



Eastern Region Activities

Fred McMullen

Sub-Regional Aviation Workshop

WFO Gray, ME

12 May 2009



AvnFPS

Operational Impact Capability





TAF Impact Writing



- A forecast of strong crosswinds at a major hub can cause ground delays. Use BOS as an example.
 - *Need runway orientations to calculate wind components orthogonal and parallel to runway(s)*



TAF Site Info Editor

Site Id

TAF Headers

WMO AFOS TAF Duration Hours

Thresholds

Visibility Ceiling
Radar Cutoff Profiler Cutoff

Geography

Latitude Longitude Elevation **Runway(s)**

Runway 4R/22L referenced as [0]
Runway 9/27 referenced as [1]
Runway 15R/33L referenced as [2]



TAF Impact Writing



wind[n].cross = crosswind for runway #n

wind[n].runway = parallel component to runway #n

wind[n].shift = tail-to-head or head-to-tailwind change from last forecast group (T or F)

- **Edit /awips/adapt/avnfps/etc/tafs/KBOS/impact.cfg**

```
[conditions]
items=cond_1,cond_2,cond_3,cond_4
      :
      :
[cond_3]
tag=wshft
level=2
text=significant windshift on 15R/33L
expr=wind[2].shift and wind[2].runway>15
```

```
[cond_4]
tag=xw
level=3
text=significant crosswind on 15R/33L
expr=wind[2].cross>15
```

```
TAF
KBOS 181720Z 1818/1924 12015KT P6SM SCT040CB
FM182100 13020G30KT P6SM VCTS BKN030CB
  TEMPO 1821/1822 1SM +TSRA OVC010CB
  FM182230 25020G40KT 6SM +SHRA OVC020
FM190100 27020G30KT --- Impact ---
FM190500 28020G25KT significant windshift on 15R/33L
FM191200 30010KT P6SM SKC=
```

```
TAF AMD
KBOS 141321Z 1413/1518 06015G25KT P6SM SCT015 OVC025
  FM141700 05025G35KT 4SM -RASN BR BKN008 OVC013
  TEMPO 1422/1502 1 --- Impact ---
  FM150200 03015G20K Fuel-Alternate
  TEMPO 1502/1506 1 Significant crosswind on 15R/33L
```



Monitoring Customization

- AvnFPS Rule Editor allows customized rules of many sources

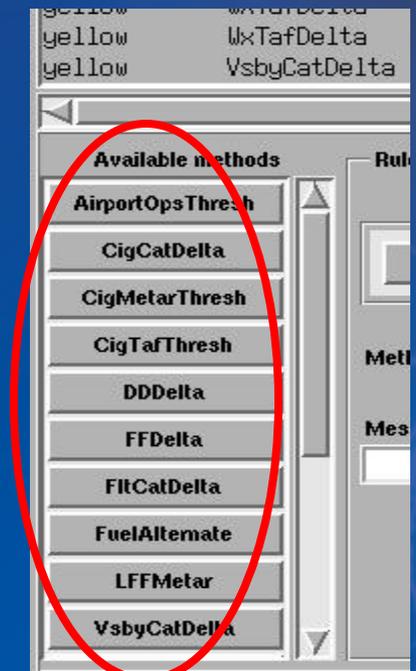
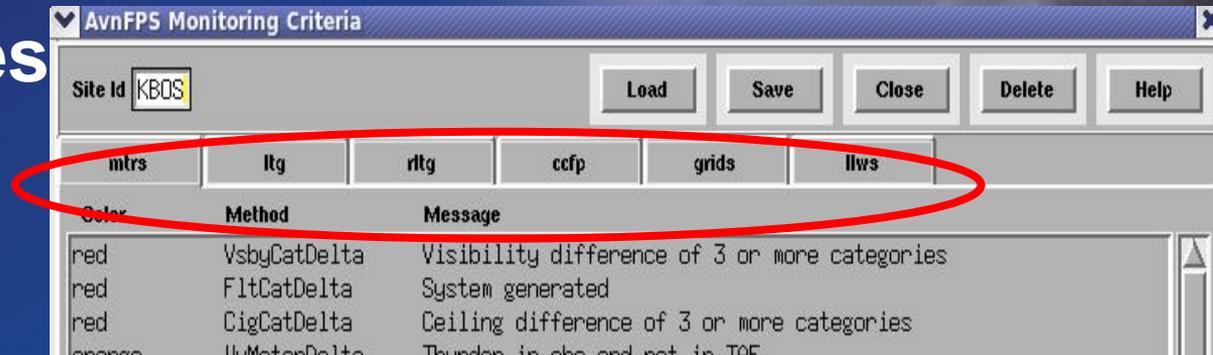
- METARs

- Lightning

- LLWS

- CCFP

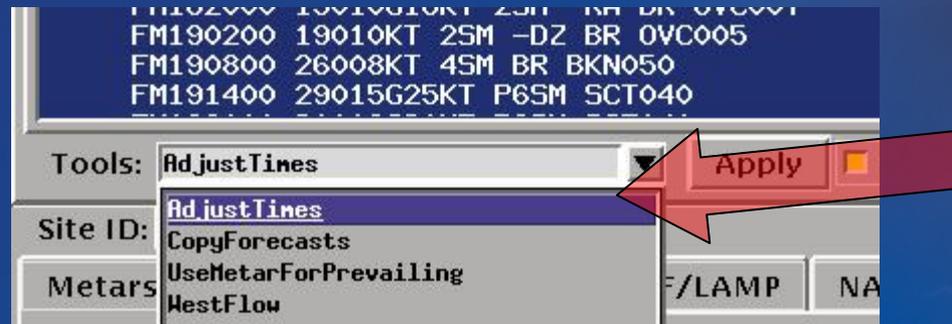
- See AvnFPS User's Guide Appendix B for more details



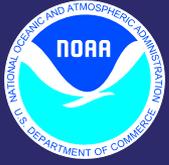


TAF Editor Tools

- Dropping new modules into the /toolpy directory will cause it to show up in the TAF Editor



- More details on writing TAF Editor tools can be found in Appendix F of the AvnFPS User's Guide



Best Practice



- **Routine three hour amendments (at least the OEP Airports)**
 - *Already done for BOS, NYC Metros, CLT, PHL, PIT*
- **CONSISTENCY between products**
- **Coordinate with CWSUs**
- **CCFP awareness**
- **Weather happens outside the top of the hour**
- **Know locations of your departure and arrival fixes**





Best Practice



- Focus on the first six hours of the forecast
- Use LAMP Probability Graphs
- Binghamton TSRA philosophy with CLIMO.
- Research / Case Studies!
 - *Level 3 CWSU forecaster exchange / visit*
 - *Level 4 Single Case*
 - *Level 5 Conducts multiple aviation reviews*





Best Practice

- Check Arrival Fix
- Notice push times
- Updated in real time





Eastern Region Wiki



David beachler my talk my preferences my watchlist my contributions log out

page discussion edit history move watch

Main Page

Welcome to the ERH Wiki

***** Guidelines about When, Why and How to Use This Wiki *****

ERH Program Areas [edit]

Director's Office (Wiki)	Director's Office (Intranet) ↗
Meteorological Services - MSD (Wiki)	Meteorological Services - MSD (Intranet) ↗
Hydrological Services - HSD (Wiki)	Hydrological Services - HSD (Intranet) ↗
Scientific Services - SSD (Wiki)	Scientific Services - SSD (Intranet) ↗
Systems Operations - SOD (Wiki)	Systems Operations - SOD (Intranet) ↗
Administrative Management - ADM (Wiki)	Administrative Management - AMD (Intranet) ↗
Equal Employment Opportunities (Wiki)	Equal Employment Opportunities (Intranet) ↗
Climate Services (Wiki)	Climate Services (Intranet) ↗

Additional Information [edit]

Action Items / Due Dates	ERH Projects (Trac) ↗
ERH Roster	Guidelines for Basic Wiki Usage
MediaWiki Installs at Local Offices	Tips and Tricks (Subversion, Trac, MediaWiki, etc.) ↗

Important Notes [edit]

- SevereClear information posted.
- ER AWIPS Conf Call 1/28/2009 10 AM.
- ER ITO Conf Call February 2009 2 PM.
- December ITO Conf Call minutes posted
- Guidelines for Basic Wiki Usage Available.
- ERH Projects (Trac) [↗](#)

ER Offices

ERH:	Internet ↗	Intranet ↗
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ER WFOs

Albany, NY (ALY):	Internet ↗	Intranet	Binghamton, NY (BGM):	Internet ↗	Intranet
Blacksburg, VA (RNK):	Internet ↗	Intranet ↗	Boston, MA (BOX):	Internet ↗	Intranet
Buffalo, NY (BUF):	Internet ↗	Intranet	Burlington, VT (BTV):	Internet ↗	Intranet
Caribou, ME (CAR):	Internet ↗	Intranet	Charleston, SC (CHS):	Internet ↗	Intranet
Charleston, WV (RLX):	Internet ↗	Intranet	Cleveland, OH (CLE):	Internet ↗	Intranet ↗



Eastern Region Wiki



Eastern Region Headquarters



WIKI

navigation

- Main Page
- Newest Pages
- All Pages
- Categories
- Community portal
- Current events
- Recent changes
- Random page
- Help

[page](#) | [discussion](#) | [edit](#) | [history](#) | [move](#) | [unwatch](#)

ERH-Aviation

Contents [hide]

- 1 ERH Aviation Page
- 2 ER AVN Notes
- 3 ER AVN Focal Points
- 4 Aviation Collaborative Pages
- 5 Aviation Data Sources and Web Links
- 6 Aviation Directives
- 7 ER AVN Quarterly Conference Calls
- 8 Aviation Conferences/Workshop Schedules
- 9 NOTAM Procedures

ERH Aviation Page

- This page serves as a clearinghouse for ER AVN Focal Points (AFP) and a location for ERH RAM to archive notes
- AFP's will be able to upload information specific about their TAF sites
- This page will provide resources for WFOs conducting service backup

ER AVN Notes

■ April 14th 2009

- MDL is looking for volunteers to work on an AvnFPS project, please let me know if you would like to volunteer by 30 April.
- Back in AWIPS release OBB.3 MDL introduced a new form of guidance TAF in TAF Editor of AvnFPS. The application now generates "TAFs Updated with Guidance" (TUG) where the forecaster selects the recipe tab labeled "TAF/LAMP." MDL thinks the underlying algorithms are pretty clever, and it's time we gathered some real world feedback from forecasters.
- MDL does know that some folks are "pushing the TAF/LAMP button" out there. They had a run on Trouble Tickets when this feature broke some time ago.
- The AvnFPS Users' Guide contains the following about the TAF/LAMP tab: "Displays the official TAF updated with LAMP guidance. Since this is a synthesis of LAMP guidance with the Official TAF, it's not meaningful to have a 'table' format, just 'short' and 'long' TAF formats are available. More information on the combining technique can be found in the TUG, M.G., et. al., 2008."
- Below are two screen captures that show the TUG algorithms at work. On the left is a draft TAF generated from LAMP alone. On the right is a draft TAF that uses LAMP guidance with the official TAF. Note that the TUG has a much smoother transition in the weather between 1800 and 0300 UTC. Note also that the TUG eliminates the 1-h "bounce" in cloud cover between 1900 UTC

search

toolbox

- Create Article
- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link
- Main contributors



Collaborative Tools



Aviation Collaborative Pages

[edit]

AVN-ALY	AVN-BGM	AVN-RNK	AVN-BOX	AVN-BUF	AVN-BTV	AVN-CAR	AVN-CHS
AVN-RLX	AVN-CLE	AVN-CAE	AVN-GSP	AVN-MHX	AVN-OKX	AVN-PHI	AVN-PBZ
AVN-GYX	AVN-RAH	AVN-CTP	AVN-LWX	AVN-AKO	AVN-ILM	AVN-ILN	

Categorical Amendment Criteria (CAC)

LOWEST ELEMENT OF CIG OR VIS DETERMINES CATEGORY (CAT)

Site	Cat A Airport Minimum	Cat B Alternate Minimum	Cat C IFR	Cat D MVFR	Cat E Fuel Alternate	Cat F Other Threshold
KBOS* KORH	200' 1/2SM	700' 2SM	1000' 3SM	3000' 5SM	2000' 3SM	2500' 3SM Visual Apc* 1400' 3SM Circling Apc* 800' 2SM ILS Hold Points Assigned*
KPVD* KFMH KHYA	200' 1/2SM	800' 2SM	1000' 3SM	3000' 5SM	2000' 3SM	2500' 700' 1SM Circling Apc*
KBDL	200' 1/2SM	900' 2SM	1000' 3SM	3000' 5SM	2000' 3SM	
KACK	200' 3/4SM	800' 2SM	1000' 3SM	3000' 5SM	2000' 3SM	
KMHT	300' 3/4SM	800' 2SM	1000' 3SM	3000' 5SM	2000' 3SM	200' 1/2SM Southwest Departures
KBAF	300' 3/4SM	900' 2SM	1000' 3SM	3000' 5SM	2000' 3SM	

TAF PHILOSOPHY - Focus on first 12 hours. Rely on LAMPPOS for trends beyond 12 hours.
 FM GROUPS - Indicate trends showing categorical changes - VFR, MVFR, IFR, CAT B AND A THRESHOLDS
 TEMPO - Intended for high probability/low duration events. Use sparingly. Maximum of 4 hours
 PROB30/40 - Not used
 ELIMINATE NON-OPERATIONAL CHANGE GROUPS - Examples: SCT250 changing to BKN250 or winds 03006KT to 02003KT

SITE ID	CAT A AIRFIELD MINIMUMS	CAT B ALTERNATE MINIMUMS	CAT C IFR MINIMUMS	CAT D MVFR MINIMUMS	CAT E ALTERNATE/FUEL	Other Special Thresholds
KBOS KORH	200' + 1/2SM	700' + 2SM	1000' + 3SM	3000' + 5SM	2000' + 3SM	Vector Visual Approach Departures KBOS 2500' + 3SM KPVD 2500' Ability to Conduct Circling Approach KBOS 1400' + 3SM KPVD 700' + 1SM Assignment of ILS Hold Points
KPVD KFMH KHYA	200' + 1/2SM	800' + 2SM				
KBDL	200' + 1/2SM	900' + 2SM				
KACK	200' + 3/4SM	800' + 2SM				
KMHT	300' + 3/4SM	800' + 2SM				
KBAF	300' + 3/4SM	900' + 2SM				KMHT 200' + 1/2SM Max Runway X-Wind KBOS 20kt (DRY)

CRITICAL CUSTOMER IMPACTS OF FORECASTS BELOW MINIMUMS DEFINED BY AMENDMENT CATEGORIES	MOS FORECAST CAT (LAV MAV MET)	
	CEILING	VISIBILITY
CAT A - These minimums could preclude dispatch/release to destination airports	1	<200
CAT B - Airports cannot be used as an IFR flight planning alternate	2	200-400
CAT C - Flights must be conducted under instrument flight rules by appropriately rated pilots and certified aircraft	3	500-900
CAT D - Forecast serve as a warning of conditions that could pose flight challenges	4	1000-1900
CAT E - Alternate destination and increased fuel required for IFR flights	5	2000-3000
AMENDMENT CRITERIA FOR WIND DIRECTION, SPEED, GUSTS if current wind forecast is ≥ 12 KT AND LLWS	6	>12K
WIND DIRECTION - Amend if it is expected to change ≤ 30 degrees	7	3100-6500
WIND SPEED - Amend if speed changes by ≥ 10 KT or new forecast will be ≥ 12 KT from latest forecast	8	6.6-12K
WIND GUSTS - Amend if gusts expected or if forecast gusts ≥ 10 KT too high		>12K

AMENDMENTS FOR PRECIPITATION	MOS OBSTRUCTION TO VIS
TSRA, FZRA/FZDZ, PL reported, expected to continue, and not forecast	N NONE OF THE FOLLOWING
TSRA, FZRA/FZDZ, PL forecast and not expected to occur	HZ HAZE, SMOKE OR DUST
	BR MIST (FOG WITH VIS ≥ 5/8 SM)
	FG FOG OR GROUND FOG (VIS < 5/8 SM)
	BL BLOWING DUST, SAND OR SNOW

AmFPS "CAT BOX" IMMEDIATE NOTIFICATION COLORS DEFINED BASED ON LOWEST PREDOMINANT OR TEMPO FORECAST	RVR CONVERSION
DARK GREEN = LOWEST CONDITION OF CEILING AND VISIBILITY IN TAF AND METAR MATCH - BOTH IN SAME FLIGHT CATEGORY	RVR MILES
PALE GREEN = IN CATEGORY FORECAST WITH MULTIPLE SITUATIONAL AWARENESS IMPLICATIONS	1200 1/4 SM
= ONLY ONE ELEMENT OF CEILING OR VISIBILITY MATCH LOWEST CONDITION IN METAR	2500 1/2 SM
= VARYING CEILING OR VISIBILITY REMARK IN METAR INDICATES LOWER CONDITIONS THAN REPRESENTED IN TAF	4000 3/4 SM
= TEMPO FORECAST IN TAF IS BEING VERIFIED ONLY BY VARYING REMARK IN METAR	5000 1 SM
= DO NOT IGNORE. KEEP IN MIND THAT SOME OPERATORS CAN DISPATCH WITH VISIBILITY FORECAST AT CAT A MINIMUMS	≥ 6000 >1 SM
YELLOW = ONE FLIGHT CATEGORY OFF. SINGULAR IMPACT ON CUSTOMERS	
ORANGE = TWO FLIGHT CATEGORIES OFF. MULTIPLE CUSTOMER IMPACTS	
RED = THREE FLIGHT CATEGORIES OFF. MULTIPLE CUSTOMER IMPACTS	
PURPLE = BELOW AIRFIELD MINIMUMS. MOST SEVERE IMPACT ON CUSTOMERS. CAN BE ONE OR MORE CATEGORIES OFF	
AmFPS TPO BOX NOTIFICATION COLORS DEFINED	
DARK GREEN = VERIFYING OR OUT OF CATEGORY FOR LESS THAN ONE HOUR	
YELLOW = IN LOWER FLIGHT CATEGORY THAN PREDOMINANT FORECAST AND HAS NOT VERIFIED FOR ONE HOUR OR MORE	
ORANGE = IN LOWER FLIGHT CATEGORY THAN PREDOMINANT AND HAS NOT VERIFIED FOR OVER HALF THE FORECAST PERIOD	





Outreach



- Provides feedback on current services
- Insight into future services or improvements
- Source for input on new services
- Don't wait for sub-regional workshop!



Outreach



- **AOPA calendar:** www.aopa.org/pilot/calendar/
- **Flight Standard District Office (FSDO):**
www.faa.gov/about/office_org/field_offices/fsdo/
- **Local Towers**
- **TRACONS**
- **Experimental Aircraft Association (EAA):** www.eaa.org/chapters/locator/
- **The Ninety-Nine's:** <http://www.ninety-nines.org/sections.html>
- **Hot Air Balloon Groups:**
http://www.bfa.net/cms1/index.php?option=com_content&task=view&id=130&Itemid=88888959



Outreach



NOEES - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://apps.weather.gov/noees/index.php

NOEES

Do you want Firefox to remember this password? Remember Never for This Site Not Now

National Weather Service
NOEES

NWS Outreach & Educational Events System (NOEES)

NOEES Post/Edit/Search Events and View/Enter Reports
NOEES Public Page
My Outreach & Education Events (Set Up Default Entries For Creating Events)
List of Authorized NOEES Users
WCM Listing
NOEES Updates & Fixes

Training:
NOEES Overview
NOEES Getting Started
Stopping Annoying Messages About Secure/Non-Secure Items When Accessing NOEES

Feedback Form

Name:

E-mail:

Feedback Title:

Type:

Feedback:

Request a User Be Added or Removed

Name:

E-mail:

Add or Remove:

Reason:

Done apps.weather.gov

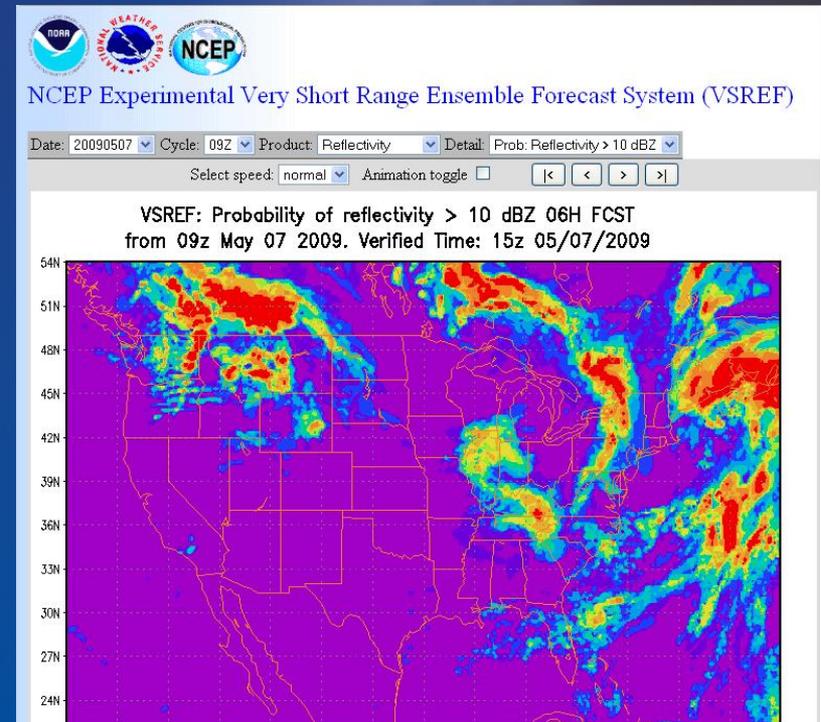
- Enter all outreach events into the National Outreach & Educational Events Systems (NOEES)
- <https://apps.weather.gov/noees/index.php>



Models



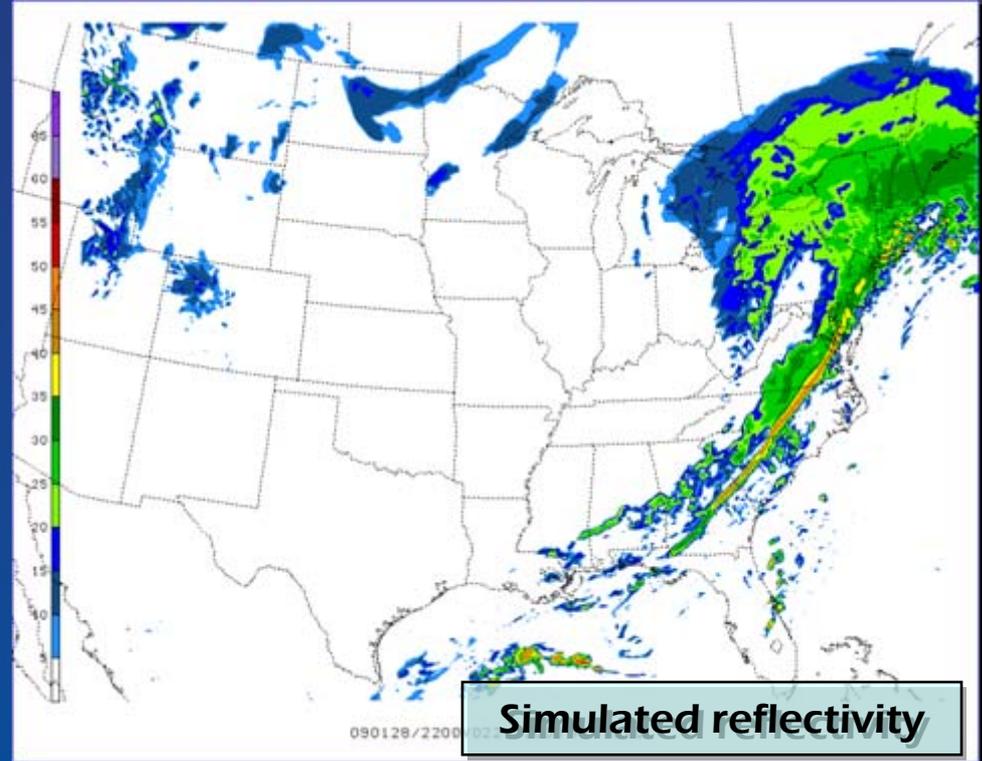
- Review numerical aviation models (e.g. NamDNG5, Ruc13, SREF, VSREF, local WRF)
- Provide feedback to RAM and SSD





Pilots going beyond the basics

- Internet is full of relevant supplemental data
 - *MOS*
 - *Model-based forecasts*
 - Simulated reflectivity
 - *Thermodynamic diagrams*
 - Non-standard convective indices
 - *QPF*
 - *High resolution graphics*
 - Satellite





The End





The Future



- **Big jump over the next 15 years (NextGen)**
- **Aviation services have evolved but not as much as other programs**
- **TAFs have not changed since 1950s!**
- **World's first satellite was not launched until 1960**





Future

- Text to Grids
- LFM --> 5 KM models
- Dual Pole Radar
- Hourly Forecasts





Future



Photo Copyright Samuel Lo

AIRLINERS.NET

- **NextGen IOC of 2013**
 - *Turbulence*
 - *Icing*
 - *Convection*
 - *Ceiling and Visibility*
 - *Wind*
 - *Temperature*
- **Feasibility study underway to use LAMP, however prefer WFO data**



Future

- **Strong Customer Request**

- ***U.S. Coast Guard***
- ***Southwest Airlines***
- ***United Airlines***
- ***Delta Airlines***
- ***AOPA***
- ***Helicopter Pilots***
- ***Ties into DSS***

Remember the last word in our agency name

National Weather SERVICE

