The background of the slide is a faded photograph of an airport tarmac. In the foreground, a deicing truck with a long, articulated arm is visible. In the background, a large commercial airplane is parked at a gate. The overall scene is hazy, suggesting a foggy or overcast day.

Activities
of the
Meteorology Sub-committee
of the
FAA/Industry Aircraft Ground Deicing
Working Group

Co-chairs

Tom Fahey (Northwest Airlines)

Warren Underwood (FAA)

Roy Rasmussen (NCAR)

Friends and Partners of Aviation Weather meeting

NBAA Conference

October 9, 2008

Orlando, Florida

History

- On 17 April 2007 members of the FAA and industry met to discuss ground deicing issues.
 - FAA/Industry Aviation Ground Deicing Work Group &
 - Jerry Ostronic, FAA, AFS 200 [Co-Chair] and
 - Paul Railsback, Air Transport Association (ATA) [Co-Chair]
 - Weather Subcommittee were formed.
 - Warren Underwood (FAA) [Co-Chair]
 - Tom Fahey (NW/Delta?) [Co-Chair]
 - Roy Rasmussen (NCAR) [Co-Chair]
 - Over 30 Reps from Gov't, Industry & Research Communities
 - DoD, Environment Canada, FAA, Nav Canada & NWS
 - Vendor rep, AAL, COA, DAL, NWA, SWA , UAL, UPS & USAir
 - NCAR

Weather Subcommittee Charter

- Address outstanding weather issues related to Winter Weather Ops & more specifically, Ground Airline Deicing/Anti-Icing.
- Long Term Tasks
 - Transition to Liquid Water Equivalent Measurements for reporting intensity of Frozen/Freezing/Mixed Precip
 - Champion Wx Reporting & Automated Observing System Improvements
 - Address Industry Concerns related to De-icing/anti-icing holdover & allowance times.

Weather Subcommittee

Current Activities

- **LWE Observation & Distribution**
 - Coordinate thru OFCM to Introduce LWE Reporting Capability w/in US
 - Support FAA's 2008-'09 LWE Info Distribution Tests at 4 Airports
 - + DEN
 - + MSP
 - + ORD
 - + PIT
 - Working w/ R. Heuwinkel's Requirements group on LWE reporting in METAR/SPECI.
- **Industry Concerns re Holdover & Allowance Times**
 - Increase FAA ATC & Contract Wx Observers' Awareness of Need for Wx Obs
 - Address the missing Mixed Precipitation Allowance/Holdover Times

Accomplishments 2007

- Delivered July 2007 report to the Deicing Working Group.
- Report Used by FAA for 2007-08 Winter Deicing Guidelines
 - Visibility and snow fall table final wording.
 - Pilot Assessment
 - Ice pellet conditions that are not continuous
- LWE Snow System Developed for 4 Airport test
 - Real time web display



Accomplishments - 2007

Snow Intensity Table Winter 2006/07

Time of Day	Temp.		Visibility (Statute Mile)							
	Degrees Celsius	Degrees Fahrenheit	≥ 2 1/2	2	1 1/2	1	3/4	1/2	≤ 1/4	
Day	colder/equal -1	colder/equal 30	Very Light	Very Light	Light	Light	Moderate	Moderate	Heavy	Snowfall Intensity
	warmer than -1	warmer than 30	Very Light	Light	Light	Moderate	Moderate	Heavy	Heavy	
Night	colder/equal -1	colder/equal 30	Very Light	Light	Moderate	Moderate	Heavy	Heavy	Heavy	
	warmer than -1	warmer than 30	Very Light	Light	Moderate	Heavy	Heavy	Heavy	Heavy	

NOTE: Based upon technical report, "The Estimation of Snowfall Rate Using Visibility," Rasmussen, et al., Journal of Applied Meteorology, October 1999 and additional in situ data.

NOTE: This table is for estimating snow intensities for use with Types I, II, III, and Type IV Fluids Holdover Time Guidelines.

HEAVY = Caution—No Holdover Time Guidelines Exist

Accomplishments - 2007

Snow Intensity Table Winter 2007/08

Time of Day	Temp.		Visibility (Statute Mile)							
	Degrees Celsius	Degrees Fahrenheit	≥ 2 1/2	2	1 1/2	1	3/4	1/2	≤ 1/4	
Day	colder/equal -1	colder/equal 30	Very Light	Very Light	Light	Light	Moderate	Moderate	Heavy	Snowfall Intensity
	warmer than -1	warmer than 30	Very Light	Light	Light	Moderate	Moderate	Heavy	Heavy	
Night	colder/equal -1	colder/equal 30	Very Light	Light	Moderate	Moderate	Heavy	Heavy	Heavy	
	warmer than -1	warmer than 30	Very Light	Light	Moderate	Heavy	Heavy	Heavy	Heavy	

NOTE: Based upon technical report, "The Estimation of Snowfall Rate Using Visibility," Rasmussen, et al., Journal of Applied Meteorology, October 1999 and additional in situ data.

Note 2: This table is to be used with Type I Fluid guidelines. It may also be used with Type II, III or IV fluid guidelines."

HEAVY = Caution—No Holdover Time Guidelines Exist

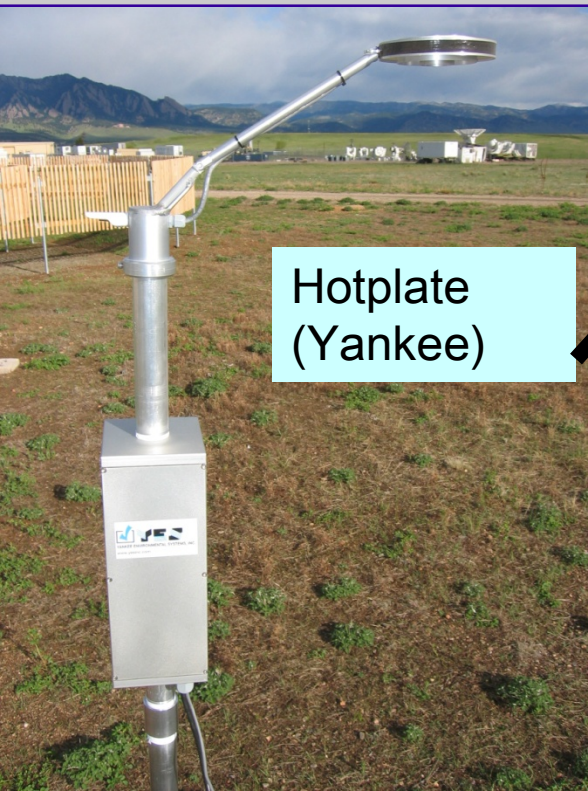
Precipitation Type sensor (HSS)



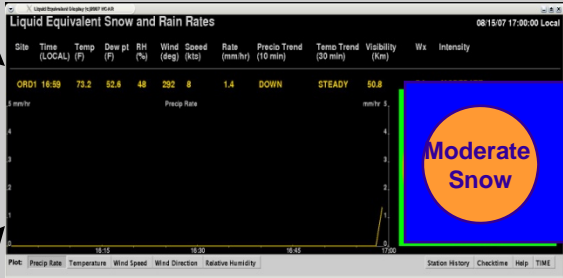
Snow Liquid Water Equivalent System



WXT temperature, humidity, and wind sensor (Vaisala)



Hotplate (Yankee)



Liquid Equivalent snowfall rate determination

Weighing Snowgauge (GEONOR)

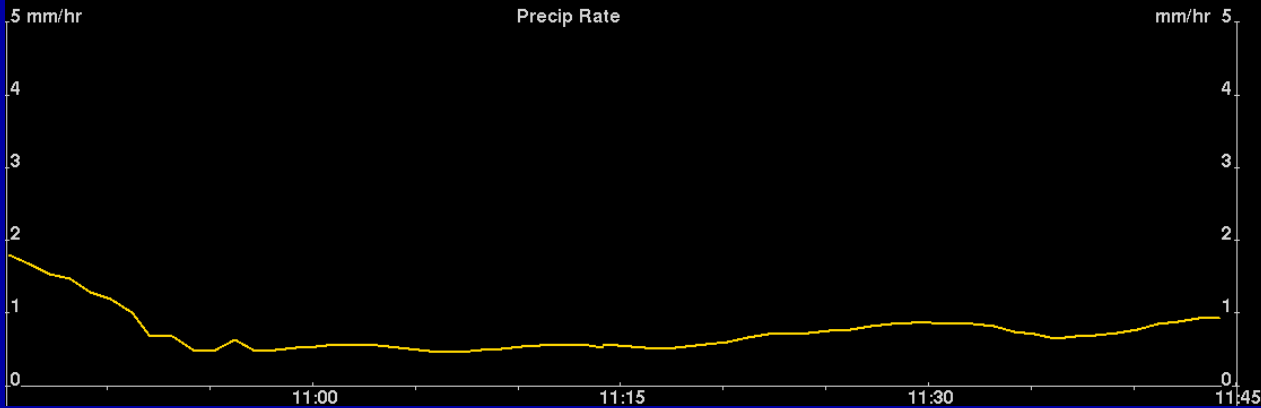


LWE Display Demo

Liquid Equivalent Snow and Rain Rates and Intensities

02/14/07 11:45:00 Local

Site	Time (LOCAL)	Temp (F)	Dew pt (F)	RH (%)	Wind (deg)	Speed (kts)	Rate (mm/hr)	Precip Trend (10 min)	Temp Trend (30 min)	Visibility (Km)	Wx	Intensity
PIT1	11:44	25.0	23.0	92	335	3	0.9	STEADY	STEADY		SN	LIGHT



Accomplishments & Open

2008

- ATC & Contract Wx Observers' Aware of Need for Wx Obs
 - FAA sent Notice to Controllers re Pilot Assessment of Precip process.
 - OPEN: Notice to CWO's re SPECI's for (Begin, End, Change Intnsty) pending
- Introduced LWE Reporting Capability within Int'l Community
 - ICAO Annex 3 will have specifications for LWE
 - + A Study Note & 2 Info Papers Prepared to Support effort
 - OPEN: ICAO / WMO LWE Rates

Future Areas of Focus

LWE Observation & Distribution

1. Actively Support Adoption of LWE Based definitions of snow and freezing drizzle nationally (U.S., OFCM).
2. Continue to support the implementation of LWE reporting through ASOS or other means.
3. Enhance SPECIs to include changes in snow intensity based on LWE.
4. Provide input into the appropriate method for dissemination of the LWE message to pilots.

Industry Concerns re Holdover & Allowance Times

1. Address Missing Mixed Precip Holdover & Allowance Times
2. Any weather related deicing concerns as they develop.