

# WINTER OPERATIONS

Truckee Tahoe Airport District

November 12th 2025

Connected By  
More Than A Runway





# RCAMs

HOW WE IMPLEMENT FAA POLICY

ADVISORY CIRCULAR 150/5200-30D W CH2

WHERE WE CAN WORK TOGETHER

# Some Basic Terms (don't mean to offend)

- ▶ RCAM: Runway Condition Assessment Matrix. This is a **process** by which all ICAO airports assess observed conditions and arrive at an Runway Condition Code in a Global Reporting Format
- ▶ RCC: Runway Condition Code (0-6). 6 is perfect, 0 is so bad that runway must be closed (*when operations staff are observing*)
- ▶ FICON: Field Condition (report). This is the NOTAM you read to find the RCCs
- ▶ Runway Closure: An action taken by the Airport. The closure may be prescriptive from an RCAM assessment, event driven, or based on airport needs. (what? What do you mean Airport needs!?)

# SWA 1248 Midway Dec 2005



# 2016 Changes to Advisory Circular on Airfield Reporting and Why:

- ▶ “After Boeing-737 Overrun in December of 2005, the FAA did not have adequate guidance and regulation addressing operation on contaminated runways”
- ▶ “This revised AC introduces new concepts and practices and a different approach for airport operators to use (RCAM)”
- ▶ “(harmonized) Harmonization recognizes that aircraft manufacturers have determined that variances in contaminant type, depth, and air temperature cause specific changes in aircraft braking performance”

# FAA Prescriptions/Proscriptions Advisory Circular

(things with which we must recognize/comply)

- ▶ “Runway excursions are the leading cause of accidents worldwide”
- ▶ “Previous methods of determining runway slipperiness have been found to be inadequate and have either not prevented or have contributed to runway excursion incidents”
- ▶ “The previously accepted philosophy of the aviation industry was that the airport operator was obligated to provide an accurate description of the surface conditions, and **it WAS solely up to the pilot to decide if a surface was safe for use.** Accident data do not support such a philosophy, and the FAA has determined that operations on surfaces reported as having NIL braking are inherently unsafe
- ▶ “A RCC of “0” is equivalent to Nil braking conditions, which requires the runway be closed”

**Table 5-2. Runway Condition Assessment Matrix (RCAM) (for Airport Operator Use Only)**

Assessment Criteria		Downgrade Assessment Criteria		
Runway Condition Description	Code	Mu ( $\mu$ ) <sup>1</sup>	Vehicle Deceleration or Directional Control Observation	Pilot Reported Braking Action
<ul style="list-style-type: none"> <li>Dry</li> </ul>	6	40 or Higher	---	---
<ul style="list-style-type: none"> <li>Frost</li> <li>Wet (Includes Damp and 1/8 inch depth or less of water)</li> </ul> <p><b>1/8 inch (3mm) depth or less of:</b></p> <ul style="list-style-type: none"> <li>Slush</li> <li>Dry Snow</li> <li>Wet Snow</li> </ul>	5		Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
<p><b>5° F (-15°C) and Colder outside air temperature:</b></p> <ul style="list-style-type: none"> <li>Compacted Snow</li> </ul>	4	39	Braking deceleration OR directional control is between Good and Medium.	Good to Medium
<ul style="list-style-type: none"> <li>Slippery When Wet (wet runway)</li> <li>Dry Snow or Wet Snow (Any depth) over Compacted Snow</li> </ul> <p><b>Greater than 1/8 inch (3mm) depth of:</b></p> <ul style="list-style-type: none"> <li>Dry Snow</li> <li>Wet Snow</li> </ul> <p><b>Warmer than 5° F (-15°C) outside air temperature:</b></p> <ul style="list-style-type: none"> <li>Compacted Snow</li> </ul>	3	10	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
<p><b>Greater than 1/8 (3mm) inch depth of:</b></p> <ul style="list-style-type: none"> <li>Water</li> <li>Slush</li> </ul>	2	30	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor
<ul style="list-style-type: none"> <li>Ice<sup>2</sup></li> </ul>	1	29	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	Poor
<ul style="list-style-type: none"> <li>Wet Ice<sup>2</sup></li> <li>Slush over Ice<sup>2</sup></li> <li>Water over Compacted Snow<sup>2</sup></li> <li>Dry Snow or Wet Snow over Ice<sup>2</sup></li> </ul>	0	21	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	Nil
		20 or Lower		

Note 2: This has to do with upgrading RCCs with Mu values (NA for TRK)

▼ Hide Conditions Field

Contaminants\*

**TOUCHDOWN**

% Coverage  Depth  Contaminant

Coverage (TD)	Depth (TD)	Contaminant (TD)	
100%	1/4 in	Dry Snow	🗑️

**MIDPOINT**

% Coverage  Depth  Contaminant

Coverage (MD)	Depth (MD)	Contaminant (MD)	
50%	1/2 in	Dry Snow	🗑️

**ROLLOUT**

% Coverage  Depth  Contaminant

Coverage (RO)	Depth (RO)	Contaminant (RO)	
30%	1/4 in	Slush	🗑️

TD
MP
RO

3

3

2

**Contaminant Width (Fields Marked \* are required)**

Width:  FT

**Pilot reported braking action information (within the last 15 minutes) (Fields Marked \* are required)**

Pilot Reported Braking Action:

Pilot Reported Braking Action Information:

Report Time (UTC):    Current Date and Time

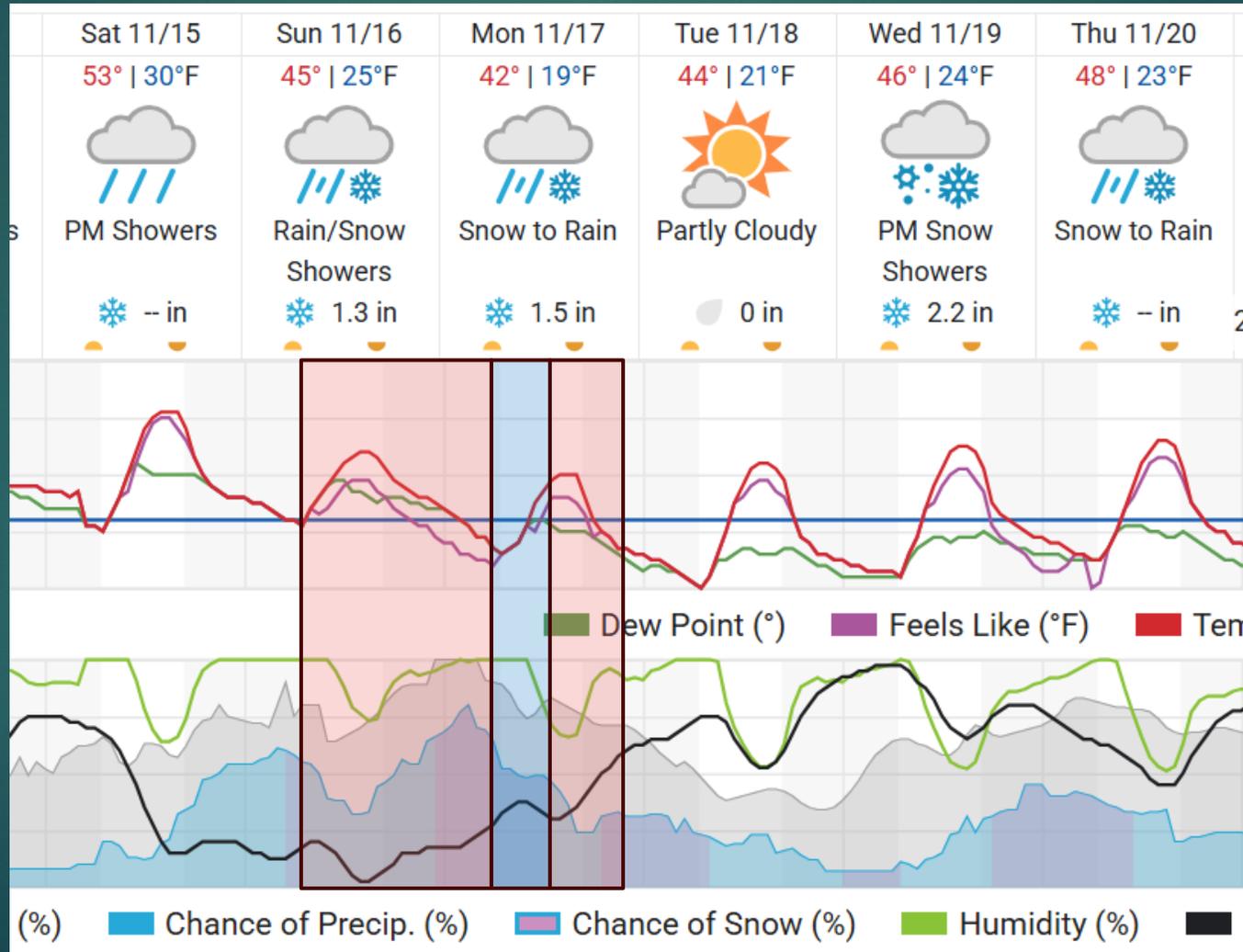
**Observation Details (Fields Marked \* are required)**

Observation Time (UTC):\*    Current Date and Time

**TRK RWY 11 FICON 3/3/2 100 PCT 1/4 IN DRY SN, 50 PCT 1/2 IN DRY SN, 30 PCT 1/4IN SLUSH**



# RCAM 0: How we usually get there and how that gets fixed



# Things We Cannot/Do Not Do

(Not a Part 139 Airport):

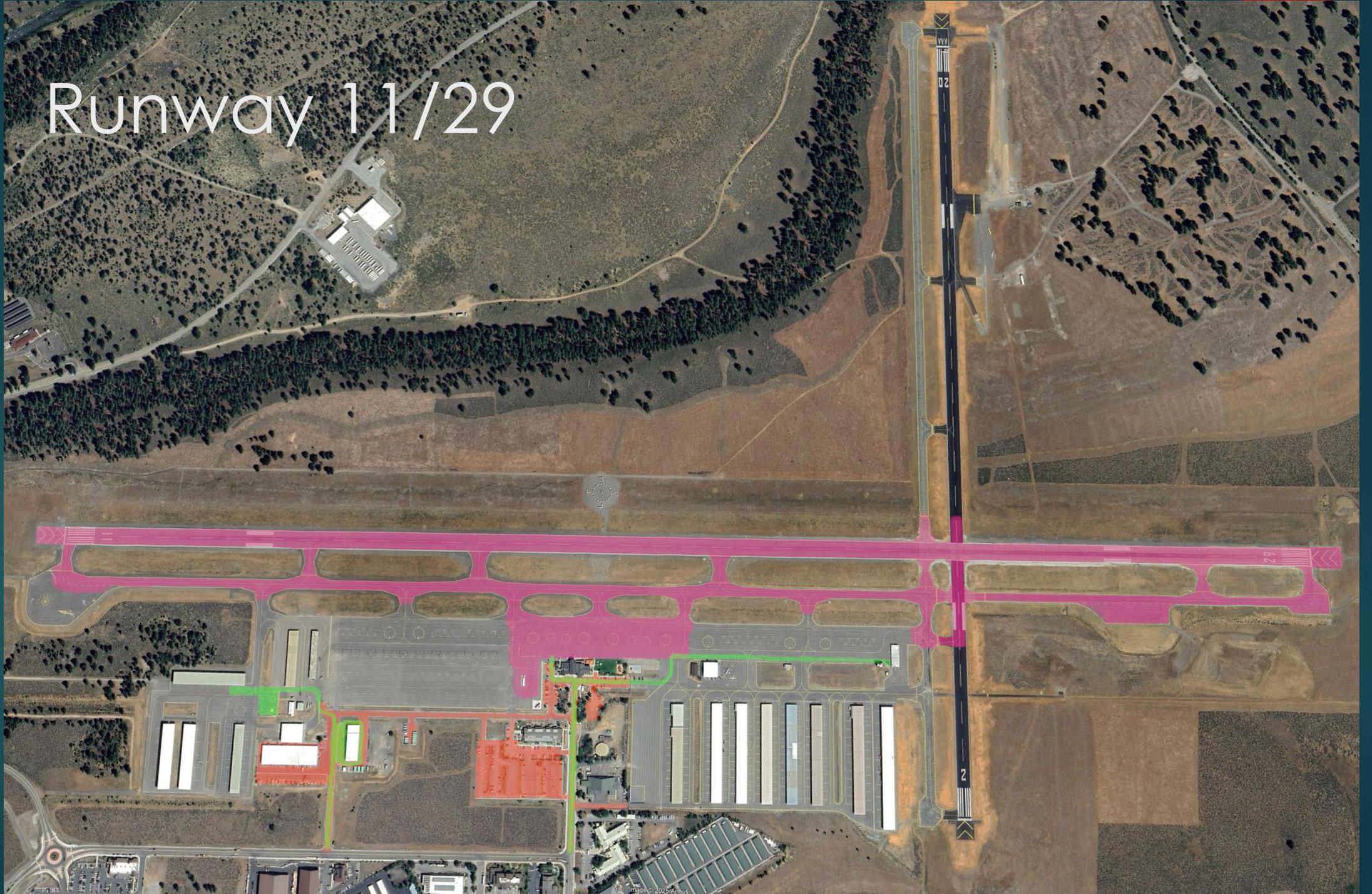
- ▶ Meet FAA suggestions for clearance times\* (Not staffed 24 hrs)
- ▶ Upgrade a RCC based on friction measuring equipment (don't have it)
- ▶ "Snow-Fight"
- ▶ Use chemical to melt ice (Containment/proximity of Truckee River)
- ▶ Ignore the prescriptions of AC 150/5200-30D

\*Commercial Service Airport 1 Hr, GA Airport 3 Hr (1" snow)

# Some General Rules

- ▶ We clear surfaces in a priority order established by our Snow and Ice Control Plan. (emergency access, functional access to buildings (businesses), Runway-Taxiway-Ramp, remaining airfield, hangars)
- ▶ We can move snow and slush, we need the sun to remove ice
- ▶ Roadway access is NOT a measure to expect runway access (Salt, grooves)
- ▶ Careflight is always the first tenant priority
- ▶ Requests for Hangar Row clearing

# Runway 11/29



# Runway 2/20



# Maintaining Runway Availability

- ▶ TTAD's intent is to actively maintain at least one operable runway 364 days a year (Not staffed to work on Christmas)
- ▶ Runway conditions predictions
- ▶ Sometimes we lose runways for a few hours in order to preserve them the next full day
- ▶ RCAM 1-6 is available for use, how bad is bad?

<ul style="list-style-type: none"> <li>• Slippery When Wet (wet runway)</li> <li>• Dry Snow or Wet Snow (Any depth) over Compacted Snow</li> </ul> <p><b>Greater than 1/8 inch (3mm) depth of:</b></p> <ul style="list-style-type: none"> <li>• Dry Snow</li> <li>• Wet Snow</li> </ul> <p><b>Warmer than 5° F (-15°C) outside air temperature:</b></p> <ul style="list-style-type: none"> <li>• Compacted Snow</li> </ul>	3	10	30	<p style="text-align: center;">medium.</p> <p>Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.</p>	Medium
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# Snow Day Forecast

1. (What we think the weather holds)

“Fair chance of mixed precipitation overnight, temperatures will be just below freezing in the morning. The 15th should hold partly cloudy skies and rising temperatures above freezing by mid to late morning.”

2. (What we think the weather will do to the runways)

“We will monitor runway conditions and issue FICONS as appropriate.”

3. (What actions we might take)

“Runways are clear as of the afternoon of the 14th. There is a slight chance that runways will be closed due to RCAM conditions of ice and other contaminants on the morning of the 15th. If there is an ice sheet at the beginning of the day we expect it to melt by mid to late morning.”

# Questions?



# O/M Snow Ops

- Equipment & Operators
- Tracking the Weather
- Determining factors
- NOTAMS
- Snow removal sequence
- Hangar Rows



# O/M Snow Ops

- **Equipment & Operators**
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# STORM PREP: EQUIPMENT



# STORM PREP: EQUIPMENT OPERATORS



Scheduling of qualified operators for equipment

- Work schedules are adjusted
- Availability of on-call operators
- 12 hour shifts max

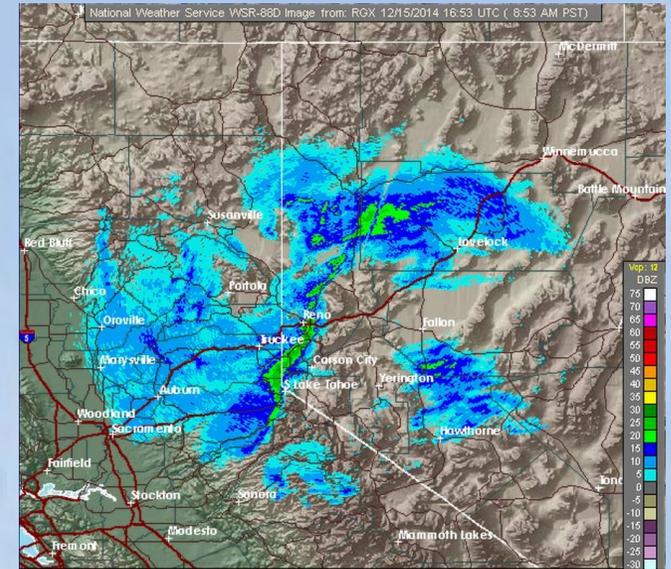
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# STORM PREP: Track the Weather

- NWS Reno
- Tahoe Daily Snow



**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, ST" or ZIP code: **Below Normal Temperatures Continue; Unsettled Weather Returns for the Northwest**

Enter location:  Go

Temperatures remain below normal for portions of the Ohio, Tennessee, and mid-Mississippi River Valleys into portions of the Plains. Meanwhile, temperatures will be moderating across the High Plains by Friday as warmer air returns in advance of a series of storm systems that will keep the Pacific Northwest unsettled the remainder of this week into the weekend. [Read More >](#)

**Weather Table** Western Region Headquarters

Weather.gov > Western Region Headquarters > Weather Table

Local Forecast Offices A-K Local Forecast Offices L-Z River Forecast Centers Center Weather Service Units Regional HQ

How to use this page

Select Number of Days, and Interval, then click on the map to get forecast options for that location, or enter coordinates below:

Number of Days:  1  2  3  4  5  6  7

Interval (hours):  1  3  6

Forecast for 39.3066N -120.1512W (Elev 6045FT)  
4 miles SE of Truckee, CA  
Issued by National Weather Service [WFO REV](#)  
0937 AM PDT Thu Nov 04 2021

[Permanent link for this location](#)

**Other data for this location:**

Point Forecast Page

Hourly Tabular Forecast

Hourly Weather Graph

Printer friendly link

**OPENSNOW** Favorites Maps Explore Daily Snows News

Search for a Mountain, Season Pass, or Daily Snow Forecast

## Tahoe Daily Snow

By Bryan Allegretto, California Snow Forecaster  
Posted 1 day ago  
November 3, 2021 8:34am PDT

### Unsettled Thursday & Saturday, Snow Possible for Tuesday...

#### Summary

Nice weather for Wednesday. Windy with a chance for rain showers Thursday. A break Friday and then rain & snow showers are possible for Saturday. We could have another break Sunday into Monday, then snow is possible for Monday night into Tuesday. Then a drier pattern is possible starting next Wednesday.

#### Short Term Forecast

The ski areas that opened for Halloween weekend from the big storm last week have now closed after rain & warmer temps melted a lot of snow this week. We will have to track more storms and colder temperatures to see when mother nature could help to get the ski resorts open later this month.

# REAL-TIME Weather

- Weather checks throughout the day
- After-hours Accumulation checks



16:28:17 PST

# O/M Snow Ops

- Equipment & Operators
- Tracking the Weather
- **Determining factors**
- NOTAMS
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# SNOW REMOVAL DETERMINING FACTORS



- Snow amount, storm duration, type of snow
- Sunshine factor
- Air Traffic Needs & Timing
- Runways 1"      Hangars 4"      Terminal lot 4"

# O/M Snow Ops

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## Runway Closures & NOTAM's

- Equipment / aircraft separation
- Unsafe field conditions
- Runway egress & ramp parking
- NOTAM's may need to be extended

# O/M Snow Ops

- Equipment & Operators
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# SEQUENCE OF OPERATIONS



1. Public roads, primary parking, business access, Careflight
2. Terminal Front yard & businesses (Hgr 1 & Tower)



# SEQUENCE OF OPERATIONS, continued



3. Runway access ingress/egress, full wing tip clearances
4. Runways, taxiways, ramp, fuel





## **NOTAMS CANCELED, AIRPORT OPEN FOR BUSINESS**

**Affect upon manpower when airfield open**

- **Dispatch/UNICOM operator & sales**
- **Parking, fueling, and additional ramp services**

# SEQUENCE OF OPERATIONS, continued



5. Hangar rows ([snowday@truckeetahoeairport.com](mailto:snowday@truckeetahoeairport.com))
6. Secondary taxiways, fire hydrants, transformers, ramping



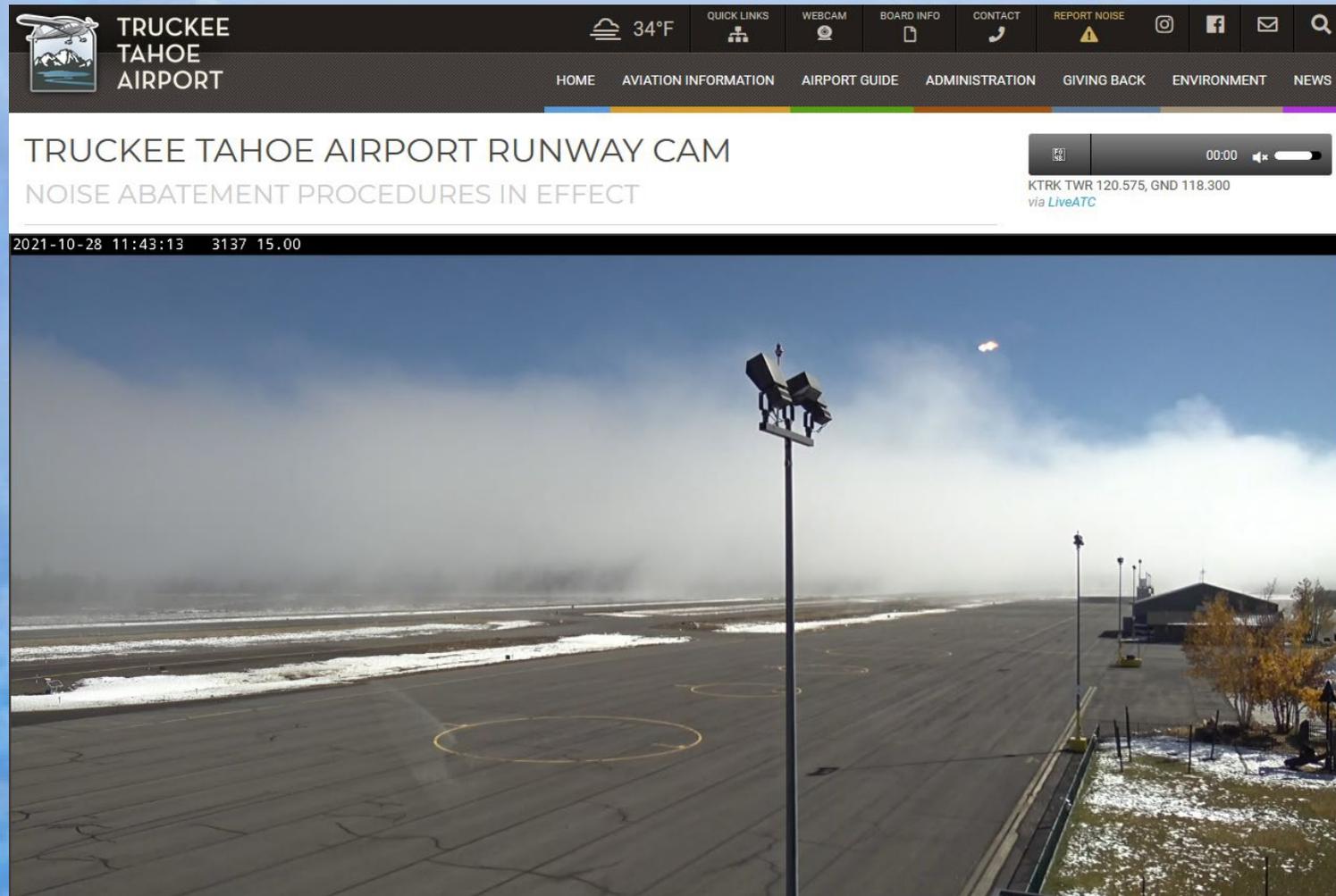
# PILOTS, PLEASE...



- Plan in advance
- Minimize calls to Dispatch
- Have reasonable expectations
- Follow NOTAMS



# TTAD Runway cam



The screenshot displays the website for the Truckee Tahoe Airport Runway Cam. The top navigation bar includes the airport logo, a temperature of 34°F, and various utility links such as 'QUICK LINKS', 'WEBCAM', 'BOARD INFO', 'CONTACT', 'REPORT NOISE', and social media icons. A secondary menu lists 'HOME', 'AVIATION INFORMATION', 'AIRPORT GUIDE', 'ADMINISTRATION', 'GIVING BACK', 'ENVIRONMENT', and 'NEWS'. The main content area features the title 'TRUCKEE TAHOE AIRPORT RUNWAY CAM' and a sub-headline 'NOISE ABATEMENT PROCEDURES IN EFFECT'. A video player interface shows a timestamp of '2021-10-28 11:43:13 3137 15.00' and a video player with a '00:00' duration and volume control. Below the video player, the text 'KTRK TWR 120.575, GND 118.300 via LiveATC' is visible. The video feed itself shows a wide view of the runway with snow patches, a tall light pole in the foreground, and a hangar in the distance under a cloudy sky.

Up-to-minute status of weather and field conditions

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# HANGARS

What does it take to clear a hangar row?



- Multiple pieces of equipment
- Wind row between hangars along trench drain
- Each hangar row may require several machine hours to clear
- **Standing Seam roofs continue to shed for days**

# TENANTS, PLEASE...



- Drive safe, watch for equipment around blind corners
- Keep hangar rows clear of parked vehicles
- Never close hangar door on top of snow

## TTAD asphalt surfaces:

**Airside** 4,403,681 SQFT = 101.0 acres

**Landside** 156,849 SQFT = 3.6 acres

**total = 104.6 acres**



**Final clean up can take up to 5-7 days post storm event**

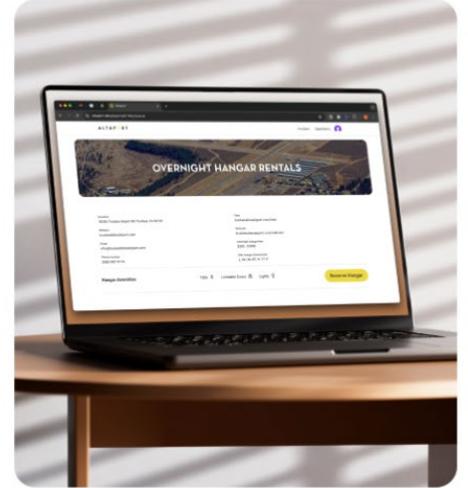
# AVCOM ROLE IN DAILY WINTER OPERATIONS

- We work with the tower daily - on Safety, Operational, & Community initiatives
- We are responsible for Flight Safety
- We are responsible for all essential, emergency and routine communications
- We measure operations, enforce curfews and develop data

## OVERNIGHT HANGAR RENTALS NOW AVAILABLE!

Accommodating aircraft from small planes to PC-12s and small jets like the Citation CJ1. **Peace of mind is just a click away.**

[BOOK NOW](#)



# CHALLENGES WITH COMMUNICATION

- We are out & about on the airfield
- There is redundancy, can help or confuse the issues
- A NOTAM is the ruling information and are updated regularly. Visit: <https://pilotweb.nas.faa.gov/PilotWeb>
- [TruckeeTahoeAirport.com/Aviation Information/Snow Day](http://TruckeeTahoeAirport.com/Aviation Information/Snow Day) - is a resource to check on the status of snow clearing efforts on the airfield

# MEETING YOUR NEEDS!

- Email us at: [snowday@truckeetahoeairport.com](mailto:snowday@truckeetahoeairport.com)
- Tell us your needs, desired departure or arrival time
- Check on current airport conditions using the website at: [TruckeeTahoeAirport.com](http://TruckeeTahoeAirport.com)  
Visit the 360 degree webcam and/or  
Aviation Information/Snow Day
- Call Vince Wawrzynski, Director of Operations and Maintenance, **530-608-2028**

# 24 hr Compressed Extreme Weather Video November 27, 2019 00:01am – 11:59pm





Thank you for attending our Winter Operations meeting, we appreciate your time.

We hope you are leaving with a better understanding of the Airport District's overall winter operations plan, and that all your questions and concerns have been answered.

Have a safe and enjoyable winter.



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