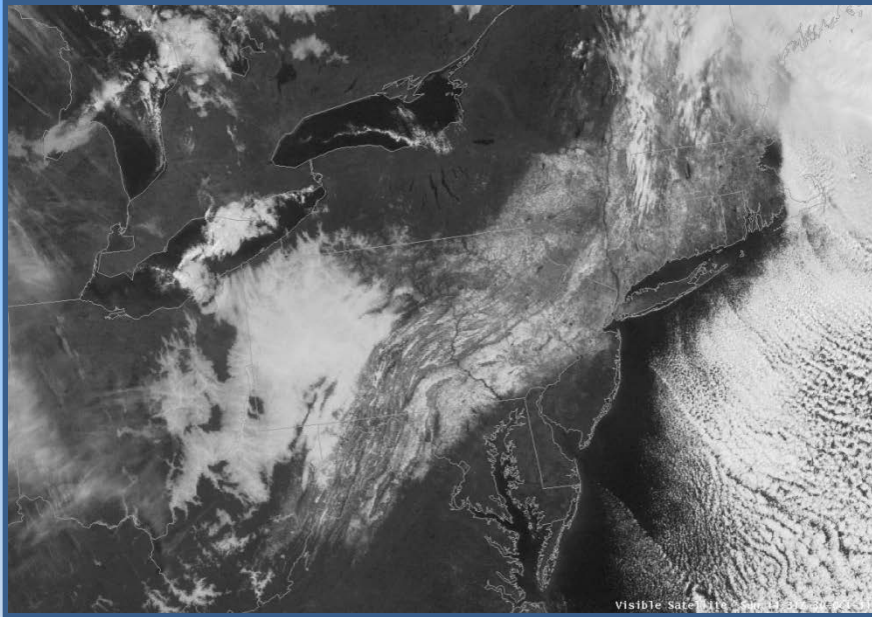


# ***“Snowtober” Overview***

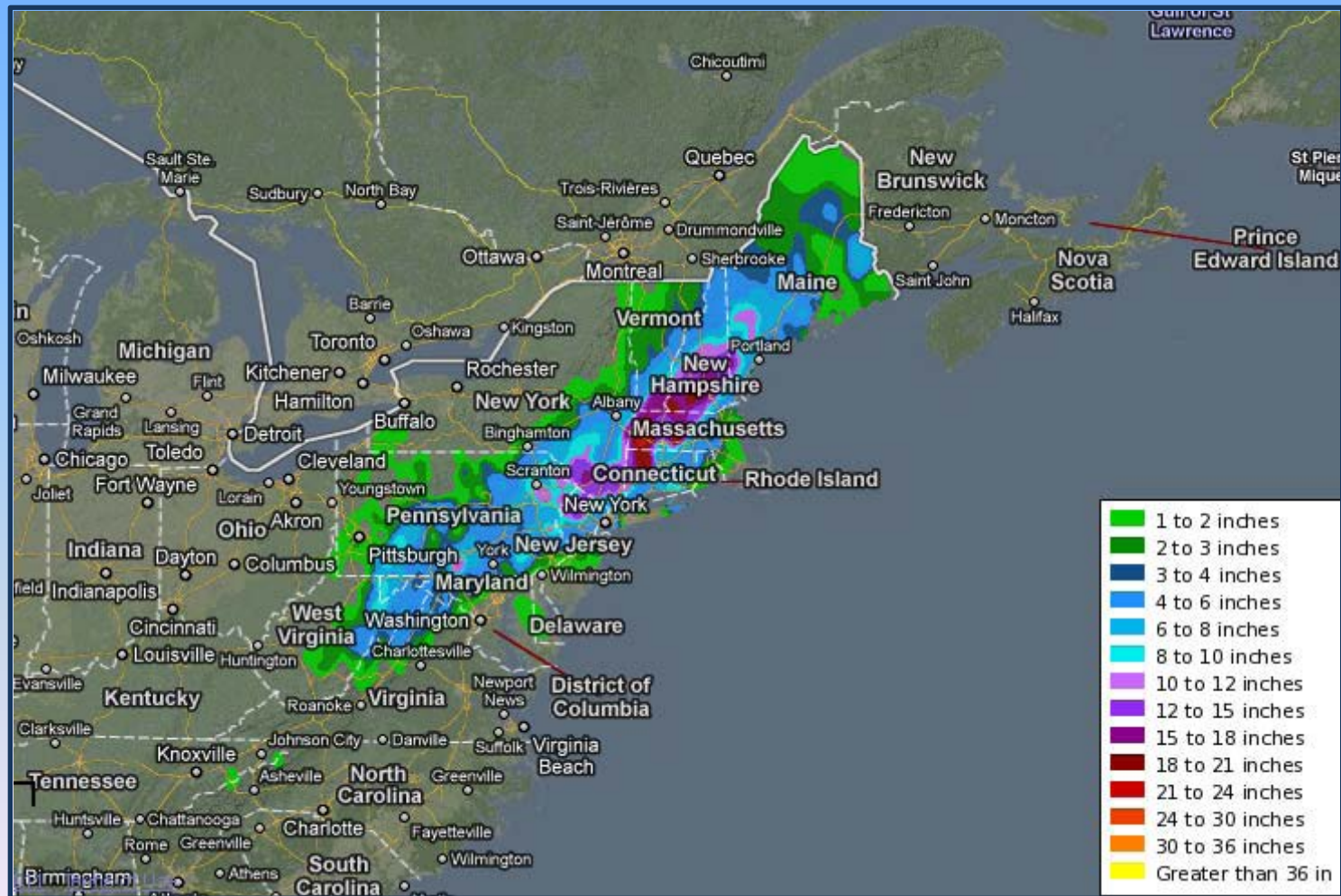
## ***October 29, 2011***



**Joe DelliCarpini**  
**Science and Operations Officer**  
**NOAA/NWS Taunton, MA**

# Observed Snowfall

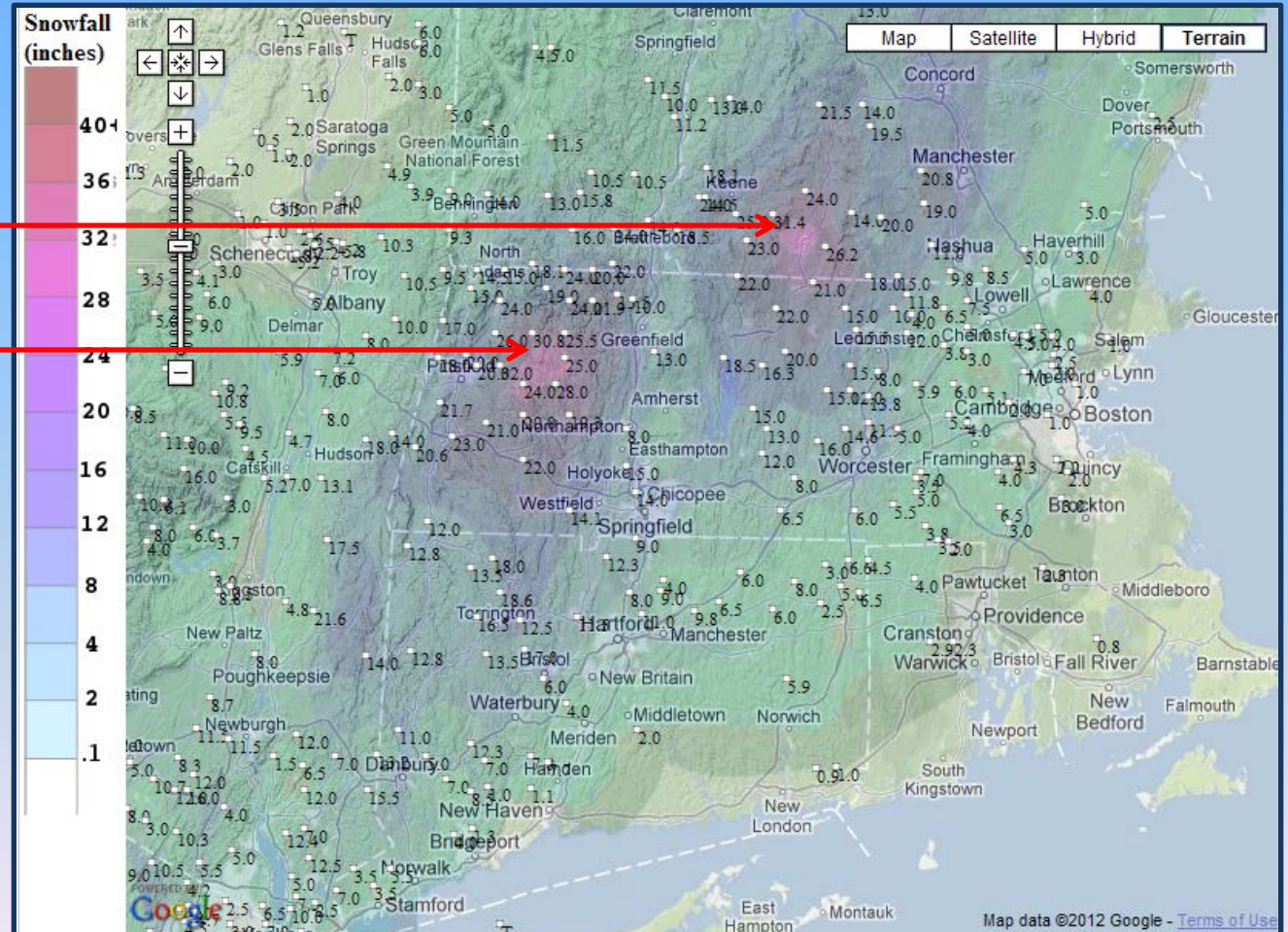
## October 29-30, 2011



# Observed Snowfall

## October 29, 2011

Maximum  
of 24-31  
inches



# Forecast Issues at NWS Taunton

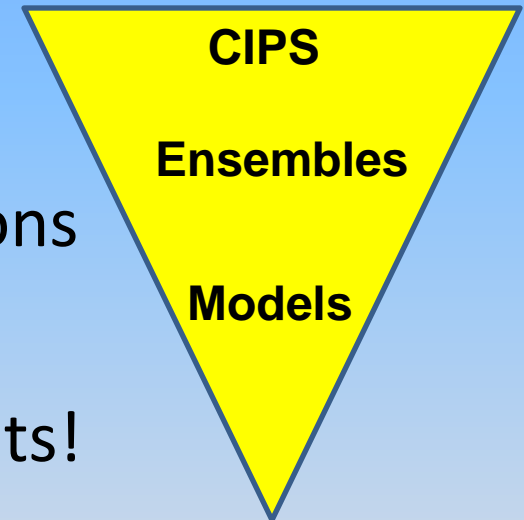
- ***Maximizing lead time to our partners***
  - EMs, utilities, airlines, etc.
- ***Consistency in snowfall forecasts***
  - Assessment of surface temperatures (melting)
  - Precipitation type near the coast (rain vs. snow)



# Maximizing Lead Time

- ***CIPS Winter Weather Analogs***
  - Can help couch expectations (36-72h)
- ***Ensembles***
  - Provide a window of possible solutions
  - Useful to convey uncertainty
  - Tend to “water down” extreme events!
- ***Deterministic Models***
  - ECMWF “locked in” Wed Oct 26 (hints as early as Mon)
  - GFS/NAM came on board Thu Oct 27
  - Near Term: Higher resolution models (mesoscale banding)

Forecast Funnel Approach



# Brief to Emergency Managers

Monday October 24, 2011 4:35 PM

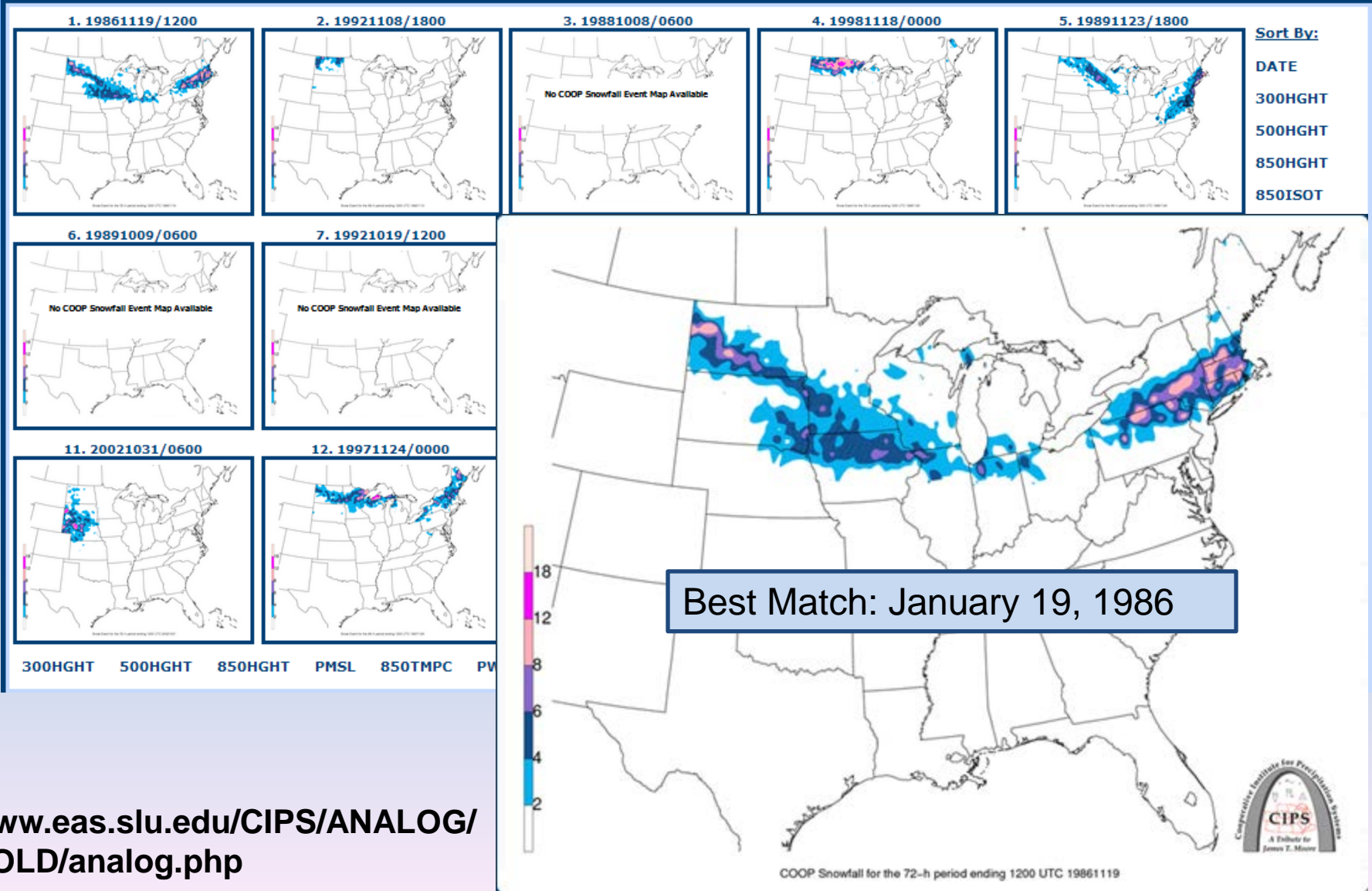
This is a very early heads up of the possibility of one or two significant winter weather and coastal impact events. One event may be centered about Thursday night, and another event may be centered about Saturday night. Confidence of such an anomalous event this far out is low for the Thursday night event and even lower for the Saturday night event. Nonetheless, due to the potential impact, we wanted to give you a very early heads up. If our confidence grows for the Thursday night, we may consider a Tuesday afternoon conference call.

There are three primary concerns with both potential events. One is the potential, albeit low at this time, of plowable snow across portions of northern Massachusetts and southwest New Hampshire with one or both systems. The second and even greater concern is the impact that several or more inches could have on trees (most still with considerable foliage) and power lines with again northern Massachusetts and southwest New Hampshire possibly at greatest risk. Third, we have high astronomical tides later this week through the weekend. We see a rather high probability of one or two episodes of minor coastal flooding and a low (but not negligible) probability of moderate or greater coastal flooding.

For now, we suggest that you simply stay aware of later weather forecasts and the NWS Hazardous Weather Outlooks. This is climatologically a very anomalous event, which by its very nature reduces our confidence level. If the threat appears to increase sufficiently over the next 24 hours, we will consider a conference call Tuesday afternoon.

# CIPS Analogs: 72h

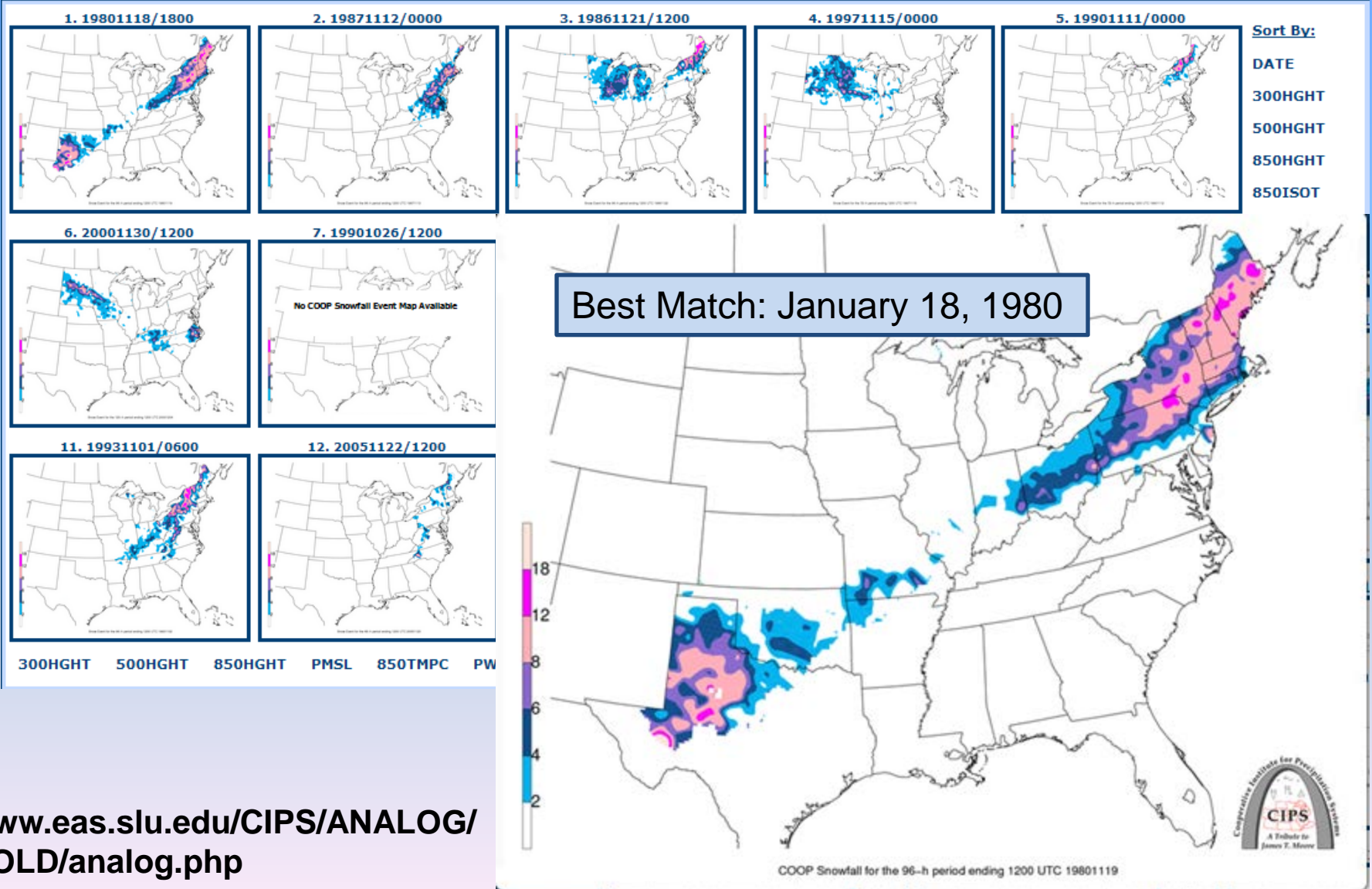
Analog Run: East Coast GFS212 20111027/0000F072



[www.eas.slu.edu/CIPS/ANALOG/COLD/analog.php](http://www.eas.slu.edu/CIPS/ANALOG/COLD/analog.php)

# CIPS Analogs: 36h

Analog Run: East Coast GFS212 20111028/1200F036

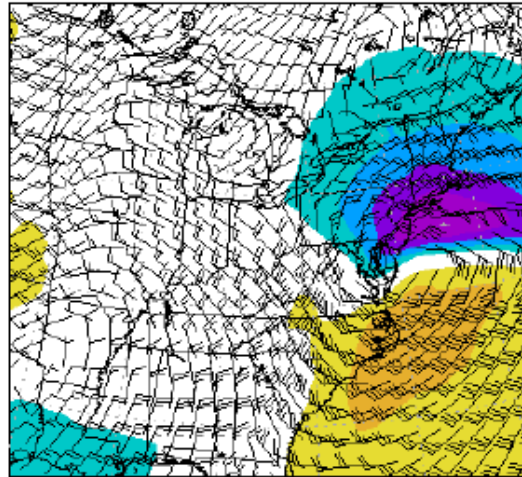


[www.eas.slu.edu/CIPS/ANALOG/COLD/analog.php](http://www.eas.slu.edu/CIPS/ANALOG/COLD/analog.php)

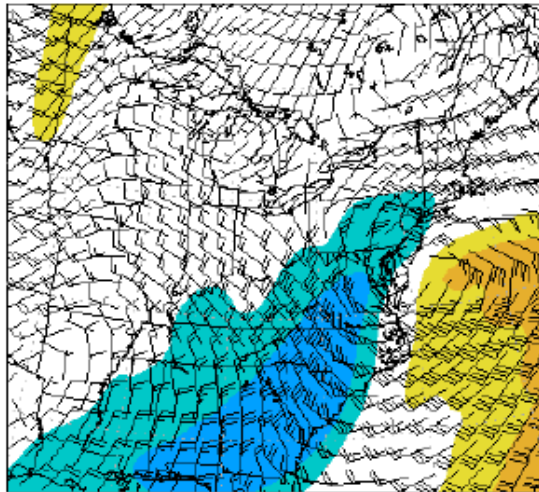


# SREF 850 MB Wind Anomalies

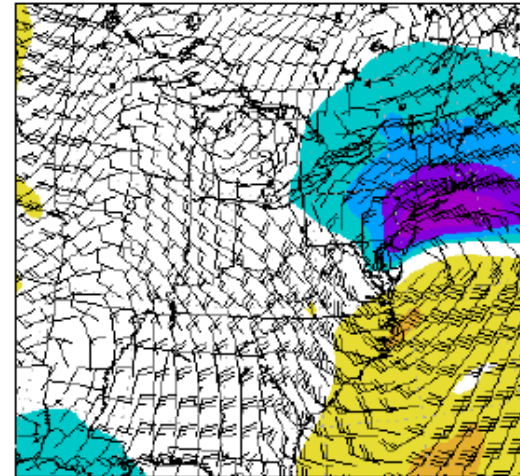
a. 09Z28OCT2011 SREF Valid 21Z29OCT2011(Sat)  
850hPa ugrd850mb



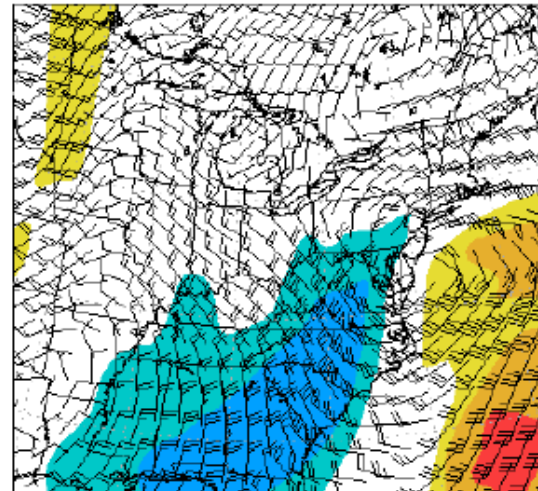
b. 09Z28OCT2011 SREF Valid 21Z29OCT2011(Sat)  
850hPa vgrd850mb



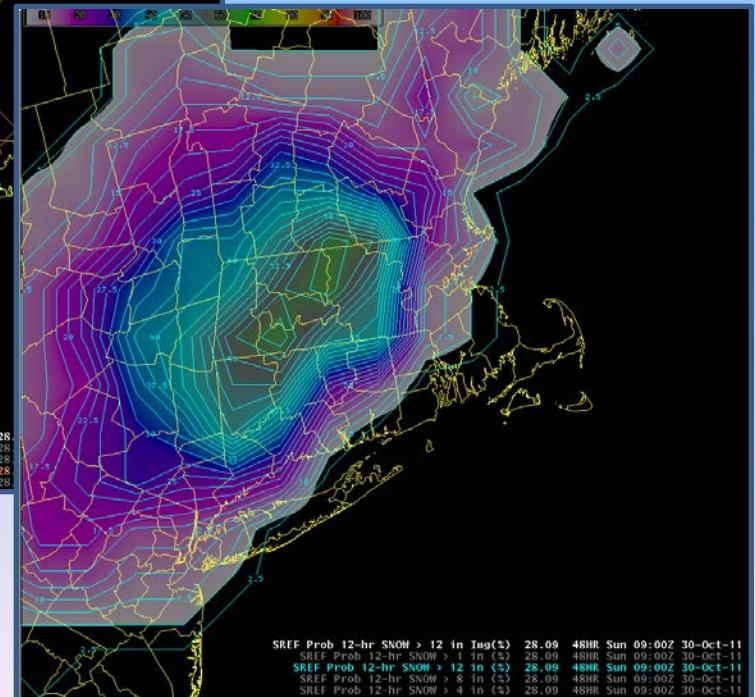
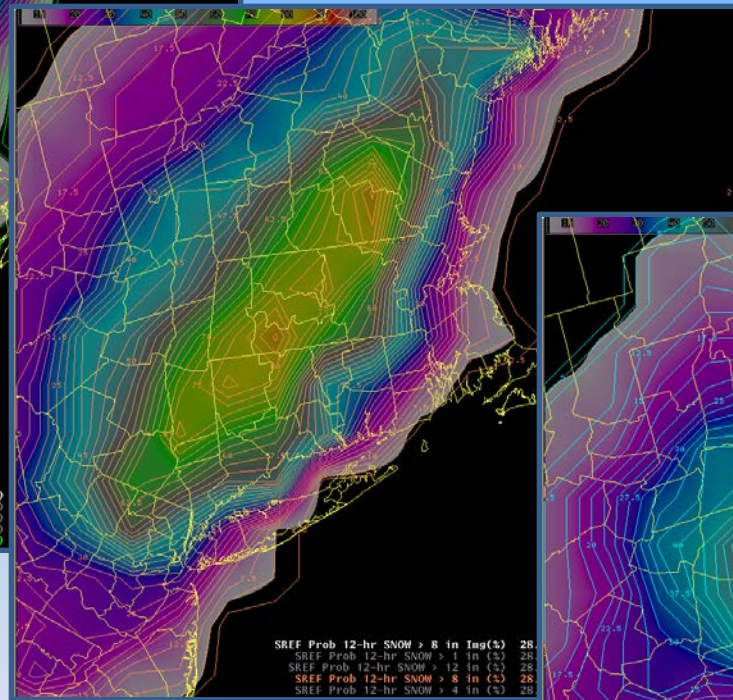
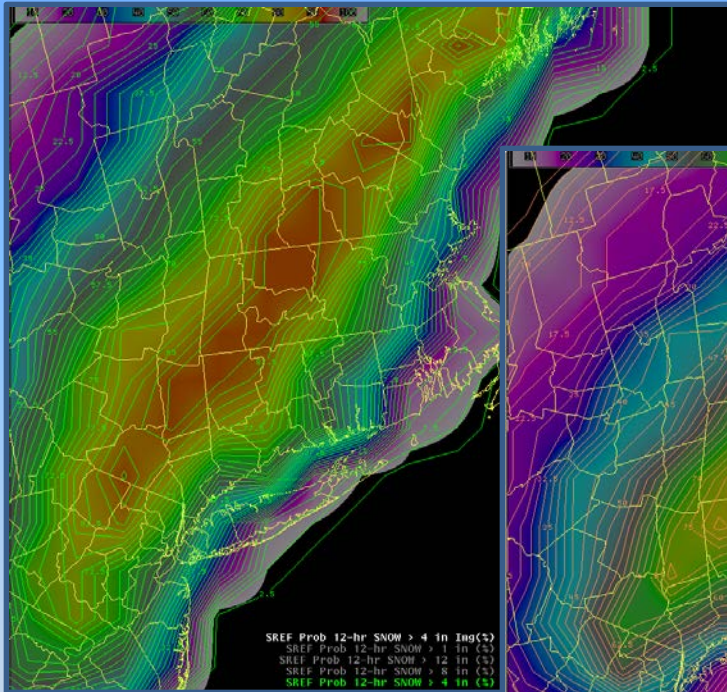
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b. 21Z28OCT2011 SREF Valid 21Z29OCT2011(Sat)  
850hPa vgrd850mb

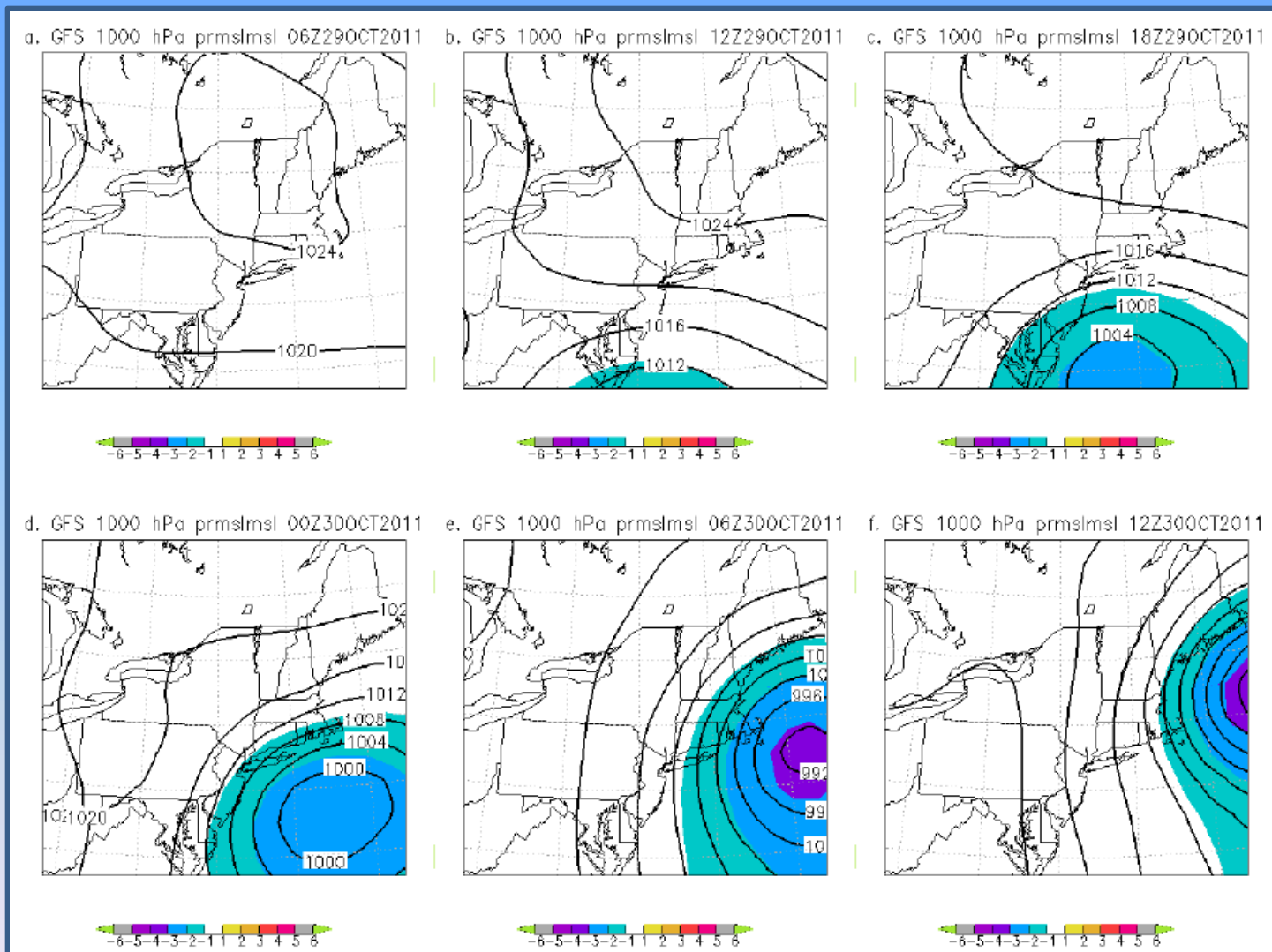


# SREF Snowfall Probabilities



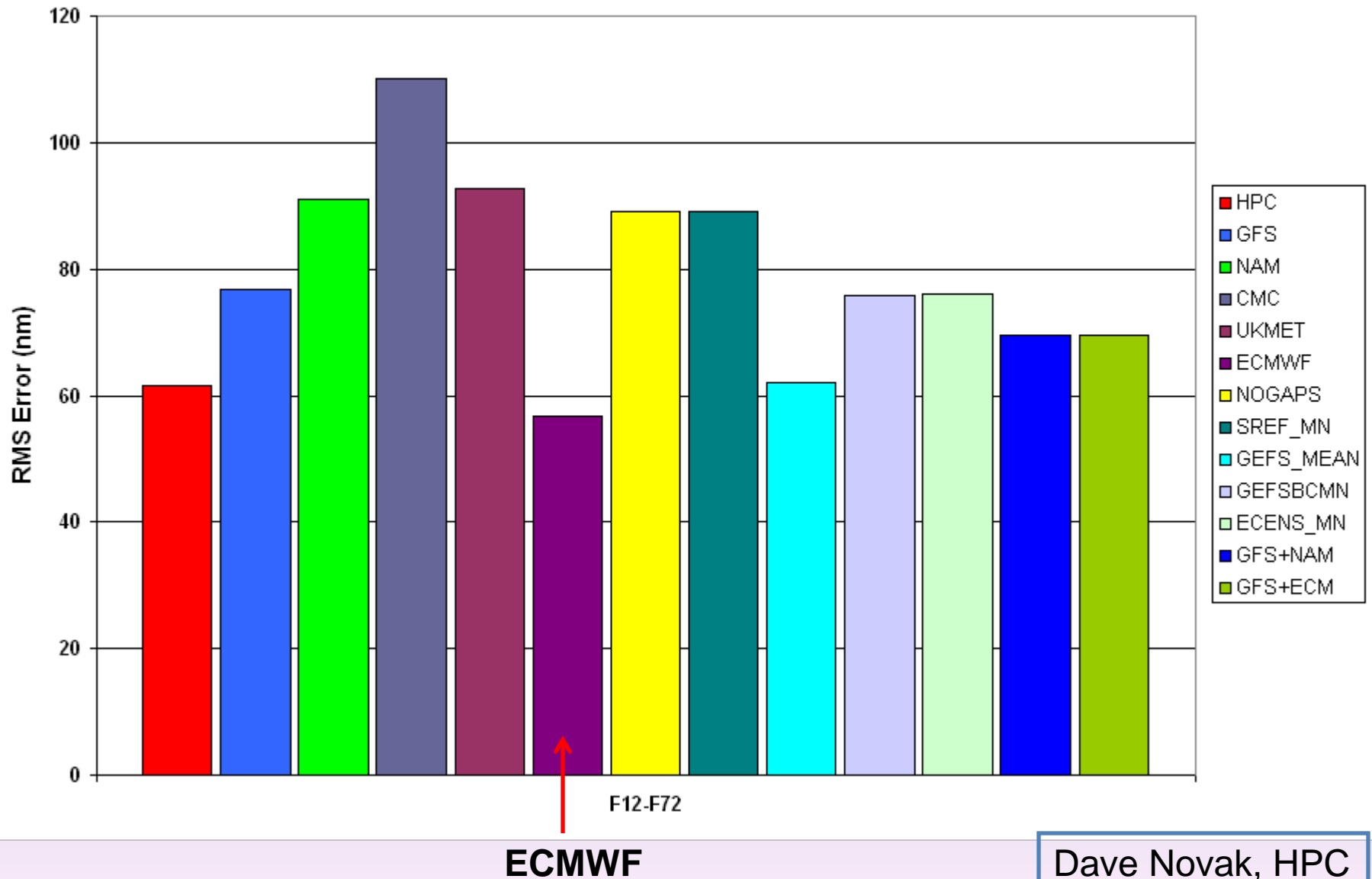
09Z Friday, October 28th

# GFS Sea Level Pressure and Anomaly



# HPC/Model Low Track Verification

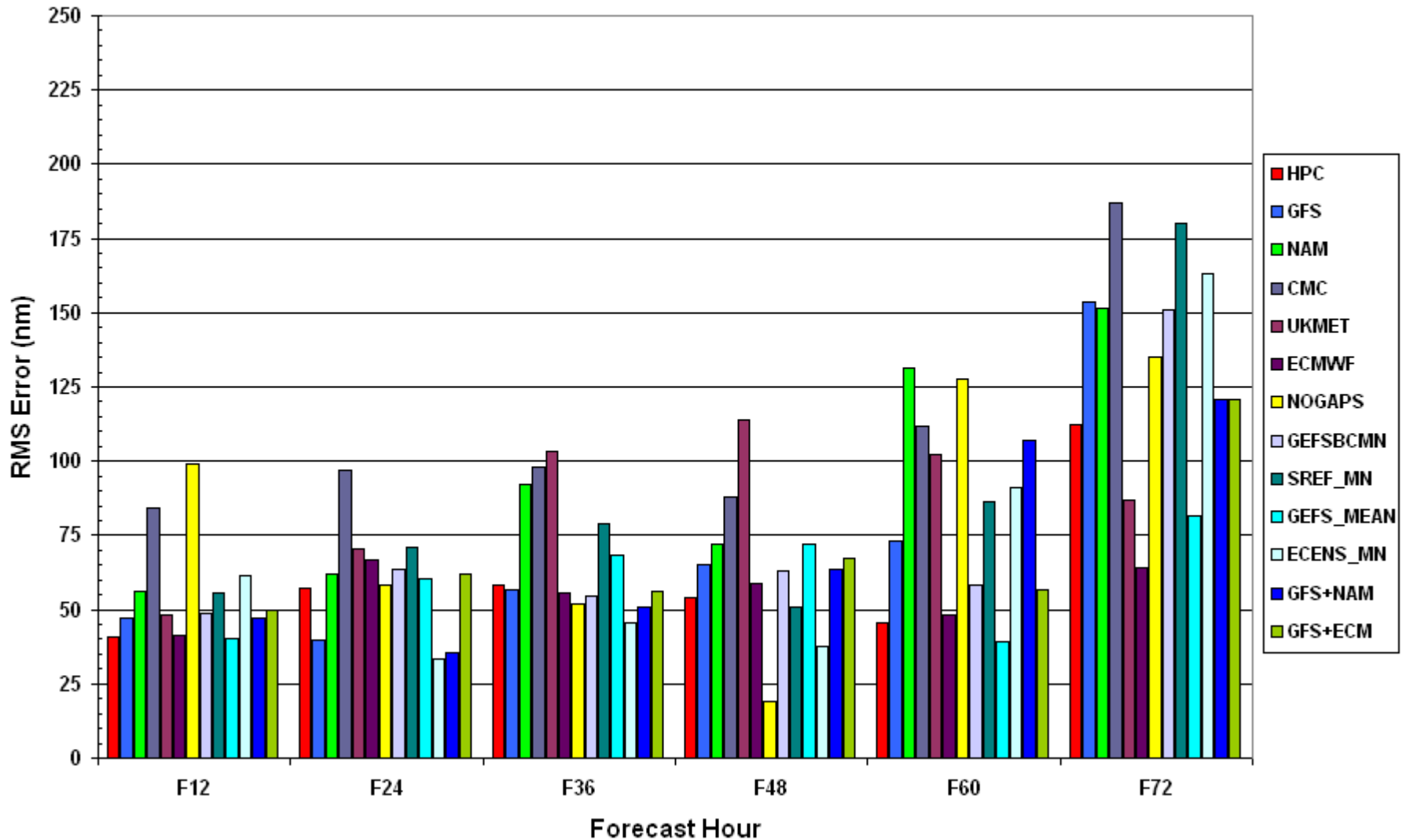
## Forecasts Valid for October 29 - October 30, 2011



Dave Novak, HPC

# HPC/Model Low Track Verification

## Forecasts Valid from Oct 29, 2011 00z to Oct 30, 2011 12z



Dave Novak, HPC

# Issue with Model Guidance

**Wet bulb cooling  
affects precipitation  
type!**

```

FOUS21 KBDL 280000
DKBDL GFS MOS GUIDANCE 10/28/2011 0000 UTC
DT /OCT 28 /OCT 29 /OCT 30 /
HR 06 09 12 15 18 21 00 03 06 09 12 15 18 21 00 03 06 09 12 18 00
X/N 50 34 41 30 43
TMP 34 31 31 41 48 47 39 36 36 37 37 38 39 39 36 36 35 34 33 42 36
DPT 30 27 25 24 22 21 22 22 24 25 26 25 28 31 32 30 29 28 27 28 27
CLD BK CL CL FW FW FW FW BK OV OV OV OV OV OV OV OV OV SC FW CL
WDR 34 34 33 34 33 32 33 36 01 02 01 02 04 02 01 35 34 34 33 32 31
WSP 07 05 05 08 08 07 03 02 03 04 06 11 11 14 16 15 17 12 10 15 07
P06 0 0 0 2 7 57 93 88 34 5 0
P12 0 8 93 91 7
Q06 0 0 0 2 5 2 0 0 0
Q12 0 0 5 3 0
T06 0/ 1 0/13 0/ 0 0/ 7 0/ 5 4/ 4 4/13 3/ 1 0/ 3 0/ 9
T12 0/13 0/11 4/ 7 8/16 0/10
POZ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 2
POS 68 72 67 66 17 42 41 38 42 71 62 26 29 33 73 61 76 77 78 56 65
TYP S S S S R R R R R S S R R R S S S S S S S
SNW 0 0
CIG 7 8 8 8 8 8 8 8 8 7 7 6 4 3 3 4 5 6 7 8 8
VIS 7 7 7 7 7 7 7 7 7 7 7 7 2 2 4 5 7 7 7 7 7
OBV N N N N N N N N N N N N FG BR BR BR N N N N N
    
```

**GFS MOS for Bradley Intl Airport, CT  
00Z October 28**

# Consistent Snowfall Forecasts

**BOX\_Wx\_Tool Values**

Probability Term	Character	Trace Precip
<input checked="" type="checkbox"/> Uncertainty	<input checked="" type="checkbox"/> Stratiform	<input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/> Coverage	<input checked="" type="checkbox"/> Showery	<input checked="" type="checkbox"/> Yes

All Liquid	Mix Prob 2	Mix Prob 3	Conjunction	Duration
<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Same	<input checked="" type="checkbox"/> Same	<input checked="" type="checkbox"/> And	<input checked="" type="checkbox"/> Def
<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> 1 Cat less	<input checked="" type="checkbox"/> 1 Cat less		<input checked="" type="checkbox"/> Ocnl
	<input checked="" type="checkbox"/> 2 Cat less	<input checked="" type="checkbox"/> 2 Cat less		<input checked="" type="checkbox"/> Frq
				<input checked="" type="checkbox"/> Brf

Thunder

No

Yes

Enter sky cover

Enter minimum

\*\*\*\*\*

Enter maximum

\*\*\*\*\*

Enter minimum

Enter maximum

Enter minimum

Enter minimum

Enter maximum

Enter minimum

Enter minimum

\*\*\*\*\* T Intensity Indices \*\*\*\*\*

Enter maximum BRN for T+: 45.0

Enter minimum BRN Shear for T+: 300.0

Enter minimum CAPE for T+: 1500.0

Enter minimum EHI for T+: 2.0

Enter minimum SWEAT for T+: 300.0

Run Run/Dismiss Cancel

**BOX\_SnowAmt\_Tool Values**

Enter temperature for no S/IP accumulation:

34

Ratio at 31.0

10.0

Ratio at 23.5

14

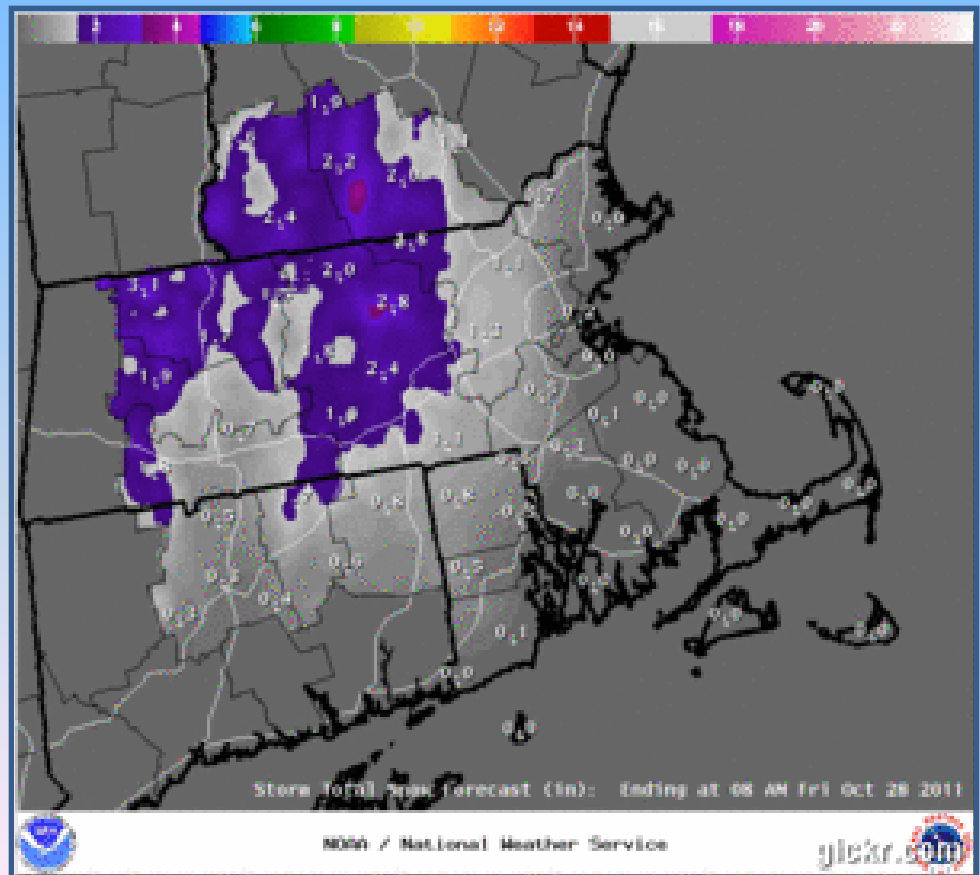
Ratio at 17.0

15

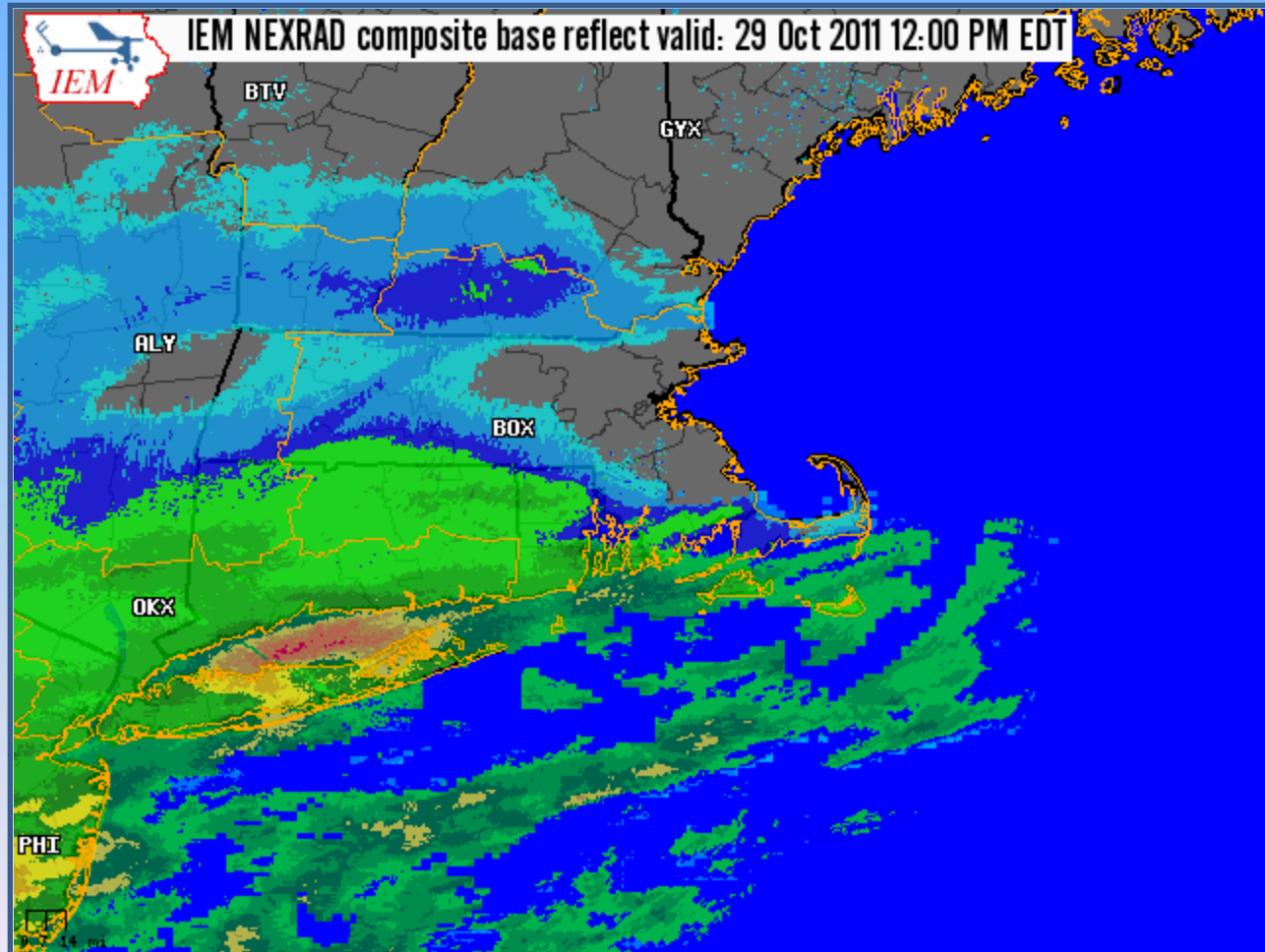
Ratio at 12.0

20

Ok Cancel



# Mesoscale Banding: *Where Does It Set Up?*





# Aviation Forecasts

```
FTUS41 KBOX 291100
TAFBDL
TAF
KBDL 291120Z 2912/3018 02007KT P6SM OVC100
FM291500 03010KT P6SM OVC070
FM291800 03010G18KT 2SM RA BR OVC020
FM292200 02014G22KT 3/4SM -SN BR OVC010
FM300000 01015G25KT 2SM -SN BR OVC008
FM300300 36019G33KT 1SM -SN OVC008
FM300600 34020G34KT 2SM -SN BR OVC010 WS020/35050KT
FM301100 33016G31KT P6SM OVC050=
```

**Timing of onset was reasonable at BDL.**

**Forecast changeover was too slow - conditions lowered to LIFR much sooner than forecast**

```
SPECI KBDL 291648Z 01007G16KT 7SM BKN029 OVC042 03/M03 A3010 RMK AO2=
METAR KBDL 291651Z 02009KT 5SM -SNRA BKN020 OVC035 03/M03 A3010 RMK AO2
SPECI KBDL 291701Z 01009KT 2SM -SNRA SCT012 OVC020 03/M02 A3011 RMK AO2
SPECI KBDL 291707Z 02011KT 1SM -SN FEW008 BKN012 OVC020 02/M02 A3010 RMK
SPECI KBDL 291732Z 01009KT 1SM R06/5500VP6000FT -SN BR BKN007 OVC010
SPECI KBDL 291740Z 01009KT 1/4SM R06/4000VP6000FT SN FG VV006 01/M01
SPECI KBDL 291747Z 01008KT 1/4SM R06/3500V5500FT SN FG BKN003 OVC007
METAR KBDL 291751Z 02009KT 1/4SM R06/3000V4500FT SN FG BKN003 OVC007
METAR KBDL 291851Z 35008KT 1/4SM R06/4000V6000FT SN FG OVC003 01/M01
METAR KBDL 291951Z 01013KT 1/4SM R06/3500V5500FT SN FG OVC003 01/M01
METAR KBDL 292051Z 36012KT 1/4SM R06/3500V5500FT +SN FG OVC003 01/M01
SPECI KBDL 292129Z 1/4SM R06/4500VP6000FT 01/M01 A2995 RMK AO2 SNEMM
METAR KBDL 292151Z COR 02014G22KT 1/4SM SN+ FG OVC003 01/00 A2994=
METAR KBDL 292151Z 1/4SM A2994 RMK AO2 SNEMM SLPNO P0008 PWINO FZRANO
METAR KBDL 292251Z 1/4SM R06/4000V6000FT A2992 RMK AO2 SLPNO PWINO
METAR KBDL 292351Z 1/4SM A2988 RMK AO2 SLPNO 6//// 58028 PWINO FZRANO
METAR KBDL 300051Z 1/4SM A2984 RMK AO2 PRESFR SLPNO PWINO FZRANO RVRNO
METAR KBDL 300151Z 1/4SM A2987 RMK AO2 SLPNO PWINO FZRANO RVRNO PNO
METAR KBDL 300251Z COR 35012G22KT 1/4SM +SN FG VV002 00/M01 A2982=
METAR KBDL 300251Z 1/4SM A2987 RMK AO2 SLPNO 6//// 56003 PWINO FZRANO
METAR KBDL 300351Z 1/4SM A2986 RMK AO2 SLPNO PWINO FZRANO RVRNO PNO
METAR KBDL 300351Z COR 35016G27KT 1/4SM +SN FG VV002 00/M01 A2986=
METAR KBDL 300451Z 1/4SM A2983 RMK AO2 SLPNO PWINO FZRANO RVRNO PNO
METAR KBDL 300551Z 1/4SM A2984 RMK AO2 SLPNO 6//// 55010 PWINO FZRANO
```

# Aviation Forecasts

```
FTUS41 KBOX 291100
TAFBOS
TAF
KBOX 291120Z 2912/3018 36006KT P6SM BKN110
FM291500 07014KT P6SM OVC060
FM291900 05017KT 3SM -RA OVC025
FM300000 03018G26KT 2SM RA BR OVC015
FM300300 03029G38KT 1SM RASN BR OVC010
FM300500 01026G38KT 1SM RASN BR OVC008 WS020/03055KT
FM301100 32023G39KT 5SM -SN BR OVC020 WS020/35055KT
FM301300 32023G40KT 5SM -RASN OVC025=
```

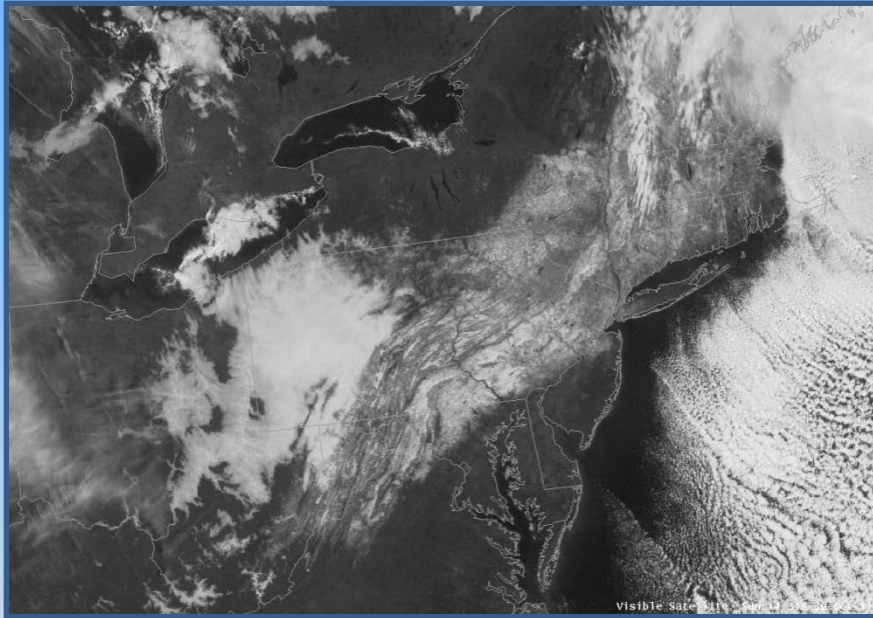
**Timing of onset was reasonable at BOS.**

**Forecast changeover was also too slow - conditions lowered to LIFR much sooner than forecast**

```
METAR KBOX 291654Z 06016G23KT 10SM BKN040 OVC055 09/01 A3010 RMK AO2
METAR KBOX 291754Z 06018G24KT 7SM -RA BKN033 OVC043 08/02 A3009 RMK AO2
SPECI KBOX 291809Z 05020G29KT 3SM RA BKN022 OVC030 07/02 A3006 RMK AO2
SPECI KBOX 291813Z 07016G29KT 2SM R04R/6000VP6000FT RA BKN018 OVC030
SPECI KBOX 291843Z 05016G24KT 3SM R04R/5000VP6000FT -RA BKN018 OVC030
METAR KBOX 291854Z 06017G27KT 3SM -RA BKN018 OVC030 07/02 A3002 RMK AO2
METAR KBOX 291954Z 04024G29KT 2 1/2SM RA OVC021 06/02 A3002 RMK AO2 PK
SPECI KBOX 292037Z 04025G29KT 2 1/2SM RA OVC013 04/02 A2998 RMK AO2 PK
METAR KBOX 292054Z 03023G33KT 2 1/2SM -RA OVC012 04/02 A2998 RMK AO2 PK
SPECI KBOX 292109Z 03019G31KT 4SM RA BR OVC012 04/02 A3002 RMK AO2 PK
METAR KBOX 292154Z 03021G31KT 3SM RA BR BKN008 OVC014 04/02 A2997 RMK
METAR KBOX 292254Z 02019G25KT 3SM RASN BR OVC008 03/01 A2995 RMK AO2 PK
METAR KBOX 292354Z 02019G26KT 4SM -SNRA BR BKN006 OVC011 03/01 A2989 RMK
METAR KBOX 300054Z 01021G27KT 3SM -RASN BR SCT007 OVC012 03/02 A2985 RMK
SPECI KBOX 300147Z 36019G30KT 2SM -SNRA BR BKN007 OVC011 02/01 A2979 RMK
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METAR KBOX 300354Z 01022G29KT 1/2SM -SN BR BKN007 OVC013 01/01 A2974 RMK
SPECI KBOX 300446Z 35020G29KT 1/2SM -SN BR OVC012 02/01 A2973 RMK AO2 PK
METAR KBOX 300454Z 35020G28KT 1/2SM -SN BR OVC012 02/01 A2973 RMK AO2 PK
SPECI KBOX 300524Z 35021G27KT 1/2SM -SN BR SCT008 BKN014 OVC020 02/01
SPECI KBOX 300534Z 35021G29KT 1/2SM -SN BR BKN008 OVC015 02/01 A2970 RMK
SPECI KBOX 300545Z 34020G33KT 1 1/2SM -SN BR BKN008 OVC015 02/01 A2968
SPECI KBOX 300552Z 35021G29KT 1 1/2SM -SN BR BKN010 OVC017 02/01 A2968
METAR KBOX 300554Z 35019G29KT 1 1/2SM -SN BR BKN010 OVC015 02/01 A2969
```

# ***“Snowtober” Overview***

## ***October 29, 2011***



**Questions ?**