



Winter Operations

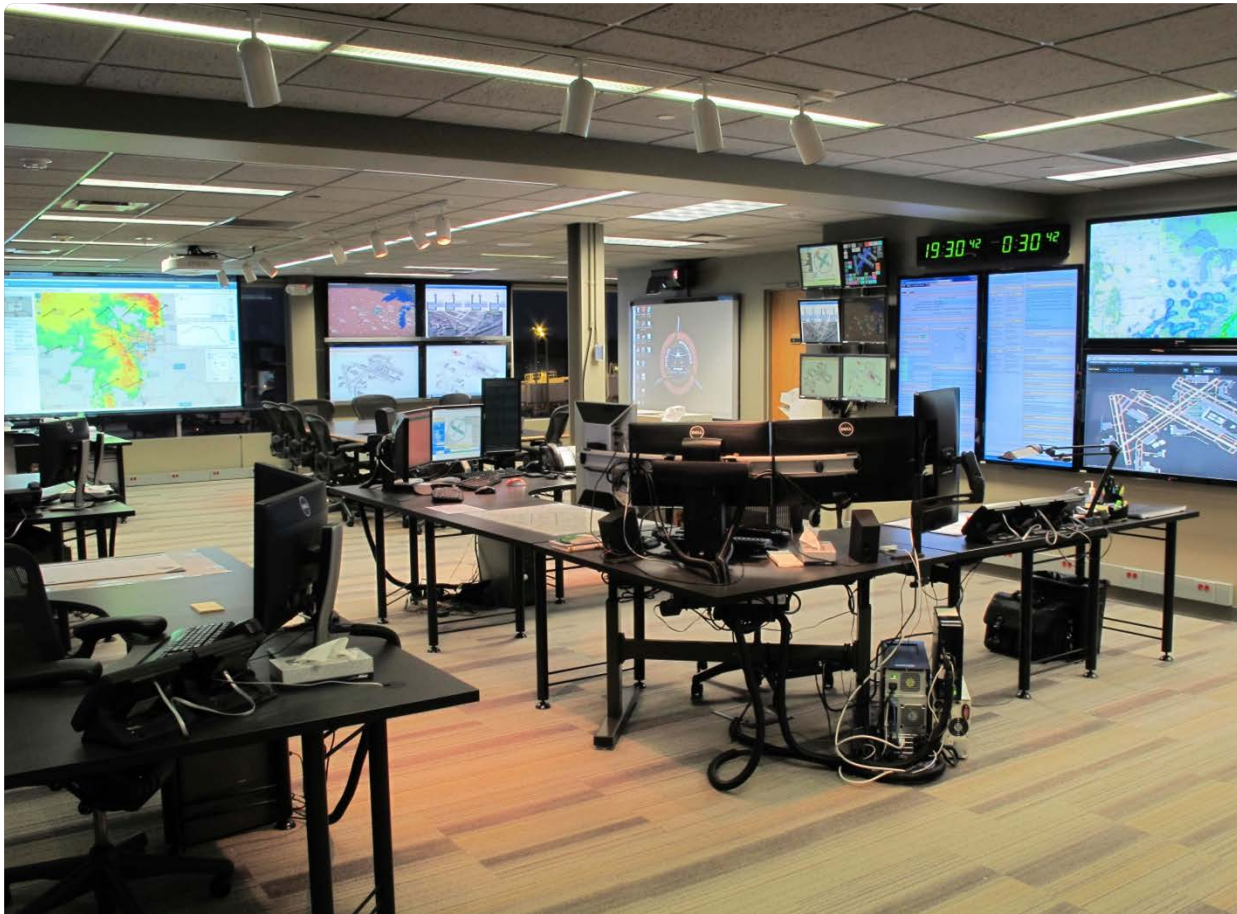
MSP International Airport



- 3400 acres
- 1200 aircraft operations/day
- 135 non-stop destinations
- 50" average annual snowfall

MSP International Airport





- Small department of 15 employees
- Technology used as leverage for Collaborative Decision Making (CDM) process
- Interpersonal relationships as/more important

MAC Airside Operations



Winter Operations

MSP International Airport

- Pre-Storm
- Storm
- Post-Storm



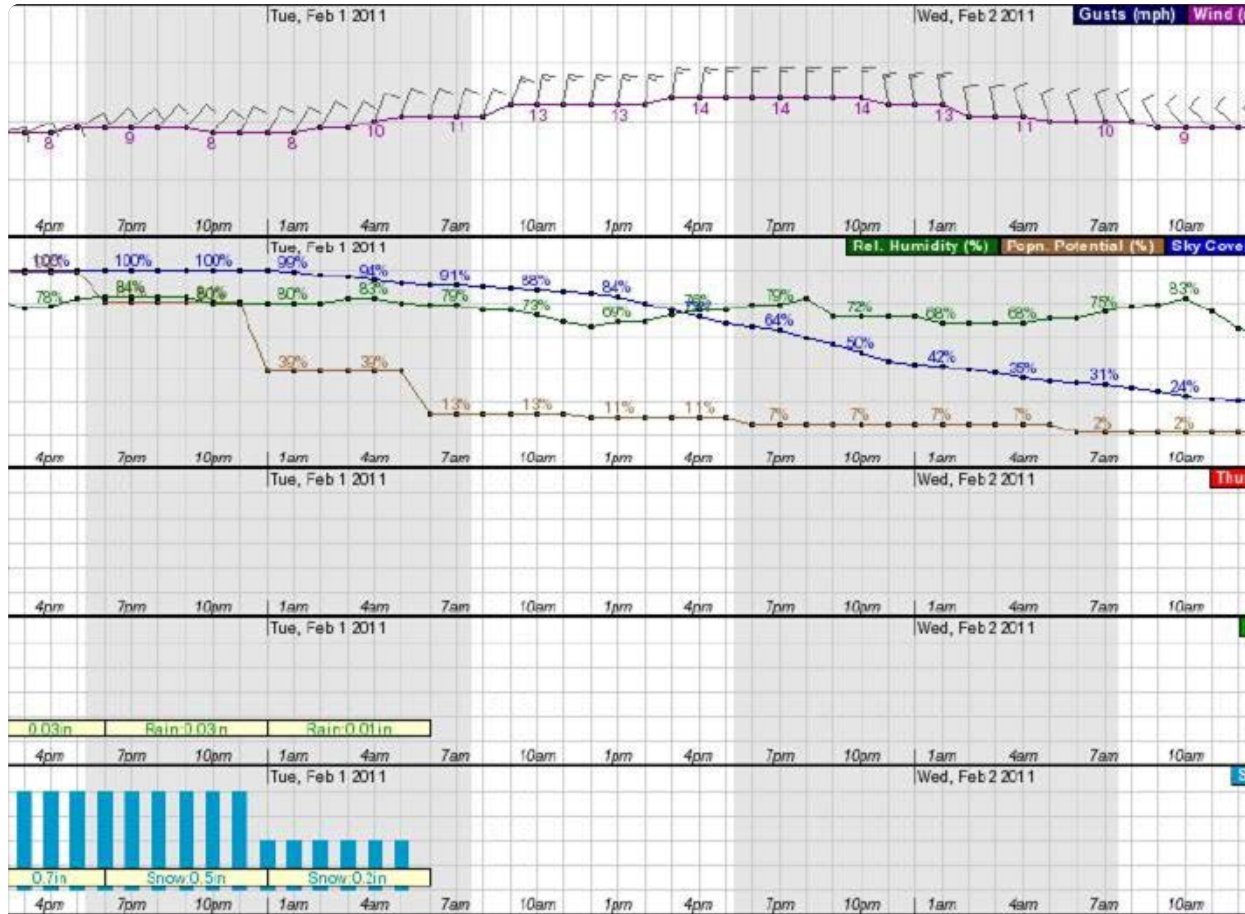
Pre-Storm



- NWS
- Watch/Warnings
- Airport Weather Warning
- NWSChat

Pre-Storm Weather Forecasts





- NOAA Graphical Forecasts

Pre-Storm Weather Forecasts



Tactical Decision Aid(TDA) for
**World-Chamberlain Airport (Minneapolis-St. Paul
 International)**



Based on 12 PM TAF last updated @ 11:31AM
 This page will auto refresh every 5 minutes.
 Page last refreshed @ 11:51AM



Enter 3 Letter ICAO Station Identifier Below:

LOCAL TIME: CENTRAL STANDARD TIME (CST)

		CURRENT		12 HOUR FORECAST										
		OBS.												
		11:00AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
CIG	PREVAILING	050	025	025	025	025	025	025	050	050	050	050	050	050
	TEMPO		018	018	018	018								
VSBY	PREVAILING	7SM	6SM	6SM	6SM	6SM	P6SM	P6SM	P6SM	P6SM	P6SM	P6SM	P6SM	P6SM
	TEMPO		5SM	5SM	5SM	5SM								
PCPN	PREVAILING													
	TEMPO		-SN	-SN	-SN	-SN								
WIND	PREVAILING	160° 03KT	200° 06KT	200° 06KT	200° 06KT	200° 06KT	250° 09KT	250° 09KT	290° 13KT	290° 13KT	290° 13KT	290° 13KT	290° 13KT	290° 13KT
	GUST								G18KT	G18KT	G18KT	G18KT	G18KT	G18KT
	TEMPO													

WIND COMPONENTS FOR RUNWAY 12/30

- NOAA Tactical Decision Aid

Pre-Storm Weather Forecasts



Forecast for the Twin Cities Metropolitan Area
prepared by meteorologist

THURSDAY MARCH 4 BY: T SKINNER
Fri NEXT FORECAST AT Mid

PRECIPITATION			
PRECIPITATION	PROB (%)	RATE in/hr	AMOUNT
			Overall precip chance: 100%
			Liquid: .10" 70%; >.20" 30%
			Snow: 2-3" 80%; >3" 20%
			Snow-water ratio: 8:1
			Snow character: VERY WET
TIMING			
			Beginning at: 9PM
			Ending at: CONTINUING
			Restarting at:
			Ending at:
			Total duration: 5-7HRS
			X Heaviest precip: AFTER 1AM
			Scattered coverage
			Intermittent and insignificant

OPERATIONAL WEATHER FACTORS	
Double conditions	Freezing precipitation potential
Freezing	Will definitely not occur
Partial	X Slight chance of occurrence
Completely with precip	Will occur but be scattered
After: MIDNIGHT	Will occur and be widespread
Warning	X Would occur from 1AM to 3AM
Severe/impossible	
Other:	Frost potential on pavement
Driving	
Heavy blowing snow	X None overnight
Heavy drifting snow	Scattered light frost possible
Heavy icy pavement	General light frost likely
Heavy hills	Heavy frost likely
	Forming after:

COVER, WIND, AND TEMPERATURE FORECASTS									
6am	9am	Noon	3pm	6pm	9pm	Mid	3am	6am	
				cldy	cldy	cldy	cldy	cldy	
				E10	E12	NE12	NE15	NE18	
						22	25		
				17	35	34	33	32	

at ;
at ; Tonight's low: 30 at 9AM

OUTLOOK FROM 6am Fri UNTIL 6am Sat

TIME	TYPE OF PRECIPITATION	PROB (%)	RATE in/hr	PRECIPITATION AMOUNTS, TIM
				24 hour probability: 100%
				Liquid: 0.00"
				Snow: 2-3"
7am	SNOW	100%	3/4	Beginning at: IN AREA
9am	SNOW	90%	1/2	Ending at: 8PM
11am	SNOW	80%	1/4	Restarting at:
1pm	LT SNOW	60%	1/8	Ending at:
3pm	FLURRIES	50%	TRC	Total duration: 6-9HRS
5pm	FLURRIES	40%	TRC	
7pm	FLURRIES	20%	TRC	SKY COVER, WIND, TEMPERAT
9pm	none	0%	0	Morning low: 30 at 9A
11pm	none	0%	0	Afternoon high: 34 at 4P
1am	none	0%	0	Night low: 23 at 7A
3am	none	0%	0	Sky cover: CLOUDY
5am	none	0%	0	Winds: NE TO NW 18-30MPH

Day 2 Trouble Conditions:	Unlikely	Marginal	X Likely	
	Day 3: Sat	Day 4: Sun	Day 5: Mon	Day 6: T
Minimum	23	25	19	22
Maximum	35	32	35	34
Precip chance	60%	50%	30%	<10%
Type:	SNOW	SNOW	SNOW SHOWERS	none
Rain:	.00"	.00"	.00"	.00"
Snow:	1"	TR-1"	TRACE	0.0"
Duration:	3-5HRS	3-4HRS	2HRS	----

GENERAL WEATHER SYNOPSIS AND REMARKS

Storm system moving in from the south overnight with precipitation as rain around 9pm then mixing with and changing to snow by 1am. will begin around midnight as the precipitation starts to change. become heavy at times between 2am-10am. It looks like around 4-6 likely with the southeast metro picking up a bit more and the north bit less. The temps will hold above freezing through about 4am, but a degree or so above freezing when it becomes all snow. Temps should freeze after 6am until early afternoon. The significant snow should begin with just flurries thereafter.

- Private Weather Contractors
 - Telvent DTN
 - Weather Watch

Pre-Storm Weather Forecasts



MSP 18z Deicing Forecast Update

Thull, William <William.Thull@delta.com>

Sent: Fri 12/7/2012 11:44 AM

To: Delta, OCCWXMSP; Airside

Full Deicing Product found on DeltaNet--> OCC --> Delta Weather --> Hub Deicing Forecast.

Today (7/18Z-8/16Z):

LIGHT SNOW BEGINNING ABOUT 20Z TIL 06Z TONIGHT. PERIOD OF MOST ACCUMULATING SNOW 22Z-02Z. AROUND 1 INCH TOTAL

Tomorrow (8/16Z-9/10Z):

SNOW AGAIN DEVELOPING ABOUT 07Z SAT NIGHT AND CONTINUING INTO SUN AFTERNOON. 4-5 INCH ACCUMN POSSIBLE

Pre-Storm Weather Forecasts

- Private Weather Contractors
 - Telvent DTN
 - Weather Watch
 - Delta Air Lines Meteorology





- Delta Air Lines
- FAA Air Traffic
 - Tower
 - TRACON
 - ZMP
 - Command Center



Pre-Storm
Telecons



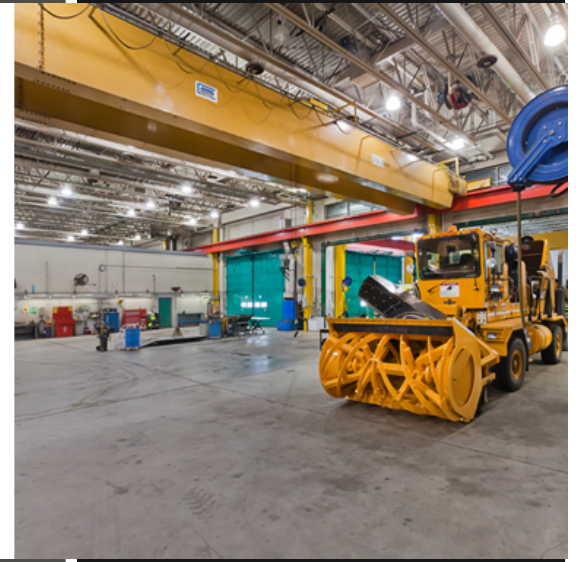
- Staffing Levels



Pre-Storm MAC Internal Planning

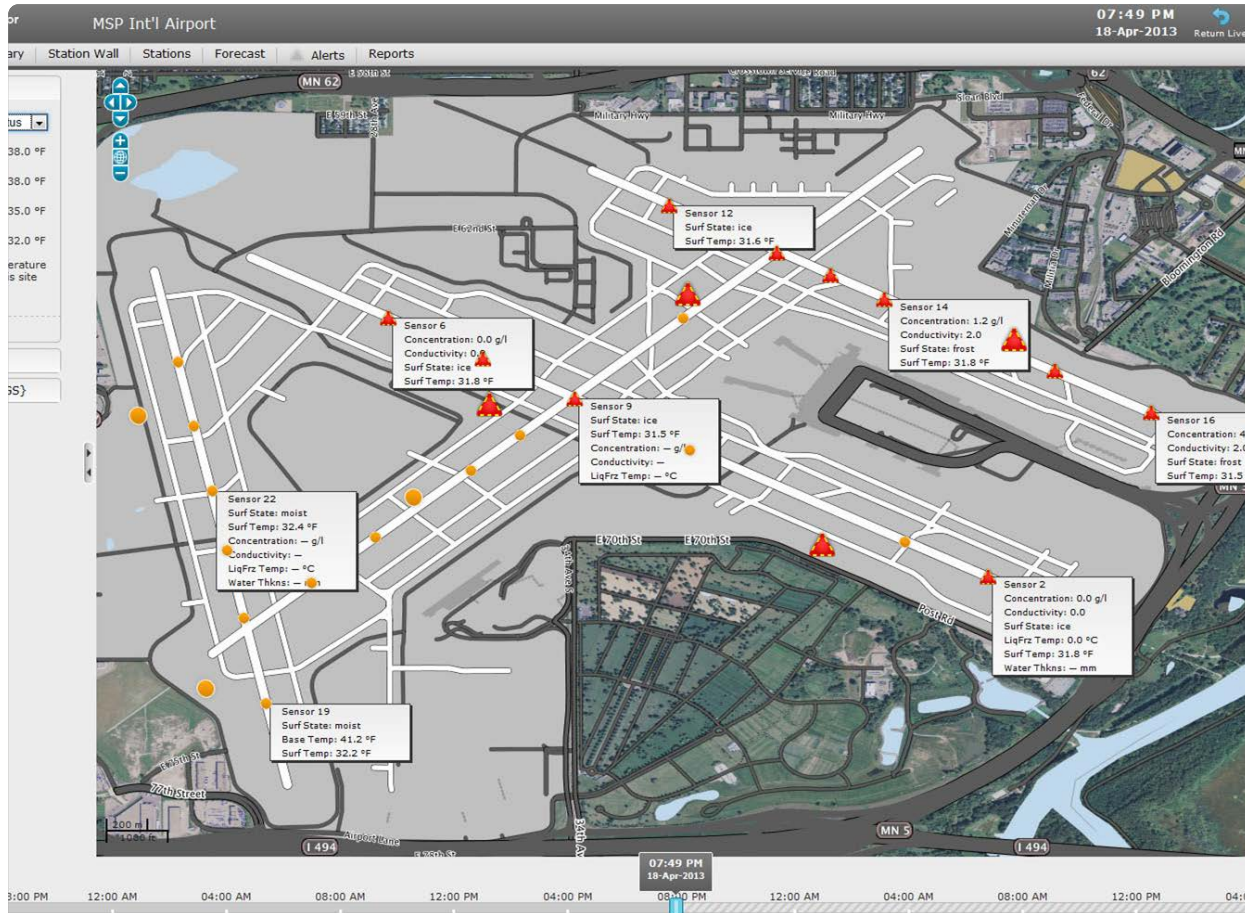


- Staffing Levels
- Staffing Start Time



Pre-Storm MAC Internal Planning





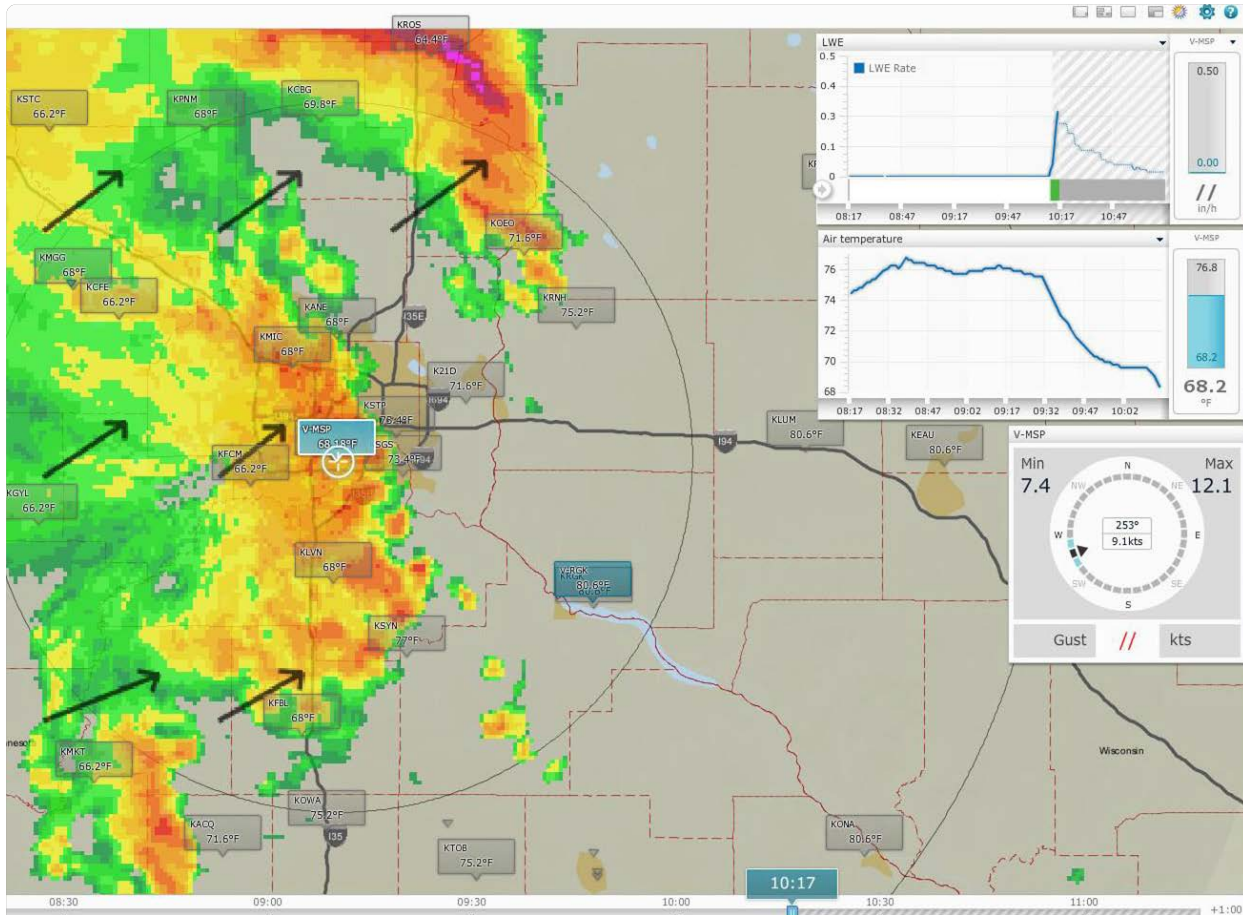
- Vaisala Navigator

Pre-Storm Surface Temperatures





Storm



- Vasaila Avicast

Storm
Radar



Minneapolis - St. Paul Intl (MSP)

10:49 CDT 09/27/13

Wind Direction: **140**
 Wind Speed: **13**

Altimeter: **29.91**
 Dens Alt: **2000**
 Elev: **831**

Temp **73(F), 23(C)**
 Dwp: **61(F), 16(C)**
 Heat Index: **76 F**
 Rel Humidity: **65%**

Ceiling: **FEW095 OVC140**

Visibility: **10SM**

Remarks: **RMK AO2 SLP123 T02280161**

TSTORM INTERFACE

Intensity:
 Intense
 Moderate
 Occasional

Lightning Strikes:
 Ranges:
 (0 to 5 Nm)
 Airport Vicinity: **0**
 (5 to 10) Nm
 N: NE: E: SE: S: SW: W: NW:
 (10 to 30) Nm
 N: NE: E: SE: S: SW: W: NW:
 (30 to 50) Nm
 N: NE: E: SE: S: SW: W: NW:

10:49 CDT Wind 140 at 13 Knots, Altimeter 29.91

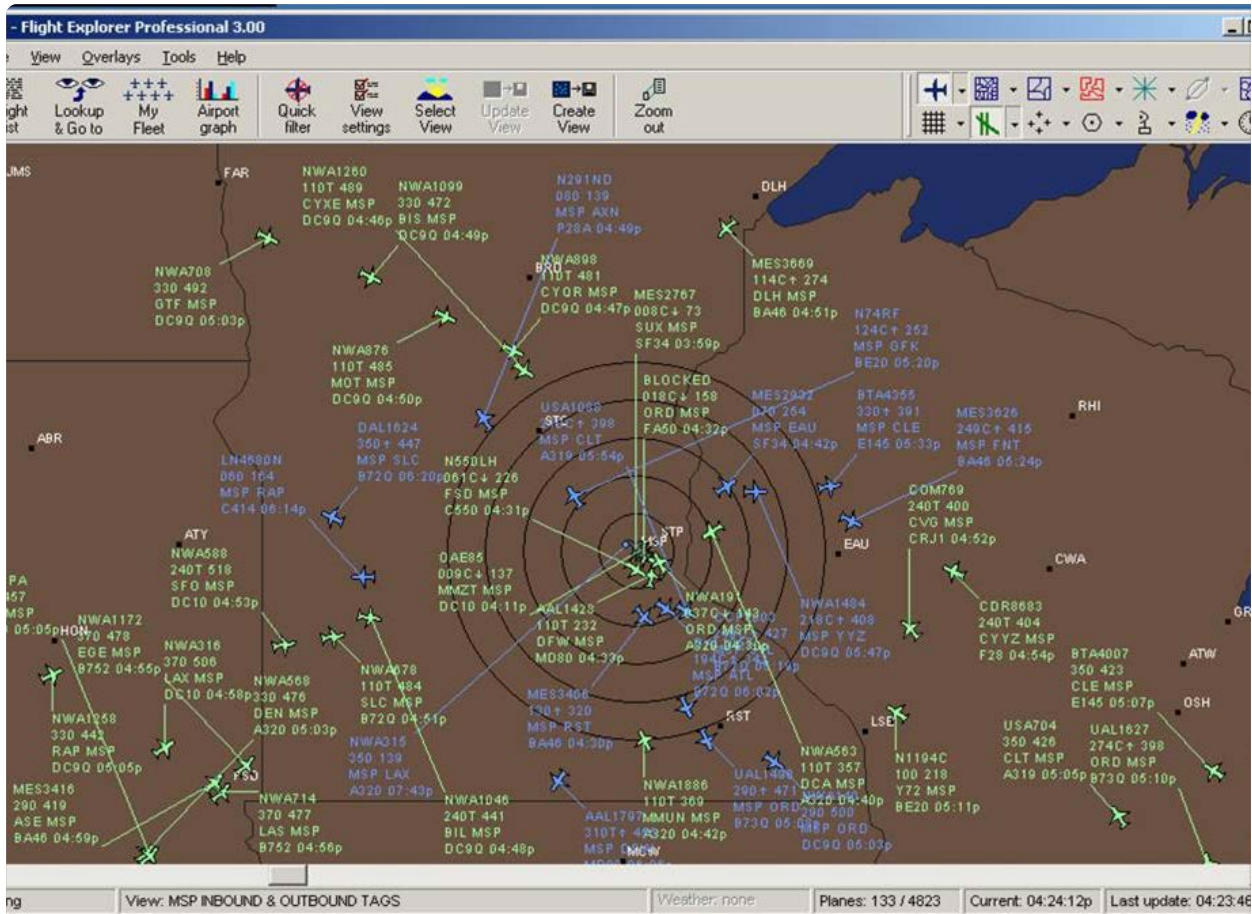
METAR: METAR KMSP 271453Z 14014G20KT 9SM OVC080 21/16 A299: T02110156 58001

INFO: Welcome to the Minneapolis Saint Paul International Airport

- Stanwyck Avionics

Storm
ASOS

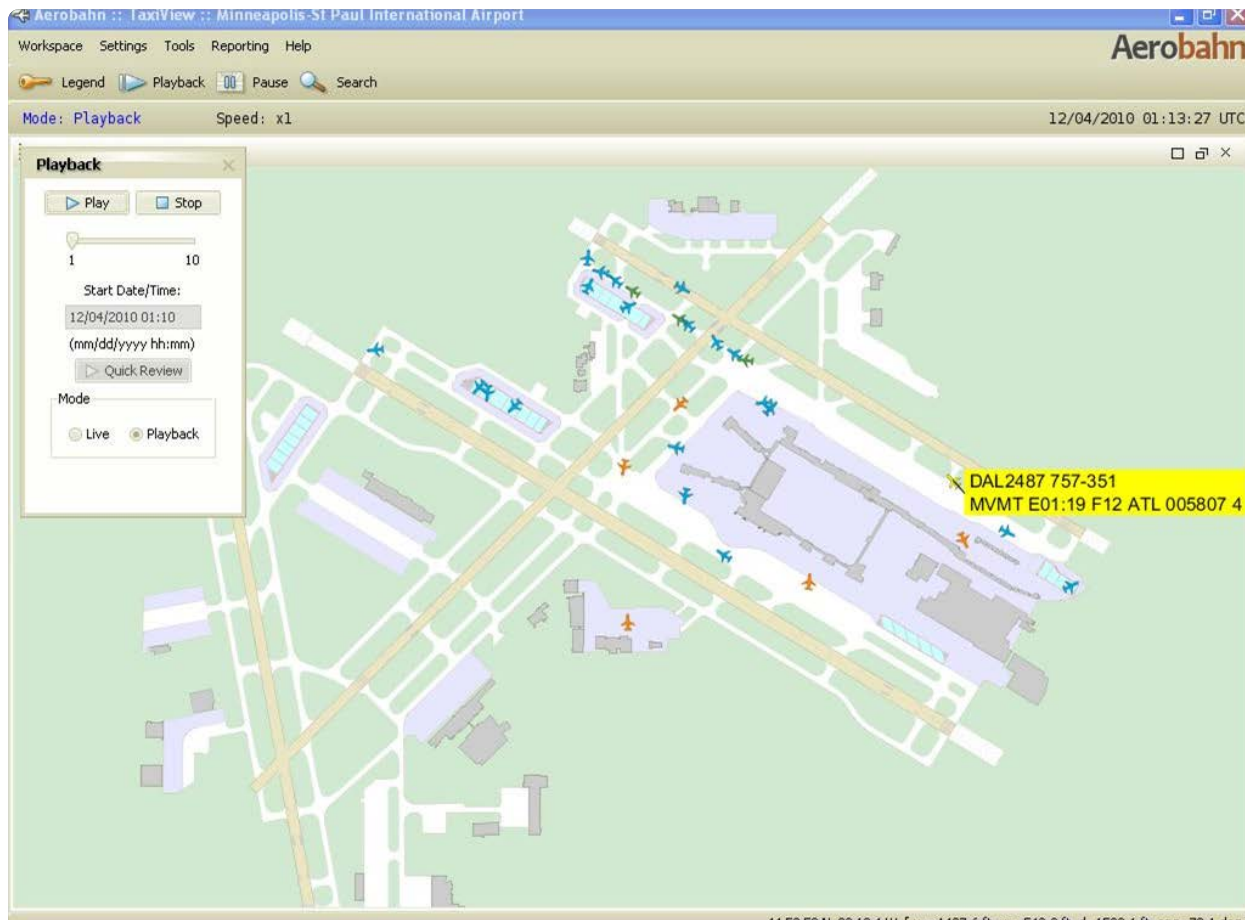




- FlightExplorer

Storm Flight Tracking





- Sensis Aerobahn

Storm Flight Tracking

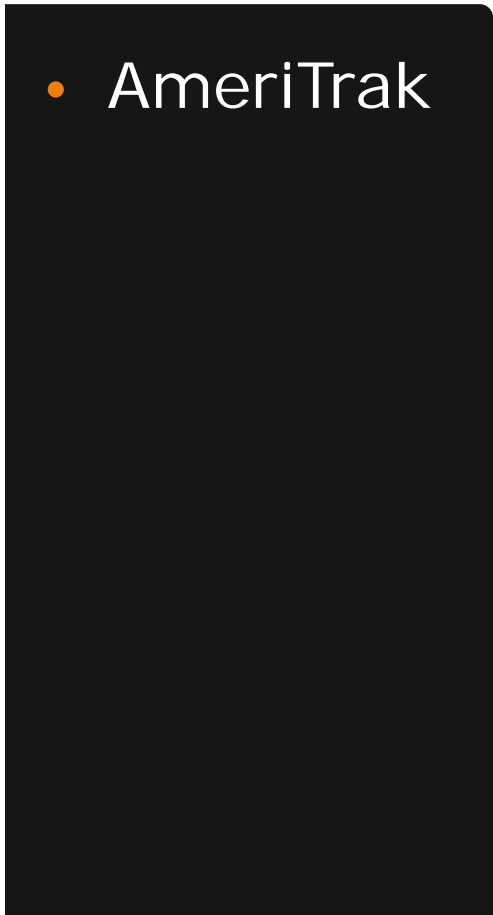
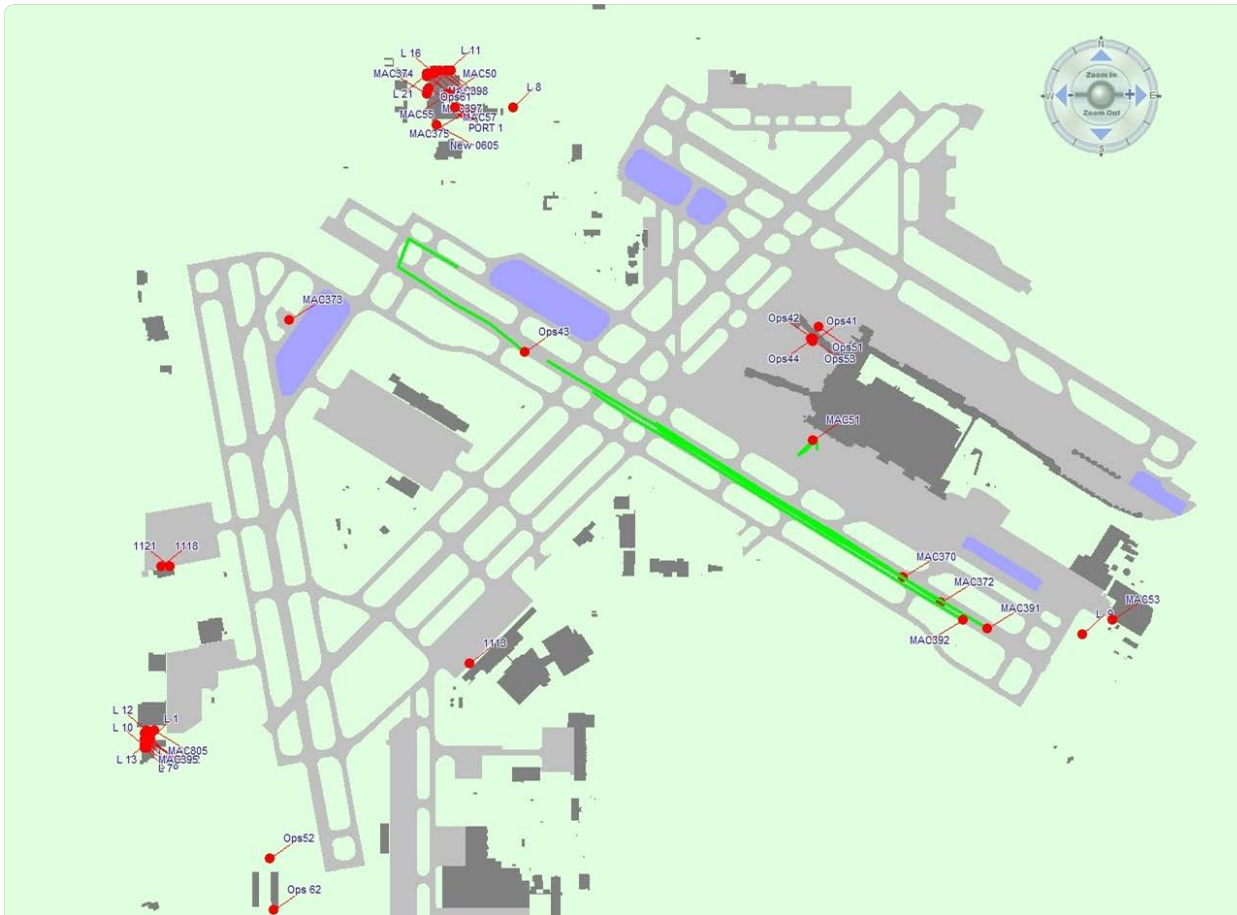




- Sensis
Aerobahn

Storm
Flight Tracking





Storm Vehicle Tracking

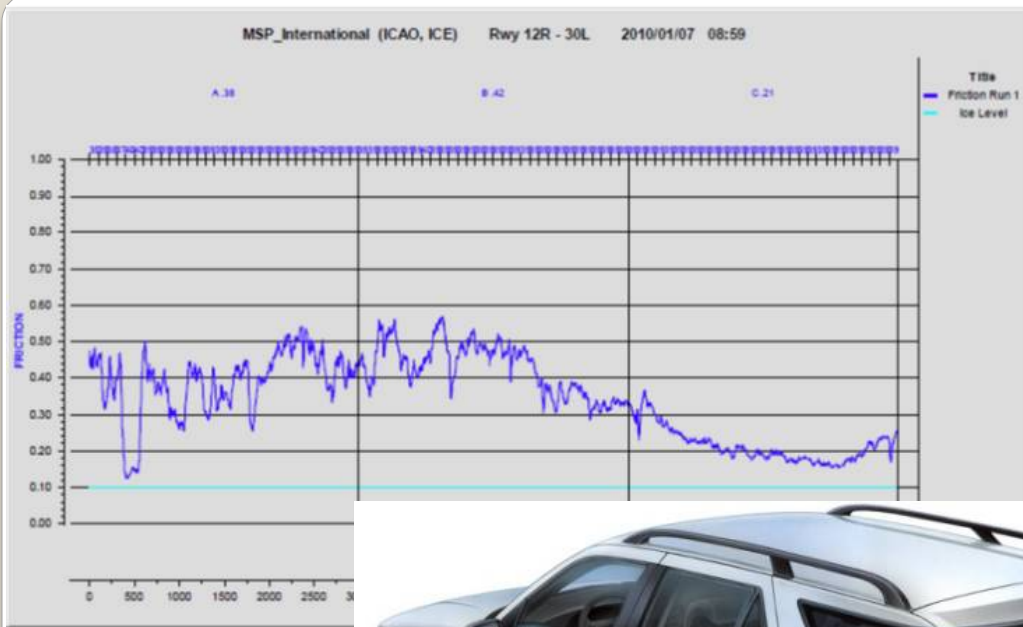




- AmeriTrak

Storm Vehicle Tracking





Storm Runway Closures

- Surface Friction Testing
 - “Pre-Run”





- Surface Friction Testing

Storm
Runway Closures





- Surface Friction Testing

Storm
Runway Closures



call session contacts

Call Session

Name	Number	Group
FAA TRACON		Daily Closures
FAA ATCT TMU		Daily Closures
OPS		
FAA ZMP TMU		Runway Closure
DL OCC Disp		Runway Closure
DL Control Center		Runway Closure

Group Call:
Message:

Name: Number:

Contact:

Call Group:

Currently logged in as: macops

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Storm Telecons

- Delta Air Lines
- FAA Air Traffic
 - Tower
 - TRACON
 - ZMP
 - Command Center



Airport Status

MSP Airport is Open

Airside Duty Manager: **Mark Miller**
 Field Maintenance Manager: **Avery Davis**
 Airside Operations Phone: **612-726-5111**
 Emergency Comm Center Phone: **Emergency - Police/Fire/Medical dial 911 Non-Emergency: 612-726-5577**

Update Number 7 at 01Oct13 0836L/1336Z

Important Airport Information

Diversions Enroute: 0 On Ground: 0

Airport Information Network Status Green

FAA Status

Runways (Green=Open Red=Closed) RWY NOTAMs

All Runways		
04-22	Closed	Updated 01Oct 1236Z !MAC 696 MOWING N END Updated 01Oct 1233Z !MSP 10/008 MSP RWY 4/22 CLSD 1310011230-1310012030
12L-30R	Open	Updated 01Oct 1233Z !MSP 10/006 MSP RWY 12L/30R CLSD 1310011545-1310011615 !MSP 01/145 MSP RWY 30R ALS OTS

Runway Configuration

Arrivals █ 30L
█ 35
 Departures █ 30F

Taxiways TWY NOTAMs

Updated at 01Oct 1217Z
 !MSP 09/285 MSP TWY D BTN TWY C2 AND TWY S OPEN EXCAVATION SOUTHEAST EDGE 50X20X2 LGTD AND BARRICADED 1309302055-1310182200

 !MSP 09/274 MSP TWY C BTN TWY C2 AND TWY S CLSD TO ACFT WINGSPAN LESS THAN 170FT

- PASSUR Opsnet

Storm

Airport Status/Future Plans

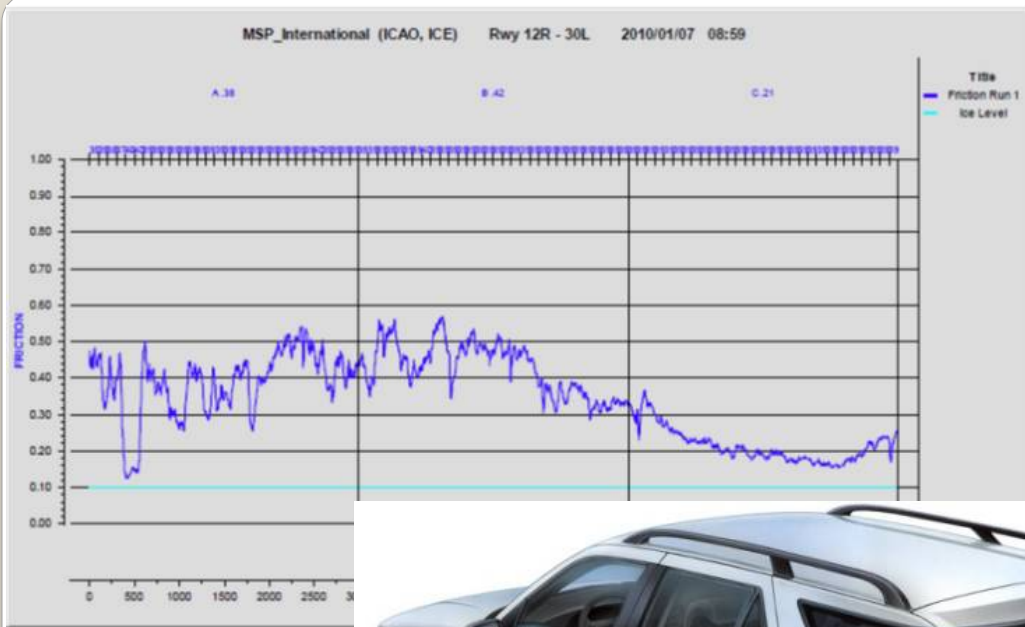




- Plows
- Brooms
- Blowers
- Sanders
- Deicers

Storm Runway Closures





Storm Runway Closures

- Surface Friction Testing
 - “Post Run”





Post-Storm



- Lighting and signage inspection
- Snowbank profiles

Post-Storm
Clean-up





- Lighting and signage inspection
- Snowbank profiles

Post-Storm Clean-up





- Snow-melters

Post-Storm
Clean-up





- Other marketing efforts

Post-Storm
Clean-up





- What went right?
- What can "we" do better next time?

Post-Storm "Snow Critique"





- Eliminate "Information Overload"
- "Just-in-Time" information

Going forward?





Josh Paurus

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MSP International Airport
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