



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

October 5, 2020

Specialist's Report

METEOROLOGY

WPR20LA319

Table Of Contents

A.	ACCIDENT	3
B.	METEOROLOGIST	3
C.	DETAILS OF THE INVESTIGATION	3
D.	WEATHER INFORMATION	3
1.0	Surface Observations	3
2.0	Satellite Imagery	4
3.0	Weather Radar	6
4.0	Upper Air Data.....	6
5.0	Pilot Reports.....	8
6.0	Area Forecast Discussion.....	8
7.0	AIRMETs.....	9
8.0	SIGMETs	9
9.0	CWSU Products	9
10.0	Astronomical.....	9

A. ACCIDENT

Location: Santa Barbara, California
Date: September 27, 2020
Time: 0703 Pacific daylight time (1403 UTC)¹
Aircraft: Type – Cessna T182; Registration – N175RC

B. METEOROLOGIST

Mike Richards
Senior Meteorologist
Operational Factors Division (AS-30)
National Transportation Safety Board

C. DETAILS OF THE INVESTIGATION

The National Transportation Safety Board’s meteorological specialist did not travel in support of this accident investigation and gathered all weather data remotely. Unless otherwise noted, all times are in Pacific daylight time (PDT) for September 27, 2020 (based upon the 24-hour clock), directions are referenced to true north, distances are in nautical miles and heights are above mean sea level (msl).

The accident site was located at about: 34.388° north latitude, 119.84° west longitude, at sea level.

D. WEATHER INFORMATION

1.0 Surface Observations

An Automated Surface Observing System (ASOS) was located at Oxnard Airport (OXR²) in Oxnard, California, which was located about 33 miles east-southeast of the accident location at an elevation of 45 feet and had a magnetic variation of about 12° east. Though not the closest coastal observation point with a ceilometer, it was the closest that provided any data on the accident day. Augmented longline³ reports from the OXR ASOS during the times surrounding the accident time are presented here.

¹ UTC – abbreviation for Coordinated Universal Time

² The National Weather Service uses the 4-digit International Civil Aviation Organization (ICAO) format for station identifiers (as seen in the body of some formatted weather observations). This report uses the 3-digit International Air Transport Association format for station identification, which does not use the geographic designating digit (“K” for stations in the continental U.S. and “P” for U.S. stations in Alaska and the Pacific region) as found in the ICAO format.

³ “Longline” refers to the dissemination of weather observations with the intent that they are available in near-real time to national databases (effectively, the whole world) and accessible to the general global public from a large number of vendors. This does not include public accessibility to observations from a reporting station’s Very High

[0451 PDT] METAR KOXR 271151Z AUTO 00000KT 7SM OVC013 18/16 A2986
RMK AO2 SLP109 T01780161 10200 20178 58002=
[0551 PDT] METAR KOXR 271251Z AUTO 08003KT 7SM OVC013 18/17 A2986
RMK AO2 SLP112 T01830167=
[0651 PDT] **METAR KOXR 271351Z 06004KT 7SM OVC014 19/17 A2987 RMK
AO2 SLP114 T01890167=**
[0751 PDT] METAR KOXR 271451Z 07005KT 5SM BR OVC015 19/17 A2989 RMK
AO2 SLP120 T01890167 53010=

At 0651 PDT, the OXR ASOS reported a wind from 060° at 4 knots, visibility of 7 statute miles, ceiling overcast at 1,400 feet above ground level, temperature of 19° Celsius (C) and a dew point temperature of 17°C, altimeter setting of 29.87 inches of mercury; remarks: automated station with a precipitation discriminator, sea level pressure of 1011.4 hectopascals (hPa), temperature of 18.9°C and a dew point temperature of 16.7°C.

2.0 Satellite Imagery

Geostationary Operational Environmental Satellite (GOES)-17 visible (0.64µm) and infrared (10.3µm) data were obtained from an archive at the Space Science Engineering Center at the University of Wisconsin-Madison. Imagery from 0701 PDT are presented in figures 1 and 2. The GOES-17 visible imagery (which has been contrast enhanced) depicted cloudy conditions over the accident site along the California coast. Infrared cloud-top temperatures over the accident site were 15°C, which, when considering the 0700 PDT HRRR sounding (see Section 4.0), corresponded to cloud top heights of either about 10,000 feet or in a range of heights between about 1,500 feet and the surface (due to the near-isothermal temperature profile of the troposphere below about 1,500 feet).

Frequency (VHF; line-of-site) or telephone broadcast, where applicable. Longline-dissemination of weather observations is the primary vehicle through which the general global public has access to surface weather observations, particularly outside of the aviation community.



Figure 1 – GOES-17 visible imagery (contrast enhanced) from 0701 PDT. Accident location denoted by red dot. This image has not been corrected for any parallax error.

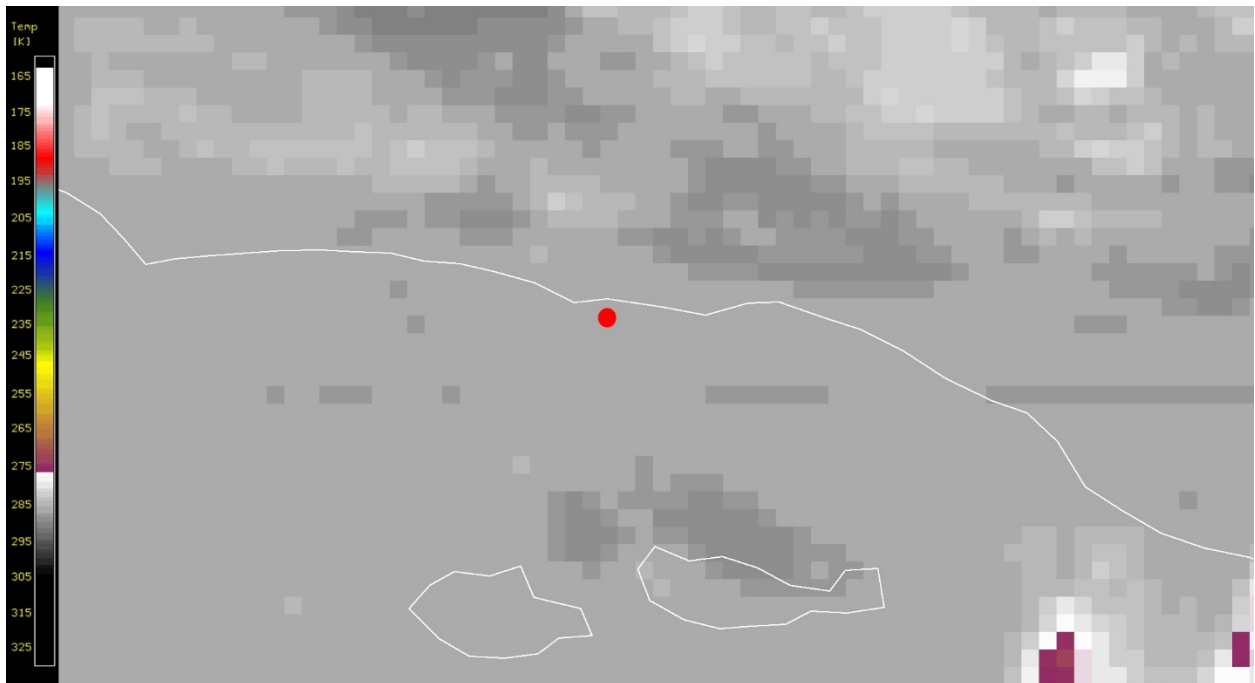


Figure 2 – GOES-17 infrared imagery from 0701 PDT. Accident location denoted by red dot. This image has not been corrected for any parallax error.

3.0 Weather Radar

The WSR-88D⁴ Level-II base reflectivity weather radar imagery from the Los Angeles, California, site (KVTX) is presented in figure 3. KVTX was located approximately 33 miles east of the accident location at an elevation of about 2,810 feet. Assuming standard refraction and considering the 0.95° beam width⁵ for the WSR-88D radar beam, the KVTX 0.528° tilt would have “seen” altitudes above the accident location of between about 3,700 and 7,000 feet above msl. The image revealed no pertinent meteorological targets around the accident location.

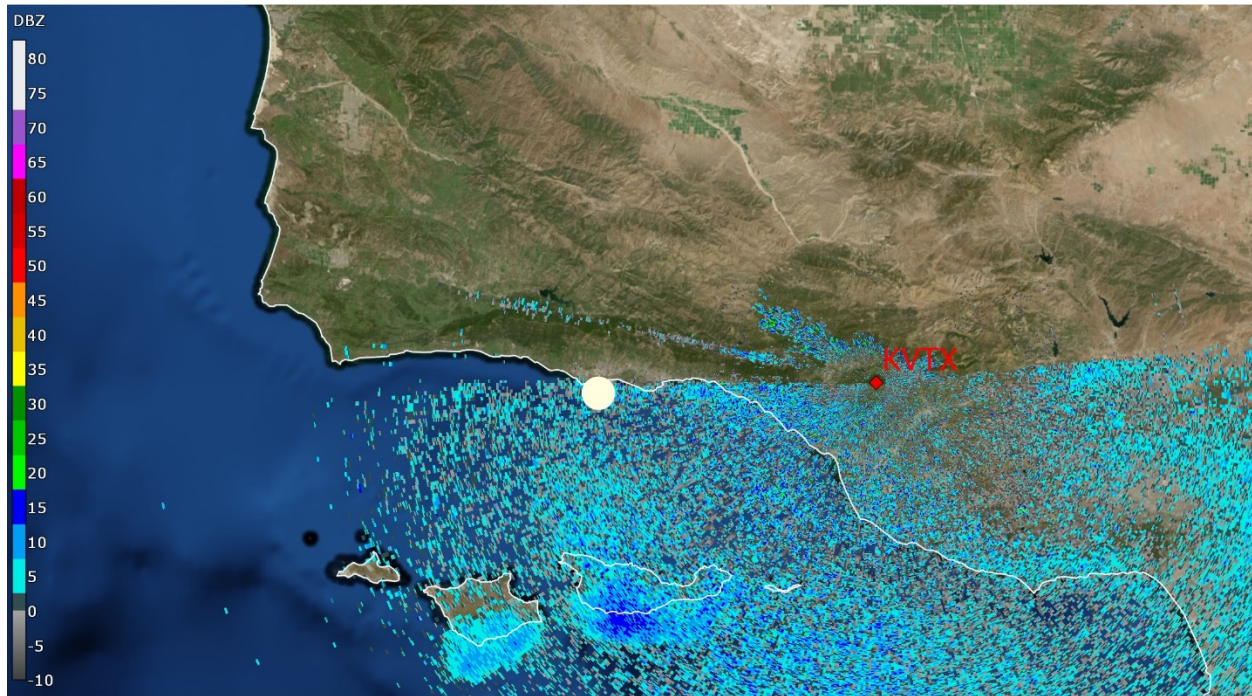


Figure 3 – KVTX 0.528° Level-II base reflectivity product from a sweep initiated at 0707:50 PDT. Accident location marked by white circle.

4.0 Upper Air Data

A High-Resolution Rapid Refresh (HRRR) model⁶ sounding (figure 4) for the accident site at 0700 PDT was retrieved from the National Oceanic and Atmospheric Administration’s Air Resources Laboratory. Nearest the surface the wind was from the north at about 5 knots and the wind veered⁷

⁴ Weather Surveillance Radar 88 Doppler (WSR-88D)

⁵ Here we define the angular width of the radar beam as the region of transmitted energy that is bounded by one-half the maximum power. The maximum power lies along the beam centerline and decreases outward from the radar antenna.

⁶ The HRRR is a NOAA real-time three-kilometer resolution, hourly-updated, cloud-resolving, convection-allowing atmospheric model, initialized by three-kilometer grids with three-kilometer radar assimilation. Radar data is assimilated in the HRRR every 15 minutes over a one-hour period.

⁷ A veering wind’s wind barbs turn clockwise with increasing height.

to an east wind of about 7 knots at about 2,100 feet. Calculations made by the Rawinsonde Observation Program (RAOB) did not identify any turbulence greater than “light” severity in the lower troposphere. RAOB did identify cloudy conditions between about 300 and 1,700 feet.

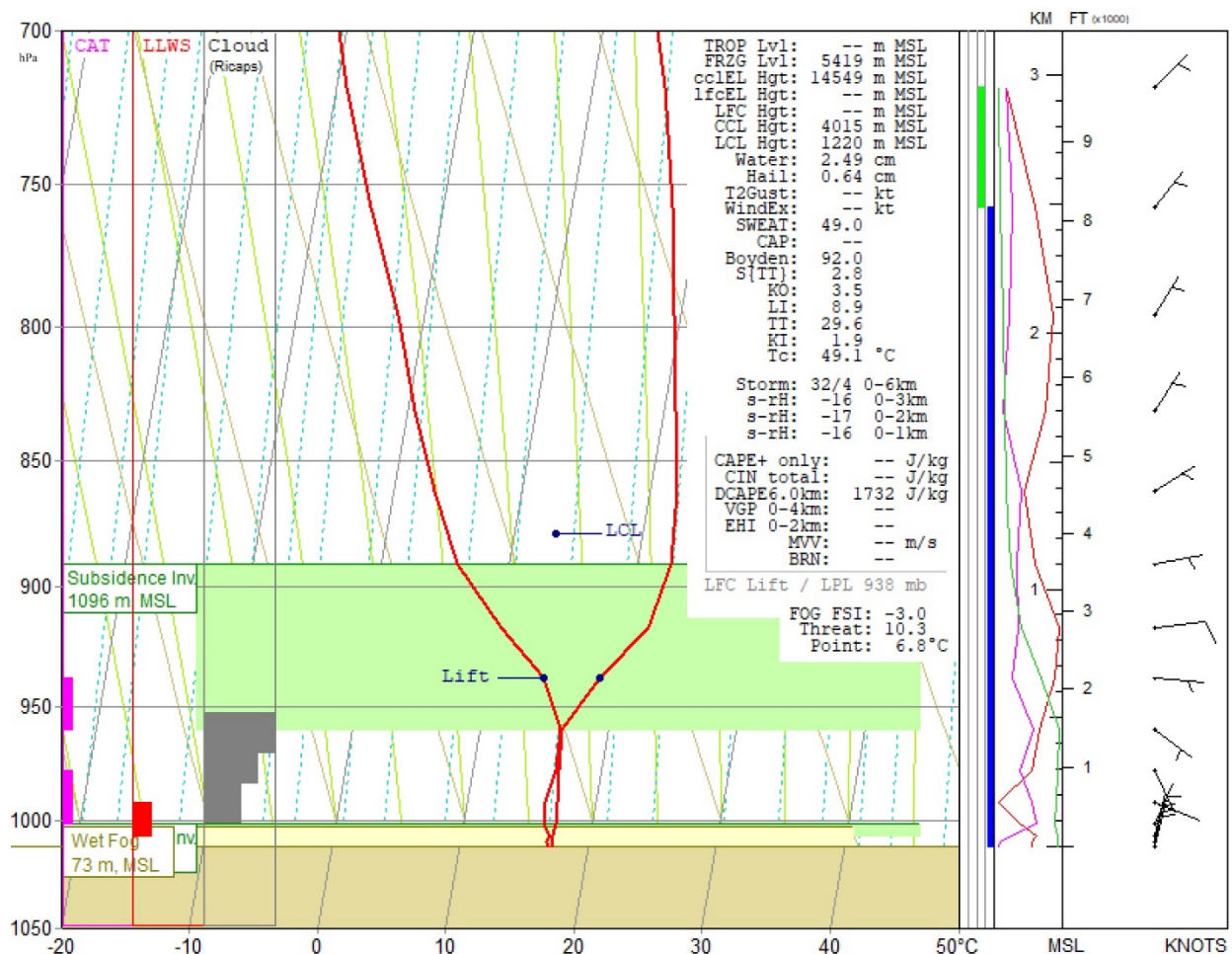


Figure 4 – HRRR model sounding data in SkewT/LogP format for 0700 PDT at the accident site, surface to 700 hPa.

5.0 Pilot Reports

The following publicly longline-disseminated pilot reports⁸ (PIREPs) were made in the Los Angeles area within a few hours of the accident time.

LAX UA /OV HHR/TM 1324/FL014/TP C550/SK OVC014/RM TOPS 021

VNY UA /OV VNY/TM 1350/FL012/TP GLEX/SK TOPS 021, BASES 012 @ 1350Z

*KLAX UA /OV KLAX/TM 1436/FL020/TP CRJ2/RM SKY CONDITIONS LANDING RY25L:
TOPS-020,BASE-014*

*FUL UA /OV SLI010005/TM 1440/FLUNKN/TP BE35/SK OVC014-TOPS023/SKC/TB
NEG/IC NEG/RM RH*

LAX UA /OV SMO/TM 1525/FL020/TP C172/SK OVC 012/RM TOPS 020

6.0 Area Forecast Discussion

Presented here is the “Aviation” section of the Area Forecast Discussion issued by the NWS Weather Forecast Office (WFO) in Los Angeles/Oxnard, California, at 0626 PDT.

FXUS66 KLOX 271326

AFDLOX

Area Forecast Discussion

National Weather Service Los Angeles/Oxnard CA

626 AM PDT Sun Sep 27 2020

.AVIATION...27/1325Z.

At 12Z at KLAX, the marine layer was around 1800 ft deep. The top of the inversion was around 3300 ft with a temp of 23 degrees C.

Low clouds were widespread in all coastal and valley areas south of Pt Conception except for the Santa Clarita Valley. N of Pt Conception, skies were clear, but some cigs will likely sneak into portions of the Central Coast for a few hours this morning. Conds were mostly IFR to LIFR in the valley and low MVFR to locally high IFR across coastal sections. Expect skies to clear by mid to possibly late morning in the valleys, and by noon across the coastal plain. Clouds may linger at the beaches into the afternoon.

Expect clouds to be widespread in all coastal areas tonight, likely returning this evening to many areas, especially south of Pt Conception. Conds should be low MVFR to high IFR, except LIFR to VLIFR on the Central Coast. Developing offshore flow is expected to keep clouds out of the valleys, but confidence in that is low.

KLAX...Moderate confidence in TAF. There is a 30% chance that cigs will linger until as late as 21Z or 22Z. There is a 20-30% chance that cigs will not arrive tonight until after 06Z.

⁸ These do not include pilot reports only broadcast via radio.

KBUR...Low confidence in TAF. There is a 30% chance that cigs will linger until as late as 18Z. There is a 30-40% chance of IFR to LIFR cigs after 09Z tonight.

7.0 AIRMETs

At the time of the accident, an Airman's Meteorological Information (AIRMET) advisory SIERRA for instrument flight rule (IFR) conditions⁹ in mist and fog was active for the accident location.

WAUS46 KKCI 271251 AAA

WA6S

-SFOS WA 271251 AMD

AIRMET SIERRA UPDT 2 FOR IFR AND MTN OBSCN VALID UNTIL 271500

.

AIRMET IFR...CA AND CSTL WTRS...UPDT

*FROM 40WNW RZS TO 50SW HEC TO 40ESE MZB TO 140SW MZB TO 80WSW RZS
TO 40WNW RZS*

CIG BLW 010/VIS BLW 3SM BR/FG. CONDS CONTG BYD 15Z THRU 21Z.

8.0 SIGMETs

There were no convective or non-convective Significant Meteorological Information (SIGMET) advisories active for the accident location at the accident time.

9.0 CWSU Products

There were no Center Weather Advisories or Meteorological Impact Statements issued by the Los Angeles Air Route Traffic Control Center active for the accident location at the accident time.

10.0 Astronomical

According to the National Ocean and Atmospheric Administration, apparent sunrise occurred at the accident location at 0651 PDT.

Submitted by:

Mike Richards
Senior Meteorologist

⁹ IFR conditions - Ceilings less than 1,000 feet agl and/or visibility less than three statute miles.