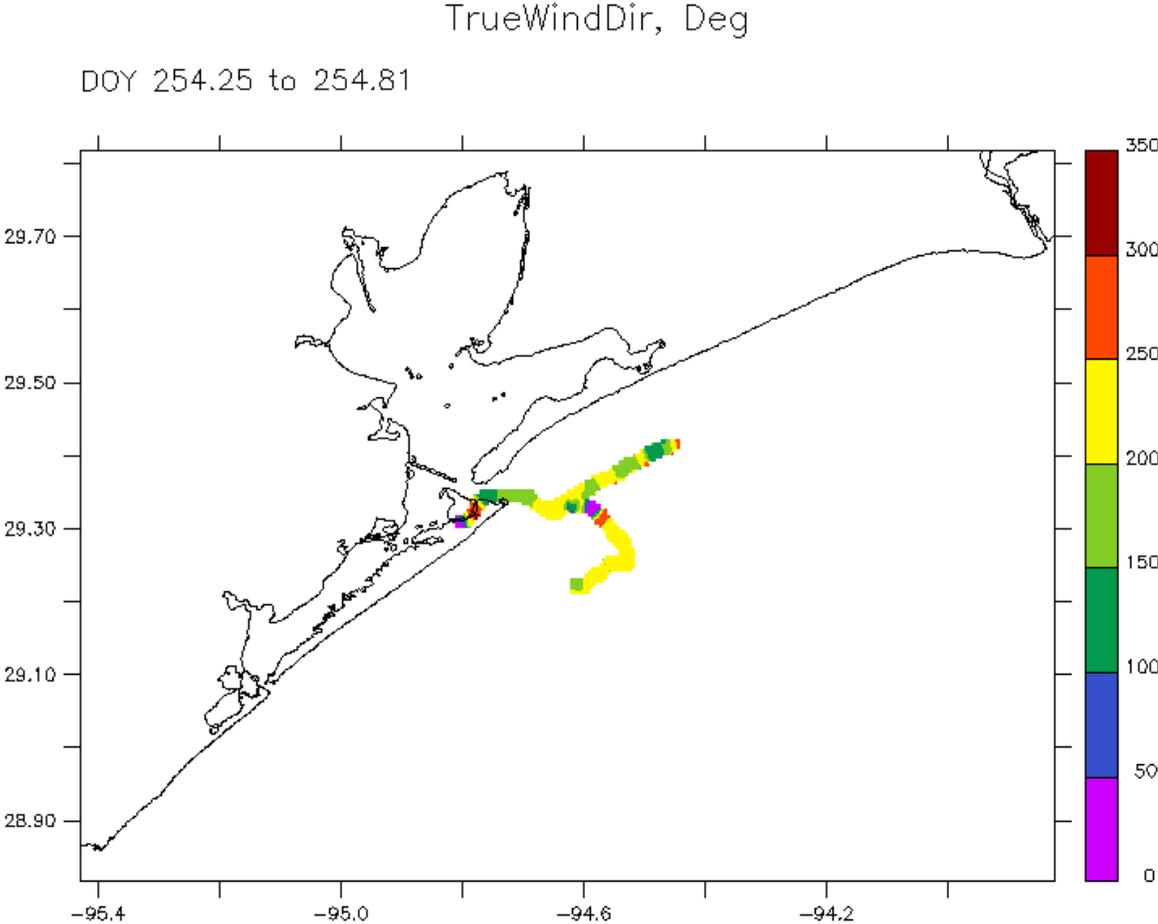
TrueWindDir
DLon

TrueWindSp
DLat



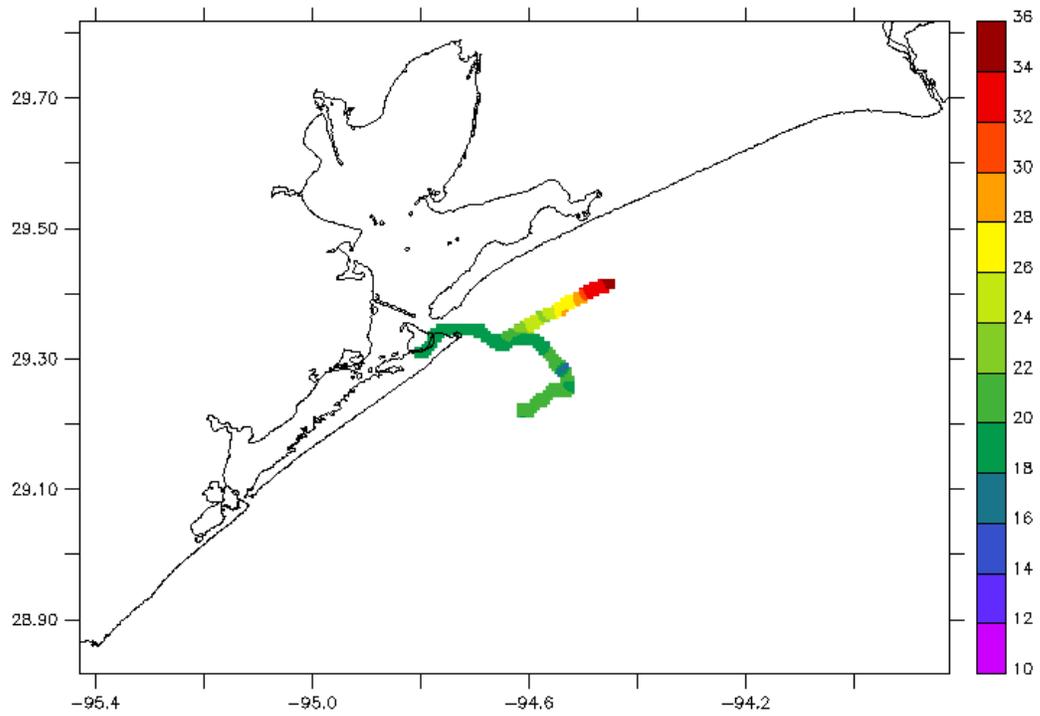
11 September

Overflight by P3 off Galveston. Relatively clean. Final docking approximately 1500 CDT.



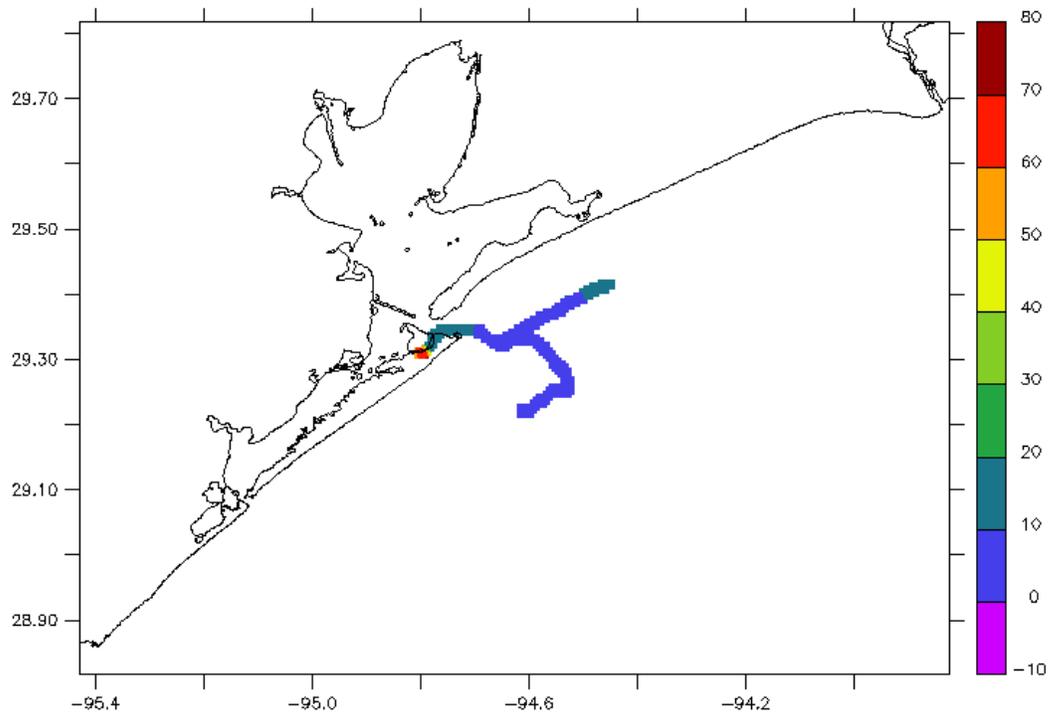
O3, ppb

DOY 254.25 to 254.81



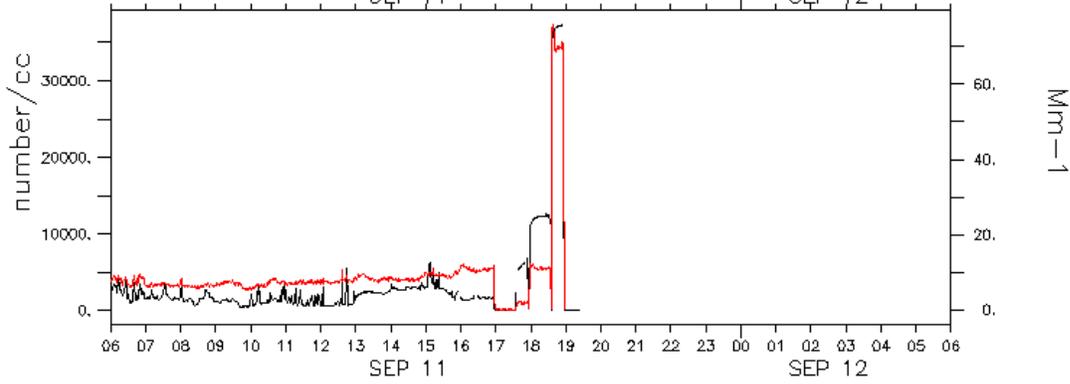
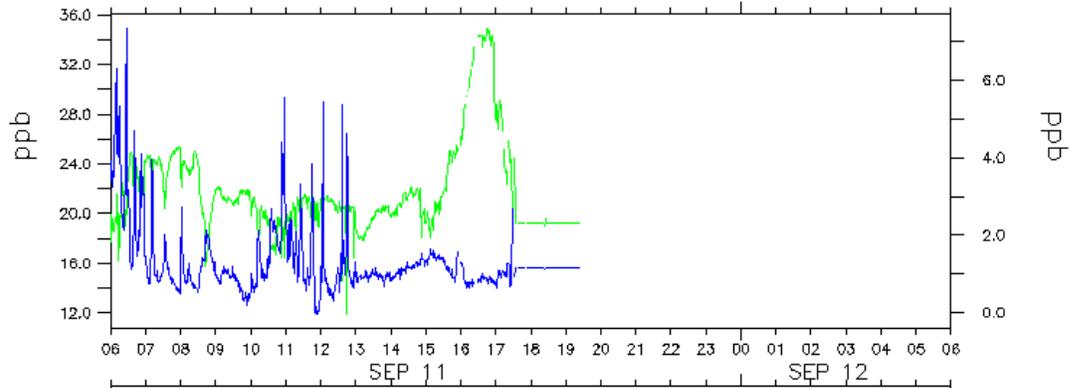
AerosolScatGreen, Mm-1

DOY 254.25 to 254.81



CN
O3

AerosolScatGreen
SD2



TrueWindDir
DLon

TrueWindSp
DLat

