

ARWG and Area Forecast Removal



**Transition of Area Forecasts
to Digital and Graphical Alternative Sources
of Information as a Pretext to WIMAT**

**Pat Murphy
Manager, Policy & Requirements Branch
NextGen, FAA**

November 18, 2018



FAA

ARWG



U.S. Department
of Transportation
Federal Aviation
Administration

OCT 4 2012

Ms. Laura K. Furgione
Acting Director, National Weather Service
U.S. Department of Commerce
1325 East-West Highway
Silver Spring, MD 20910-3283

Dear Ms. Furgione:

As you know, a joint team of Federal Aviation Administration (FAA) and National Weather Service (NWS) personnel worked together over the past 2 years to address weather forecast information used for traffic flow management (TFM). The team established functional and performance requirements and operational performance measures and metrics. An implementation plan was also developed for each.

We would like to recommend a follow-on activity to address all weather forecast information the NWS provides in support of air traffic operations. We believe the time is right to do this since the majority of products the NWS provides for us have been produced for decades, with little change in format and all without performance (accuracy) requirements and measures to track. We propose a joint team effort, similar to the TFM-focused team, but with the proper expertise required to address all weather forecast information requirements. The team should also be empowered to develop performance requirements and prioritized implementation plans to meet the requirements. We suggest this effort begin this November which will give both agencies time to address team composition.

Please let me know if you agree with this effort.

Sincerely,

J. David Grizzle
J. David Grizzle
Chief Operating Officer
Air Traffic Organization

Chief Operating Officer
800 Independence Avenue SW.
Washington, DC 20591

Received
10/12/2012
7



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
1325 East-West Highway
Silver Spring, Maryland 20910-3283
THE DIRECTOR

OCT 23 2012

Mr. J. David Grizzle
Chief Operating Officer, Air Traffic Organization
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, DC 20591

Dear Mr. Grizzle:

Thank you for your letter regarding the joint Federal Aviation Administration (FAA) and NOAA's National Weather Service (NWS) working group. I agree with your recommendation to expand the current traffic flow management (TFM) activity to address all weather forecast information the NWS provides in support of air traffic operations. I also concur with empowering this joint team to develop performance requirements and prioritize implementation plans. I support your suggested timeline to start this expanded effort and believe the working group's next plenary meeting scheduled for November is an opportune time.

The TFM working group succeeded in developing and implementing user-relevant performance measures, setting the path for improving NWS support to the FAA, and should continue these ongoing efforts as we move into the NextGen era. I believe this expanded role of the joint team will build on the successful cooperation between our agencies as we move forward collaboratively to continue improving aviation weather services for TFM and all air traffic operations. Please have your staff contact Ms. Cyndie Abelman, NWS Aviation Services Branch chief, to establish team composition and incorporate the expanded activity at the November meeting.

Sincerely,

Laura K. Furgione
Laura K. Furgione
Acting Director

Printed on Recycled Paper

THE ASSISTANT ADMINISTRATOR
FOR WEATHER SERVICES



Background

- In Oct 2012, NWS Deputy Director and FAA Vice President for Systems Ops agree to form an inter-Agency working group to identify, eliminate, or replace products that are duplicative or of limited value to aviation users
 - ✦ Building on TRWG Success
- Recognized legacy suite of Aviation Weather products will not work in the NextGen world
- To meet the needs of NextGen and modern aviation, data-centric MET information based on user's needs and requirements is needed
- PROBLEM: We had no documented 'requirements' for the legacy products
 - ✦ Many go back 50+ years!

Background

- Many NWS aviation weather products are decades old, with little change in format
- Primary goals of the review, include:
 - ✦ Improving NWS products, in-support of aviation weather;
 - ✦ Increasing emphasis on digital products and looking for opportunities to digitize legacy NWS products and services with finer resolution (graphical products);
 - ✦ Identifying products and services with duplicative information;
 - ✦ Identifying products and services that are of limited (dated) utility to aviators; and
 - ✦ Focusing activities of NWS forecasters to maximize operational benefit.

High-Level Methodology

Given its long history, no formal FAA requirements exist for the Area Forecast (FA)

1. ARWG used NWS Instruction 10-811 (*En Route Forecasts and Advisories*) to back-out a set of FA 'requirements'
 - NWS guidance for producing each FA is tailored to regional needs
 - Difference between regions necessitates a phased approach
2. **Focusing on content, the team mapped individual weather elements in the FA to alternative sources of similar aviation weather forecast information**
3. **The team selected the best source of information for each weather element in the FA, typically from among several available alternative products**

FA Perfect Candidate

- Limitations include:
 - ✦ Vast geographical coverage, combined with a character-limitation (legacy teletype requirement), presents difficulty in adequately describing weather conditions
 - ✦ Prohibited from describing IFR conditions (reserved for SIGMETs and AIRMETs)
 - ✦ Updated less frequently than greater-resolution aviation weather products and services
- While the FA met aviation weather information needs for many years, today NWS provides equivalent (or better) information through a number of alternative products.
- Retiring the FA facilitates focusing the effort of NWS forecasters on maximizing operational benefits to aviators.
- Transitioning to more-modern digital and graphical forecast products provides improved weather information to decision-makers.

Area Forecast: Description

- Abbreviated, plain-language forecast of specified weather phenomena (no digital or graphical components)
 - ✦ Variations date back to the 1940s; current version unchanged since the early 1990s
- Forecasts VFR clouds and weather over 16 large geographical areas:
 - ✦ CONUS (6), Hawaii (1), Alaska (7), Gulf of Mexico (1), Caribbean (1)
- Issued 3-4x daily, valid 18hrs (12hr + 6hr categorical outlook)
- Character-limited
 - ✦ Weather details often removed to fit format
- Safety concerns
 - ✦ Doesn't mention IFR
 - ✦ Better information is currently available, but not utilized
 - Inconsistency
 - ✦ 'State-level' resolution



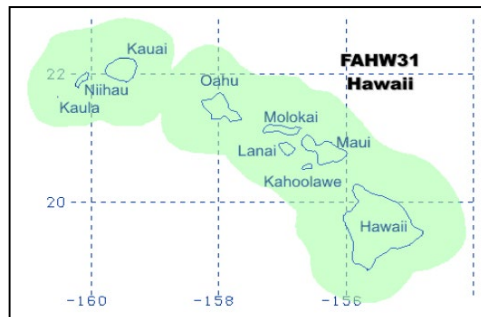
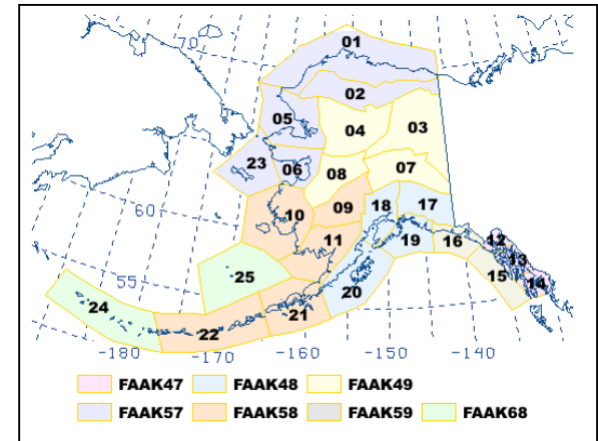
FAA

Next**GEN**

Area Forecast: Why the FA?

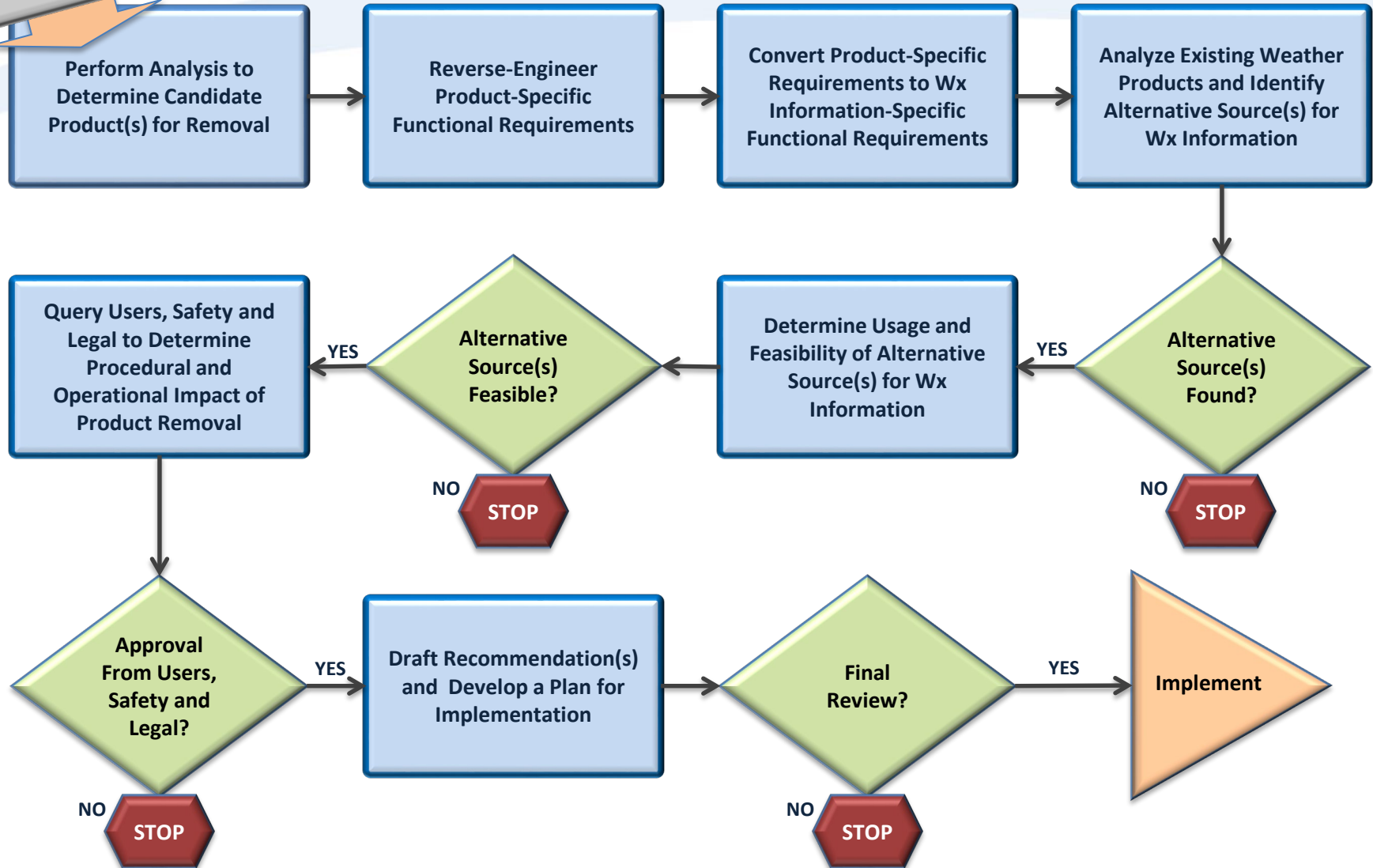
- Replacing text FA enables NWS forecasters to focus more effort on hazards to safety, and decision support services
 - ✦ Technical nature of the product and perceived value to the end user
 - ✦ Widespread availability of similar & better aviation weather information
 - ✦ Significant cost of producing the product
 - 40-60% of meteorologists' time is spent typing the text of FA
 - Time better spent focusing on SIGMET/warning information, in addition to benefits mentioned above
- Identified alternatives:
 - ✦ Enable higher refresh rates;
 - ✦ Utilize higher-resolution forecast information;
 - ✦ Improve consistency with other aviation weather products and information; and
 - ✦ Better-meet NextGen goals and needs.

Area Forecast: Coverage



AC-0045G Product Modification Process Overview

FAA AC-0045G



FAA

Next**GEN**

Elements of the FA: One-for-One

Elements of the FA

Weather Synopsis →

Cloud Amount (1000ft ≤ Z ≤ FL180)
Cloud Layers & Tops (1000ft ≤ Z ≤ FL180) } →

Areas of Precipitation →

Visibility (including obstruction) →

Areas of Sustained Surface Winds →

Flight Category* (including obstruction) →

Alternative Sources of Information

WPC+HFO Surface Analyses + Progs
(including Short-Range Public Forecast Discussion)

National Digital Forecast Database (SkyCover Grid)
Low-Level SIGWX Chart + PIREPs
Cloud Top Height Model Forecast Graphics

National Digital Forecast Database (PoP Grid)
Low-Level SIGWX Chart
Convective SIGMET

AIRMET Sierra

National Digital Forecast Database (Sfc Winds Grid)
AIRMET Tango

Low-Level SIGWX Charts + Nearest TAF(s)

**6hr outlook (hrs 12-18)*

Weather Synopsis

WPC Surface Analyses & Progs

FAUS42 KNCI 261745

FA2W

MIAC FA 261745

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 271200

CLDS/WX VALID UNTIL 270600...OTLK VALID 270600-271200

NC SC GA FL AND CSTL WTRS E OF 85W

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.

TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.

NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...RDG HI PRES EXTDS FM NW PA TO NC SC AND
ERN GA. RDG WL MOV SLOLY EWD.

NC

MTNS...SKC OR SCT CI. 03Z BKN CI. OTLK...VFR.

PIEDMONT...SKC. 04Z SCT-BKN CI. OTLK...VFR.

CSTL PLAIN...SKC OR SCT CI. OTLK...VFR.

SC

MTNS-PIEDMONT...SKC OR SCT CI. OTLK...VFR.

CSTL PLAIN...SKC. 04Z SCT030-040. OTLK...VFR.

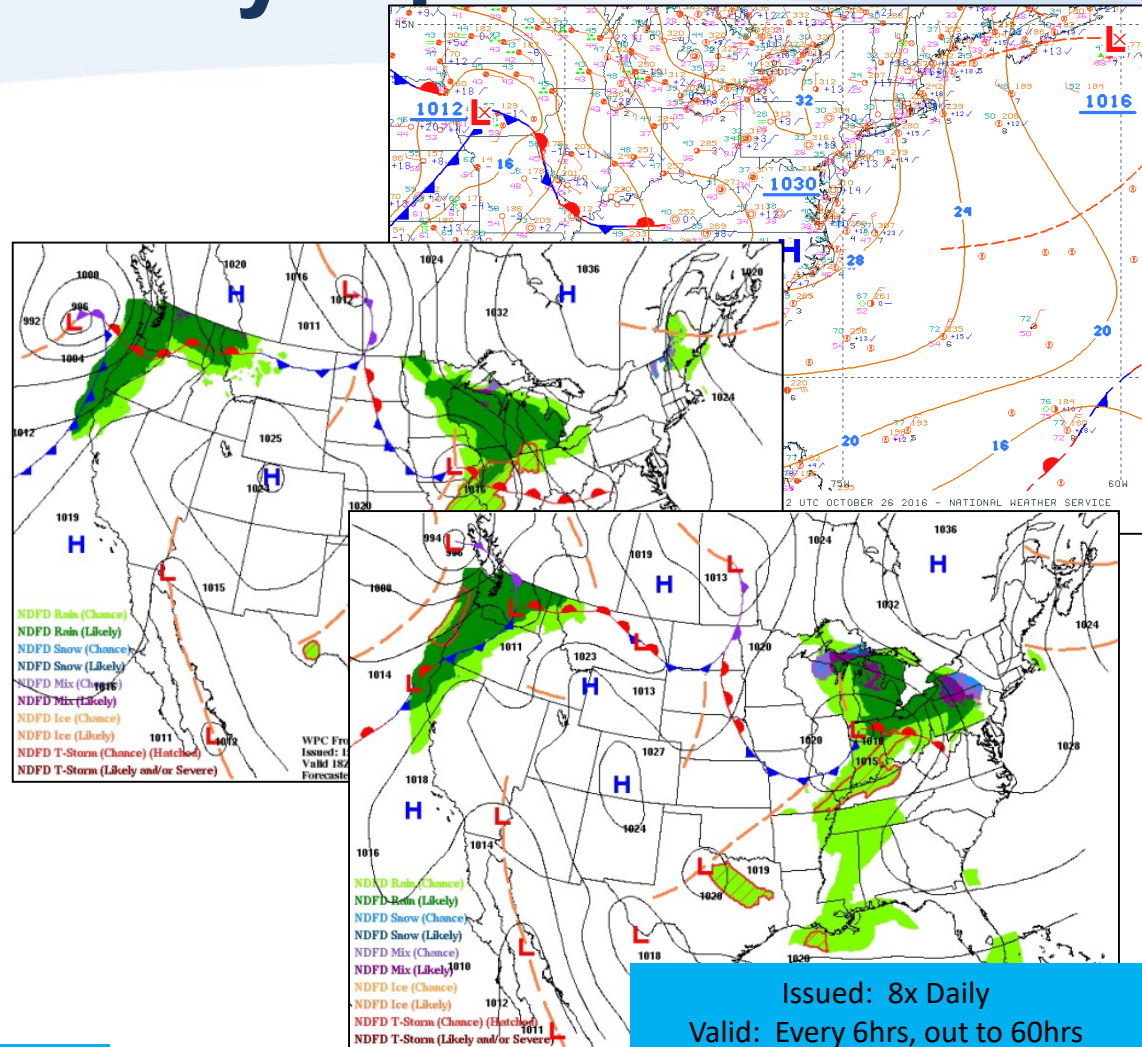
GA

NRN...SCT CI. 02Z BKN CI. OTLK...VFR.

SRN...SCT-BKN040-050 TOPS 070. 00Z SCT050. OTLK...IFR CIG

BR WRN SXNS..MVFR CIG ERN SXNS.

[...]



Issued: 3x Daily
Valid: Current through 18hrs
Spatial Resolution: Several States

Provides brief summary of major synoptic weather features,
when not trumped by character limitation.

Cloud Amount

NDFD SkyCover Grid(s)

(1000ft ≤ Z

FAUS42 KNCI 261745

FA2W

MIAC FA 261745

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 271200

CLDS/WX VALID UNTIL 270600...OTLK VALID 270600-271200

NC SC GA FL AND CSTL WTRS E OF 85W

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PIEDMONT...SKC. 04Z SCT-BKN CI. OTLK...VFR.

CSTL PLAIN...SKC OR SCT CI. OTLK...VFR.

SC

MTNS-PIEDMONT...SKC OR SCT CI. OTLK...VFR.

CSTL PLAIN...SKC. 04Z SCT030-040. OTLK...VFR.

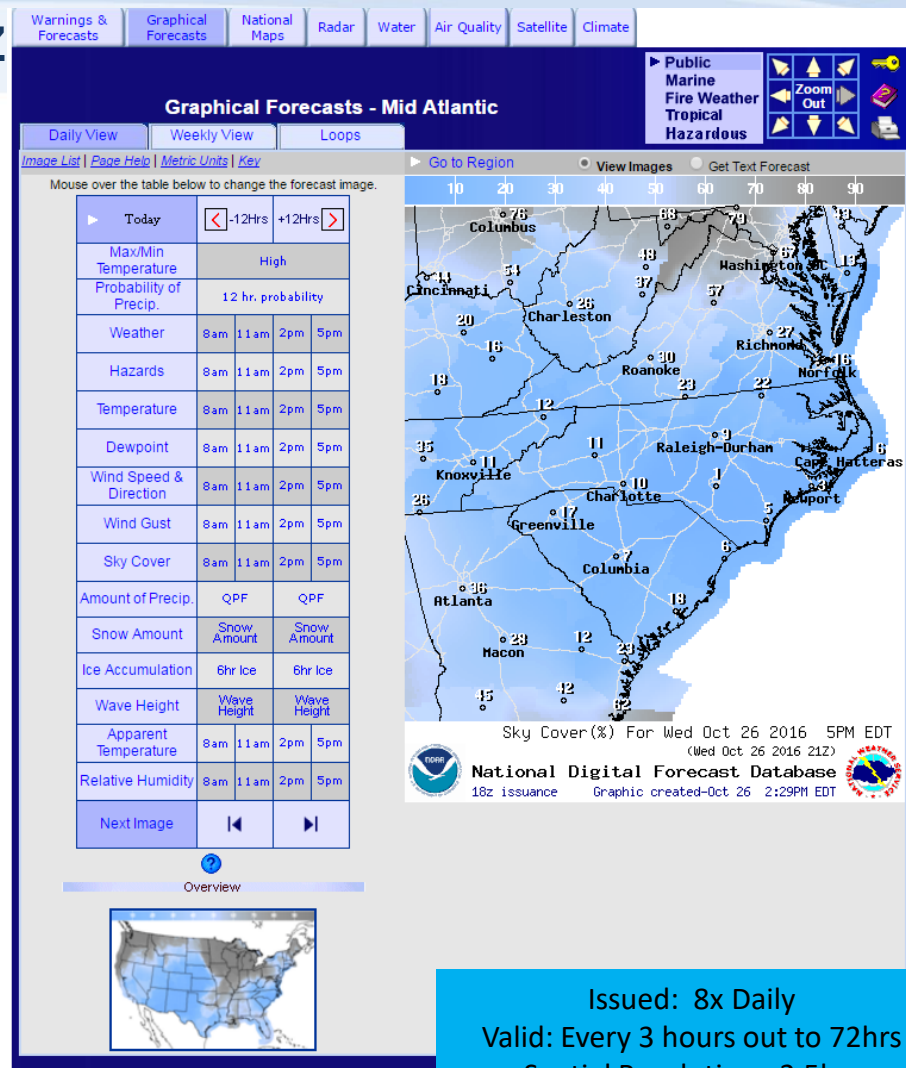
GA

NRN...SCT CI. 02Z BKN CI. OTLK...VFR.

SRN...SCT-BKN040-050 TOPS 070. 00Z SCT050. OTLK...IFR CIG

BR WRN SXNS..MVFR CIG ERN SXNS.

[...]



Issued: 8x Daily
Valid: Every 3 hours out to 72hrs
Spatial Resolution: 2.5km

Issued: 3x Daily
Valid: Current through 18hrs
Spatial Resolution: Several States

Provides 12hr forecast, in broad terms,
of cloud amount (CLR, SCT, BKN, OVC)

Cloud Bases & Tops

PIREPs

(1000ft ≤ Z ≤ FL180)
Cloud Top Heights Model Output

FAUS42 KNCI 261745

FA2W

MIAC FA 261745

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 271200

CLDS/WX VALID UNTIL 270600...OTLK VALID 270600-271200

NC SC GA FL AND CSTL WTRS E OF 85W

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...RDG HI PRES EXTDS FM NW PA TO NC SC AND
ERN GA. RDG WL MOV SLOLY EWD.

NC

MTNS...SKC OR SCT CI. 03Z BKN CI. OTLK...VFR.

PIEDMONT...SKC. 04Z SCT-BKN CI. OTLK...VFR.

CSTL PLAIN...SKC OR SCT CI. OTLK...VFR.

SC

MTNS-PIEDMONT...SKC OR SCT CI. OTLK...VFR.

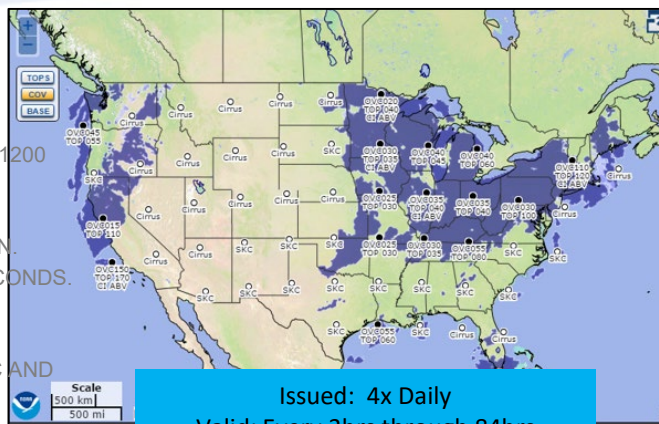
CSTL PLAIN...SKC. 04Z SCT030-040. OTLK...VFR.

GA

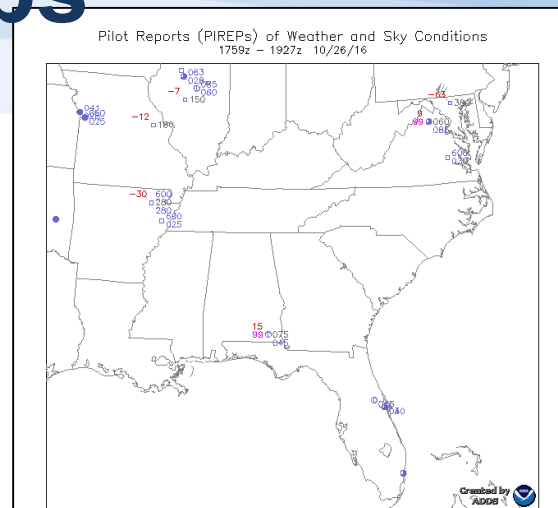
NRN...SCT CI. 02Z BKN CI. OTLK...VFR.

SRN...**SCT-BKN040-050 TOPS 070. 00Z SCT050.** OTLK...IFR CIG
BR WRN SXNS..MVFR CIG ERN SXNS.

[...]

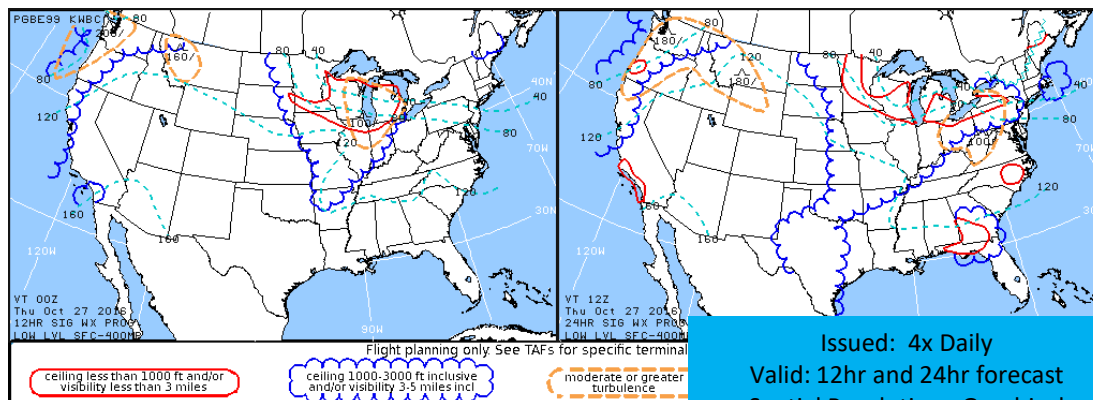


Issued: 4x Daily
Valid: Every 3hrs through 84hrs
Spatial Resolution: 12km



Issued: As received
Valid: Current
Spatial Resolution: Lat/Long, as reported

LL SIGWX Charts



Issued: 4x Daily
Valid: 12hr and 24hr forecast
Spatial Resolution: Graphical

Issued: 3x Daily
Valid: Current through 18hrs
Spatial Resolution: Several States

Provides 12hr forecast, in broad terms,
of cloud amount (CLR, SCT, BKN, OVC)

NextGEN

Areas of Precipitation

NDFD PoP Grid(s)

FAUS43 KNCI 021845

FA3W

CHIC FA 021845

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 031300

CLDS/WX VALID UNTIL 030700...OTLK VALID 030700-031300

ND SD NE KS MN IA MO WI LM LS MI LH IL IN KY

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.

TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.

NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...19Z CDFNT FROM SRN MI-SRN LM-NRN IL-SERN IA-NW MO-NERN OT SW KS MOVG SW AND EXTDG FROM CNTRL IN-SRN IL-SRN MO BY 13Z. A SECOND CDFNT FROM NW MN-SRN ND AT 19Z MOVG EWD AND EXTDG FROM ERN UP MI-NRN WI-NRN MN-NERN ND BY 13Z. HI PRES ELSW.

[...]

IL

N HLF...BKN020 TOP FL240. SCT -SHRA. WDLY SCT -TSRA. CB TOP FL450. 00Z SCT -TSRA. OTLK...IFR CIG BR...TIL 10Z ERN PTNS SHRA.

S 1/4...SCT090. OTLK...VFR...11Z MVFR CIG TSRA.

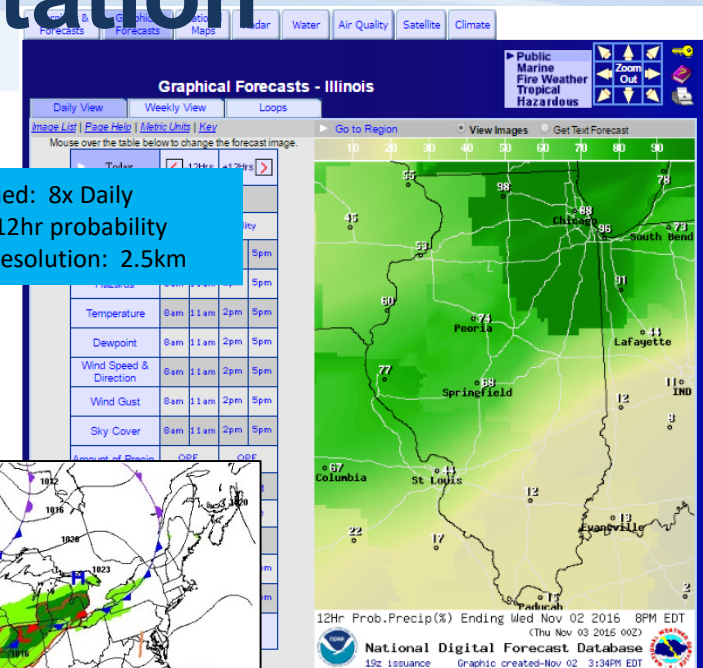
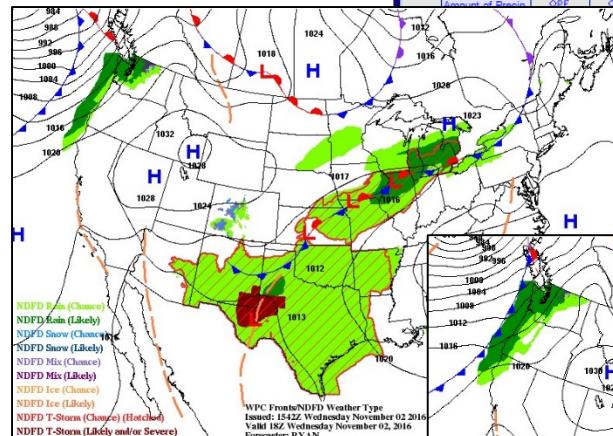
ELSW...SCT050 SCT-BKN100 TOP 150. WDLY SCT -SHRA. BECMG 0104 SCT015 BKN035. SCT -TSRA. CB TOP FL450. OTLK...MVFR CIG TSRA. SCT -TSRA CB TOP FL450. OTLK...MVFR CIG TSRA.

[...]

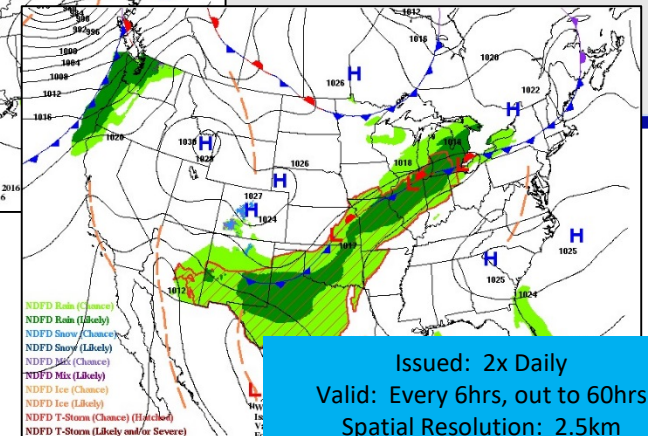
Issued: 3x Daily
Valid: Current through 18hrs
Spatial Resolution: Several States

Provides 12hr forecast of type, intensity and location of precipitation

WPC Surface Analyses & Progs



Issued: 8x Daily
Valid: 12hr probability
Spatial Resolution: 2.5km



Issued: 2x Daily
Valid: Every 6hrs, out to 60hrs
Spatial Resolution: 2.5km

NextGEN

Visibility (including obstruction)

G-AIRM TS valid 2100 UTC 26 Oct 2016

Issued: 4x Daily
Valid: Every 3 hours out to 12hrs
Spatial Resolution: Graphical/Several States

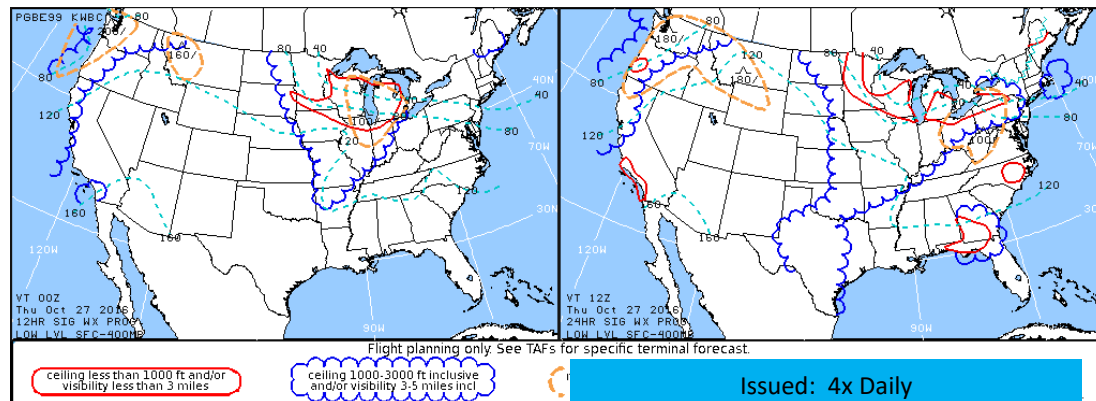
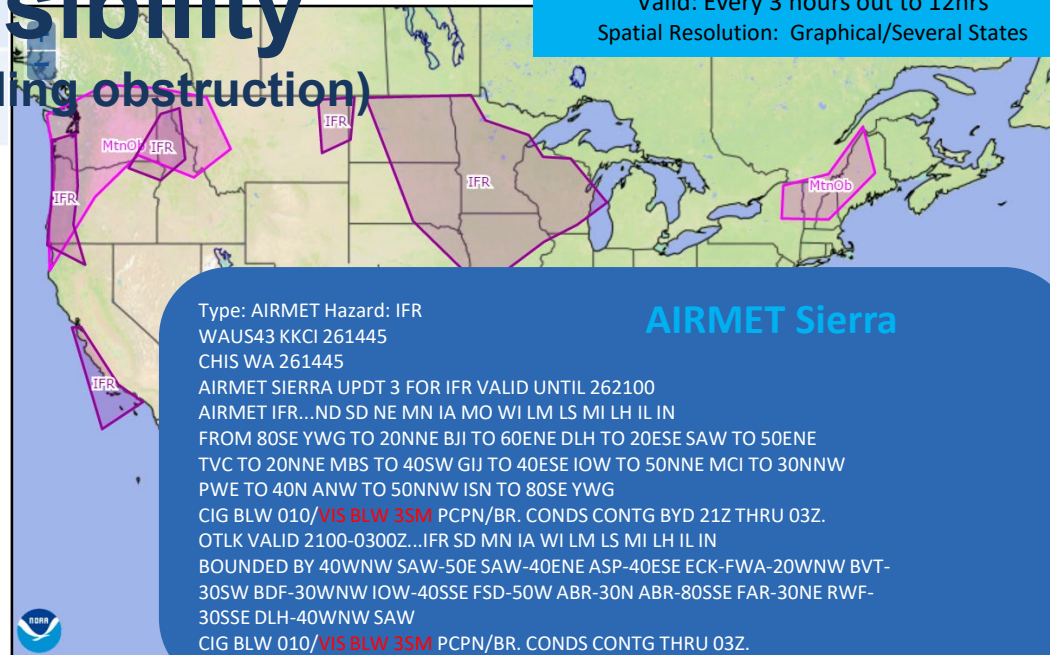
FAUS43 KKCI 261845
FA3W
CHIC FA 261845
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 271300
CLDS/WX VALID UNTIL 270700...OTLK VALID 270700-271300
ND SD NE KS MN IA MO WI LM LS MI LH IL IN KY

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...LOW PRES SW IA. STNR FNT SE IA-SW IL-WRN KY. CDFNT
NERN KS-S CNTRL KS. 13Z LOW PRES NRN IN. CDFNT E CNTRL IL-
SW IL-E CNTRL MO-NW MO-SE NEB. WRMFNT NERN NEB-ERN SD-SE
ND. CDFNT SW ND. SFC TROF CNTRL SD-CNTRL NEB.

MN
NW 1/4...OVC020 TOP FL220. ISOL -SHRA. 21Z OVC030. 04Z OVC020.
OTLK...IFR CIG BR.
SW 1/4...OVC020 TOP 050. VIS 3-5SM BR. 21Z OVC030. 02Z BKN020.
06Z SCT030. OTLK...VFR.
NERN 1/4...OVC040 TOP FL220. WDLY SCT -SHRA. 02Z OVC020 TOP 040.
OTLK...MVFR CIG.
SE 1/4...OVC020 TOP LYRD FL220. VIS 3-5SM BR. 21Z OVC030. 02Z
BKN020. 06Z SCT030. OTLK...IFR CIG BR.

[...]



Issued: 3x Daily
Valid: Current through 18hrs
Spatial Resolution: Several States

Provides 12hr forecast of visibility,
in SM, including obstruction.

Issued: 4x Daily
Valid: 12hrs and 24hrs forecast
Spatial Resolution: Graphical

NextGEN

Surface Winds

FAUS46 KPCI 261945
FA6W
SFOC FA 261945
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 271400
CLDS/WX VALID UNTIL 270800...OTLK VALID 270800-271400
WA OR CA AND CSTL WTRS

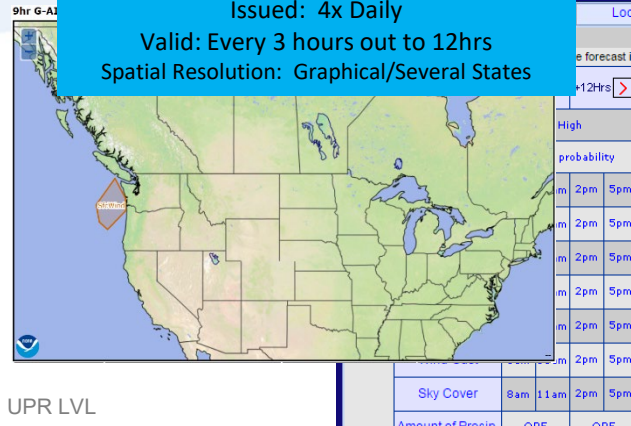
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...LARGE UPR LVL TROF WAS OVR ERN PAC AND AN UPR LVL
RIDGE WAS OVR THE ROCKIES. MOIST SWLY FLOW EXTDS FROM ERN PAC
ACRS WA-OR-NRN CA INTO NRN ROCKIES. WX PAT EXPCD TO CHG LTL DURG
FCST PD.

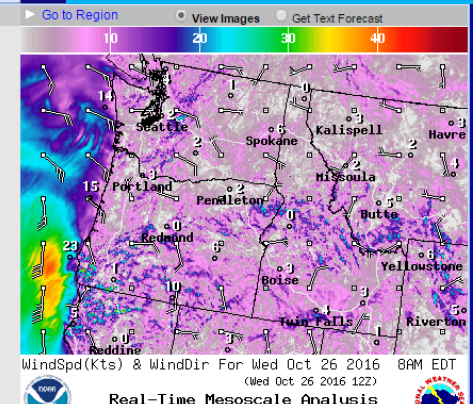
WA CASDCS WWD
CSTL SXNS
CSTLN-INLAND...BKN015-025 OVC035-050 LYRD FL220. OCNL -RA BR
LWRG VIS 3-5SM. BECMG 2302 WDLY SCT -SHRA. **WINDS SE 20G30KT.**
OTLK...MVFR CIGS SHRA WIND.
PUGET SOUND-INTR VLY...BKN015-025 OVC035-050 LYRD FL220. OCNL
-RA BR LWRG VIS 3-5SM. BECMG 2302 WDLY SCT -SHRA.
OTLK...MVFR CIGS SHRA.
CASDCS...BKN-OVC040-060 LYRD FL220. OCNL -RA BR/WDLY SCT -SHRA
LWRG VIS 3-5SM. OTLK...MVFR CIGS SHRA BR

[...]

Issued: 4x Daily
Valid: Every 3 hours out to 12hrs
Spatial Resolution: Graphical/Several States



Issued: 8x Daily
Valid: 12hr probability
Spatial Resolution: 2.5km



AIRMET Tango

WAUS46 KPCI 261445
SFOT WA 261445
AIRMET TANGO UPDT 2 FOR TURB STG WINDS AND LLWS VALID UNTIL 262100
AIRMET STG SFC WINDS...WA OR CA AND CSTL WTRS
FROM 40SW TOU TO HQM TO 20SSE ONP TO 50SW FOT TO 140WNW FOT TO
160WSW HQM TO 40SW TOU
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG BYD 21Z
THRU 03Z.
LLWS POTENTIAL...WA OR CA AND CSTL WTRS
BOUNDED BY 20ENE HUH-YKM-70ESE DSD-70S LKV-RBL-100W OED-TOU-
20ENE HUH
LLWS EXP. CONDS CONTG BYD 21Z THRU 03Z.
OTLK VALID 2100-0300Z
AREA 1...TURB CA NV UT AZ NM AND CSTL WTRS
BOUNDED BY 50WNW OAL-80WSW RSK-50W ABQ-ELP-50S TUS-20N BZA-LAX-
170SW RZS-140SW SNS-50WNW OAL
MOD TURB BTN FL310 AND FL410. CONDS CONTG THRU 03Z.
AREA 2...**STG SFC WINDS** WA OR AND CSTL WTRS
BOUNDED BY 50N TOU-HQM-ONP-160WSW ONP-140W TOU-50N TOU
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG THRU 03Z.

Issued: 3x Daily
Valid: Current through 18hrs
Spatial Resolution: Several States

Provides 12hr forecast of wind direction
and speed

Flight Category (including obstruction)

FAUS42 KNCI 261745

FA2W

MIAC FA 261745

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 271200

CLDS/WX VALID UNTIL 270600...OTLK VALID 270600-271200

NC SC GA FL AND CSTL WTRS E OF 85W

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.

TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.

NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...RDG HI PRES EXTDS FM NW PA TO NC SC AND
ERN GA. RDG WL MOV SLOLY EWD.

NC

MTNS...SKC OR SCT CI. 03Z BKN CI. **OTLK...VFR.**

PIEDMONT...SKC. 04Z SCT-BKN CI. **OTLK...VFR.**

CSTL PLAIN...SKC OR SCT CI. **OTLK...VFR.**

SC

MTNS-PIEDMONT...SKC OR SCT CI. **OTLK...VFR.**

CSTL PLAIN...SKC. 04Z SCT030-040. **OTLK...VFR.**

GA

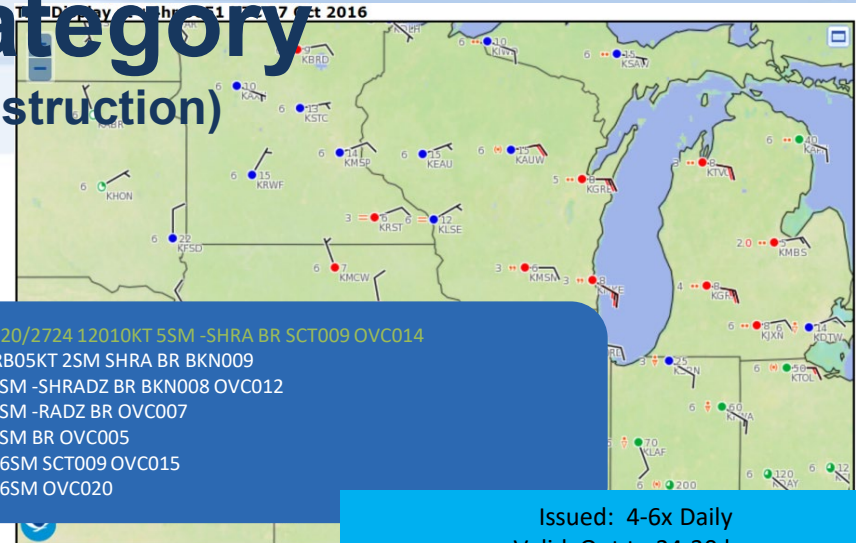
NRN...SCT CI. 02Z BKN CI. **OTLK...VFR.**

SRN...SCT-BKN040-050 TOPS 070. 00Z SCT050. **OTLK...IFR CIG
BR WRN SXNS..MVFR CIG ERN SXNS.**

[...]

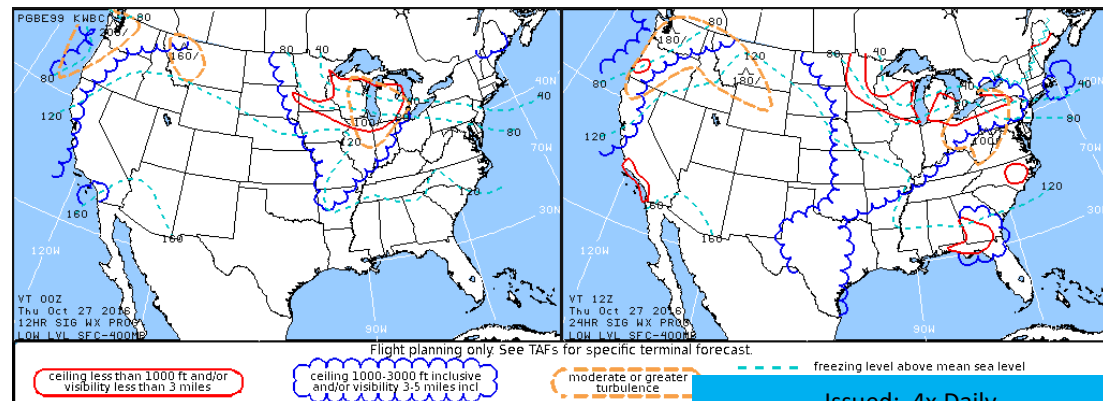
**Nearest
TAF**

TAF: KORD 262004Z 2620/2724 12010KT 5SM -SHRA BR SCT009 OVC014
TEMPO 2620/2622 VRB05KT 2SM SHRA BR BKN009
FM262200 11010KT 3SM -SHRADZ BR BKN008 OVC012
FM270000 10009KT 3SM -RADZ BR OVC007
FM270600 34010KT 6SM BR OVC005
FM271400 33010KT P6SM SCT009 OVC015
FM271800 30008KT P6SM OVC020



Issued: 4-6x Daily
Valid: Out to 24-30 hrs
Spatial Resolution: Terminal w/1 5SM

LL SIGWX Charts



Issued: 4x Daily
Valid: 12hr and 24hr forecast
Spatial Resolution: CONUS

Issued: 3x Daily
Valid: Current through 18hrs
Spatial Resolution: Several States

**Provides 6hr flight category outlook,
beyond the 12hr forecast**

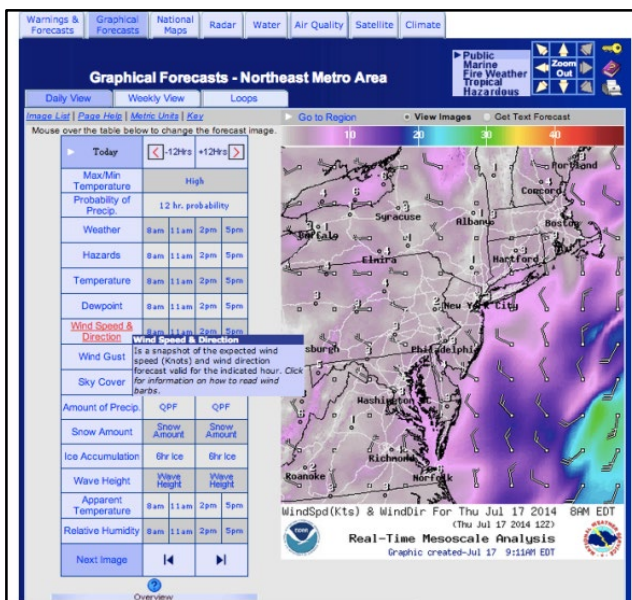
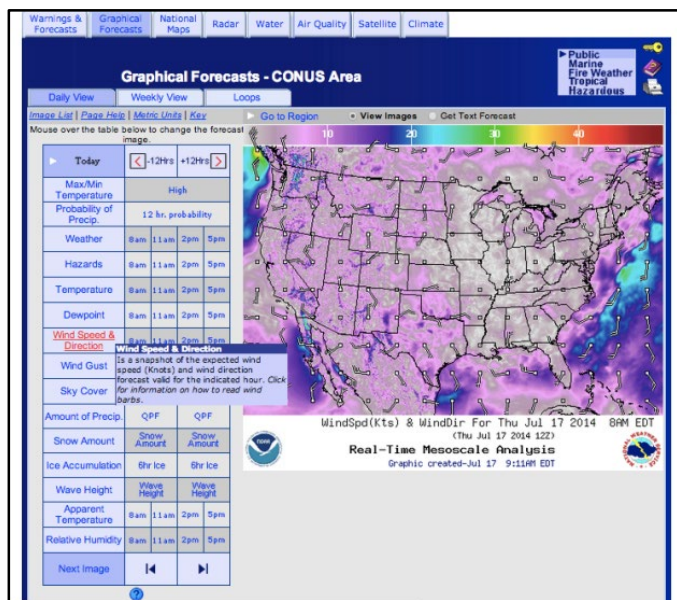
NextGEN

FA Alternative Products Guide

National Digital Forecast Database (NDFD):

<http://graphical.weather.gov/sectors/conus.php>

Guidance: Whereas SIGWX charts provide pilots with a big-picture, general depiction of the weather, NDFD provides much greater detail with finer time scales and finer areal depictions of weather. FAA and NWS are working to ensure the information in the NDFD is available through *existing FAA pilot weather briefing sources*. AWC is integrating this information with ADDS, so users are able to generate a weather briefing without the need to navigate multiple websites.



NDFD Surface Wind Speed and Direction Grid, CONUS & Regional Views.

National Weather Service



FAA

NextGEN

Result of ARWG & FA Removal

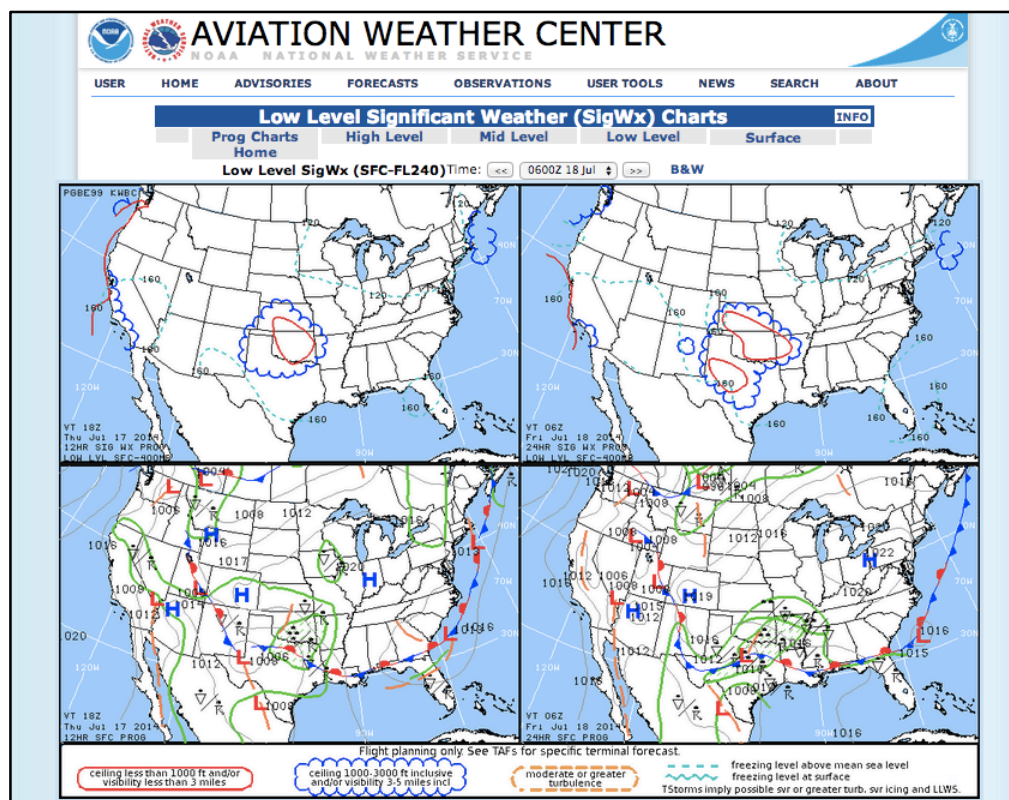
- Higher resolution forecasts provided to meet “informational requirements”
- Informational Requirements not “product” based
 - ✦ still not fully data-centric, but foundation is laid
- Improved consistency with other Aviation and NWS products
- Safety risks overcome
- More detail realized in other AWC products
- Many lessons learned

FA Alternative Products Guide

Low-Level Significant Weather (SIGWX) Prognostic Chart

<https://www.aviationweather.gov/progchart/low>

Guidance: The SIGWX chart provides pilots with the 'big picture.' Cold, warm, occluded and stationary fronts are clearly depicted, along with areas of high and low pressure.



Low-Level SIGWX Prognostic Chart, SFC-FL240.

Aviation Weather Center



FAA

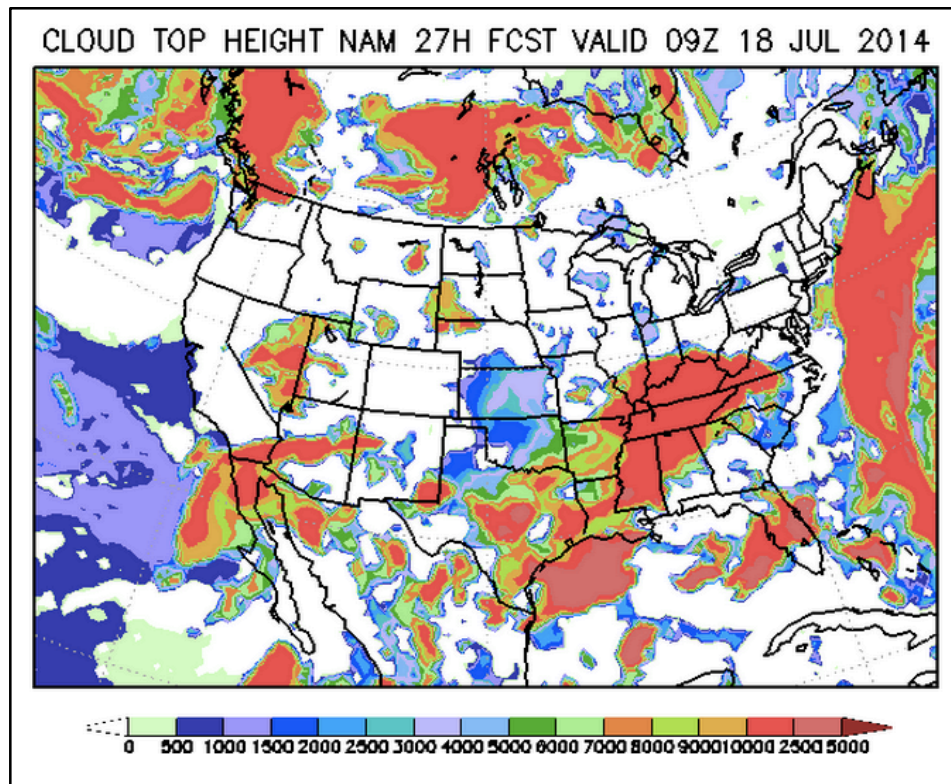
NextGEN

FA Alternative Products Guide

Cloud Top Height Model Forecast Graphic:

<http://www.emc.ncep.noaa.gov/mmb/mmbpll/opsnam/>

Guidance: The Cloud Top Height Model Forecast Graphic is a computer-generated forecast from one of many weather computer models used by the National Weather Service. The Cloud Top Height Forecast Graphic only indicates the highest cloud. In other words, if there are multiple cloud layers, this product will only provide the top of the highest cloud. It should be used in conjunction with METARs and TAFs to assess the presence of low, medium or high clouds.



Cloud Top Height Model Forecast Graphic.
National Center for Environmental Prediction (NCEP)