

WPR24FA037 Meteorological Information

Synoptic Conditions: The southwest regional NWS Surface Analysis Chart for 2200 PST with the approximate accident site marked by a red star is included as figure 1. The chart depicted a cold front extending along the California coast with two high pressure centers of 1017- and 1019-hectopascals (hPa) respectively over southeast and southern California. The station models depicted generally southerly winds of 10 knots or less along the southern California coast with visibilities restricted in light rain and mist, with overcast clouds.

The NWS 500-hPa constant pressure chart for 1600 PST (0000Z 16NOV2023) is included as figure 2 and depicted a cut off upper level low-pressure system off the California Pacific coast, which resulted in funneling southwest flow of moisture into the area. The upper level low and associated trough of low pressure also supported diffluent flow over the area and favorable upper-level divergence for clouds and precipitation over the region.

Surface Weather Observations - The official observations issued surrounding the accident site were documented using Aviation Routine Weather Reports (METAR) and Aviation Select Special Weather Reports (SPECI). Cloud heights are reported above ground level (agl) in the following section, and the magnetic variation was estimated at 11.5° east based on the latest sectional chart for the area.

The closest weather reporting location to the accident site was from **Marine Corp. Air Station Miramar (KNZY), San Diego**, located about 5 miles east of the accident site at an elevation of 26 ft. The airport had an Automated Surface Observation System (ASOS) and reported the following conditions surrounding the period of the accident.

Weather observation for KNZY at 2052 PST, wind from 140° at 6 knots, visibility 3 miles in mist, ceiling broken at 600 ft agl, overcast at 1,100 ft, temperature 16° Celsius (C), dew point temperature 16°C, altimeter setting 30.00 inches of mercury (inHg). Remarks: automated station with a precipitation discriminator, rain ended at 2049 PST, ceiling 400 ft variable 900 ft, sea-level pressure 1015.9-hPa, hourly precipitation 0.02 inches, temperature 15.6°C, dew point 15.6°C, maintenance indicator on (\$).

Special weather observation for KNZY at 2131 PST, wind from 160° at 6 knots, visibility 3 miles in light rain and mist, ceiling broken at 300 ft agl, broken at 800 ft, and broken at 1,900 ft, temperature 16°C, dew point temperature 16°C, altimeter setting 30.01 inHg. Remarks: automated station with a precipitation discriminator, rain began at 2103 PST, ceiling 300 ft variable 800 ft, hourly precipitation since 2052 PST 0.01 inches, temperature 16.1°C, dew point 15.6°C, maintenance indicator on (\$).

The general flight categories and raw observations transmitting surrounding the period were as follows.

VFR METAR KNZY 160052Z 19009KT 10SM FEW020 SCT042 BKN055 17/16 A2994 RMK RAB14E52 SLP139 P0001 T01720156=
MVFR METAR KNZY 160152Z 19014G21KT 4SM -RA BR SCT006 BKN014 OVC033 15/14 A2997 RMK AO2 PK WND 19035/0058 RAB07 SLP147 P0001 T01500144=
IFR SPECI KNZY 160245Z 18013G22KT 4SM -RA BR BKN006 OVC011 16/15 A2999 RMK AO2 RAE22B44 CIG 004V010 P0001 T01560150=
IFR METAR KNZY 160252Z 17013KT 4SM -RA BR OVC007 16/15 A2998 RMK AO2 RAE22B44 CIG 004V010 SLP153 P0001 60003 T01560150 51029=
MVFR METAR KNZY 160352Z 17012KT 4SM -RA BR SCT006 BKN011 OVC023 16/16 A3000 RMK AO2 RAE0253B26 SLP158 P0002 T01560156=
MVFR SPECI KNZY 160359Z 17010KT 3SM -RA BR SCT008 BKN017 OVC023 16/16 A3000 RMK AO2 P0000 T01560156 \$=
IFR METAR KNZY 160452Z 14006KT 3SM BR BKN006 OVC011 16/16 A3000 RMK AO2 RAE49 CIG 004V009 SLP159 P0002 T01560156 \$=
Accident 0520Z
LIFR SPECI KNZY 160531Z 16006KT 2SM -RA BR BKN003 BKN008 BKN019 16/16 A3001 RMK AO2 RAB03 CIG 003V008 P0001 T01610156 \$=
MVFR METAR KNZY 160552Z COR 11005KT 3SM -RA BR SCT003 BKN014 BKN020 16/16 A3000 RMK AO2 RAB03 SLP159 P0001 60008 T01610156 10172 20150 51006 \$=
MVFR METAR KNZY 160652Z 04005KT 5SM -RA BR FEW003 BKN010 BKN020 16/16 A3000 RMK AO2 SLP158 P0000 T01610156 \$=
IFR METAR KNZY 160752Z 03004KT 2SM -RA BR SCT003 BKN010 BKN015 16/16 A3000 RMK AO2 SLP157 P0001 T01610161 401940117 \$=
IFR METAR KNZY 160852Z 04004KT 2SM -RA BR SCT003 BKN008 BKN015 16/16 A2999 RMK AO2 SLP153 P0000 60001 T01610161 58005 \$=

The next closest weather reporting facility to the accident site was the diversion airport of **Montgomery-Gibbs Executive Airport (KMYF), San Diego**, CA, located about 7 miles southeast from the accident site at an elevation of 427 ft. The airport had an Automated Surface Observation System (ASOS) and issued observations locally on 126.9 VHF and disseminated observations longline hourly with specials as required. The observations are augmented by air traffic controllers through a LAWRS program during normal operating hours from 0600 through 2200 local. At the time of the accident the following

conditions were being reported.

Weather observation for KMYF at 2053 PST, wind from 030° at 4 knots, visibility 3 miles in light rain and mist, ceiling broken at 500 ft agl, broken at 1,200 ft, and overcast at 1,700 ft, temperature 16°C, dew point temperature 14°C, altimeter setting 30.01 inHg. Remarks: automated station with a precipitation discriminator, sea-level pressure 1016.0-hPa, hourly precipitation 0.05 inches, temperature 15.6°C, dew point 13.9°C.

The general flight categories and raw observations transmitting surrounding the period were as follows.

VFR METAR KMYF 152253Z 20004KT 10SM FEW036 SCT110 19/13 A2990 RMK AO2 SLP121 T01940128=
VFR METAR KMYF 152353Z 24005KT 10SM SCT036 OVC048 17/12 A2991 RMK AO2 SLP125 60005 T01720122 10211 20150 55004=
MVFR SPECI KMYF 160034Z 25008KT 5SM -RA BKN014 OVC033 16/13 A2996 RMK AO2 LTG DSNT W AND NW RAB05 P0001 T01610128=
MVFR METAR KMYF 160053Z 21006KT 5SM -RA BR BKN013 BKN029 OVC033 16/14 A2996 RMK AO2 LTG DSNT W AND NW RAB05
SLP141 P0003 T01610139=

Departed 0138Z

IFR METAR KMYF 160153Z 17008KT 3SM -RA BR BKN006 BKN011 OVC020 15/13 A2998 RMK AO2 SLP149 P0000 T01500133=
LIFR METAR KMYF 160253Z 21006KT 10SM OVC003 16/14 A3000 RMK AO2 RAE10B43E53 SLP155 P0001 60004 T01560139 51030=
LIFR SPECI KMYF 160333Z 22004KT 1 3/4SM RA BR OVC003 16/14 A3001 RMK AO2 RAB10 P0003 T01560139=
IFR METAR KMYF 160353Z 19004KT 1 3/4SM -RA BR SCT003 BKN009 OVC016 16/14 A3001 RMK AO2 RAB10 SLP158 P0006
T01560139=
IFR SPECI KMYF 160355Z 20003KT 2SM -RA BR SCT003 SCT009 OVC016 16/14 A3001 RMK AO2 P0001 T01560139=
IFR SPECI KMYF 160408Z 19004KT 2 1/2SM -RA BR SCT005 BKN010 OVC014 16/14 A3002 RMK AO2 P0001 T01560139=
IFR SPECI KMYF 160416Z 00000KT 2 1/2SM -RA BR BKN005 BKN012 OVC017 16/14 A3001 RMK AO2 P0001 T01560139=
IFR SPECI KMYF 160450Z 03004KT 3SM -RA BR BKN005 BKN012 OVC017 16/14 A3001 RMK AO2 P0005=
IFR METAR KMYF 160453Z 03004KT 3SM -RA BR BKN005 BKN012 OVC017 16/14 A3001 RMK AO2 SLP160 P0005 T01560139=

Accident 0520Z

IFR METAR KMYF 160553Z AUTO 00000KT 4SM -RA BR OVC008 16/14 A3002 RMK AO2 CIG 006V011 SLP161 P0002 60017 T01560139
10172 20150 51002=
IFR SPECI KMYF 160612Z AUTO 00000KT 2 1/2SM -RA BR OVC010 16/14 A3001 RMK AO2 CIG 005V013 P0000 T01560139=
IFR SPECI KMYF 160619Z AUTO 01003KT 3SM BR OVC008 16/14 A3002 RMK AO2 RAE18 CIG 005V013 P0000 T01560139=
MVFR SPECI KMYF 160627Z AUTO 02005KT 4SM BR OVC012 16/14 A3001 RMK AO2 RAE18 P0000 T01560139=
IFR METAR KMYF 160653Z AUTO 01005KT 2 1/2SM BR OVC010 16/14 A3001 RMK AO2 RAE18 CIG 007V014 SLP161 P0000
T01560139=
IFR SPECI KMYF 160702Z AUTO 01004KT 3SM BR OVC008 16/14 A3001 RMK AO2 CIG 007V012 P0001 T01560139=
IFR SPECI KMYF 160710Z AUTO 02004KT 2SM BR OVC008 16/14 A3001 RMK AO2 CIG 007V012 P0001 T01560139=
IFR SPECI KMYF 160741Z AUTO 04004KT 2 1/2SM BR BKN010 OVC013 16/14 A3001 RMK AO2 P0001 T01560139=
IFR METAR KMYF 160753Z AUTO 04003KT 2SM BR OVC011 16/14 A3001 RMK AO2 SLP159 P0001 T01560139 402170122=
IFR SPECI KMYF 160809Z AUTO 03004KT 2 1/2SM BR BKN009 OVC012 16/14 A3001 RMK AO2 CIG 006V010 T01560139=
IFR SPECI KMYF 160830Z AUTO 03004KT 3SM BR OVC008 16/14 A3000 RMK AO2 CIG 003V010 T01560144=

The planned destination was **French Valley Airport (KF70), Murrieta/Temecula**, California, located about 49 miles north of the accident site at an elevation of 1,350 ft. The airport had an Automated Weather Observation System (AWOS) which broadcasted locally on 119.025 VHF and issued observations longline every 20-minutes. The following conditions were reported surrounding the period. LIFR to IFR conditions due to low ceilings and visibility restricted in drizzle and light rain were reported surrounding the period the accident airplane was attempting to land at KF70.

VFR METAR KF70 152155Z AUTO 36005KT 10SM SCT038 SCT055 SCT065 17/09 A2992 RMK AO2=
VFR METAR KF70 152215Z AUTO 30003KT 10SM SCT100 SCT120 18/09 A2993 RMK AO2=
VFR METAR KF70 152235Z AUTO 32003KT 10SM BKN090 BKN120 17/09 A2993 RMK AO2=
VFR METAR KF70 152255Z AUTO 00000KT 10SM -RA SCT045 SCT060 OVC090 17/09 A2992 RMK AO2=
VFR METAR KF70 152315Z AUTO 30003KT 10SM -RA SCT035 BKN050 OVC090 17/09 A2992 RMK AO2=
VFR METAR KF70 152335Z AUTO 03004KT 10SM BKN044 OVC050 17/09 A2991 RMK AO2=
VFR METAR KF70 152355Z AUTO 00000KT 10SM BKN041 OVC047 17/08 A2992 RMK AO2=
VFR METAR KF70 160015Z AUTO 02004KT 7SM RA SCT038 BKN060 OVC090 15/11 A2988 RMK AO2 P0002=
MVFR METAR KF70 160035Z AUTO 27004KT 4SM -RA BKN030 BKN050 OVC090 14/11 A2994 RMK AO2 P0011=
MVFR METAR KF70 160055Z AUTO 14005KT 5SM +RA SCT028 BKN037 OVC070 14/12 A2995 RMK AO2 P0015=
IFR METAR KF70 160115Z AUTO 18005KT 4SM RA BKN007 BKN022 OVC040 13/13 A2998 RMK AO2 P0009=
LIFR METAR KF70 160135Z AUTO 17007KT 4SM RA OVC004 14/14 A2997 RMK AO2 P0015=

LIFR METAR KF70 160155Z AUTO 19012KT 2 1/2SM +RA OVC004 13/13 A3000 RMK AO2 P0032=
IFR METAR KF70 160215Z AUTO 21006KT 7SM RA BKN006 OVC019 13/13 A3001 RMK AO2 P0004=
IFR METAR KF70 160235Z AUTO 23003KT 5SM +RA OVC006 13/13 A3002 RMK AO2 P0010=
IFR METAR KF70 160255Z AUTO 22004KT 3SM RA OVC006 13/13 A3003 RMK AO2 P0015=
LIFR METAR KF70 160315Z AUTO 00000KT 3SM -RA BKN004 BKN010 OVC017 13/13 A3004 RMK AO2 P0001=
LIFR METAR KF70 160335Z AUTO 00000KT 5SM -RA BKN004 OVC010 12/12 A3005 RMK AO2 P0001=
LIFR METAR KF70 160355Z AUTO 00000KT 3SM DZ BKN004 BKN008 OVC022 12/12 A3005 RMK AO2 P0002=
IFR METAR KF70 160415Z AUTO 02003KT 5SM -DZ SCT003 OVC008 12/12 A3004 RMK AO2=

Approach 0428Z

IFR METAR KF70 160435Z AUTO 03003KT 4SM -RA OVC006 12/12 A3005 RMK AO2 P0001=
IFR METAR KF70 160455Z AUTO 03004KT 10SM BKN006 OVC017 12/12 A3004 RMK AO2 P0001=
MVFR METAR KF70 160515Z AUTO 02003KT 10SM SCT008 SCT013 OVC021 12/12 A3004 RMK AO2=
MVFR METAR KF70 160535Z AUTO 36003KT 10SM OVC023 13/13 A3003 RMK AO2=
MVFR METAR KF70 160555Z AUTO 00000KT 5SM BR SCT004 BKN017 OVC023 13/13 A3004 RMK AO2=
IFR METAR KF70 160615Z AUTO 00000KT 2 1/2SM BR SCT004 SCT007 OVC021 13/13 A3004 RMK AO2=
IFR METAR KF70 160635Z AUTO 00000KT 2 1/2SM -DZ SCT007 SCT015 OVC021 13/13 A3004 RMK AO2=
IFR METAR KF70 160655Z AUTO 00000KT 2 1/2SM -DZ BKN005 BKN015 OVC024 13/13 A3004 RMK AO2=

The aircraft after the initial approach into KF70, the flight diverted towards **McCullan-Palomar Airport (KCRQ), Carlsbad**, located about 28 miles south of KF70, or approximately 18 miles north of the accident site, at an elevation of 331 ft. The airport has an ASOS and reported the following conditions.

VFR SPECI KCRQ 160001Z 25014KT 10SM VCTS -RA OVC035 18/12 A2993 RMK AO2 LTG DSNT N PRESRR P0001 T01780122=
VFR SPECI KCRQ 160020Z 25009KT 10SM +RA SCT024 OVC033 16/13 A2994 RMK AO2 LTG DSNT W-N P0019 T01560128=
IFR SPECI KCRQ 160029Z 26007KT 1SM R24/P6000FT RA BR SCT022 OVC031 16/13 A2995 RMK AO2 LTG DSNT SW-N P0021 T01560133=
IFR SPECI KCRQ 160032Z 26006KT 1SM R24/P6000FT -RA BR FEW006 BKN024 OVC031 16/13 A2995 RMK AO2 LTG DSNT SW-N P0022 T01560133=
IFR SPECI KCRQ 160046Z VRB04KT 1SM R24/P6000FT RA BR SCT004 BKN007 OVC029 16/14 A2996 RMK AO2 LTG DSNT SW-N CIG 005V008 P0025 T01560139=
LIFR METAR KCRQ 160053Z 25007KT 1SM R24/P6000FT TSRA BR BKN004 BKN007 OVC019 16/14 A2996 RMK AO2 LTG DSNT SW-N TSB53 SLP143 P0027 T01560139=
LIFR SPECI KCRQ 160100Z 25004KT 10SM R24/3000VP6000FT +TSRA BKN003 OVC012 16/14 A2995 RMK AO2 P0016 T01560139=
IFR SPECI KCRQ 160116Z 23009KT 10SM RA BKN003 BKN007 OVC012 16/14 A2996 RMK AO2 TSE10 P0029 T01610144=
MVFR SPECI KCRQ 160122Z 24010KT 10SM R24/3500VP6000FT +RA SCT005 BKN013 OVC034 16/14 A2997 RMK AO2 TSE10 P0041 T01610139=
MVFR SPECI KCRQ 160130Z 23008KT 10SM R24/3500VP6000FT +RA FEW005 BKN024 OVC040 16/13 A2997 RMK AO2 TSE10 P0047 T01560128=
VFR SPECI KCRQ 160138Z 22004KT 10SM RA FEW005 FEW032 OVC040 15/13 A2997 RMK AO2 LTG DSNT NE TSE10 P0049 T01500128=
VFR METAR KCRQ 160153Z 14006KT 10SM -RA FEW031 OVC042 15/13 A2997 RMK AO2 TSE10 SLP146 P0049 T01500128=
MVFR SPECI KCRQ 160205Z VRB03KT 10SM RA FEW016 BKN024 OVC046 16/13 A2998 RMK AO2 LTG DSNT NE P0004 T01610133=
MVFR SPECI KCRQ 160232Z 18003KT 10SM RA SCT007 BKN010 OVC014 16/13 A3000 RMK AO2 P0010 T01560133=
IFR SPECI KCRQ 160242Z 14004KT 10SM -RA BKN005 OVC010 16/13 A3000 RMK AO2 CIG 003V007 P0012 T01560133=
IFR METAR KCRQ 160253Z 15003KT 10SM -RA OVC005 15/13 A3000 RMK AO2 CIG 003V008 SLP158 P0014 60090 T01500133 51037=
IFR METAR KCRQ 160353Z 00000KT 10SM -RA OVC005 16/14 A3001 RMK AO2 SLP162 P0012 T01560139=

In vicinity 0452Z

IFR METAR KCRQ 160453Z 07003KT 10SM -RA BKN006 OVC010 16/14 A3001 RMK AO2 CIG 002V008 SLP159 P0005 T01560139=
MVFR SPECI KCRQ 160527Z AUTO 05004KT 10SM BKN010 OVC015 16/14 A3000 RMK AO2 RAE19 P0001 T01560139=
MVFR SPECI KCRQ 160539Z AUTO 05004KT 10SM SCT010 OVC016 16/14 A3001 RMK AO2 RAE19 P0001 T01560139=
MVFR METAR KCRQ 160553Z AUTO 06004KT 10SM OVC016 16/14 A3000 RMK AO2 RAE19 SLP157 P0001 60108 T01560139 10183 20150 50000=

Sounding - A High-Resolution Rapid Refresh (HRRR) numerical model data was obtained from the NOAA Air Resources Laboratory for the closest grid point of the accident site for 2100 PST, the data was then plotted on a standard skew T log P diagram using the RAOB Analyst software. Figure 3 is the HRRR model sounding from the surface to 450-hPa or approximately 22,000 ft. The sounding depicted an elevation of 220 ft over the grid point with a near surface temperature of 15.3°C (59.5°F), a dew point temperature of 14.3°C (57.7°F), and a relative humidity of 94%. The lifted condensation level (LCL) was identified at 421 ft agl, and the convective condensation level (CCL) at 1,942 ft agl, with the precipitable water content of 1.25 inches. The freezing level was identified at 12,743 ft, above the accident airplanes cruising level. The RAOB Analysis supported nimbostratus type clouds with bases near 400 ft agl and tops near 10,000 ft.

The sounding wind profile indicated a surface wind from 110° at 4 knots, which veered clockwise with height with a

low-level wind maximum near 2,000 ft with the wind from 165° at 21 knots. The 0 to 6 kilometer mean wind from 215° at 33 knots. The RAOB analysis program supported several layers between below 12,000 ft of moderate and greater turbulence due to strong vertical wind shears and are noted on the data below.

Height (ft-msl)	Pres (hPa)	T (°C)	Td (°C)	RH (%)	Wind (dir-kt)	CAT (FAA)	LLWS (FAA)
220	1008	15.3	14.3	94	111/ 4		
248	1007	15.4	14.2	93	110/ 4		LIGHT
331	1004	15.2	14.2	94	113/ 5		
470	999	14.9	13.9	94	120/ 6	LGT	LIGHT
750	989	14.6	14.0	96	138/ 9	MDT	LIGHT
1118	976	14.2	14.1	99	156/ 14	MDT	LIGHT
1664	957	13.8	13.8	100	164/ 20		
2279	936	12.9	12.8	99	166/ 21	MDT	
2996	912	11.8	11.8	100	172/ 15	MDT	
3792	886	11.1	11.0	99	195/ 10	MDT	
4673	858	10.2	10.1	99	248/ 7		
5711	826	9.0	9.0	100	260/ 9	LGT	
6854	792	7.7	7.7	100	236/ 10	SVR	
8184	754	6.4	6.3	99	221/ 24	SVR	
9647	714	3.4	3.2	99	214/ 39	LGT	
11338	670	1.8	-7.3	51	211/ 44		
13212	624	-0.6	-20.8	20	212/ 46		

Satellite Imagery - The Geostationary Operational Environmental Satellite number 18 (GOES-18) imagery were obtained from an archive at the Space Science Engineering Center (SSEC) at the University of Wisconsin-Madison in Madison, Wisconsin, and processed using the Man-computer Interactive Data Access System (McIDAS) software. The infrared band 13 at a wavelength of 10.3 microns (µm) provided a resolution of 2 kilometers (km) with radiative cloud top temperatures. Figure 4 is the GOES-18 infrared image at 2121 PST at 4X magnification with a standard MB temperature enhancement curve applied to highlight the higher and often colder clouds associated with deep convection. The image depicted an area of low clouds over the accident site with a radiative cloud top temperature of 282 Kelvin or 8.8C which corresponded to cloud tops near 6,000 ft

Weather Radar Imagery - The NWS San Diego (KNKX) Weather Surveillance Radar 1988 Doppler (WSR-88D) was located about 10 miles east of the accident site with an antenna elevation of 1,052 ft. The KNKX WSR-88D 0.5° base reflectivity image for 2122 PST with the flight track of N1400 overlaid in magenta is included as figure 5. The image depicted the flight track in echoes of 5 to 20 dBZ or very light intensity echoes during the period. associated with very light intensity.

Pilot Reports - The pilot reports or PIREPs recorded within 60 miles of the accident site and below 18,000 ft were as follows.

BFL UA /OV EHF/TM 2201/FL045/TP C172/TB MOD
SAN UA /OV 090007/TM 2212/FL034/TP B737/WV 160030/RM DURD
SAN UA /OV SAN090012/TM 2320/FL034/TP B738/WV 16027/RM DURD
SNA UA /OV 5 MILE FINAL RY20R/TM 2348/FL019/TP E75L/WX EXTREME PRECIPITATOIN /RM RIDE REPORTED AS SMOOTH.
SNA UA /OV RY20R/TM 2349/FL001/TP B737/RM BRAKING ACTION REPORTED GOOD
SAN UA /OV SAN090009/TM 0002/FL040/TP A20N/SK SCT040
SAN UA /OV ZZ00/TM 0015/FL130/TP C56X/TB MODERATE CHOPE 130-150Z /RM 10MILES SOUTH OF KSAN
RIV UA /OV 5 SOUTH HDF/TM 0020/FL110/TP C550/TB MOD TURB
SAN UA /OV SAN090002/TM 0035/FL015/TP A35K/WX 2 1/2SM
SAN UA /OV SAN090010/TM 0046/FL032/TP B737/SK OVC032
SAN UA /OV SAN090001/TM 0108/FL007/TP B763/RM LLWS -10KT SFC-007 RY27
SAN UA /OV SAN293004/TM 0113/FL020/TP A20N/RM SMOOTHE RIDE ON CLIMB OUT
SAN UA /OV SAN090005/TM 0119/FL020/TP B738/TB MOD/RM DURD
SAN UA /OV SAN270001/TM 0226/FL003/TP A20N/SK OVC003
MYF UA /OV KMYF100007/TM 0249/FLUNKN/TP BE20/SK OVC008-TOP028/RM DURD
LGB UA /OV KLGB/TM 0250/FL007/TP B737/RM LLWS GAIN 15KTS ON FINAL RWY 30
BFL UA /OV EHF360012/TM 0310/FL110/TP C210/TB SEV
SAN UA /OV SAN270001/TM 0402/FL003/TP A21N/SK OVC003/RM DURD
SAN UA /OV SAN/TM 0410/FLTD/TP A332/RM LLWS +5KT AT TOUCHDOWN

SAN UA /OV SAN270001/TM 0531/FL004/TP B39M/SK OVC004

SAN UA /OV SAN/TM 0603/FL003/TP A320/SK OVC003

Weather Forecasts

Terminal Aerodrome Forecast (TAF) - TAFs are a concise statement of the expected meteorological conditions significant to aviation for a specific period typically 24-hours and are valid for 5 statute miles from the airport's runway complex (terminal). The closest TAF is often used by various flight planning systems and briefers to provide pilots reference to the local conditions. The NWS does not issue a TAF for KMYF, the next closest civilian TAF was issued for San Diego International Airport (KSAN) located 5 miles south of KMYF. The forecast issued during the period prior to departure and the time of the accident were as follows.

TAF KSAN 152322Z 1600/1706 VRB05KT P6SM -SHRA VCTS FEW040 BKN080CB OVC120

FM160300 17007KT P6SM -SHRA BKN050

FM160800 VRB04KT P6SM VCSH SCT015 BKN030

FM162100 21008KT P6SM BKN035

FM170200 18005KT P6SM BKN030=

AMD 1 KSAN 160120Z 1601/1706 20020G30KT P6SM -SHRA VCTS BKN035 BKN080CB OVC120

FM160300 17007KT P6SM -SHRA BKN050

FM160800 VRB04KT P6SM VCSH SCT015 BKN030

FM162100 21008KT P6SM BKN035

FM170200 18005KT P6SM BKN030=

AMD 2 TAF KSAN 160156Z 1602/1706 20020G30KT P6SM -SHRA VCTS BKN035 BKN080CB OVC120

TEMPO 1602/1603 19010KT 3SM -RA BR BKN015

FM160300 17007KT P6SM -SHRA BKN050

FM160800 VRB04KT P6SM VCSH SCT015 BKN030

FM162100 21008KT P6SM BKN035

FM170200 18005KT P6SM BKN030=

AMD 3 TAF KSAN 160207Z 1602/1706 19010G20KT P6SM -SHRA VCTS BKN035 BKN080CB OVC120

TEMPO 1602/1603 2SM -RA BR BKN015

FM160300 17007KT P6SM -SHRA BKN050

FM160800 VRB04KT P6SM VCSH SCT015 BKN030

FM162100 21008KT P6SM BKN035

FM170200 18005KT P6SM BKN030=

AMD 4 TAF KSAN 160257Z 1603/1706 17007KT P6SM -SHRA BKN050

TEMPO 1603/1605 3SM BR BKN006 OVC010

FM160800 VRB04KT P6SM VCSH SCT015 BKN030

FM162100 21008KT P6SM BKN035

FM170200 18005KT P6SM BKN030=

AMD 5 TAF KSAN 160300Z 1603/1706 19010KT P6SM -SHRA BKN050

TEMPO 1603/1605 3SM BR BKN006 OVC010

FM160800 VRB04KT P6SM VCSH SCT015 BKN030

FM162100 21008KT P6SM BKN035

FM170200 18005KT P6SM BKN030=

AMD 6 TAF KSAN 160401Z 1604/1706 18010KT P6SM -SHRA BKN010 OVC035

TEMPO 1604/1607 2SM BR BKN007

FM160800 VRB04KT P6SM VCSH SCT015 BKN030

FM162100 21008KT P6SM BKN035

FM170200 18005KT P6SM BKN030=

The initial forecast issued by the NWS San Diego Weather Forecast Office (WFO) for the period from 1900 through 2400 PST expected MVFR conditions to prevail with a wind from 170° at 7 knots, visibility better than 6 miles, light rain

showers with a ceiling broken at 5,000 ft agl. Based on that forecast no alternate airport was required under CFR Part 91.169 at the time of preflight. However, the forecast was amended six time by the NWS and by 1900 PST expected VFR with light rain showers with a temporary period of IFR conditions with visibility 2 to 3 miles in mist and ceilings broken between 600-700 ft agl.

Area Forecast Discussion - The NWS Area Forecast Discussions (AFD) are issued by each WFO to describe the short-term weather conditions within their region with an aviation section that includes the general conditions as it relates to the creation of the TAF. These are useful for additional aviation-related issues that cannot be encoded into the TAF and provide some reasoning behind the forecast. These are generated roughly every 6 hours and corresponds to the release of the latest TAFs for that office. The AFD issued by the NWS San Diego WFO at 1354 PST prior to the flight's departure was as follows.

FXUS66 KSGX 152151

AFDSGX

Area Forecast Discussion

National Weather Service San Diego CA

151 PM PST Wed Nov 15 2023

.SYNOPSIS...

Periods of rain are expected through the weekend. Thunderstorms are possible across much of the area through tonight. A break in rain is possible Thursday afternoon through Friday afternoon before additional rounds of rainfall late Friday into Saturday. Snow levels are expected to remain above 7500 ft through the weekend. Warm and dry, with Santa Ana winds Monday and will continue through the middle of the week.

.AVIATION...

152130Z...BKN cigs AOA 15000 feet MSL through the evening. -SHRA with ISO -TSRA continuing to move from southwest to northeast through 04-06Z this evening. Gusty and erratic winds near storms with vis dropping near 5SM. Moderate to high chance vis lowering 4-5 sm in any storm activity at TAF sites west of the mountains. Cigs west of the mountains lowering to 2500-4000 ft MSL. Lower bases will occur after 04Z with cigs near 1500-2000 ft MSL. Areas of higher terrain obscured after 00Z.

ISO -SHRA will occur through the night and into the morning, with most areas seeing little if any reductions in vis. Highest chance for -SHRA will be across San Diego County.

Winds and Temperatures Aloft Forecast - the winds aloft forecast valid for the period is included below.

FBUS35 KWNO 150759

FD5US5

_DATA BASED ON 150600Z

VALID 160600Z FOR USE 0000-1200Z. TEMPS NEG ABV 24000

FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
_SFO	1829	1921+03	1826+01	2023-05	2029-19	2135-32	214747	224850	224250
_FAT	1614	1717+06	2018+01	2220-05	2338-18	2246-31	226445	227649	237150
_SBA	1314	1817+07	2220+02	2335-01	2346-17	2369-28	229542	239949	239852
_ONT	1407	1910+08	2226+04	2238+00	2367-13	2282-25	721041	239649	730553
_SAN	1813	2126+11	2136+05	2238+01	2364-12	2281-24	720839	720047	742353

Graphic Forecast for Aviation (GFA) - unable to retrieve any GFA imagery due to NWS limited archive window for data.

Inflight Weather Advisories - During the period the NWS Aviation Weather Center (AWC) had no SIGMETs or Convective SIGMETs current over the area, while they did have a full series of AIRMETs for IFR and mountain obscuration conditions, occasional moderate turbulence below 16,000 ft. An AIRMET for occasional moderate icing above the freezing level and 25,000 ft, extended above the accident airplanes cruising level. The NWS Los Angeles Center Weather Service Unit (CWSU) did not issue any Center Weather Advisories (CWA) during the period applicable to the area. The advisories current during the period were as follows.

WAUS46 KKCI 160444 AAA

WA6S

_SFOS WA 160444 AMD

AIRMET SIERRA UPDT 1 FOR IFR AND MTN OBSCN VALID UNTIL 160900

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

FROM 100WNW FOT TO 40SSE FOT TO 40NNW FMG TO 30WSW OAL TO 30WNW BZA TO 40ESE MZB TO 220SW MZB TO 150SW RZS TO 160WSW FOT TO 100WNW FOT

CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONTG BYD 09Z THRU 15Z.

AIRMET MTN OBSCN...OR CA ID WY NV UT AZ

FROM 30WNW OED TO 60SSW REO TO 50NNE FMG TO 70SW TWF TO 40E MLD TO 50WSW OCS TO 50SSE INW TO 20E PHX TO 20S MZB TO 70WNW RZS TO 20SW ENI TO FOT TO 30WNW OED

MTNS OBSC BY CLDS/PCPN/BR. CONDS CONTG BYD 09Z THRU 15Z.

WAUS46 KPCI 160245

WA6T

_SFOT WA 160245

AIRMET TANGO FOR TURB AND LLWS VALID UNTIL 160900

AIRMET TURB...CA NV UT AZ AND CSTL WTRS

FROM 30S TWF TO 40SSE MLD TO 40WSW MTU TO 30SSE HVE TO 60ENE INW TO 60SSE INW TO 80ESE BZA TO 20SE BZA TO 30S MZB TO 50SW RZS TO 70W PYE TO 40SSW FOT TO 60SE OED TO 90SSW REO TO 30S TWF MOD TURB BLW 160. CONDS CONTG BYD 09Z THRU 15Z.

LLWS POTENTIAL...CA AND CSTL WTRS

BOUNDED BY 40SSW OED-80ENE RBL-30SE FMG-50WNW OAL-30SW OAL-60SW BTY-30NNE LAX-30ENE RZS-40SSE RZS-90S SNS-60SW SNS-50WSW ENI-40SSW OED LLWS EXP. CONDS ENDG 06-09Z.

OTLK VALID 0900-1500Z...TURB CA ID NV UT CO AZ NM

BOUNDED BY 40WSW PIH-50ENE MLD-30NNE SLC-40WSW MTU-50WSW CHE-50ESE RSK-60SSE INW-PHX-20SE EED-30ENE BTY-20ESE EHF-40N SAC-80W BAM-60S REO-40WSW PIH MOD TURB BLW FL180. CONDS CONTG THRU 15Z.

WAUS46 KPCI 160245

WA6Z

_SFOZ WA 160245

AIRMET ZULU FOR ICE AND FRZLVL VALID UNTIL 160900

AIRMET ICE...CA NV UT CO AZ NM AND CSTL WTRS

FROM 50E MTU TO 60SW ABQ TO 60SE SSO TO 50S TUS TO BZA TO 30SE MZB TO 20NW LAX TO 20SE OAL TO 30S ELY TO 30NNW ELY TO 40S BVL TO 50E MTU MOD ICE BTN FRZLVL AND FL250. FRZLVL 110-140. CONDS CONTG BYD 09Z THRU 15Z.

Astronomical Conditions - The United States Naval Observatory's website provided the following astronomical conditions over the accident site coordinates.

Sun	Time (PST)
Begin civil twilight	0553
Sunrise	0619
Sunset	1648
End civil twilight	1714
Accident	2120

<u>Moon</u>	<u>Time</u>
Moonrise	0852
Moonset	1835
<i>Accident</i>	<i>2120</i>

At the time of the accident official nighttime conditions prevailed with both the sun and moon were more than 15° below the horizon and provided no illumination over the area.

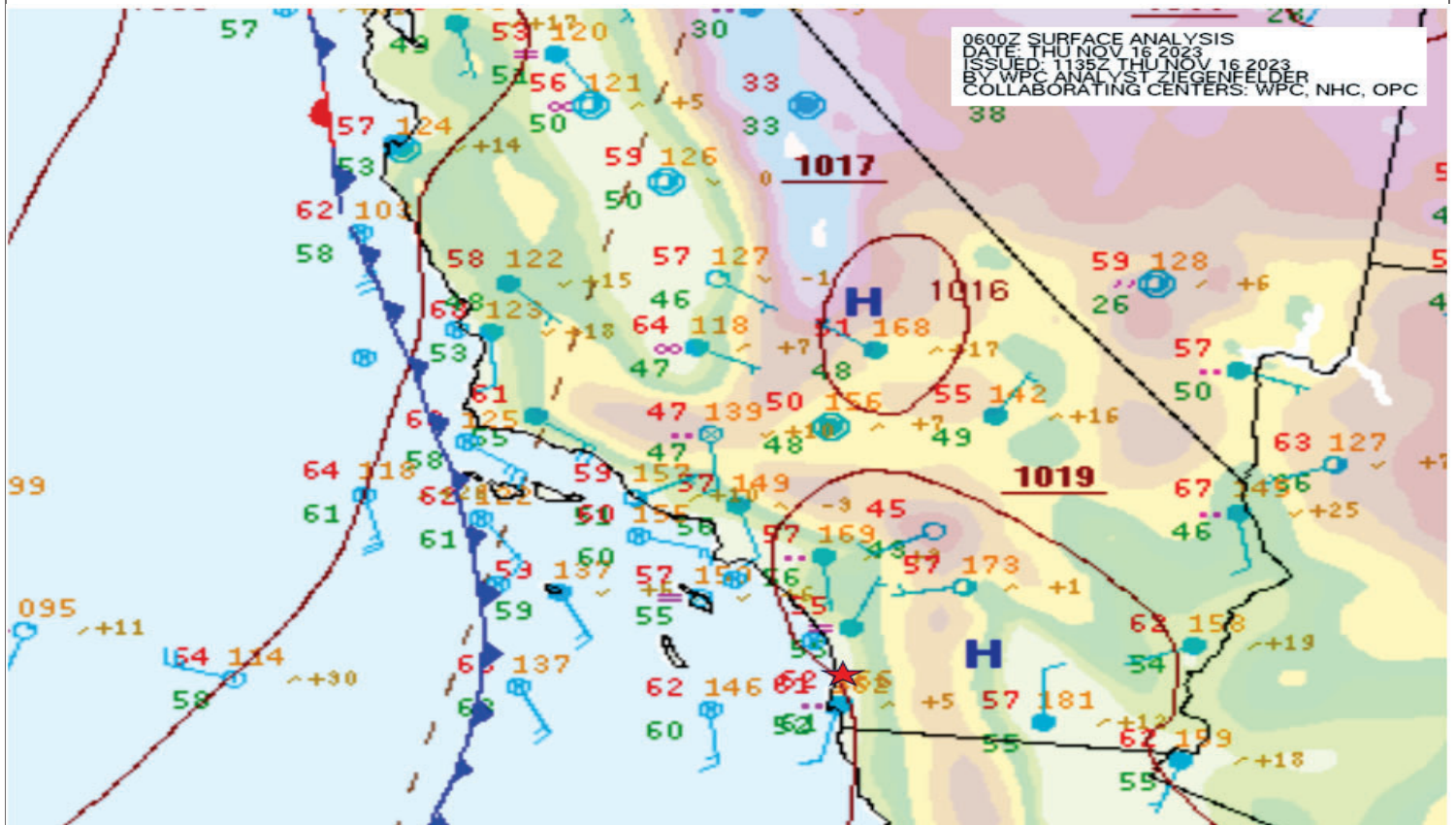
Weather Briefing Information - IFR flight plan was filed. **ForeFlight and Leidos AFSS indicate no formal weather briefing, unknown what weather did he briefed from.**

Data Requested

Preliminary Analysis

Additional Details

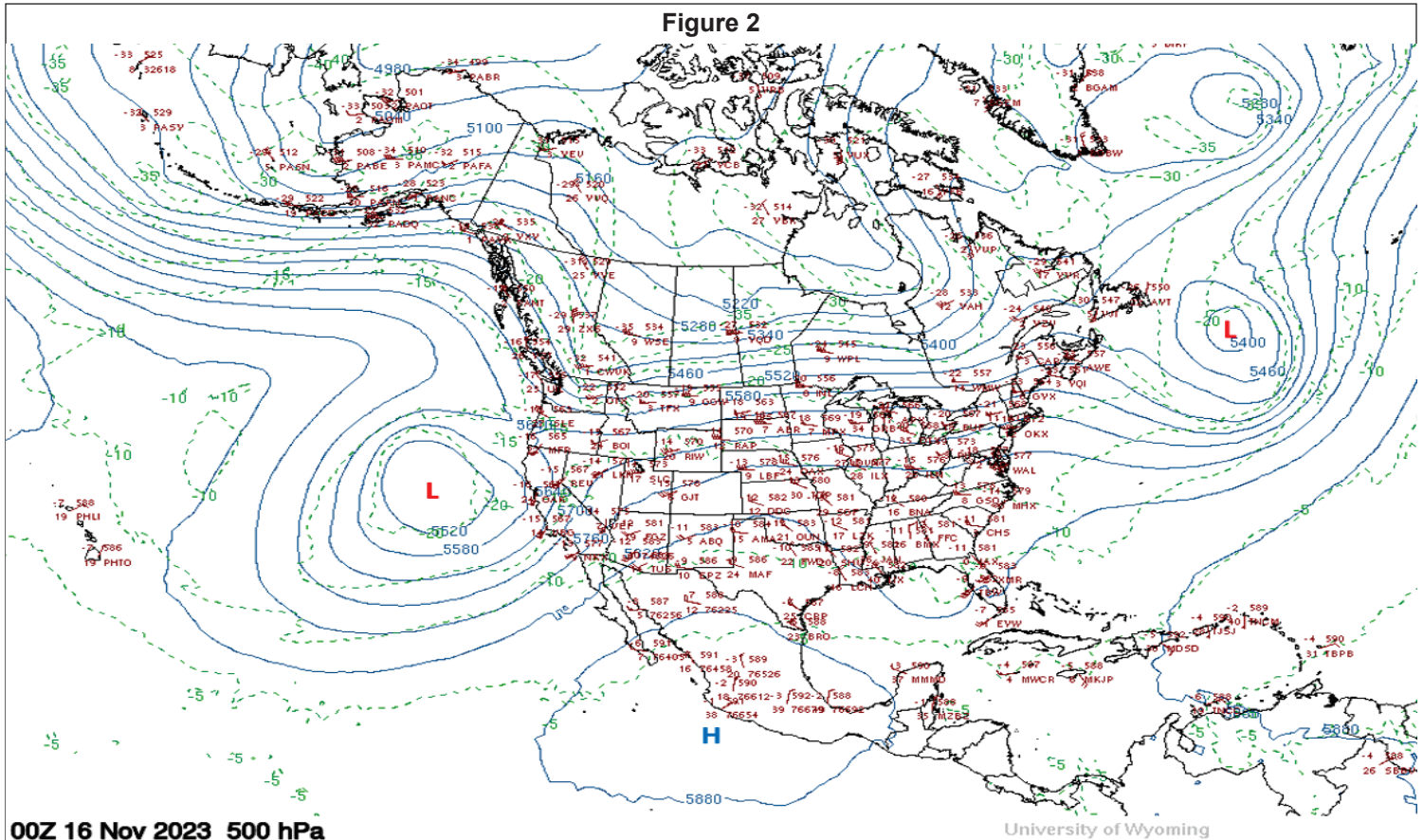
Figure 1



Caption

NWS Surface Analysis for 2200 PST with the approximate accident site marked by the red star.

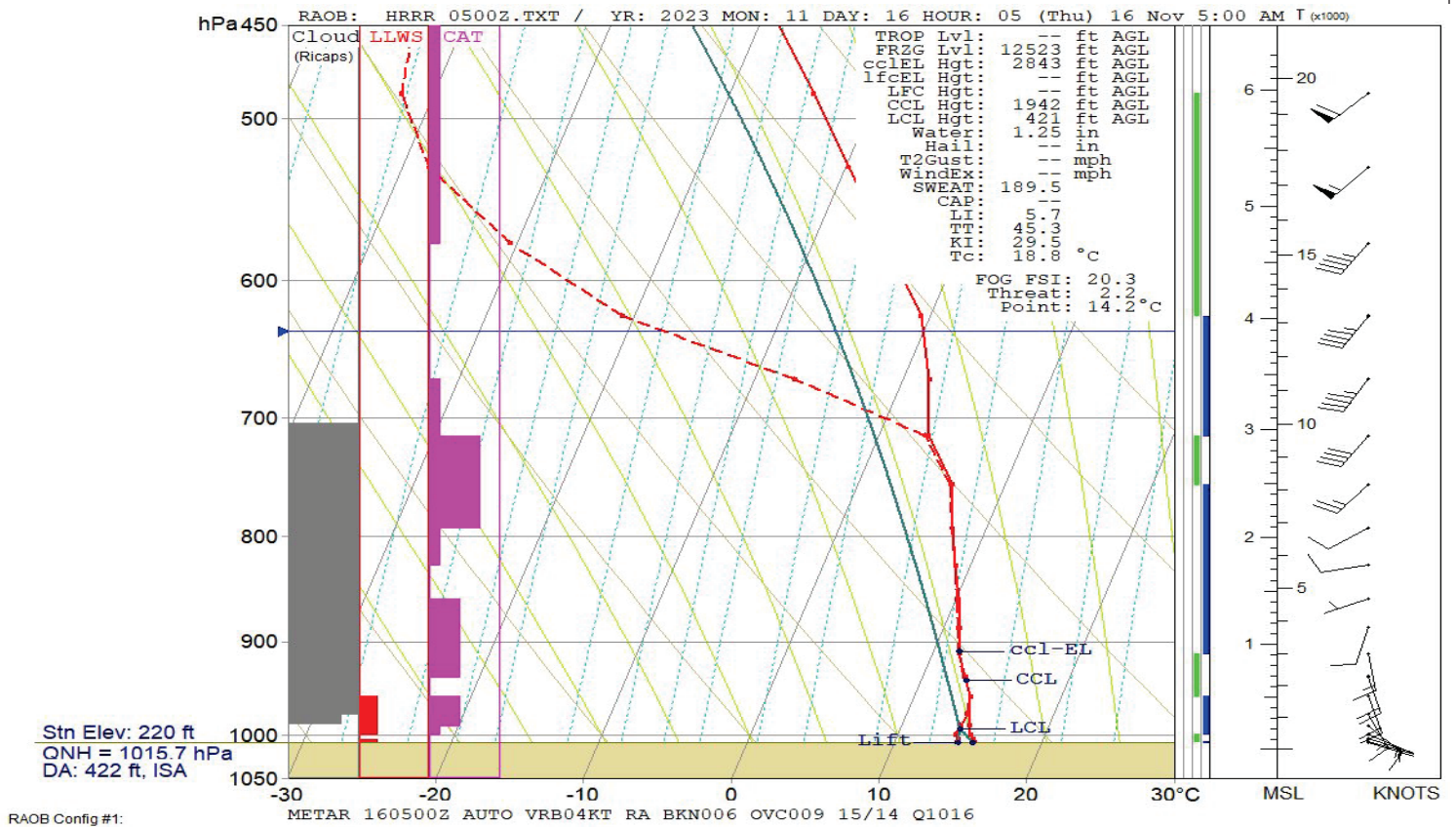
Figure 2



Caption

NWS 500-hPa constant pressure chart for 1600 PST depicting an upper level low and trough off the California Pacific coast providing support for southwesterly flow of moisture over the area.

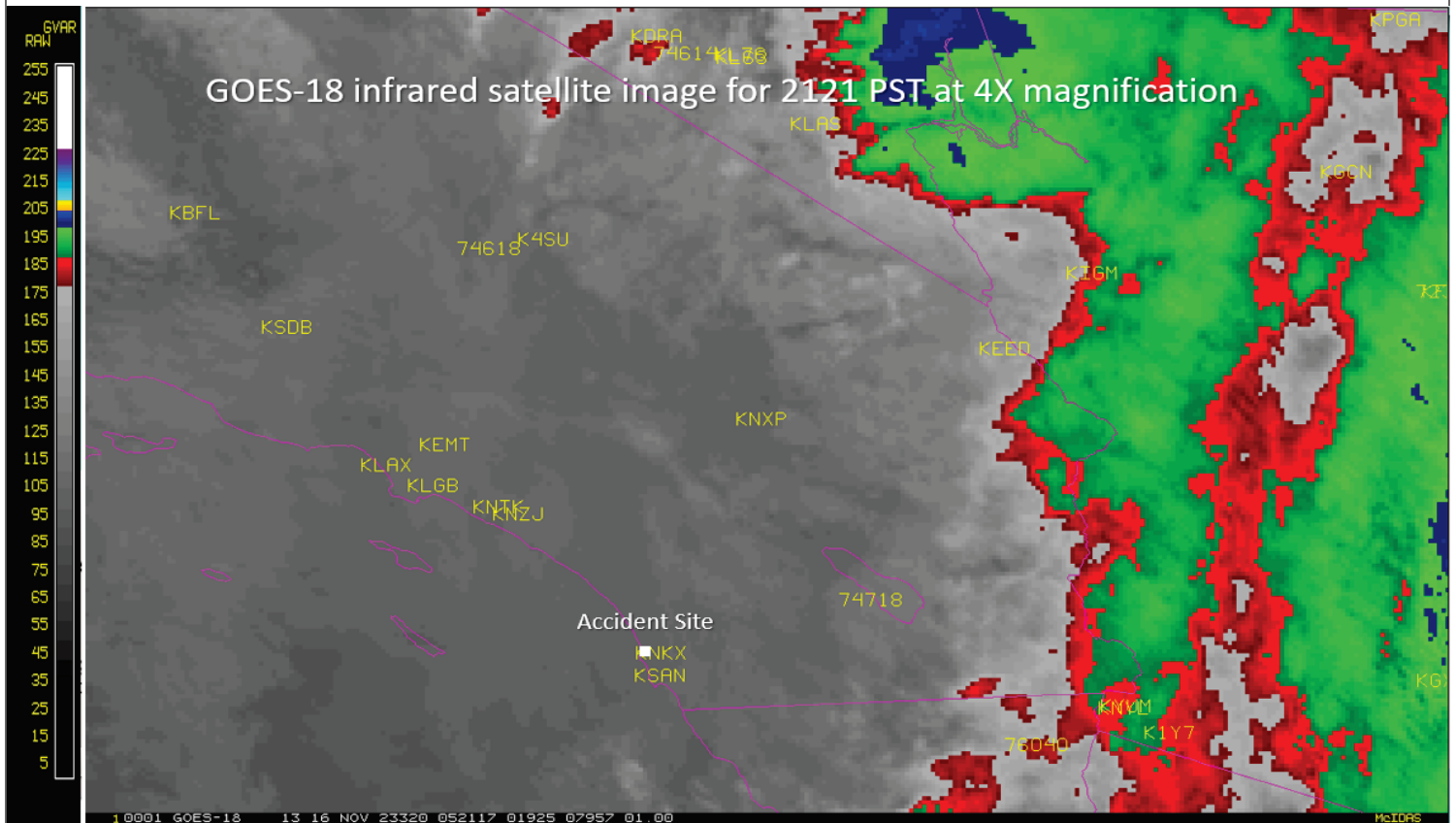
Figure 3



Caption

High-Resolution Rapid Refresh (HRRR) numerical model over the accident site for 2100 PST. Clouds depicted in gray on left axis.

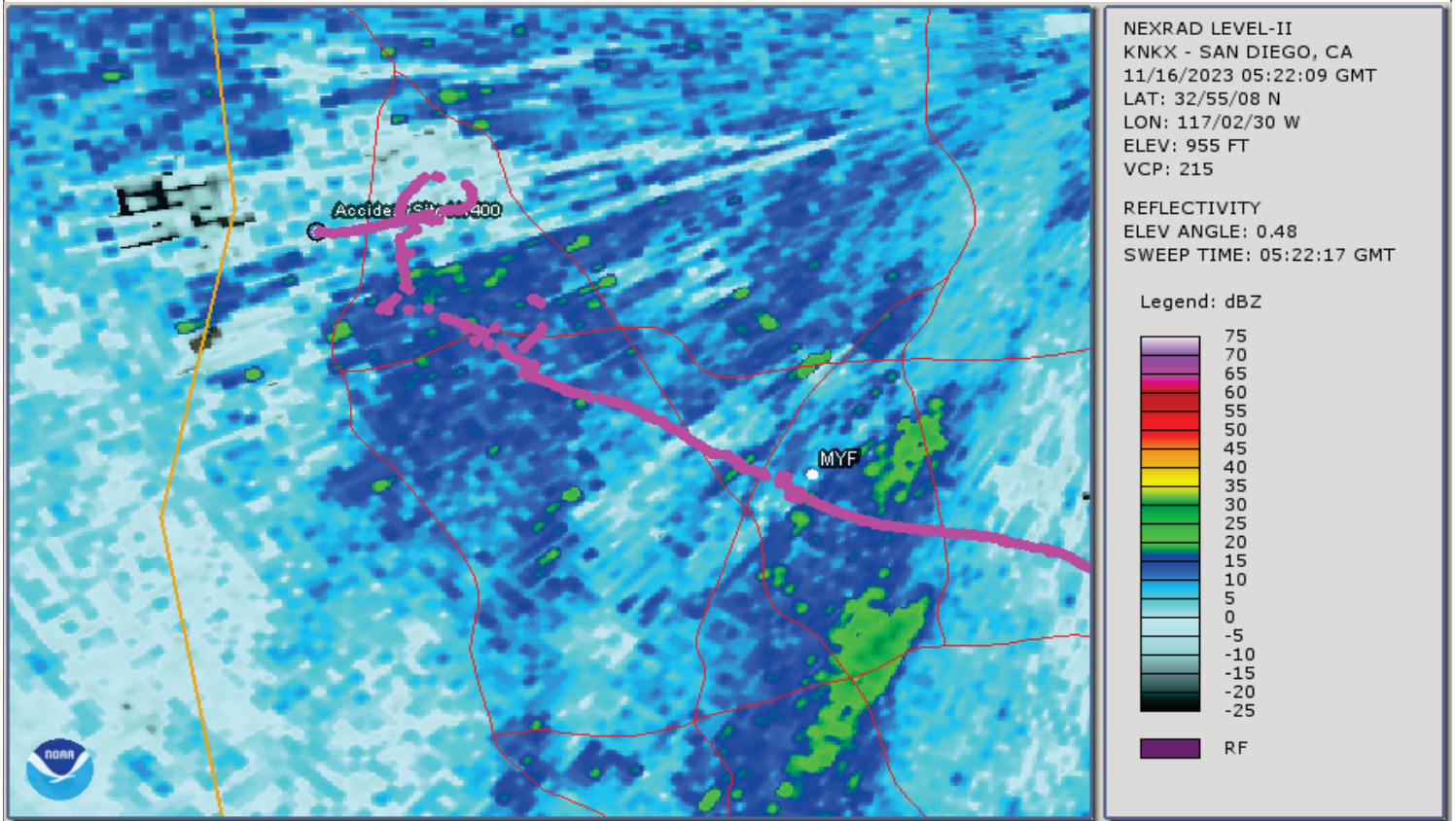
Figure 4



Caption

GOES-18 infrared satellite imagery for 2121 PST depicting low clouds over the area.

Figure 5



Caption

NWS San Diego WSR-88D 0.5 degree base reflectivity image for 2122 PST with the accident airplane's flight track in magenta.

Figure 6

Caption