

Verification of Aviation Weather Forecasts

Matthew Wandishin

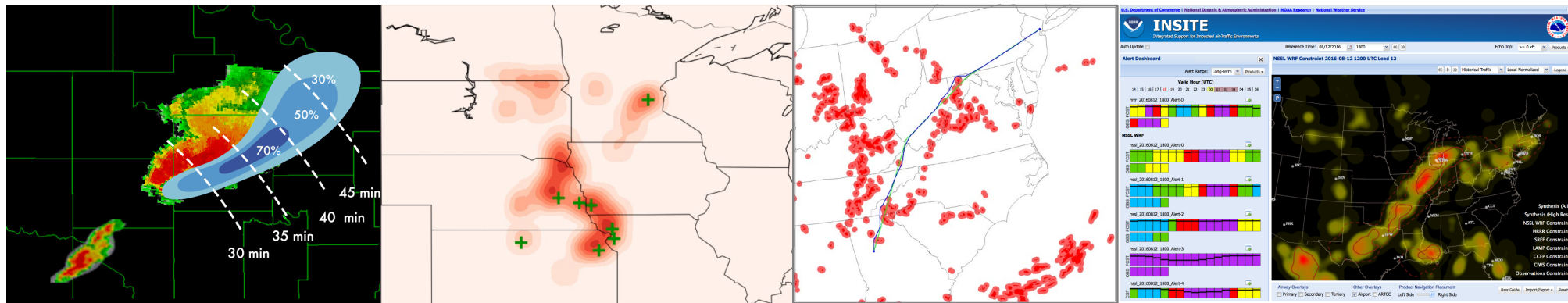
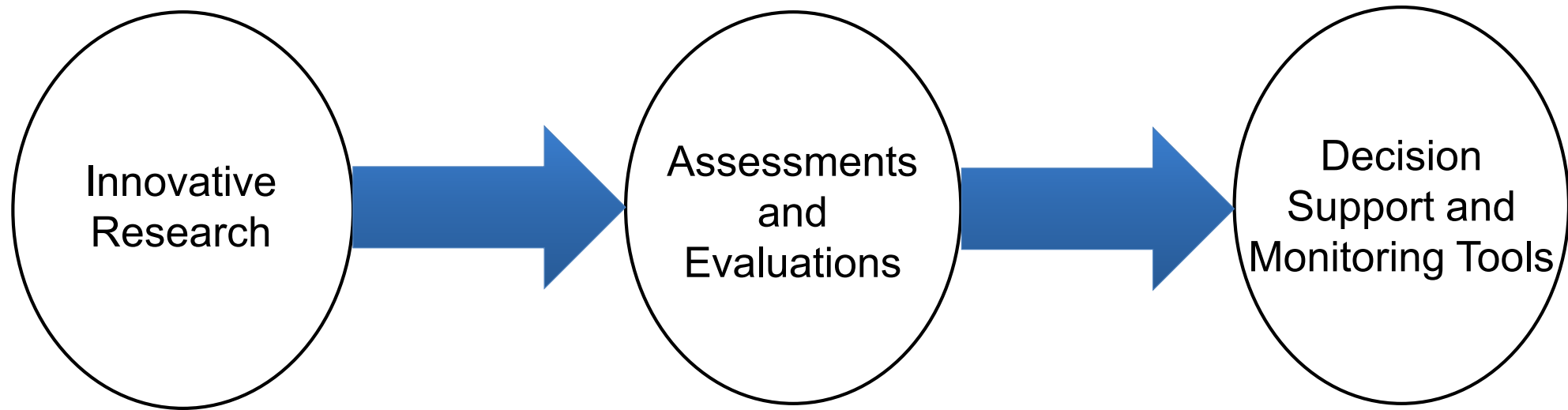
Forecast Impact and Quality Assessment Section

NOAA/GSD

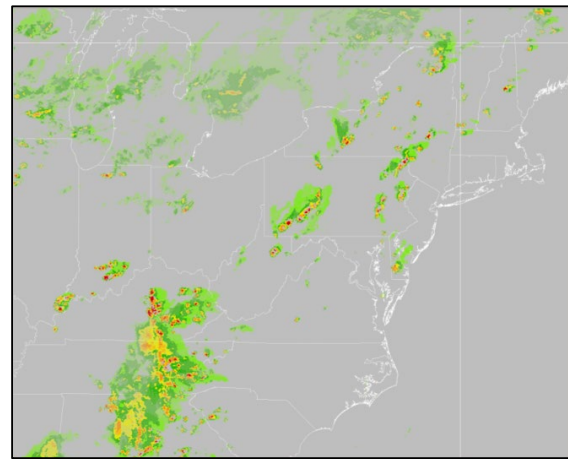
10/18/2018



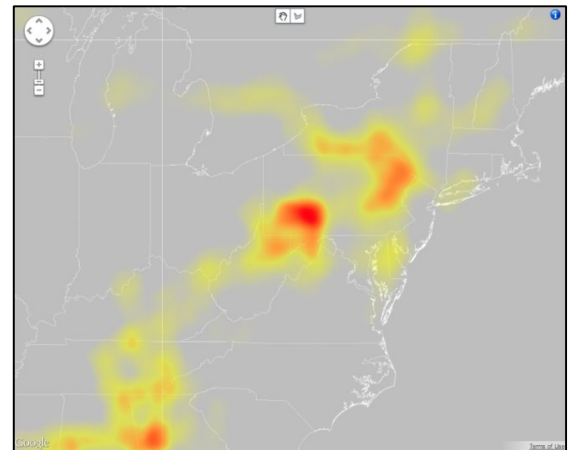
FIQAS Activities



Innovative Research

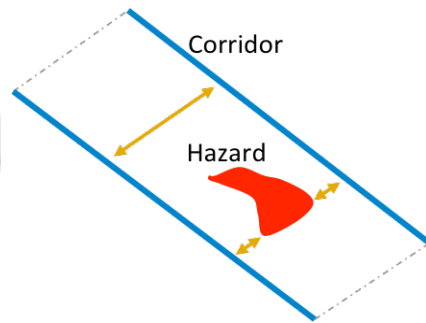


Weather

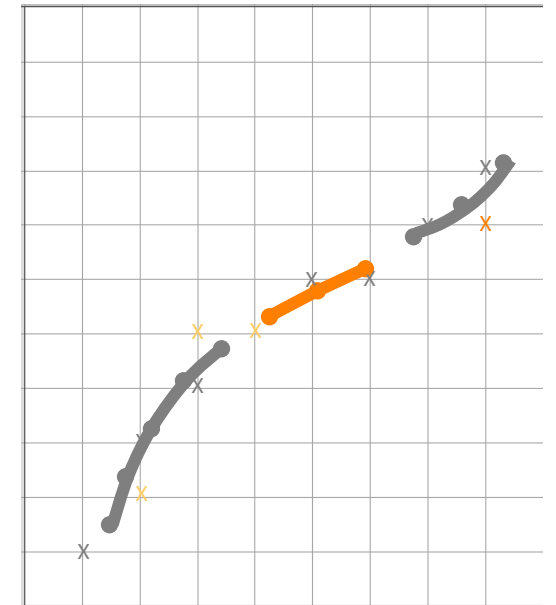
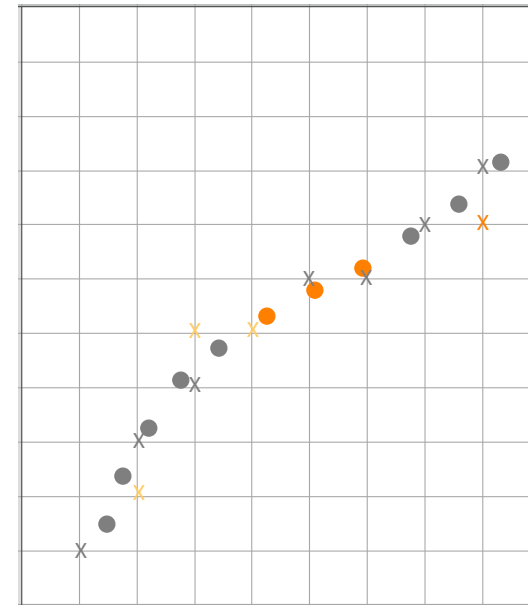


Constraint

Flow Constraint Index

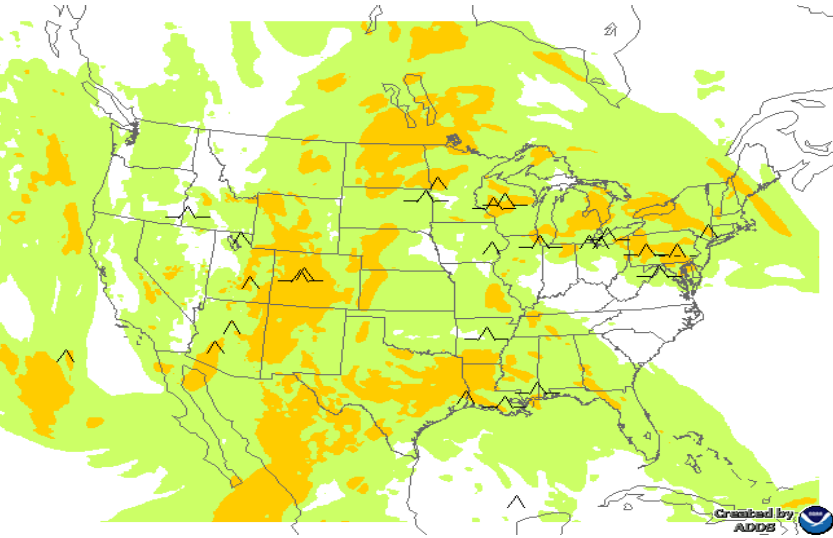


Event-based verification

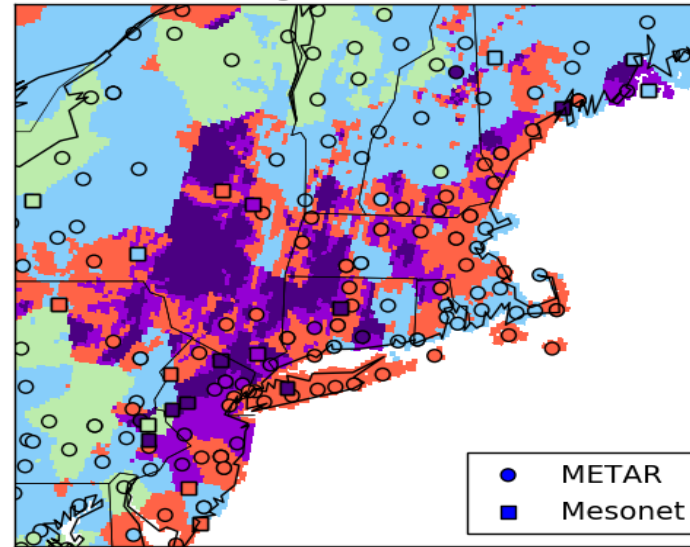


Assessments

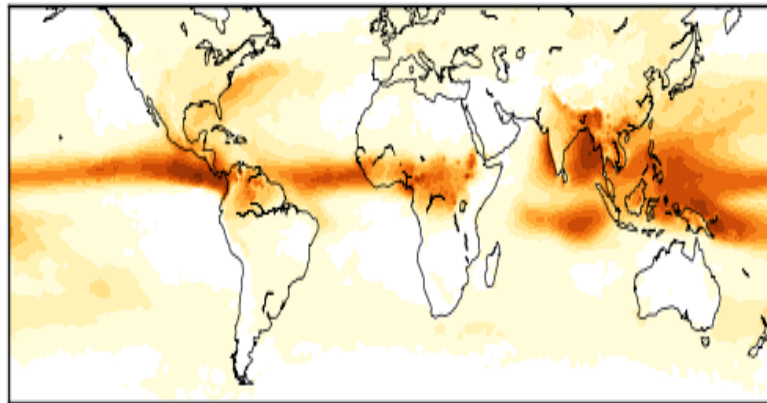
Graphical Turbulence
Guidance



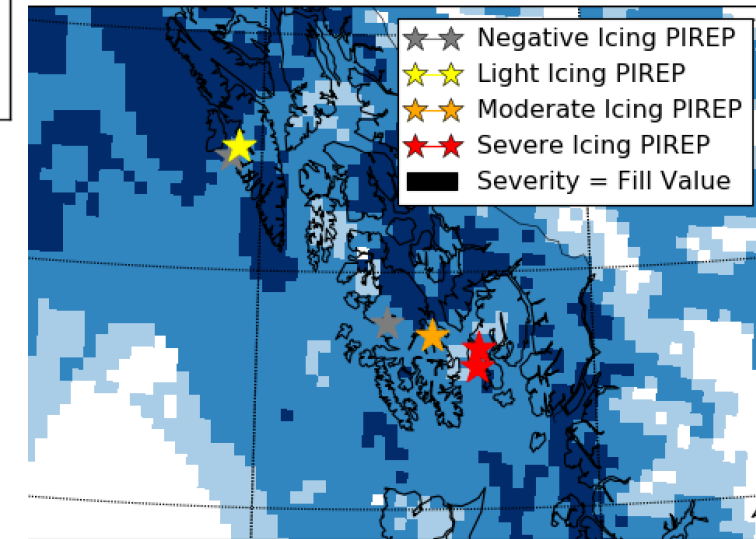
Ceiling and Visibility
Analysis



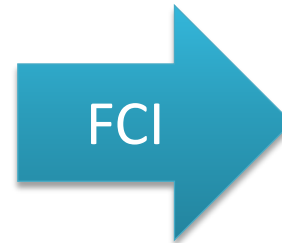
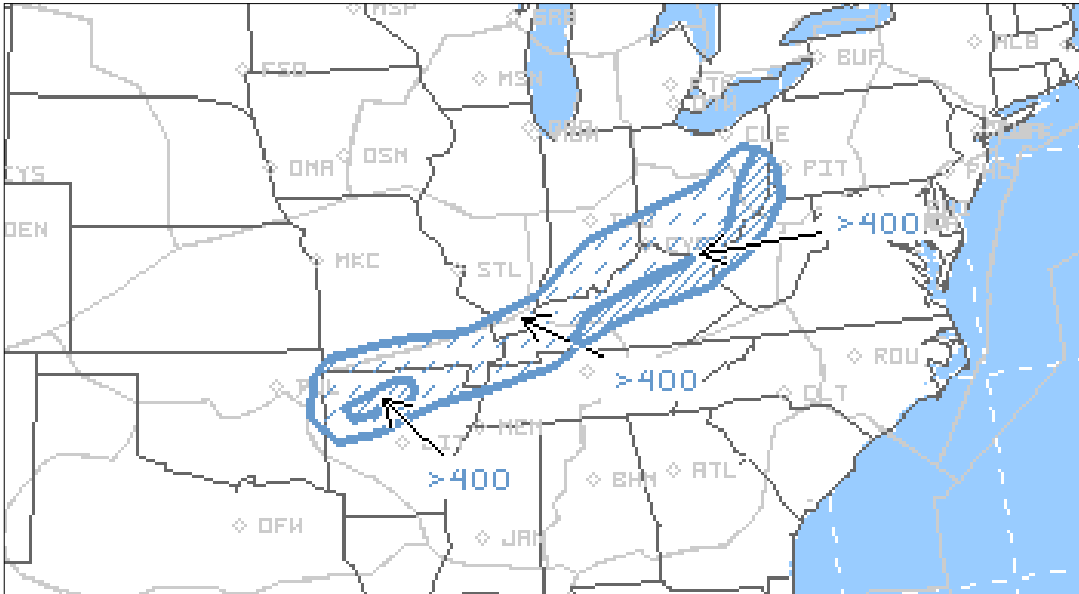
Aviation Convective
Forecasts



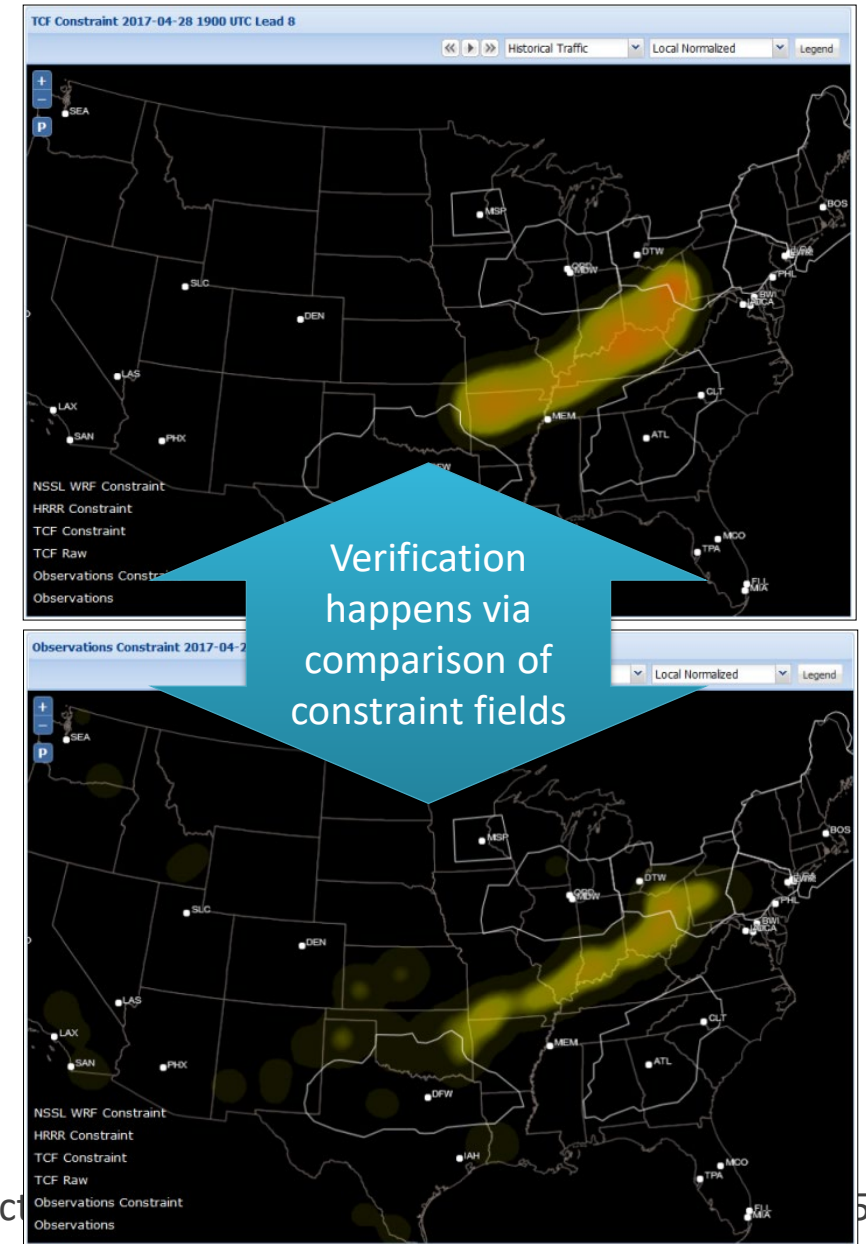
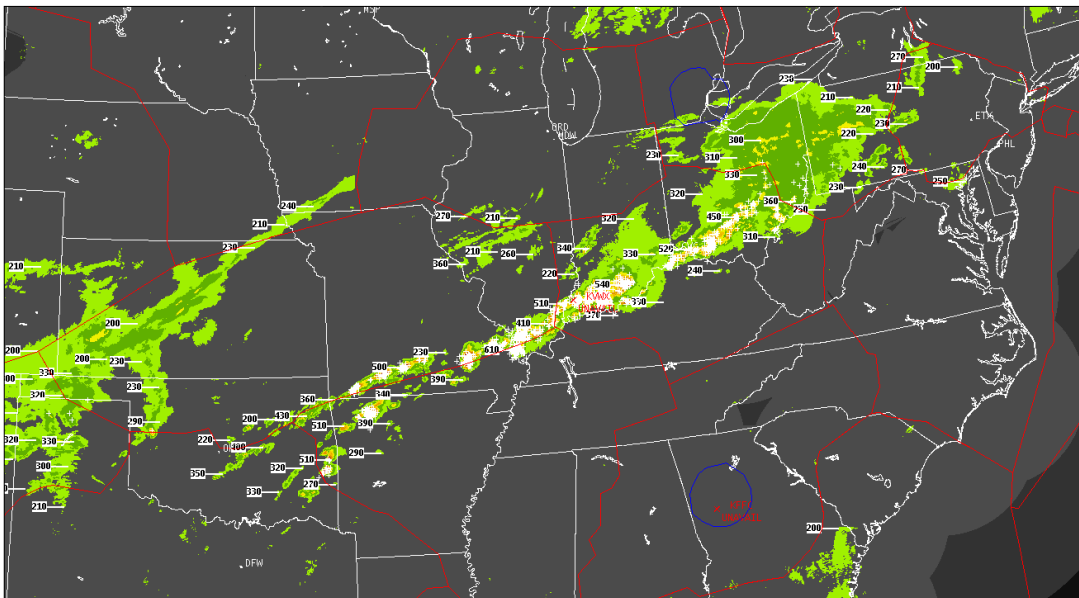
Icing Product
Alaska



Decision Support and Monitoring



Forecasts and observations are converted to airspace constraints using the Flow Constraint Index (FCI)





Convective Weather Verification Service



Verification

Monitoring

08/31/2017

15:00

04:00

Apply

User Guide

Overview

Impact from current forecast

High

Impact from current observations

Moderate

Skill of current forecast

Typical

Toggle Binary Obs

Toggle ARTCC

Forecast Consistency

1500 4hr

High

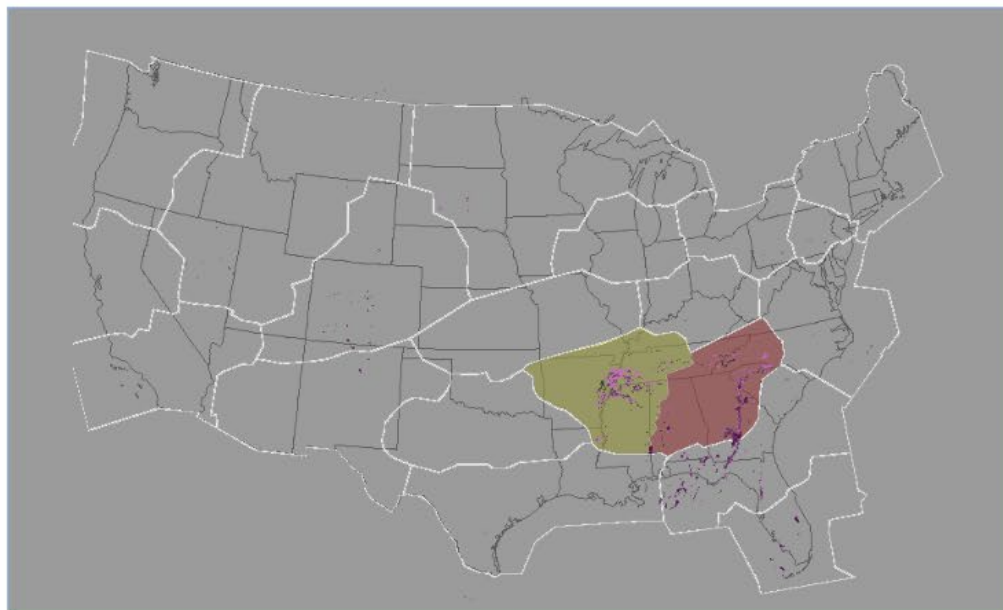
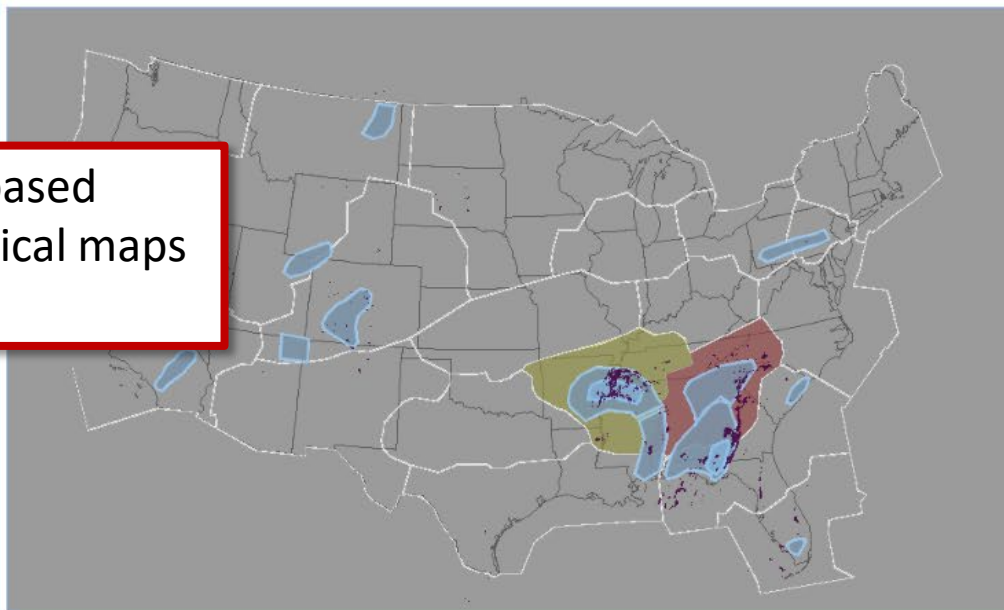
1300 6hr

High

1100 8hr

High

Toggle ARTCC

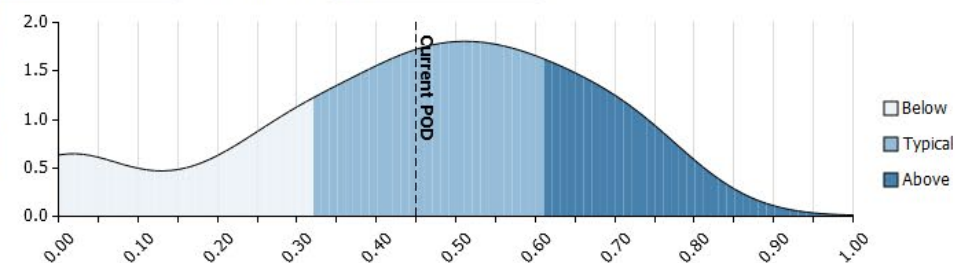


Vx: Constraint-based

Region: CONUS

FCI Threshold: 0.1

Statistic	Value	Rating
POD	0.44897017	Typical
Success Ratio (1-FAR)	0.47982892	Typical
CSI	0.3174841	Typical
Bias	-1	Below



FCI-based skill scores

FCI-based geographical maps

CWVS Main Page

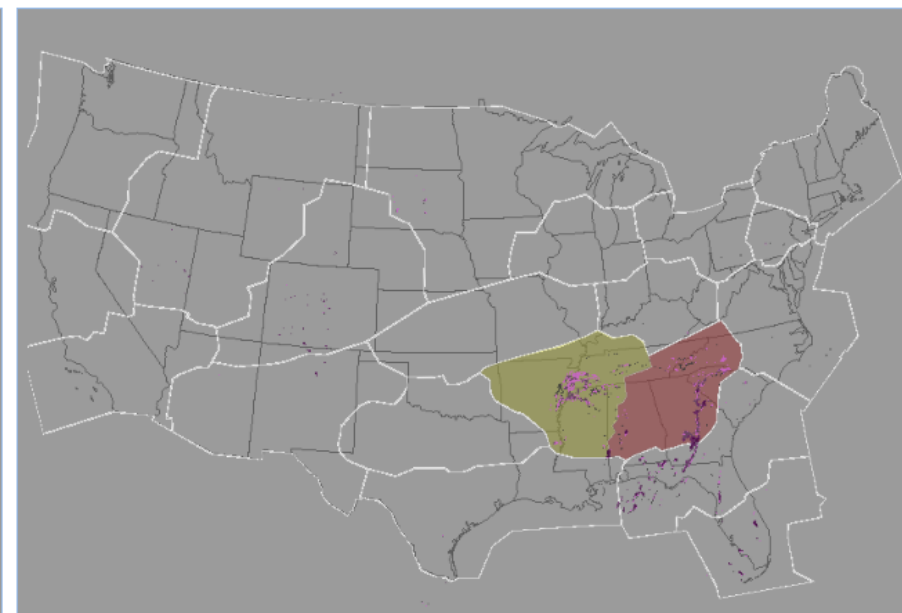
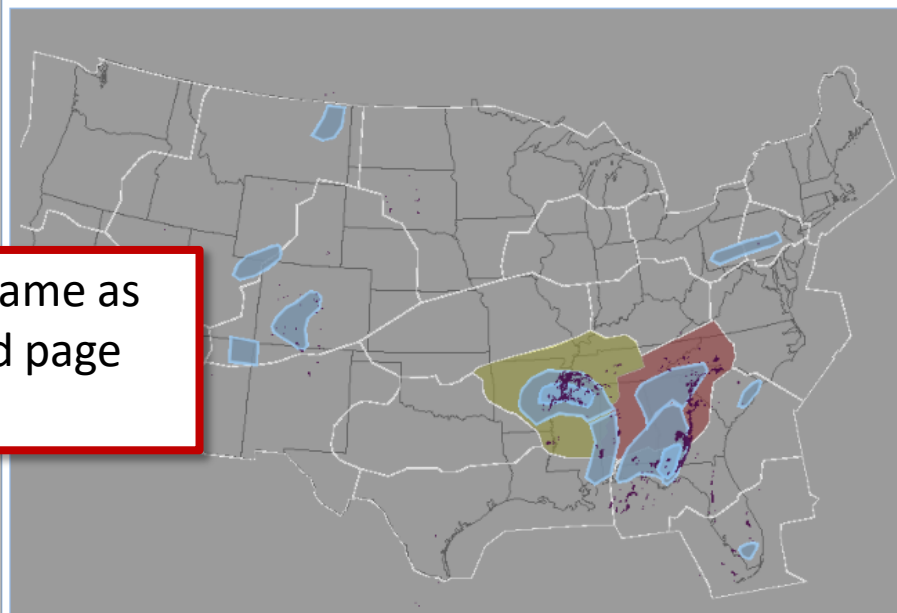


Convective Weather Verification Service



Verification

Monitoring



Top panels are same as
constraint-based page

Vx: Met-based

Region: CONUS

FCI Threshold: 0.1

Type	% CR cov	% of CR area per ET range				Meets Definition	
		250-290	300-340	350-390	≥ 400	Covg	ET
Sparse FL350-FL390	0.00	0.00	0.00	0.00	0.00	No	No
Sparse FL350-FL390	0.37	100.00	0.00	0.00	0.00	No	No
Sparse FL350-FL390	1.03	4.68	32.99	41.55	20.77	No	Yes
Sparse FL300-FL340	0.00	0.00	0.00	0.00	0.00	No	No
Sparse FL350-FL390	4.71	52.99	39.45	4.61	2.96	No	No
Sparse FL350-FL390	0.00	0.00	0.00	0.00	0.00	No	No
Sparse FL350-FL390	0.00	0.00	0.00	0.00	0.00	No	No
Sparse FL300-FL340	14.03	68.39	30.50	1.11	0.00	No	Yes
Medium FL300-FL340	25.21	63.60	34.32	2.08	0.00	No	Yes
Sparse FL350-FL390	2.90	31.66	6.75	17.57	44.01	No	No
Sparse FL400	7.43	16.14	38.87	30.53	14.46	No	No
Medium FL400	4.68	27.87	26.91	31.42	13.80	No	No
Sparse FL300-FL340	0.00	0.00	0.00	0.00	0.00	No	No
Sparse FL250-FL290	0.33	61.96	38.04	0.00	0.00	No	Yes

Bottom panel displays
met-based verification

10/31/2018

About Us

Forecast Impact and Quality Assessment Section