FSU Meteorology

INTEX-NA Web Site

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NASA INTEX-NA 2004

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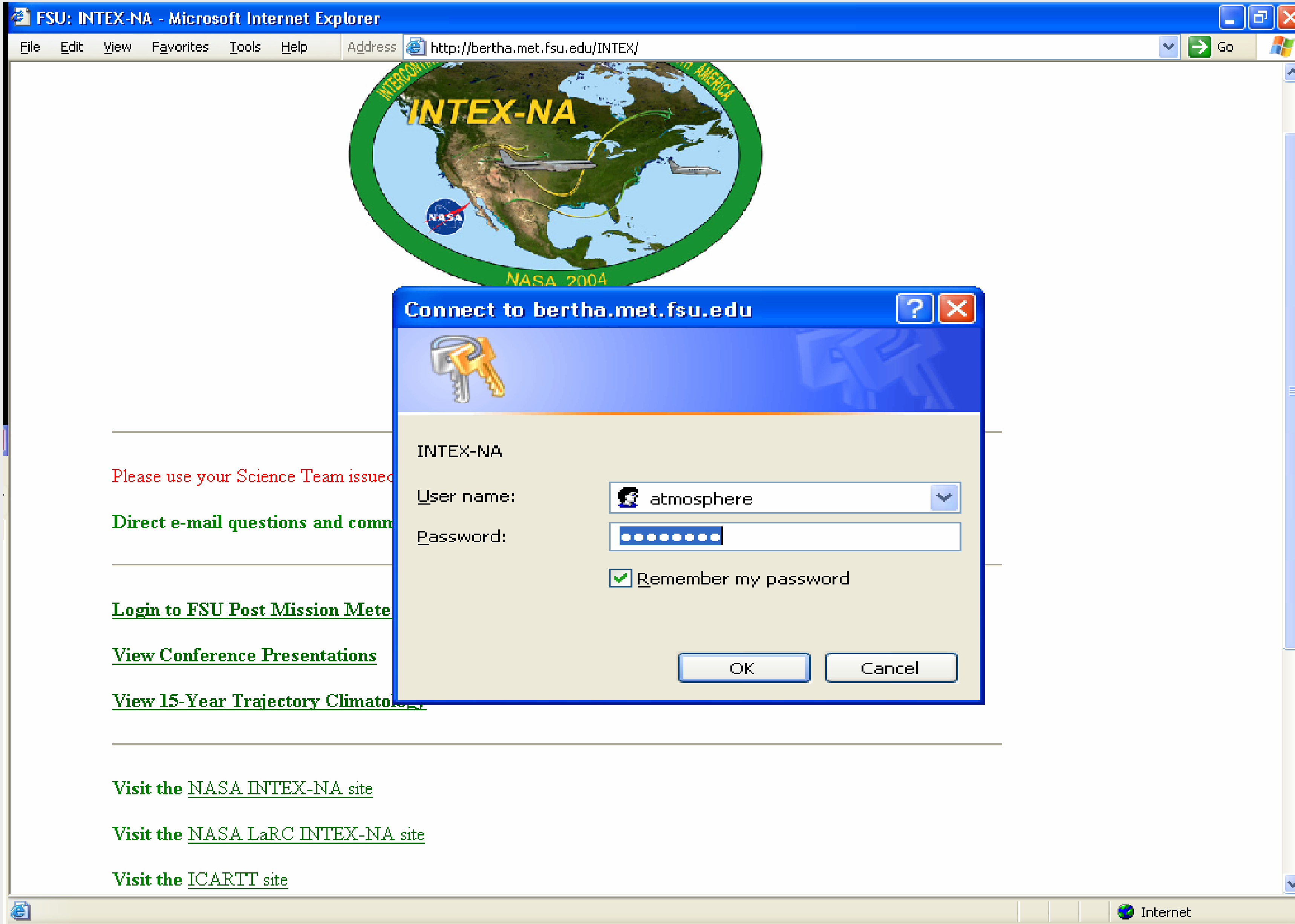

atmosphere airborne

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Available Products: Post Mission Reanalysis

10-day Backward Trajectories--Trajectories start at 1-minute intervals throughout the duration of each DC-8 flight. Available products include trajectories calculated from exact flight postions, as well as trajectories arriving at constant pressure levels (300, 500, 700 and 850 hPa) along the flight path.

10-day Forward Trajectories--Trajectories start at 1-minute intervals throughout the duration of select lagrangian cases. Available products include trajectories calculated from exact flight positions, as well as trajectories starting at constant pressure levels (300, 500, 700 and 850 hPa) along the flight path.

Arrows indicate trajectory postions at daily intervals. Red asterisks mark final trajectory positions at the end of 10 days, while red crosses denote trajectories that reach the domain boundary prior to the end of the 10 day period.

To facilitate easy viewing of a specific flight segment, 5 vertical layers were selected (surface to 850 hPa, 850 to 700, 700 to 500, 500 to 300, and above 300 hPa). A new flight leg was defined each time the aircraft passed into a different layer. Thus, each flight consists of approximately 50 legs. Users can select the leg they wish to view. Each selected leg also can be viewed as a trajectory plot ranging from 2 days to 10 days in duration.

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Data and Procedures--Trajectories were calculated using a kinematic model, i.e., employing the u, v, and w wind components from the GFS analyses (the National Weather Service's Global Forecast System). A cubic spline procedure was used to vertically interpolate the gridded data from the 26 initial levels to 191 constant pressure levels at 5-hPa intervals between 1000 and 50 hPa. Linear interpolation provides values within these 5-hPa intervals and at the parcel's precise horizontal locations. Linear interpolation also is used to temporally interpolate at 1-min time steps. Additional details about the trajectory model, along with a comparison between kinematic and isentropic trajectories, are given in *Fuelberg et al. [J. Geophys. Res., 101, 23927-23939 1996]*.

GOES Imagery--provided by Tropospheric Chemistry Integrated Data Center at NASA Langley Research Center.

Available Products: Archive from Mission Planning

Forward Trajectories from Lightning--We collected in real time data from the National Lightning Detection Network (NLDN) that were provided by NASA-MSFC. We binned the data over 6 hourly intervals at 1.0 by 1.0 degree horizontal resolution. Forward trajectories were calculated from the lightning locations at 300 and 400 hPa to arrive at a common time (the approximate mid time of each flight). Available products include spatial maps that reveal the locations of the gridded lightning strikes (the origins of the forward trajectories). Also, spatial maps show the location of the lightning signature downstream at the mid time of the flight.

Boundary Layer Exposure Product--We developed a scheme to identify locations and altitudes whose air was previously in the boundary layer, where that boundary layer exposure occurred, the duration of time in the boundary layer, the length of time since exiting the boundary layer, and the amount of CO emissions encountered within the boundary layer. This scheme is based on the grid of backward trajectories described above. Available products include freshness (hours since air exited the boundary layer), duration (hours spent within boundary layer), emissions (moles cm-2), and backward trajectories from the grid to the location of the boundary layer encounter.

Data and Procedures--All products were calculated from data assembled by The National Centers for Environmental Prediction - Global Forecast System (GFS) Model. The data set has a 1.0 degree by 1.0 degree horizontal resolution, 26 constant pressure levels in the vertical, and is supplied at 6 hourly intervals throughout the INTEX-NA period. The forecast data closest to the time of the actual flights together with past analyses are used for product generation.

Global 1.0 by 1.0 degree CO emissions fields were created at Harvard University and consist of Street's Asian emissions [*Streets et al., J. Geophys. Res.*, 108 (D21) 8809, doi:10.1029/2002JD003093, 2003; *Woo et al., J. Geophys Res.*, 108 (D21) 8812, doi:10.1029/2002JD003200, 2003.] superimposed on Logan's global emissions [*Duncan et al., J. Geophys. Res.*, 108 (D2), 4100, doi:10.1029/2002JD002378, 2003].

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FSU INTEX-NA meteorological and backward trajectory products

Choose Desired DC-8 Flight:

Jul 01, 2004 DC-8 Flight 03 [Go]

FSU INTEX-NA forward trajectory products for Lagrangian cases

Choose Desired DC-8 Flight:

Jul 06, 2004 DC-8 Flight 04 [Go]

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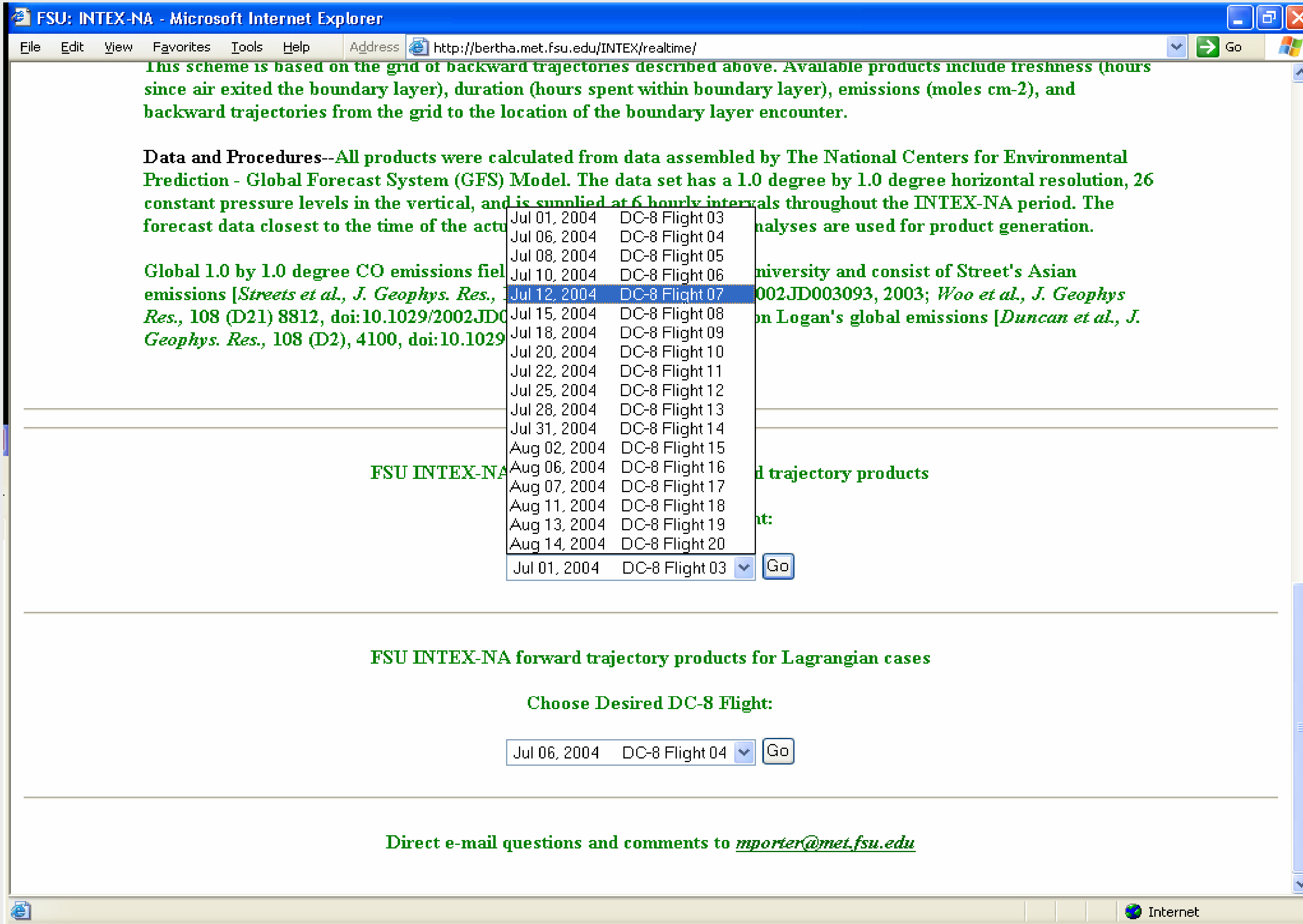
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Address http://bertha.met.fsu.edu/INTEX/realtime/
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Jul 01, 2004 DC-8 Flight 03
Jul 06, 2004 DC-8 Flight 04
Jul 08, 2004 DC-8 Flight 05
Jul 10, 2004 DC-8 Flight 06
Jul 12, 2004 DC-8 Flight 07
Jul 15, 2004 DC-8 Flight 08
Jul 18, 2004 DC-8 Flight 09
Jul 20, 2004 DC-8 Flight 10
Jul 22, 2004 DC-8 Flight 11
Jul 25, 2004 DC-8 Flight 12
Jul 28, 2004 DC-8 Flight 13
Jul 31, 2004 DC-8 Flight 14
Aug 02, 2004 DC-8 Flight 15
Aug 06, 2004 DC-8 Flight 16
Aug 07, 2004 DC-8 Flight 17
Aug 11, 2004 DC-8 Flight 18
Aug 13, 2004 DC-8 Flight 19
Aug 14, 2004 DC-8 Flight 20
FSU INTEX-NA
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Jul 01, 2004 DC-8 Flight 03
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FSU INTEX-NA forward trajectory products for Lagrangian cases
Choose Desired DC-8 Flight:
Jul 06, 2004 DC-8 Flight 04
Go
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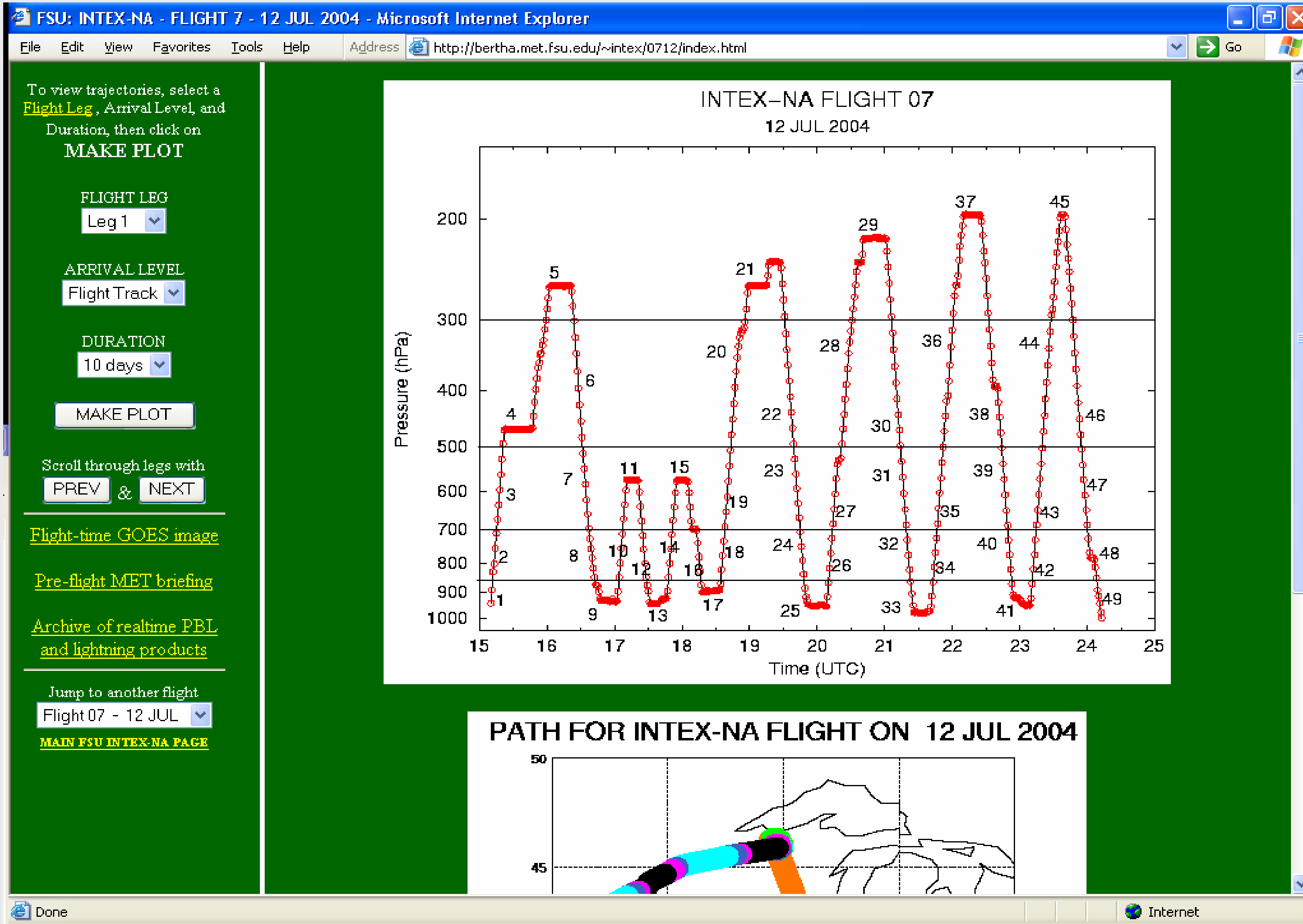
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File Edit View Favorites Tools Help
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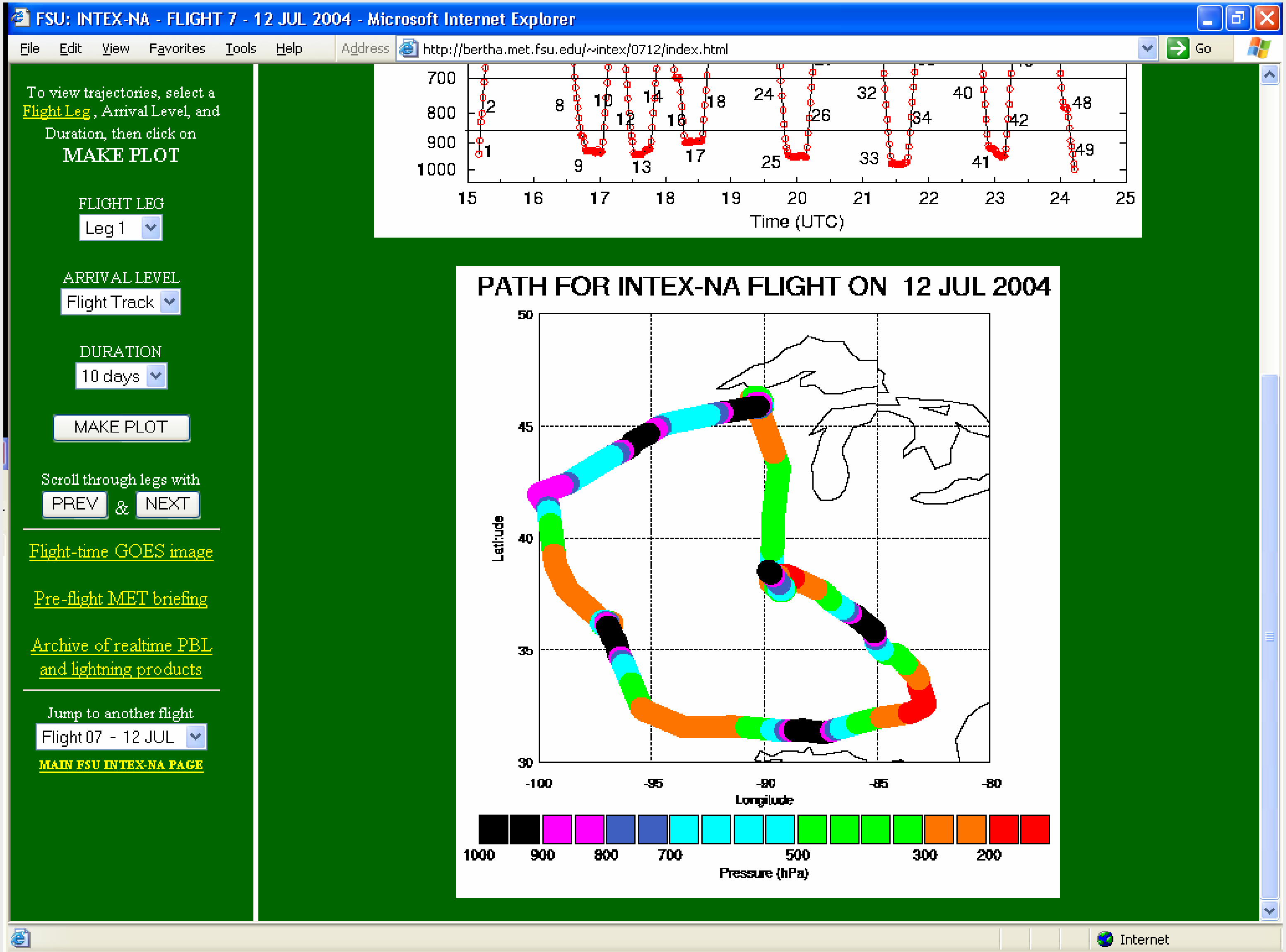
To view trajectories, select a Flight Leg, Arrival Level, and Duration, then click on
MAKE PLOT
FLIGHT LEG
Leg 1
ARRIVAL LEVEL
Flight Track
DURATION
10 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 07 - 12 JUL
MAIN FSU INTEX-NA PAGE
INTEX–NA FLIGHT 07
12 JUL 2004
Pressure (hPa)
Time (UTC)
PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
Done
Internet



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Flight Track
DURATION
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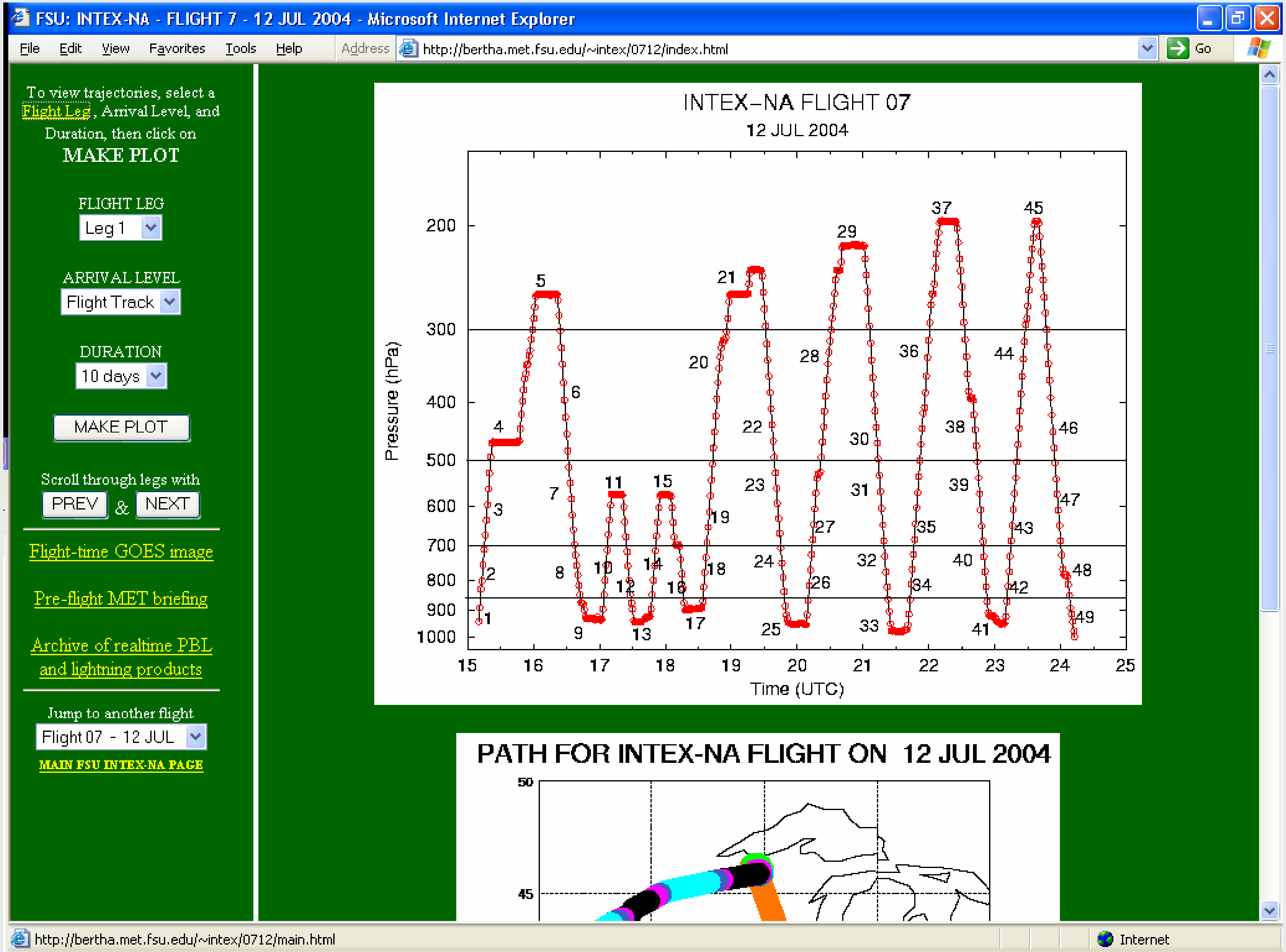
Flight-time GOES image
Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 07 - 12 JUL
MAIN FSU INTEX-NA PAGE
700
800
900
1000
15 16 17 18 19 20 21 22 23 24 25
Time (UTC)
1 2 8 9 10 12 13 14 16 17 18 24 25 26 32 33 34 40 41 42 48 49
PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
Latitude
50 45 40 35 30
-100 -95 -90 -85 -80
Longitude
1000 900 800 700 500 300 200
Pressure (hPa)
Internet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Leg 1
ARRIVAL LEVEL
Flight Track
DURATION
10 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 07 - 12 JUL
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INTEX–NA FLIGHT 07
12 JUL 2004
Pressure (hPa)
200
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500
600
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Time (UTC)
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PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
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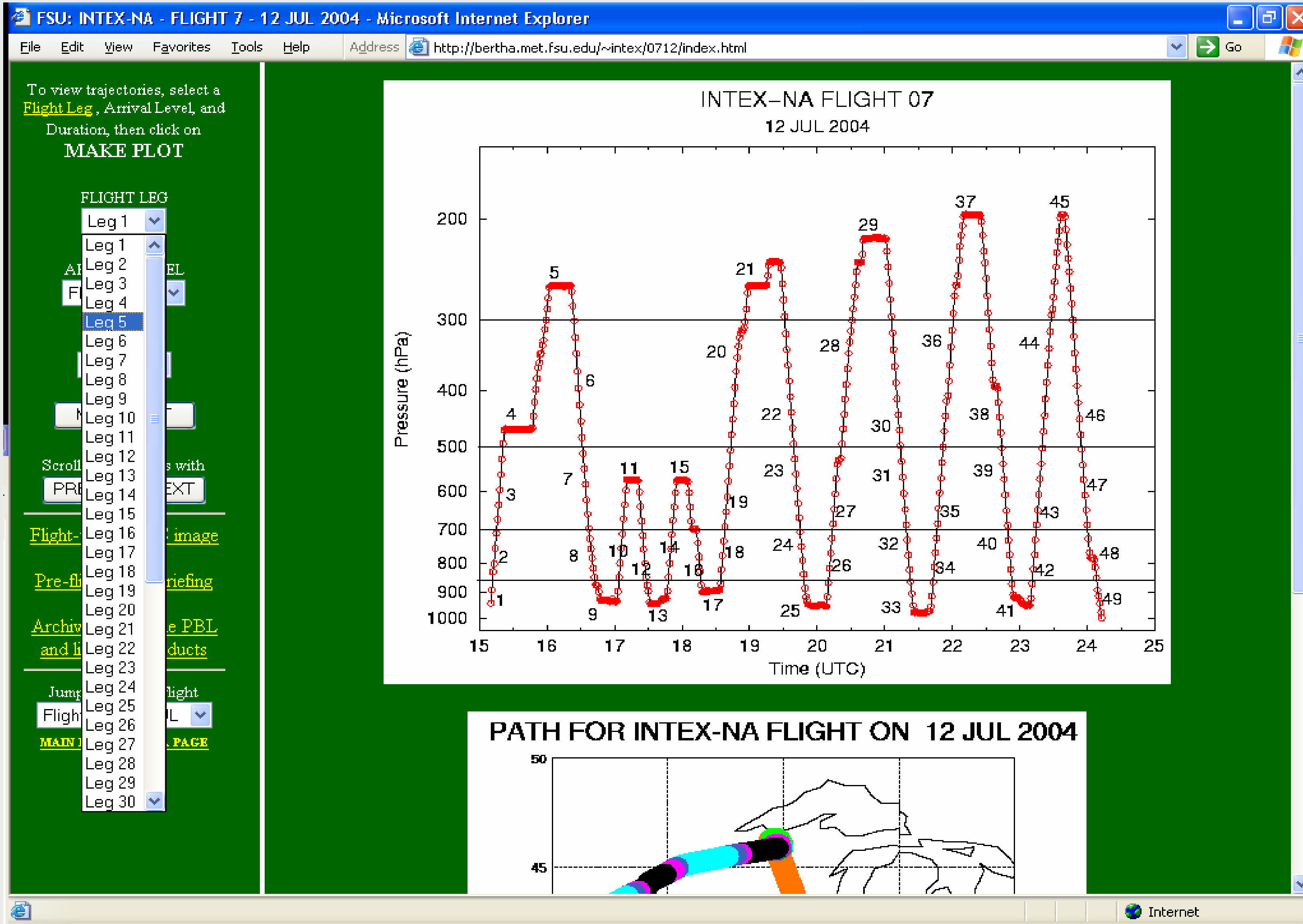
Internet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Leg 12
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Leg 18
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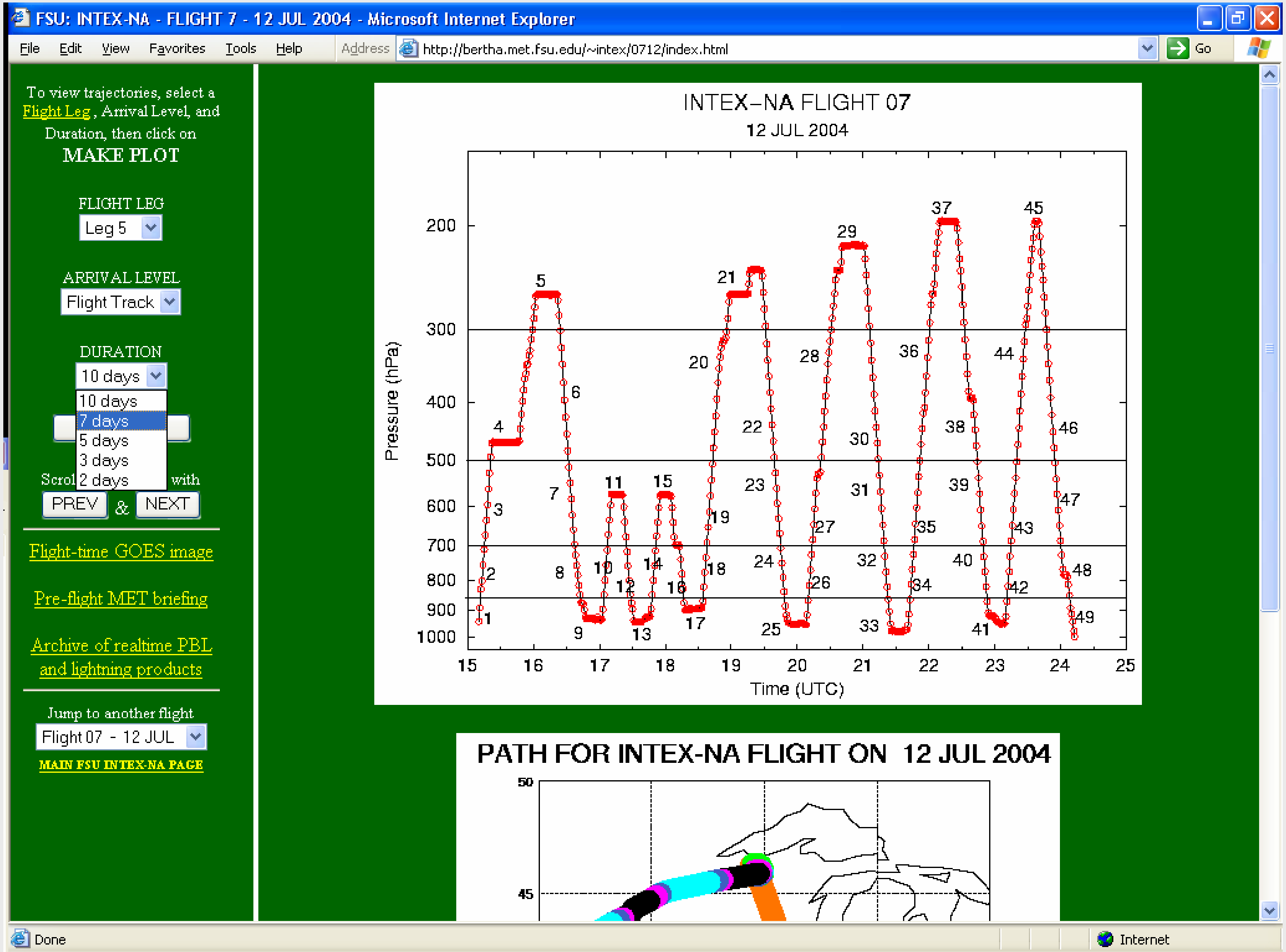
Leg 21
Leg 22
Leg 23
Leg 24
Leg 25
Leg 26
Leg 27
Leg 28
Leg 29
Leg 30
INTEX–NA FLIGHT 07
12 JUL 2004
Pressure (hPa)
Time (UTC)
PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
Internet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Leg 5
ARRIVAL LEVEL
Flight Track
DURATION
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10 days
7 days
5 days
3 days
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Flight-time GOES image
Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 07 - 12 JUL
MAIN FSU INTEX-NA PAGE
INTEX–NA FLIGHT 07
12 JUL 2004
Pressure (hPa)
Time (UTC)
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PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
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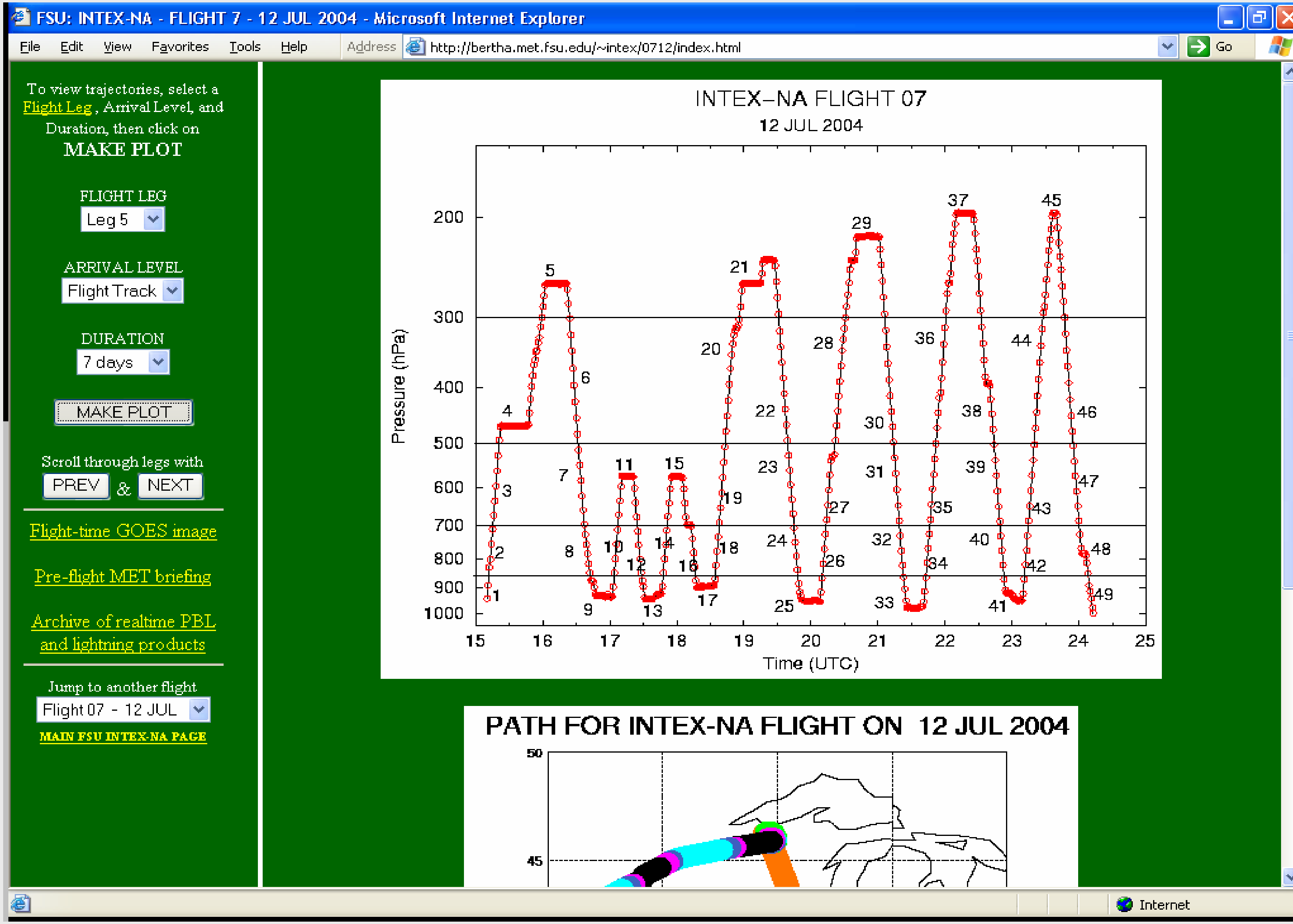
Done
Internet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FLIGHT LEG
Leg 5
ARRIVAL LEVEL
Flight Track
DURATION
7 days
MAKE PLOT
Scroll through legs with
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Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 07 - 12 JUL
MAIN FSU INTEX-NA PAGE
INTEX–NA FLIGHT 07
12 JUL 2004
Pressure (hPa)
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Time (UTC)
PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
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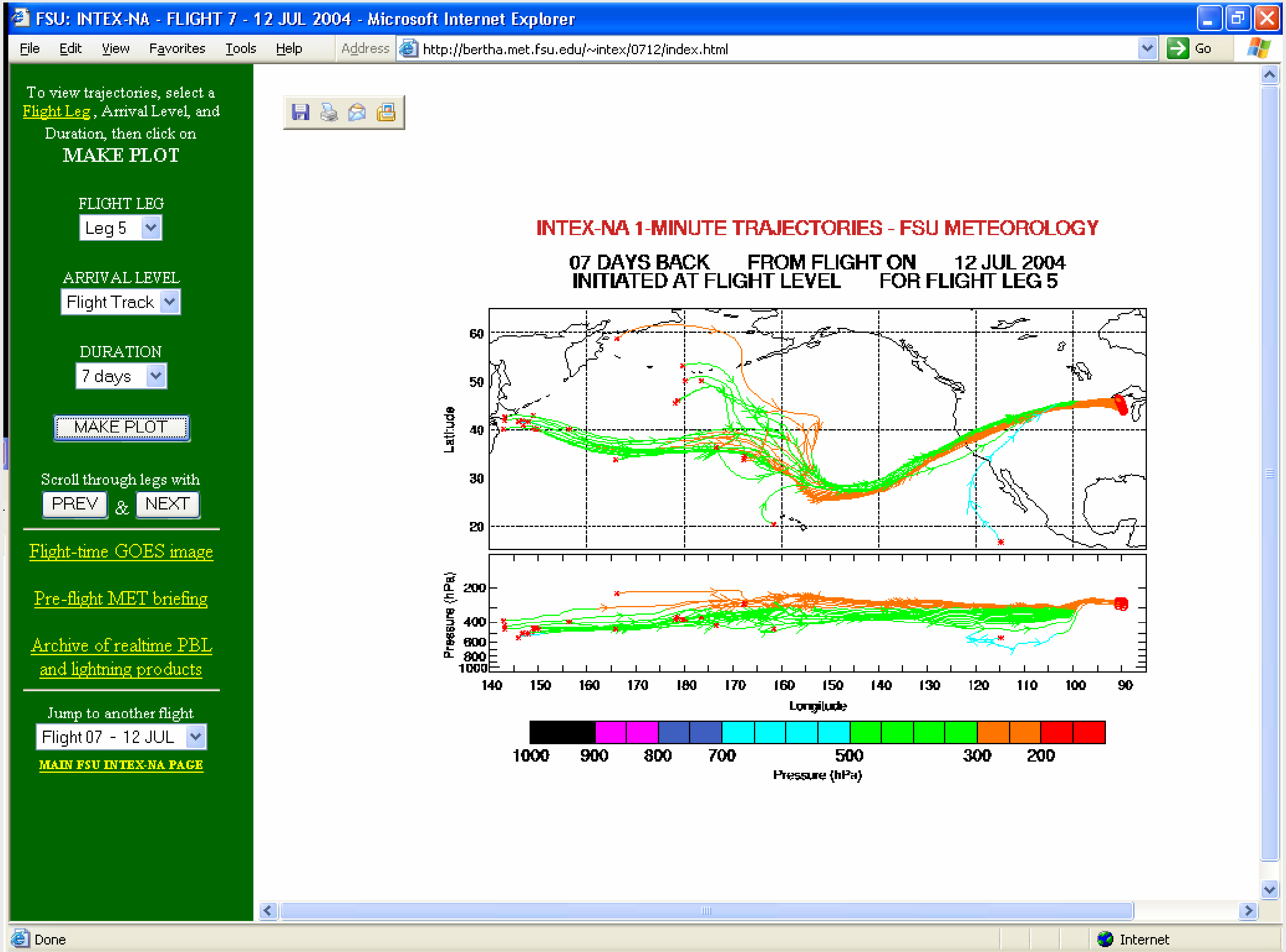
Internet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FLIGHT LEG
Leg 5
ARRIVAL LEVEL
Flight Track
DURATION
7 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 07 - 12 JUL
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INTEX-NA 1-MINUTE TRAJECTORIES - FSU METEOROLOGY
07 DAYS BACK FROM FLIGHT ON 12 JUL 2004
INITIATED AT FLIGHT LEVEL FOR FLIGHT LEG 5
Latitude
60
50
40
30
20
Pressure (hPa)
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400
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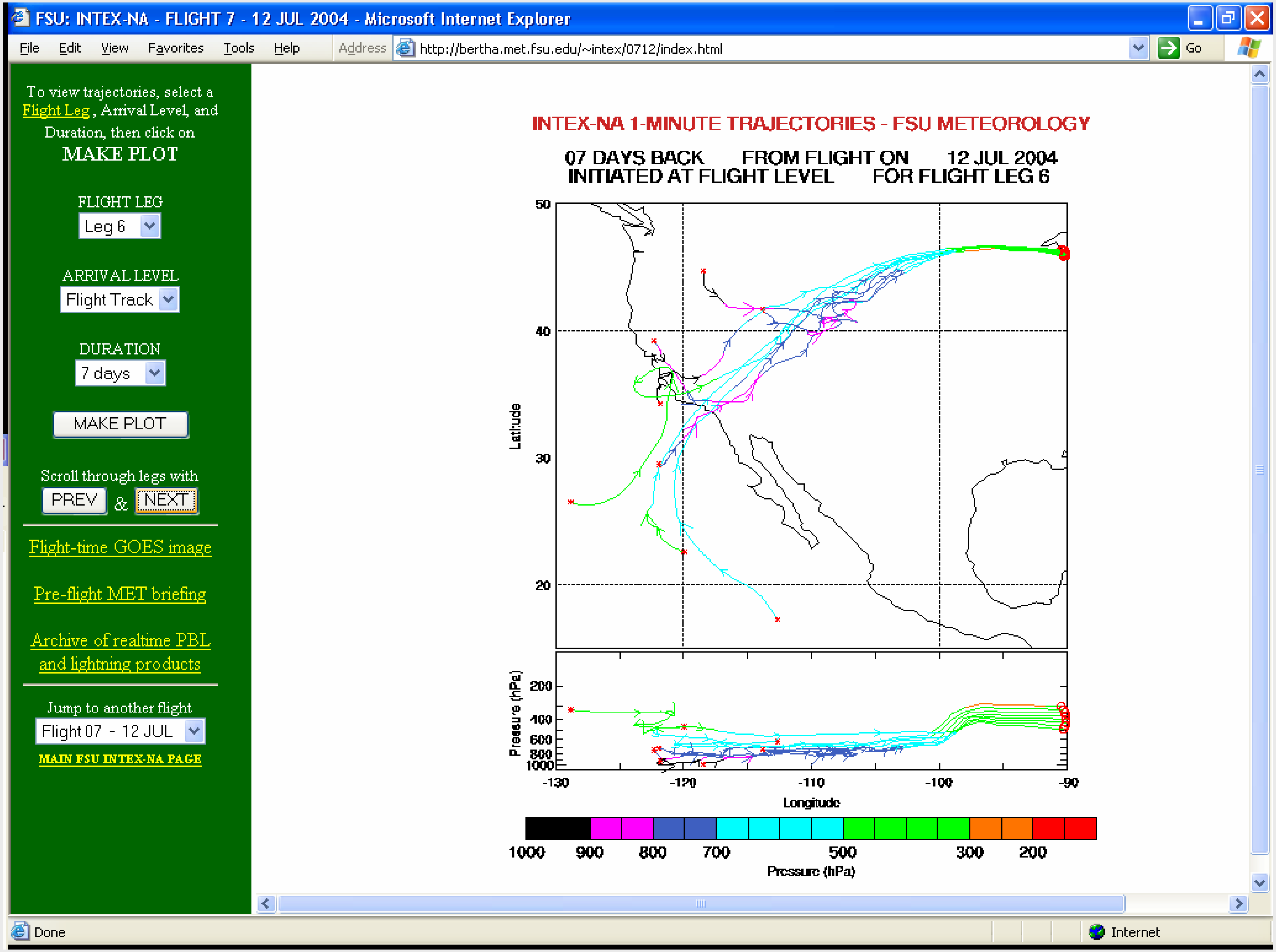
140 150 160 170 180 170 160 150 140 130 120 110 100 90
Longitude
1000 900 800 700 500 300 200
Pressure (hPa)
Done
Internet



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To view trajectories, select a Flight Leg, Arrival Level, and Duration, then click on
MAKE PLOT
FLIGHT LEG
Leg 6
ARRIVAL LEVEL
Flight Track
DURATION
7 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 07 - 12 JUL
MAIN FSU INTEX-NA PAGE
INTEX-NA 1-MINUTE TRAJECTORIES - FSU METEOROLOGY
07 DAYS BACK FROM FLIGHT ON 12 JUL 2004
INITIATED AT FLIGHT LEVEL FOR FLIGHT LEG 6
Latitude
50
40
30
20
Pressure (hPa)
200
400
600
800
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-130
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Longitude
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Pressure (hPa)
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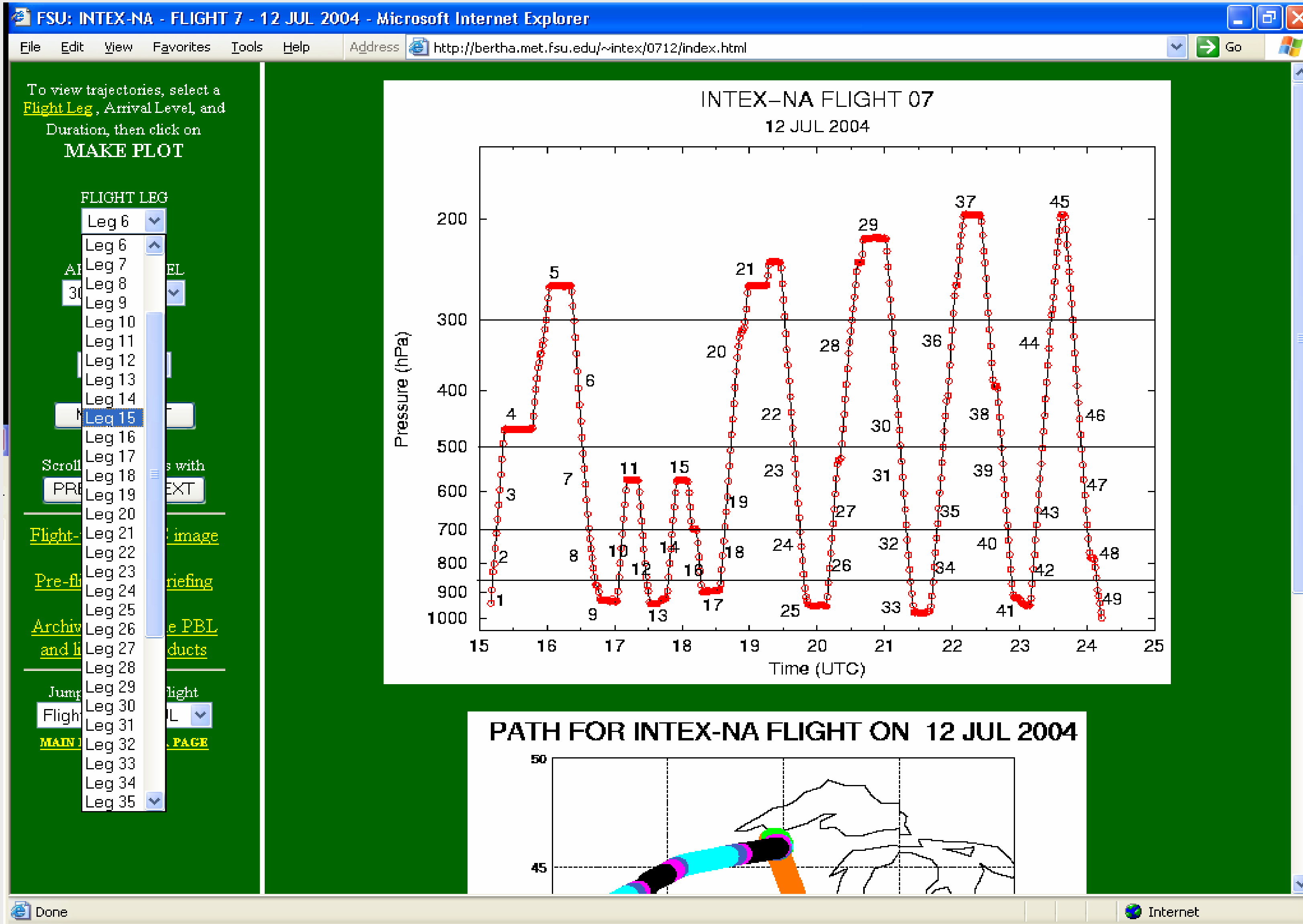
Internet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Duration, then click on
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Leg 26
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Leg 28
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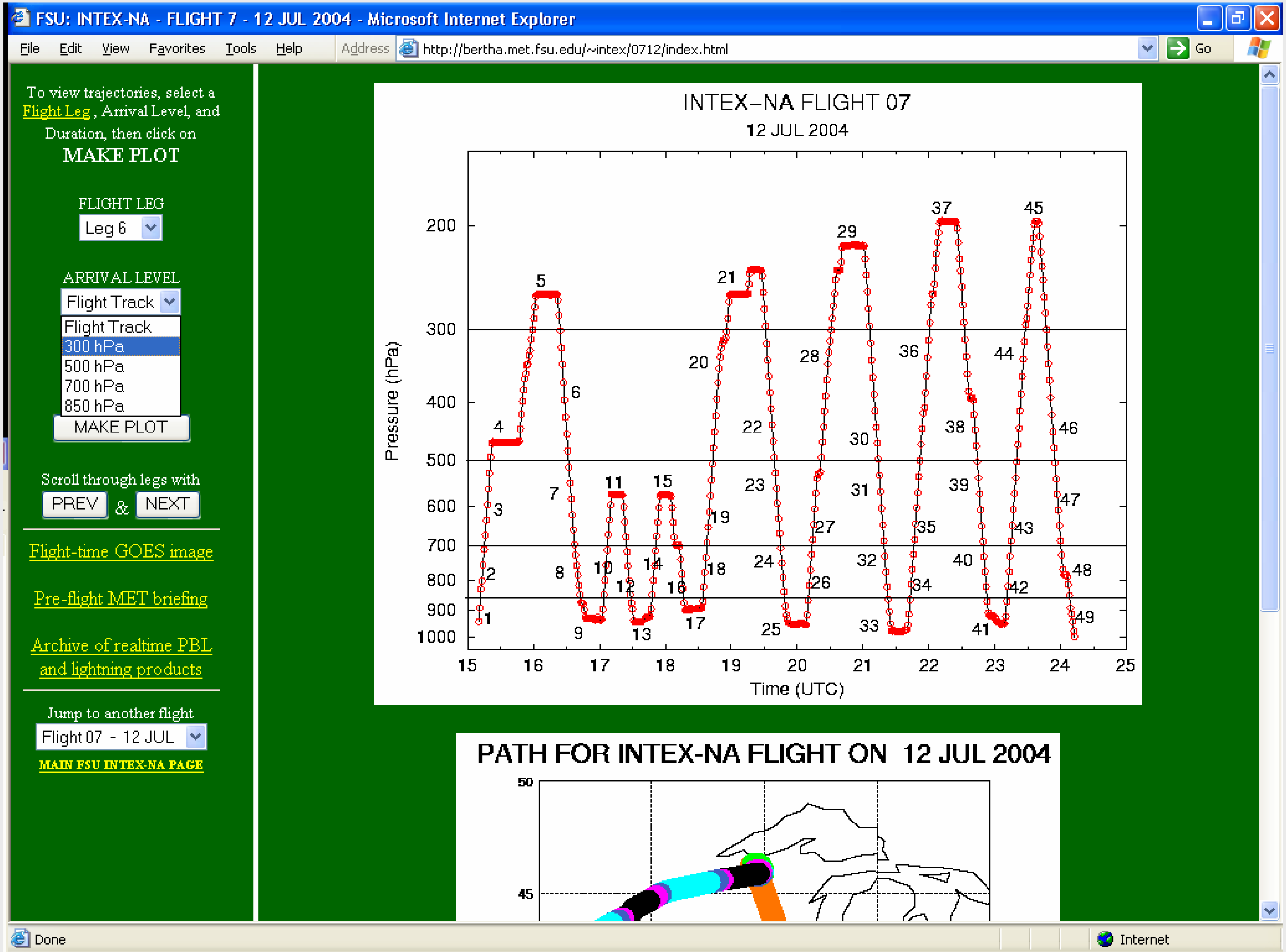
Leg 30
Leg 31
Leg 32
Leg 33
Leg 34
Leg 35
INTEX–NA FLIGHT 07
12 JUL 2004
Pressure (hPa)
Time (UTC)
PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
Done
Internet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MAKE PLOT
FLIGHT LEG
Leg 6
ARRIVAL LEVEL
Flight Track
Flight Track
300 hPa
500 hPa
700 hPa
850 hPa
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Pre-flight MET briefing
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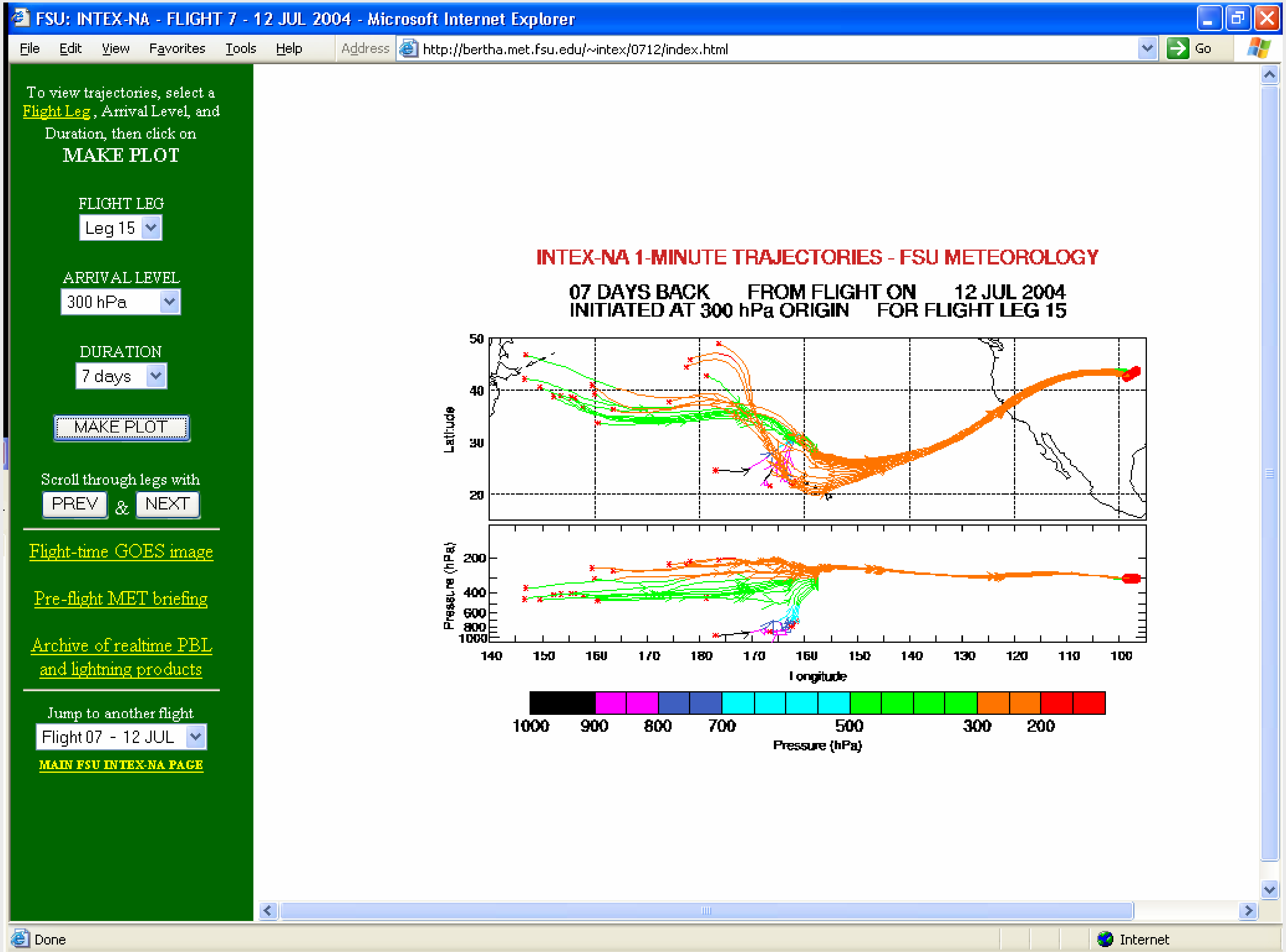
MAIN FSU INTEX-NA PAGE
INTEX–NA FLIGHT 07
12 JUL 2004
Pressure (hPa)
Time (UTC)
PATH FOR INTEX-NA FLIGHT ON 12 JUL 2004
Done
Internet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Go
To view trajectories, select a Flight Leg, Arrival Level, and Duration, then click on
MAKE PLOT
FLIGHT LEG
Leg 15
ARRIVAL LEVEL
300 hPa
DURATION
7 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Pre-flight MET briefing
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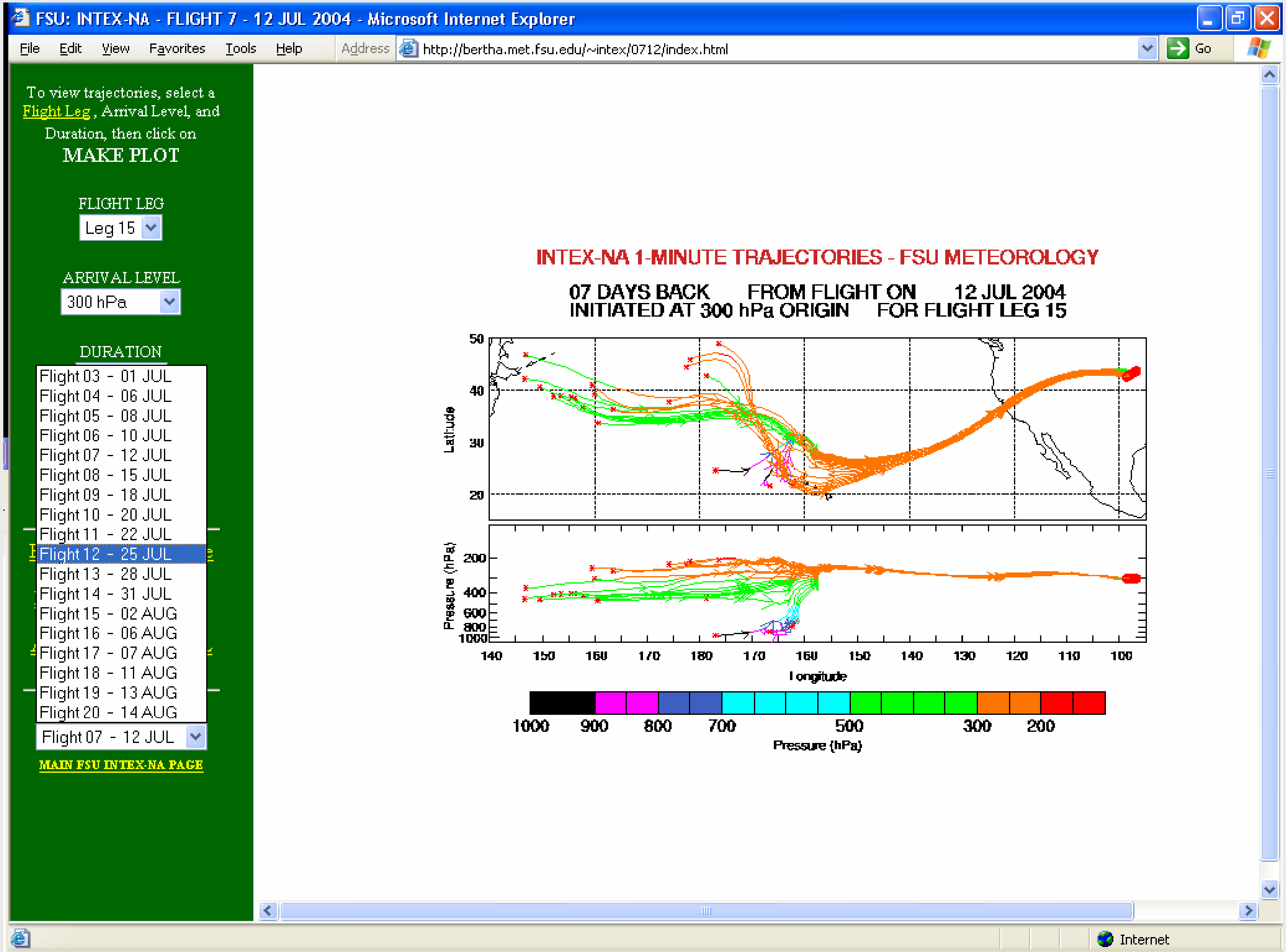
Jump to another flight
Flight 07 - 12 JUL
MAIN FSU INTEX-NA PAGE
INTEX-NA 1-MINUTE TRAJECTORIES - FSU METEOROLOGY
07 DAYS BACK FROM FLIGHT ON 12 JUL 2004
INITIATED AT 300 hPa ORIGIN FOR FLIGHT LEG 15
Latitude
50
40
30
20
Pressure (hPa)
200
400
600
800
1000
140 150 160 170 180 170 160 150 140 130 120 110 100
Longitude
1000 900 800 700 500 300 200
Pressure (hPa)
Done
Internet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MAKE PLOT
FLIGHT LEG
Leg 15
ARRIVAL LEVEL
300 hPa
DURATION
Flight 03 - 01 JUL
Flight 04 - 06 JUL
Flight 05 - 08 JUL
Flight 06 - 10 JUL
Flight 07 - 12 JUL
Flight 08 - 15 JUL
Flight 09 - 18 JUL
Flight 10 - 20 JUL
Flight 11 - 22 JUL
Flight 12 - 25 JUL
Flight 13 - 28 JUL
Flight 14 - 31 JUL
Flight 15 - 02 AUG
Flight 16 - 06 AUG
Flight 17 - 07 AUG
Flight 18 - 11 AUG
Flight 19 - 13 AUG
Flight 20 - 14 AUG
Flight 07 - 12 JUL
MAIN FSU INTEX-NA PAGE
INTEX-NA 1-MINUTE TRAJECTORIES - FSU METEOROLOGY
07 DAYS BACK FROM FLIGHT ON 12 JUL 2004
INITIATED AT 300 hPa ORIGIN FOR FLIGHT LEG 15
Latitude
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Pressure (hPa)
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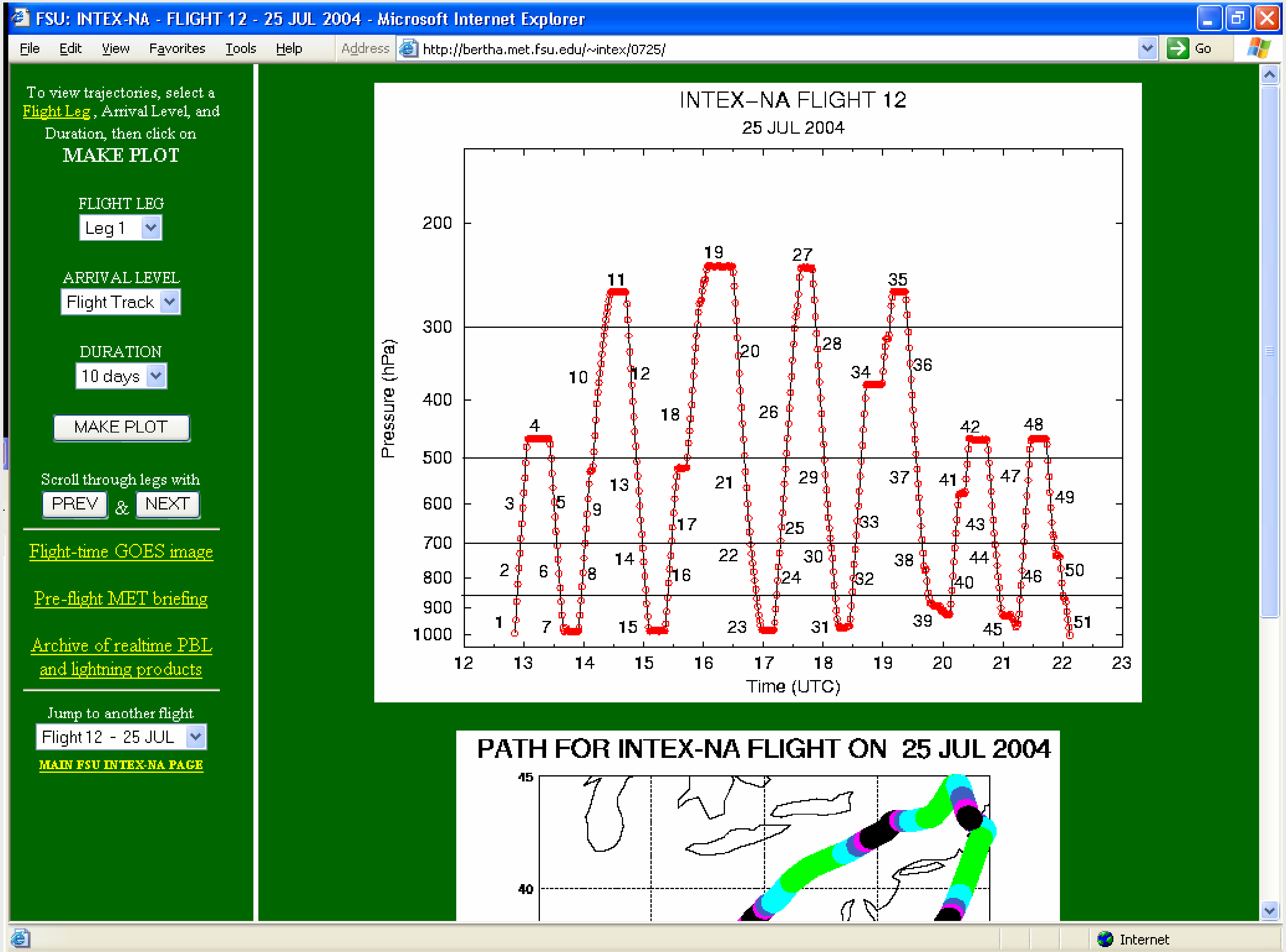
Longitude
1000 900 800 700 500 300 200
Pressure (hPa)
Internet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Address http://bertha.met.fsu.edu/~intex/0725/
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To view trajectories, select a Flight Leg, Arrival Level, and Duration, then click on
MAKE PLOT
FLIGHT LEG
Leg 1
ARRIVAL LEVEL
Flight Track
DURATION
10 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Pre-flight MET briefing
Archive of realtime PBL and lightning products
Jump to another flight
Flight 12 - 25 JUL
MAIN FSU INTEX-NA PAGE
INTEX–NA FLIGHT 12
25 JUL 2004
Pressure (hPa)
Time (UTC)
PATH FOR INTEX-NA FLIGHT ON 25 JUL 2004
Internet

FSU: INTEX-NA - Microsoft Internet Explorer

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Available Products: Post Mission Reanalysis

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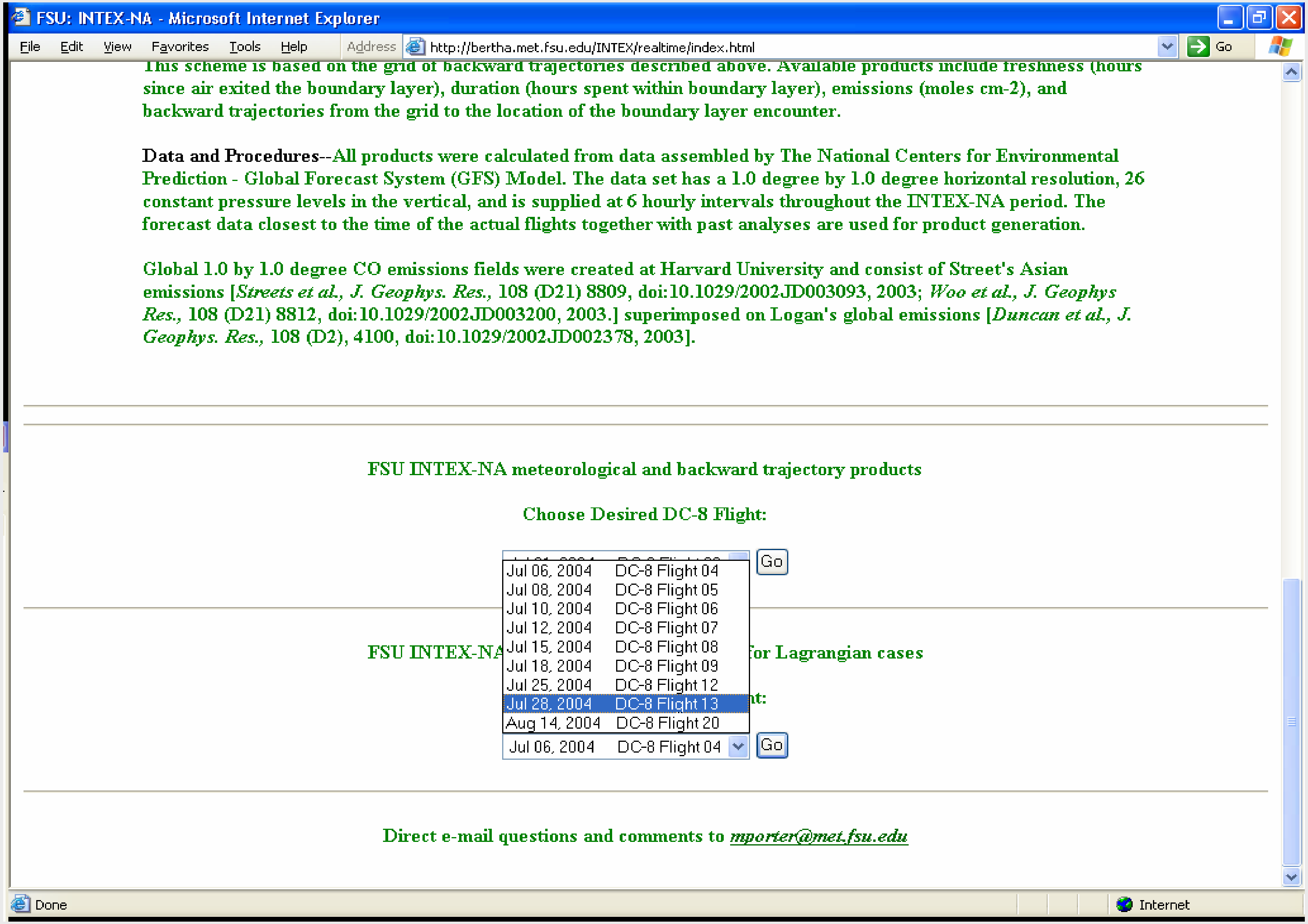
Done Internet



FSU: INTEX-NA - Microsoft Internet Explorer

File Edit View Favorites Tools Help Address http://bertha.met.fsu.edu/INTEX/realtime/index.html Go

This scheme is based on the grid of backward trajectories described above. Available products include freshness (hours since air exited the boundary layer), duration (hours spent within boundary layer), emissions (moles cm-2), and backward trajectories from the grid to the location of the boundary layer encounter.

Data and Procedures--All products were calculated from data assembled by The National Centers for Environmental Prediction - Global Forecast System (GFS) Model. The data set has a 1.0 degree by 1.0 degree horizontal resolution, 26 constant pressure levels in the vertical, and is supplied at 6 hourly intervals throughout the INTEX-NA period. The forecast data closest to the time of the actual flights together with past analyses are used for product generation.

Global 1.0 by 1.0 degree CO emissions fields were created at Harvard University and consist of Street's Asian emissions [*Streets et al., J. Geophys. Res.,* 108 (D21) 8809, doi:10.1029/2002JD003093, 2003; *Woo et al., J. Geophys Res.,* 108 (D21) 8812, doi:10.1029/2002JD003200, 2003.] superimposed on Logan's global emissions [*Duncan et al., J. Geophys. Res.,* 108 (D2), 4100, doi:10.1029/2002JD002378, 2003].

FSU INTEX-NA meteorological and backward trajectory products

Choose Desired DC-8 Flight:

Jul 06, 2004 DC-8 Flight 04
Jul 08, 2004 DC-8 Flight 05
Jul 10, 2004 DC-8 Flight 06
Jul 12, 2004 DC-8 Flight 07
Jul 15, 2004 DC-8 Flight 08
Jul 18, 2004 DC-8 Flight 09
Jul 25, 2004 DC-8 Flight 12
Jul 28, 2004 DC-8 Flight 13
Aug 14, 2004 DC-8 Flight 20

Go

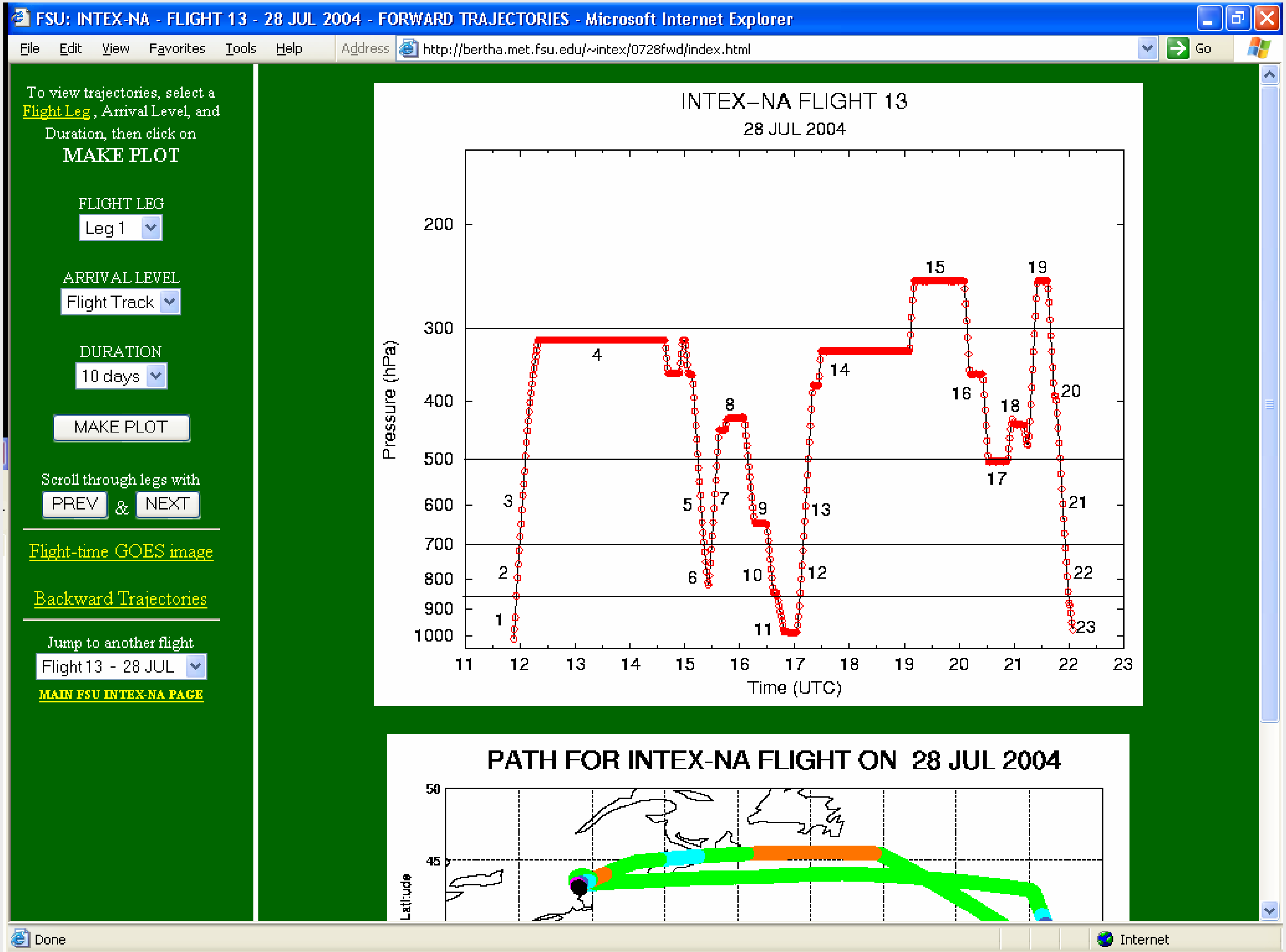
FSU INTEX-NA ... for Lagrangian cases

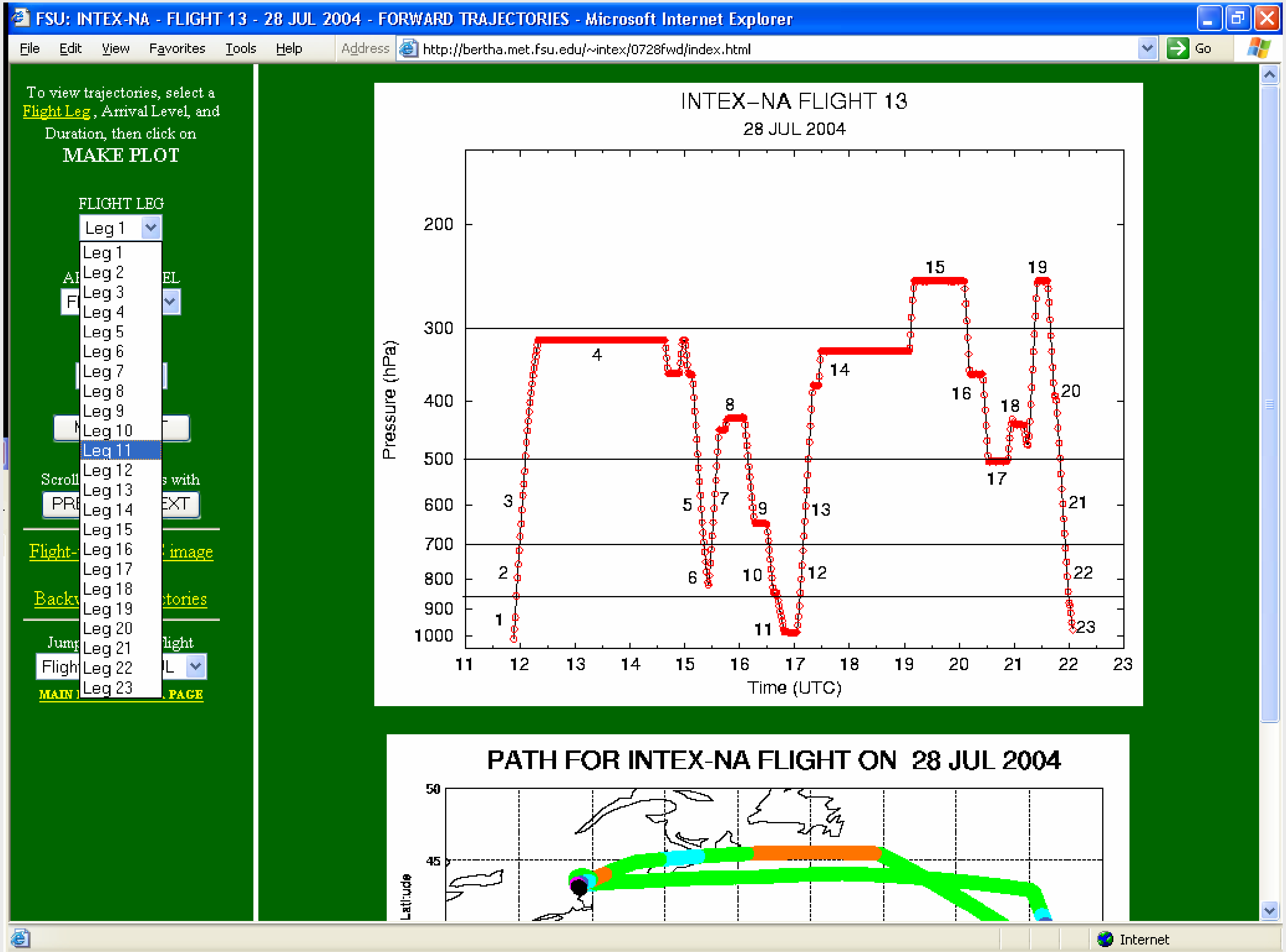
...t:

Jul 06, 2004 DC-8 Flight 04 Go

Direct e-mail questions and comments to *mporter@met.fsu.edu*

Done Internet


FSU: INTEX-NA - FLIGHT 13 - 28 JUL 2004 - FORWARD TRAJECTORIES - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://bertha.met.fsu.edu/~intex/0728fwd/index.html
Go
To view trajectories, select a Flight Leg, Arrival Level, and Duration, then click on
MAKE PLOT
FLIGHT LEG
Leg 1
ARRIVAL LEVEL
Flight Track
DURATION
10 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Backward Trajectories
Jump to another flight
Flight 13 - 28 JUL
MAIN FSU INTEX-NA PAGE
INTEX–NA FLIGHT 13
28 JUL 2004
Pressure (hPa)
200
300
400
500
600
700
800
900
1000
Time (UTC)
11 12 13 14 15 16 17 18 19 20 21 22 23
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
PATH FOR INTEX-NA FLIGHT ON 28 JUL 2004
Latitude
50
45
Done
Internet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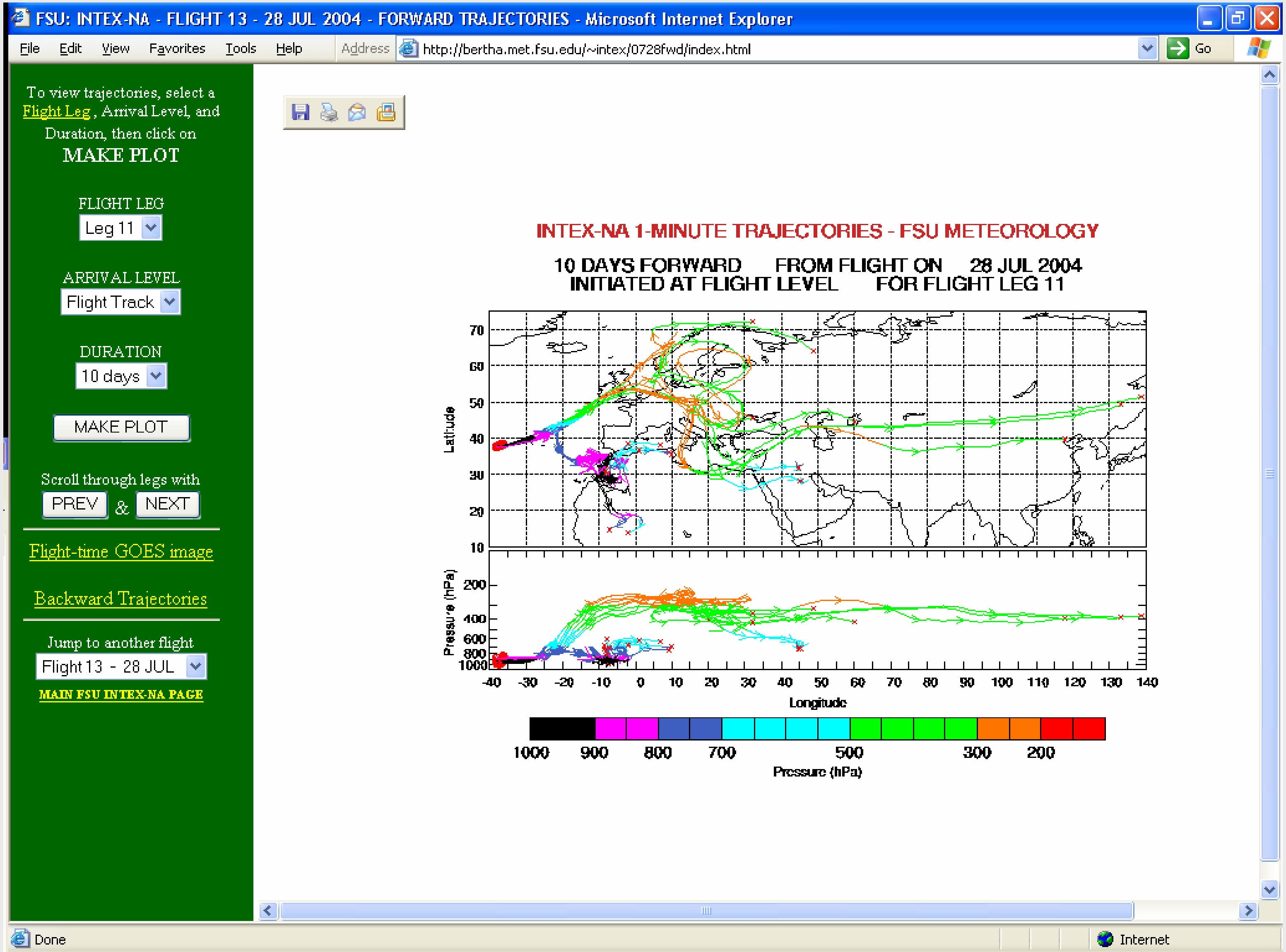
File Edit View Favorites Tools Help
Address http://bertha.met.fsu.edu/~intex/0728fwd/index.html
Go
To view trajectories, select a Flight Leg, Arrival Level, and Duration, then click on
MAKE PLOT
FLIGHT LEG
Leg 1
Leg 1
Leg 2
Leg 3
Leg 4
Leg 5
Leg 6
Leg 7
Leg 8
Leg 9
Leg 10
Leg 11
Leg 12
Leg 13
Leg 14
Leg 15
Leg 16
Leg 17
Leg 18
Leg 19
Leg 20
Leg 21
Leg 22
Leg 23
INTEX–NA FLIGHT 13
28 JUL 2004
Pressure (hPa)
Time (UTC)
PATH FOR INTEX-NA FLIGHT ON 28 JUL 2004
Latitude
Internet


FSU: INTEX-NA - FLIGHT 13 - 28 JUL 2004 - FORWARD TRAJECTORIES - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://bertha.met.fsu.edu/~intex/0728fwd/index.html
Go
To view trajectories, select a Flight Leg, Arrival Level, and Duration, then click on
MAKE PLOT
FLIGHT LEG
Leg 11
ARRIVAL LEVEL
Flight Track
DURATION
10 days
MAKE PLOT
Scroll through legs with
PREV & NEXT
Flight-time GOES image
Backward Trajectories
Jump to another flight
Flight 13 - 28 JUL
MAIN FSU INTEX-NA PAGE
INTEX-NA 1-MINUTE TRAJECTORIES - FSU METEOROLOGY
10 DAYS FORWARD FROM FLIGHT ON 28 JUL 2004
INITIATED AT FLIGHT LEVEL FOR FLIGHT LEG 11
Latitude
70
60
50
40
30
20
10
Pressure (hPa)
200
400
600
800
1000
-40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
Longitude
1000 900 800 700 500 300 200
Pressure (hPa)
Done
Internet

http://bertha.met.fsu.edu/INTEX/

atmosphere airborne

mporter@met.fsu.edu

Lightning NOx

INTEX-A

Michael Porter

M.S. Candidate
Florida State University

Goals

- Explore the connection of observed NOx to convective influence as indicated by flash data, expanding upon the ‘lightning tracing’ concept from SONEX by Jeker et al., 2000

- Use INTEX data to estimate post-convective vertical profiles of Lightning generated NOx, along the lines of Pickering et al., 1998

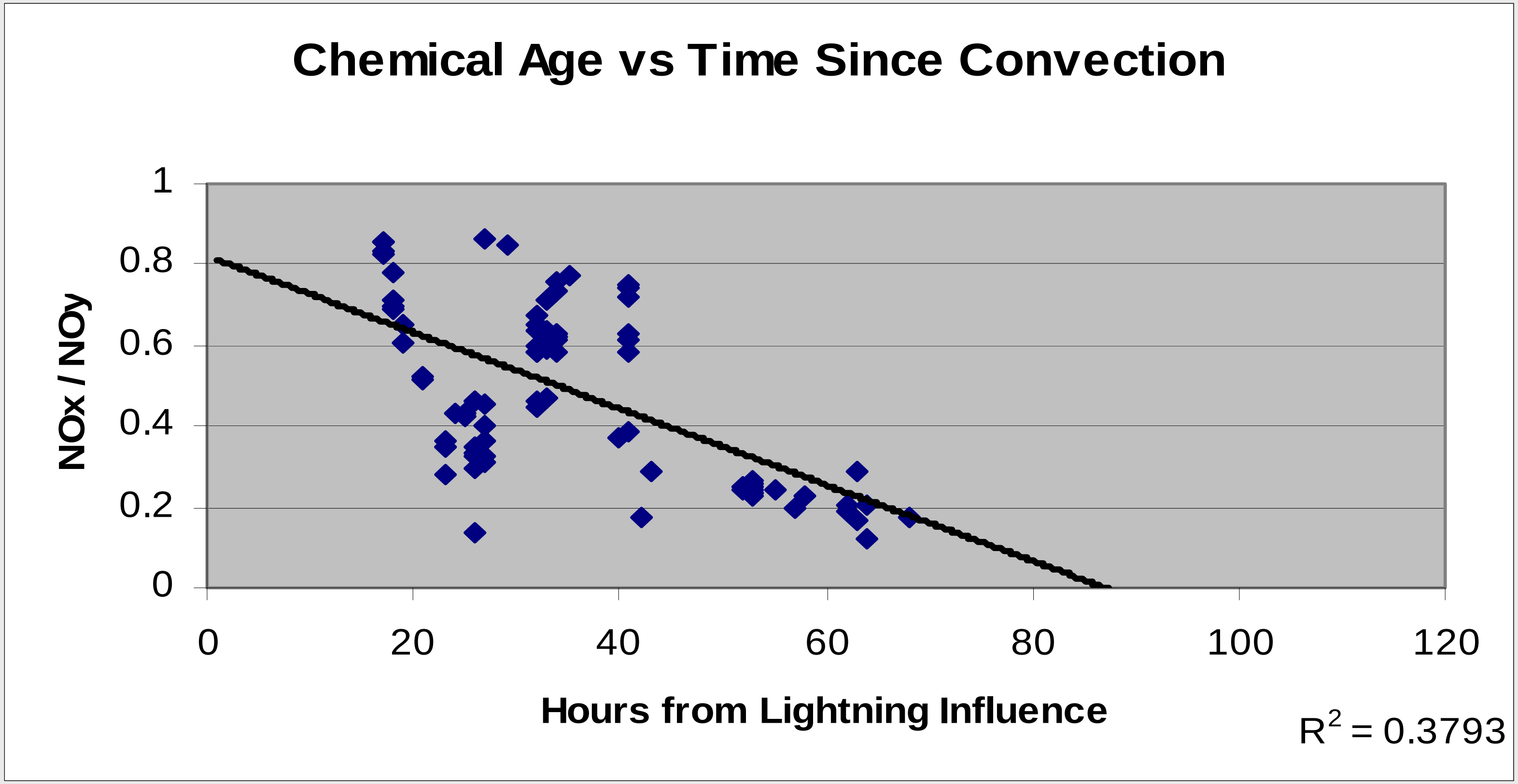
Points to Consider

- Distinguishing BL venting from Lightning influence
- Thresholds for assessing Lightning influence (spatial, temporal, intensity)
- Cumulative influence vs most recent convection
- Comparison between this and other methods of assessing convective influence
- Compare observed NOx to estimated NO production from flash data

Exploring age of LNOx

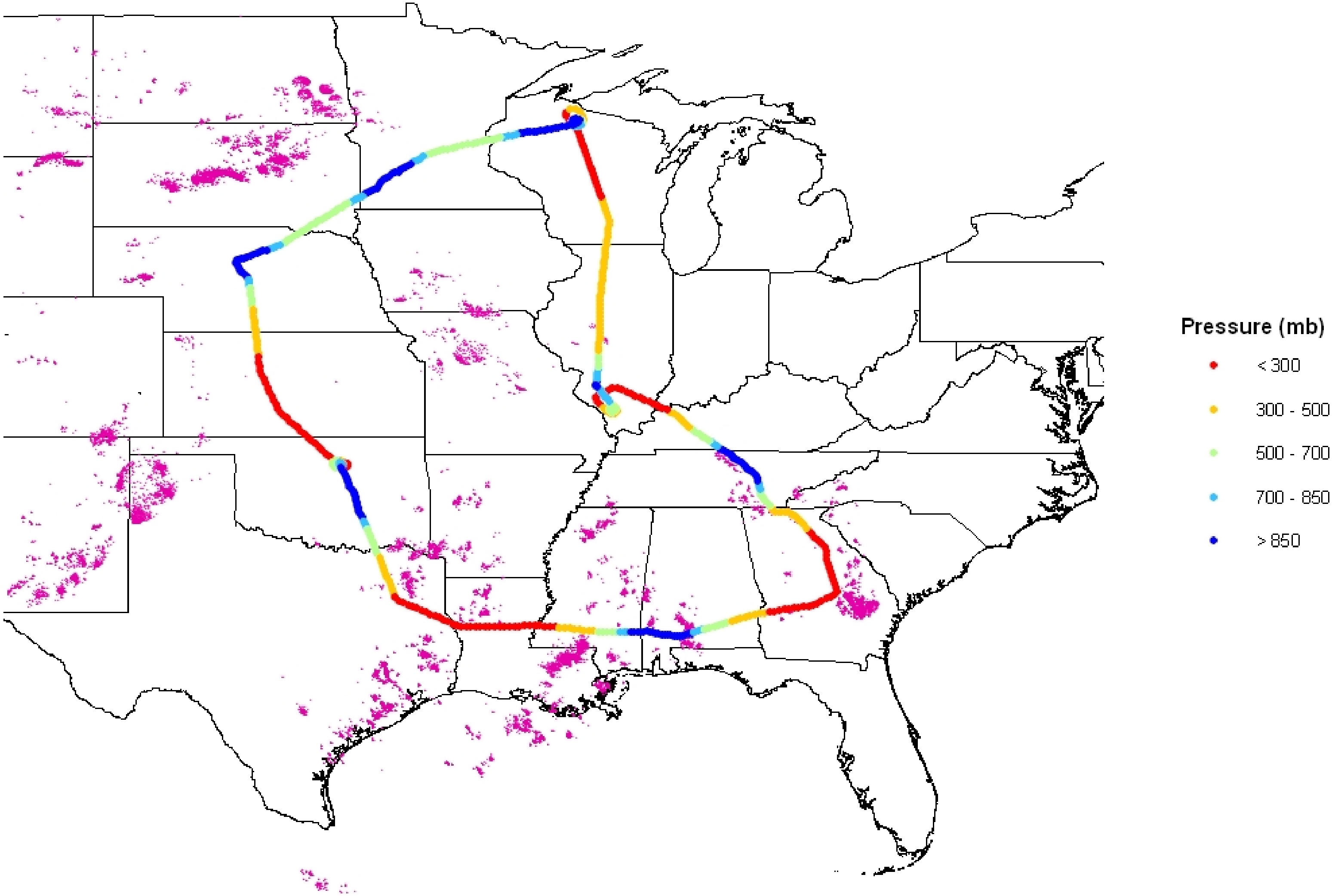
- Flight 12 (0725)
- Counts NLDN flashes within X km of trajectory
  (X = 2 km * hours back from flight)
- Occurring up to 2 hrs before or 0.5 after trajectory
- Ignores trajectories that enter BL
- Stops trajectory 2 hrs after its first encounter with 20 or more flashes

NOx:NOy vs Time Since Lightning



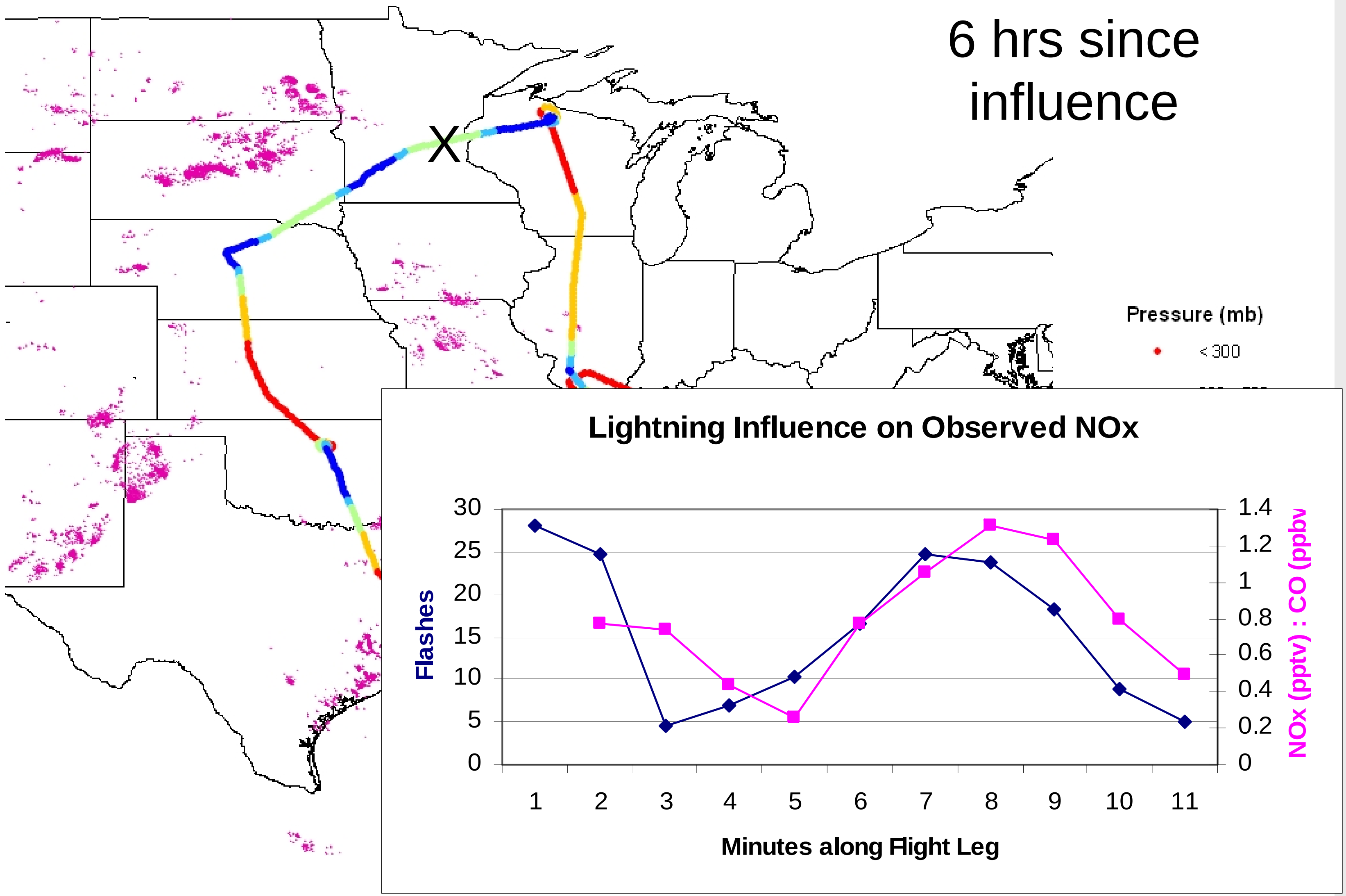
- 3 min running averages (over level flight) used for chemistry and lightning influence

Flight on 0712

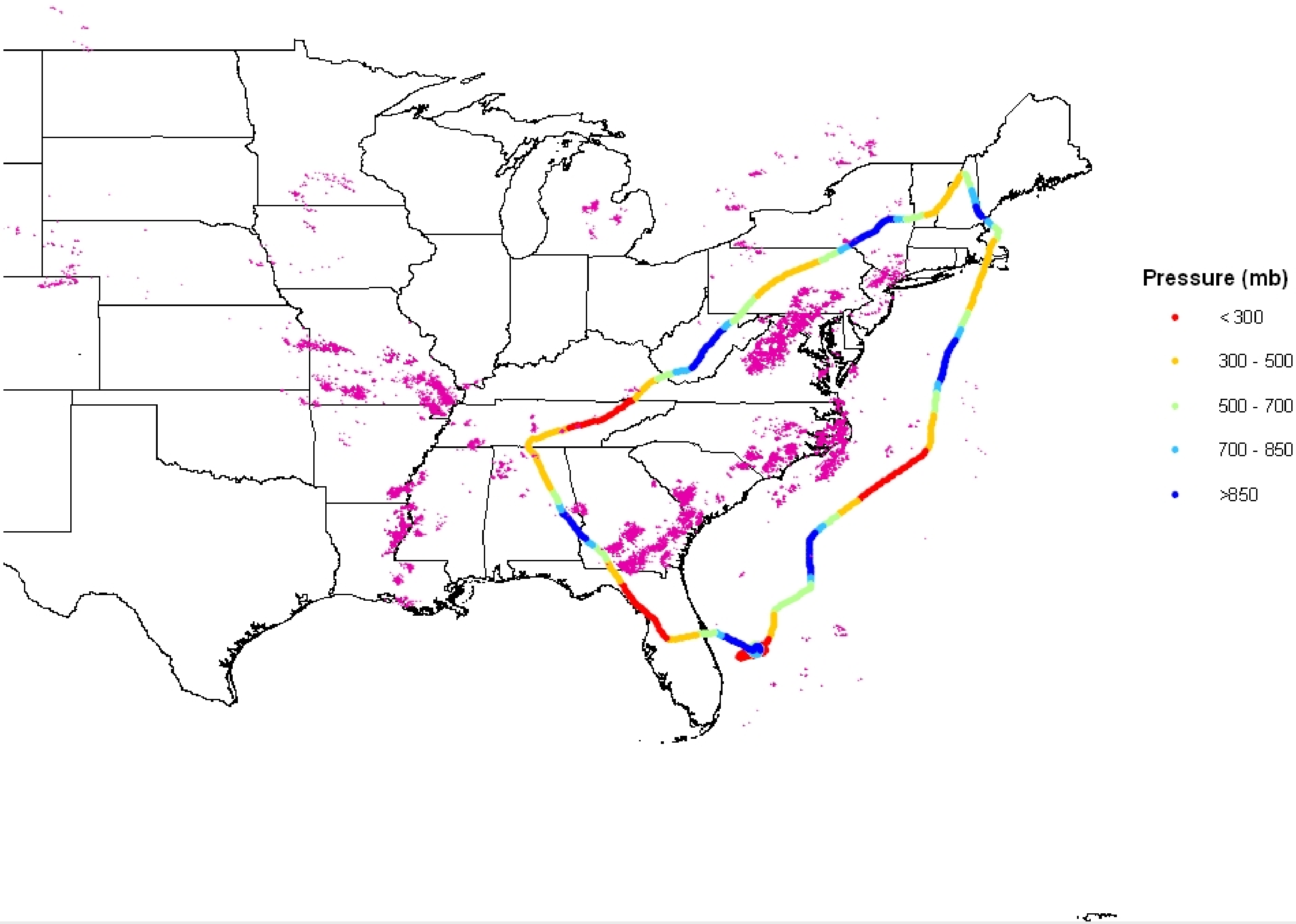


Dakota Convection

6 hrs since influence

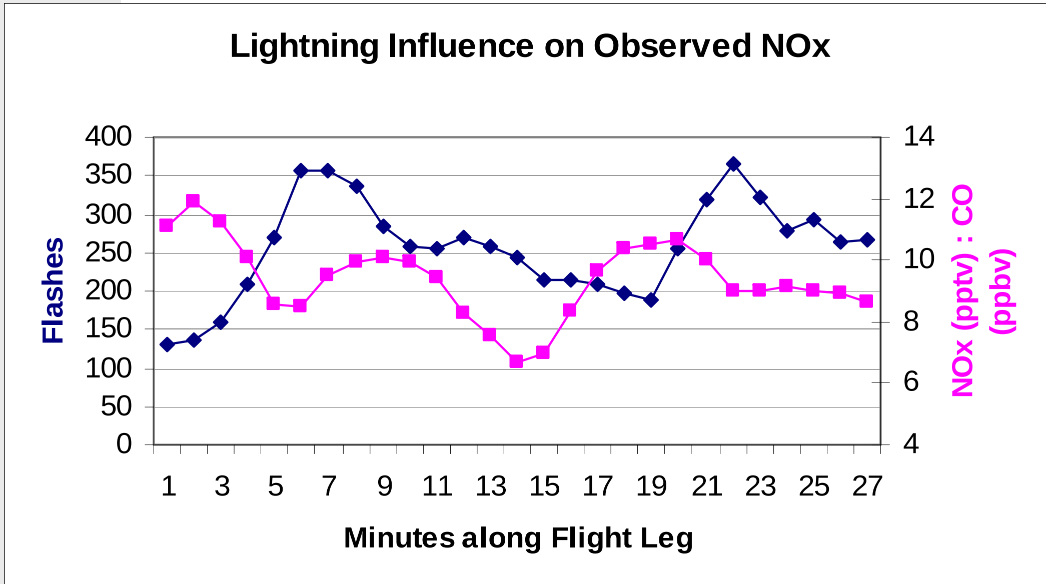


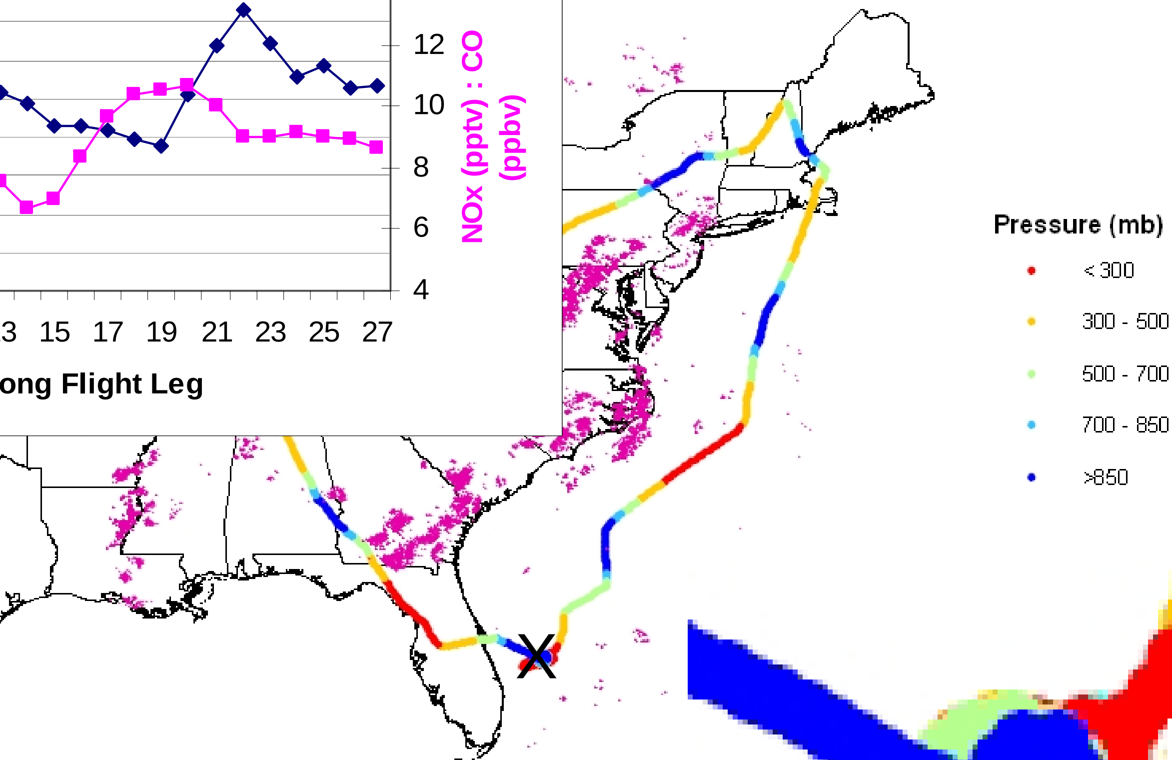
Flight on 0725



NC Convection

33 hrs since influence





Conclusion

- Explore the connection of observed NOx to convective influence as indicated by flash data,

- Use INTEX data to estimate post-convective vertical profiles of Lightning generated NOx

A Comprehensive Investigation of Warm Season Lofting and Transport Episodes

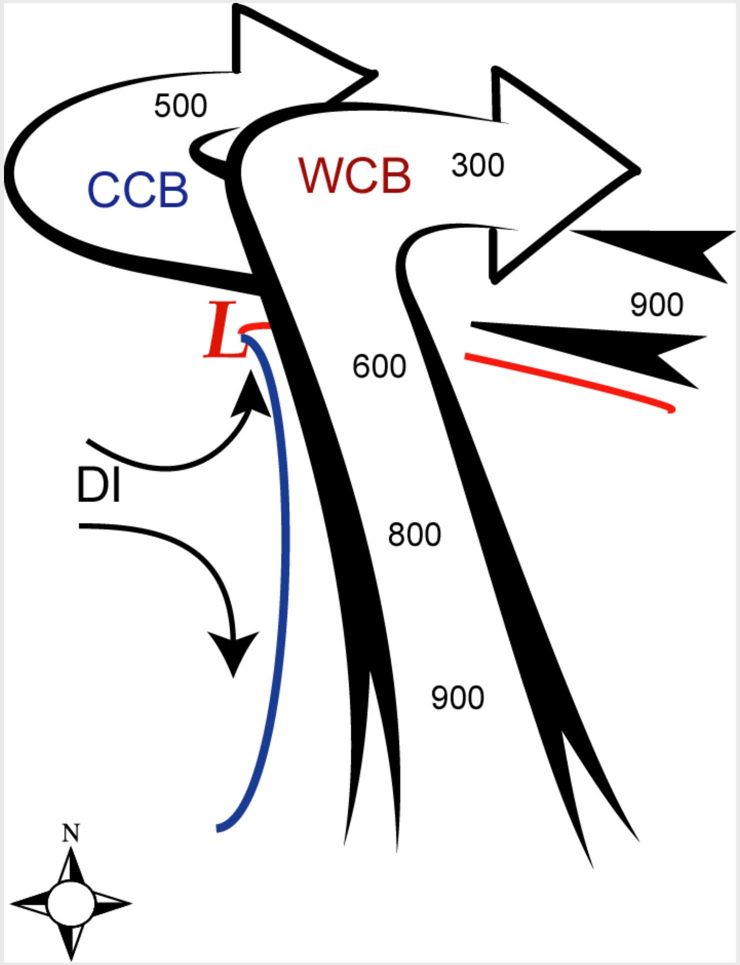
Chris Kiley

Florida State University

Warm Conveyor Belts

warm conveyor belt—A narrow stream of air that transports large amounts of heat, moisture, and westerly momentum. (Glossary of Meteorology)

warm conveyor belt—Air which originated far south of the low in the warm sector, ascended toward the north, achieved saturation near or north of the warm front, where it rose more rapidly, and joined the upper-level westerly flow northeast of the low center. (Carlson, T.N., 1980)

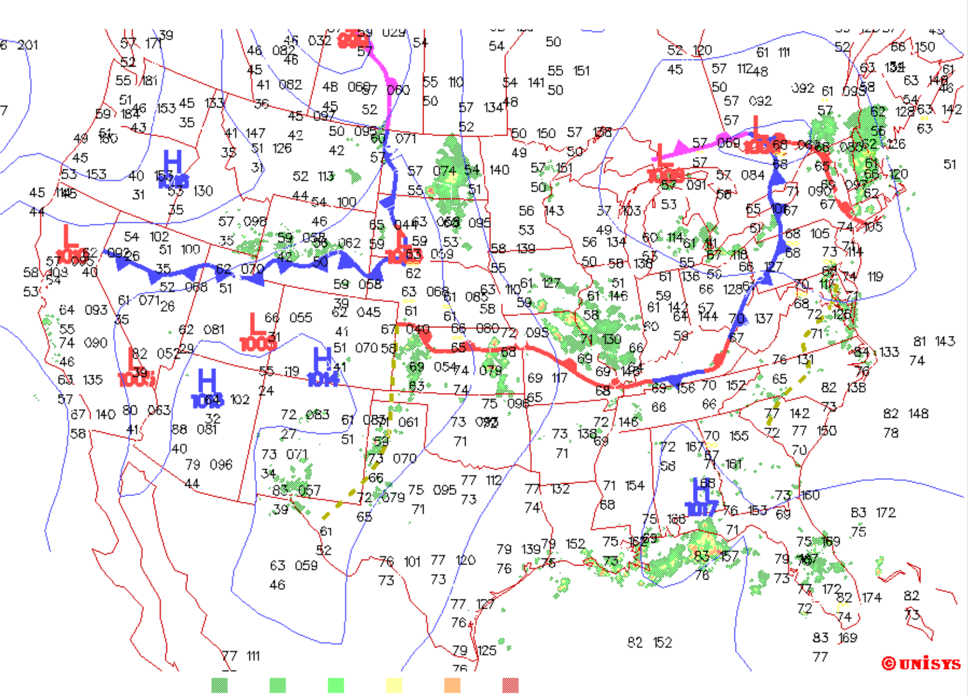


Warm Conveyor Belts

- WCBs and deep convection have been shown to be the primary mechanisms for transporting pollution during the cool season
- Transport during the other half of the year, the warm season, has received much less attention
- WCBs are assumed to be weaker during the warm season; however, they still are probably major transport mechanisms
- Lifting and transport mechanisms documented during INTEX-A will be compared with the classical definition of WCBs
- Examine CO transport and its depiction by AIRS

Three Interesting Cases

- July 8-9
- July 18-22
- August 5-8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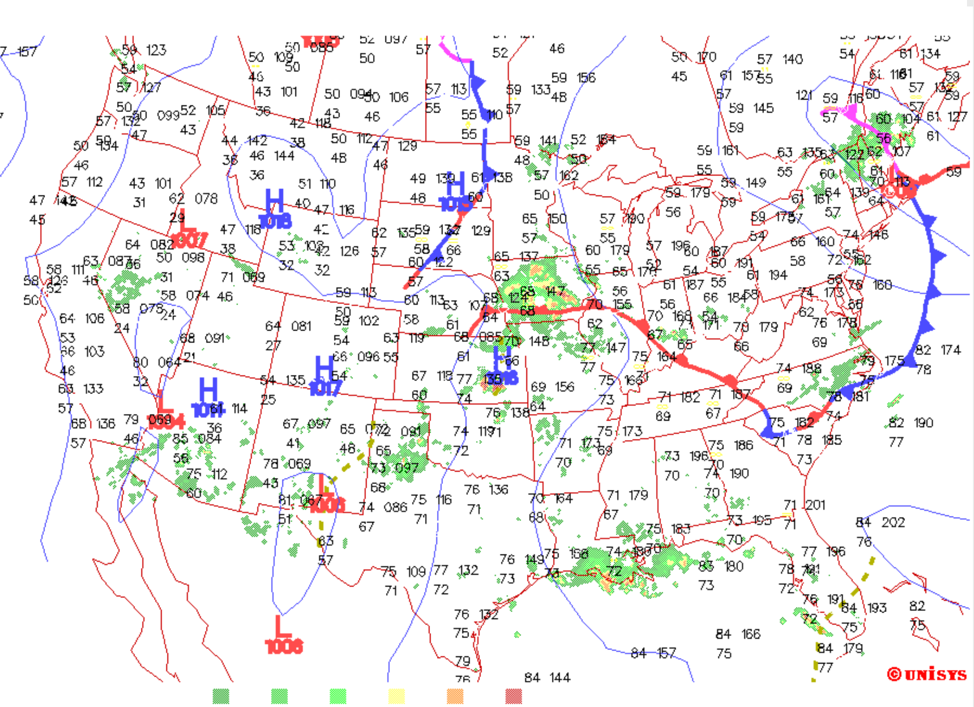
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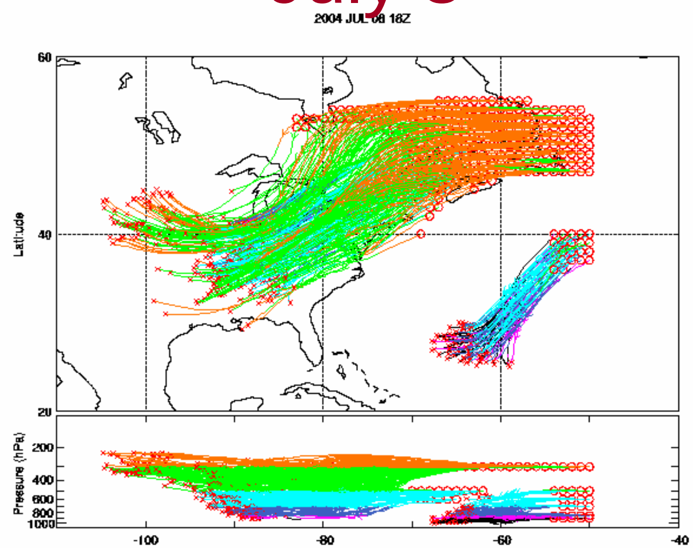
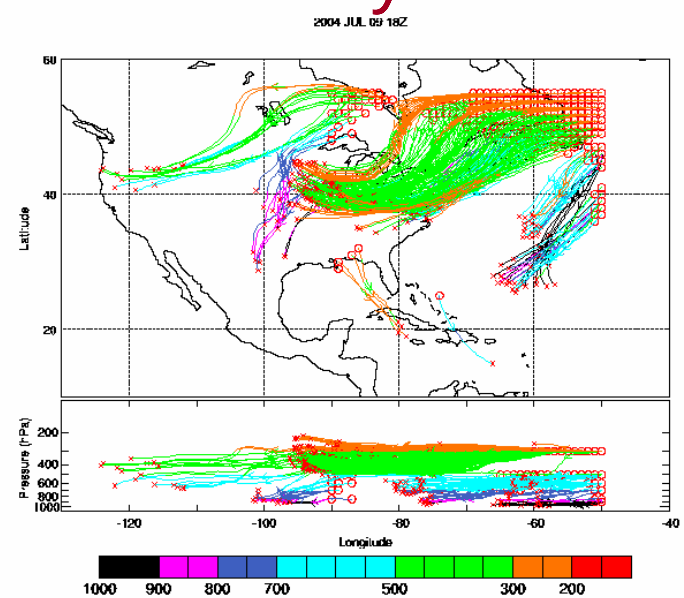
July 8

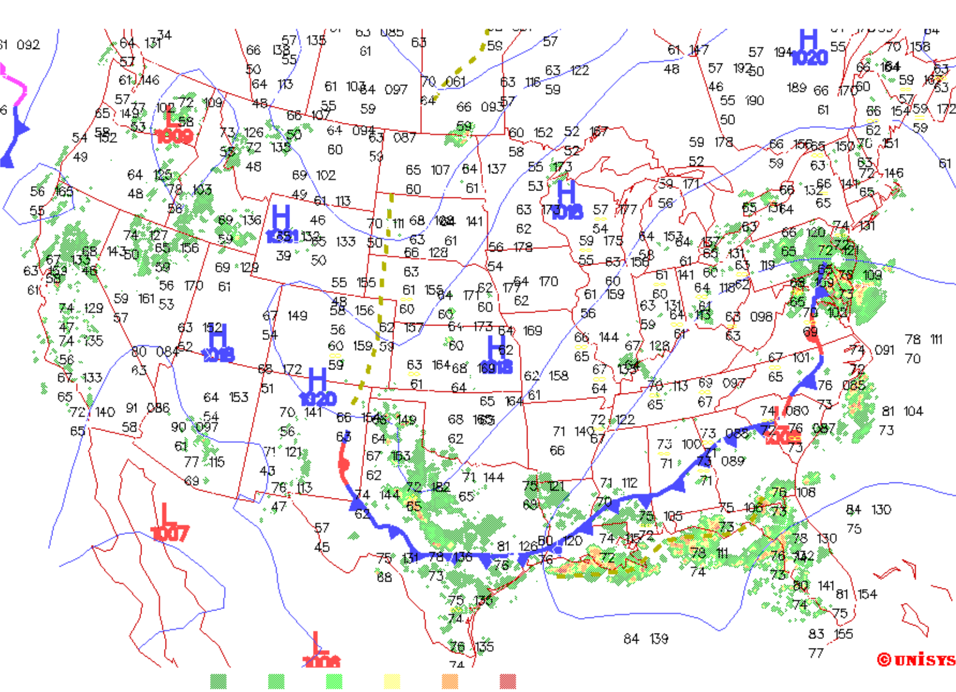

2004 JUL 08 18Z
60
40
20
Latitude
Pressure (hPa)
200
400
600
800
1000
-100
-80
-60
-40

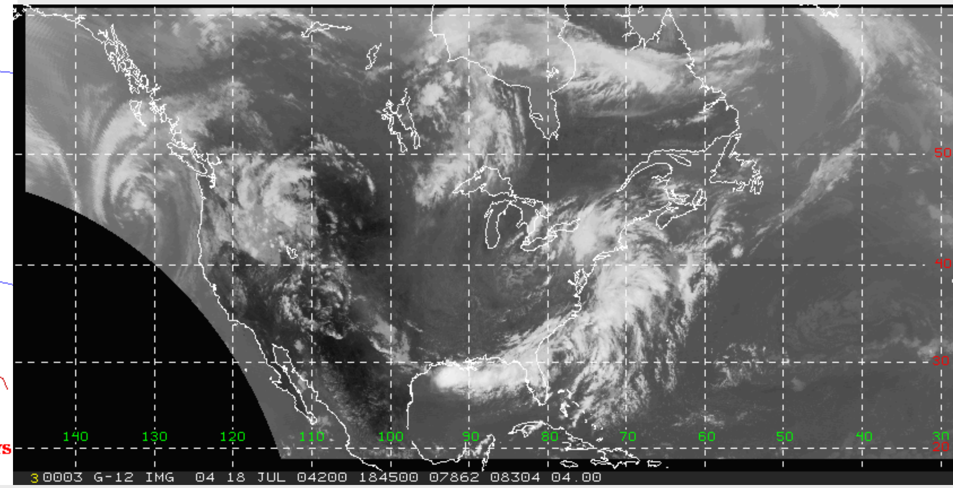
July 9


2004 JUL 09 18Z
60
40
20
Latitude
Pressure (hPa)
200
400
600
800
1000
-120
-100
-80
-60
-40
Longitude
1000
900
800
700
500
300
200

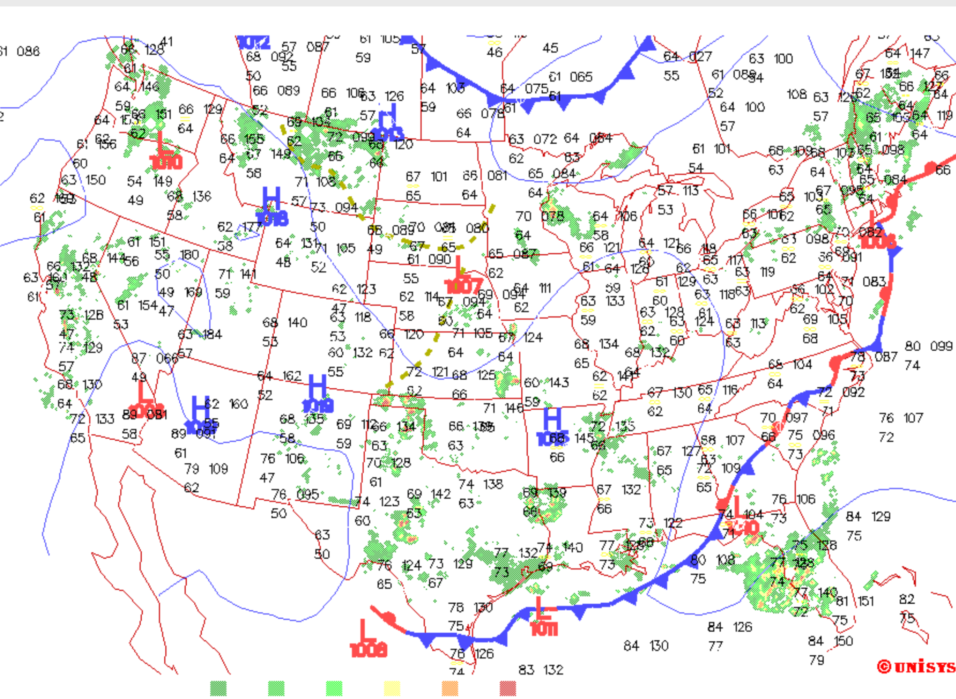
4 Day Case

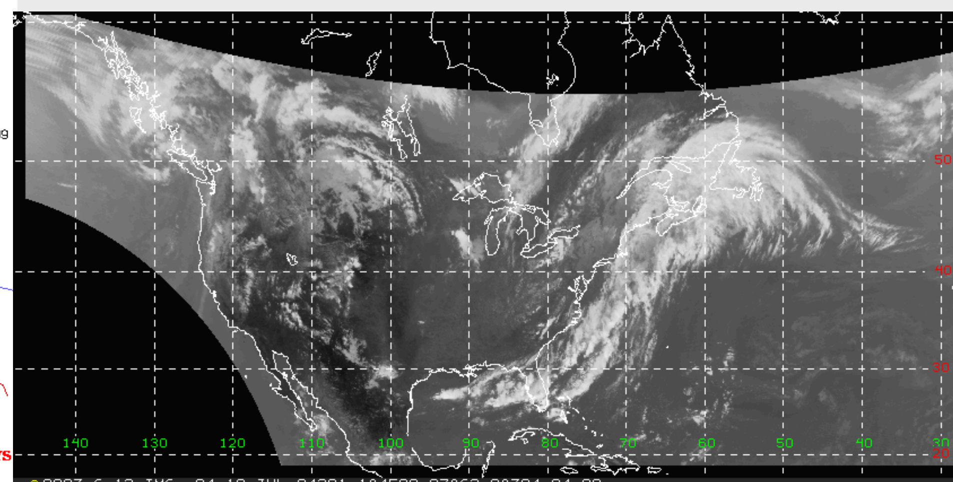
July 18

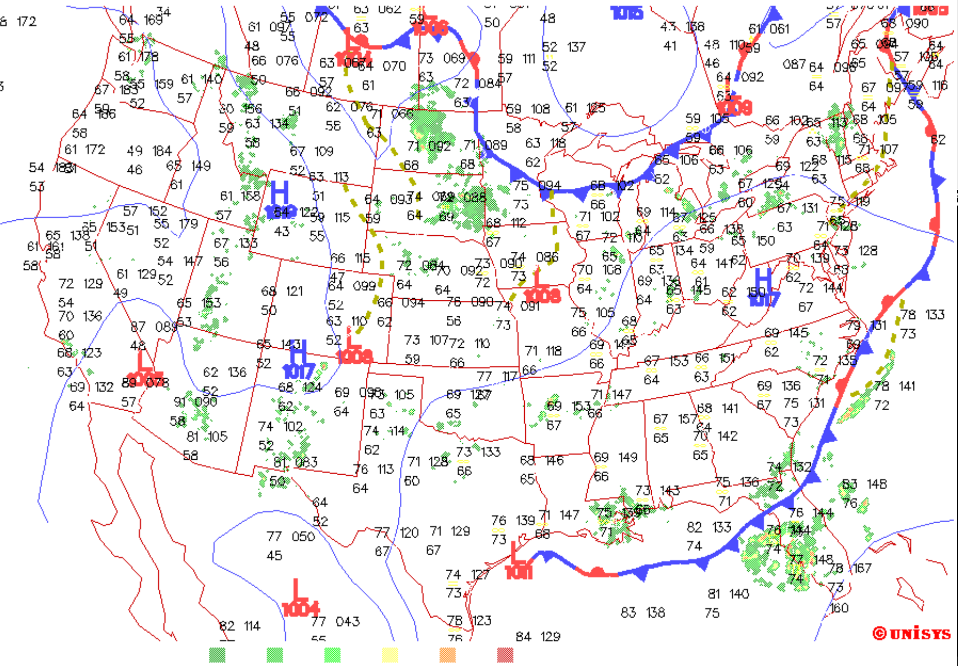




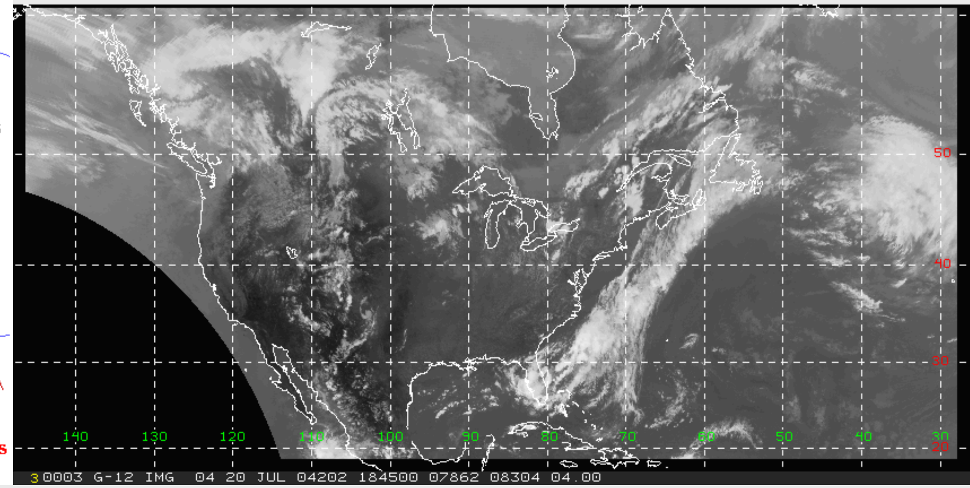
July 19

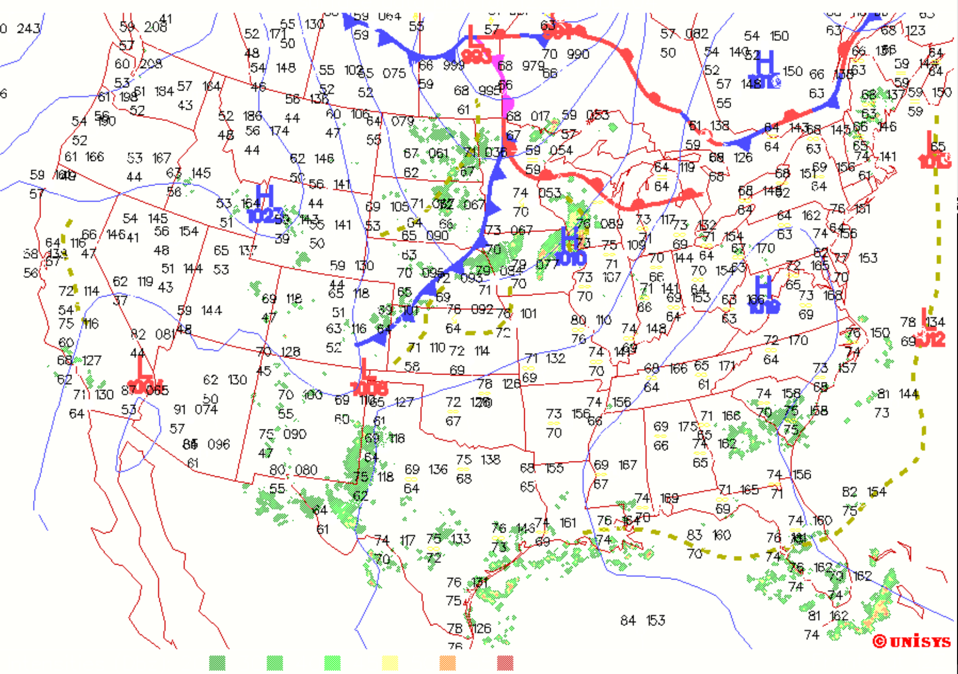




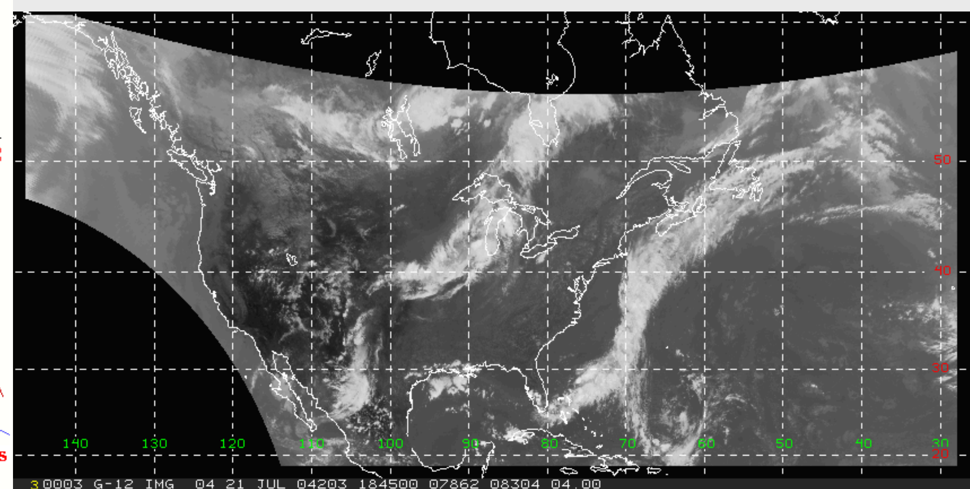


July 20



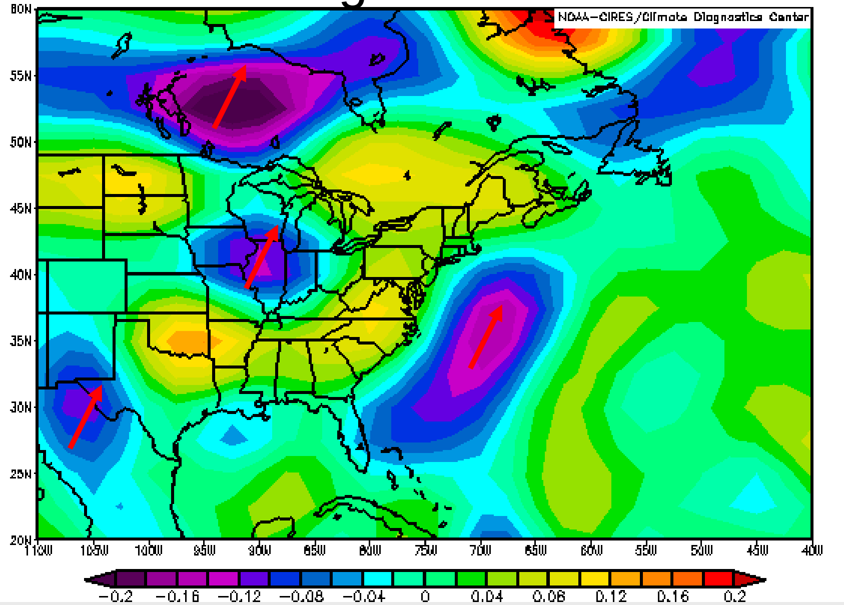


July 21

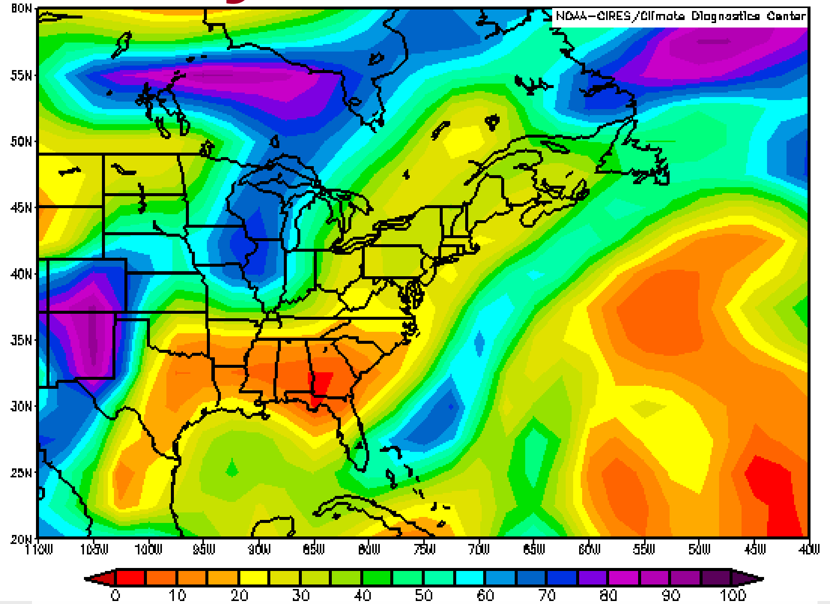


Focus on July 21

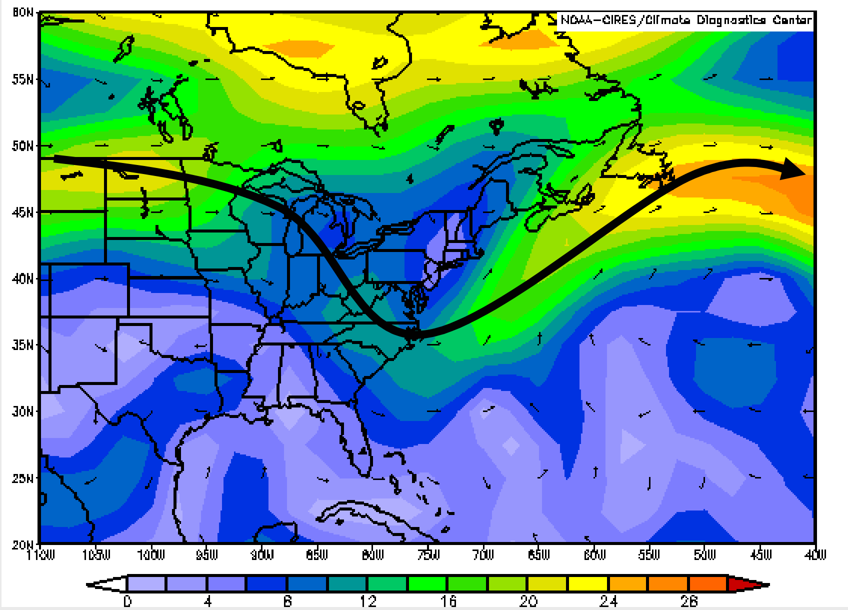
700 hPa Omega

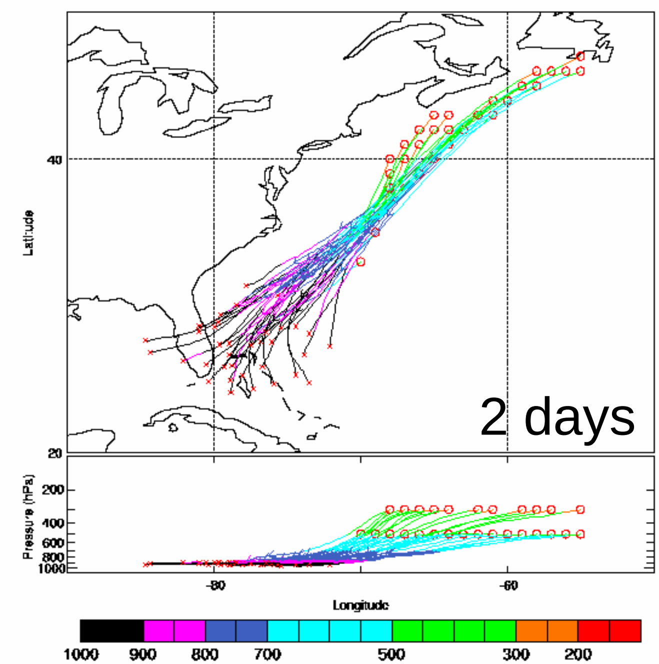


500 hPa RH



500 hPa Winds



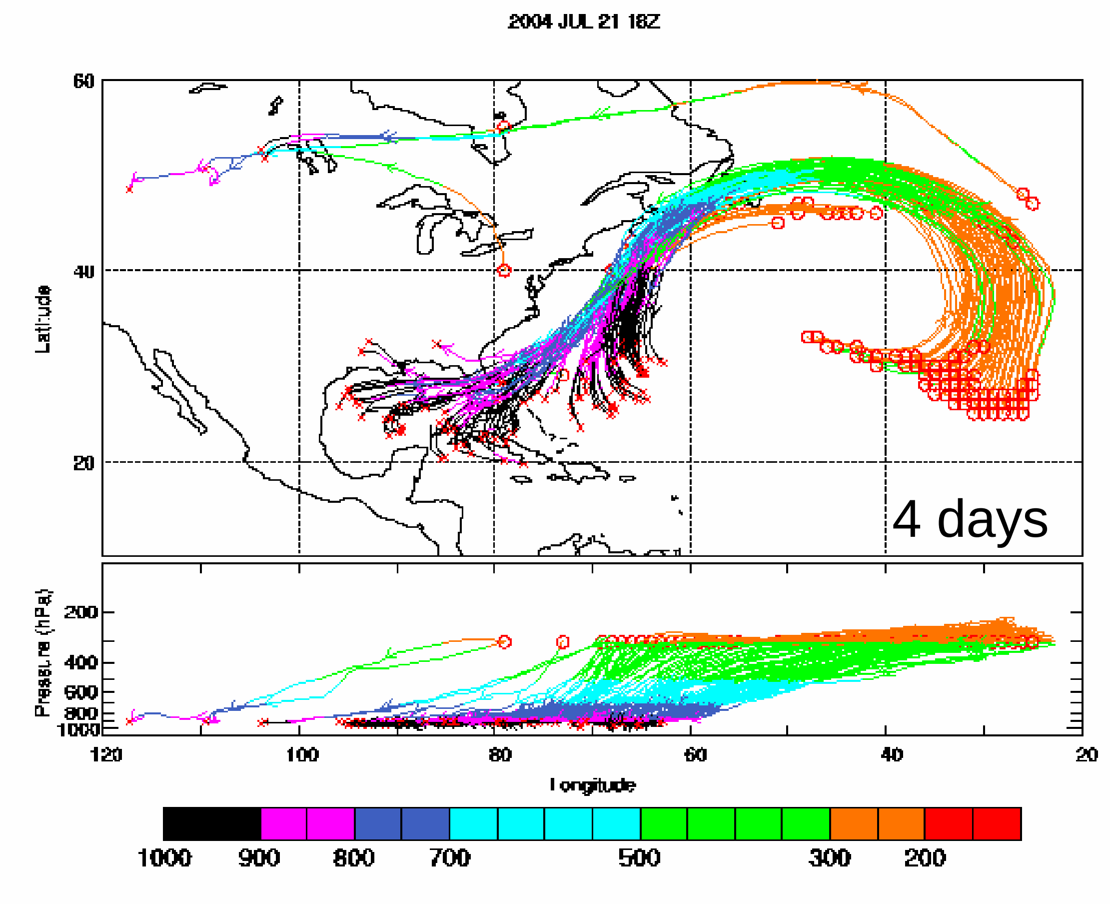


Focus on July 21

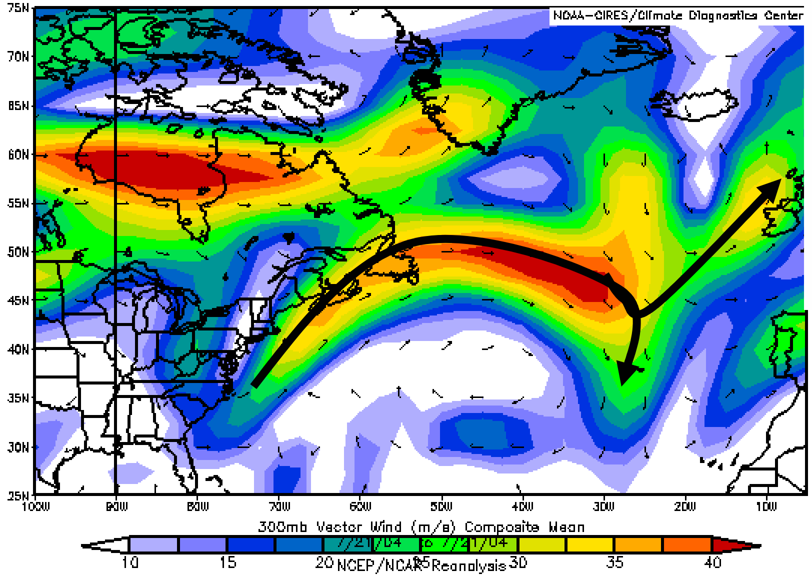
- Meets preliminary WCB criteria
- Will this WCB transport boundary layer air to Europe?

Focus on July 21

- Not exactly!

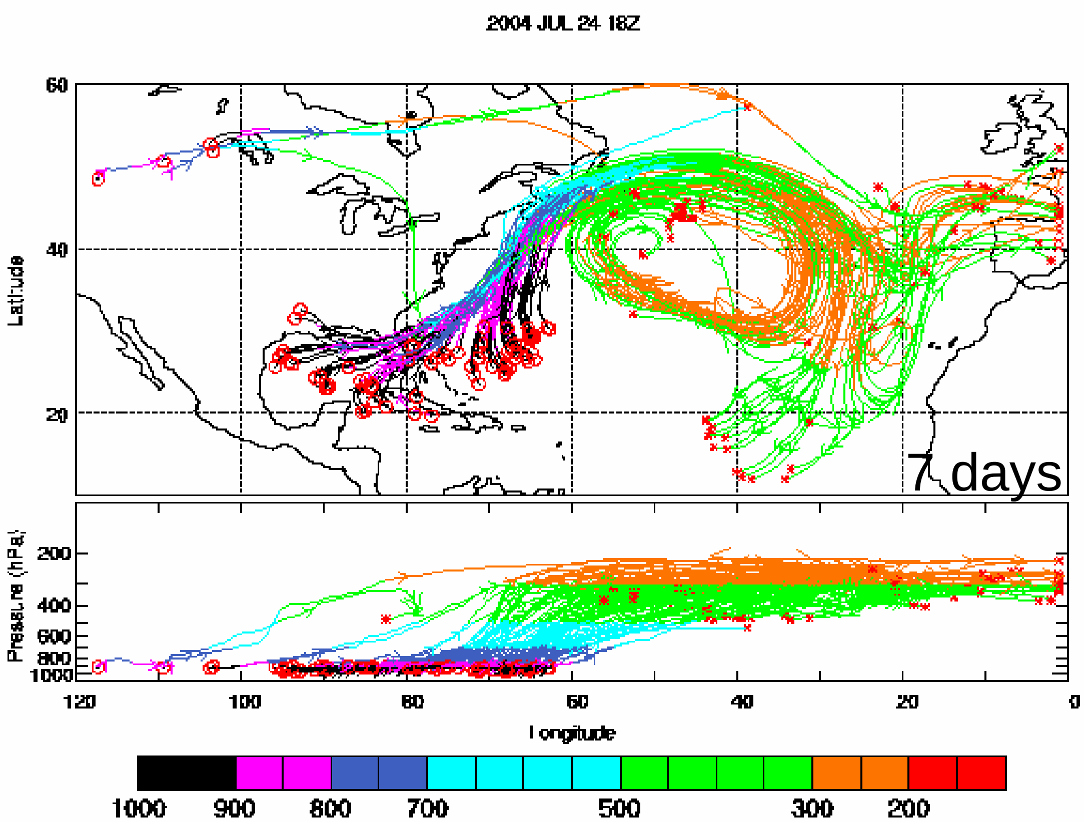


300 hPa Winds



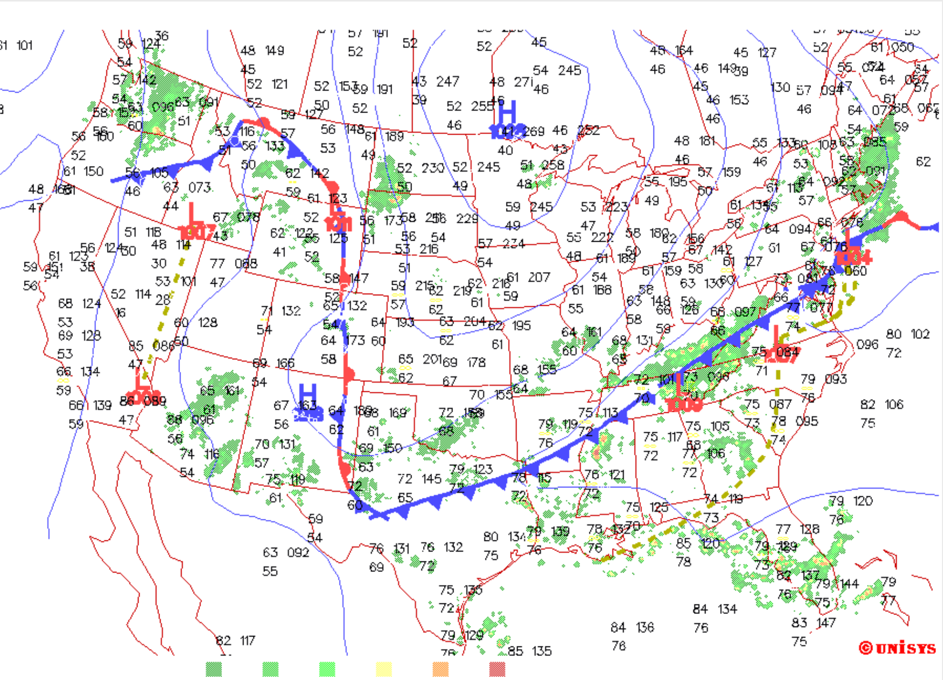
Focus on July 21

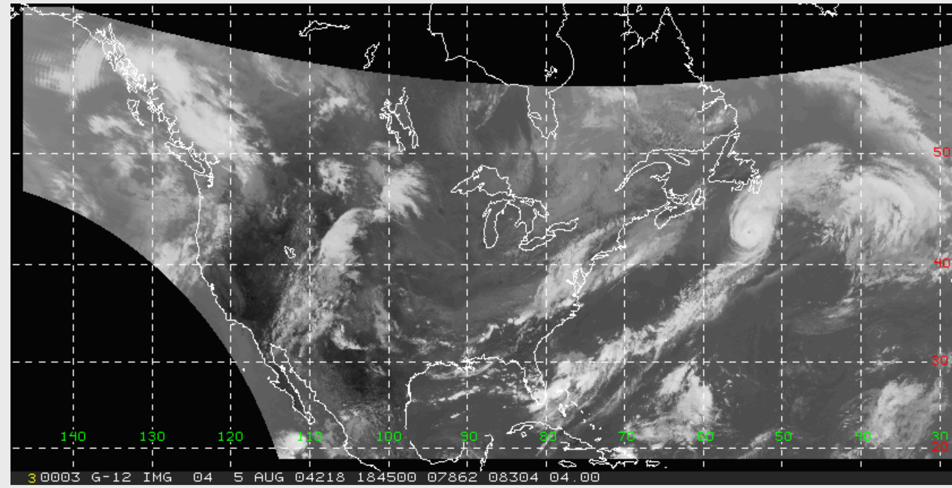
But,eventually!
3 days later



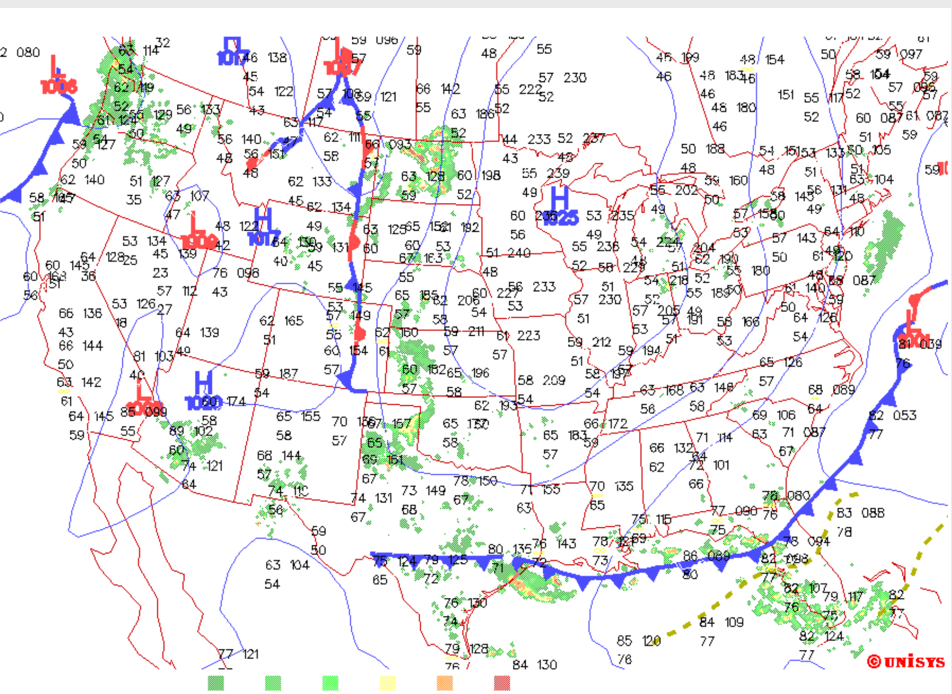
4 Day Case

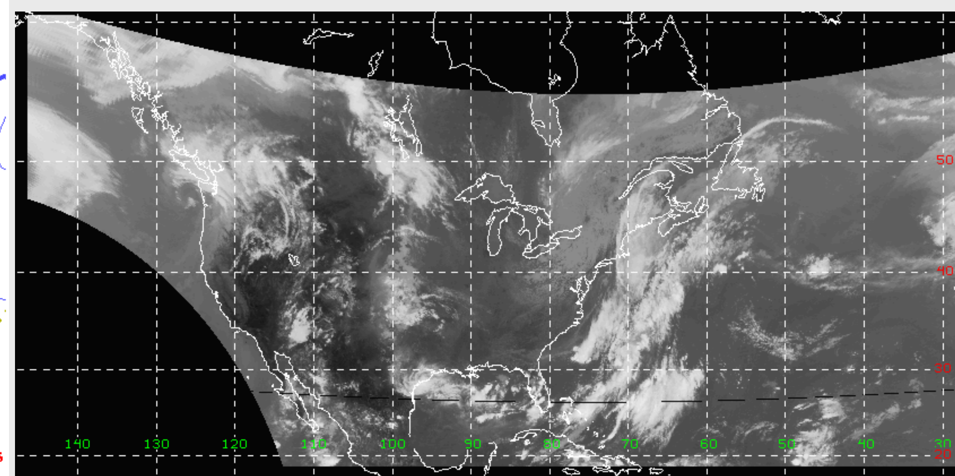
Aug 5

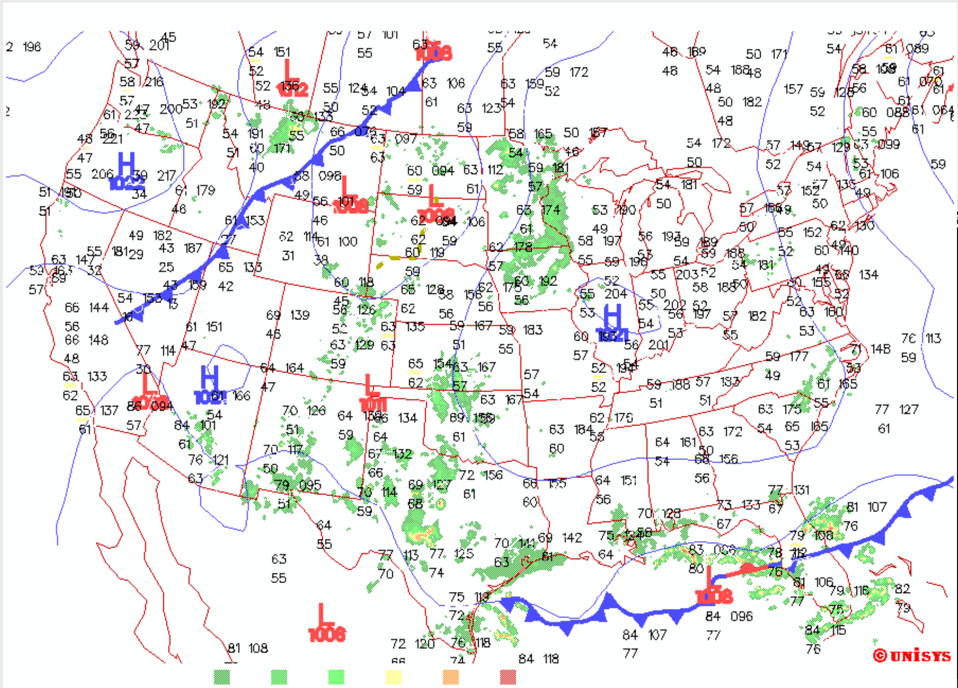




Aug 6



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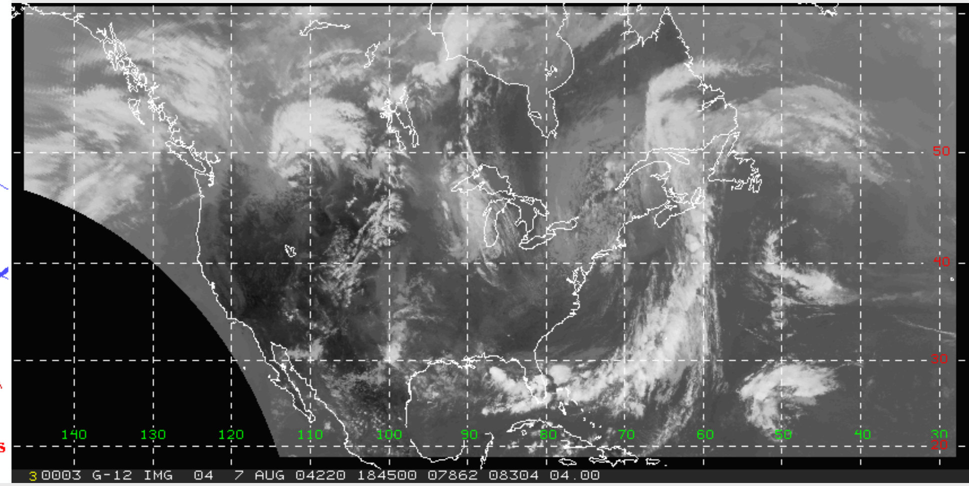
Aug 7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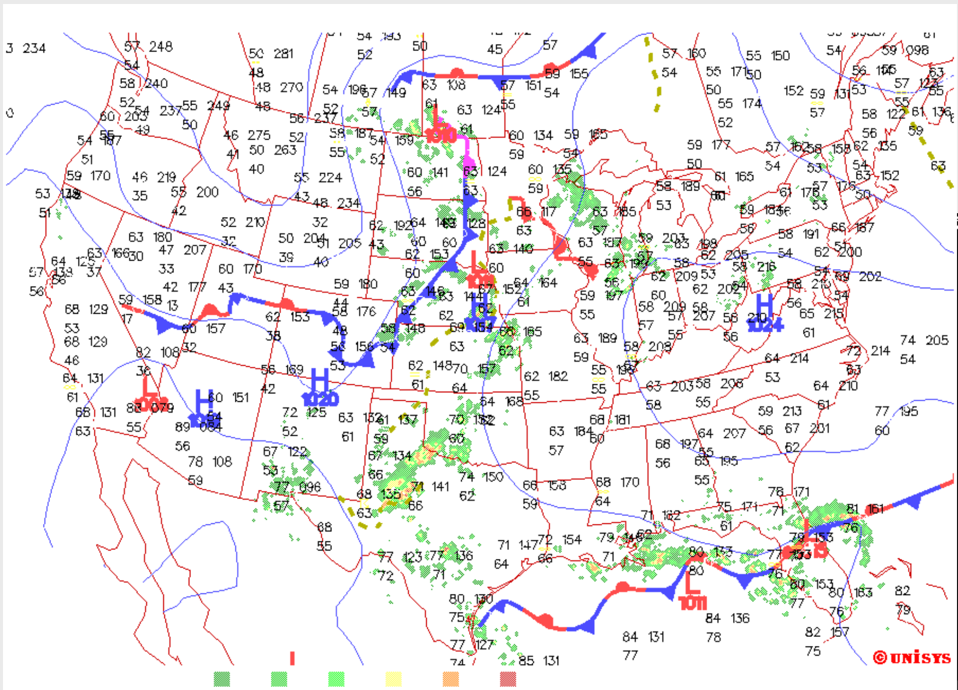
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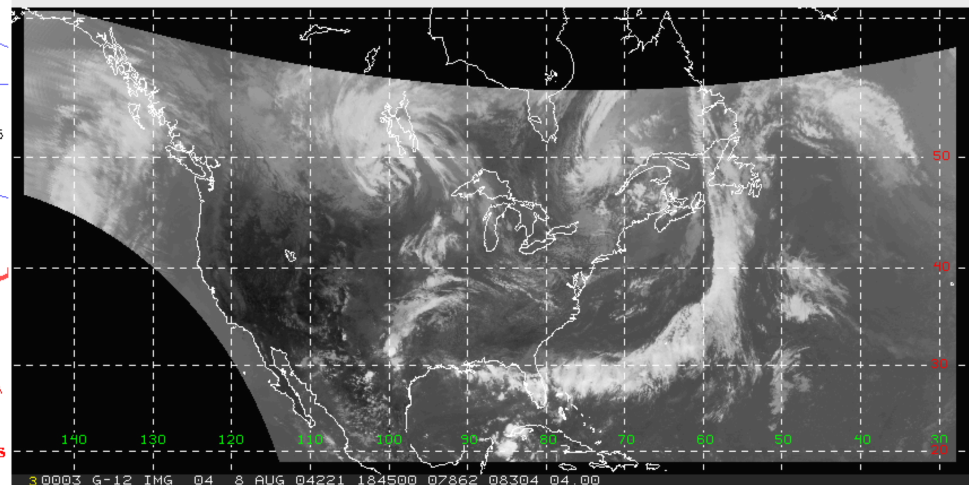
Aug 8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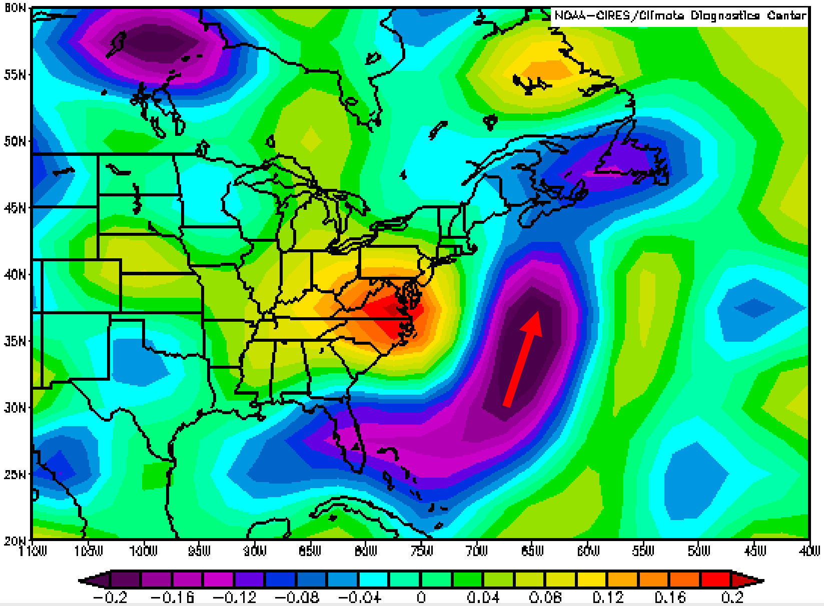
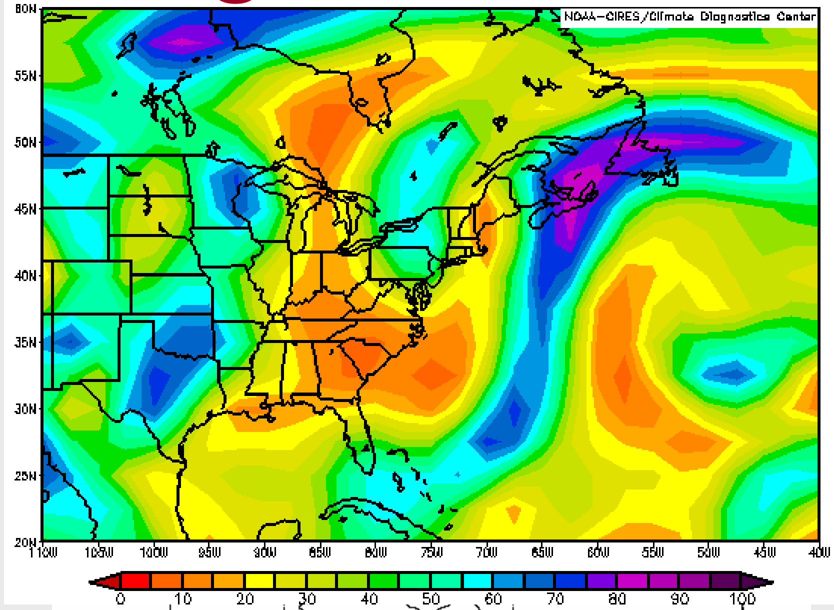
Focus on Aug 7

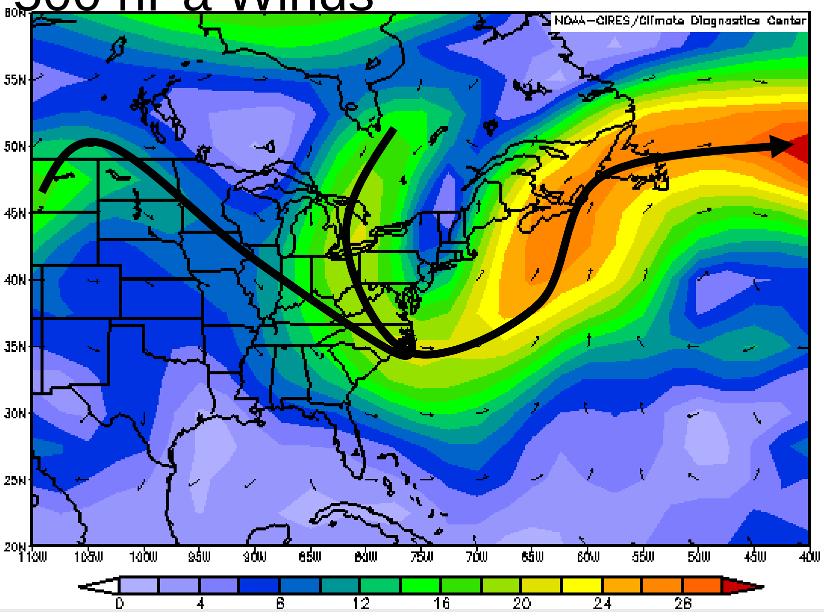
700 hPa Omega

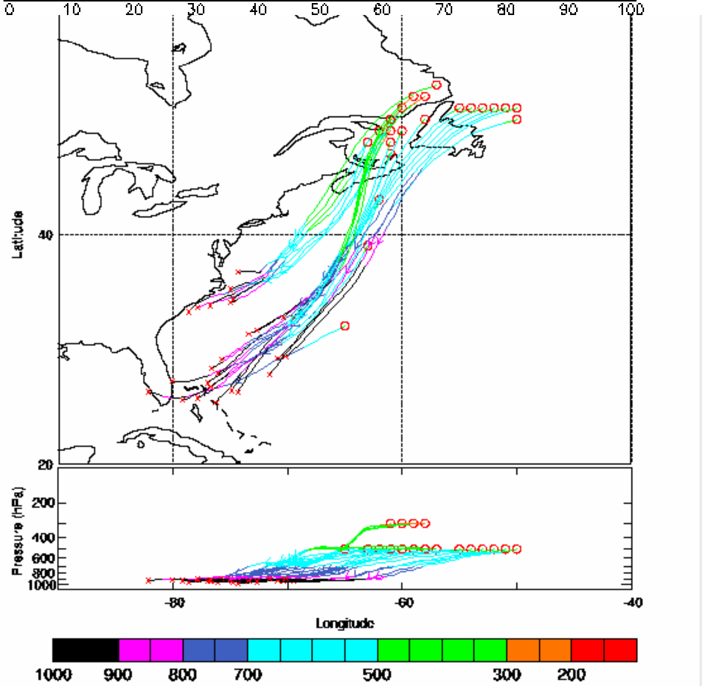


500 hPa RH



500 hPa Winds

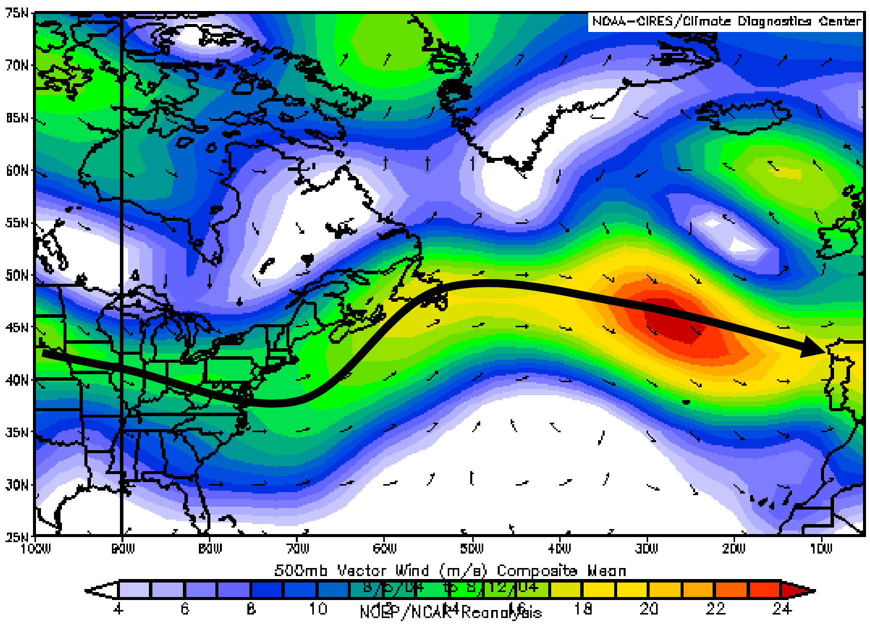


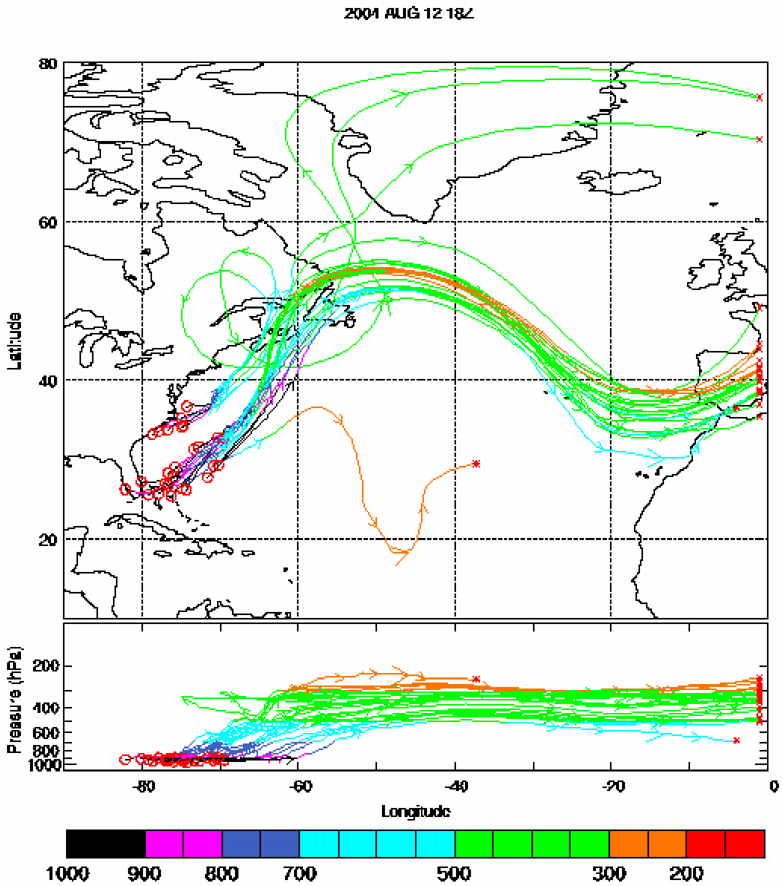


Focus on Aug 7

Boundary layer air transported in a direct path to Europe

500 hPa Winds





Concluding Thoughts

- Wave cyclones fairly common throughout INTEX period.
- No cyclones deeper than 1000 hPa. Classical definition based on much stronger lows.
- Initial analyses identify some airstreams resembling WCBs.
- Some southerly flows not WCBs.
- Look forward to collaborating with AIRS and STEM to more fully understand CO transport and its depiction by AIRS.