

# FAA Flight Standards

## Review and Outlook for FY05/06

Presented to: Friends and Partners of Aviation  
Weather at NBAA 2005

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Federal Aviation  
Administration



# Overview

- **FY 2005 Accomplished Aviation Weather Activities**
- **FY 2006 – Planned Aviation Weather Activities**



# AFS Accomplished Activities FY05

- **HBAT 05-01 - Use of Aviation Weather Products by Air Carriers, Air Operators, and Fractional Ownership Program Managers (03/05)**
  - Defines Primary and Supplementary Weather Products
  - Content of HBAT 05-01 incorporated into the AIM Chapter 7-1-3
- **FIS (Flight Information Service) updates to the AIM Chapter 7-1-11 and other relevant ADS-B, TIS-B, FIS-B chapters.**

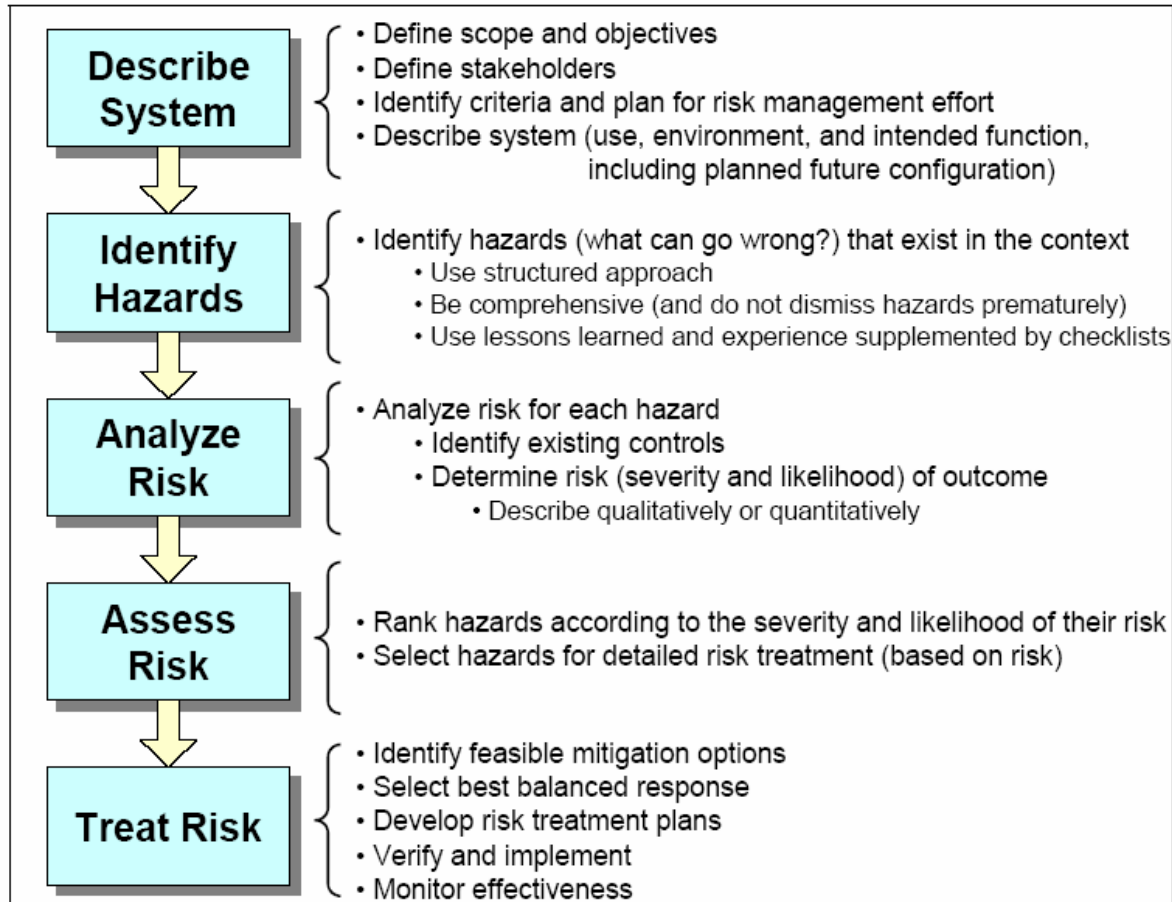


# AFS Accomplished Activities FY05

- **CIP (Current Icing Potential)/FIP (Forecast Icing Potential) Hazlog**
- **Worked with the Icing Product Development Team to ensure that the new CIP Severity/Probability will pass the FAA Safety Assessment (05/05 meeting)**
- **Introduced and assisted AWTT in implementing Safety Management System into the R&D cycle; D2, D3, and D4 stages**



# Safety Management System (SMS)



# CIP/FIP HAZLOG

- **Hazard Inventory Analysis – initiated Nov. 04**
- **Evaluated by the Weather Flight Standards Operational Review Team (WX-FORT)**
  - Approx 10 experience aviators
  - Analyzed CIP/FIP – different interpretations of CIP/FIP information
  - Addressed comments in HAZLOG
- **HAZLOG distributed for comments**
- **Additional comments solicited from industry/users (SAMA, AOPA, NCAR, FAA)**
- **HAZLOG completed Feb 05**
- **AFS-400 approved HAZLOG and presented to ASG/AWTT Apr 05.**



# AFS Planned Activities for FY06

- **Incorporate FAA Safety Management System into the AWTT process**
  - FAA Safety Assessment includes ATO and AVS
  - Should be initiated at the research level
  - Iterative process accomplished at D2, D3, and D4 R&D stages
  - Government and industry comments will be included prior to final draft
  - CIP/FIP product has been a learning curve but this should ensure that products meet operational guidelines for use when they are released.



# Flight Standards acceptance of industry weather products

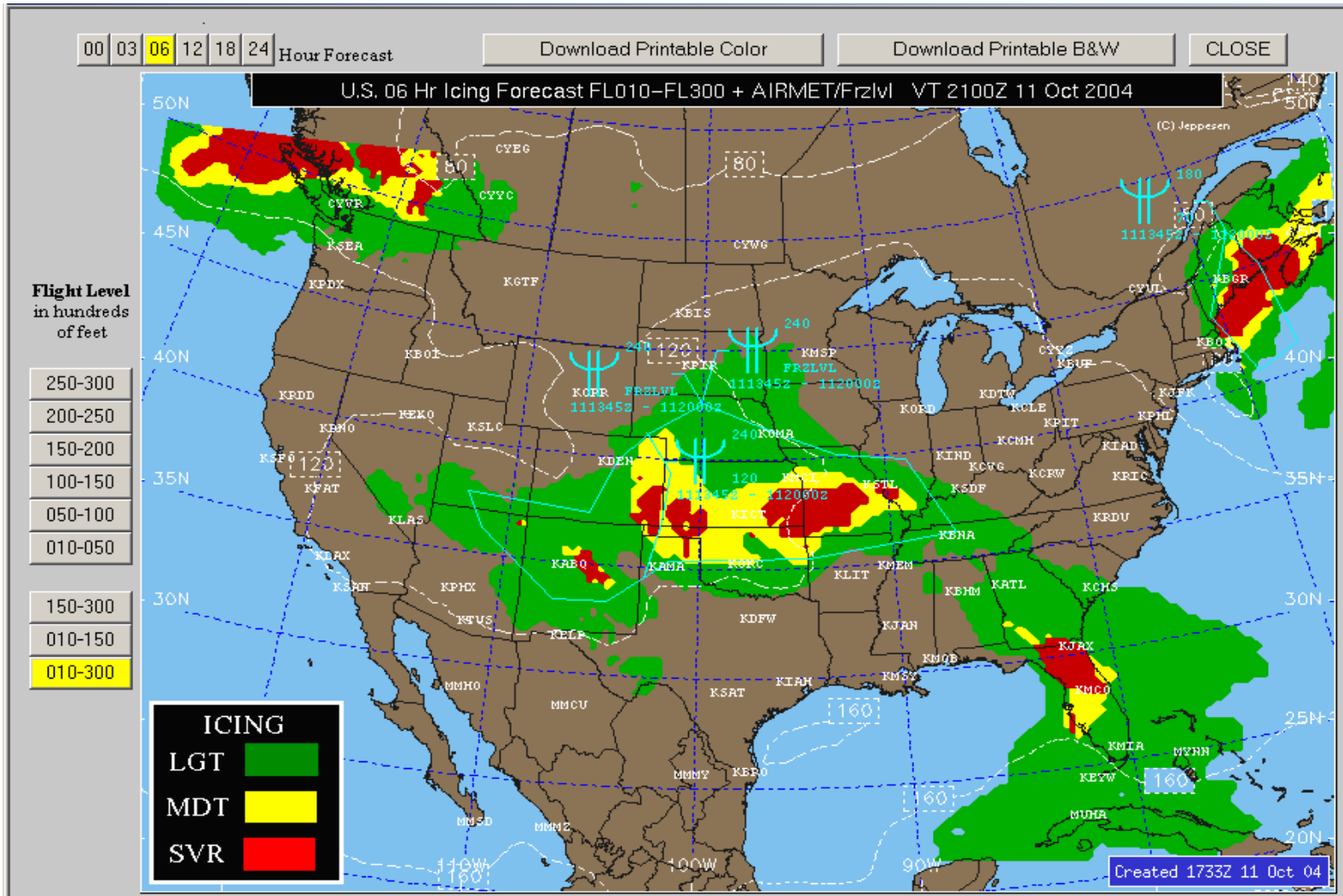
- **Initiated effort to accept industry weather products and vendors**
- **Commercial weather vendors would become qualified sources of aviation weather in accordance with FAA guidance material.**
- **WX-FORT will be the evaluation team for products and vendors**
- **Flight Standards met with Jeppesen to initiate this effort on accepting industry weather products**
- **Flight Standards will meet with other vendors in the near future to develop requirements and policy**





# Jeppesen Icing Forecast

Image used with permission from Jeppesen



# Jeppesen Icing Forecast Map

- **Would be evaluated as a supplemental product**
- **Developed from NCAR/RAP and Stovepipe algorithms.**
- **Algorithms adjusted by Weather Decision Technologies (WDT)**
- **AIRMET/SIGMET depiction**
- **Freezing Level**
- **PIREPs depicted**
- **Icing severity**
- **Situational Awareness**



# Jeppesen Icing Forecast Map

- **Developed from user input prior to design**
- **Sold to users for over 1 year**
- **Intuitive – ease of use, large customer base, situational awareness**
- **Verification – lack of PIREPS, access to MDCRS data**
- **Validation – lack of user complaints and after the fact analysis.**



# QUESTIONS?

- **Contact info – AFS Weather Program**
- **Les Smith ([Leslie.Smith@faa.gov](mailto:Leslie.Smith@faa.gov))**
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- **Additional slides for reference.**



# CIP/FIP Hazlog; Term - "potential"

## HAZARD INVENTORY LOG CIP/FIP




Item #	Person / Area of Responsibility	Deficiency	Corrective Action	Remarks	Risk Category
<b>TERM - "POTENTIAL"</b>					
01-04	AFS/ATO-P	What does the term "potential" mean in an operational context?	Change/eliminate term "potential" Alternatives: e.g., Current Conditions Conducive to Icing (CCCI) and Forecast Condition Conducive to Icing (FCCI).	The term potential is nebulous and open to interpretation. However the hazard is mid-level.	Probable Marginal Yellow
02-04	HF-Adams	Potential and how it affects decision making; When potential is used with the colors gradations, this may influence decision making.	Change/eliminate term "potential" Alternatives: e.g., Current Conditions Conducive to Icing and FCCI.		Remote Negligible Green
03-04	AFS/ATO-P	Potential vs. Severity (intensity); Potential does not reflect a level of icing severity or intensity of accumulation rate.	Change/eliminate term "potential" Alternatives: e.g., Current Conditions Conducive to Icing and FCCI.		Remote Negligible Green
04-04	AFS/ATO-P	Potential may be confused with probability. This is reinforced by the color gradations in the display.	Relate product to conducive conditions to icing or establish a probabilistic component.	Misinterpretation of potential since a notion of probability is reinforced by colors.	Remote Negligible Green

	High Risk
	Medium Risk
	Low Risk



# CIP/FIP Hazlog; Color

COLOR					
06-04	AFS/ATO-P	Colors display the likelihood of conditions for icing, not actual icing conditions, the probability or intensity of icing, or type of ice.	Remove color scaling, go to one color	The FAA Icing effects team is removing type of ice from PIREPS. Will lead to type of ice being removed from forecasts.	Probable Critical - Red
07-04	AFS/ATO-P	Colors may provide hazardously misleading information (Green does not mean OK). Green may mean a small potential for severe ice vs. Red may mean a large potential for light ice.	Remove color scaling, go to one color		Probable Critical - Red
09-04	AFS/ATO-P	Does no color indicate conditions for "no ice"	Yes, product is very good at predicting areas of no ice.		Remote Negligible Green
15-04	AFS/ATO-P	Numerical scale with color bands leads to assumption of probability (legend at bottom of display). Not sure what the color scale means. Not a linear scale; "30" is not half as bad as "60".	misleading, remove the scale until it is clarified		Frequent Critical - Red
10-04	AFS/ATO-P	Yes/No without color - loss of information (designers).	Information presented as one color provides less opportunity for confusion.		Red

	High Risk
	Medium Risk
	Low Risk



# CIP/FIP Hazlog; HUMAN FACTORS

HUMAN FACTORS					
11-04	AFS/ATO-P	Is the information provided appropriate for its intended use – strategic plan, decision making, safety	No, the information may be misinterpreted and could be hazardously misleading, especially if used to plan flights in icing conditions	If a pilot plans a flight to stay out of the icing areas (VFR or light GA IFR ), then the information may provide a benefit.	Probable Critical - Red
12-04	AFS/ATO-P	Not intuitively clear to pilots for decision making	Eliminate color, numerical scale, name change		Probable Critical - Red
13-04	AFS/ATO-P	Training issues; inexperienced pilot vs. experienced pilot, dispatchers, meteorologists. No standardization in display formats.	Requires training for advanced product, less sophisticated product (single color) will be more intuitive. FITS program, Airmet Testing (AFS-600)	A less sophisticated product may be less effective for Part 121 and Part 135 operators.	Probable Critical - Red
14-04	AFS/ATO-P	No formal testing that'll prove and confirm that CIP/FIP are ready for operational use by pilots	Operation testing to confirm suitability.		Probable Critical - Red




	High Risk
	Medium Risk
	Low Risk





# CIP/FIP Hazlog; GENERAL

GENERAL					
16-04	AFS/ATO-P	Regulatory Implications (Enforcement actions) – is this forecast or known icing? The nature of a probabilistic forecast and its interpretation in enforcement actions.	Unknown		Remote Negligible Green
17-04	AFS/ATO-P	CIP/FIP may not correlate with the primary AIRMET; may exceed the boundaries of the AIRMET.	CIP/FIP will remain supplementary until the time the AIRMET/SIGMET are replaced.	May pose an enforcement issue, since one product may contradict the other.	Remote Negligible Green
18-04	AFS/ATO-P	Web site issues and product description. Finding guidance and product description is cumbersome and confusing.	Redesign website focusing on ease of use.		Remote Negligible Green
19-04	AFS/ATO-P	CIP/FIP uses one numerical model, RUC, while AIRMET uses several models.	Supplementary until CIP/FIP demonstrate equivalent level of safety to AIRMET.	CIP does use one numerical model (RUC), but information from the RUC is combined with observations from satellite, radar, surface stations, pilot reports and lightning mosaics to correct for model shortcomings.	Remote Negligible Green
20-04	AFS/ATO-P	Guidance only in AIM re: supplementary and not training programs	See AIM Guidance and HBAT regarding weather product classifications.		Remote Negligible Green

	High Risk
	Medium Risk
	Low Risk



# CIP/FIP Hazlog; GENERAL

INDUSTRY COMMENTS (12/02 MEETING)				
21-04	SAMA	Operational, supplemental, and approved	see 20-04	
22-04	ATA	Training for Dispatchers	see 13-04	
23-04	APA	Icing type not included in product	see 06-04 and 07-04	
24-04	AOPA	Color and lack of severity	see 07-04	
25-04	RAA	Severity needs to be added	see 07-04	
26-04	RAA	Color = yes or no (color vs. no color)	see 10-04	
27-04	RAA	No color only useful to GA pilots not commercial	see 10-04	
28-04	ALPA	Training programs for pilots and dispatchers	see 13-04	



# Conclusion

- **Flight Standards' decision is to maintain the operational restrictions and labeling (only approved for use by dispatchers and meteorologists) until the identified hazards are suitably mitigated.**



# Future Decision

- **CIP/FIP with severity and probability should mitigate many of the identified hazards.**
- **However, a new safety assessment will have to be performed to determine if any operational mitigations are needed.**



# CIP

The CIP is an automatically-generated product that supplements AIRMETs and SIGMETs by identifying areas of current icing potential, but it does NOT substitute for the intensity and forecast information contained in AIRMETs and SIGMETs. It is authorized for operational use by meteorologists and dispatchers.

## Maximum Icing potential (FL010-FL300)

Analysis valid 1600 UTC Mon 15 Mar 2004

