Weather Evaluation Team (WET) Update & Recent Activities

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Presented to:
Friends/Partners in Aviation Weather
NBAA Convention • Las Vegas, NV
October 11, 2011

Agenda

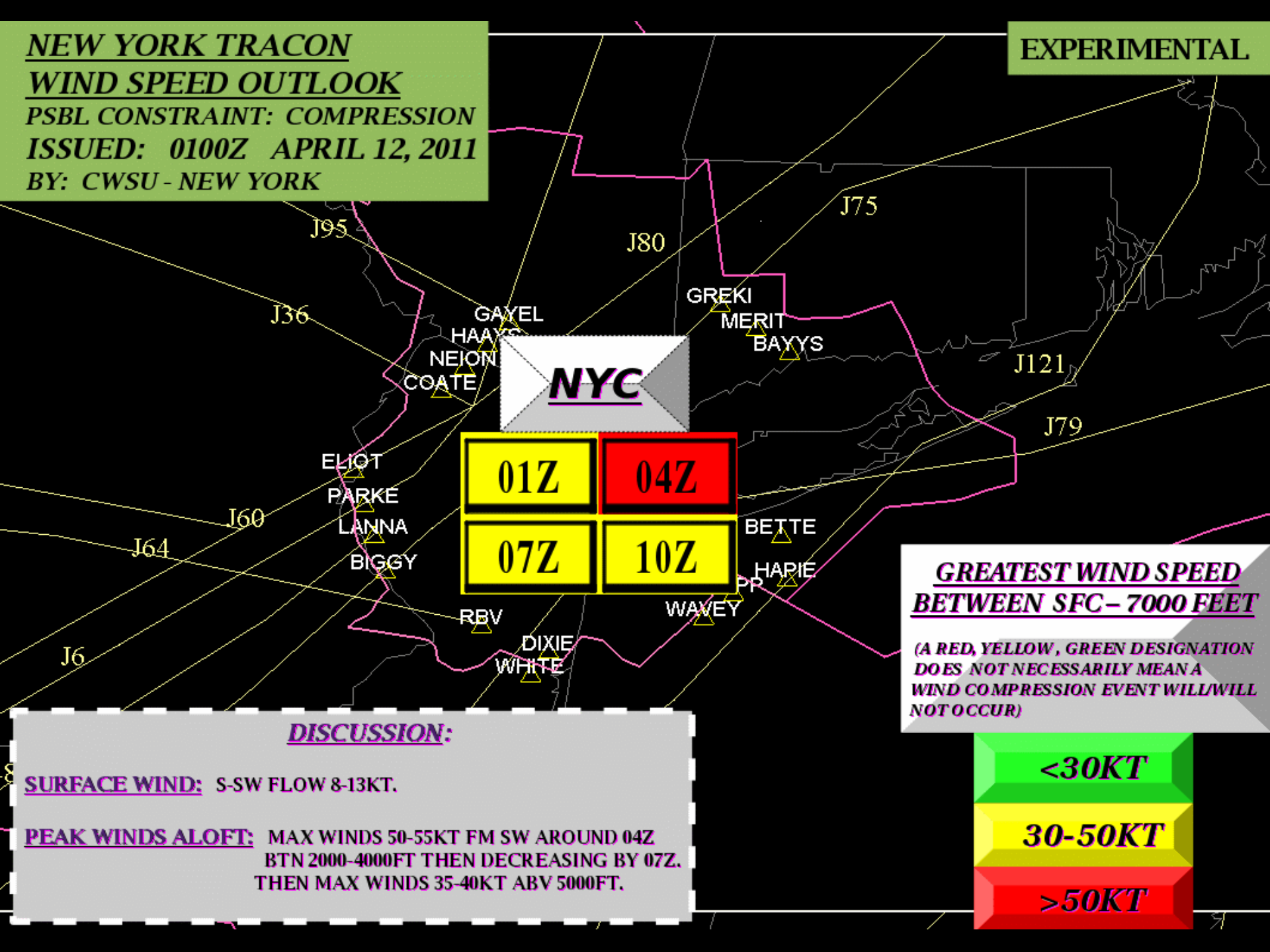
- **CDM WET Overview**
- **WET Task & Activity Updates for 2011**
  - Approach Area Winds
  - Common Winter Weather Forecast
  - Improvements to Convective Weather Forecasts for TFM
    - ECFP
    - CCFP Evolution
    - Operational Bridging

CDM WET Overview

- **Sub-team of Collaborative Decision Making**
  - Joint initiative between FAA and NAS Stakeholders
  - Solve problems in the NAS through sharing of information
  - Tasks assigned by CDM Stakeholders Group (CSG)
- **Membership & Participation**
  - FAA
  - Stakeholders (Airlines, NBAA)
  - NOAA
  - Contractors

WET Task: Approach Area Winds

- **Develop approach area vertical wind forecast with common presentation**
  - Problem: Compression on final
  - Initial focus: NY metro area
  - Common presentation is complete
  - Outstanding issue: “translation” of winds to **compression**
    - Path-Based Shear Tool (an ITWS prototype application) using forecast winds
    - Calculators devised by ZME CWSU and EWR-T, adapted


NEW YORK TRACON
WIND SPEED OUTLOOK
PSBL CONSTRAINT: COMPRESSION
ISSUED: 0100Z APRIL 12, 2011
BY: CWSU - NEW YORK
EXPERIMENTAL
J95
J80
J75
J36
GAYEL
HAAYS
NEION
COATE
GREKI
MERIT
BAYYS
J121
J79
NYC
01Z
04Z
07Z
10Z
ELIOT
PARKE
LANNA
BIGGY
J60
J64
BETTE
HAPIE
WAVEY
RBV
DIXIE
WHITE
J6
GREATEST WIND SPEED BETWEEN SFC – 7000 FEET
(A RED, YELLOW, GREEN DESIGNATION DOES NOT NECESSARILY MEAN A WIND COMPRESSION EVENT WILL/WILL NOT OCCUR)
<30KT
30-50KT
>50KT
DISCUSSION:
SURFACE WIND: S-SW FLOW 8-13KT.
PEAK WINDS ALOFT: MAX WINDS 50-55KT FM SW AROUND 04Z BTN 2000-4000FT THEN DECREASING BY 07Z. THEN MAX WINDS 35-40KT ABV 5000FT.

WET Task: Common Winter Weather Forecast

- **Develop a collaborated winter weather forecast which addresses weather up to 2 or more days in advance to facilitate winter planning**
  - Problem: CDM and non-CDM participants alike working from different/conflicting forecasts for a winter storm; poor situational awareness for certain stakeholders of a winter storm
  - Requirements:
    - Non-resource-intensive for FAA & Stakeholders; automation-driven
    - Simple to use and understand for all
    - Ready for deployment Winter 2011-12

WET Task: Common Winter Weather Forecast

- **Scope**
  - "Core 29" terminals – FAA Core 30 minus HNL
  - Timeline: 0-72 hours, 6 hour increments
  - Forecast parameters
    - Snowfall total (event)
    - Snowfall rate
    - Visibility
    - Icy/mixed precipitation type/intensity/accumulation
- **Automation: Short-Range Ensemble Forecast**
  - Similar to Winter Weather Guidance (HPC)

Airports Grouped by Relative Winter Impact (Average Annual Snowfall)

Group I 30”+	Group II 15-30”	Group III 0.1-15”	Group IV Trace
DEN (60”)	EWR (28”)	SEA (11”)	FLL/MIA (T)
SLC (59”)	LGA (26”)	CLT (6”)	LAX (T)
MSP (50”)	JFK (23”)	MEM (5”)	MCO (T)
BOS (42”)	IAD (22”)	DFW (3”)	PHX (T)
DTW (41”)	BWI (21”)	ATL (2”)	SAN (T)
MDW (39”)	PHL (21”)	LAS (1”)	SFO (T)
ORD (39”)	DCA (17”)	IAH (½”)	TPA (T)

Forecast Conditions x Airport Group = Potential Impact

	Group I (Cold Weather Cities)	Group II (NYC, PHL, DC)	Group III (Warm Weather Cities)	Group IV (Southern Tier)
8"+ • 1" per hr FZRA/PL/mix less than ½SM				
4-8" • ½" per hr -FZRA or -PL 1h 1SM				
2-4" • ¼" per hr -FZRA or -PL 3SM				
0-2" .1" per hr				
Trace snowfall				
No precip				

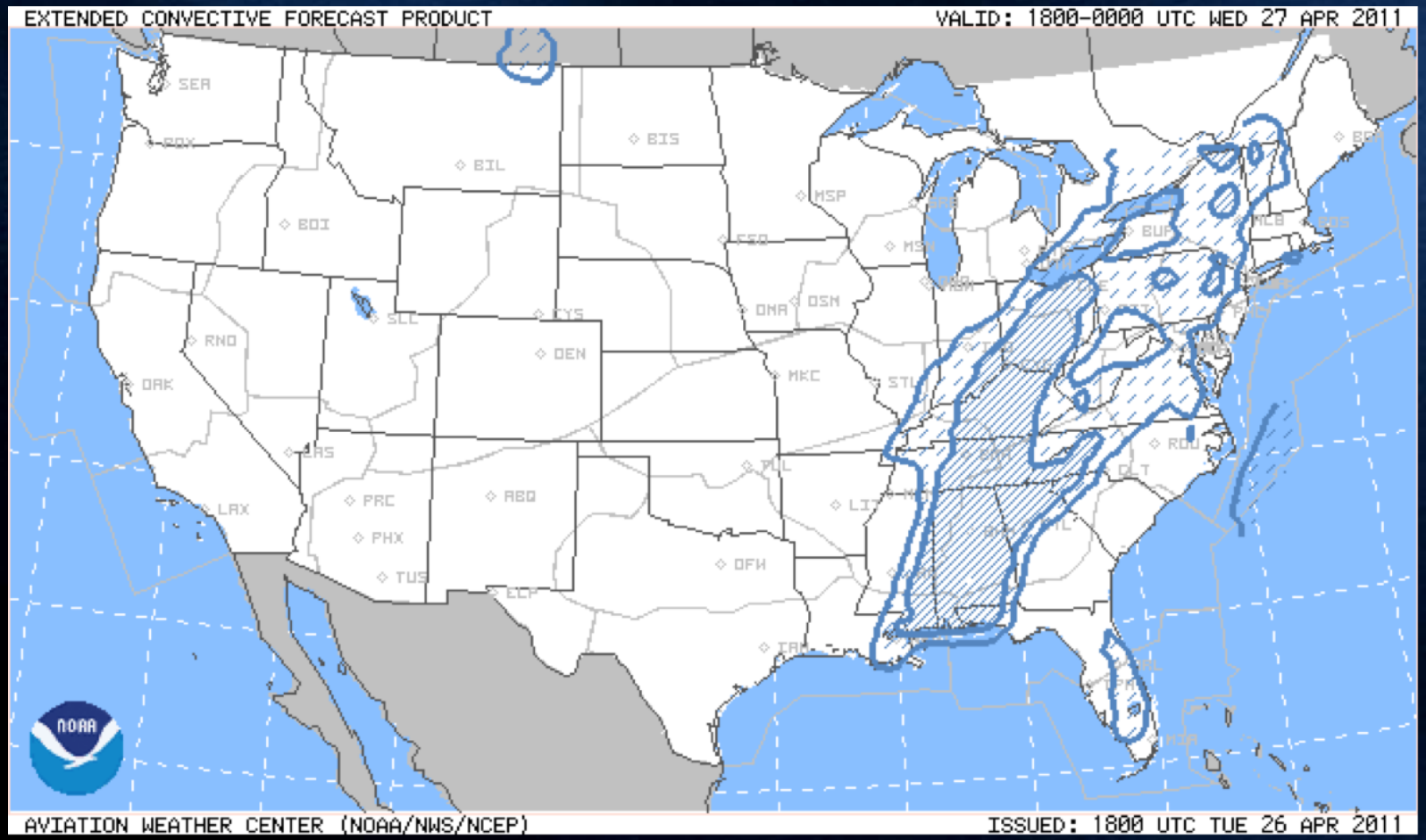
WET Task: Common Winter Weather Forecast

- **Output**
  - Web based, public-facing, updated 4 times daily (on SREF cycle)
  - Tabular, color coded display by airport and time interval
  - Drives SPT agenda and airport-specific discussions
- **Status**
  - Formal “mock-up” of product; training development – this month
  - SREF output operational – by December 1
  - Product goes “live” – by mid-December
- **Next: Integration with formal extended plan process**

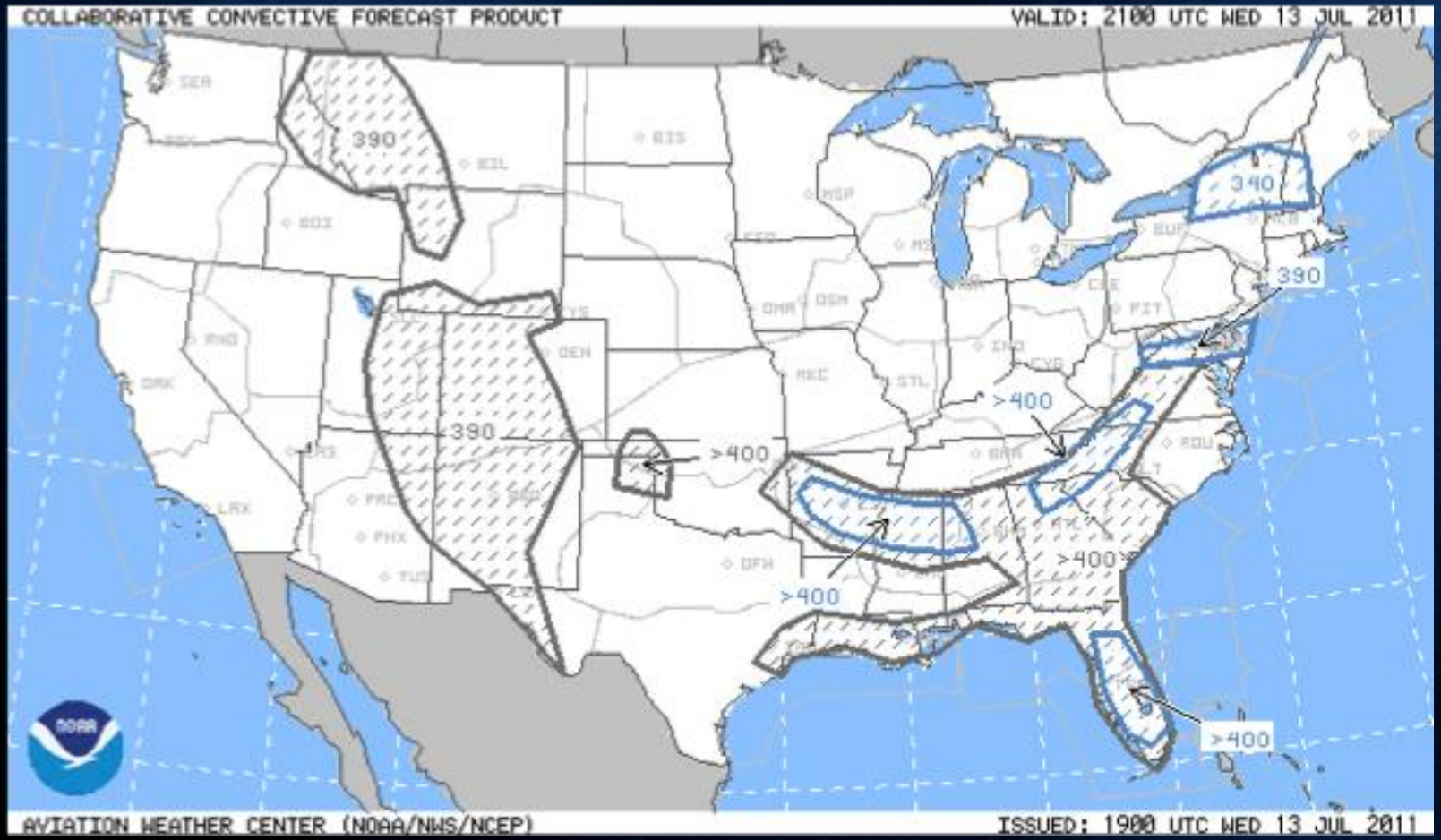
WET Tasks: Improvements to Convective Weather Forecasts for TFM

ECFP • CCFP Evolution & Operational Bridging

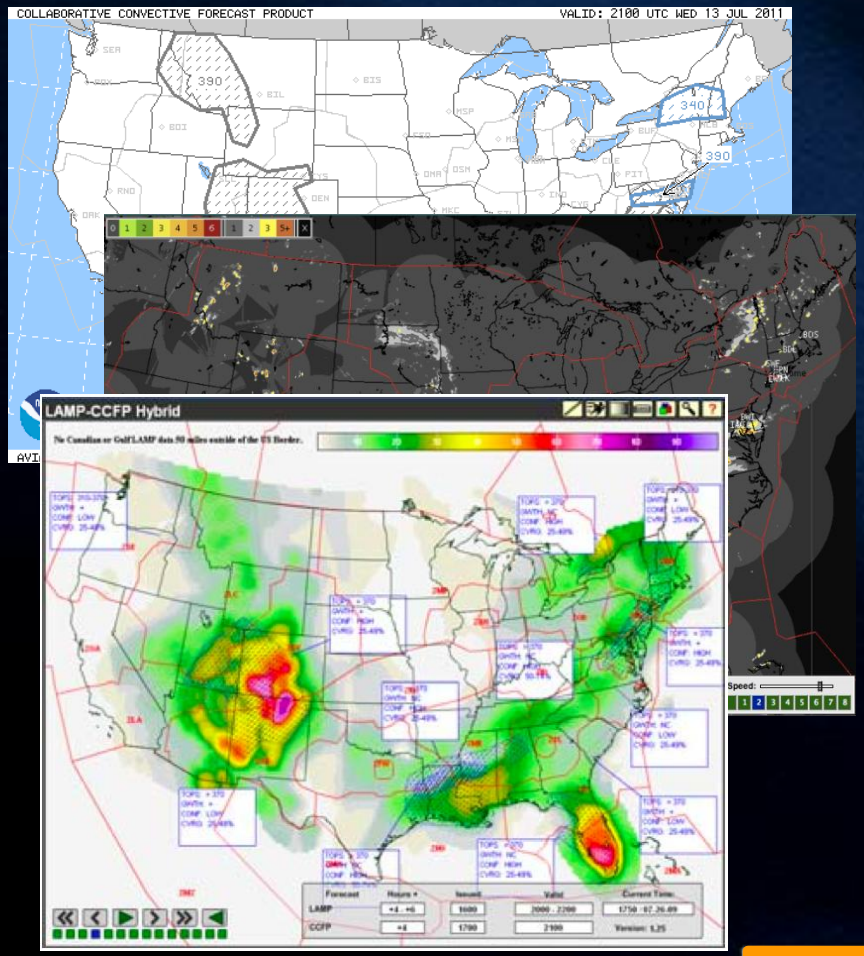
Experimental Extended Convective Forecast Product (ECFP)



Collaborative Convective Forecast Product (CCFP)



Collaborative Convective Forecast Product (CCFP)



- **Current**
  - Issued every 2 hours
  - 2-4-6 hour intervals
  - Hand-drawn
  - Criteria-driven
- **Evolved**
  - Event- and impact-driven
  - More robust communication
  - Leverage automation & multiple forecast sources
  - Adjust role of human met.

Operational Bridging, Convective Weather Forecasts and ATM Decision Making

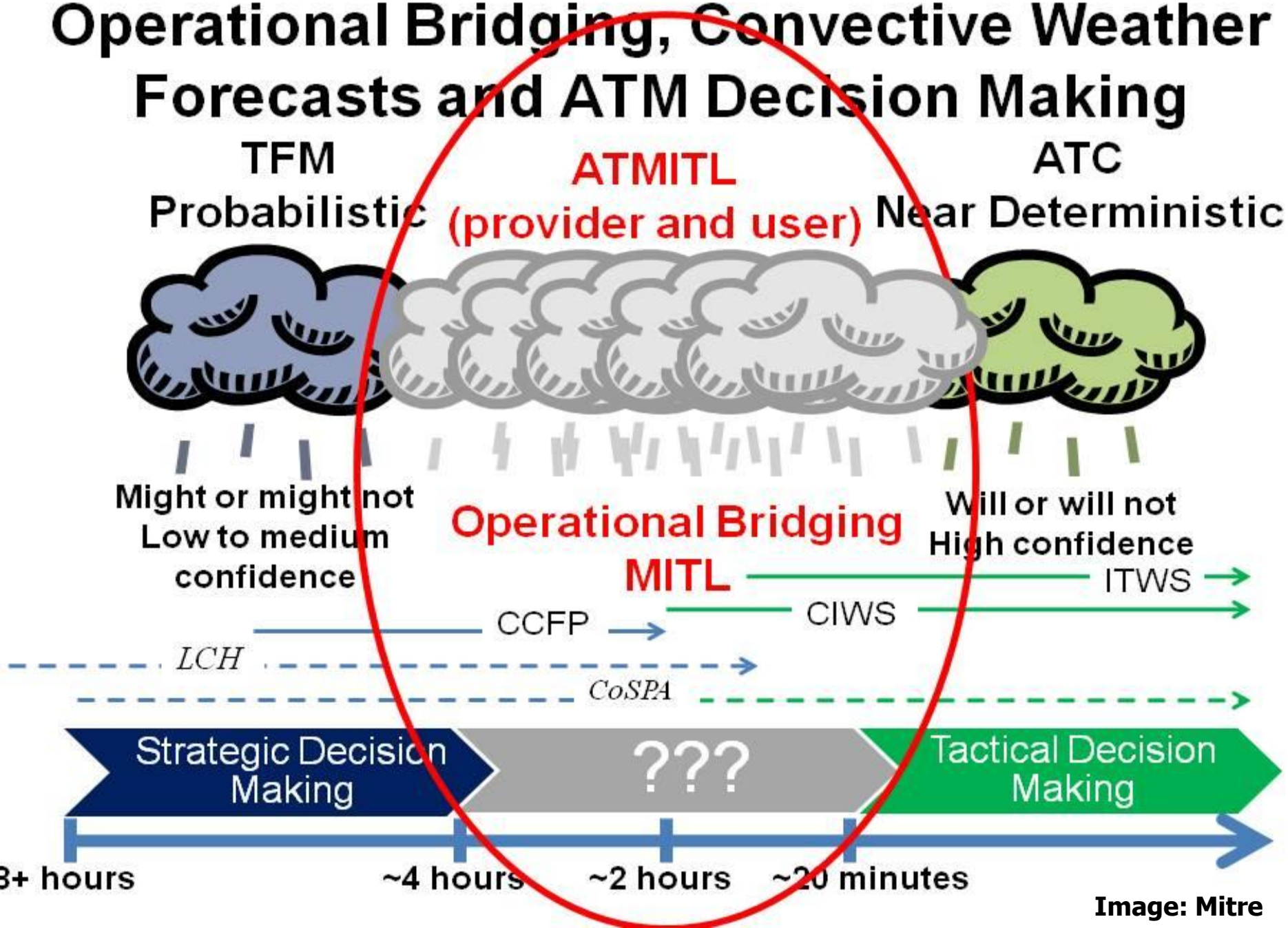


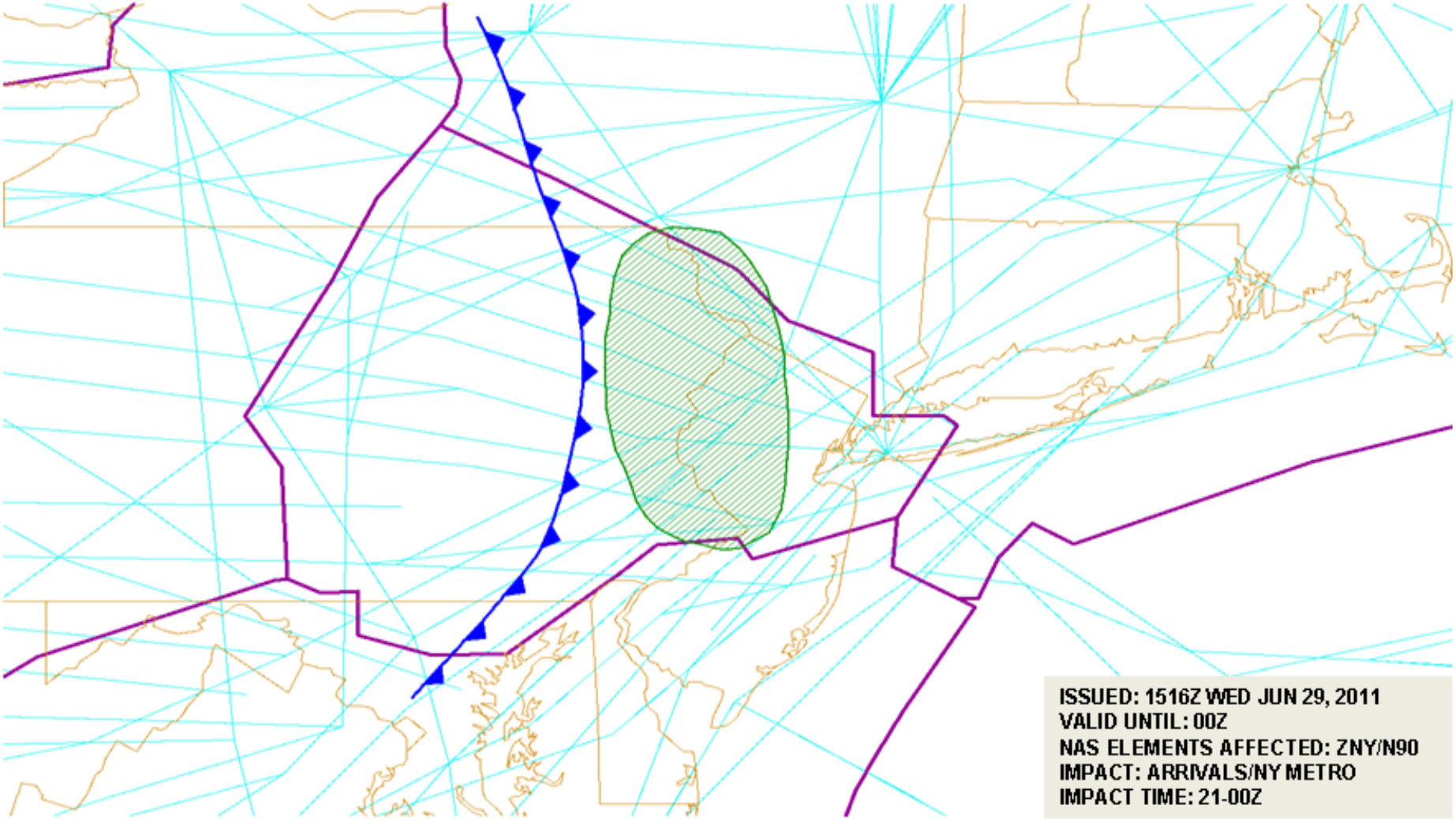
Image: Mitre

Operational Bridging: What Is It?

- Human Over The Loop (HOTL) of automated forecasts
  - Meteorologist well versed in NAS components & processes
  - Reconciles multiple forecast sources and types
  - “Tunes” forecast to traffic impact
- Product: Aviation Weather Statement (AWS)
  - Modeled on SPC’s Mesoscale Discussion
  - Event driven, generally 2-4 hours prior to forecast impact
- Continuous collaboration with traffic managers

AVIATION WEATHER STATEMENT

NWS AVIATION WEATHER CENTER KANSAS CITY



DISCUSSION...RECENT VIS SAT IMAGERY REVEALS DEVELOPING CU FIELD OVER E PA EXPECTED TO DVLP INTO ISOL CLUSTERS OF CONVECTIVE CELLS BY 19Z AND CONT E ACROSS N NJ BY 21Z AFFECTING N90 AND NY METRO BETWEEEN 22-00Z. COSPA IN GOOD AGREEMENT WITH CELL MVMT AND CVRG CRITERIA (25%). ACTIVITY EXPECTED TO WEAKEN AND GRADUALLY DISSIPATE AFTER 23Z AS TSTMS MOVE E OVER LI AND ADJ WATERS. MAX TOPS TO FL350, MEAN STORM MOTION VECTOR 26035.

Operational Bridging: Demo & Deployment

- "Table Top" demonstration: May 2011 CDM Meeting
- Live operational demonstration: Convective Season 2012
  - Scope: limited days/hours
  - Graduated implementation – full public demo by midsummer
- Late 2012 TSD software update
  - CIWS on TSD
  - CCFP "shift right": 4-6-8 hours and automated
- 2013: Live in the NAS
  - Refocus of CCFP resources

Links

- New York TRACON Area Wind Speed Outlook: http://www.erh.noaa.gov/zny/N90_COMPRESSION.php
- ECFP: http://aviationweather.gov/testbed/ccfpoutlook/
- CCFP: http://aviationweather.gov/products/ccfp/
- CIWS: http://ciwswww.wx.ll.mit.edu (account required)
- WET: http://flycdm.org/Workgroups/weather_eval.html
- Operational Bridging AWS and Winter Weather Forecast pages: stay tuned