



Environnement
Canada

Environment
Canada

CCFP

COLLABORATIVE CONVECTIVE FORECAST PRODUCT

TRAINING

SPRING 2005

Course Objectives

- **Overview of CCFP**
- **Identify the upcoming changes for 2005 convective season**
- **Identify strengths and weaknesses, and what the product can and can not do**
- **Address misconceptions and issues encountered in past convective seasons with the product**
- **Review two case studies**

Purpose & Overview of CCFP

- **The purpose of the CCFP is to support strategic, system-wide planning that is intended to reduce traffic flow disruptions that may be impacted by convective weather during the next 2-6 hours.**
- **Weather related delays are a highly disruptive force within Air Traffic Control (ATC) systems**

Purpose & Overview, cont.

- **CCFP attempts to reduce weather-related impacts by creating a common situational awareness and improving coordination and cooperation among participants**
- **CCFP has been embraced by the FAA and US airline industry as the cornerstone of severe weather planning for US Airspace operations**

CCFP Background

- **The 2005 convective season will be the start of the 5th operational CCFP**
- **CCFP is developed through a collaboration process between meteorologists**
- **All stakeholders have agreed that the CCFP is the primary weather forecast product for strategic planning on the Planning TELCON**

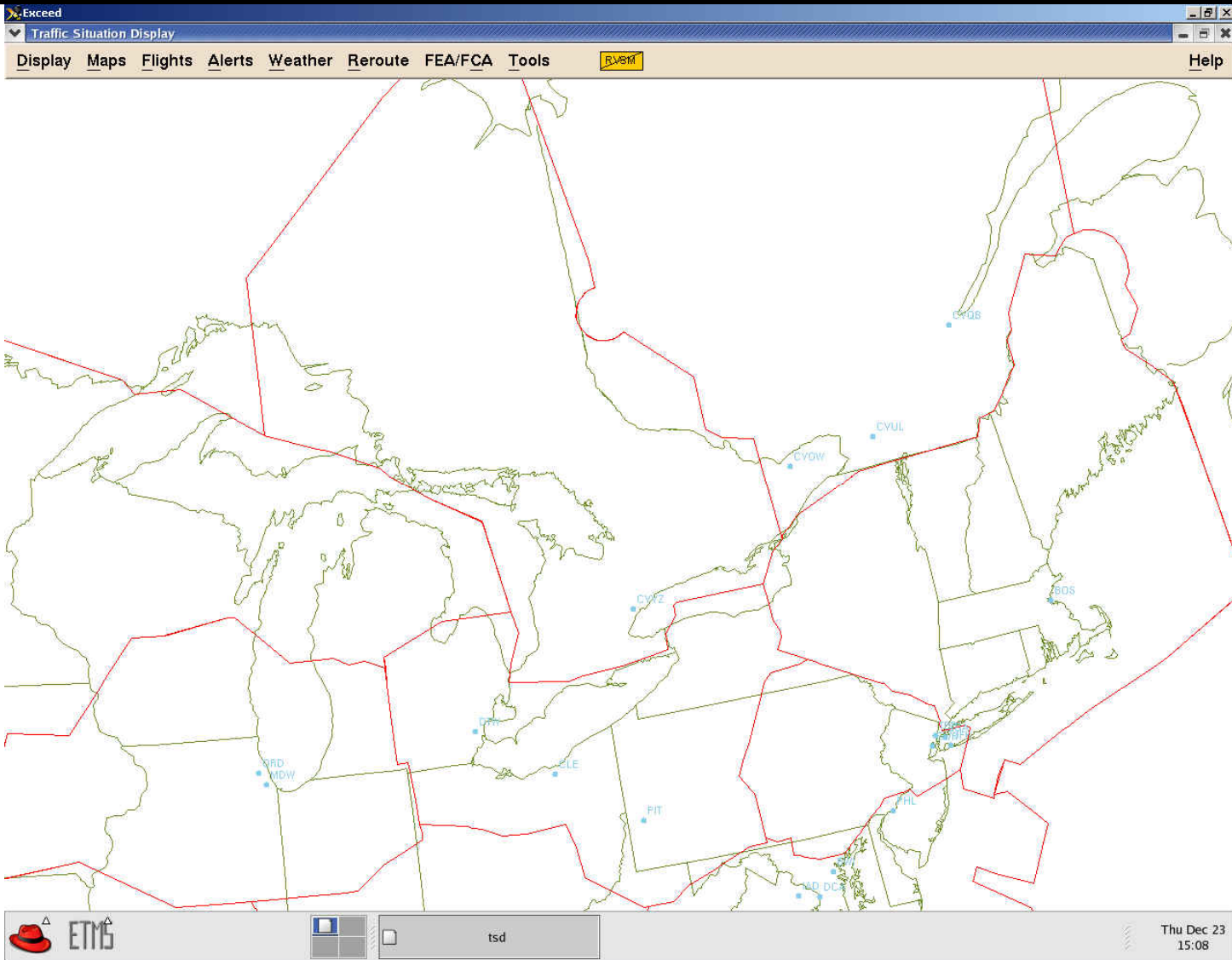
CCFP: *What it is*

- **CCFP is a strategic planning tool for the 2 to 6 hour time frame, which begins March 1 and runs through October 31**
- **CCFP is a package of 3 forecast maps with lead times of 2, 4 and 6 hours**

CCFP: *What it is, cont.*

- **CCFP is updated every 2 hours, with the exception of 1 AM Eastern Time**
- **CCFP is produced during the convective season covering the lower 48 states (March through October) and Southern Ontario and Quebec (April through September)**

Canadian CCFP



CCFP: *What it is not*

- CCFP does not forecast *all* convective activity
- CCFP forecast areas are not ‘no-fly zones’
- CCFP forecasts are not tactical short-term decision-aids (0-2 hrs)
- There are convective products that should be used for tactical decision making that include:
 - National Convective Weather Forecast (NCWF)
 - Integrated Terminal Weather System (ITWS)
 - Corridor Integrated Weather System (CIWS)

CCFP Collaborators

→ **CCFP is developed by a collaborative team of weather professionals that include:**

- **NWS meteorologists at the Aviation Weather Center (AWC)**
- **NWS meteorologists at CWSUs**
- **MSC Meteorological Service of Canada**
- **Airline meteorology offices and independent weather units**

CCFP Collaborators, cont.

→ AWC Forecasters:

- Produce the preliminary forecasts
- Lead and monitor the chat room
- Consider all input from chat room participants
- Produce the final graphical forecasts

→ MSC Canadian Forecasters:

- Contribute forecasts in their area of responsibility
- Contribute to the chat room.
- Contribute from April through September

CCFP Collaborators, cont.

- **Center Weather Service Units (CWSUs)**
 - **Contribute forecasts to the chat room by focusing on their specific regions**
- **Airline meteorology offices and other independent weather units**
 - **Contribute to the chat room**

CCFP Collaborative Process

- **The chat sessions occur every two hours and are completed prior to the planning telcon (PT)**
- **AWC is committed to reading every comment**
- **The previous forecasts (4 and 6 hour forecasts) will be used as preliminary forecasts for the next 2 and 4 hour forecast**
 - **Except for the 1 a.m. forecast, which a new preliminary forecast will be issued for the 6-hr lead time.**

CCFP Forecast Issuance Example

Collaboration Session Open (Eastern Time)	CCFP Issue (Eastern Time)	Supported Telcon (Eastern Time)	Valid Times (Eastern Time)	Comments
0215 - 0245	0300	-----	05 - 07 - 09	2, 4, 6 hour forecasts
0415 - 0445	0500	0515	07 - 09 - 11	2, 4, 6 hour forecasts
0615 - 0645	0700	0715	09 - 11 - 13	2, 4, 6 hour forecasts
0815 - 0845	0900	0915	11 - 13 - 15	2, 4, 6 hour forecasts

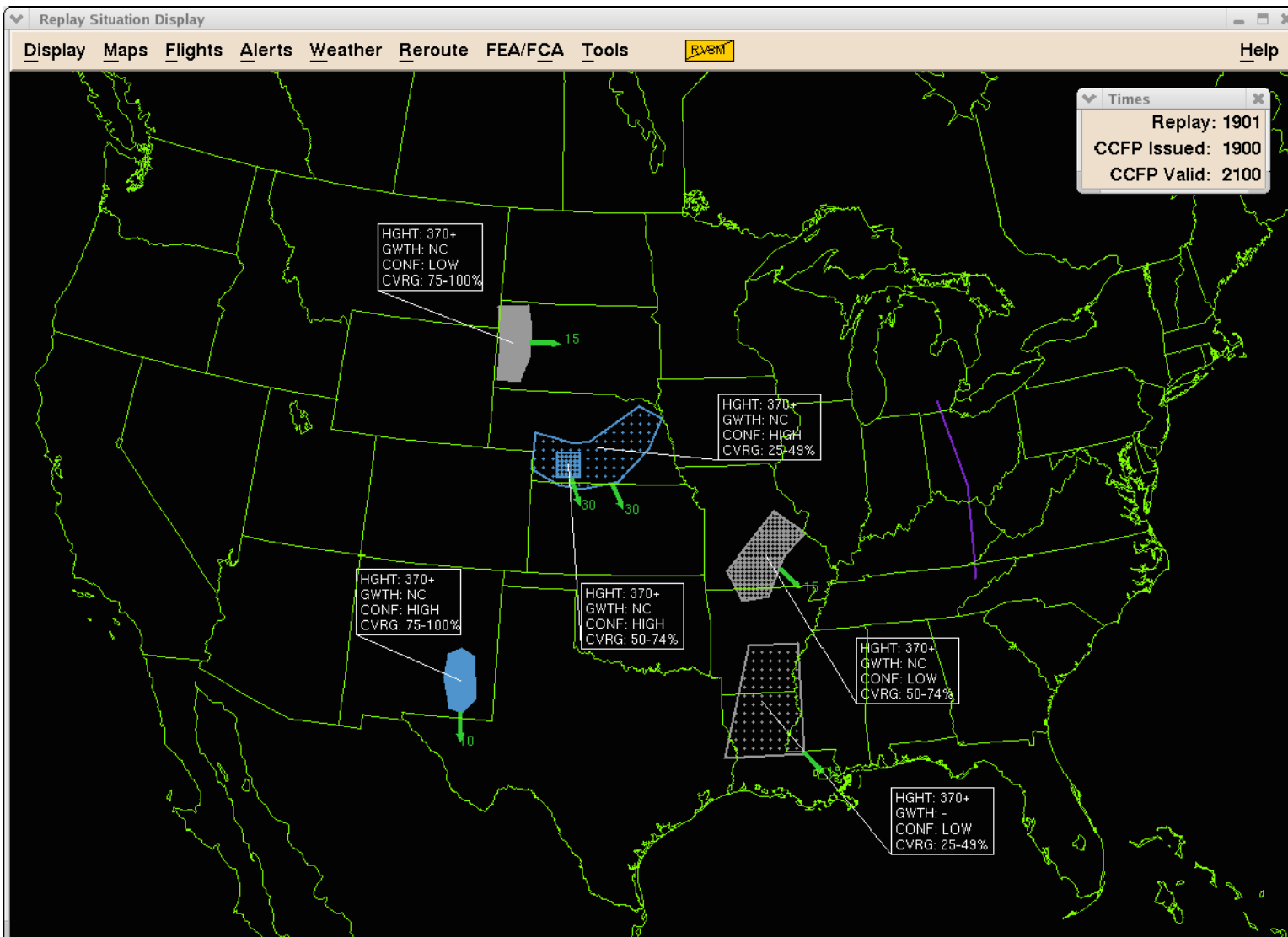
Note: The previous 4 and 6 hour forecasts will be used as preliminary forecasts for the 2 and 4 hour forecast

CCFP Collaborative Process, cont.

- The final package is completed by AWC and includes the 2, 4 and 6 hour forecasts and posted on the TSD, as well as the AWC and ATCSCC websites.



New 2005 TSD CCFP Graphic



Why Change the Graphic?

- **To mitigate the previous perception of “no-fly zones”**
- **By using fill to indicate the density of forecast convection, and new color changes to create forecaster confidence of occurrence we hope to give the traffic manager a “quick glance value” to decipher the forecast**

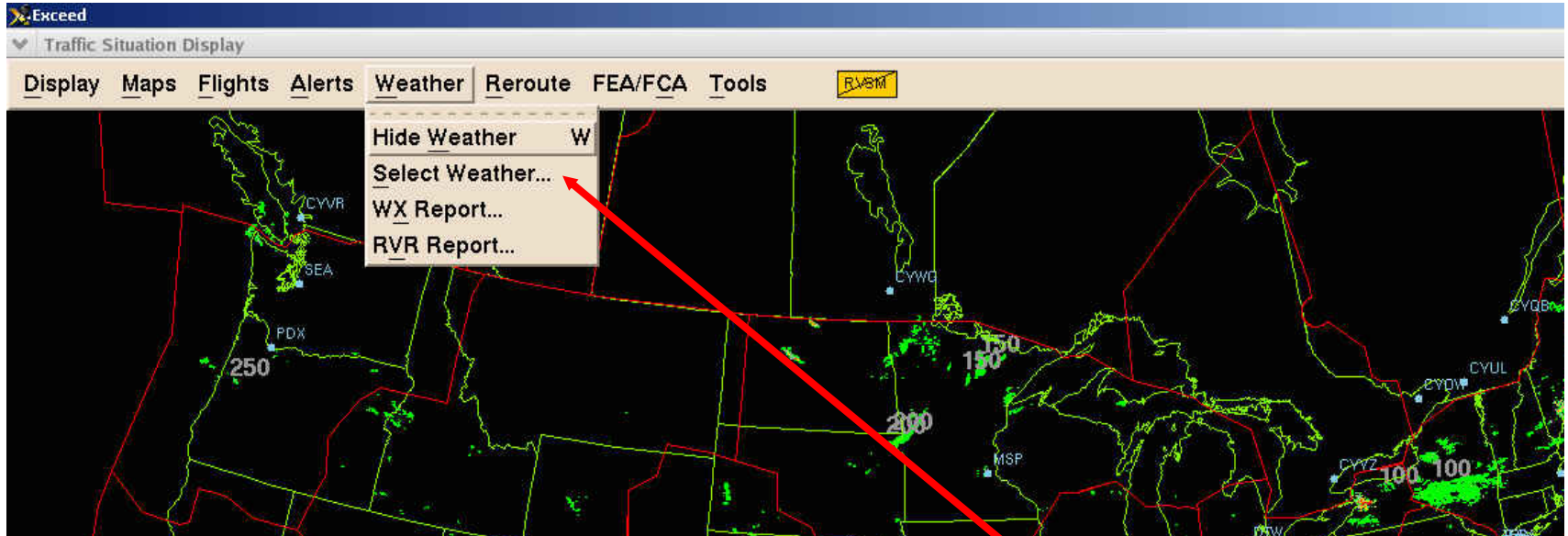
Why Change the Graphic? Cont.

- **Polygon color change to mitigate confusion on the TSD between other similar products used by traffic managers**
- **Introduce a more intuitive data block of information**

The Change Brings Benefit

- A “quick glance value” of the forecast
- The user can immediately interpret the forecaster’s high confidence of occurrence represented by color
- Less restrictions through areas of low confidence and low coverage
 - less fill should yield more capacity
- Make the TMC decision making process quicker and easier by focusing on the *traffic management decision* and not deciphering the forecast

CCFP Display on TSD



On the menu bar of the TSD, click the weather pull-down menu and choose “select weather”

Select weather menu

CCFP forecast map selection for the 2, 4 or 6 hour forecast overlay

Select Weather

NOWRAD

CONUS: Off 2KM 8KM

Canada: Off 2KM 8KM

San Juan: Off 2KM 8KM

NOWRAD Legend: Hide Show

CCFP

Forecast: Off 2HR 4HR 6HR

Data Blocks: Hide Show

Legend: Hide Show

NOTICE: Canadian CCFP is NOT AVAILABLE.

NCWF Off On

OTHER WEATHER OPTIONS

Lightning: Off On ...

Tops: Off On

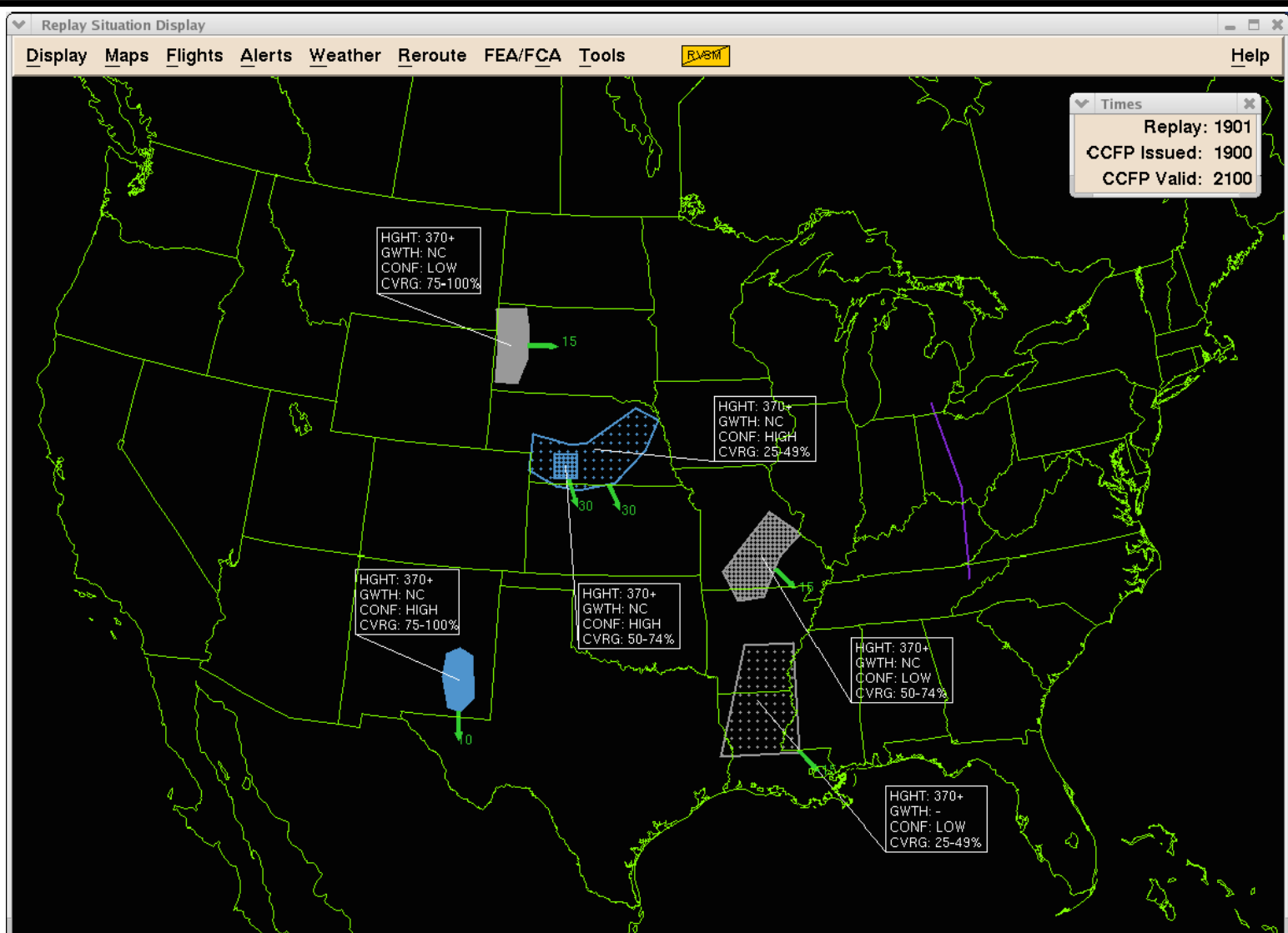
Jet Stream: Off On ...

OK Apply Cancel Help

New ETMS options to Show or Hide all CCFP data blocks

Notification displayed when Canadian CCFP is not in production

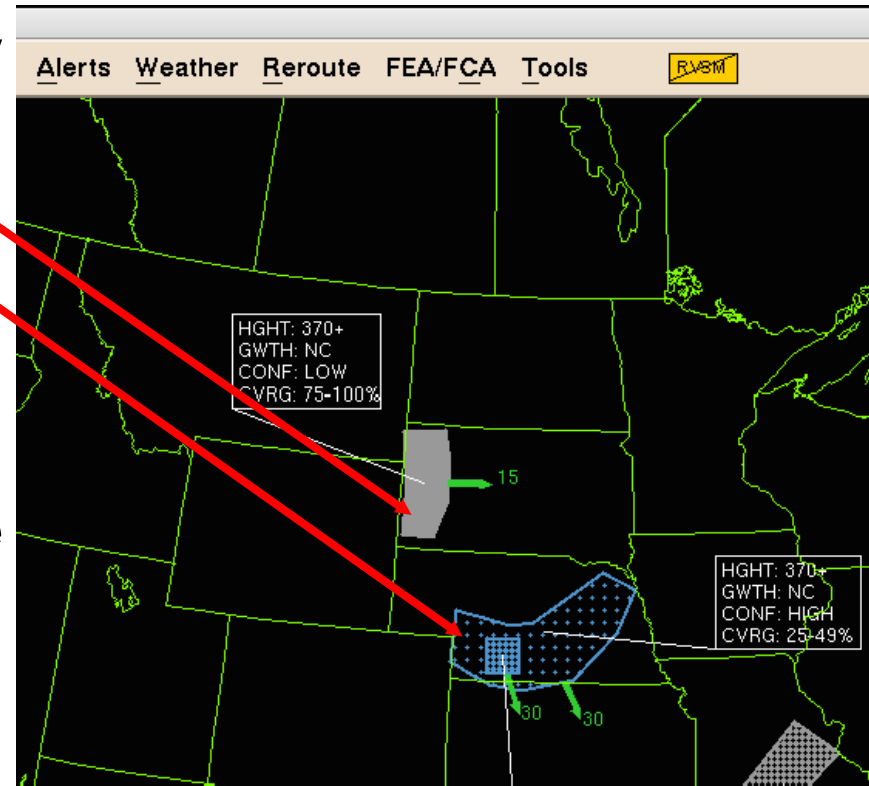
New 2005 TSD CCFP Graphic (with detail)



Forecaster Confidence of Occurrence

Confidence (CONF)

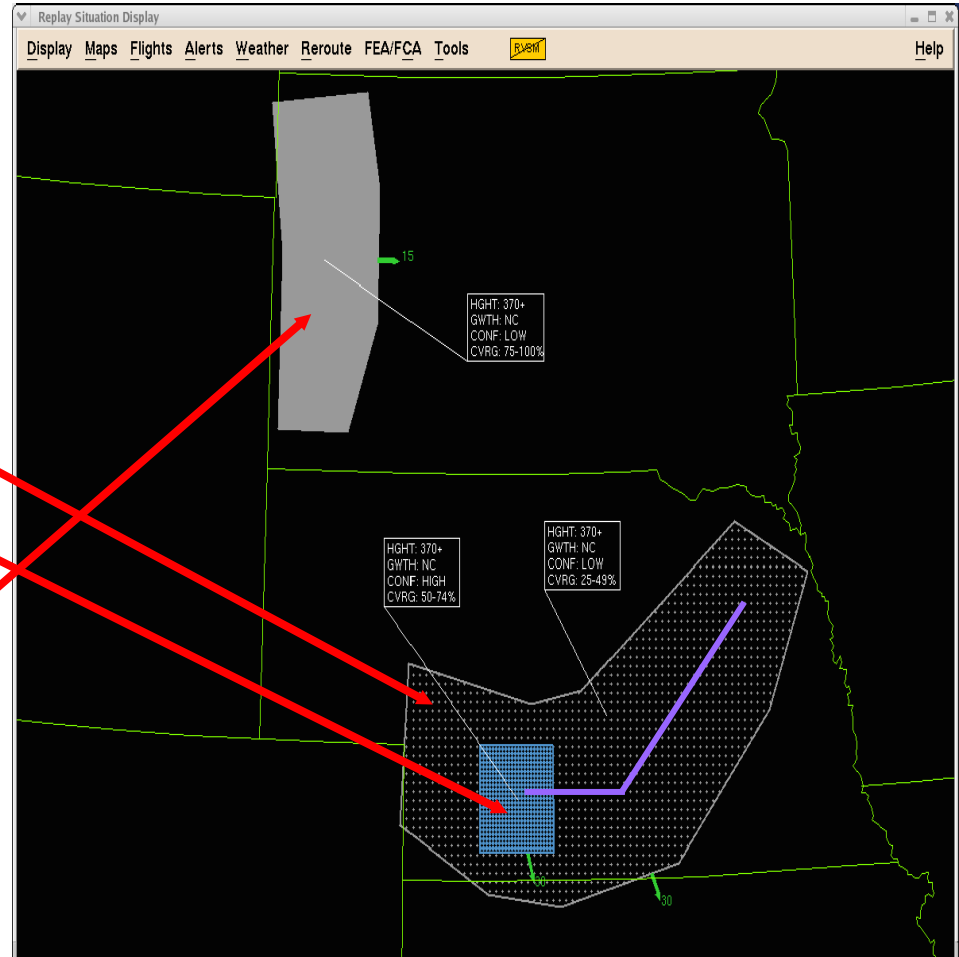
- Confidence value is identified by color in one of 2 classes:
 - Low: 25 - 49% (GRAY)
 - High: 50 - 100% (BLUE)
- Confidence level is the subjective forecaster confidence in the *occurrence* of the minimum threshold criteria: at least 3,000 sq. mi area with coverage greater than 25%, and echo tops greater than 25,000 ft.



CCFP Coverage Criteria

Coverage (CVRG):
Identify by degree of fill in one of 3 categories for areas:

- Low 25-49% (Sparse Fill)
- Med 50-74% (Medium Fill)
- High 75-100% (Solid Fill)
- Solid line of convection (Purple)



CCFP Coverage Criteria, cont.

→ Coverage areas:

- **Low (Sparse Fill) Mostly SCT TSTMS predicted to cover 25-49% of the area. Possible line(s) of TSTMS.**
- **Med – (Medium Fill) Forecast to be 50-74% of the area and may include short lines or clusters. Often associated with weather fronts or tropical systems.**
- **High – (Solid Fill) Coverage is dense, 75% or > and usually includes lines and clusters.**
- **Lines** – Nearly solid lines of convective activity.

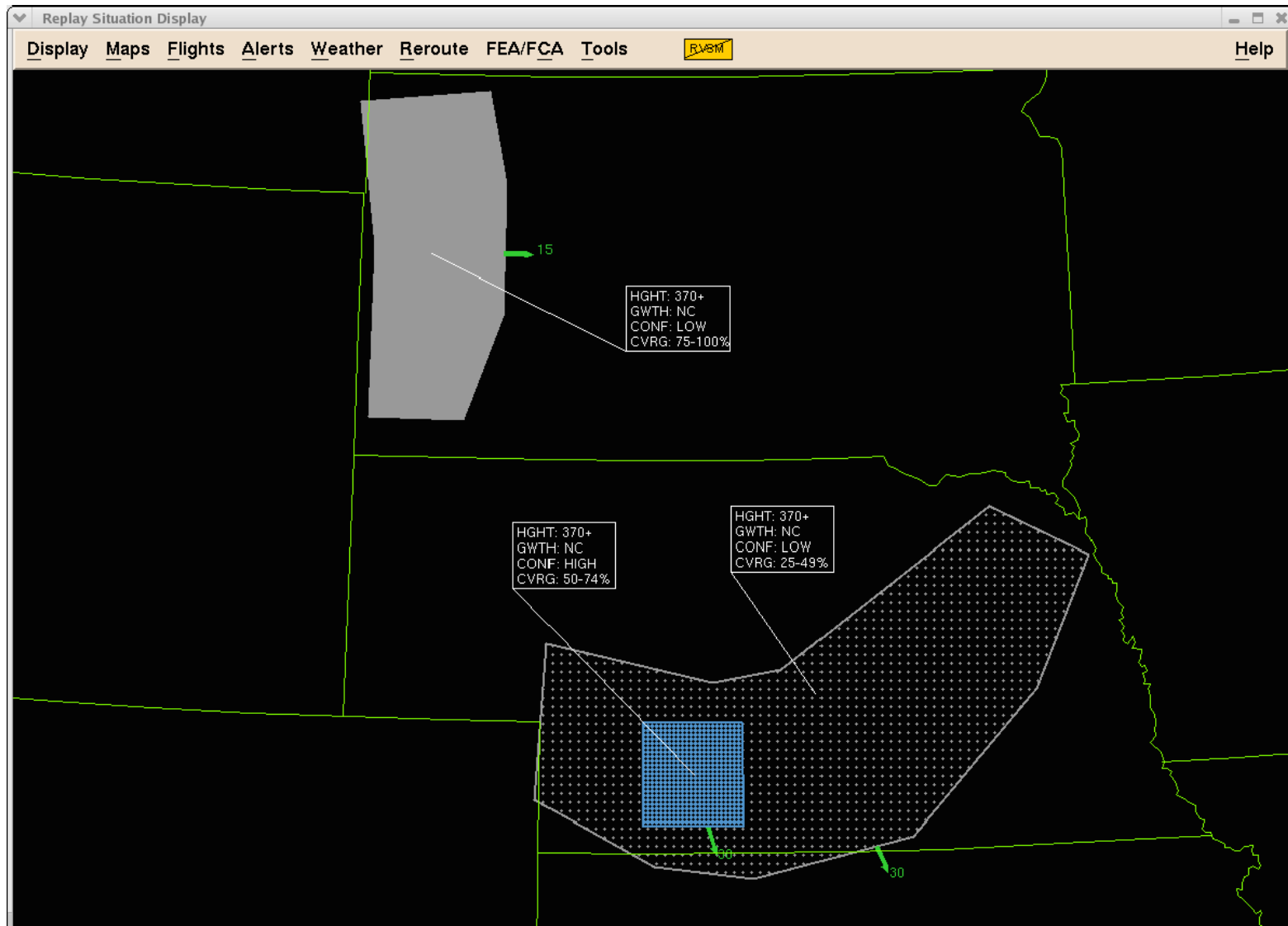
Coverage Criteria Points to Remember

- **An area, or single cell of convection with a coverage of less than 25% will not be forecast on the CCFP but may still impact the airspace, but is normally handled as a tactical issue**
 - **Remember the criteria for an area of convection on the CCFP is at least 3,000 sq. mi area with coverage greater than 25%, and echo tops greater than 25,000 ft.**

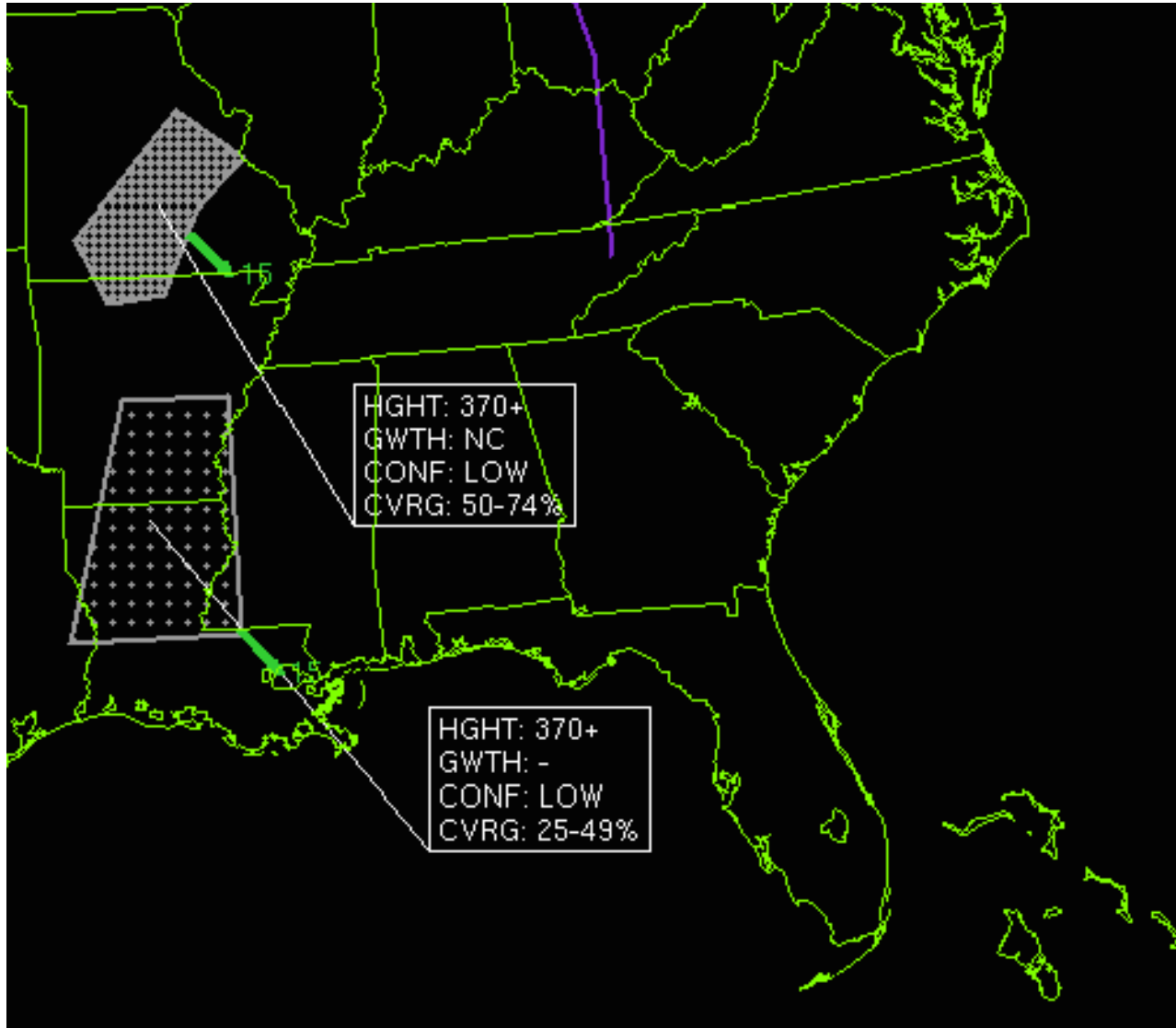
Coverage Criteria Points to Remember

→ Coverage is NOT the chance of thunderstorm development, but the percentage of area covered by the convective activity

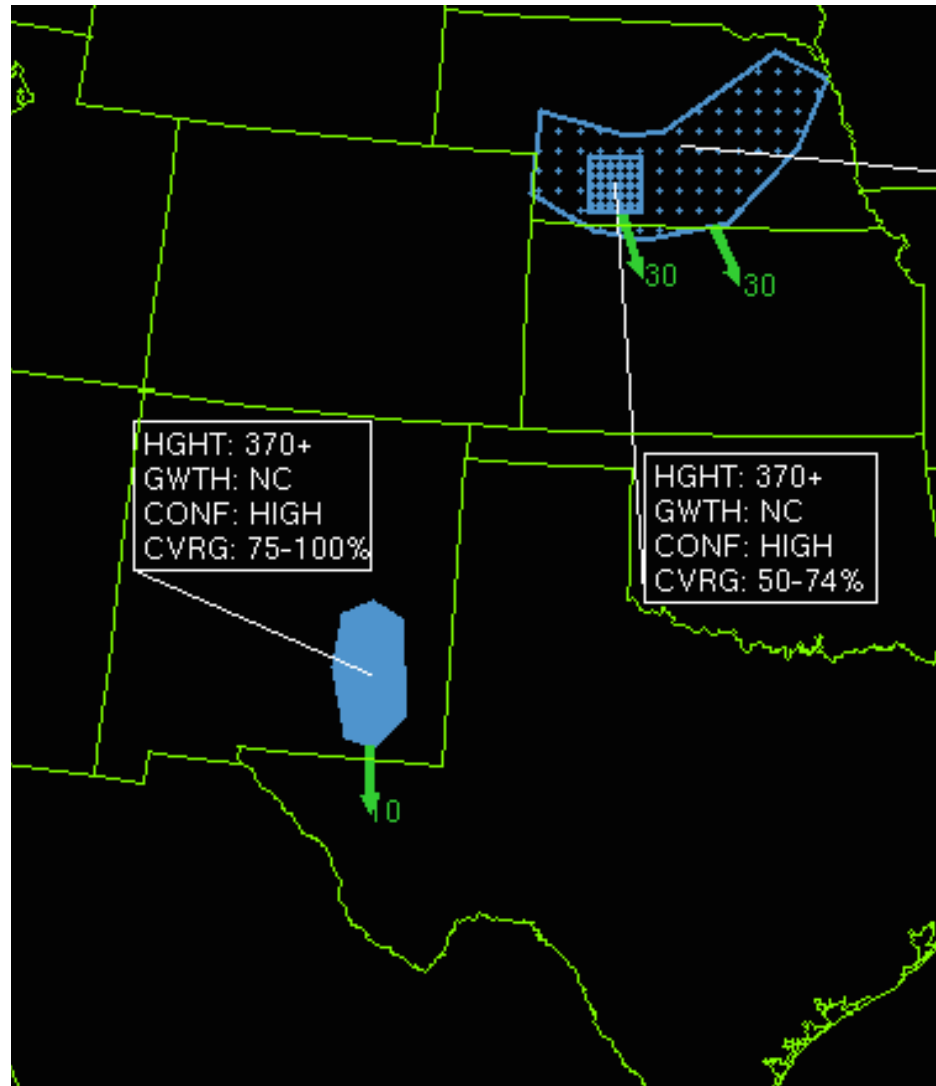
CCFP Interpretation - 1



CCFP Interpretation - 2



CCFP Interpretation - 3



CCFP Data Block

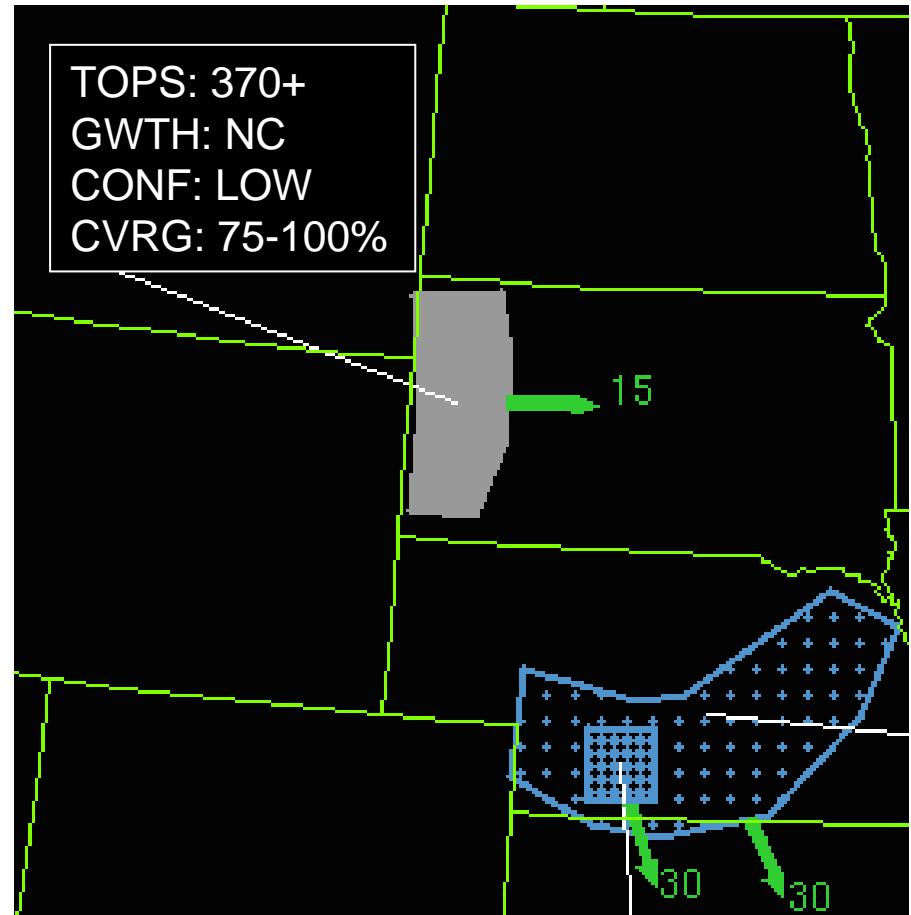
DATA BLOCK

TOPS = Height of Max Echo
Tops expressed in feet
MSL

GWTH = Growth rate of area or
line

CONF = Forecaster confidence of
Minimum Criteria

CVRG = Area coverage



CCFP Movement

Note: MOVEMENT Indicated on graphic for each polygon and line as an arrow (showing direction) and a number (showing speed in kts)

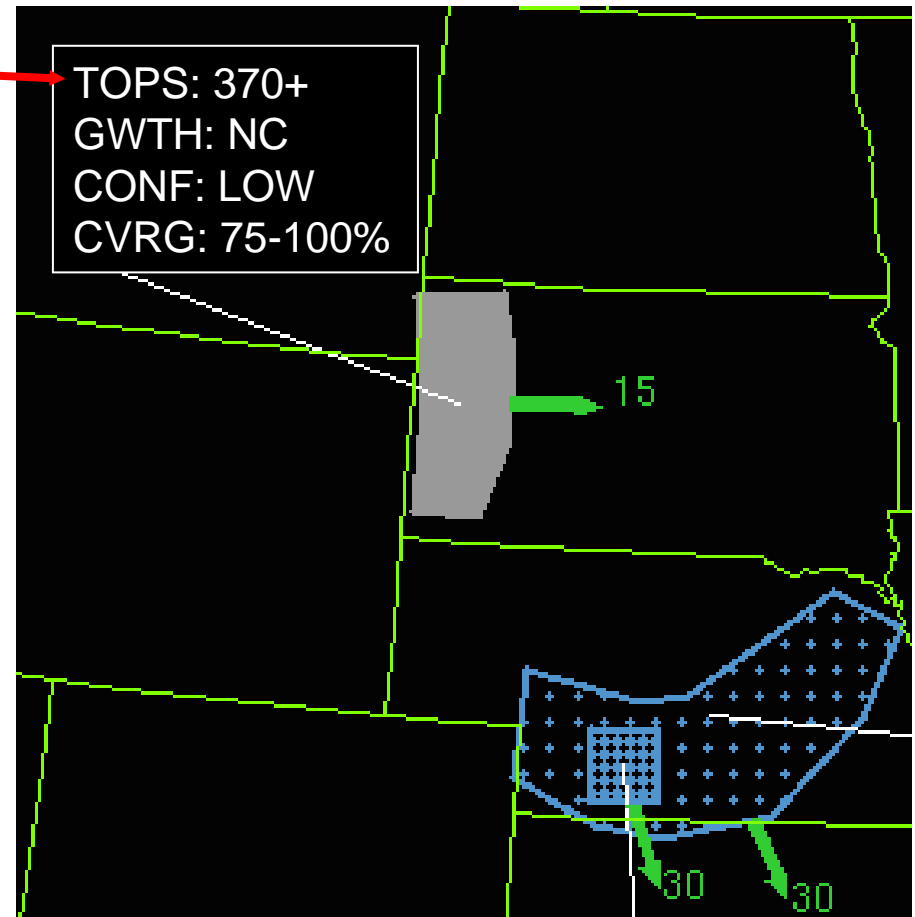


CCFP Tops Criteria:

TOPS :

- Echo tops within the forecast area are reported in the following three categories:
 - 25,000-31,000 feet MSL
 - 31,000-37,000 feet MSL
 - Above 37,000

- Echo top of 25,000 feet Mean Sea Level (MSL), or greater, are expected to cover at least 25% of the forecast area

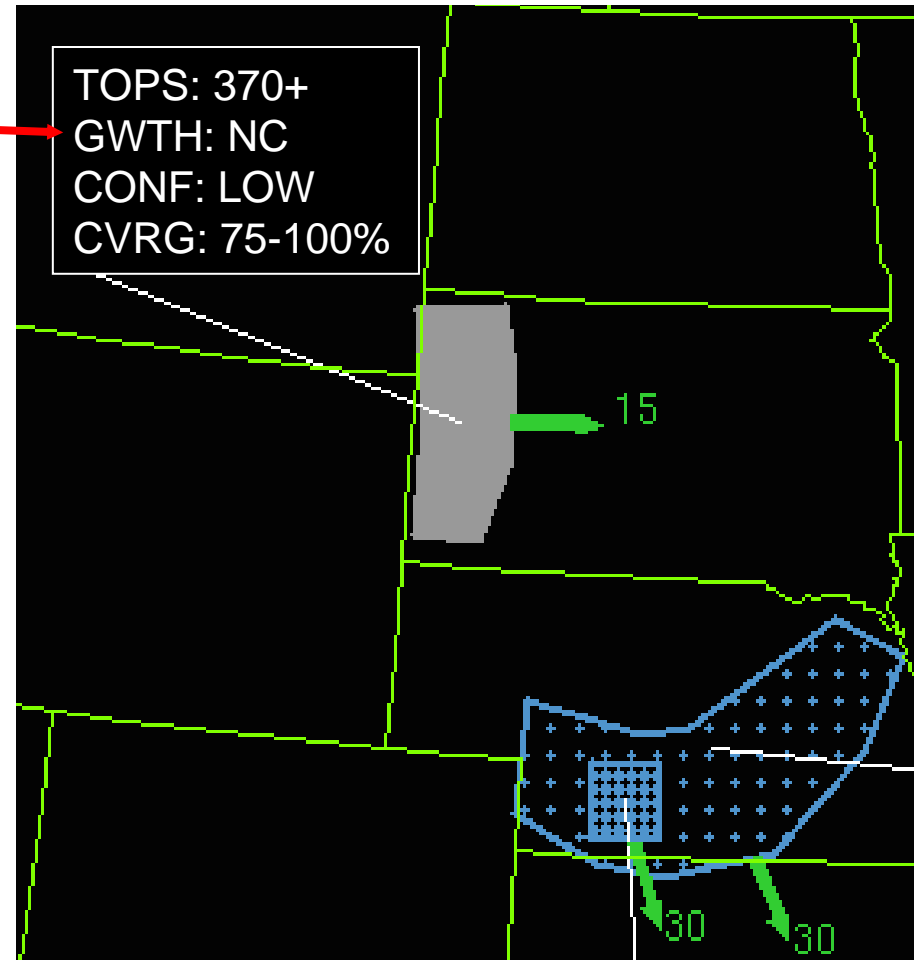


CCFP Growth

GWTH (Avg. growth rate of area/tops):

- Growth of TSTM is three dimensional
- Growth rate changes over period of time
- Legend indicators:

++	Fast, Positive Growth
+	Moderate Growth
NC	No Change
-	Negative Growth (Area/Tops Decreasing)



2005 CCFP Schedule

→ **The CCFP schedule is determined by the needs of the users at the FAA and airlines**

2005 CCFP Schedule

- **Additional CCFP forecasts may be routinely scheduled at the AWC to maintain continuity and consistency**
- **Additional CCFP forecasts can be requested on the Planning TELCON if the weather dictates. The ATCSCC will be responsible for finalizing this decision and coordinating the request with AWC**

2005 CCFP Schedule

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0615 - 0645	0700	0715	09 - 11 - 13	2, 4, 6 hour forecasts
0815 - 0845	0900	0915	11 - 13 - 15	2, 4, 6 hour forecasts
1015 - 1045	1100	1115	13 - 15 - 17	2, 4, 6 hour forecasts
1215 - 1245	1300	1315	15 - 17 - 19	2, 4, 6 hour forecasts
1415 - 1445	1500	1515	17 - 19 - 21	2, 4, 6 hour forecasts
1615 - 1645	1700	1715	19 - 21 - 23	2, 4, 6 hour forecasts
1815 - 1845	1900	1915	21 - 23 - 01	2, 4, 6 hour forecasts
2015 - 2045	2100	2115	23 - 01 - 03	2, 4, 6 hour forecasts
2215 - 2245	2300	-----	01 - 03 - 05	2, 4, 6 hour forecasts

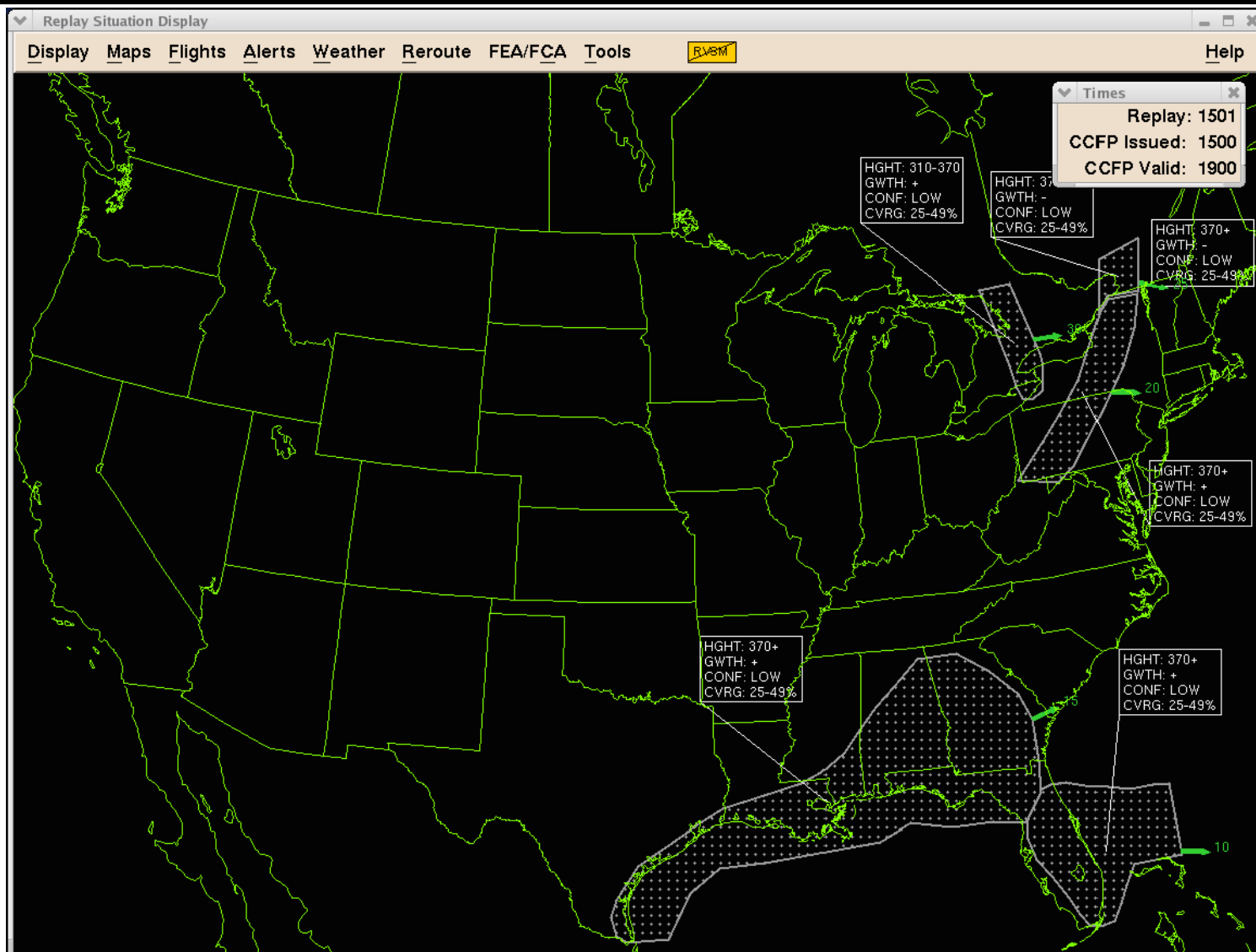
Note: UTC is +5 hours ahead of Eastern before Daylight Savings (April 3, 2005), and +4 hours ahead of Eastern time during Daylight Savings

CCFP DATA VERIFICATION

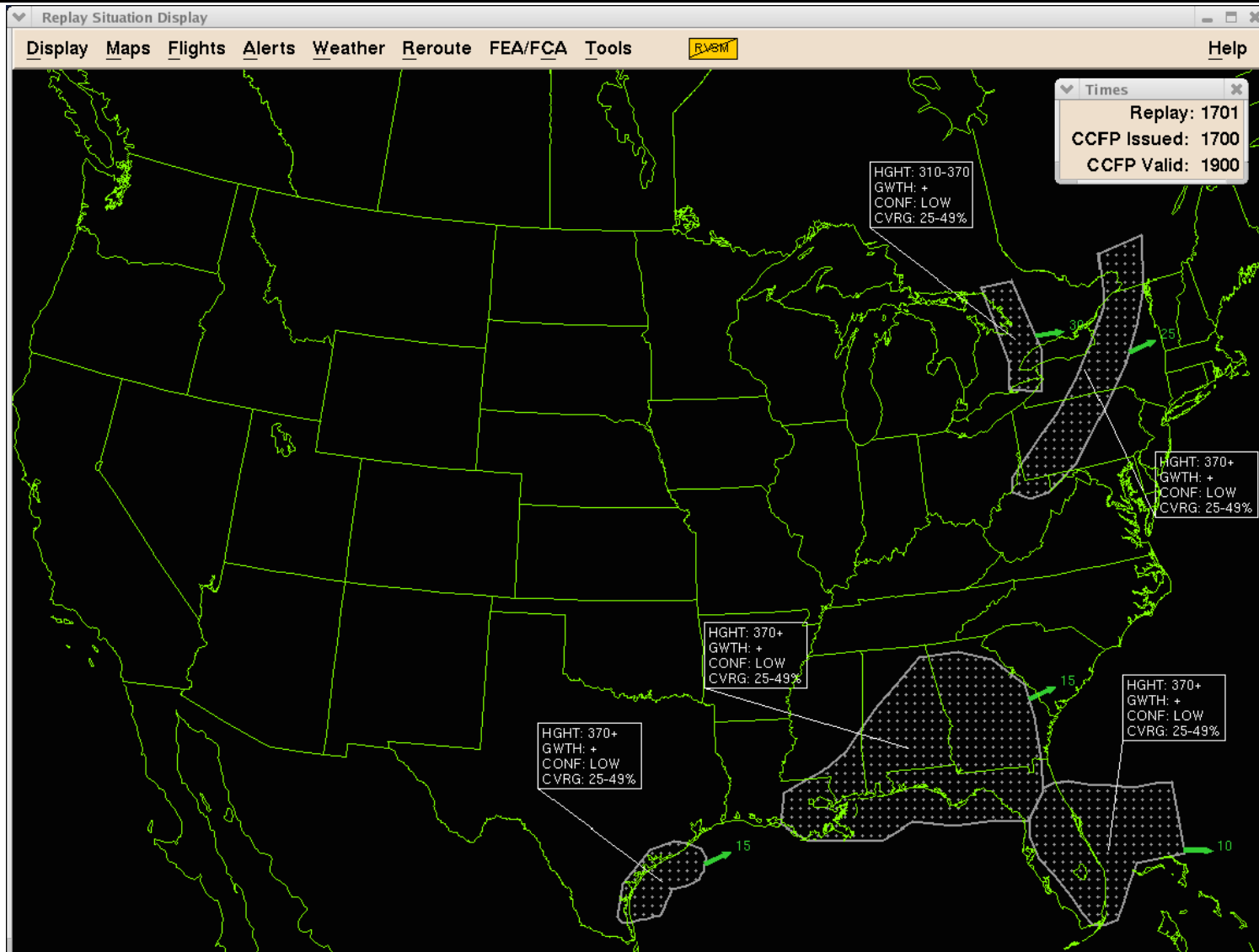
- **CCFP metrics and their explanation can be found on the Forecast Systems Laboratory (FSL) website that include:**
- **Forecasts compared to actual weather**
 - **Daily statistical results**
 - **Overall accuracy**

http://www-ad.fsl.noaa.gov/fvb/rtvs/conv/archive_ccfp/index.html

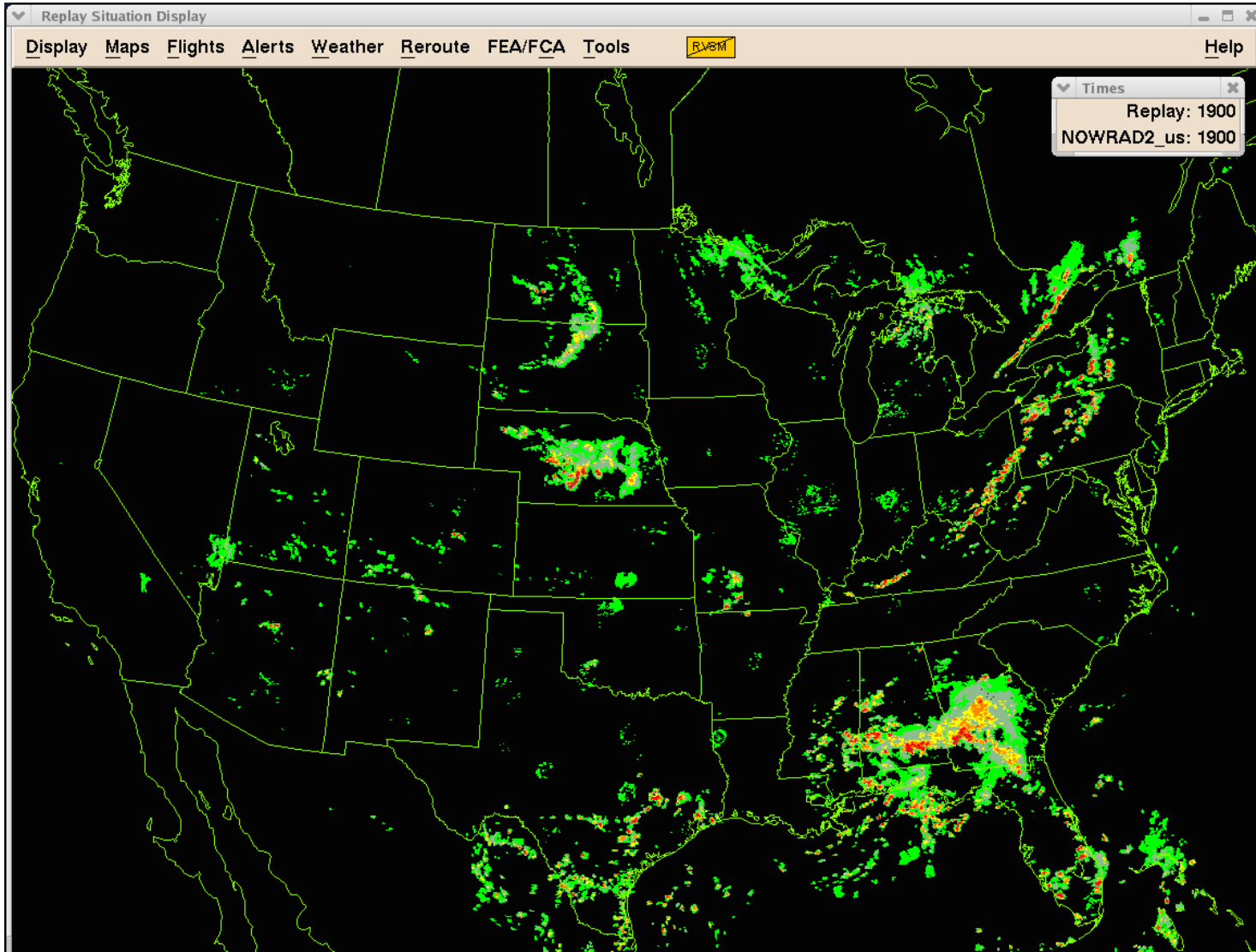
Scenario 1: Aug 10, 2004



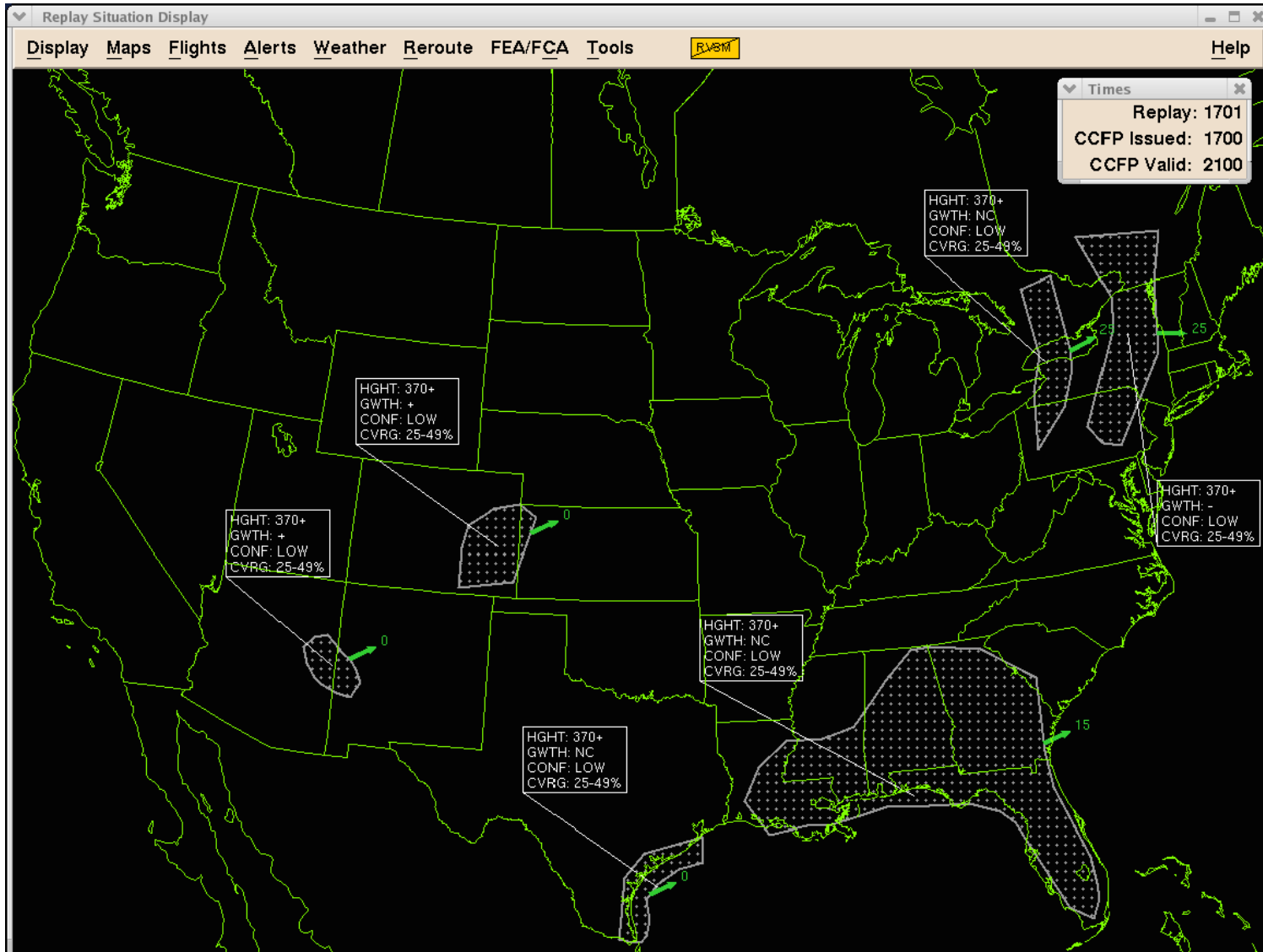
Scenario 1: Aug 10, 2004



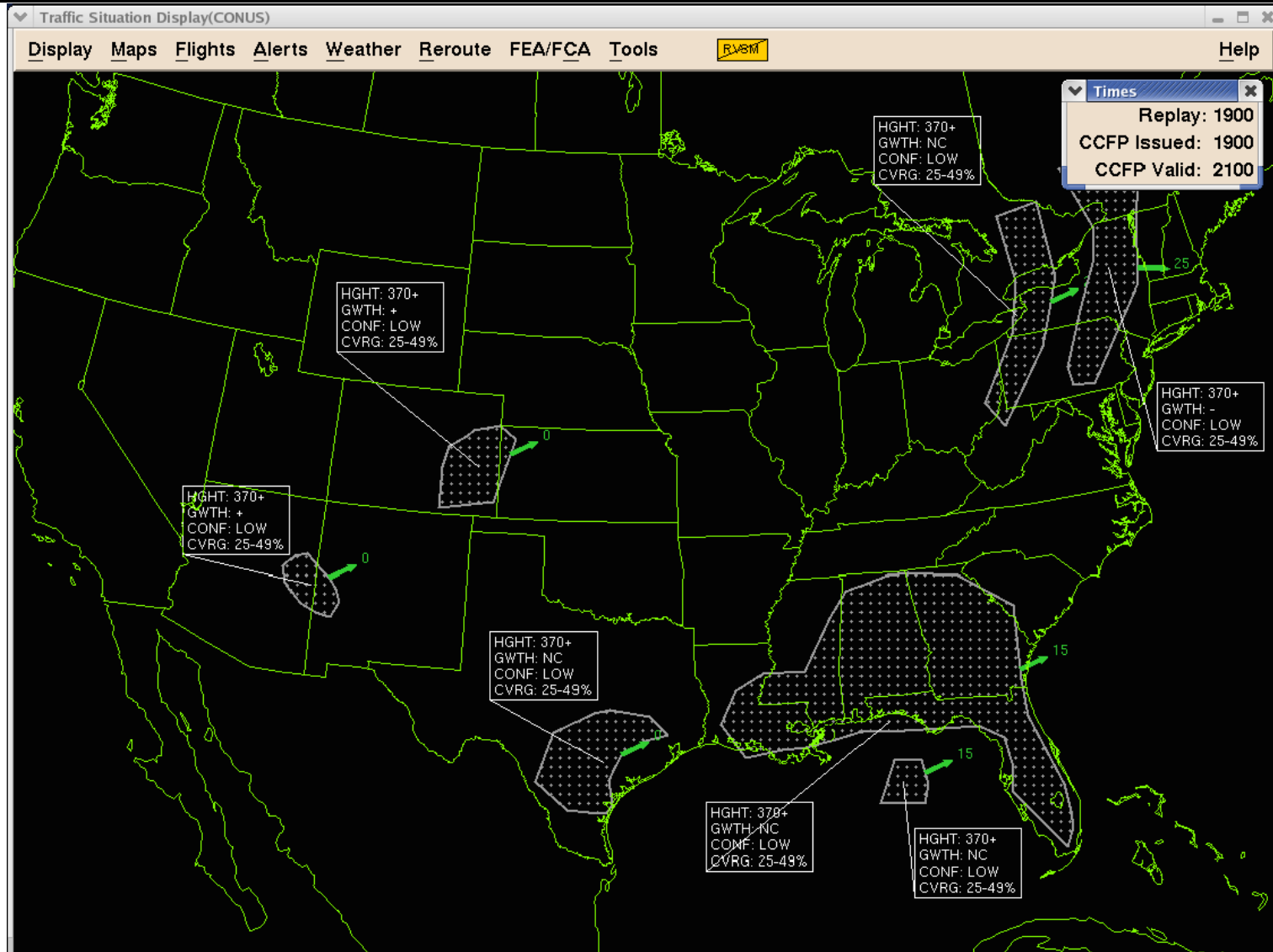
Scenario 1: Aug 10, 2004



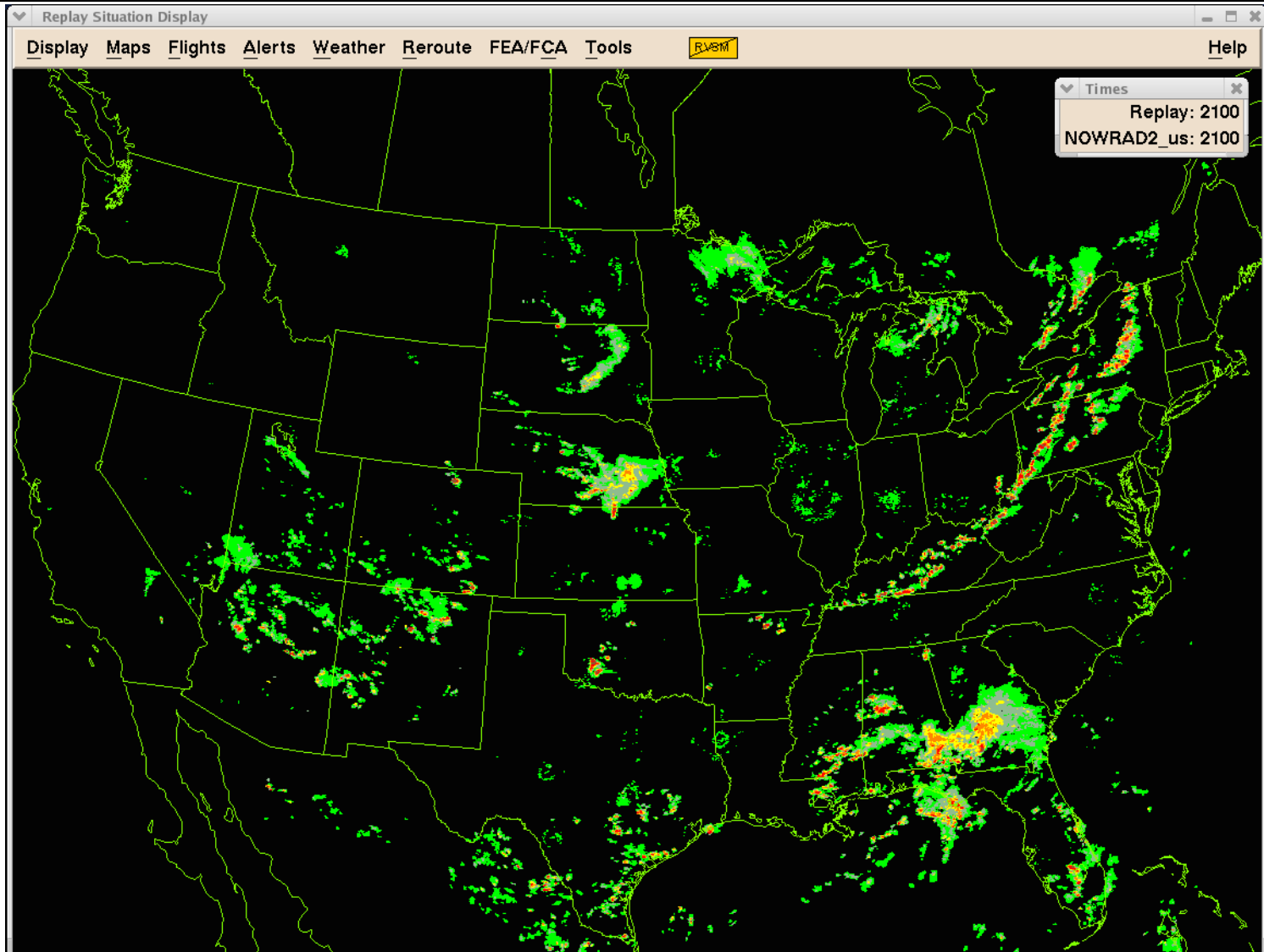
Scenario 1: Aug 10, 2004



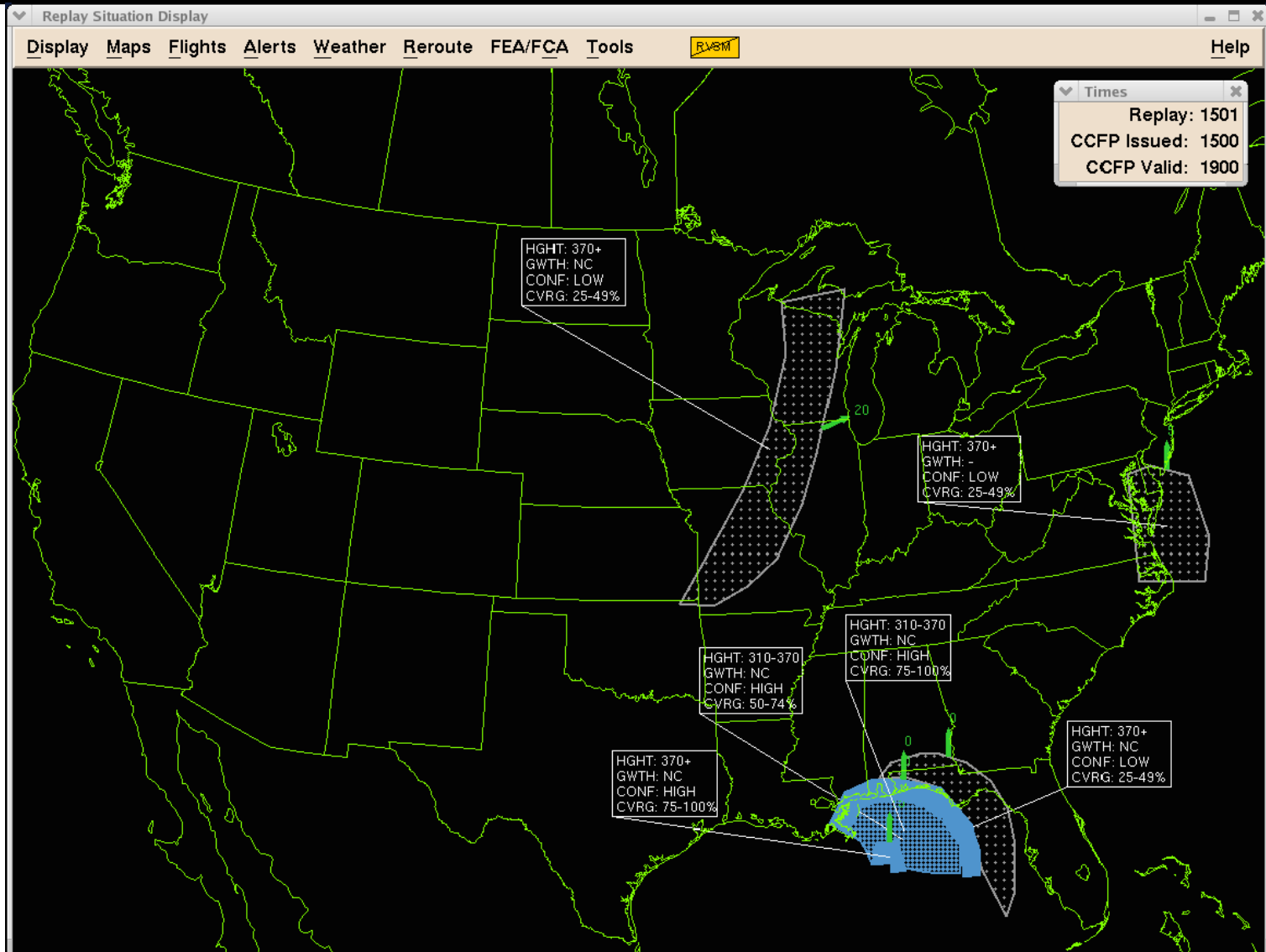
Scenario 1: Aug 10, 2004



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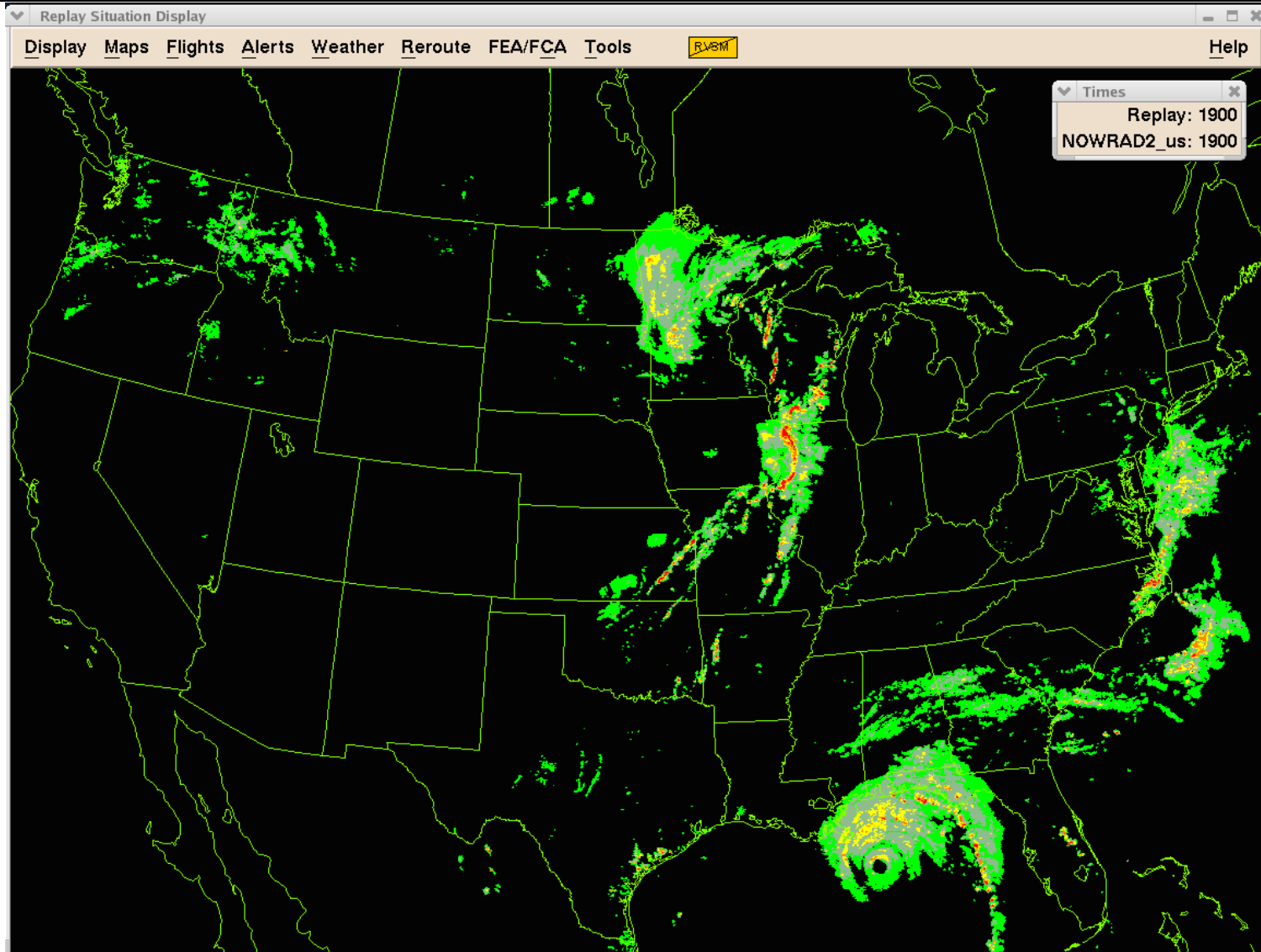
Scenario 2: September 15, 2004



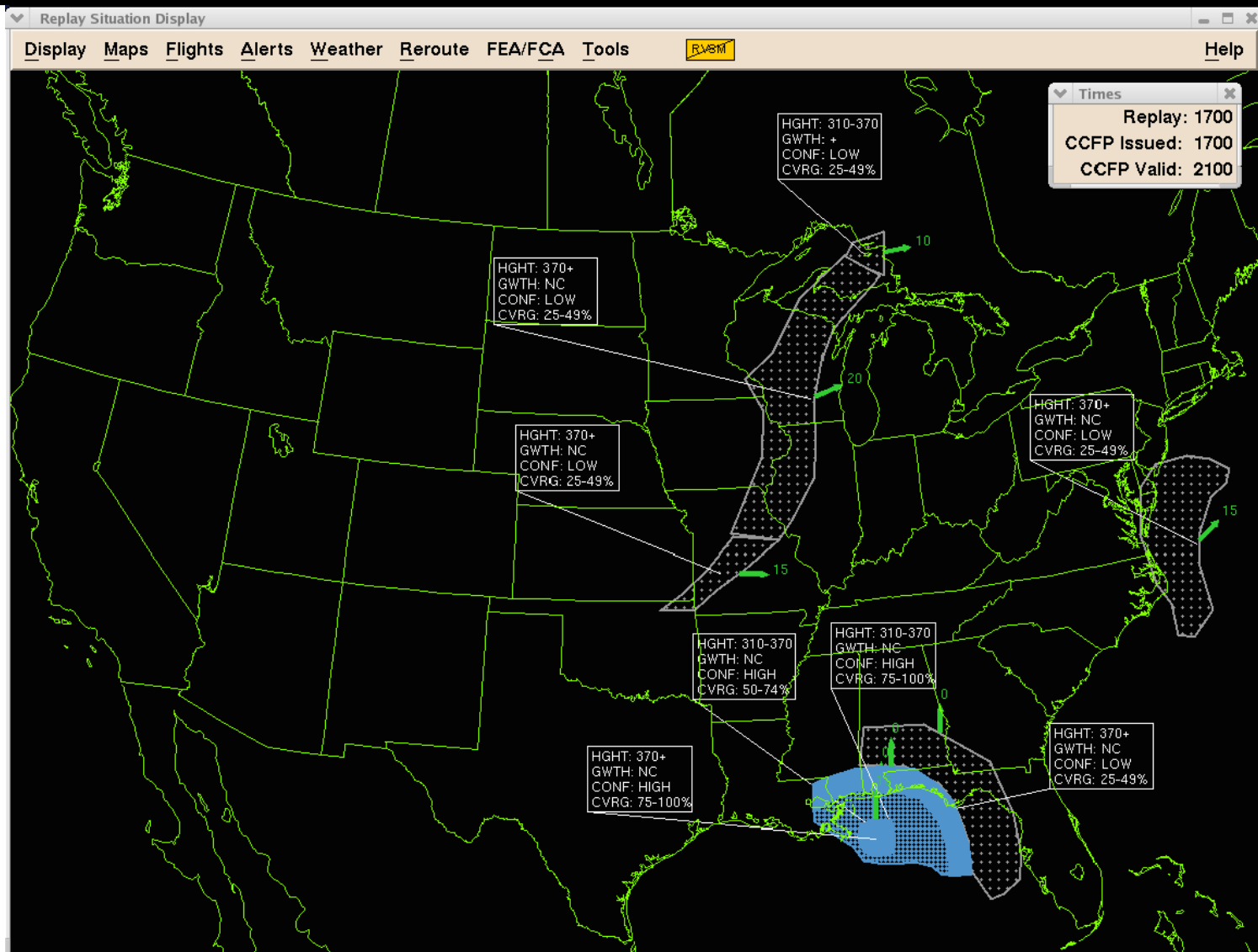
Scenario 2: September 15, 2004



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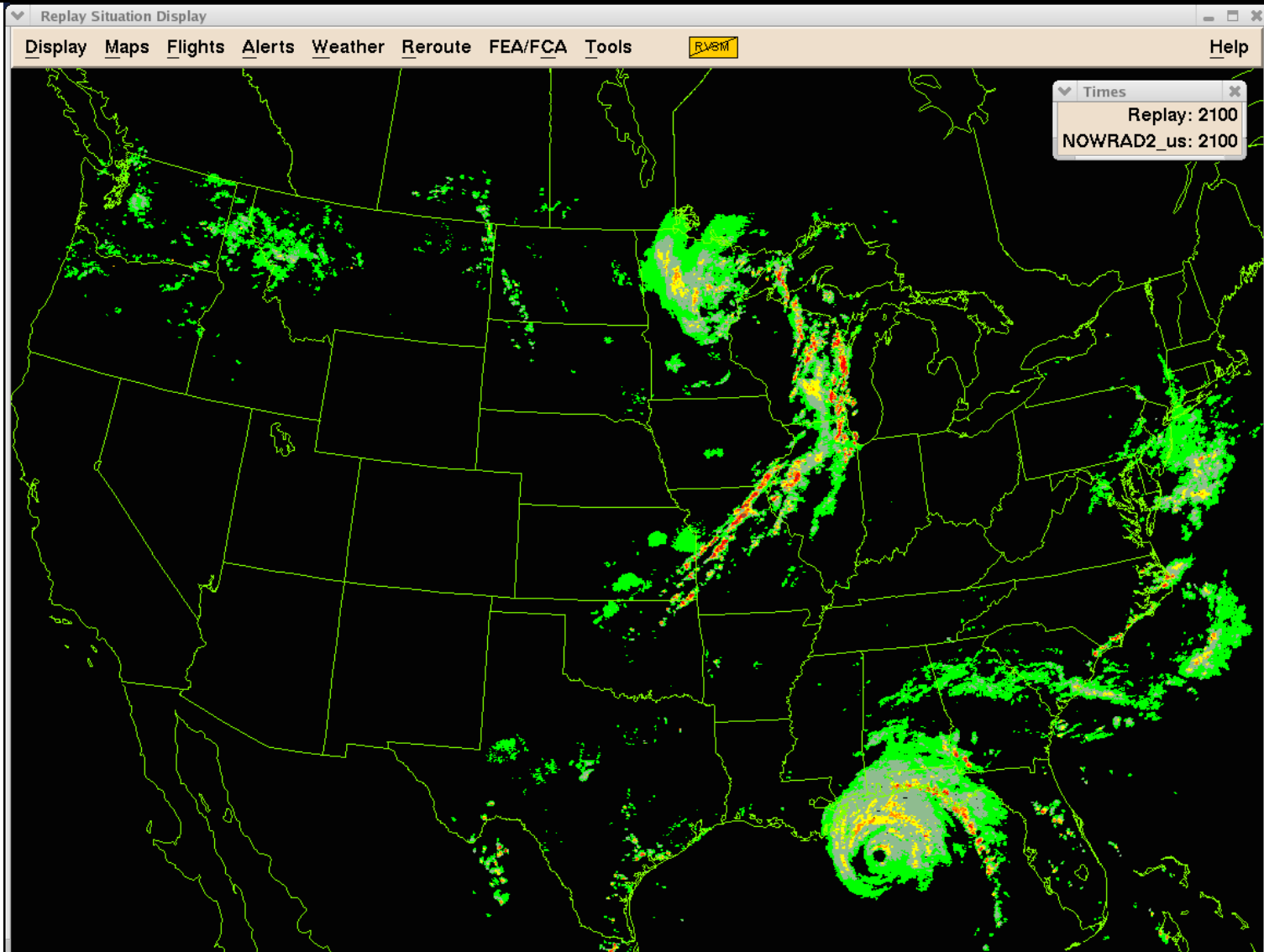
Scenario 2: September 15, 2004



Scenario 2: September 15, 2004



Scenario 2: September 15, 2004



Chat Log Area

- Remember - the chat logs and the PT telcons are a great resource if you have time to gather that extra information
- The chat logs can be found on the AWC website at:
- <http://aviationweather.noaa.gov/ccfp>
- You may want to have your supervisors print the logs if you know there will be significant weather to deal with

CONCLUSIONS

- **CCFP intended as a long range (2-6 hour) strategic forecast not as a tactical tool**
- **The graphic was changed to give TMCs a more of a quick glance overview of the weather forecast**
- **Confidence is Color**
 - **Low (GRAY) 25-49%**
 - **High (BLUE) 50-100%**

CONCLUSIONS

→ Coverage is Fill

- Low 25-49% (Sparse Fill)
- Med 50-74% (Medium Fill)
- High 75-100% (Solid Fill)

→ CVRG is the percentage of area coverage
NOT the chance of thunderstorm (TSTM)
development