



Southwest Meteorology
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SWA Facts and Figures

- 3600+ flights from 94 airports both domestically and internationally
- 679 Boeing Jets:
 - 737 -300: 120
 - 737 -500: 12
 - 737 -700: 455
 - 737 -800: 92
- Flight information:
 - Longest daily flight: BWI-OAK(2,447 miles)
 - Shortest daily flight: HOU-AUS (148 miles)
- Southwest offers the most domestic flights of any airline

Top 10 Airports by Departures

Cities	Daily Departures	Number of Gates	Nonstop Cities Served	Established
MDW	247	35	65	1985
BWI	218	28	61	1993
LAS	215	23	59	1982
DEN	176	22	56	2006
PHX	176	24	49	1982
DAL	166	18	42	1971
HOU	151	19	42	1971
ATL	125	18	37	2012
MCO	122	16	41	1996
LAX	118	11	24	1982

SWA Route Map – Expanding Internationally

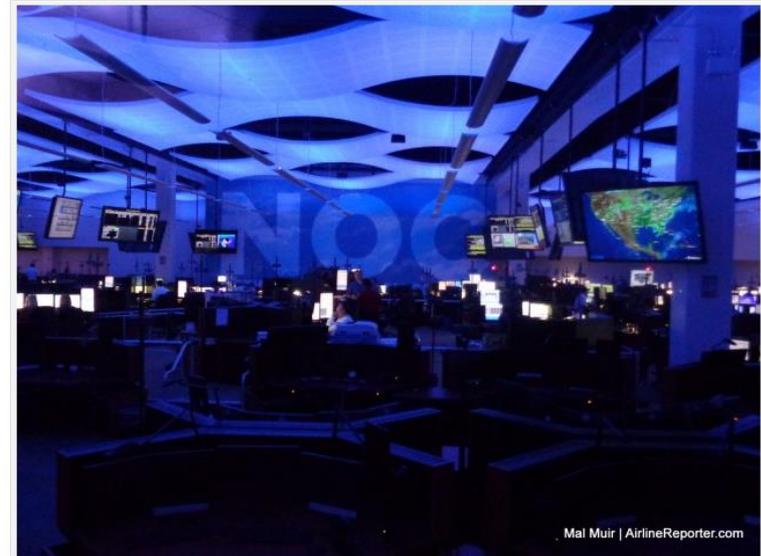


* Southwest Airlines service to Belize City, Belize begins on October 15, 2015.

* Southwest Airlines service to Liberia, Costa Rica begins on November 1, 2015.

Team Members and Coverage

- SWA Meteorology has 7 staff meteorologists:
 - Rick Curtis
 - Brian Collins
 - Myranda Muehlman
 - Rebecca Miller
 - Rebecca Schrom
 - Joe Kleiman
 - Jeff Cohen
- We provide on-site coverage 7 days per week, from 5am-11pm CDT.
- We are on-call from 11pm-5am CDT nightly.
- Our Role:
 - Provide strategic weather support to SWA decision makers to help increase operational safety and efficiency



Our Role

- Provide strategic weather support to SWA decision makers to help increase operational safety and efficiency
 - This is primarily done through twice daily NOC shift briefings
 - Operational groups involved include Dispatch, Flight Ops, Maintenance, Ground Ops, Crew Scheduling, & Proactive Customer Service
 - Weather Disruption Task Force (WDTF) kicks in for large events (Hurricanes, Major Winter Storms, etc.)
- Act as the SWA liaison to the meteorology community (NWS, FAA etc.)
- Conduct research on past weather events (turbulence cases, court cases, internal studies etc.)
- Industry Involvement

What We Don't Do

- Issue TAFs (We use NWS TAFs)
- Issue forecasts for tactical decisions
- Issue turbulence forecasts
- Issue SIGMETs
- Generate the Flight Specific Weather packages

Our Focus

- Big picture is major responsibility
 - Contribute more to strategic decisions than tactical decisions (large scale movement of aircraft)
- This Includes:
 - Major snow storms
 - Hurricanes
 - Significant Areas of Convection
 - Fog
 - Winds
 - Construction forecasts
- Assist With Tactical Planning (Thunderstorms, Fog, Ice Pellets, Minor Snowfalls)

SWA Partnership with the NWS

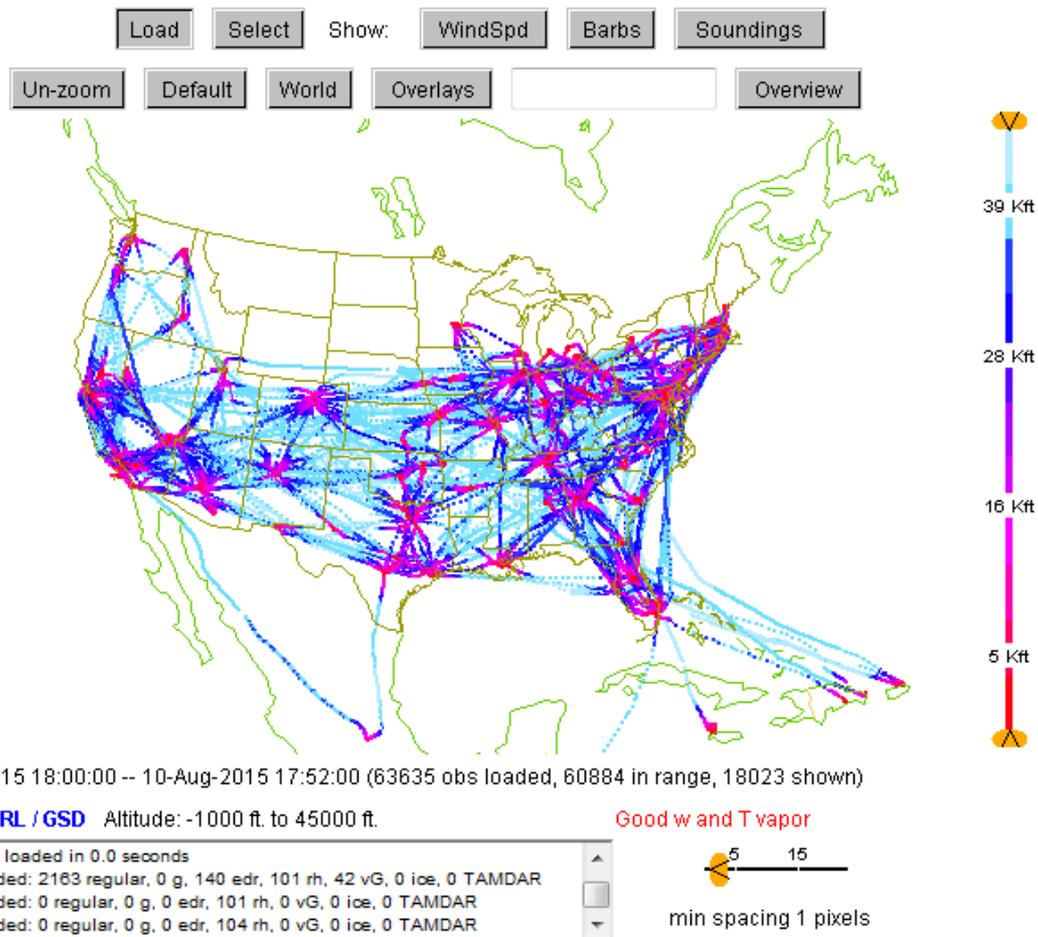
- We only use NWS TAFs for operational decision making.
- Participation in meetings and workshops to communicate SWA operational decision criteria to NWS forecasters so they can better understand our use of their products.
- Always looking for ways to help promote NWS efforts.
- Assist with all levels of the NWS concerning aviation community usage of products and services.



SWA's Water Vapor Sensing Project

- In 2009, SWA became a subcontractor to Rockwell Collins (then ARINC) to install water vapor sensors on our aircraft. Rockwell Collins directly contracts with NOAA for this data.
- SWA was sought out due to our unique route structure, where we operate more point to point vs. hub and spoke.
- In early 2010, SWA began reporting water vapor information along with wind/temperature data on our 737 -300 aircraft.
- We report this data according to ARINC 620 specifications:
 - 6 second intervals to 90 seconds from off ground.
 - 20 second intervals to 510 seconds to top of climb.
 - 3 minute intervals to top of descent.
 - 60 second intervals to on the ground.
- From 2010 to present, we have expanded this effort largely to include water vapor sensor installations on the following:
 - 31 sensors on 737 -300 aircraft
 - 74 sensors on 737 -700 aircraft
 - 1 sensor on 737 -800 aircraft (this has not been turned on yet), with another one planned in the near future.
 - In total, there are 107 SWA aircraft with water vapor reporting capabilities.
 - UPS also participates and has 25 WVSS equipped aircraft
 - We hope to continue to expand this project, with a particular interest in -800 aircraft and international/tropical destinations.

24 Hours of Water Vapor Observations/Coverage





MDCRS and EDR Reporting

- MDCRS (Meteorological Data Collection and Reporting System):
 - In early 2005, SWA began reporting wind and temperature information from 50 aircraft during the ascent phase of flight.
 - It requires no additional hardware installation on SWA aircraft, however it requires a manipulation of pre-existing software.
 - As of July 2015, SWA had 420 aircraft reporting MDCRS.
- EDR (Eddy Dissipation Rate)
 - Automated turbulence reporting
 - Also requires no additional hardware installation on SWA aircraft, however it requires a manipulation of pre-existing software and the addition of the NCAR algorithm.
 - As of July 2015, SWA had 150 aircraft reporting EDR.

SWA TAF Wish List

- Be aware that TAFs are used (sometimes unfairly) for both longer term planning and flight planning activities.
- Remember that the end time of the event is just as important as the start time. Try to think the event ending time through versus just leaving the event in the TAF and waiting for the next regularly scheduled TAF update.
- Don't "over tweak" the details; Sometimes by doing so, you miss the train headed right for you because your head is down.
- Avoid the forecast "yo-yo" effect among your fellow forecasters.

SWA TAF Wish List

- Be aware of your history. Group multiple items into single amendments if possible. You need to do what you need to do, but be aware of the message you send when you issue an amendment just after a previous amendment, or regular TAF update.
- “Know when to fold em” – When you realize that something is not going to happen, “bite the bullet” and amend versus keeping things around until a future update.
- It takes courage to put 1/4SM +SN on the last few lines of a TAF. Do not be afraid, but do exercise caution!
- Please make the TAF consistent with other products. Mixed messages kill credibility, and appear as a divide within your WFO!

SWA TAF Wish List

- Allow us to be included in conference calls initiated for media or emergency management on significant weather events...very helpful.
- Please be familiar with airport operating criteria and local minimums.
- Please work closely with your CWSU to ensure forecast consistency and awareness of traffic flow status.
- Utilize website graphics for significant/ongoing events.
- Utilize NWS Chat.

Our Partnership with the NWS

- We are a huge advocate of the NWS
 - Always looking for ways to help promote your efforts
 - Help educate all levels of the NWS concerning aviation community use of your products and services
 - Please continue to be enthusiastic about your role in aviation weather...we utilize and count on all you do!



Thank You for all you do!

