Truckee Airport Operations Analysis

Summer Season Before (2015/2016) and After (2018,2019,2020)

Vector Development Tasks (Q3 2020)

Vector Developments Added Since Last Presentation

1. Flight Track Weather (2016 to Present)

- Closest (by time) METAR weather now included in popup
- Weather data exportable for analysis

2. Enhanced Point-of-Closest-Approach Data Displayed

- Additional data to describe PCA
- Now includes distance, height, and elevation angle

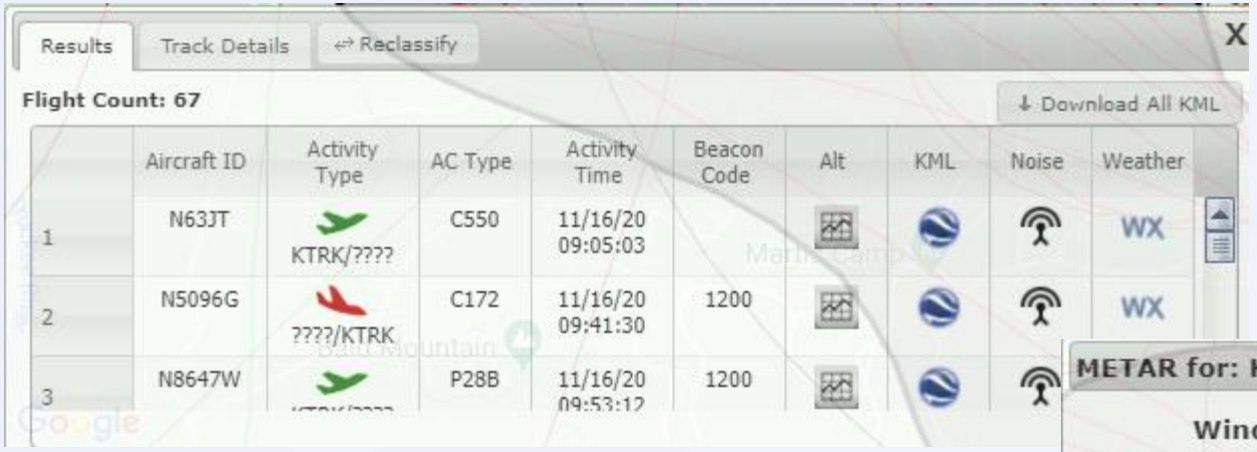
3. Origin/destination Displayed for IFR Flights

- Flights with filed flight plans now include orig/dest
- Data displayed in Activity Details View
- Orig/dest data included in exported data

Flight Track Weather Data

Closest METAR Weather (by time) Associated to Flight Track

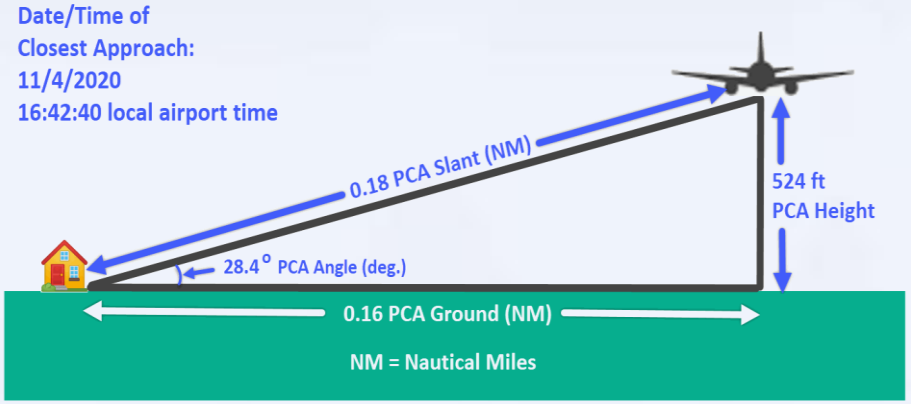
- METAR weather includes 10 data fields and is exported as text
- Includes calculation of sunrise and sunset



Enhanced PCA Metrics

Additional Data Fields Displayed for Comments

- Helps describe relationship of aircraft to commenter
- Includes three new fields
  1. PCA Height
  2. PCA Ground
  3. PCA Angle



Results | Track Details | ⇄ Reclassify

Flight Count: 5

↓ Download All KML

	Aircraft ID	Activity Type	AC Type	PCA Angle (deg.)	PCA Slant (NM)	PCA Ground (NM)	PCA Height (ft)	PCA Time	Link	Beacon Code	Alt	KML	Noise	Weather
1	N865SR	????/KTRK	SR22	1.68	3.06	3.06	545	11/11/2020 15:34:07						WX
2	N215DC	????/KTRK	R44	-1.42	3.01	3.01	-455	11/11/2020 15:38:12						WX
				14.46	1.15	1.11	1745	11/11/2020		1200				

Origin/destination Displayed

Origin and Destination Data Displayed in Activity Details

- Orig/dest currently extracted and correlated to tracks
- Only aircraft with filed flight plans have both orig and dest
- Data will improve after switch to L3Harris NextGen data

Activity Details for 11/08/2020 Su

Hide Images Export Export with Weather

Drag a column header and drop it here to group by that column

Image	Date Time(24hr)	TRKG	Noise	Activity	RWY	Orig/Dest	Aircraft	Flight	Model Type	Engine Type	MLW (Lbs)	DS	Op Id	Op Name
	11/08/20 12:51				RWY 11	KRNO / KTRK	N808GG	FTH808	C750	JET	31800	CFE	10120	Dp Ownership
	11/08/20 12:57				RWY 29	KPAO / KTRK	N545BB		SR22	PISTON	3400	CFE	82090	Hermann Briana
	11/08/20 13:31				RWY 29	KTRK / KVNY	N808GG	FTH808	C750	JET	31800	CFE	10120	Dp Ownership
	11/08/20 14:04				RWY 11	KHWD / KTRK	N12JK	PXT12	C56X	JET	18700	CFE	79637	Jka LLC

Analysis Mission Statement and Limits

Compare runway use Before and After the introduction of the control tower

- **Before** tower period defined as average of 2015 & 2016 operations
- **After** tower period defined as average of 2018, 2019, and 2020 operations
- **NEW** Calm wind analysis (wind speed <= 4MPH)

Limits of Tower Analysis

- Include only summer (peak) season operations - June 15th to September 15th
- 2017 excluded as first year of ATC tower operation
- Summer season (three months) represents approximately half the total annual traffic and summer is the season when residents are most impacted by airport operations

Runway Use Analysis

Runway Use Analysis

- Four aircraft types – jets, turbos, twin pistons, and single pistons
- Four runways (11, 2, 20, 29) and unknowns
  - Unknows are aircraft of all types that were not assigned a runway
  - Some helicopters included in unknowns

VECTOR

Home | Admin | Airport Activity | Live Flight Tracking | Reports | Noise Management | Import Data | Profile

Airport: KTRK | From: 01-01-2020 12:00 am | To: 04-01-2020 12:00 am | Engine Type: All | Search

Runway	Arrivals	Departures	Total Activities On Runway	Percent Of All Arrivals	Percent Of All Departures	Percent Of All Activities
RWY 11	258	213	471	9.9%	7.9%	8.9%
RWY 2	151	470	621	5.8%	17.5%	11.7%
RWY 20	391	242	633	15.0%	9.0%	12.0%
RWY 29	1650	1659	3309	63.3%	61.8%	62.5%
RWY Unknown	157	102	259	6.0%	3.8%	4.9%
Total	**2607**	**2686**	**5293**			

*Note: Touch & Go activities are treated as an arrival and a departure. Helicopters and unidentified aircraft are excluded.

Sample of Vector Runway Use Report

Runway Use Analysis

Runway Use Data

- Average of **Before** (2015 & 2016) tower and average of **After** (2018, 2019, and 2020) tower summer season runway use data compared
- Absolute and relative numbers (After minus Before) computed

Overall Results of Comparison

- *Total peak season traffic increased 23.6% (29%) between Before and After*
  - *1,388 (1,674) more total arrivals after tower*
  - *1116 (1,417) more departures after tower*
  - *Total increase of 2504 (3090) operations*
  - *Total operations during summer season Before 10,603 vs. After 13,106 (13,693)*
  - *Number of unknown runways decreased by 47% (40%) (better tracking data)*

Runway Use Analysis

Operations by Aircraft Type

Total traffic up 24% 2504 ops (29%, 3090 ops)

	2015,2016		2018,2019,2020	
Jets	27.7%	(493)	26.8%	(478)
Turbos	12.8%	(309)	18.8%	(452)
Twin pistons	-2.1%	(-11)	3.0%	(15)
Single pistons	29%	(1714)	36.3%	(2145)

Total Aircraft Operations Change by Runway

		2015, 2016	2018, 2019, 2020	
RWY 11	67%	(+142 Arr +132 Dep)	50.6%	(+103 Arr +104 Dep)
RWY 2	9.5%	(-58 Arr +127 Dep)	-1.9%	(-74 Arr +61 Dep)
RWY 20	16.1%	(463 Arr, 38 Dep)	27.4%	(+640 Arr +216 Dep)
RWY 29	44.7%	(1246 Arr, 1023 Dep)	50.4%	(+1335 Arr +1223 Dep)

Jet Runway Use Analysis

Change in Jet Operation Percentages by Runway

	Before(2015, 2016)	After(2018, 2019, 2020)
RWY 11	14%	12.9% (11.9%)
RWY 2	1%	0.2% (0.1%)
RWY 20	12%	9.1% (9.3%)
RWY 29	62%	76.1% (76.8%)
Unknown	11%	1.8% (2.1%)

RWY 29 Total Operations Change by Aircraft Type & Operation

	Arrivals		Departures
Jet	62% to 76.1% (76.8%)	Jet	83% to 92.8% (93.2%)
Turbo	53% to 64.5% (64.9%)	Turbo	65% to 72.6 (74.5%)
Twin	41% to 60.6% (59.1%)	Twin	57% to 76.3% (73.2%)
Single	35% to 41.9% (40.5%)	Single	41% to 42.8% (43.7%)

Runway Use Analysis Conclusion

- Total operations increased by 23.6% (29% is 2018/2019 figure)
- After Tower, all aircraft types increased relative use of RWY29
- Single engine aircraft operations increased **29%** (36%) and singles dominate all other aircraft numbers by a ratio of 2:1
- Jet operations increased 27.7% (26.8%)
  - 730 jets departed RWY 29 per year Before, 1059 (1056) jets After
  - Relative increase of 48.5% (44.7%)
- Peak season IFR departures require RWY 29
  - 22% (1,408) IFR departures in 2018
  - 18% (1,306) IFR departures in 2019
  - 22% (1,337) IFR departures in 2020
- Single engine piston IFR departures, including charter flights, are contributing to increasing RWY 29 total operations

Calm Wind Analysis

Peak Summer Runway Use Data Analyzed

- Same Peak Season Data as prior analysis
  - Peak Summer is June 15 to Sep 15
  - Peak Winter will be Dec 15 to Apr 15
- Calm wind operations include wind speed 4MPH or less
  - No wind data available before 2016 (before tower)
  - Three engine types compared Jet, Turbo, and Piston

This analysis compared Peak Summer 2016 to 2020

- Total operations increased about 10% (COVID19 impact on Summer 2020)
- Jet operations increased 45%, Turbos 23%, Pistons 4%

Calm Wind Analysis

Peak Summer Runway Use Data Analyzed

- Use of RWY 11 increased the most in calm winds
  - Total arrivals up 72%, departures 91%
  - Jet arrivals up 60%, jet departures 77%
  - Turbo arrivals up 40%, turbo departures up 129%
  - Piston arrivals up 139%, piston departures up 89%
- Use of RWY 29 also seeing increased use in calm winds
  - Total arrivals up 51%, departures 49%
  - Jet arrivals up 62%, jet departures 54%
  - Turbo arrivals up 40%, turbo departures up 43%
  - Piston arrivals up 57%, piston departures up 62%

Calm Wind Analysis

Peak Summer Runway Use Data Analyzed

- Use of RWY 20 decreased in calm winds
  - Total arrivals down 7%, departures 31%
  - Jet arrivals up 24%, jet departures down 65%
  - Turbo arrivals down 31%, turbo departures down 49%
  - Piston arrivals down 3%, piston departures down 28%
- Use of RWY 02 generally down in calm winds
  - Total arrivals down 54%, departures up 8%
  - Jet arrivals down 62.5%, jet departures down 35%
  - Turbo arrivals up 94%, turbo departures down 4%
  - Piston arrivals down 62.8%, piston departures up 13%

Calm Wind Analysis Summary

In calm winds, operations on RWY 11 and 29 increased

- RWY 11 operations before 259, after 469 (81.1%)
- RWY 29 operations before 2,480, after 3,722 (50.1%)

In calm winds, operations on RWY 02 and 20 decreased

- RWY 20 operations before 1,433, after 1,156 (-19.3%)
- RWY 02 operations before 948, after 817 (-13.8%)

See what you've been missing

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