



2020/21 Winter Airport Operations Briefing November 9, 2020





Agenda

- Introductions
- Last Winter's Stats...
- Predicted Weather Forecast
- Reporting of Field Conditions
 - Takeoff and Landing Performance Assessment
 - Runway Condition Assessment Matrix
 - NOTAMS (NOTAM Manager)
- Air Traffic Control Tower
- Flight Service Station
- Snow Removal Priorities
- Snow Storage (Long-Term / Panic Piles)

- Icy Surface Chemical Treatment
 - SWPPP
 - Aircraft Deicing
- Private / Leased Area Snow Removal
- Fences
- 121 Ramp / Jet Bridges
- 135 Ramp
- Float Pond Operations
- De-Icing
- Airfield Operations
 - Schedule
 - Contacts







Winter Snow/Ice Statistics

02019-2020 Season

- Area AFM is responsible for:
- Runway & Taxiways
- Main Ramp / Gates / 135 Area
- East & West GA Areas
- Alex Holden / Cessna Dr. / Fuel Farm
- Terminal / Shell Simmons / Employee Parking Lot
- NEDA / NWDA Areas (555,920 Sq. Ft. / 3.3 Miles)
- Float Pond Roads and EVAR
- Equals 8,604.043 Square Feet of Area

• Equalities 50.9 Miles of 2-Lane Hwy. w/ 4' Shoulders









Winter Snow/Ice Statistics

O 2019-2020 Snow Calculations

• Total Snow Fall – 70.1 inches (NWS – Airport)

O 50,261,953 Cubic Ft. of snow plowed, swept and removed

• Average Weight: 19.628 lbs. / CF

0493,271 Tons

0986,541,611 lbs.





Forecast – Winter 2020/21





Forecast – Winter 2020/21

• Source: NWS / NOAA

• La Nina Winter Advisory?

- Cooling of ocean water in the tropical Pacific Ocean
- Alaska's winter a little colder and drier than normal this year.
- Characterized by unusually cold water in the equatorial Pacific Ocean
- Atmosphere tries to maintain equilibrium
- Cold air from the north tends to get pulled down across Alaska.

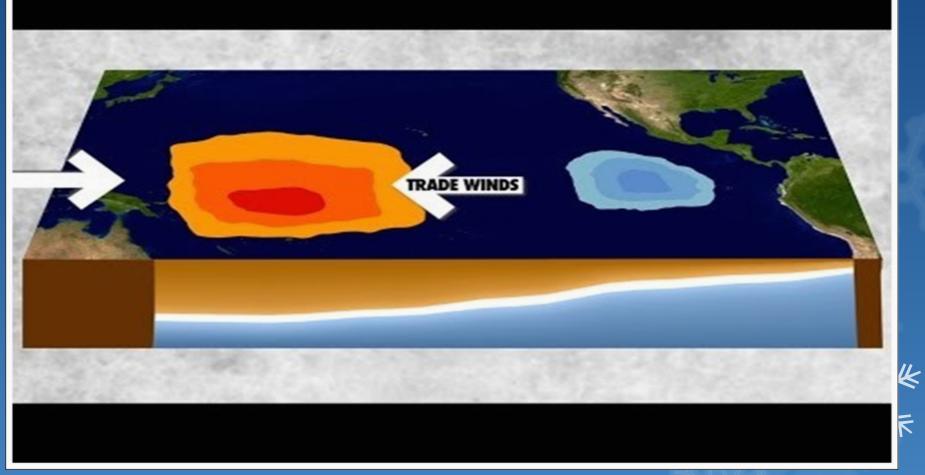








El Niño and La Niña Explained...



https://www.youtube.com/watch?v=wVlfyhs64IY

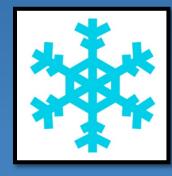




Forecast – Winter 2020/21

• Source: NWS / NOAA

- La Nina well established and expected to persist through the upcoming 2020 winter Season.
 - Currently the Climate Prediction Center is calling for a La Nina event.
 - Anticipate the typical, cooler, wetter North, and warmer, drier South
 - most likely outcome of winter weather that the U.S. will experience this year,
 - Some models predict a **WARMER** and **WETTER** Winter













O https://youtu.be/Wd64xdXLccM

Forecast – Winter 2020/21

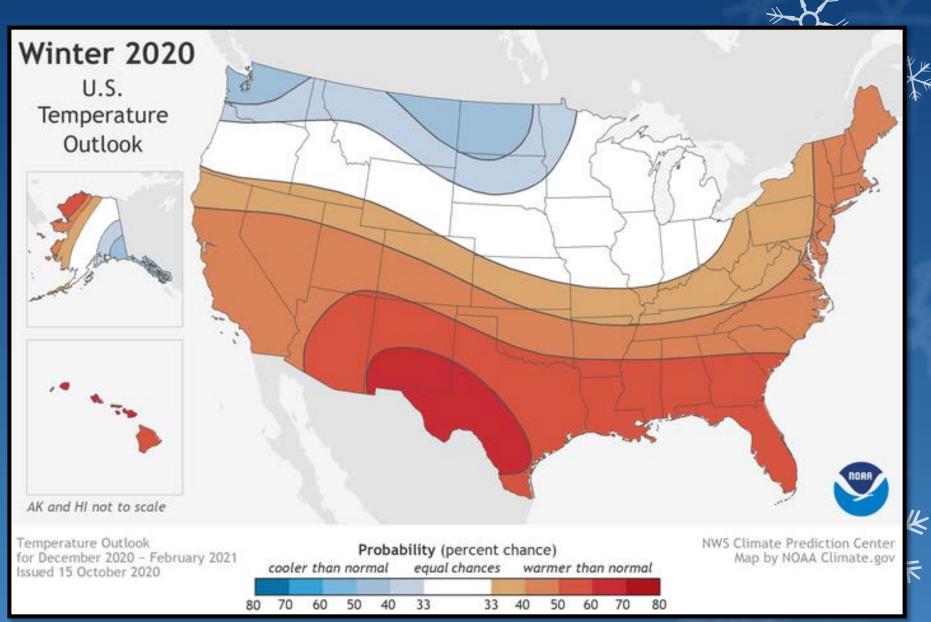
• What to expect?

- Temperature
 - <u>Warmer-than-normal conditions</u> conditions extend across the Southern tier of the U.S., <u>with the greatest</u> <u>likelihood in Alaska</u> and from the Pacific Northwest to the Northern Plains.
 - Above-average temperatures are also favored for Hawaii and western and northern Alaska.
 - Below-normal temperatures are favored in southern Alaska and from the northern Pacific Northwest
 - Northern Plains, with equal chances for below-, near- or above-average temperatures in the remaining regions









JYKK

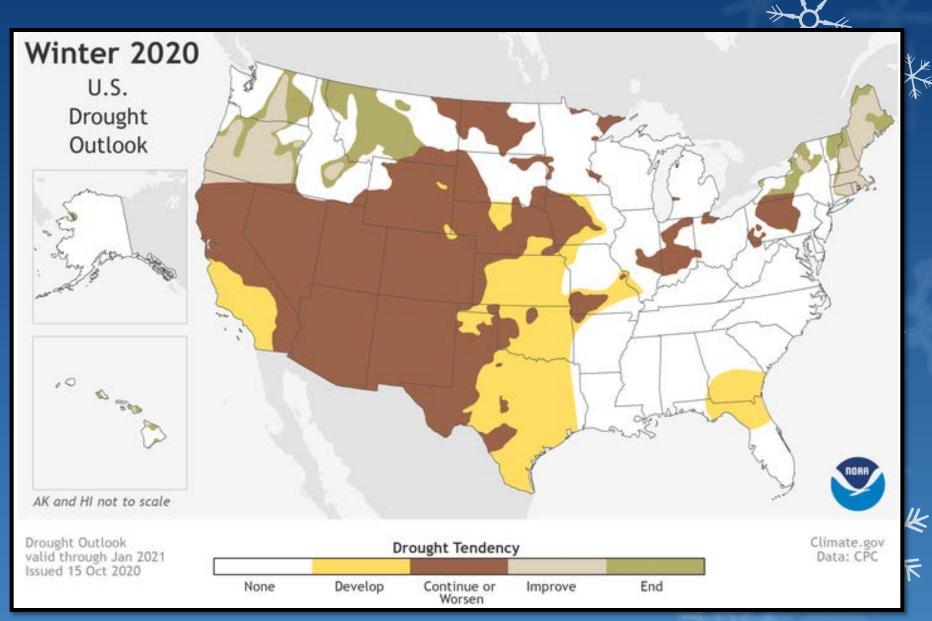
Forecast – Winter 2020/21



• What to expect?

- Precipitation
 - <u>Wetter-than-average conditions</u> are most likely across the northern tier of the U.S., extending from the Pacific Northwest as well as Hawaii and northern Alaska.
 - More modest chances for drier conditions are forecast in southern Alaska, and from California across the Rockies, Central Plains and into the Southeast.





with

Forecast – Winter 2020/21



- What to expect?Drought
 - Widespread, ongoing drought is currently in place across the western half of the continental U.S.
 - Drought is also present in parts of the Northeast, Ohio Valley, Hawaii and Alaska.
 - The ongoing La Nina is expected to expand and intensify drought across Alaska and Hawaii over the coming months.





Forecast – Winter 2020/21

What about Alaska?



• https://www.youtube.com/watch?v=grKeACli4uY

Snow and Ice Control Plan

Juneau International Airport (JNU) Airport Certification Manual Section 7: Snow and Ice Control Plan

Airport Certification Manual Section 7 Snow and Ice Control Plan

> Juneau International Airport (JNU)





Snow Removal Priorities









Reporting of Field Conditions





Takeoff and Landing Performance Assessment (TALPA)

- Initiative aims to reduce the risk of runway overruns
- Method to accurately and consistently determine the runway condition
- Paved runway is not dry
- Beginning October 1, 2016
- Federally obligated airports will use TALPA procedures
- Conduct runway assessments
- Field Condition (FICON) Notices to Airmen (NOTAMs)
- Determine the runway length needed to safely stop for a rejected takeoff or a landing



AC 150-5200-30D



U.S. Department of Transportation Federal Aviation Administration

Advisory Circular

Subject: Airport Field Condition Assessments and Winter Operations Safety Date: 7/29/2016 AC No: 150/5200-30D Initiated By: AAS-300

1 PURPOSE.

This advisory circular (AC) provides guidance to assist airport operators in developing a snow and ice control plan, assessing and reporting airport conditions through the utilization of the Runway Condition Assessment Matrix (RCAM), and establishing snow removal and control procedures.

2 CANCELLATION.

This AC cancels AC 150/5200-30C, Airport Winter Safety and Operations, dated December 9, 2008.

3 APPLICATION.

- The information contained in this AC provides guidance for the airport operators in the development of plans, methods, and procedures for identifying, reporting, and removal of airport contaminants. The use of this guidance is an acceptable means of compliance, for airports certificated under Title 14 Code of Federal Regulations (CFR) part 139, Certification of Airports. The use of this AC is also a method of compliance for federally obligated airports. Furthermore, use of the specifications in this AC is mandatory for projects funded under the Airport Improvement Program (AIP) or with revenue from the Passenger Facility Charge (PFC) program.
- For implementation purposes, all certificated airports must submit revised Snow and Ice Control Plans to the FAA no later than September 1, 2016, for approval. The Federal NOTAM System is the primary means of conveying airport condition information by certificated and federally obligated airports. Effective October 1, 2016, the Federal NOTAM System will incorporate the new reporting criteria and methodology contained in this AC.









Runway Condition Codes

https://aopalive.aopa.org/detail/video/5776177 179001/safety-tip:runwayconditions?autoStart=true&q=ice





Runway Condition Assessment Matrix

				OF COMENT MATE	EXHIBIT 7B							
			TION AS	SESSMENT MATR	IX							
AIRPORT ID	JNU]	DATE									
RUNWAY]	TIME(2									
ISSUER]										
Reported to	TSS OAT WARMER THAN 5°F (-15°C)? Y / N											
					Bung							
		DEPTH	CONTA	RWY COND.								
LOCATION	LOCATION % Coverage "X" if ≤ 25%			CONTAMINANTS								
TOUCHDOW	/N											
MIDPOINT												
ROLLOUT												
				See AC 150/5200-30								
	NT CRITERIA RE		Mu (μ)	Mu (μ) 📃 🗍								
> Dry	CONTAMINANT	COD	-									
> Frost		0			TES MK3 DECEL							
> 1/s inch or	ESS:		40 and Higher	UPGRADE/DOWNGRADE CRITERIA:								
	/Water	5	hd H	\Box Mu (μ)	PIREP							
 Slus 	h		ighe									
	w (Dry or Wet)		¥	Operator experience								
	now Temp≤5°F/			Other	/weather cond.							
	now Temp>5°F/	-15°C	39	FINAL RUNWAY CON	DITION - REPORTED							
 Snow (Dry Snow (Dry 		3	to	LOCATION	RWY COND.							
Compact S		1	30	(Based on RWY)	CODE							
> Slippery W				TOUCHDOWN								
) than <mark>⅓</mark> inch:		29	MIDPOINT								
 Wat Slus 		2	to									
Sius		1	21	ROLLOUT								
	Nater Over Ice)	-	20 or	Remarks:								
Slush Over			or									
	r Compact Sno		lower									
Snow (Dry	/ Wet) Over Ic	e	8									







Runway Condition Description

Assessment Criteria	
Runway Condition Description	
• Dry	
 Frost Wet (Includes Damp and 1/8 inch depth or less of water) 	
 1/8 inch (3mm) depth or less of: Slush Dry Snow Wet Snow 	
 5° F (-15°C) and Colder outside air temperature: Compacted Snow 	
 Slippery When Wet (wet runway) Dry Snow or Wet Snow (Any depth) over Compacted Snow 	
Greater than 1/8 inch (3mm) depth of: • Dry Snow • Wet Snow	
Warmer than 5° F (-15°C) outside air temperature: • Compacted Snow	
Greater than 1/8 (3mm) inch depth of: • Water	
Slush	
• Ice ²	
 Wet Ice² Slush over Ice Water over Compacted Snow² Dry Snow or Wet Snow over Ice² 	



Runway Condition Code (RwyCC)

Assessment Criteria	
Runway Condition Description	Code
• Dry	6
 Frost Wet (Includes Damp and 1/8 inch depth or less of water) 1/8 inch (3mm) depth or less of: Slush Dry Snow Wet Snow 	5
 5° F (-15°C) and Colder outside air temperature: Compacted Snow 	4
 Slippery When Wet (wet runway) Dry Snow or Wet Snow (Any depth) over Compacted Snow Greater than 1/8 Inch (3mm) depth of: Dry Snow Wet Snow Wet Snow Warmer than 5° F (-15°C) outside air temperature: Compacted Snow 	3
Greater than 1/8 (3mm) inch depth of: • Water • Slush	2
• Ice ²	1
 Wet Ice² Slush over Ice Water over Compacted Snow² Dry Snow or Wet Snow over Ice² 	0







Friction Assessment / Downgrade Criteria

Assessment Criteria	D	Downgrade Assessment Criteria				
Runway Condition Description	Code	Mu (µ) ¹				
• Dry	6					
 Frost Wet (Includes Damp and 1/8 inch depth or less of water) 1/8 inch (3mm) depth or less of: Slush Dry Snow Wet Snow 	5	40 or Higher				
 5° F (-15°C) and Colder outside air temperature: Compacted Snow 	4	39				
 Slippery When Wet (wet runway) Dry Snow or Wet Snow (Any depth) over Compacted Snow Greater than 1/8 inch (3mm) depth of: Dry Snow Wet Snow Wet Snow Warmer than 5° F (-15°C) outside air temperature: Compacted Snow 	3	to 30				
Greater than 1/8 (3mm) inch depth of: • Water • Slush	2	29 t				
• Ice ²	1	to 21				
 Wet Ice² Slush over Ice Water over Compacted Snow² Dry Snow or Wet Snow over Ice² 	0	20 or Lower				









Physics 101 - Friction

• Energy of friction

$$E_{th} = \int_{C} \mathbf{F}_{fric}(\mathbf{x}) \cdot d\mathbf{x} = \int_{C} \mu_{k} \mathbf{F}_{n}(\mathbf{x}) \cdot d\mathbf{x}$$





How is Friction Measured?

• What is a Mµ

- Mu (uppercase M, lowercase µ;) is the 12th letter of the Greek alphabet. In the system of Greek numerals it has a value of 40. Mu was derived from the Egyptian hieroglyphic symbol for water.
- It denotes "coefficient of friction" and is also used in aviation as braking coefficient.



Vehicle Deceleration /Directional Control

Assessment Criteria	Assessment Criteria				
Runway Condition Description		Mu	(µ) 1	Vehicle Deceleration or Directional Control Observation	
• Dry	6				
 Frost Wet (Includes Damp and 1/8 inch depth or less of water) 1/8 inch (3mm) depth or less of: Slush Dry Snow Wet Snow 	5		40 or Higher	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	
 5° F (-15°C) and Colder outside air temperature: Compacted Snow 	4	39		Braking deceleration OR directional control is between Good and Medium.	
 Slippery When Wet (wet runway) Dry Snow or Wet Snow (Any depth) over Compacted Snow Greater than 1/8 Inch (3mm) depth of: Dry Snow Wet Snow Wet Snow Warmer than 5° F (-15°C) outside air temperature: Compacted Snow 	3	to 30	Π	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	
Greater than 1/8 (3mm) inch depth of: • Water • Slush	2		29 t	Braking deceleration OR directional control is between Medium and Poor.	
• Ice ²	1		to 21	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	
 Wet Ice² Slush over Ice Water over Compacted Snow² Dry Snow or Wet Snow over Ice² 	0	20 or Lower		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	

Braking Action Pilot Reports

Assessment Criteria			Downgrade Assessment Criteria			
Runway Condition Description	Code	Mu (µ) ¹		Vehicle Deceleration or Directional Control Observation	Pilot Reported Braking Action	J.
• Dry	6					
 Frost Wet (Includes Damp and 1/8 inch depth or less of water) 1/8 inch (3mm) depth or less of: Slush Dry Snow Wet Snow 	5		40 or Higher	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good	A A
 5° F (-15°C) and Colder outside air temperature: Compacted Snow 	4	39		Braking deceleration OR directional control is between Good and Medium.	Good to Medium	
 Slippery When Wet (wet runway) Dry Snow or Wet Snow (Any depth) over Compacted Snow Greater than 1/8 Inch (3mm) depth of: Dry Snow Wet Snow Wet Snow Warmer than 5° F (-15°C) outside air temperature: Compacted Snow 	3	to 30		Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium	
Greater than 1/8 (3mm) inch depth of: • Water • Slush	2		29 t	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor	
• Ice ²	1		to 21	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	Poor	ALL ALL
 Wet Ice² Slush over Ice Water over Compacted Snow² Dry Snow or Wet Snow over Ice² 	0	20 or Lower		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	Nil	

AIRPORT	CONDI	τιο	N AS	EXHIBIT 7B SSESSMENT MATRIX					
		DATE							
RUNWAY	TIME (24 HR LOC)								
ISSUER									
Reported to ATC FS	e								
				OAT WARMER THAN 5"F (-15"C)? Y / N					
COVERAGE	DEPTH			RWY					
	(inches)	co	NTAI	MINANTS COND. CODE					
TOUCHDOWN									
MIDPOINT									
ROLLOUT									
			_	See AC 150/5200-30					
ASSESSMENT CRITERIA REFE			u (µ)	Μu (μ) 🚬 🛄 🛄					
RWY COND./CONTAMINANT	CODE								
> Dry > Frost	6	- 1		Type: Tapley TES MK3 DECEL					
Frost % inch or LESS:	5		40 a	UPGRADE/DOWNGRADE CRITERIA:					
 Wet/Water 			and Higher	\square Mu (μ) \square PIREP					
 Slush 			figh						
 Snow (Dry or Wet) 		H	9	Operator experience Deteriorating					
Compact Snow Temp≤5°F/-15°	°C 4			Other /weather cond.					
Compact Snow Temp>5°F/-15°	°C	39		FINAL RUNWAY CONDITION - REPORTED					
Snow (Dry or Wet)		đ							
Snow (Dry or Wet) over	3	30		LOCATION RWY COND. (Based on RWY) CODE					
Compact Snow				(20000 011111)					
 Slippery When Wet Greater (>) than ¼ inch: 				TOUCHDOWN					
 Water 	2		29 1	MIDPOINT					
 Slush 			to 2	ROLLOUT					
> Ice	1		=	KOLLOUT					
Wet Ice (Water Over Ice)		20 or		Remarks:					
Slush Over Ice									
Water Over Compact Snow	0	lower							
Snow (Dry / Wet) Over Ice		4							



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NOTAM (NOTAM Manager)

Federal Aviation Administration

Production



NOTAM Manager | Feature Manager | Reports | User Administration | My Profile | Preferences | Feedback | Help | Log

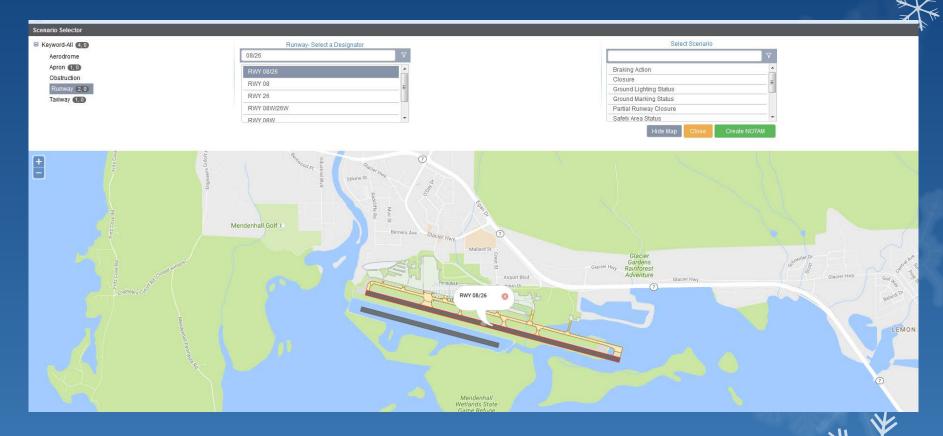
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Scott Rinkenberger | OCT 29 2016 SAT 2037 UTC

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Filters		NOTAM Summary				Rows:	50 Page: 1 Go Page 1 of 1	
Airports		Feature	Condition	Number	Start Date UTC	End Date UTC	Status	
· · ·		Runway	JNU RWY 08 RWY END ID LGT OUT OF SERVICE 1601181330-1701191330	01/291	01/18/2016 1330	01/19/2017 1330	Active	
JNU-Juneau Intl	-	Apron	JNU APRON ALL FICON WET OBSERVED AT 1610291625. 1610291626-1610301626	10/127	10/29/2016 1626	10/30/2016 1626	Active 🕕	
E Keyword-All (4,0		Taxiway	JNU TWY ALL FICON WET OBSERVED AT 1610291625. 1610291625-1610301625	10/126	10/29/2016 1625	10/30/2016 1625	Active 🕕	
Aerodrome		Runway	JNU RWY 08 FICON 5/5/5 100 PRCT WET OBSERVED AT 1610291625. 1610291625-161	10/125	10/29/2016 1625	10/30/2016 1625	Active 🕕	
		Apron	JNU APRON ALL FICON WET OBSERVED AT 1610281724. 1610281724-1610291724	10/123	10/28/2016 1724	10/29/2016 1724	Cancelled	
Apron (1,0)		Taxiway	JNU TWY ALL FICON WET OBSERVED AT 1610281723. 1610281723-1610291723	10/122	10/28/2016 1723	10/29/2016 1723	Cancelled	
Obstruction		Runway	JNU RWY 08 FICON 5/5/5 100 PRCT WET OBSERVED AT 1610281723. 1610281723-161	10/121	10/28/2016 1723	10/29/2016 1723	Cancelled	
Runway 2,0		Runway	JNU RWY 08 JNUA RLLS OUT OF SERVICE 1610281700-1610290100	10/120	10/28/2016 1700	10/29/2016 0100	Cancelled	
Taxiway 1.0		Taxiway	JNU TWY ALL FICON WET OBSERVED AT 1610280045. 1610280046-1610290046	10/118	10/28/2016-0046	10/29/2016-0046	Cancelled	
		Apron	JNU APRON ALL FICON WET OBSERVED AT 1610280046. 1610280046-1610290046	10/119	10/28/2016-0046	10/29/2016-0046	Cancelled	
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All 1		Apron	JNU APRON ALL FICON WET OBSERVED AT 1610271745. 1610271745-1610281745	10/116	10/27/2016 1745	10/28/2016 1745	Cancelled	
Active (Taxiway	JNU TWY ALL FICON WET OBSERVED AT 1610271744. 1610271744-1610281744	10/115	10/27/2016 1744	10/28/2016 1744	Cancelled	
		Runway	JNU RWY 08 FICON 5/5/5 100 PRCT WET OBSERVED AT 1610271741. 1610271741-161	10/114	10/27/2016 1741	10/28/2016 1741	Cancelled	
Activation In Prog	ress 🙆	Runway	JNU RWY 08/26 WIP RWY INSPECTION 1610160519-1610170519	10/026	10/16/2016 0519	10/17/2016 0519	Cancellation In Progress	
Cancelled 10		Runway	JNU RWY 08 RLLS OUT OF SERVICE 1610131800-1610132330 1610131800-1610132330	-	10/13/2016 1800	10/13/2016 2330	Activation In Progress	
Cancellation In P	roaress 🕥	Runway	JNU RWY 08 RLLS OUT OF SERVICE 1610131800-1610132330	-	10/13/2016 1800	10/13/2016 2330	Activation In Progress	
Draft								
Error Activating								
Error Cancelling								
Expired								
Activation Faxed								
	ea							
In Queue								
Cancellation Fax	ed ,							



NOTAM (NOTAM Manager)





Air Traffic Control Tower



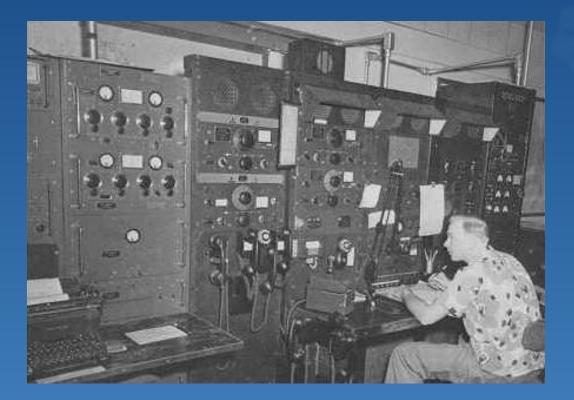








Flight Service Station









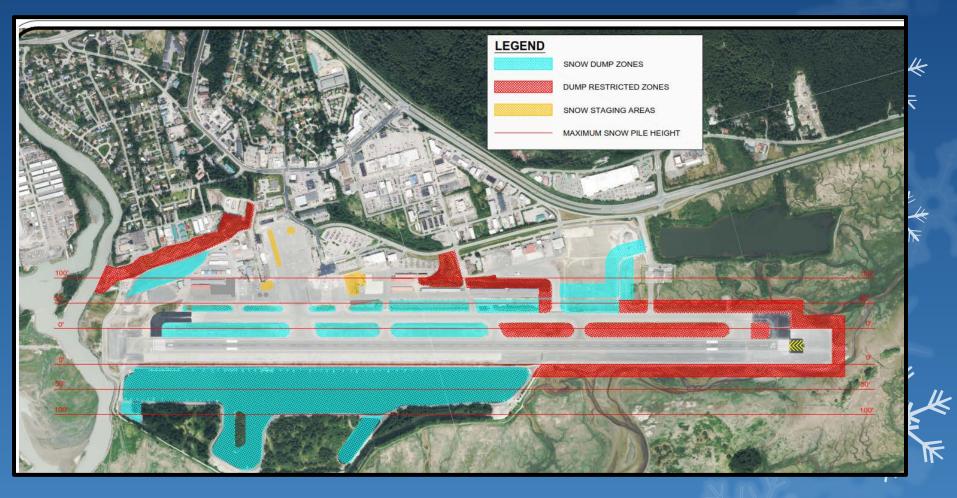


Snow/Ice Removal Priorities



Snow Storage





Solid Airfield Deicer
 Sodium Formate / Acetate Blend

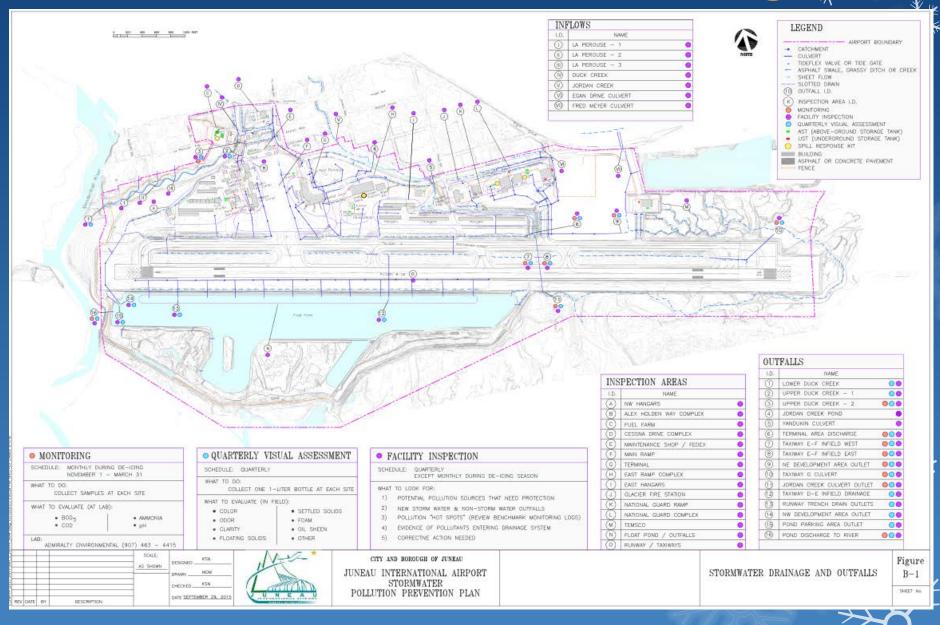
• Liquid Airfield Deicer

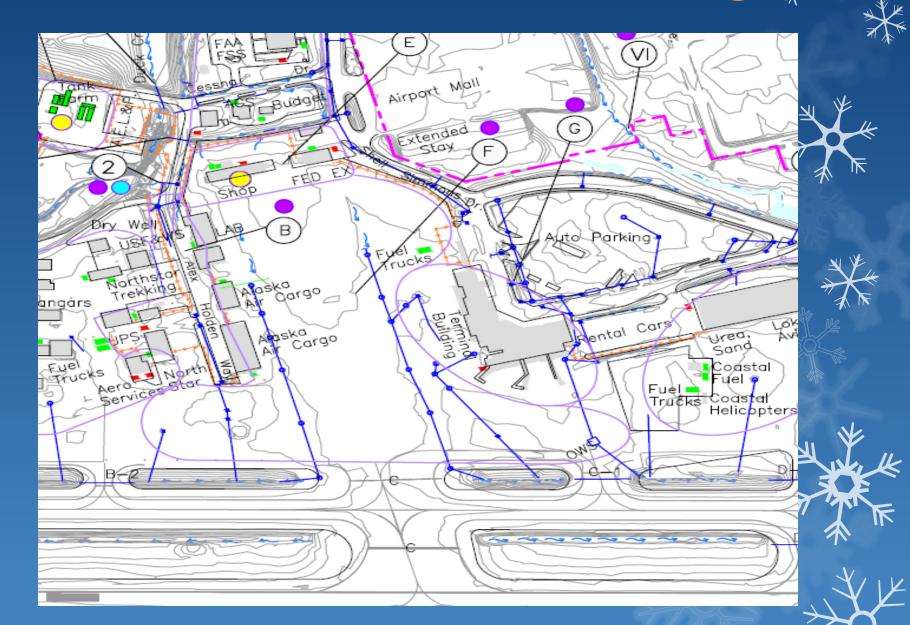
•No restrictions due to SWPPP

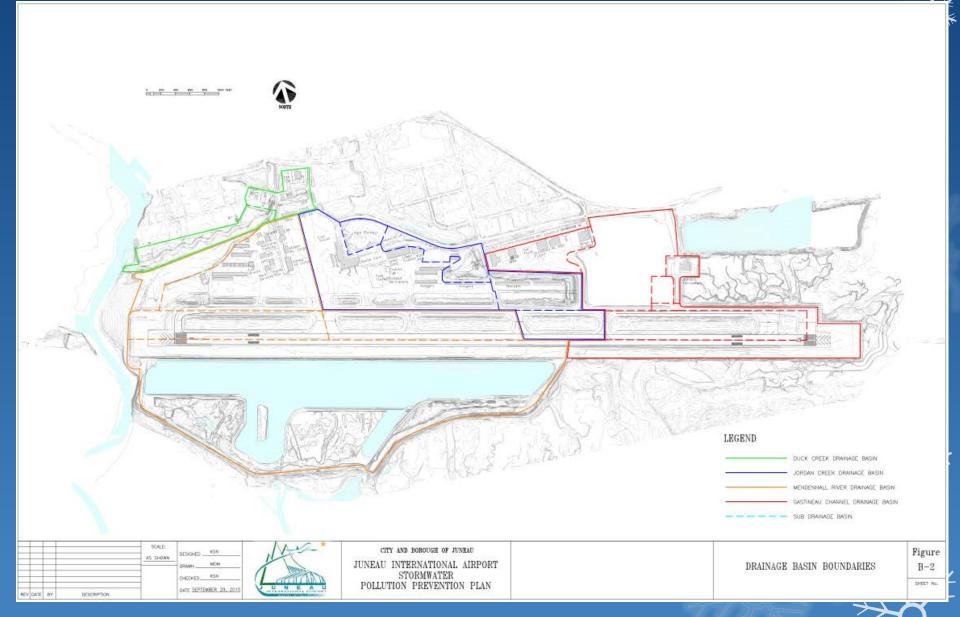






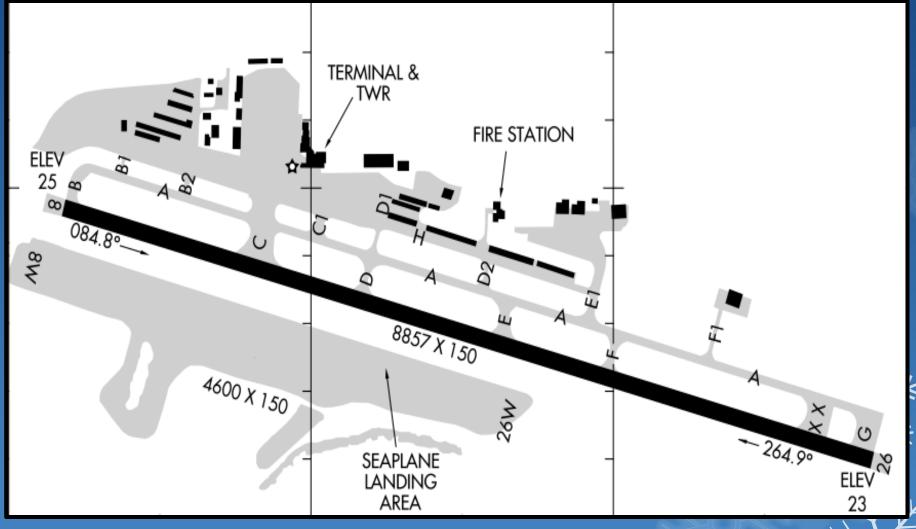






Chemical Ice Control





Aircraft De-Icing





Aircraft De-Icing

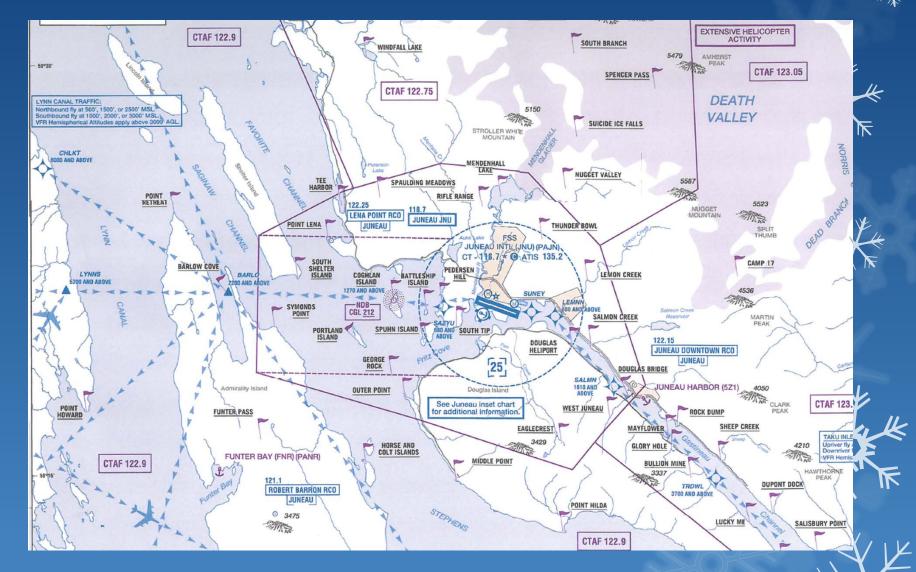






Approach Chart





Final Approach Reporting Points

• The two main reporting points:

- Treadwell (TRDWL)
- Barlow (BARLO)

•When aircraft report these approach points:

The aircraft is approximately:
 O9 miles from the airport
 O4 minutes from landing.









Private / Leased Areas

• Snow Plowing

- Fences
- Calling for Removal
 - Lowest priority
 - Repeat Calls





121 Ramp / Jet Bridges

GSERON Aircraft



135 Ramp

O GSE

- RON Aircraft
- Fuel Trucks





Float Pond



- Closure
- Drain Valve Replacement
- Docks





Towing of Aircraft

Tug/Vehicle required to have Amber Beacon
 Hours of Darkness / Reduced Visibility
 Aircraft NAV / Position Lights - ON







Ground Service Equipment & Vehicles

- **O** Terminal Ramp Areas No POV's Allowed
- Amber Beacons recommended on all ramp vehicles
- **O** Hours of Darkness / Reduced Visibility
 - Restrict Driving on Ramps except for essential operations
 - Use Headlights Be Seen

• GSE

- **O** Company Markings
- **O** Lights / Reflectors
- Amber Beacon if required (i.e. Fuel Trucks)
- All Operators GSE / Vehicle Inspections





Airfield Operations

• Winter Schedule:

- Morning Shift: 0500 1500
- Day Shift: 0800 1700
- Night Shift: 1700 0300
- Snow/Weather Event: 24/7

• Contact Numbers:

- Airfield Office/Shop: 907-789-4001
- Aaron Dean (Morning): 907-388-7783
- Rebecca Lyons (Night): 907-500-8234

• Scott Rinkenberger: 907-321-3803









Questions?



